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MD800 Series
AC Drive (Multidrive System)

Function Guide

Industrial Automation

Intelligent Elevator

New Energy Vehicle

Industrial Robot

Rail Transit

Data code 19011493 A05

Preface

Introduction

The MD800 series is a new generation of standard AC drive (multidrive system) designed for low-power multidrive applications in the traditional original equipment manufacturer (OEM) industry. It is widely applied in industries such as printing and packaging, woodworking machine tools, food and beverage, logistics and storage, textile printing and dyeing, and fans and water pumps.

This document describes the commissioning tools, system commissioning procedures, parameters, fault codes, and product functions and applications.

More Documents

Document Name	Description
MD800 Series AC Drive (Multidrive System) Quick Installation and Commissioning Guide	Describes the installation, wiring, quick commissioning, commissioning parameters, and troubleshooting during commissioning.
MD800 Series AC Drive (Multidrive System) Design and Selection Guide	Describes the system composition, technical specifications, dimensions, detailed specifications and selection of options (installation accessories, cables, and peripheral electrical components), common EMC problems and solutions, and compliant certifications and standards.
MD800 Series AC Drive (Multidrive System) Maintenance Guide	Describes the routine maintenance, component replacement, and troubleshooting of the product.
MD800 Series AC Drive (Multidrive System) Function Guide (this document)	Describes the commissioning tools, system commissioning procedures, parameters, fault codes, and product functions and applications.
MD800 Series AC Drive (Multidrive System) Communication Guide	Describes the communication method, networking, and communication settings of the product.

Revision History

Date	Version	Description
September 2022	A05	Updated the following content: Parameter description of F2-10, list of fault codes, cover, back cover, preface, and safety precautions Added the following content: Section 2.25 "B7 Brake Control Parameters" Section 4.5.9 "Brake Control"
April 2022	A04	Updated the list and description of the drive unit parameters.
August 2021	A03	Modified some panel interface figures and parameter description. Modified the styles and typos.
April 2021	A02	Corrected some minor errors.
April 2021	A01	Modified the cover and back cover.
March 2021	A00	First release.

How to Obtain

This guide is not delivered with the product. You can obtain the PDF version by the following method:

Log in to Inovance's website (*http://en.inovance.cn/*), choose Support > Download, search by keyword, and then download the PDF file.

Table of Contents

List of Power Supply Unit Parameters

Table –1 List of function parameters of the power supply unit

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
F0-01	0xF001	Product SN	800 to 800	800	-	Unchangeable	" F0-01" on page 42
F0-02	0xF002	Software version	0.00 to 655.35	0.00	-	Unchangeable	" F0-02" on page 42
F0-03	0xF003	Temporary software version	0.00 to 655.35	0.00	-	Unchangeable	" F0-03" on page 42
F0-04	0xF004	Non-standard SN	0 to 9999	0	-	Unchangeable	" F0-04" on page 42
F1-00	0xF100	Bus undervoltage threshold	150 V to 440 V	330	V	In real time	" F1-00" on page 42
F1-01	0xF101	Bus overvoltage threshold	300 V to 820 V	820	V	In real time	" F1-01" on page 43
F1-02	0xF102	Braking unit actuation voltage	300 V to 820 V	750	V	In real time	" F1-02" on page 43
F1-03	0xF103	Braking transistor open-circuit fault	0: Disabled 1: Enabled	1	-	In real time	" F1-03" on page 43
F1-04	0xF104	Braking transistor short circuit fault	0: Disabled 1: Enabled	1	-	In real time	" F1-04" on page 44
F1-05	0xF105	Input phase loss fault	0: Disabled 1: Enabled 2: Alarm	2	-	In real time	" F1-05" on page 44
F1-06	0xF106	Input overvoltage fault	0: Disabled 1: Enabled 2: Alarm	2	-	In real time	" F1-06" on page 44
F1-07	0xF107	Fan fault	0: Disabled 1: Enabled 2: Alarm	1	-	In real time	" F1-07" on page 44
F1-09	0xF109	Fan control	0: Uni-directional running 1: Forward and reverse running	0	-	In real time	" F1-09" on page 45
F4-00	0xF400	DI1 hardware source	0: Not selected 1: Power supply unit - DI1 2: Power supply unit - DI2 3: Power supply unit - DI3 4: Power supply unit - DI4 5: Power supply unit - DIO1	0	-	At stop	" F4-00" on page 45

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
			6: Power supply unit - DIO2 7: Power supply unit - DIO3 8: Power supply unit - DIO4 101: Extension card 1 - DI1 102: Extension card 1 - DI2 103: Extension card 1 - DI3 104: Extension card 1 - DI4 105: Extension card 1 - DI5 106: Extension card 1 - DI6 107: Extension card 1 - DI7 108: Extension card 1 - DI8 201: Extension card 2 - DI1 202: Extension card 2 - DI2 203: Extension card 2 - DI3 204: Extension card 2 - DI4 205: Extension card 2 - DI5 206: Extension card 2 - DI6 207: Extension card 2 - DI7 208: Extension card 2 - DI8				
F4-01	0xF401	DI1 function	0: No function 1: Running enable 2: Incoming circuit breaker feedback 3: Auxiliary circuit breaker feedback 4: Residual current device feedback 5: Fault reset 6: Operation prohibition for drive unit	0	-	At stop	" F4-01" on page 46

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
			7: Coast-to-stop for drive unit 8: Stop-according-to-preset-mode for drive unit				
F4-02	0xF402	DI2 hardware source	Same as F4-00	0	-	At stop	"F4-02" on page 47
F4-03	0xF403	DI2 function	Same as F4-01	0	-	At stop	"F4-03" on page 47
F4-04	0xF404	DI3 hardware source	Same as F4-00	0	-	At stop	"F4-04" on page 48
F4-05	0xF405	DI3 function	Same as F4-01	0	-	In real time	"F4-05" on page 48
F4-06	0xF406	DI4 hardware source	Same as F4-00	0	-	At stop	"F4-06" on page 49
F4-07	0xF407	DI4 function	Same as F4-01	0	-	At stop	"F4-07" on page 49
F4-08	0xF408	DI5 hardware source	Same as F4-00	0	-	At stop	"F4-08" on page 50
F4-09	0xF409	DI5 function	Same as F4-01	0	-	At stop	"F4-09" on page 50
F4-10	0xF40A	DI6 hardware source	Same as F4-00	0	-	At stop	"F4-10" on page 51
F4-11	0xF40B	DI6 function	Same as F4-01	0	-	At stop	"F4-11" on page 52
F4-12	0xF40C	DI7 hardware source	Same as F4-00	0	-	At stop	"F4-12" on page 52
F4-13	0xF40D	DI7 function	Same as F4-01	0	-	At stop	"F4-13" on page 53
F4-14	0xF40E	DI8 hardware source	Same as F4-00	0	-	At stop	"F4-14" on page 53
F4-15	0xF40F	DI8 function	Same as F4-01	0	-	At stop	"F4-15" on page 54
F4-16	0xF410	DI1 active delay	0.00s to 600.00s	0.00	s	In real time	"F4-16" on page 54
F4-17	0xF411	DI2 active delay	0.00s to 600.00s	0.00	s	In real time	"F4-17" on page 54
F4-18	0xF412	DI3 active delay	0.00s to 600.00s	0.00	s	In real time	"F4-18" on page 54
F4-19	0xF413	DI4 active delay	0.00s to 600.00s	0.00	s	In real time	"F4-19" on page 55
F4-20	0xF414	DI5 active delay	0.00s to 600.00s	0.00	s	In real time	"F4-20" on page 55

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
F4-21	0xF415	DI6 active delay	0.00s to 600.00s	0.00	s	In real time	"F4-21" on page 55
F4-22	0xF416	DI7 active delay	0.00s to 600.00s	0.00	s	In real time	"F4-22" on page 55
F4-23	0xF417	DI8 active delay	0.00s to 600.00s	0.00	s	In real time	"F4-23" on page 55
F4-24	0xF418	DI1 inactive delay	0.00s to 600.00s	0.00	s	In real time	"F4-24" on page 56
F4-25	0xF419	DI2 inactive delay	0.00s to 600.00s	0.00	s	In real time	"F4-25" on page 56
F4-26	0xF41A	DI3 inactive delay	0.00s to 600.00s	0.00	s	In real time	"F4-26" on page 56
F4-27	0xF41B	DI4 inactive delay	0.00s to 600.00s	0.00	s	In real time	"F4-27" on page 56
F4-28	0xF41C	DI5 inactive delay	0.00s to 600.00s	0.00	s	In real time	"F4-28" on page 56
F4-29	0xF41D	DI6 inactive delay	0.00s to 600.00s	0.00	s	In real time	"F4-29" on page 57
F4-30	0xF41E	DI7 inactive delay	0.00s to 600.00s	0.00	s	In real time	"F4-30" on page 57
F4-31	0xF41F	DI8 inactive delay	0.00s to 600.00s	0.00	s	In real time	"F4-31" on page 57
F4-32	0xF420	DI (DI1 to DI5) active mode	Ones: 0: Active low 1: Active high Tens: 0: Active low 1: Active high Hundreds: 0: Active low 1: Active high Thousands: 0: Active low 1: Active high Ten thousands: 0: Active low 1: Active high	0	-	In real time	"F4-32" on page 57
F4-33	0xF421	DI (DI6 to DI8) active mode	Same as F4-32	0	-	In real time	"F4-33" on page 58
F5-00	0xF500	DO1/RO1 hardware source	0: Not selected 1: Power supply unit - DIO1	0	-	At stop	"F5-00" on page 59

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
			2: Power supply unit - DIO2 3: Power supply unit - DIO3 4: Power supply unit - DIO4 5: Power supply unit - RO1 101: Extension card 1 - DO1/RO1 102: Extension card 1 - DO2/RO2 103: Extension card 1 - DO3/RO3 104: Extension card 1 - DO4/RO4 105: Extension card 1 - DO5/RO5 106: Extension card 1 - DO6/RO6 107: Extension card 1 - DO7/RO7 108: Extension card 1 - DO8/RO8 201: Extension card 2 - DO1/RO1 202: Extension card 2 - DO2/RO2 203: Extension card 2 - DO3/RO3 204: Extension card 2 - DO4/RO4 205: Extension card 2 - DO5/RO5 206: Extension card 2 - DO6/RO6 207: Extension card 2 - DO7/RO7 208: Extension card 2 - DO8/RO8				
F5-01	0xF501	DO1/RO1 function	0: No function 1: Ready to run 2: Fault 3: Alarm 4: Circuit breaker action 5: Bus undervoltage 6: Bus overvoltage 7: Bus voltage normal 8: Three-phase input abnormal	0	-	At stop	" F5-01" on page 59

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
			9: Three-phase input normal 10: IGBT overtemperature 11: IGBT overtemperature pre-warning 12: Communication control				
F5-02	0xF502	DO2/RO2 hardware source	Same as F5-00	0	-	At stop	"F5-02" on page 60
F5-03	0xF503	DO2/RO2 function	Same as F5-01	0	-	At stop	"F5-03" on page 60
F5-04	0xF504	DO3/RO3 hardware source	Same as F5-00	0	-	At stop	"F5-04" on page 61
F5-05	0xF505	DO3/RO3 function	Same as F5-01	0	-	At stop	"F5-05" on page 61
F5-06	0xF506	DO4/RO4 hardware source	Same as F5-00	0	-	At stop	"F5-06" on page 62
F5-07	0xF507	DO4/RO4 function	Same as F5-01	0	-	At stop	"F5-07" on page 63
F5-08	0xF508	DO5/RO5 hardware source	Same as F5-00	0	-	At stop	"F5-08" on page 63
F5-09	0xF509	DO5/RO5 function	Same as F5-01	0	-	At stop	"F5-09" on page 64
F5-10	0xF50A	DO1/RO1 active delay	0.00s to 600.00s	0.00	s	In real time	"F5-10" on page 64
F5-11	0xF50B	DO2/RO2 active delay	0.00s to 600.00s	0.00	s	In real time	"F5-11" on page 64
F5-12	0xF50C	DO3/RO3 active delay	0.00s to 600.00s	0.00	s	In real time	"F5-12" on page 65
F5-13	0xF50D	DO4/RO4 active delay	0.00s to 600.00s	0.00	s	In real time	"F5-13" on page 65
F5-14	0xF50E	DO5/RO5 active delay	0.00s to 600.00s	0.00	s	In real time	"F5-14" on page 65
F5-15	0xF50F	DO1/RO1 inactive delay	0.00s to 600.00s	0.00	s	In real time	"F5-15" on page 65
F5-16	0xF510	DO2/RO2 inactive delay	0.00s to 600.00s	0.00	s	In real time	"F5-16" on page 65
F5-17	0xF511	DO3/RO3 inactive delay	0.00s to 600.00s	0.00	s	In real time	"F5-17" on page 66
F5-18	0xF512	DO4/RO4 inactive delay	0.00s to 600.00s	0.00	s	In real time	"F5-18" on page 66
F5-19	0xF513	DO5/RO5 inactive delay	0.00s to 600.00s	0.00	s	In real time	"F5-19" on page 66

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
F5-20	0xF514	DO/RO active mode	Ones: 0: Active high 1: Active low Tens: 0: Active high 1: Active low Hundreds: 0: Active high 1: Active low Thousands: 0: Active high 1: Active low Ten thousands: 0: Active high 1: Active low	0	-	In real time	" F5-20" on page 66
F5-21	0xF515	Circuit breaker action threshold	0 V to 1000 V	570	V	In real time	" F5-21" on page 67
FA-00	0xFA00	Fault code of the 5th fault (latest)	0 to 0	0	-	Unchangeable	" FA-00" on page 67
FA-01	0xFA01	Fault subcode of the 5th fault	0 to 0	0	-	Unchangeable	" FA-01" on page 67
FA-02	0xFA02	Bus voltage upon the 5th fault	0.0 V to 0.0 V	0.0	V	Unchangeable	" FA-02" on page 67
FA-03	0xFA03	Heatsink temperature upon the 5th fault	0°C to 0°C	0	°C	Unchangeable	" FA-03" on page 68
FA-04	0xFA04	Ambient temperature upon the 5th fault	0°C to 0°C	0	°C	Unchangeable	" FA-04" on page 68
FA-06	0xFA06	Grid voltage Usr upon the 5th fault	0 V to 0 V	0	V	Unchangeable	" FA-06" on page 68
FA-07	0xFA07	Grid voltage Ust upon the 5th fault	0 V to 0 V	0	V	Unchangeable	" FA-07" on page 68
FA-08	0xFA08	Grid voltage Utr upon the 5th fault	0 V to 0 V	0	V	Unchangeable	" FA-08" on page 68
FA-09	0xFA09	Three-phase imbalance factor upon the 5th fault	0.00% to 0.00%	0.00	%	Unchangeable	" FA-09" on page 69
FA-10	0xFA0A	DI state upon the 5th fault	0 to 0	0	-	Unchangeable	" FA-10" on page 69
FA-11	0xFA0B	DO/RO state upon the 5th fault	0 to 0	0	-	Unchangeable	" FA-11" on page 69
FA-12	0xFA0C	Stop command sent from the power supply unit upon the 5th fault	1: Ready to run 2: Coast to stop 3: Stop according to preset mode	0	-	Unchangeable	" FA-12" on page 69

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
FA-13	0xFA0D	Total power-on duration (hour) upon the 5th fault	0 h to 0 h	0	h	Unchangeable	"FA-13" on page 69
FA-14	0xFA0E	Total power-on duration (minute) upon the 5th fault	0 min to 0 min	0	min	Unchangeable	"FA-14" on page 70
FA-15	0xFA0F	Total power-on duration (second) upon the 5th fault	0s to 0s	0	s	Unchangeable	"FA-15" on page 70
FA-20	0xFA14	Fault code of the 4th fault (2nd latest)	0 to 0	0	-	Unchangeable	"FA-20" on page 70
FA-21	0xFA15	Fault subcode of the 4th fault	0 to 0	0	-	Unchangeable	"FA-21" on page 70
FA-22	0xFA16	Bus voltage upon the 4th fault	0.0 V to 0.0 V	0.0	V	Unchangeable	"FA-22" on page 70
FA-23	0xFA17	Heatsink temperature upon the 4th fault	0°C to 0°C	0	°C	Unchangeable	"FA-23" on page 71
FA-24	0xFA18	Ambient temperature upon the 4th fault	0°C to 0°C	0	°C	Unchangeable	"FA-24" on page 71
FA-26	0xFA1A	Grid voltage Usr upon the 4th fault	0 V to 0 V	0	V	Unchangeable	"FA-26" on page 71
FA-27	0xFA1B	Grid voltage Ust upon the 4th fault	0 V to 0 V	0	V	Unchangeable	"FA-27" on page 71
FA-28	0xFA1C	Grid voltage Utr upon the 4th fault	0 V to 0 V	0	V	Unchangeable	"FA-28" on page 71
FA-29	0xFA1D	Three-phase imbalance factor upon the 4th fault	0.00% to 0.00%	0.00	%	Unchangeable	"FA-29" on page 72
FA-30	0xFA1E	DI state upon the 4th fault	0 to 0	0	-	Unchangeable	"FA-30" on page 72
FA-31	0xFA1F	DO/RO state upon the 4th fault	0 to 0	0	-	Unchangeable	"FA-31" on page 72
FA-32	0xFA20	Stop command sent from the power supply unit upon the 4th fault	1: Ready to run 2: Coast to stop 3: Stop according to preset mode	0	-	Unchangeable	"FA-32" on page 72
FA-33	0xFA21	Total power-on duration (hour) upon the 4th fault	0 h to 0 h	0	h	Unchangeable	"FA-33" on page 72
FA-34	0xFA22	Total power-on duration (minute) upon the 4th fault	0 min to 0 min	0	min	Unchangeable	"FA-34" on page 73

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
FA-35	0xFA23	Total power-on duration (second) upon the 4th fault	0s to 0s	0	s	Unchangeable	"FA-35" on page 73
FA-40	0xFA28	Fault code of the 3rd fault (3rd latest)	0 to 0	0	-	Unchangeable	"FA-40" on page 73
FA-41	0xFA29	Fault subcode of the 3rd fault	0 to 0	0	-	Unchangeable	"FA-41" on page 73
FA-42	0xFA2A	Bus voltage upon the 3rd fault	0.0 V to 0.0 V	0.0	V	Unchangeable	"FA-42" on page 73
FA-43	0xFA2B	Heatsink temperature upon the 3rd fault	0°C to 0°C	0	°C	Unchangeable	"FA-43" on page 74
FA-44	0xFA2C	Ambient temperature upon the 3rd fault	0°C to 0°C	0	°C	Unchangeable	"FA-44" on page 74
FA-46	0xFA2E	Grid voltage Usr upon the 3rd fault	0 V to 0 V	0	V	Unchangeable	"FA-46" on page 74
FA-47	0xFA2F	Grid voltage Ust upon the 3rd fault	0 V to 0 V	0	V	Unchangeable	"FA-47" on page 74
FA-48	0xFA30	Grid voltage Utr upon the 3rd fault	0 V to 0 V	0	V	Unchangeable	"FA-48" on page 74
FA-49	0xFA31	Three-phase imbalance factor upon the 3rd fault	0.00% to 0.00%	0.00	%	Unchangeable	"FA-49" on page 75
FA-50	0xFA32	DI state upon the 3rd fault	0 to 0	0	-	Unchangeable	"FA-50" on page 75
FA-51	0xFA33	DO/RO state upon the 3rd fault	0 to 0	0	-	Unchangeable	"FA-51" on page 75
FA-52	0xFA34	Stop command sent from the power supply unit upon the 3rd fault	1: Ready to run 2: Coast to stop 3: Stop according to preset mode	0	-	Unchangeable	"FA-52" on page 75
FA-53	0xFA35	Total power-on duration (hour) upon the 3rd fault	0 h to 0 h	0	h	Unchangeable	"FA-53" on page 75
FA-54	0xFA36	Total power-on duration (minute) upon the 3rd fault	0 min to 0 min	0	min	Unchangeable	"FA-54" on page 76
FA-55	0xFA37	Total power-on duration (second) upon the 3rd fault	0s to 0s	0	s	Unchangeable	"FA-55" on page 76
FA-60	0xFA3C	Fault code of the 2nd fault (4th latest)	0s to 0s	0	s	Unchangeable	"FA-60" on page 76
FA-61	0xFA3D	Fault subcode of the 2nd fault	0 to 0	0	-	Unchangeable	"FA-61" on page 76

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
FA-62	0xFA3E	Bus voltage upon the 2nd fault	0.0 V to 0.0 V	0.0	V	Unchangeable	"FA-62" on page 76
FA-63	0xFA3F	Heatsink temperature upon the 2nd fault	0°C to 0°C	0	°C	Unchangeable	"FA-63" on page 77
FA-64	0xFA40	Ambient temperature upon the 2nd fault	0°C to 0°C	0	°C	Unchangeable	"FA-64" on page 77
FA-66	0xFA42	Grid voltage Usr upon the 2nd fault	0 V to 0 V	0	V	Unchangeable	"FA-66" on page 77
FA-67	0xFA43	Grid voltage Ust upon the 2nd fault	0 V to 0 V	0	V	Unchangeable	"FA-67" on page 77
FA-68	0xFA44	Grid voltage Utr upon the 2nd fault	0 V to 0 V	0	V	Unchangeable	"FA-68" on page 77
FA-69	0xFA45	Three-phase imbalance factor upon the 2nd fault	0.00% to 0.00%	0.00	%	Unchangeable	"FA-69" on page 78
FA-70	0xFA46	DI state upon the 2nd fault	0 to 0	0	-	Unchangeable	"FA-70" on page 78
FA-71	0xFA47	DO/RO state upon the 2nd fault	0 to 0	0	-	Unchangeable	"FA-71" on page 78
FA-72	0xFA48	Stop command sent from the power supply unit upon the 2nd fault	1: Ready to run 2: Coast to stop 3: Stop according to preset mode	0	-	Unchangeable	"FA-72" on page 78
FA-73	0xFA49	Total power-on duration (hour) upon the 2nd fault	0 h to 0 h	0	h	Unchangeable	"FA-73" on page 78
FA-74	0xFA4A	Total power-on duration (minute) upon the 2nd fault	0 min to 0 min	0	min	Unchangeable	"FA-74" on page 79
FA-75	0xFA4B	Total power-on duration (second) upon the 2nd fault	0s to 0s	0	s	Unchangeable	"FA-75" on page 79
FA-80	0xFA50	Fault code of the 1st fault (5th latest)	0 to 0	0	-	Unchangeable	"FA-80" on page 79
FA-81	0xFA51	Fault subcode of the 1st fault	0 to 0	0	-	Unchangeable	"FA-81" on page 79
FA-82	0xFA52	Bus voltage upon the 1st fault	0.0 V to 0.0 V	0.0	V	Unchangeable	"FA-82" on page 79
FA-83	0xFA53	Heatsink temperature upon the 1st fault	0°C to 0°C	0	°C	Unchangeable	"FA-83" on page 80

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
FA-84	0xFA54	Ambient temperature upon the 1st fault	0°C to 0°C	0	°C	Unchangeable	" FA-84" on page 80
FA-86	0xFA56	Grid voltage Usr upon the 1st fault	0 V to 0 V	0	V	Unchangeable	" FA-86" on page 80
FA-87	0xFA57	Grid voltage Ust upon the 1st fault	0 V to 0 V	0	V	Unchangeable	" FA-87" on page 80
FA-88	0xFA58	Grid voltage Utr upon the 1st fault	0 V to 0 V	0	V	Unchangeable	" FA-88" on page 80
FA-89	0xFA59	Three-phase imbalance factor upon the 1st fault	0.00% to 0.00%	0.00	%	Unchangeable	" FA-89" on page 81
FA-90	0xFA5A	DI state upon the 1st fault	0 to 0	0	-	Unchangeable	" FA-90" on page 81
FA-91	0xFA5B	DO/RO state upon the 1st fault	0 to 0	0	-	Unchangeable	" FA-91" on page 81
FA-92	0xFA5C	Stop command sent from the power supply unit upon the 1st fault	1: Ready to run 2: Coast to stop 3: Stop according to preset mode	0	-	Unchangeable	" FA-92" on page 81
FA-93	0xFA5D	Total power-on duration (hour) upon the 1st fault	0 h to 0 h	0	h	Unchangeable	" FA-93" on page 81
FA-94	0xFA5E	Total power-on duration (minute) upon the 1st fault	0 min to 0 min	0	min	Unchangeable	" FA-94" on page 82
FA-95	0xFA5F	Total power-on duration (second) upon the 1st fault	0s to 0s	0	s	Unchangeable	" FA-95" on page 82
Fd-00	0xFD00	RS485 baud rate	0: 300 bps 1: 600 bps 2: 1200 bps 3: 2400 bps 4: 4800 bps 5: 9600 bps 6: 19200 bps 7: 38400 bps 8: 57600 bps 9: 115200 bps	5	-	At stop	" Fd-00" on page 82
Fd-01	0xFD01	RS485 data format	0: No check (8-N-2) 1: Even parity (8-E-1) 2: Odd parity (8-O-1) 3: No check (8-N-1) 4: No check (7-N-2) 5: Even parity (7-E-1) 6: Odd parity (7-O-1) 7: No check (7-N-1)	0	-	In real time	" Fd-01" on page 83

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
Fd-02	0xFD02	RS485 local address	1 to 127	16	-	Unchangeable	" Fd-02" on page 83
Fd-03	0xFD03	RS485 response delay	0 ms to 20 ms	2	ms	In real time	" Fd-03" on page 83
Fd-04	0xFD04	RS485 communication timeout time	0.0s to 60.0s	0.0	s	In real time	" Fd-04" on page 83
Fd-06	0xFD06	Auto reset upon communication fault	0: Disabled 1: Enabled	1	-	In real time	" Fd-06" on page 84
Fd-07	0xFD07	Maximum station number auto allocated	0 to 8	0	-	In real time	" Fd-07" on page 84
Fd-09	0xFD09	Communication state	Ones: CANopen 0: Stopped 1: Initialized 2: Pre-running 8: Running Tens: CANlink 0: Stopped 1: Initialized 2: Pre-running 8: Running	0	-	Unchangeable	" Fd-09" on page 84
Fd-10	0xFD0A	Communication type	1: CANopen 2: CANlink 3: Communication card mode	1	-	In real time	" Fd-10" on page 85
Fd-12	0xFD0C	CAN baud rate	0: 20 kbps 1: 50 kbps 2: 100 kbps 3: 125 kbps 4: 250 kbps 5: 500 kbps 6: 1 Mbps	5	-	In real time	" Fd-12" on page 85
Fd-13	0xFD0D	CAN station number	1 to 127	16	-	Unchangeable	" Fd-13" on page 85
Fd-14	0xFD0E	Number of CAN frames received per unit time (real-time)	0 to 65535	0	-	Unchangeable	" Fd-14" on page 85
Fd-15	0xFD0F	Maximum value of node reception error counter (real-time)	0 to 65535	0	-	Unchangeable	" Fd-15" on page 86
Fd-16	0xFD10	Maximum value of node transmission error counter (real-time)	0 to 65535	0	-	Unchangeable	" Fd-16" on page 86

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
Fd-17	0xFD11	Bus-off count per unit time	0 to 65535	0	-	Unchangeable	"Fd-17" on page 86
Fd-18	0xFD12	Power supply unit No.	1 to 15	1	-	In real time	"Fd-18" on page 86
Fd-19	0xFD13	CAN communication disconnection coefficient	1 to 15	1	-	In real time	"Fd-19" on page 86
Fd-34	0xFD22	CANopen mode	0: Standard mode 1: Expert mode	0	-	In real time	"Fd-34" on page 87
Fd-35	0xFD23	CANopen inhibit time	0 to 65535	0	-	In real time	"Fd-35" on page 87
Fd-36	0xFD24	CANopen event time	0 to 65535	0	-	In real time	"Fd-36" on page 87
Fd-39	0xFD27	AC drive station number configuration	0: Disabled 1: Enabled	0	-	In real time	"Fd-39" on page 87
Fd-40	0xFD28	Manual setting of power supply unit station number	0 to 127	0	-	In real time	"Fd-40" on page 87
Fd-41	0xFD29	Manual setting of drive unit 1 station number	0 to 127	0	-	In real time	"Fd-41" on page 88
Fd-42	0xFD2A	Manual setting of drive unit 2 station number	0 to 127	0	-	In real time	"Fd-42" on page 88
Fd-43	0xFD2B	Manual setting of drive unit 3 station number	0 to 127	0	-	In real time	"Fd-43" on page 88
Fd-44	0xFD2C	Manual setting of drive unit 4 station number	0 to 127	0	-	In real time	"Fd-44" on page 88
Fd-45	0xFD2D	Manual setting of drive unit 5 station number	0 to 127	0	-	In real time	"Fd-45" on page 88
Fd-46	0xFD2E	Manual setting of drive unit 6 station number	0 to 127	0	-	In real time	"Fd-46" on page 89
Fd-47	0xFD2F	Manual setting of drive unit 7 station number	0 to 127	0	-	In real time	"Fd-47" on page 89
Fd-48	0xFD30	Manual setting of drive unit 8 station number	0 to 127	0	-	In real time	"Fd-48" on page 89
Fd-50	0xFD32	Startup with slave mismatch	0: Disabled 1: Enabled	0	-	In real time	"Fd-50" on page 89

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
Fd-51	0xFD33	Network bridge data interaction period	0 ms to 65535 ms	0	ms	Unchangeable	"Fd-51" on page 90
Fd-52	0xFD34	Number of online slave stations	0 to 30	0	-	Unchangeable	"Fd-52" on page 90
Fd-53	0xFD35	Online status of slave stations 1 to 15	0 to 65535	0	-	Unchangeable	"Fd-53" on page 90
Fd-54	0xFD36	Online status of slave stations 16 to 31	0 to 65535	0	-	Unchangeable	"Fd-54" on page 90
Fd-55	0xFD37	PN timeout time	0 ms to 65535 ms	0	ms	In real time	"Fd-55" on page 90
Fd-56	0xFD38	PN chip state	0 to 65535	0	-	Unchangeable	"Fd-56" on page 90
Fd-57	0xFD39	Communication card state	0: Initialized 1: Running 2: Stopped 3: Reconnecting	0	-	Unchangeable	"Fd-57" on page 91
Fd-61	0xFD3D	MAC address 1	0 to 65535	0	-	Unchangeable	"Fd-61" on page 91
Fd-62	0xFD3E	MAC address 2	0 to 65535	0	-	Unchangeable	"Fd-62" on page 91
Fd-63	0xFD3F	MAC address 3	0 to 65535	0	-	Unchangeable	"Fd-63" on page 91
Fd-70	0xFD46	EtherCAT station name	0 to 65535	0	-	Unchangeable	"Fd-70" on page 92
Fd-71	0xFD47	EtherCAT station alias	0 to 65535	0	-	In real time	"Fd-71" on page 92
Fd-72	0xFD48	Allowed EtherCAT sync interrupt loss times	0 to 30	10	-	In real time	"Fd-72" on page 92
Fd-73	0xFD49	CRC check error of EtherCAT port 0	0 to 65535	0	-	Unchangeable	"Fd-73" on page 92
Fd-74	0xFD4A	CRC check error of EtherCAT port 1	0 to 65535	0	-	Unchangeable	"Fd-74" on page 92
Fd-75	0xFD4B	Data forwarding error of EtherCAT port 0/1	0 to 65535	0	-	Unchangeable	"Fd-75" on page 93
Fd-76	0xFD4C	EtherCAT processing unit and PDI error	0 to 65535	0	-	Unchangeable	"Fd-76" on page 93
Fd-77	0xFD4D	Link loss of EtherCAT port 0/1	0 to 65535	0	-	Unchangeable	"Fd-77" on page 93
Fd-78	0xFD4E	EtherCAT host type	0 to 65535	0	-	In real time	"Fd-78" on page 93

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
Fd-79	0xFD4F	EtherCAT synchronization error monitoring mode	0 to 65535	0	-	In real time	“Fd-79” on page 93
Fd-80	0xFD50	EtherCAT synchronization frame loss count	0 to 65535	0	-	Unchangeable	“Fd-80” on page 94
Fd-81	0xFD51	EtherCAT state machine and PHYLink state	0 to 65535	0	-	Unchangeable	“Fd-81” on page 94
Fd-82	0xFD52	EtherCAT - AL fault code	0 to 65535	0	-	Unchangeable	“Fd-82” on page 94
Fd-83	0xFD53	EtherCAT - XML file version	0.00 to 655.35	0.00	-	Unchangeable	“Fd-83” on page 94
Fd-84	0xFD54	EtherCAT - FPGA firmware version	0 to 65535	0	-	Unchangeable	“Fd-84” on page 94
Fd-85	0xFD55	Station alias backup display	0 to 65535	0	-	Unchangeable	“Fd-85” on page 94
Fd-86	0xFD56	EtherCAT - EEPROM reading time	0 to 65535	0	-	In real time	“Fd-86” on page 95
Fd-87	0xFD57	EtherCAT - DC gain	0 to 65535	0	-	In real time	“Fd-87” on page 95
Fd-88	0xFD58	EtherCAT - DC acceleration limit	0 to 65535	0	-	In real time	“Fd-88” on page 95
Fd-89	0xFD59	EtherCAT - DC speed limit	0 to 65535	0	-	In real time	“Fd-89” on page 95
Fd-90	0xFD5A	EtherCAT - DC integral coefficient	0 to 65535	0	-	In real time	“Fd-90” on page 95
Fd-91	0xFD5B	Communication card version	0.00 to 655.35	0.00	-	Unchangeable	“Fd-91” on page 96
Fd-92	0xFD5C	Communication version	0.00 to 655.35	0.00	-	Unchangeable	“Fd-92” on page 96
Fd-93	0xFD5D	Station number of device connected to extension card slot 1	0 to 65535	0	-	Unchangeable	“Fd-93” on page 96
Fd-94	0xFD5E	Station number of device connected to extension card slot 2	0 to 65535	0	-	Unchangeable	“Fd-94” on page 96
Fd-95	0xFD5F	Station number of device connected to extension card slot 3	0 to 65535	0	-	Unchangeable	“Fd-95” on page 96
Fd-96	0xFD60	Station number of device connected to reserved slot 4	0 to 65535	0	-	Unchangeable	“Fd-96” on page 97

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
Fd-97	0xFD61	Station number of device connected to reserved slot 5	0 to 65535	0	-	Unchangeable	"Fd-97" on page 97
Fd-98	0xFD62	Station number of device connected to reserved slot 6	0 to 65535	0	-	Unchangeable	"Fd-98" on page 97
Fd-99	0xFD63	Station number of device connected to reserved slot 7	0 to 65535	0	-	Unchangeable	"Fd-99" on page 97
FF-00	0xFF00	Factory password	0 to 65535	0	-	In real time	"FF-00" on page 97
FF-01	0xFF01	Model	0 to 2	0	-	In real time	"FF-01" on page 98
FF-02	0xFF02	Power class	0.0 kW to 999.9 kW	3.7	kW	In real time	"FF-02" on page 98
FF-03	0xFF03	Voltage class	0 V to 999 V	380	V	In real time	"FF-03" on page 98
FF-05	0xFF05	Bus voltage correction coefficient	80.0 to 140.0	100.0	-	In real time	"FF-05" on page 98
FF-10	0xFF0A	Any memory address	0 to 0	0	-	In real time	"FF-10" on page 98
FF-11	0xFF0B	Parameter group display setting 1	0 to 11111	11111	-	In real time	"FF-11" on page 99
FF-12	0xFF0C	Parameter group display setting 2	0 to 11111	0	-	In real time	"FF-12" on page 99
FF-13	0xFF0D	Parameter group display setting 4	0 to 11111	11111	-	In real time	"FF-13" on page 99
FF-14	0xFF0E	Three-phase input imbalance detection threshold	3.00% to 10.00%	10.00	%	In real time	"FF-14" on page 99
FF-15	0xFF0F	Parameter group display setting 3	0 to 11111	11111	-	In real time	"FF-15" on page 99
FF-17	0xFF11	Urs line voltage correction coefficient	80.0% to 140.0%	100.0	%	In real time	"FF-17" on page 100
FF-18	0xFF12	Ust line voltage correction coefficient	80.0% to 140.0%	100.0	%	In real time	"FF-18" on page 100
FF-19	0xFF13	Utr line voltage correction coefficient	80.0% to 140.0%	100.0	%	In real time	"FF-19" on page 100
FP-00	0x1F00	User password	0 to 65535	0	-	In real time	"FP-00" on page 100

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
FP-01	0x1F01	Parameter initialization	0: No operation 1: Restore default settings 2: Clear records 4: Back up current user parameters 501: Restore user backup parameters	1	-	In real time	" FP-01" on page 100
FP-03	0x1F03	Monitoring parameter display	Bit0: Bus voltage Bit1: Heatsink temperature Bit2: Ambient temperature Bit3: Usr line voltage Bit4: Ust line voltage Bit5: Utr line voltage Bit6: Three-phase imbalance factor	79	-	In real time	" FP-03" on page 101
FP-05	0x1F05	I/O card parameter restoration	0: Invalid 1: I/O extension card 1 2: I/O extension card 2 3: I/O extension card 3 255: All I/O extension cards	0	-	In real time	" FP-05" on page 101
FP-06	0x1F06	Local parameter backup mode	1: Back up all parameters 2: Back up non-motor parameters	2	-	In real time	" FP-06" on page 102
FP-07	0x1F07	Local parameter backup operation	0 to 28	0	-	In real time	" FP-07" on page 102
A0-00	0xA000	I/O extension card communication cycle	0 to 100	0	-	In real time	" A0-00" on page 102
A0-01	0xA001	Alarm threshold of consecutive drive unit frame loss	0 to 1000	10	-	In real time	" A0-01" on page 102
A0-02	0xA002	Alarm threshold of consecutive I/O extension card frame loss	0 to 1000	10	-	In real time	" A0-02" on page 103
A0-03	0xA003	Display of station number of drive unit with frame loss	Bit0: Drive unit 1 Bit1: Drive unit 2 Bit2: Drive unit 3 Bit3: Drive unit 4 Bit4: Drive unit 5 Bit5: Drive unit 6 Bit6: Drive unit 7 Bit7: Drive unit 8	0	-	Unchangeable	" A0-03" on page 103

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
A0-04	0xA004	Display of station number of I/O extension card with frame loss	Bit0: I/O extension card 1 Bit1: Extension card 2 Bit2: Extension card 3	0	-	Unchangeable	"A0-04" on page 103
A0-05	0xA005	Frame loss count of axis 1	0 to 65535	0	-	Unchangeable	"A0-05" on page 104
A0-06	0xA006	Frame loss count of axis 2	0 to 65535	0	-	Unchangeable	"A0-06" on page 104
A0-07	0xA007	Frame loss count of axis 3	0 to 65535	0	-	Unchangeable	"A0-07" on page 104
A0-08	0xA008	Frame loss count of axis 4	0 to 65535	0	-	Unchangeable	"A0-08" on page 104
A0-09	0xA009	Frame loss count of axis 5	0 to 65535	0	-	Unchangeable	"A0-09" on page 104
A0-10	0xA00A	Frame loss count of axis 6	0 to 65535	0	-	Unchangeable	"A0-10" on page 105
A0-11	0xA00B	Frame loss count of axis 7	0 to 65535	0	-	Unchangeable	"A0-11" on page 105
A0-12	0xA00C	Frame loss count of axis 8	0 to 65535	0	-	Unchangeable	"A0-12" on page 105
A0-13	0xA00D	Frame loss count of extension card 1	0 to 65535	0	-	Unchangeable	"A0-13" on page 105
A0-14	0xA00E	Frame loss count of extension card 2	0 to 65535	0	-	Unchangeable	"A0-14" on page 106
A0-15	0xA00F	Frame loss count of extension card 3	0 to 65535	0	-	Unchangeable	"A0-15" on page 106
A1-00	0xA100	Power supply unit - Filter time of DI1 to DI4	0.000s to 5.000s	0.010	s	In real time	"A1-00" on page 106
A1-01	0xA101	Power supply unit - Filter time of DI5 to DI8	0.000s to 5.000s	0.010	s	In real time	"A1-01" on page 106
A1-05	0xA105	Power supply unit - AI1 filter time	0.00s to 10.00s	0.10	s	In real time	"A1-05" on page 106
A1-06	0xA106	Power supply unit - AI2 filter time	0.00s to 10.00s	0.10	s	In real time	"A1-06" on page 107
A1-10	0xA10A	Power supply unit - AI1 input	0: Voltage input 1: Current input 2: PT100 input 3: PT1000 input 4: KTY84 input 5: PTC130 input	0	-	At stop	"A1-10" on page 107
A1-11	0xA10B	Power supply unit - AI2 input	0: Voltage input 1: Current input 2: PT100 input	0	-	At stop	"A1-11" on page 107

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
			3: PT1000 input 4: KTY84 input 5: PTC130 input				
A2-00	0xA200	Extension card 1 - Filter time of DI1 to DI4	0.000s to 5.000s	0.010	s	In real time	"A2-00" on page 107
A2-01	0xA201	Extension card 1 - Filter time of DI5 to DI8	0.000s to 5.000s	0.010	s	In real time	"A2-01" on page 108
A2-05	0xA205	Extension card 1 - AI1 filter time	0.00s to 10.00s	0.10	s	In real time	"A2-05" on page 108
A2-06	0xA206	Extension card 1 - AI2 filter time	0.00s to 10.00s	0.10	s	In real time	"A2-06" on page 108
A2-10	0xA20A	Extension card 1 - AI1 input	0: Voltage input 1: Current input 2: PT100 input 3: PT1000 input 4: KTY84 input 5: PTC130 input	0	-	At stop	"A2-10" on page 108
A2-11	0xA20B	Extension card 1 - AI2 input	0: Voltage input 1: Current input 2: PT100 input 3: PT1000 input 4: KTY84 input 5: PTC130 input	0	-	At stop	"A2-11" on page 109
A3-00	0xA300	Extension card 2 - Filter time of DI1 to DI4	0.000s to 5.000s	0.010	s	In real time	"A3-00" on page 109
A3-01	0xA301	Extension card 2 - Filter time of DI5 to DI8	0.000s to 5.000s	0.010	s	In real time	"A3-01" on page 109
A3-05	0xA305	Extension card 2 - AI1 filter time	0.00s to 10.00s	0.10	s	In real time	"A3-05" on page 109
A3-06	0xA306	Extension card 2 - AI2 filter time	0.00s to 10.00s	0.10	s	In real time	"A3-06" on page 110
A3-10	0xA30A	Extension card 2 - AI1 input	0: Voltage input 1: Current input 2: PT100 input 3: PT1000 input 4: KTY84 input 5: PTC130 input	0	-	At stop	"A3-10" on page 110
A3-11	0xA30B	Extension card 2 - AI2 input	0: Voltage input 1: Current input 2: PT100 input 3: PT1000 input 4: KTY84 input 5: PTC130 input	0	-	At stop	"A3-11" on page 110

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
AC-00	0xAC00	Power supply unit - AI1 measured voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AC-00" on page 110
AC-01	0xAC01	Power supply unit - AI1 displayed voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AC-01" on page 111
AC-02	0xAC02	Power supply unit - AI1 measured voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AC-02" on page 111
AC-03	0xAC03	Power supply unit - AI1 displayed voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AC-03" on page 111
AC-04	0xAC04	Power supply unit - AI2 measured voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AC-04" on page 111
AC-05	0xAC05	Power supply unit - AI2 displayed voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AC-05" on page 112
AC-06	0xAC06	Power supply unit - AI2 measured voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AC-06" on page 112
AC-07	0xAC07	Power supply unit - AI2 displayed voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AC-07" on page 112
AC-08	0xAC08	Extension card 1 - AI1 measured voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AC-08" on page 112
AC-09	0xAC09	Extension card 1 - AI1 displayed voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AC-09" on page 113
AC-10	0xAC0A	Extension card 1 - AI1 measured voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AC-10" on page 113
AC-11	0xAC0B	Extension card 1 - AI1 displayed voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AC-11" on page 113
AC-12	0xAC0C	Extension card 1 - AI2 measured voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AC-12" on page 114
AC-13	0xAC0D	Extension card 1 - AI2 displayed voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AC-13" on page 114
AC-14	0xAC0E	Extension card 1 - AI2 measured voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AC-14" on page 114

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
AC-15	0xAC0F	Extension card 1 - AI2 displayed voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AC-15" on page 114
AC-16	0xAC10	Extension card 2 - AI1 measured voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AC-16" on page 115
AC-17	0xAC11	Extension card 2 - AI1 displayed voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AC-17" on page 115
AC-18	0xAC12	Extension card 2 - AI1 measured voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AC-18" on page 115
AC-19	0xAC13	Extension card 2 - AI1 displayed voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AC-19" on page 115
AC-20	0xAC14	Extension card 2 - AI2 measured voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AC-20" on page 116
AC-21	0xAC15	Extension card 2 - AI2 displayed voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AC-21" on page 116
AC-22	0xAC16	Extension card 2 - AI2 measured voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AC-22" on page 116
AC-23	0xAC17	Extension card 2 - AI2 displayed voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AC-23" on page 116
AC-24	0xAC18	Extension card 3 - AI1 measured voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AC-24" on page 117
AC-25	0xAC19	Extension card 3 - AI1 displayed voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AC-25" on page 117
AC-26	0xAC1A	Extension card 3 - AI1 measured voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AC-26" on page 117
AC-27	0xAC1B	Extension card 3 - AI1 displayed voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AC-27" on page 117
AC-28	0xAC1C	Extension card 3 - AI2 measured voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AC-28" on page 118
AC-29	0xAC1D	Extension card 3 - AI2 displayed voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AC-29" on page 118

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
AC-30	0xAC1E	Extension card 3 - AI2 measured voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AC-30" on page 118
AC-31	0xAC1F	Extension card 3 - AI2 displayed voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AC-31" on page 118
AE-00	0xAE00	Local AI1 measured voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AE-00" on page 118
AE-01	0xAE01	Local AI1 displayed voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AE-01" on page 119
AE-02	0xAE02	Local AI1 measured voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AE-02" on page 119
AE-03	0xAE03	Local AI1 displayed voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AE-03" on page 119
AE-04	0xAE04	Local AI2 measured voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AE-04" on page 119
AE-05	0xAE05	Local AI2 displayed voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AE-05" on page 119
AE-06	0xAE06	Local AI2 measured voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AE-06" on page 120
AE-07	0xAE07	Local AI2 displayed voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AE-07" on page 120
AE-08	0xAE08	Extension card 1 - AI1 measured voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AE-08" on page 120
AE-09	0xAE09	Extension card 1 - AI1 displayed voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AE-09" on page 120
AE-10	0xAE0A	Extension card 1 - AI1 measured voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AE-10" on page 120
AE-11	0xAE0B	Extension card 1 - AI1 displayed voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AE-11" on page 120
AE-12	0xAE0C	Extension card 1 - AI2 measured voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AE-12" on page 121
AE-13	0xAE0D	Extension card 1 - AI2 displayed voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AE-13" on page 121
AE-14	0xAE0E	Extension card 1 - AI2 measured voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AE-14" on page 121

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
AE-15	0xAE0F	Extension card 1 - AI2 displayed voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AE-15" on page 121
AE-16	0xAE10	Extension card 2 - AI1 measured voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AE-16" on page 121
AE-17	0xAE11	Extension card 2 - AI1 displayed voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AE-17" on page 122
AE-18	0xAE12	Extension card 2 - AI1 measured voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AE-18" on page 122
AE-19	0xAE13	Extension card 2 - AI1 displayed voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AE-19" on page 122
AE-20	0xAE14	Extension card 2 - AI2 measured voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AE-20" on page 122
AE-21	0xAE15	Extension card 2 - AI2 displayed voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AE-21" on page 122
AE-22	0xAE16	Extension card 2 - AI2 measured voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AE-22" on page 123
AE-23	0xAE17	Extension card 2 - AI2 displayed voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AE-23" on page 123
AE-24	0xAE18	Extension card 3 - AI1 measured voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AE-24" on page 123
AE-25	0xAE19	Extension card 3 - AI1 displayed voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AE-25" on page 123
AE-26	0xAE1A	Extension card 3 - AI1 measured voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AE-26" on page 123
AE-27	0xAE1B	Extension card 3 - AI1 displayed voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AE-27" on page 124
AE-28	0xAE1C	Extension card 3 - AI2 measured voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AE-28" on page 124
AE-29	0xAE1D	Extension card 3 - AI2 displayed voltage 1	0.000 V to 12.000 V	2.000	V	In real time	"AE-29" on page 124

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
AE-30	0xAE1E	Extension card 3 - AI2 measured voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AE-30" on page 124
AE-31	0xAE1F	Extension card 3 - AI2 displayed voltage 2	0.000 V to 12.000 V	2.000	V	In real time	"AE-31" on page 124
AF-00	0xAF00	RPDO1-SubIndex0-H	0 to 65535	0	-	In real time	"AF-00" on page 125
AF-01	0xAF01	RPDO1-SubIndex0-L	0 to 65535	0	-	In real time	"AF-01" on page 125
AF-02	0xAF02	RPDO1-SubIndex1-H	0 to 65535	0	-	In real time	"AF-02" on page 125
AF-03	0xAF03	RPDO1-SubIndex1-L	0 to 65535	0	-	In real time	"AF-03" on page 125
AF-04	0xAF04	RPDO1-SubIndex2-H	0 to 65535	0	-	In real time	"AF-04" on page 125
AF-05	0xAF05	RPDO1-SubIndex2-L	0 to 65535	0	-	In real time	"AF-05" on page 126
AF-06	0xAF06	RPDO1-SubIndex3-H	0 to 65535	0	-	In real time	"AF-06" on page 126
AF-07	0xAF07	RPDO1-SubIndex3-L	0 to 65535	0	-	In real time	"AF-07" on page 126
AF-08	0xAF08	RPDO2-SubIndex0-H	0 to 65535	0	-	In real time	"AF-08" on page 126
AF-09	0xAF09	RPDO2-SubIndex0-L	0 to 65535	0	-	In real time	"AF-09" on page 126
AF-10	0xAF0A	RPDO2-SubIndex1-H	0 to 65535	0	-	In real time	"AF-10" on page 126
AF-11	0xAF0B	RPDO2-SubIndex1-L	0 to 65535	0	-	In real time	"AF-11" on page 127
AF-12	0xAF0C	RPDO2-SubIndex2-H	0 to 65535	0	-	In real time	"AF-12" on page 127
AF-13	0xAF0D	RPDO2-SubIndex2-L	0 to 65535	0	-	In real time	"AF-13" on page 127
AF-14	0xAF0E	RPDO2-SubIndex3-H	0 to 65535	0	-	In real time	"AF-14" on page 127
AF-15	0xAF0F	RPDO2-SubIndex3-L	0 to 65535	0	-	In real time	"AF-15" on page 127
AF-16	0xAF10	RPDO3-SubIndex0-H	0 to 65535	0	-	In real time	"AF-16" on page 128
AF-17	0xAF11	RPDO3-SubIndex0-L	0 to 65535	0	-	In real time	"AF-17" on page 128
AF-18	0xAF12	RPDO3-SubIndex1-H	0 to 65535	0	-	In real time	"AF-18" on page 128

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
AF-19	0xAF13	RPDO3-SubIndex1-L	0 to 65535	0	-	In real time	"AF-19" on page 128
AF-20	0xAF14	RPDO3-SubIndex2-H	0 to 65535	0	-	In real time	"AF-20" on page 128
AF-21	0xAF15	RPDO3-SubIndex2-L	0 to 65535	0	-	In real time	"AF-21" on page 129
AF-22	0xAF16	RPDO3-SubIndex3-H	0 to 65535	0	-	In real time	"AF-22" on page 129
AF-23	0xAF17	RPDO3-SubIndex3-L	0 to 65535	0	-	In real time	"AF-23" on page 129
AF-24	0xAF18	RPDO4-SubIndex0-H	0 to 65535	0	-	In real time	"AF-24" on page 129
AF-25	0xAF19	RPDO4-SubIndex0-L	0 to 65535	0	-	In real time	"AF-25" on page 129
AF-26	0xAF1A	RPDO4-SubIndex1-H	0 to 65535	0	-	In real time	"AF-26" on page 130
AF-27	0xAF1B	RPDO4-SubIndex1-L	0 to 65535	0	-	In real time	"AF-27" on page 130
AF-28	0xAF1C	RPDO4-SubIndex2-H	0 to 65535	0	-	In real time	"AF-28" on page 130
AF-29	0xAF1D	RPDO4-SubIndex2-L	0 to 65535	0	-	In real time	"AF-29" on page 130
AF-30	0xAF1E	RPDO4-SubIndex3-H	0 to 65535	0	-	In real time	"AF-30" on page 130
AF-31	0xAF1F	RPDO4-SubIndex3-L	0 to 65535	0	-	In real time	"AF-31" on page 131
AF-32	0xAF20	TPDO1-SubIndexO-H	0 to 65535	0	-	In real time	"AF-32" on page 131
AF-33	0xAF21	TPDO1-SubIndexO-L	0 to 65535	0	-	In real time	"AF-33" on page 131
AF-34	0xAF22	TPDO1-SubIndex1-H	0 to 65535	0	-	In real time	"AF-34" on page 131
AF-35	0xAF23	TPDO1-SubIndex1-L	0 to 65535	0	-	In real time	"AF-35" on page 131
AF-36	0xAF24	TPDO1-SubIndex2-H	0 to 65535	0	-	In real time	"AF-36" on page 131
AF-37	0xAF25	TPDO1-SubIndex2-L	0 to 65535	0	-	In real time	"AF-37" on page 132
AF-38	0xAF26	TPDO1-SubIndex3-H	0 to 65535	0	-	In real time	"AF-38" on page 132
AF-39	0xAF27	TPDO1-SubIndex3-L	0 to 65535	0	-	In real time	"AF-39" on page 132

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
AF-40	0xAF28	TPDO2-SubIndex0-H	0 to 65535	0	-	In real time	"AF-40" on page 132
AF-41	0xAF29	TPDO2-SubIndex0-L	0 to 65535	0	-	In real time	"AF-41" on page 132
AF-42	0xAF2A	TPDO2-SubIndex1-H	0 to 65535	0	-	In real time	"AF-42" on page 133
AF-43	0xAF2B	TPDO2-SubIndex1-L	0 to 65535	0	-	In real time	"AF-43" on page 133
AF-44	0xAF2C	TPDO2-SubIndex2-H	0 to 65535	0	-	In real time	"AF-44" on page 133
AF-45	0xAF2D	TPDO2-SubIndex2-L	0 to 65535	0	-	In real time	"AF-45" on page 133
AF-46	0xAF2E	TPDO2-SubIndex3-H	0 to 65535	0	-	In real time	"AF-46" on page 133
AF-47	0xAF2F	TPDO2-SubIndex3-L	0 to 65535	0	-	In real time	"AF-47" on page 134
AF-48	0xAF30	TPDO3-SubIndex0-H	0 to 65535	0	-	In real time	"AF-48" on page 134
AF-49	0xAF31	TPDO3-SubIndex0-L	0 to 65535	0	-	In real time	"AF-49" on page 134
AF-50	0xAF32	TPDO3-SubIndex1-H	0 to 65535	0	-	In real time	"AF-50" on page 134
AF-51	0xAF33	TPDO3-SubIndex1-L	0 to 65535	0	-	In real time	"AF-51" on page 134
AF-52	0xAF34	TPDO3-SubIndex2-H	0 to 65535	0	-	In real time	"AF-52" on page 135
AF-53	0xAF35	TPDO3-SubIndex2-L	0 to 65535	0	-	In real time	"AF-53" on page 135
AF-54	0xAF36	TPDO3-SubIndex3-H	0 to 65535	0	-	In real time	"AF-54" on page 135
AF-55	0xAF37	TPDO3-SubIndex3-L	0 to 65535	0	-	In real time	"AF-55" on page 135
AF-56	0xAF38	TPDO4-SubIndex0-H	0 to 65535	0	-	In real time	"AF-56" on page 135
AF-57	0xAF39	TPDO4-SubIndex0-L	0 to 65535	0	-	In real time	"AF-57" on page 136
AF-58	0xAF3A	TPDO4-SubIndex1-H	0 to 65535	0	-	In real time	"AF-58" on page 136
AF-59	0xAF3B	TPDO4-SubIndex1-L	0 to 65535	0	-	In real time	"AF-59" on page 136
AF-60	0xAF3C	TPDO4-SubIndex2-H	0 to 65535	0	-	In real time	"AF-60" on page 136
AF-61	0xAF3D	TPDO4-SubIndex2-L	0 to 65535	0	-	In real time	"AF-61" on page 136

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
AF-62	0xAF3E	TPDO4-SubIndex3-H	0 to 65535	0	-	In real time	"AF-62" on page 136
AF-63	0xAF3F	TPDO4-SubIndex3-L	0 to 65535	0	-	In real time	"AF-63" on page 137
AF-66	0xAF42	Number of valid RPDOs	0 to 65535	0	-	Unchangeable	"AF-66" on page 137
AF-67	0xAF43	Number of valid TPDOs	0 to 65535	0	-	Unchangeable	"AF-67" on page 137
U0-00	0x7000	Bus voltage	0.0 V to 1000.0 V	0.0	V	Unchangeable	"U0-00" on page 137
U0-01	0x7001	Heatsink temperature	–50°C to +150°C	0	°C	Unchangeable	"U0-01" on page 138
U0-02	0x7002	Ambient temperature	–50°C to +150°C	0	°C	Unchangeable	"U0-02" on page 138
U0-04	0x7004	Input voltage Usr	0 V to 1000 V	0	V	Unchangeable	"U0-04" on page 138
U0-05	0x7005	Input voltage Ust	0 V to 1000 V	0	V	Unchangeable	"U0-05" on page 138
U0-06	0x7006	Input voltage Utr	0 V to 1000 V	0	V	Unchangeable	"U0-06" on page 138
U0-07	0x7007	Three-phase imbalance factor	0.00% to 100.00%	0.00	%	Unchangeable	"U0-07" on page 139
U0-12	0x700C	Current fault code	0 to 99	0	-	Unchangeable	"U0-12" on page 139
U0-13	0x700D	Current fault subcode	0 to 10	0	-	Unchangeable	"U0-13" on page 139
U0-14	0x700E	Current alarm code	0 to 99	0	-	Unchangeable	"U0-14" on page 139
U0-15	0x700F	Current alarm subcode	0 to 10	0	-	Unchangeable	"U0-15" on page 139
U0-16	0x7010	Online module list	0 to 65535	0	-	Unchangeable	"U0-16" on page 139
U0-17	0x7011	Number of online modules	0 to 65535	0	-	Unchangeable	"U0-17" on page 140
U0-18	0x7012	Number of online I/O modules	0 to 65535	0	-	Unchangeable	"U0-18" on page 140
U0-19	0x7013	Running state of power supply unit	0 to 2	0	-	Unchangeable	"U0-19" on page 140
U0-20	0x7014	Current power-on duration (hour)	0 h to 65535 h	0	h	Unchangeable	"U0-20" on page 140
U0-21	0x7015	Current power-on duration (minute)	0 min to 65535 min	0	min	Unchangeable	"U0-21" on page 140

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
U0-22	0x7016	Current power-on duration (second)	0s to 65535s	0	s	Unchangeable	" U0-22" on page 141
U0-23	0x7017	Current power-on duration (millisecond)	0 ms to 65535 ms	0	ms	Unchangeable	" U0-23" on page 141
U0-25	0x7019	Braking unit control command word	0 to 1	0	-	Unchangeable	" U0-25" on page 141
U0-27	0x701B	Running inhibition flag	0 to 65535	0	-	Unchangeable	" U0-27" on page 141
U0-30	0x701E	Total power-on duration (hour)	0 h to 65535 h	0	h	Unchangeable	" U0-30" on page 141
U0-31	0x701F	Total power-on duration (minute)	0 min to 65535 min	0	min	Unchangeable	" U0-31" on page 142
U0-32	0x7020	Total power-on duration (second)	0s to 65535s	0	s	Unchangeable	" U0-32" on page 142
U0-33	0x7021	Total power-on duration (millisecond)	0 ms to 65535 ms	0	ms	Unchangeable	" U0-33" on page 142
U0-35	0x7023	Power supply unit state	0 to 2	0	-	Unchangeable	" U0-35" on page 142
U2-00	0x7200	Local I/O type	0 to 65535	0	-	Unchangeable	" U2-00" on page 143
U2-01	0x7201	Local I/O version	0.00 to 655.35	0.00	-	Unchangeable	" U2-01" on page 143
U2-02	0x7202	Local I/O - Original DI hardware resource	0 to 65535	0	-	Unchangeable	" U2-02" on page 143
U2-03	0x7203	Local I/O - Available DI hardware resource	0 to 65535	0	-	Unchangeable	" U2-03" on page 143
U2-04	0x7204	Local I/O - Original AI hardware resource	0 to 65535	0	-	Unchangeable	" U2-04" on page 143
U2-05	0x7205	Local I/O - Available AI hardware resource	0 to 65535	0	-	Unchangeable	" U2-05" on page 144
U2-06	0x7206	Local I/O - Original DO hardware resource	0 to 65535	0	-	Unchangeable	" U2-06" on page 144
U2-07	0x7207	Local I/O - Available DO hardware resource	0 to 65535	0	-	Unchangeable	" U2-07" on page 144
U2-08	0x7208	Local I/O - Original AO hardware resource	0 to 65535	0	-	Unchangeable	" U2-08" on page 144

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
U2-09	0x7209	Local I/O - Available AO hardware resource	0 to 65535	0	-	Unchangeable	"U2-09" on page 144
U2-10	0x720A	Local I/O - DI input	0 to 65535	0	-	Unchangeable	"U2-10" on page 145
U2-11	0x720B	Local I/O - DO output	0 to 65535	0	-	Unchangeable	"U2-11" on page 145
U2-12	0x720C	Local - AI1 input (before correction)	–12.00 V to +12.00 V	0.00	V	Unchangeable	"U2-12" on page 145
U2-13	0x720D	Local - AI2 input (before correction)	–12.00 V to +12.00 V	0.00	V	Unchangeable	"U2-13" on page 145
U2-14	0x720E	Local - AI1 input (after correction)	–12.00 V to +12.00 V	0.00	V	Unchangeable	"U2-14" on page 145
U2-15	0x720F	Local - AI2 input (after correction)	–12.00 V to +12.00 V	0.00	V	Unchangeable	"U2-15" on page 146
U2-20	0x7214	Local I/O - Condition of DI1 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-20" on page 146
U2-21	0x7215	Local I/O - Condition of DI2 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-21" on page 146
U2-22	0x7216	Local I/O - Condition of DI3 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-22" on page 146
U2-23	0x7217	Local I/O - Condition of DI4 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-23" on page 146
U2-24	0x7218	Local I/O - Condition of DI5 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-24" on page 147
U2-25	0x7219	Local I/O - Condition of DI6 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-25" on page 147
U2-26	0x721A	Local I/O - Condition of DI7 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-26" on page 147
U2-27	0x721B	Local I/O - Condition of DI8 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-27" on page 147
U2-30	0x721E	Local I/O - Condition of AI1 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-30" on page 147
U2-31	0x721F	Local I/O - Condition of AI2 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-31" on page 148

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
U2-40	0x7228	Local I/O - Condition of DO1 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-40" on page 148
U2-41	0x7229	Local I/O - Condition of DO2 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-41" on page 148
U2-42	0x722A	Local I/O - Condition of DO3 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-42" on page 148
U2-43	0x722B	Local I/O - Condition of DO4 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-43" on page 148
U2-44	0x722C	Local I/O - Condition of DO5 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-44" on page 149
U2-45	0x722D	Local I/O - Condition of DO6 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-45" on page 149
U2-46	0x722E	Local I/O - Condition of DO7 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-46" on page 149
U2-47	0x722F	Local I/O - Condition of DO8 used by drive unit	0 to 65535	0	-	Unchangeable	"U2-47" on page 149
U3-00	0x7300	Type of I/O extension card 1	0 to 65535	0	-	Unchangeable	"U3-00" on page 149
U3-01	0x7301	Version of I/O extension card 1	0.00 to 655.35	0.00	-	Unchangeable	"U3-01" on page 150
U3-02	0x7302	I/O extension card 1 - Original DI hardware resource	0 to 65535	0	-	Unchangeable	"U3-02" on page 150
U3-03	0x7303	I/O extension card 1 - Available DI hardware resource	0 to 65535	0	-	Unchangeable	"U3-03" on page 150
U3-04	0x7304	I/O extension card 1 - Original AI hardware resource	0 to 65535	0	-	Unchangeable	"U3-04" on page 150
U3-05	0x7305	I/O extension card 1 - Available AI hardware resource	0 to 65535	0	-	Unchangeable	"U3-05" on page 150
U3-06	0x7306	I/O extension card 1 - Original DO hardware resource	0 to 65535	0	-	Unchangeable	"U3-06" on page 151
U3-07	0x7307	I/O extension card 1 - Available DO hardware resource	0 to 65535	0	-	Unchangeable	"U3-07" on page 151

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
U3-08	0x7308	I/O extension card 1 - Original AO hardware resource	0 to 65535	0	-	Unchangeable	"U3-08" on page 151
U3-09	0x7309	I/O extension card 1 - Available AO hardware resource	0 to 65535	0	-	Unchangeable	"U3-09" on page 151
U3-10	0x730A	I/O extension card 1 - DI input	0 to 65535	0	-	Unchangeable	"U3-10" on page 151
U3-11	0x730B	I/O extension card 1 - DO output	0 to 65535	0	-	Unchangeable	"U3-11" on page 152
U3-12	0x730C	I/O extension card 1 - AI1 input (before correction)	−12.00 V to +12.00 V	0.00	V	Unchangeable	"U3-12" on page 152
U3-13	0x730D	I/O extension card 1 - AI2 input (before correction)	−12.00 V to +12.00 V	0.00	V	Unchangeable	"U3-13" on page 152
U3-14	0x730E	I/O extension card 1 - AI1 input (after correction)	−12.00 V to +12.00 V	0.00	V	Unchangeable	"U3-14" on page 152
U3-15	0x730F	I/O extension card 1 - AI2 input (after correction)	−12.00 V to +12.00 V	0.00	V	Unchangeable	"U3-15" on page 152
U3-20	0x7314	I/O extension card 1 - Condition of DI1 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-20" on page 153
U3-21	0x7315	I/O extension card 1 - Condition of DI2 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-21" on page 153
U3-22	0x7316	I/O extension card 1 - Condition of DI3 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-22" on page 153
U3-23	0x7317	I/O extension card 1 - Condition of DI4 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-23" on page 153
U3-24	0x7318	I/O extension card 1 - Condition of DI5 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-24" on page 153
U3-25	0x7319	I/O extension card 1 - Condition of DI6 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-25" on page 154
U3-26	0x731A	I/O extension card 1 - Condition of DI7 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-26" on page 154
U3-27	0x731B	I/O extension card 1 - Condition of DI8 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-27" on page 154

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
U3-30	0x731E	I/O extension card 1 - Condition of AI1 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-30" on page 154
U3-31	0x731F	I/O extension card 1 - Condition of AI2 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-31" on page 154
U3-40	0x7328	I/O extension card 1 - Condition of DO1 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-40" on page 155
U3-41	0x7329	I/O extension card 1 - Condition of DO2 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-41" on page 155
U3-42	0x732A	I/O extension card 1 - Condition of DO3 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-42" on page 155
U3-43	0x732B	I/O extension card 1 - Condition of DO4 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-43" on page 155
U3-44	0x732C	I/O extension card 1 - Condition of DO5 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-44" on page 155
U3-45	0x732D	I/O extension card 1 - Condition of DO6 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-45" on page 156
U3-46	0x732E	I/O extension card 1 - Condition of DO7 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-46" on page 156
U3-47	0x732F	I/O extension card 1 - Condition of DO8 used by drive unit	0 to 65535	0	-	Unchangeable	"U3-47" on page 156
U4-00	0x7400	Type of I/O extension card 2	0 to 65535	0	-	Unchangeable	"U4-00" on page 156
U4-01	0x7401	Version of I/O extension card 2	0.00 to 655.35	0.00	-	Unchangeable	"U4-01" on page 156
U4-02	0x7402	I/O extension card 2 - Original DI hardware resource	0 to 65535	0	-	Unchangeable	"U4-02" on page 157
U4-03	0x7403	I/O extension card 2 - Available DI hardware resource	0 to 65535	0	-	Unchangeable	"U4-03" on page 157
U4-04	0x7404	I/O extension card 2 - Original AI hardware resource	0 to 65535	0	-	Unchangeable	"U4-04" on page 157
U4-05	0x7405	I/O extension card 2 - Available AI hardware resource	0 to 65535	0	-	Unchangeable	"U4-05" on page 157

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
U4-06	0x7406	I/O extension card 2 - Original DO hardware resource	0 to 65535	0	-	Unchangeable	“U4-06” on page 157
U4-07	0x7407	I/O extension card 2 - Available DO hardware resource	0 to 65535	0	-	Unchangeable	“U4-07” on page 158
U4-08	0x7408	I/O extension card 2 - Original AO hardware resource	0 to 65535	0	-	Unchangeable	“U4-08” on page 158
U4-09	0x7409	I/O extension card 2 - Available AO hardware resource	0 to 65535	0	-	Unchangeable	“U4-09” on page 158
U4-10	0x740A	I/O extension card 2 - DI input	0 to 65535	0	-	Unchangeable	“U4-10” on page 158
U4-11	0x740B	I/O extension card 2 - DO output	0 to 65535	0	-	Unchangeable	“U4-11” on page 158
U4-12	0x740C	I/O extension card 2 - AI1 input (before correction)	−12.00 V to +12.00 V	0.00	V	Unchangeable	“U4-12” on page 159
U4-13	0x740D	I/O extension card 2 - AI2 input (before correction)	−12.00 V to +12.00 V	0.00	V	Unchangeable	“U4-13” on page 159
U4-14	0x740E	I/O extension card 2 - AI1 input (after correction)	−12.00 V to +12.00 V	0.00	V	Unchangeable	“U4-14” on page 159
U4-15	0x740F	I/O extension card 2 - AI2 input (after correction)	−12.00 V to +12.00 V	0.00	V	Unchangeable	“U4-15” on page 159
U4-20	0x7414	I/O extension card 2 - Condition of DI1 used by drive unit	0 to 65535	0	-	Unchangeable	“U4-20” on page 159
U4-21	0x7415	I/O extension card 2 - Condition of DI2 used by drive unit	0 to 65535	0	-	Unchangeable	“U4-21” on page 160
U4-22	0x7416	I/O extension card 2 - Condition of DI3 used by drive unit	0 to 65535	0	-	Unchangeable	“U4-22” on page 160
U4-23	0x7417	I/O extension card 2 - Condition of DI4 used by drive unit	0 to 65535	0	-	Unchangeable	“U4-23” on page 160
U4-24	0x7418	I/O extension card 2 - Condition of DI5 used by drive unit	0 to 65535	0	-	Unchangeable	“U4-24” on page 160
U4-25	0x7419	I/O extension card 2 - Condition of DI6 used by drive unit	0 to 65535	0	-	Unchangeable	“U4-25” on page 160

Para.	Address	Para. Name	Value Range	Default	Unit	Change	Page
U4-26	0x741A	I/O extension card 2 - Condition of DI7 used by drive unit	0 to 65535	0	-	Unchangeable	"U4-26" on page 161
U4-27	0x741B	I/O extension card 2 - Condition of DI8 used by drive unit	0 to 65535	0	-	Unchangeable	"U4-27" on page 161
U4-30	0x741E	I/O extension card 2 - Condition of AI1 used by drive unit	0 to 65535	0	-	Unchangeable	"U4-30" on page 161
U4-31	0x741F	I/O extension card 2 - Condition of AI2 used by drive unit	0 to 65535	0	-	Unchangeable	"U4-31" on page 161
U4-40	0x7428	I/O extension card 2 - Condition of DO1 used by drive unit	0 to 65535	0	-	Unchangeable	"U4-40" on page 161
U4-41	0x7429	I/O extension card 2 - Condition of DO2 used by drive unit	0 to 65535	0	-	Unchangeable	"U4-41" on page 162
U4-42	0x742A	I/O extension card 2 - Condition of DO3 used by drive unit	0 to 65535	0	-	Unchangeable	"U4-42" on page 162
U4-43	0x742B	I/O extension card 2 - Condition of DO4 used by drive unit	0 to 65535	0	-	Unchangeable	"U4-43" on page 162
U4-44	0x742C	I/O extension card 2 - Condition of DO5 used by drive unit	0 to 65535	0	-	Unchangeable	"U4-44" on page 162
U4-45	0x742D	I/O extension card 2 - Condition of DO6 used by drive unit	0 to 65535	0	-	Unchangeable	"U4-45" on page 162
U4-46	0x742E	I/O extension card 2 - Condition of DO7 used by drive unit	0 to 65535	0	-	Unchangeable	"U4-46" on page 163
U4-47	0x742F	I/O extension card 2 - Condition of DO8 used by drive unit	0 to 65535	0	-	Unchangeable	"U4-47" on page 163

1 Power Supply Unit Parameters

1.1 F0: Basic Parameters of Power Supply Unit

F0-01 **Product SN**

Address: 0xF001 | Effective mode: -
Min.: 800 | Unit: -
Max.: 800 | Data type: UInt16
Default: 800 | Change: Unchangeable

Value Range:

800 to 800

Description

MD800

F0-02 **Software version**

Address: 0xF002 | Effective mode: -
Min.: 0.00 | Unit: -
Max.: 655.35 | Data type: UInt16
Default: 0.00 | Change: Unchangeable

Value Range:

0.00 to 655.35

Description

This parameter defines the software version.

F0-03 **Temporary software version**

Address: 0xF003 | Effective mode: -
Min.: 0.00 | Unit: -
Max.: 655.35 | Data type: UInt16
Default: 0.00 | Change: Unchangeable

Value Range:

0.00 to 655.35

Description

This parameter defines the temporary software version.

F0-04 **Non-standard SN**

Address: 0xF004 | Effective mode: -
Min.: 0 | Unit: -
Max.: 9999 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:

0 to 9999

Description

This parameter defines the non-standard SN.

1.2 F1 Fault Setting Parameters

F1-00 **Bus undervoltage threshold**

Address: 0xF100 | Effective mode: -

Min.:	150	Unit:	V
Max.:	440	Data type:	UInt16
Default:	330	Change:	In real time

Value Range:

150 V to 440 V

Description

When the bus voltage is lower than the value of F1-00 (Bus undervoltage threshold), the system determines that undervoltage occurs.

When the system is in undervoltage state, the drive unit fails to run.

The default value of this parameter is 330 V for the 380 V model and 170 V for the 220 V model.

It is recommended that the undervoltage threshold of the power supply unit be lower than that of the drive unit.

F1-01 Bus overvoltage threshold

Address:	0xF101	Effective mode:	-
Min.:	300	Unit:	V
Max.:	820	Data type:	UInt16
Default:	820	Change:	In real time

Value Range:

300 V to 820 V

Description

When the bus voltage is greater than the value of this parameter, the system determines that overvoltage occurs. If the bus voltage is too high, the system may be damaged.

F1-02 Braking unit actuation voltage

Address:	0xF102	Effective mode:	-
Min.:	300	Unit:	V
Max.:	820	Data type:	UInt16
Default:	750	Change:	In real time

Value Range:

300 V to 820 V

Description

When the bus voltage is greater than the value of this parameter, the braking unit is actuated. When the bus voltage is greater than the value of F1-02 (Braking unit actuation voltage), the braking unit is actuated to reduce the bus voltage. When the braking unit is actuated, a large amount of energy will be consumed on the braking resistor. Configure the braking resistor properly according to actual application and ensure good cooling of the braking resistor.

F1-03 Braking transistor open-circuit fault

Address:	0xF103	Effective mode:	Effective in real time
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:

0: Disabled

1: Enabled

Description

When the braking transistor open circuit detection function is enabled, the system will report E61.02 if the braking transistor is open-circuited.

F1-04 **Braking transistor short circuit fault**

Address:	0xF104	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:

0: Disabled

1: Enabled

Description

When the braking transistor short circuit detection function is enabled, the system will report E61.01 or E61.03 if the braking transistor is short-circuited.

F1-05 **Input phase loss fault**

Address:	0xF105	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	2	Change:	In real time

Value Range:

0: Disabled

1: Enabled

2: Alarm

Description

This parameter defines the action upon an input phase loss fault.

This parameter is applicable only to three-phase 380 V input models, but not single-phase 220 V models.

When it is set to 0, no alarm is generated when input phase loss occurs.

When it is set to 1, E12.XX is reported upon input phase loss. The fault code varies with the specific lost phase. E12.01, E12.02, and E12.03 indicate loss of the R, S, and T phase, respectively.

When it is set to 2, an alarm is generated. A12.01, A12.02, or A12.03 is displayed upon input phase loss.

F1-06 **Input overvoltage fault**

Address:	0xF106	Effective mode:	Effective in real time
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	2	Change:	In real time

Value Range:

0: Disabled

1: Enabled

2: Alarm

Description

This parameter defines the action upon an input overvoltage fault.

This parameter specifies whether to generate an alarm upon an input overvoltage fault.

When it is set to 0, no alarm is generated.

When it is set to 1, E12.04 is reported when input overvoltage occurs.

When it is set to 2, A12.04 is reported when input overvoltage occurs.

For three-phase 380 V models, the input overvoltage threshold is 576 V. For single-phase 220 V models, the input overvoltage threshold is 288 V.

F1-07 **Fan fault**

Address:	0xF107	Effective mode:	Effective in real time
Min.:	0	Unit:	-

Max.:	2	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:

0: Disabled

1: Enabled

2: Alarm

Description

This parameter defines the action upon a fan fault.

When it is set to 1, E80.00 is reported when the fan is blocked or damaged. When it is set to 2, A80.00 is reported upon a fan fault.

F1-09 **Fan control**

Address:	0xF109	Effective mode:	Effective in real time
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Uni-directional running

1: Forward and reverse running

Description

-

1.3 F4: Input Terminal Parameters

F4-00 **DI1 hardware source**

Address:	0xF400	Effective mode:	-
Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DI1

2: Power supply unit - DI2

3: Power supply unit - DI3

4: Power supply unit - DI4

5: Power supply unit - DIO1

6: Power supply unit - DIO2

7: Power supply unit - DIO3

8: Power supply unit - DIO4

101: Extension card 1 - DI1

102: Extension card 1 - DI2

103: Extension card 1 - DI3

104: Extension card 1 - DI4

105: Extension card 1 - DI5

106: Extension card 1 - DI6

107: Extension card 1 - DI7

108: Extension card 1 - DI8

201: Extension card 2 - DI1

202: Extension card 2 - DI2

203: Extension card 2 - DI3

204: Extension card 2 - DI4

205: Extension card 2 - DI5

206: Extension card 2 - DI6

207: Extension card 2 - DI7

208: Extension card 2 - DI8

Description

This parameter defines the source of the input terminal.

F4-01 **DI1 function**

Address:	0xF401	Effective mode:	-
Min.:	0	Unit:	-
Max.:	8	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function

1: Running enable

2: Incoming circuit breaker feedback

3: Auxiliary circuit breaker feedback

4: Residual current device feedback

5: Fault reset

6: Operation prohibition for drive unit

7: Coast-to-stop for drive unit

8: Stop-according-to-preset-mode for drive unit

Description

This parameter defines the function of the input terminal.

0: No function

You can assign unused terminals with function 0 to avoid misoperation.

1: Running enable

The power supply unit sends running commands to the drive unit.

2: Incoming circuit breaker feedback

The power supply unit sends running commands to the drive unit according to feedback signals.

3: Auxiliary circuit breaker feedback

The power supply unit sends running commands to the drive unit according to feedback signals.

4: Residual current device feedback

The power supply unit sends running commands to the drive unit according to feedback signals.

5: Fault reset

An input terminal assigned with this function can be used to reset the AC drive when a fault occurs.

6: Operation prohibition for drive unit

The power supply unit sends a command to prohibit running of the drive unit.

7: Coast-to-stop for drive unit

The power supply unit sends coast-to-stop commands to the drive unit.

8: Stop-according-to-preset-mode for drive unit

The power supply unit sends commands to the drive unit to stop it according to the preset stop mode.

F4-02 **DI2 hardware source**

Address:	0xF402	Effective mode:	-
Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DI1

2: Power supply unit - DI2

3: Power supply unit - DI3

4: Power supply unit - DI4

5: Power supply unit - DIO1

6: Power supply unit - DIO2

7: Power supply unit - DIO3

8: Power supply unit - DIO4

101: Extension card 1 - DI1

102: Extension card 1 - DI2

103: Extension card 1 - DI3

104: Extension card 1 - DI4

105: Extension card 1 - DI5

106: Extension card 1 - DI6

107: Extension card 1 - DI7

108: Extension card 1 - DI8

201: Extension card 2 - DI1

202: Extension card 2 - DI2

203: Extension card 2 - DI3

204: Extension card 2 - DI4

205: Extension card 2 - DI5

206: Extension card 2 - DI6

207: Extension card 2 - DI7

208: Extension card 2 - DI8

Description

Same as F4-00

F4-03 **DI2 function**

Address:	0xF403	Effective mode:	-
Min.:	0	Unit:	-
Max.:	9	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function

1: Running enable

2: Incoming circuit breaker feedback

3: Auxiliary circuit breaker feedback

4: Residual current device feedback

5: Fault reset

6: Operation prohibition for drive unit

7: Coast-to-stop for drive unit

8: Stop-according-to-preset-mode for drive unit

Description

Same as F4-01

F4-04 **DI3 hardware source**

Address:	0xF404	Effective mode:	-
Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DI1

2: Power supply unit - DI2

3: Power supply unit - DI3

4: Power supply unit - DI4

5: Power supply unit - DIO1

6: Power supply unit - DIO2

7: Power supply unit - DIO3

8: Power supply unit - DIO4

101: Extension card 1 - DI1

102: Extension card 1 - DI2

103: Extension card 1 - DI3

104: Extension card 1 - DI4

105: Extension card 1 - DI5

106: Extension card 1 - DI6

107: Extension card 1 - DI7

108: Extension card 1 - DI8

201: Extension card 2 - DI1

202: Extension card 2 - DI2

203: Extension card 2 - DI3

204: Extension card 2 - DI4

205: Extension card 2 - DI5

206: Extension card 2 - DI6

207: Extension card 2 - DI7

208: Extension card 2 - DI8

Description

Same as F4-00

F4-05 **DI3 function**

Address:	0xF405	Effective mode:	-
Min.:	0	Unit:	-
Max.:	9	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: No function

1: Running enable

2: Incoming circuit breaker feedback

3: Auxiliary circuit breaker feedback

4: Residual current device feedback

5: Fault reset

6: Operation prohibition for drive unit

7: Coast-to-stop for drive unit

8: Stop-according-to-preset-mode for drive unit

Description

Same as F4-01

F4-06 **DI4 hardware source**

Address:	0xF406	Effective mode:	-
Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DI1

2: Power supply unit - DI2

3: Power supply unit - DI3

4: Power supply unit - DI4

5: Power supply unit - DIO1

6: Power supply unit - DIO2

7: Power supply unit - DIO3

8: Power supply unit - DIO4

101: Extension card 1 - DI1

102: Extension card 1 - DI2

103: Extension card 1 - DI3

104: Extension card 1 - DI4

105: Extension card 1 - DI5

106: Extension card 1 - DI6

107: Extension card 1 - DI7

108: Extension card 1 - DI8

201: Extension card 2 - DI1

202: Extension card 2 - DI2

203: Extension card 2 - DI3

204: Extension card 2 - DI4

205: Extension card 2 - DI5

206: Extension card 2 - DI6

207: Extension card 2 - DI7

208: Extension card 2 - DI8

Description

Same as F4-00

F4-07 **DI4 function**

Address:	0xF407	Effective mode:	-
Min.:	0	Unit:	-
Max.:	9	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function

1: Running enable
2: Incoming circuit breaker feedback
3: Auxiliary circuit breaker feedback
4: Residual current device feedback
5: Fault reset
6: Operation prohibition for drive unit
7: Coast-to-stop for drive unit
8: Stop-according-to-preset-mode for drive unit

Description

Same as F4-01

F4-08 **DI5 hardware source**

Address:	0xF408	Effective mode:	-
Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected
1: Power supply unit - DI1
2: Power supply unit - DI2
3: Power supply unit - DI3
4: Power supply unit - DI4
5: Power supply unit - DIO1
6: Power supply unit - DIO2
7: Power supply unit - DIO3
8: Power supply unit - DIO4
101: Extension card 1 - DI1
102: Extension card 1 - DI2
103: Extension card 1 - DI3
104: Extension card 1 - DI4
105: Extension card 1 - DI5
106: Extension card 1 - DI6
107: Extension card 1 - DI7
108: Extension card 1 - DI8
201: Extension card 2 - DI1
202: Extension card 2 - DI2
203: Extension card 2 - DI3
204: Extension card 2 - DI4
205: Extension card 2 - DI5
206: Extension card 2 - DI6
207: Extension card 2 - DI7
208: Extension card 2 - DI8

Description

Same as F4-00

F4-09 **DI5 function**

Address:	0xF409	Effective mode:	-
Min.:	0	Unit:	-

Max.:	9	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function

1: Running enable

2: Incoming circuit breaker feedback

3: Auxiliary circuit breaker feedback

4: Residual current device feedback

5: Fault reset

6: Operation prohibition for drive unit

7: Coast-to-stop for drive unit

8: Stop-according-to-preset-mode for drive unit

Description

Same as F4-01

F4-10 **DI6 hardware source**

Address:	0xF40A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DI1

2: Power supply unit - DI2

3: Power supply unit - DI3

4: Power supply unit - DI4

5: Power supply unit - DIO1

6: Power supply unit - DIO2

7: Power supply unit - DIO3

8: Power supply unit - DIO4

101: Extension card 1 - DI1

102: Extension card 1 - DI2

103: Extension card 1 - DI3

104: Extension card 1 - DI4

105: Extension card 1 - DI5

106: Extension card 1 - DI6

107: Extension card 1 - DI7

108: Extension card 1 - DI8

201: Extension card 2 - DI1

202: Extension card 2 - DI2

203: Extension card 2 - DI3

204: Extension card 2 - DI4

205: Extension card 2 - DI5

206: Extension card 2 - DI6

207: Extension card 2 - DI7

208: Extension card 2 - DI8

Description

Same as F4-00

F4-11 **DI6 function**

Address:	0xF40B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	9	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function

1: Running enable

2: Incoming circuit breaker feedback

3: Auxiliary circuit breaker feedback

4: Residual current device feedback

5: Fault reset

6: Operation prohibition for drive unit

7: Coast-to-stop for drive unit

8: Stop-according-to-preset-mode for drive unit

Description

Same as F4-01

F4-12 **DI7 hardware source**

Address:	0xF40C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DI1

2: Power supply unit - DI2

3: Power supply unit - DI3

4: Power supply unit - DI4

5: Power supply unit - DIO1

6: Power supply unit - DIO2

7: Power supply unit - DIO3

8: Power supply unit - DIO4

101: Extension card 1 - DI1

102: Extension card 1 - DI2

103: Extension card 1 - DI3

104: Extension card 1 - DI4

105: Extension card 1 - DI5

106: Extension card 1 - DI6

107: Extension card 1 - DI7

108: Extension card 1 - DI8

201: Extension card 2 - DI1

202: Extension card 2 - DI2

203: Extension card 2 - DI3

204: Extension card 2 - DI4

205: Extension card 2 - DI5

206: Extension card 2 - DI6

207: Extension card 2 - DI7

208: Extension card 2 - DI8

Description

Same as F4-00

F4-13 **DI7 function**

Address:	0xF40D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	9	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function

1: Running enable

2: Incoming circuit breaker feedback

3: Auxiliary circuit breaker feedback

4: Residual current device feedback

5: Fault reset

6: Operation prohibition for drive unit

7: Coast-to-stop for drive unit

8: Stop-according-to-preset-mode for drive unit

Description

Same as F4-01

F4-14 **DI8 hardware source**

Address:	0xF40E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DI1

2: Power supply unit - DI2

3: Power supply unit - DI3

4: Power supply unit - DI4

5: Power supply unit - DIO1

6: Power supply unit - DIO2

7: Power supply unit - DIO3

8: Power supply unit - DIO4

101: Extension card 1 - DI1

102: Extension card 1 - DI2

103: Extension card 1 - DI3

104: Extension card 1 - DI4

105: Extension card 1 - DI5

106: Extension card 1 - DI6

107: Extension card 1 - DI7

108: Extension card 1 - DI8

201: Extension card 2 - DI1

202: Extension card 2 - DI2

203: Extension card 2 - DI3

204: Extension card 2 - DI4

205: Extension card 2 - DI5

206: Extension card 2 - DI6

207: Extension card 2 - DI7

208: Extension card 2 - DI8

Description

Same as F4-00

F4-15 **DI8 function**

Address:	0xF40F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	9	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function

1: Running enable

2: Incoming circuit breaker feedback

3: Auxiliary circuit breaker feedback

4: Residual current device feedback

5: Fault reset

6: Operation prohibition for drive unit

7: Coast-to-stop for drive unit

8: Stop-according-to-preset-mode for drive unit

Description

Same as F4-01

F4-16 **DI1 active delay**

Address:	0xF410	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 600.00s

Description

This parameter defines the delay of response to the DI terminal switching from the inactive state to active state.

F4-17 **DI2 active delay**

Address:	0xF411	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 600.00s

Description

Same as F4-16

F4-18 **DI3 active delay**

Address:	0xF412	Effective mode:	-
Min.:	0.00	Unit:	s

Max.: 600.00 | Data type: UInt16
Default: 0.00 | Change: In real time

Value Range:
0.00s to 600.00s

Description
Same as F4-16

F4-19 **DI4 active delay**

Address: 0xF413 | Effective mode: -
Min.: 0.00 | Unit: s
Max.: 600.00 | Data type: UInt16
Default: 0.00 | Change: In real time

Value Range:
0.00s to 600.00s

Description
Same as F4-16

F4-20 **DI5 active delay**

Address: 0xF414 | Effective mode: -
Min.: 0.00 | Unit: s
Max.: 600.00 | Data type: UInt16
Default: 0.00 | Change: In real time

Value Range:
0.00s to 600.00s

Description
Same as F4-16

F4-21 **DI6 active delay**

Address: 0xF415 | Effective mode: -
Min.: 0.00 | Unit: s
Max.: 600.00 | Data type: UInt16
Default: 0.00 | Change: In real time

Value Range:
0.00s to 600.00s

Description
Same as F4-16

F4-22 **DI7 active delay**

Address: 0xF416 | Effective mode: -
Min.: 0.00 | Unit: s
Max.: 600.00 | Data type: UInt16
Default: 0.00 | Change: In real time

Value Range:
0.00s to 600.00s

Description
Same as F4-16

F4-23 **DI8 active delay**

Address: 0xF417 | Effective mode: -
Min.: 0.00 | Unit: s
Max.: 600.00 | Data type: UInt16
Default: 0.00 | Change: In real time

Value Range:
0.00s to 600.00s
Description
Same as F4-16

F4-24 **DI1 inactive delay**

Address:	0xF418	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:
0.00s to 600.00s
Description
This parameter defines the delay of response to the DI terminal switching from the active state to inactive state.

F4-25 **DI2 inactive delay**

Address:	0xF419	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:
0.00s to 600.00s
Description
Same as F4-24

F4-26 **DI3 inactive delay**

Address:	0xF41A	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:
0.00s to 600.00s
Description
Same as F4-24

F4-27 **DI4 inactive delay**

Address:	0xF41B	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:
0.00s to 600.00s
Description
Same as F4-24

F4-28 **DI5 inactive delay**

Address:	0xF41C	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 600.00s

Description

Same as F4-24

F4-29 **DI6 inactive delay**

Address:	0xF41D	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 600.00s

Description

Same as F4-24

F4-30 **DI7 inactive delay**

Address:	0xF41E	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 600.00s

Description

Same as F4-24

F4-31 **DI8 inactive delay**

Address:	0xF41F	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 600.00s

Description

Same as F4-24

F4-32 **DI (DI1 to DI5) active mode**

Address:	0xF420	Effective mode:	-
Min.:	0	Unit:	-
Max.:	11111	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

Ones:

0: Active low

1: Active high

Tens:

0: Active low

1: Active high

Hundreds:

0: Active low

1: Active high

Thousands:
0: Active low
1: Active high

Ten thousands:
0: Active low
1: Active high

Description

When active high is selected, the DI terminal is active when connected to COM and inactive when disconnected from COM.
When active low is selected, the DI terminal is inactive when connected to COM and active when disconnected from COM.

F4-33 **DI (DI6 to DI8) active mode**

Address:	0xF421	Effective mode:	-
Min.:	0	Unit:	-
Max.:	11111	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

Ones:
0: Active low
1: Active high

Tens:
0: Active low
1: Active high

Hundreds:
0: Active low
1: Active high

Thousands:
0: Active low
1: Active high

Ten thousands:
0: Active low
1: Active high

Description

When active high is selected, the DI terminal is active when connected to COM and inactive when disconnected from COM.
When active low is selected, the DI terminal is inactive when connected to COM and active when disconnected from COM.

1.4 F5: Output Terminal Parameters

F5-00 **DO1/RO1 hardware source**

Address:	0xF500	Effective mode:	-
Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DIO1

2: Power supply unit - DIO2

3: Power supply unit - DIO3

4: Power supply unit - DIO4

5: Power supply unit - RO1

101: Extension card 1 - DO1/RO1

102: Extension card 1 - DO2/RO2

103: Extension card 1 - DO3/RO3

104: Extension card 1 - DO4/RO4

105: Extension card 1 - DO5/RO5

106: Extension card 1 - DO6/RO6

107: Extension card 1 - DO7/RO7

108: Extension card 1 - DO8/RO8

201: Extension card 2 - DO1/RO1

202: Extension card 2 - DO2/RO2

203: Extension card 2 - DO3/RO3

204: Extension card 2 - DO4/RO4

205: Extension card 2 - DO5/RO5

206: Extension card 2 - DO6/RO6

207: Extension card 2 - DO7/RO7

208: Extension card 2 - DO8/RO8

Description

This parameter defines the hardware source of the output terminal.

F5-01 **DO1/RO1 function**

Address:	0xF501	Effective mode:	-
Min.:	0	Unit:	-
Max.:	12	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function

1: Ready to run

2: Fault

3: Alarm

4: Circuit breaker action

5: Bus undervoltage

6: Bus overvoltage

7: Bus voltage normal

8: Three-phase input abnormal

9: Three-phase input normal

10: IGBT overtemperature

11: IGBT overtemperature pre-warning

12: Communication control

Description

This parameter defines the function of the DO1/RO1 terminal.

F5-02 **DO2/RO2 hardware source**

Address:	0xF502	Effective mode:	-
Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DIO1

2: Power supply unit - DIO2

3: Power supply unit - DIO3

4: Power supply unit - DIO4

5: Power supply unit - RO1

101: Extension card 1 - DO1/RO1

102: Extension card 1 - DO2/RO2

103: Extension card 1 - DO3/RO3

104: Extension card 1 - DO4/RO4

105: Extension card 1 - DO5/RO5

106: Extension card 1 - DO6/RO6

107: Extension card 1 - DO7/RO7

108: Extension card 1 - DO8/RO8

201: Extension card 2 - DO1/RO1

202: Extension card 2 - DO2/RO2

203: Extension card 2 - DO3/RO3

204: Extension card 2 - DO4/RO4

205: Extension card 2 - DO5/RO5

206: Extension card 2 - DO6/RO6

207: Extension card 2 - DO7/RO7

208: Extension card 2 - DO8/RO8

Description

Same as F5-00

F5-03 **DO2/RO2 function**

Address:	0xF503	Effective mode:	-
Min.:	0	Unit:	-
Max.:	12	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function

1: Ready to run

2: Fault

3: Alarm

4: Circuit breaker action

5: Bus undervoltage
6: Bus overvoltage
7: Bus voltage normal
8: Three-phase input abnormal
9: Three-phase input normal
10: IGBT overtemperature
11: IGBT overtemperature pre-warning
12: Communication control

Description

Same as F5-01

F5-04 **DO3/RO3 hardware source**

Address:	0xF504	Effective mode:	-
Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected
1: Power supply unit - DIO1
2: Power supply unit - DIO2
3: Power supply unit - DIO3
4: Power supply unit - DIO4
5: Power supply unit - RO1
101: Extension card 1 - DO1/RO1
102: Extension card 1 - DO2/RO2
103: Extension card 1 - DO3/RO3
104: Extension card 1 - DO4/RO4
105: Extension card 1 - DO5/RO5
106: Extension card 1 - DO6/RO6
107: Extension card 1 - DO7/RO7
108: Extension card 1 - DO8/RO8
201: Extension card 2 - DO1/RO1
202: Extension card 2 - DO2/RO2
203: Extension card 2 - DO3/RO3
204: Extension card 2 - DO4/RO4
205: Extension card 2 - DO5/RO5
206: Extension card 2 - DO6/RO6
207: Extension card 2 - DO7/RO7
208: Extension card 2 - DO8/RO8

Description

Same as F5-00

F5-05 **DO3/RO3 function**

Address:	0xF505	Effective mode:	-
Min.:	0	Unit:	-
Max.:	12	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function
1: Ready to run
2: Fault
3: Alarm
4: Circuit breaker action
5: Bus undervoltage
6: Bus overvoltage
7: Bus voltage normal
8: Three-phase input abnormal
9: Three-phase input normal
10: IGBT overtemperature
11: IGBT overtemperature pre-warning
12: Communication control

Description

Same as F5-01

F5-06 **DO4/RO4 hardware source**

Address:	0xF506	Effective mode:	-
Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected
1: Power supply unit - DIO1
2: Power supply unit - DIO2
3: Power supply unit - DIO3
4: Power supply unit - DIO4
5: Power supply unit - RO1
101: Extension card 1 - DO1/RO1
102: Extension card 1 - DO2/RO2
103: Extension card 1 - DO3/RO3
104: Extension card 1 - DO4/RO4
105: Extension card 1 - DO5/RO5
106: Extension card 1 - DO6/RO6
107: Extension card 1 - DO7/RO7
108: Extension card 1 - DO8/RO8
201: Extension card 2 - DO1/RO1
202: Extension card 2 - DO2/RO2
203: Extension card 2 - DO3/RO3
204: Extension card 2 - DO4/RO4
205: Extension card 2 - DO5/RO5
206: Extension card 2 - DO6/RO6
207: Extension card 2 - DO7/RO7
208: Extension card 2 - DO8/RO8

Description

Same as F5-00

F5-07 **DO4/RO4 function**

Address:	0xF507	Effective mode:	-
Min.:	0	Unit:	-
Max.:	12	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function

1: Ready to run

2: Fault

3: Alarm

4: Circuit breaker action

5: Bus undervoltage

6: Bus overvoltage

7: Bus voltage normal

8: Three-phase input abnormal

9: Three-phase input normal

10: IGBT overtemperature

11: IGBT overtemperature pre-warning

12: Communication control

Description

Same as F5-01

F5-08 **DO5/RO5 hardware source**

Address:	0xF508	Effective mode:	-
Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DIO1

2: Power supply unit - DIO2

3: Power supply unit - DIO3

4: Power supply unit - DIO4

5: Power supply unit - RO1

101: Extension card 1 - DO1/RO1

102: Extension card 1 - DO2/RO2

103: Extension card 1 - DO3/RO3

104: Extension card 1 - DO4/RO4

105: Extension card 1 - DO5/RO5

106: Extension card 1 - DO6/RO6

107: Extension card 1 - DO7/RO7

108: Extension card 1 - DO8/RO8

201: Extension card 2 - DO1/RO1

202: Extension card 2 - DO2/RO2

203: Extension card 2 - DO3/RO3

204: Extension card 2 - DO4/RO4

205: Extension card 2 - DO5/RO5

206: Extension card 2 - DO6/RO6

207: Extension card 2 - DO7/RO7

208: Extension card 2 - DO8/RO8

Description

Same as F5-00

F5-09 **DO5/RO5 function**

Address:	0xF509	Effective mode:	-
Min.:	0	Unit:	-
Max.:	12	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function

1: Ready to run

2: Fault

3: Alarm

4: Circuit breaker action

5: Bus undervoltage

6: Bus overvoltage

7: Bus voltage normal

8: Three-phase input abnormal

9: Three-phase input normal

10: IGBT overtemperature

11: IGBT overtemperature pre-warning

12: Communication control

Description

Same as F5-01

F5-10 **DO1/RO1 active delay**

Address:	0xF50A	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 600.00s

Description

This parameter defines the delay of response to the DO/RO terminal switching from the inactive state to active state.

F5-11 **DO2/RO2 active delay**

Address:	0xF50B	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 600.00s

Description

This parameter defines the delay of response to the DO/RO terminal switching from the inactive state to active state.

F5-12 **DO3/RO3 active delay**

Address:	0xF50C	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 600.00s

Description

This parameter defines the delay of response to the DO/RO terminal switching from the inactive state to active state.

F5-13 **DO4/RO4 active delay**

Address:	0xF50D	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 600.00s

Description

This parameter defines the delay of response to the DO/RO terminal switching from the inactive state to active state.

F5-14 **DO5/RO5 active delay**

Address:	0xF50E	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 600.00s

Description

This parameter defines the delay of response to the DO/RO terminal switching from the inactive state to active state.

F5-15 **DO1/RO1 inactive delay**

Address:	0xF50F	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 600.00s

Description

This parameter defines the delay of response to the DO/RO terminal switching from the active state to inactive state.

F5-16 **DO2/RO2 inactive delay**

Address:	0xF510	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 600.00s

Description

This parameter defines the delay of response to the DO/RO terminal switching from the active state to inactive state.

F5-17 **DO3/RO3 inactive delay**

Address:	0xF511	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 600.00s

Description

This parameter defines the delay of response to the DO/RO terminal switching from the active state to inactive state.

F5-18 **DO4/RO4 inactive delay**

Address:	0xF512	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 600.00s

Description

This parameter defines the delay of response to the DO/RO terminal switching from the active state to inactive state.

F5-19 **DO5/RO5 inactive delay**

Address:	0xF513	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 600.00s

Description

This parameter defines the delay of response to the DO/RO terminal switching from the active state to inactive state.

F5-20 **DO/RO active mode**

Address:	0xF514	Effective mode:	-
Min.:	0	Unit:	-
Max.:	11111	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

Ones:

0: Active high

1: Active low

Tens:

0: Active high

1: Active low

Hundreds:

0: Active high

1: Active low
Thousands:
0: Active high
1: Active low
Ten thousands:
0: Active high
1: Active low

Description

When active high is selected, the DO/RO terminal is active when connected to COM and inactive when disconnected from COM.
When active low is selected, the DO/RO terminal is inactive when connected to COM and active when disconnected from COM.

F5-21 **Circuit breaker action threshold**

Address:	0xF515	Effective mode:	Effective in real time
Min.:	0	Unit:	V
Max.:	1000	Data type:	UInt16
Default:	570	Change:	In real time

Value Range:

0 V to 1000 V

Description

This parameter defines the circuit breaker action threshold.

1.5 FA: Fault Log Query Parameters

FA-00 **Fault code of the 5th fault (latest)**

Address:	0xFA00	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter defines the fault code of the 5th fault (latest).

FA-01 **Fault subcode of the 5th fault**

Address:	0xFA01	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter defines the fault subcode of the 5th fault.

FA-02 **Bus voltage upon the 5th fault**

Address:	0xFA02	Effective mode:	-
Min.:	0.0	Unit:	V
Max.:	0.0	Data type:	UInt16

Default:	0.0	Change:	Unchangeable

Value Range:
0.0 V to 0.0 V
Description
This parameter defines the bus voltage upon the 5th fault.

FA-03 **Heatsink temperature upon the 5th fault**

Address:	0xFA03	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0°C to 0°C
Description
This parameter defines the heatsink temperature upon the 5th fault.

FA-04 **Ambient temperature upon the 5th fault**

Address:	0xFA04	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0°C to 0°C
Description
This parameter defines the ambient temperature upon the 5th fault.

FA-06 **Grid voltage Usr upon the 5th fault**

Address:	0xFA06	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 V to 0 V
Description
This parameter defines the grid voltage Usr upon the 5th fault.

FA-07 **Grid voltage Ust upon the 5th fault**

Address:	0xFA07	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 V to 0 V
Description
This parameter defines the grid voltage Ust upon the 5th fault.

FA-08 **Grid voltage Utr upon the 5th fault**

Address:	0xFA08	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 V to 0 V
Description
This parameter defines the grid voltage Utr upon the 5th fault.

FA-09 **Three-phase imbalance factor upon the 5th fault**

Address:	0xFA09	Effective mode:	-
Min.:	0.00	Unit:	%
Max.:	0.00	Data type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:
0.00% to 0.00%
Description
This parameter defines the three-phase imbalance factor upon the 5th fault.

FA-10 **DI state upon the 5th fault**

Address:	0xFA0A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter defines the DI state upon the 5th fault.

FA-11 **DO/RO state upon the 5th fault**

Address:	0xFA0B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter defines the DO/RO state upon the 5th fault.

FA-12 **Stop command sent from the power supply unit upon the 5th fault**

Address:	0xFA0C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
1: Ready to run
2: Coast to stop
3: Stop according to preset mode
Description
This parameter defines the stop command sent from the power supply unit upon the 5th fault.

FA-13 **Total power-on duration (hour) upon the 5th fault**

Address:	0xFA0D	Effective mode:	-
Min.:	0	Unit:	h
Max.:	0	Data type:	UInt16

Default: 0 Change: Unchangeable

Value Range:

0 h to 0 h

Description

This parameter defines the total power-on duration (hour) upon the 5th fault.

FA-14 **Total power-on duration (minute) upon the 5th fault**

Address:	0xFA0E	Effective mode:	-
Min.:	0	Unit:	min
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 min to 0 min

Description

This parameter defines the total power-on duration (minute) upon the 5th fault.

FA-15 **Total power-on duration (second) upon the 5th fault**

Address:	0xFA0F	Effective mode:	-
Min.:	0	Unit:	s
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0s to 0s

Description

This parameter defines the total power-on duration (second) upon the 5th fault.

FA-20 **Fault code of the 4th fault (2nd latest)**

Address:	0xFA14	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter defines the fault code of the 4th fault (2nd latest).

FA-21 **Fault subcode of the 4th fault**

Address:	0xFA15	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter defines the fault subcode of the 4th fault.

FA-22 **Bus voltage upon the 4th fault**

Address:	0xFA16	Effective mode:	-
Min.:	0.0	Unit:	V
Max.:	0.0	Data type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:
0.0 V to 0.0 V
Description
This parameter defines the bus voltage upon the 4th fault.

FA-23 **Heatsink temperature upon the 4th fault**

Address:	0xFA17	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0°C to 0°C
Description
This parameter defines the heatsink temperature upon the 4th fault.

FA-24 **Ambient temperature upon the 4th fault**

Address:	0xFA18	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0°C to 0°C
Description
This parameter defines the ambient temperature upon the 4th fault.

FA-26 **Grid voltage Usr upon the 4th fault**

Address:	0xFA1A	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 V to 0 V
Description
This parameter defines the grid voltage Usr upon the 4th fault.

FA-27 **Grid voltage Ust upon the 4th fault**

Address:	0xFA1B	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 V to 0 V
Description
This parameter defines the grid voltage Ust upon the 4th fault.

FA-28 **Grid voltage Utr upon the 4th fault**

Address:	0xFA1C	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 V to 0 V

Description

This parameter defines the grid voltage Utr upon the 4th fault.

FA-29 **Three-phase imbalance factor upon the 4th fault**

Address:	0xFA1D	Effective mode:	-
Min.:	0.00	Unit:	%
Max.:	0.00	Data type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:

0.00% to 0.00%

Description

This parameter defines the three-phase imbalance factor upon the 4th fault.

FA-30 **DI state upon the 4th fault**

Address:	0xFA1E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter defines the DI state upon the 4th fault.

FA-31 **DO/RO state upon the 4th fault**

Address:	0xFA1F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter defines the DO/RO state upon the 4th fault.

FA-32 **Stop command sent from the power supply unit upon the 4th fault**

Address:	0xFA20	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

1: Ready to run

2: Coast to stop

3: Stop according to preset mode

Description

This parameter defines the stop command sent from the power supply unit upon the 4th fault.

FA-33 **Total power-on duration (hour) upon the 4th fault**

Address:	0xFA21	Effective mode:	-
Min.:	0	Unit:	h
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 h to 0 h
Description
This parameter defines the total power-on duration (hour) upon the 4th fault.

FA-34 **Total power-on duration (minute) upon the 4th fault**

Address:	0xFA22	Effective mode:	-
Min.:	0	Unit:	min
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 min to 0 min
Description
This parameter defines the total power-on duration (minute) upon the 4th fault.

FA-35 **Total power-on duration (second) upon the 4th fault**

Address:	0xFA23	Effective mode:	-
Min.:	0	Unit:	s
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0s to 0s
Description
This parameter defines the total power-on duration (second) upon the 4th fault.

FA-40 **Fault code of the 3rd fault (3rd latest)**

Address:	0xFA28	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter defines the fault code of the 3rd fault (3rd latest).

FA-41 **Fault subcode of the 3rd fault**

Address:	0xFA29	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter defines the fault subcode of the 3rd fault.

FA-42 **Bus voltage upon the 3rd fault**

Address:	0xFA2A	Effective mode:	-
Min.:	0.0	Unit:	V
Max.:	0.0	Data type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0 V to 0.0 V

Description

This parameter defines the bus voltage upon the 3rd fault.

FA-43 **Heatsink temperature upon the 3rd fault**

Address:	0xFA2B	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0°C to 0°C

Description

This parameter defines the heatsink temperature upon the 3rd fault.

FA-44 **Ambient temperature upon the 3rd fault**

Address:	0xFA2C	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0°C to 0°C

Description

This parameter defines the ambient temperature upon the 3rd fault.

FA-46 **Grid voltage Usr upon the 3rd fault**

Address:	0xFA2E	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 V to 0 V

Description

This parameter defines the grid voltage Usr upon the 3rd fault.

FA-47 **Grid voltage Ust upon the 3rd fault**

Address:	0xFA2F	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 V to 0 V

Description

This parameter defines the grid voltage Ust upon the 3rd fault.

FA-48 **Grid voltage Utr upon the 3rd fault**

Address:	0xFA30	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 V to 0 V

Description

This parameter defines the grid voltage Utr upon the 3rd fault.

FA-49 **Three-phase imbalance factor upon the 3rd fault**

Address:	0xFA31	Effective mode:	-
Min.:	0.00	Unit:	%
Max.:	0.00	Data type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:

0.00% to 0.00%

Description

This parameter defines the three-phase imbalance factor upon the 3rd fault.

FA-50 **DI state upon the 3rd fault**

Address:	0xFA32	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter defines the DI state upon the 3rd fault.

FA-51 **DO/RO state upon the 3rd fault**

Address:	0xFA33	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter defines the DO/RO state upon the 3rd fault.

FA-52 **Stop command sent from the power supply unit upon the 3rd fault**

Address:	0xFA34	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

1: Ready to run

2: Coast to stop

3: Stop according to preset mode

Description

This parameter defines the stop command sent from the power supply unit upon the 3rd fault.

FA-53 **Total power-on duration (hour) upon the 3rd fault**

Address:	0xFA35	Effective mode:	-
Min.:	0	Unit:	h
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 h to 0 h

Description

This parameter defines the total power-on duration (hour) upon the 3rd fault.

FA-54 **Total power-on duration (minute) upon the 3rd fault**

Address:	0xFA36	Effective mode:	-
Min.:	0	Unit:	min
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 min to 0 min

Description

This parameter defines the total power-on duration (minute) upon the 3rd fault.

FA-55 **Total power-on duration (second) upon the 3rd fault**

Address:	0xFA37	Effective mode:	-
Min.:	0	Unit:	s
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0s to 0s

Description

This parameter defines the total power-on duration (second) upon the 3rd fault.

FA-60 **Fault code of the 2nd fault (4th latest)**

Address:	0xFA3C	Effective mode:	-
Min.:	0	Unit:	s
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0s to 0s

Description

This parameter defines the fault code of the 2nd fault (4th latest).

FA-61 **Fault subcode of the 2nd fault**

Address:	0xFA3D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter defines the fault subcode of the 2nd fault.

FA-62 **Bus voltage upon the 2nd fault**

Address:	0xFA3E	Effective mode:	-
Min.:	0.0	Unit:	V
Max.:	0.0	Data type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0 V to 0.0 V

Description

This parameter defines the bus voltage upon the 2nd fault.

FA-63 **Heatsink temperature upon the 2nd fault**

Address:	0xFA3F	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0°C to 0°C

Description

This parameter defines the heatsink temperature upon the 2nd fault.

FA-64 **Ambient temperature upon the 2nd fault**

Address:	0xFA40	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0°C to 0°C

Description

This parameter defines the ambient temperature upon the 2nd fault.

FA-66 **Grid voltage Usr upon the 2nd fault**

Address:	0xFA42	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 V to 0 V

Description

This parameter defines the grid voltage Usr upon the 2nd fault.

FA-67 **Grid voltage Ust upon the 2nd fault**

Address:	0xFA43	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 V to 0 V

Description

This parameter defines the grid voltage Ust upon the 2nd fault.

FA-68 **Grid voltage Utr upon the 2nd fault**

Address:	0xFA44	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 V to 0 V

Description

This parameter defines the grid voltage Utr upon the 2nd fault.

FA-69 **Three-phase imbalance factor upon the 2nd fault**

Address:	0xFA45	Effective mode:	-
Min.:	0.00	Unit:	%
Max.:	0.00	Data type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:

0.00% to 0.00%

Description

This parameter defines the three-phase imbalance factor upon the 2nd fault.

FA-70 **DI state upon the 2nd fault**

Address:	0xFA46	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter defines the DI state upon the 2nd fault.

FA-71 **DO/RO state upon the 2nd fault**

Address:	0xFA47	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter defines the DO/RO state upon the 2nd fault.

FA-72 **Stop command sent from the power supply unit upon the 2nd fault**

Address:	0xFA48	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

1: Ready to run

2: Coast to stop

3: Stop according to preset mode

Description

This parameter defines the stop command sent from the power supply unit upon the 2nd fault.

FA-73 **Total power-on duration (hour) upon the 2nd fault**

Address:	0xFA49	Effective mode:	-
Min.:	0	Unit:	h
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 h to 0 h

Description

This parameter defines the total power-on duration (hour) upon the 2nd fault.

FA-74 **Total power-on duration (minute) upon the 2nd fault**

Address:	0xFA4A	Effective mode:	-
Min.:	0	Unit:	min
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 min to 0 min

Description

This parameter defines the total power-on duration (minute) upon the 2nd fault.

FA-75 **Total power-on duration (second) upon the 2nd fault**

Address:	0xFA4B	Effective mode:	-
Min.:	0	Unit:	s
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0s to 0s

Description

This parameter defines the total power-on duration (second) upon the 2nd fault.

FA-80 **Fault code of the 1st fault (5th latest)**

Address:	0xFA50	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter defines the fault code of the 1st fault (5th latest).

FA-81 **Fault subcode of the 1st fault**

Address:	0xFA51	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter defines the fault subcode of the 1st fault.

FA-82 **Bus voltage upon the 1st fault**

Address:	0xFA52	Effective mode:	-
Min.:	0.0	Unit:	V
Max.:	0.0	Data type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0 V to 0.0 V

Description

This parameter defines the bus voltage upon the 1st fault.

FA-83 **Heatsink temperature upon the 1st fault**

Address:	0xFA53	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0°C to 0°C

Description

This parameter defines the heatsink temperature upon the 1st fault.

FA-84 **Ambient temperature upon the 1st fault**

Address:	0xFA54	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0°C to 0°C

Description

This parameter defines the ambient temperature upon the 1st fault.

FA-86 **Grid voltage Usr upon the 1st fault**

Address:	0xFA56	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 V to 0 V

Description

This parameter defines the grid voltage Usr upon the 1st fault.

FA-87 **Grid voltage Ust upon the 1st fault**

Address:	0xFA57	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 V to 0 V

Description

This parameter defines the grid voltage Ust upon the 1st fault.

FA-88 **Grid voltage Utr upon the 1st fault**

Address:	0xFA58	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 V to 0 V

Description

This parameter defines the grid voltage Utr upon the 1st fault.

FA-89 **Three-phase imbalance factor upon the 1st fault**

Address:	0xFA59	Effective mode:	-
Min.:	0.00	Unit:	%
Max.:	0.00	Data type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:

0.00% to 0.00%

Description

This parameter defines the three-phase imbalance factor upon the 1st fault.

FA-90 **DI state upon the 1st fault**

Address:	0xFA5A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter defines the DI state upon the 1st fault.

FA-91 **DO/RO state upon the 1st fault**

Address:	0xFA5B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter defines the DO/RO state upon the 1st fault.

FA-92 **Stop command sent from the power supply unit upon the 1st fault**

Address:	0xFA5C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

1: Ready to run

2: Coast to stop

3: Stop according to preset mode

Description

This parameter defines the stop command sent from the power supply unit upon the 1st fault.

FA-93 **Total power-on duration (hour) upon the 1st fault**

Address:	0xFA5D	Effective mode:	-
Min.:	0	Unit:	h
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 h to 0 h
Description
This parameter defines the total power-on duration (hour) upon the 1st fault.

FA-94 **Total power-on duration (minute) upon the 1st fault**

Address:	0xFA5E	Effective mode:	-
Min.:	0	Unit:	min
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 min to 0 min
Description
This parameter defines the total power-on duration (minute) upon the 1st fault.

FA-95 **Total power-on duration (second) upon the 1st fault**

Address:	0xFA5F	Effective mode:	-
Min.:	0	Unit:	s
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0s to 0s
Description
This parameter defines the total power-on duration (second) upon the 1st fault.

1.6 FD: Communication Parameters

Fd-00 **RS485 baud rate**

Address:	0xFD00	Effective mode:	-
Min.:	0	Unit:	-
Max.:	9	Data type:	UInt16
Default:	5	Change:	At stop

Value Range:
0: 300 bps
1: 600 bps
2: 1200 bps
3: 2400 bps
4: 4800 bps
5: 9600 bps
6: 19200 bps
7: 38400 bps
8: 57600 bps
9: 115200 bps
Description
This parameter defines the speed of data transmission between the host controller and AC drive. A larger baud rate indicates faster communication.
Note that the baud rate of the host controller must be the same as that of the AC drive. Otherwise, communication will fail.

Fd-01 **RS485 data format**

Address:	0xFD01	Effective mode:	-
Min.:	0	Unit:	-
Max.:	7	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: No check (8-N-2)

1: Even parity (8-E-1)

2: Odd parity (8-O-1)

3: No check (8-N-1)

4: No check (7-N-2)

5: Even parity (7-E-1)

6: Odd parity (7-O-1)

7: No check (7-N-1)

Description

This parameter defines the format of Modbus data transmitted between the host controller and AC drive. Note that the data format set in the host controller must be the same as that set in the AC drive. Otherwise, communication will fail.

Fd-02 **RS485 local address**

Address:	0xFD02	Effective mode:	-
Min.:	1	Unit:	-
Max.:	127	Data type:	UInt16
Default:	16	Change:	Unchangeable

Value Range:

1 to 127

Description

When the local address is set to 0 (broadcast address), host controller broadcast is enabled.

The local address must be unique in the range of 1 to 247, which is the basis for point-to-point communication between the AC drive and host controller.

Fd-03 **RS485 response delay**

Address:	0xFD03	Effective mode:	-
Min.:	0	Unit:	ms
Max.:	20	Data type:	UInt16
Default:	2	Change:	In real time

Value Range:

0 ms to 20 ms

Description

This parameter defines the interval from the end of data reception by the AC drive to the start of data transmission to the host controller.

If the response delay is shorter than the system processing time, the system processing time prevails. That is, the system sends data to the host controller immediately after data processing is completed. If the response delay is longer than the system processing time, the AC drive sends data to the host controller only after the response delay elapses.

Fd-04 **RS485 communication timeout time**

Address:	0xFD04	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	60.0	Data type:	UInt16

Default: 0.0 Change: In real time

Value Range:

0.0s to 60.0s

Description

When it is set to 0.0s, the Modbus communication timeout time is invalid. It is set to 0.0s under normal circumstances. This parameter is used to monitor communication status in a system with continuous communication.

When it is set to a valid value, if the communication interval between the current communication and the next communication exceeds the value of this parameter, the system reports a communication fault (E16).

Fd-06 Auto reset upon communication fault

Address:	0xFD06	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:

0: Disabled

1: Enabled

Description

This parameter defines whether to reset the communication fault automatically.

Fd-07 Maximum station number auto allocated

Address:	0xFD07	Effective mode:	-
Min.:	0	Unit:	-
Max.:	8	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 8

Description

This parameter defines the maximum station number allocated automatically.

Fd-09 Communication state

Address:	0xFD09	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

Ones: CANopen

0: Stopped

1: Initialized

2: Pre-running

8: Running

Tens: CANlink

0: Stopped

1: Initialized

2: Pre-running

8: Running

Description

This read-only parameter is used to monitor the communication status.

Fd-10 **Communication type**

Address:	0xFD0A	Effective mode:	-
Min.:	1	Unit:	-
Max.:	3	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:

1: CANopen

2: CANlink

3: Communication card mode

Description

This parameter defines the CAN communication type.

1 indicates CANopen communication, 2 indicates CANlink communication, and 3 indicates the communication card mode.

Fd-12 **CAN baud rate**

Address:	0xFD0C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	6	Data type:	UInt16
Default:	5	Change:	In real time

Value Range:

0: 20 kbps

1: 50 kbps

2: 100 kbps

3: 125 kbps

4: 250 kbps

5: 500 kbps

6: 1 Mbps

Description

This parameter defines the baud rate for CAN communication, including CANlink and CANopen communication. In the same network, baud rates of all stations must be consistent. Otherwise, communication will fail.

Fd-13 **CAN station number**

Address:	0xFD0D	Effective mode:	-
Min.:	1	Unit:	-
Max.:	127	Data type:	UInt16
Default:	16	Change:	Unchangeable

Value Range:

1 to 127

Description

This parameter defines the CAN station number, including that for CANlink and CANopen communication. In the same network, all station numbers must be unique. Otherwise, communication will fail.

Fd-14 **Number of CAN frames received per unit time (real-time)**

Address:	0xFD0E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter is used to monitor the bus load. It defines the number of CAN frames received by the station per second.

Fd-15 **Maximum value of node reception error counter (real-time)**

Address:	0xFD0F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter is used to monitor bus errors. It defines the maximum value of the CAN reception error counter of the node.

Fd-16 **Maximum value of node transmission error counter (real-time)**

Address:	0xFD10	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter is used to monitor bus errors. This parameter defines the maximum value of the CAN transmission error counter of the node.

Fd-17 **Bus-off count per unit time**

Address:	0xFD11	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter is used to monitor bus errors. This parameter defines the CAN bus-off count of the node.

Fd-18 **Power supply unit No.**

Address:	0xFD12	Effective mode:	-
Min.:	1	Unit:	-
Max.:	15	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:

1 to 15

Description

This parameter defines the power supply unit number.

Fd-19 **CAN communication disconnection coefficient**

Address:	0xFD13	Effective mode:	-
Min.:	1	Unit:	-

Max.:	15	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:

1 to 15

Description

This parameter defines the CAN communication disconnection coefficient.

Fd-34 **CANopen mode**

Address:	0xFD22	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Standard mode

1: Expert mode

Description

This parameter defines the CANopen mode.

Fd-35 **CANopen inhibit time**

Address:	0xFD23	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

This parameter defines the CANopen inhibit time.

Fd-36 **CANopen event time**

Address:	0xFD24	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

This parameter defines the CANopen event time.

Fd-39 **AC drive station number configuration**

Address:	0xFD27	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Disabled

1: Enabled

Description

This parameter defines whether the AC drive station number can be configured.

Fd-40 **Manual setting of power supply unit station number**

Address:	0xFD28	Effective mode:	-

Min.: 0 Unit: -
Max.: 127 Data type: UInt16
Default: 0 Change: In real time

Value Range:

0 to 127

Description

This parameter defines the manually set station number of the power supply unit.

Fd-41 Manual setting of drive unit 1 station number

Address: 0xFD29 Effective mode: -
Min.: 0 Unit: -
Max.: 127 Data type: UInt16
Default: 0 Change: In real time

Value Range:

0 to 127

Description

This parameter defines the manually set station number of drive unit 1.

Fd-42 Manual setting of drive unit 2 station number

Address: 0xFD2A Effective mode: -
Min.: 0 Unit: -
Max.: 127 Data type: UInt16
Default: 0 Change: In real time

Value Range:

0 to 127

Description

This parameter defines the manually set station number of drive unit 2.

Fd-43 Manual setting of drive unit 3 station number

Address: 0xFD2B Effective mode: -
Min.: 0 Unit: -
Max.: 127 Data type: UInt16
Default: 0 Change: In real time

Value Range:

0 to 127

Description

This parameter defines the manually set station number of drive unit 3.

Fd-44 Manual setting of drive unit 4 station number

Address: 0xFD2C Effective mode: -
Min.: 0 Unit: -
Max.: 127 Data type: UInt16
Default: 0 Change: In real time

Value Range:

0 to 127

Description

This parameter defines the manually set station number of drive unit 4.

Fd-45 Manual setting of drive unit 5 station number

Address: 0xFD2D Effective mode: -
Min.: 0 Unit: -

Max.:	127	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 127

Description

This parameter defines the manually set station number of drive unit 5.

Fd-46 **Manual setting of drive unit 6 station number**

Address:	0xFD2E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	127	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 127

Description

This parameter defines the manually set station number of drive unit 6.

Fd-47 **Manual setting of drive unit 7 station number**

Address:	0xFD2F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	127	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 127

Description

This parameter defines the manually set station number of drive unit 7.

Fd-48 **Manual setting of drive unit 8 station number**

Address:	0xFD30	Effective mode:	-
Min.:	0	Unit:	-
Max.:	127	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 127

Description

This parameter defines the manually set station number of drive unit 8.

Fd-50 **Startup with slave mismatch**

Address:	0xFD32	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Disabled

1: Enabled

Description

0: The communication error E16.74 is reported when the number of slave stations configured for the PLC is inconsistent with the actual number of slave stations in the network.

1: No communication error is reported when the number of slave stations configured for the PLC is inconsistent with the actual number of slave stations in the network.

Fd-51 **Network bridge data interaction period**

Address:	0xFD33	Effective mode:	-
Min.:	0	Unit:	ms
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 ms to 65535 ms

Description

This parameter defines the slave station communication inhibit time.

Fd-52 **Number of online slave stations**

Address:	0xFD34	Effective mode:	-
Min.:	0	Unit:	-
Max.:	30	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 30

Description

This parameter defines the number of online slave stations.

Fd-53 **Online status of slave stations 1 to 15**

Address:	0xFD35	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the online status of stations 1 to 15. Bit1 indicates station 1, and so on.

Fd-54 **Online status of slave stations 16 to 31**

Address:	0xFD36	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the online status of stations 16 to 31. Bit0 indicates station 16, and so on.

Fd-55 **PN timeout time**

Address:	0xFD37	Effective mode:	-
Min.:	0	Unit:	ms
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 ms to 65535 ms

Description

This parameter defines the PROFINET communication timeout time.

Fd-56 **PN chip state**

Address:	0xFD38	Effective mode:	-

Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the state of the PROFINET chip.

Fd-57 Communication card state

Address:	0xFD39	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0: Initialized

1: Running

2: Stopped

3: Reconnecting

Description

This parameter defines the state of the communication card.

Fd-61 MAC address 1

Address:	0xFD3D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the highest two bytes of the MAC address.

Fd-62 MAC address 2

Address:	0xFD3E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the middle two bytes of the MAC address.

Fd-63 MAC address 3

Address:	0xFD3F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the lowest two bytes of the MAC address.

Fd-70 EtherCAT station name

Address:	0xFD46	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the name of the EtherCAT station.

Fd-71 EtherCAT station alias

Address:	0xFD47	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

This parameter defines the alias of the EtherCAT station.

Fd-72 Allowed EtherCAT sync interrupt loss times

Address:	0xFD48	Effective mode:	-
Min.:	0	Unit:	-
Max.:	30	Data type:	UInt16
Default:	10	Change:	In real time

Value Range:

0 to 30

Description

This parameter defines the allowed times of EtherCAT sync interrupt loss.

Fd-73 CRC check error of EtherCAT port 0

Address:	0xFD49	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the maximum number of invalid frames and errors of EtherCAT port 0 per unit time.

Fd-74 CRC check error of EtherCAT port 1

Address:	0xFD4A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the maximum number of invalid frames and errors of EtherCAT port 1 per unit time.

Fd-75 **Data forwarding error of EtherCAT port 0/1**

Address:	0xFD4B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the maximum number of EtherCAT port forwarding errors per unit time.

Fd-76 **EtherCAT processing unit and PDI error**

Address:	0xFD4C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the maximum number of EtherCAT data frame processing unit errors per unit time.

Fd-77 **Link loss of EtherCAT port 0/1**

Address:	0xFD4D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the maximum EtherCAT port 0 link losses per unit time.

Fd-78 **EtherCAT host type**

Address:	0xFD4E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

This parameter is set according to the host controller type and reserved for customized models.

Fd-79 **EtherCAT synchronization error monitoring mode**

Address:	0xFD4F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

This parameter defines the fault (synchronization loss) detection mechanism.

Fd-80 **EtherCAT synchronization frame loss count**

Address:	0xFD50	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the number of synchronization frame losses.

Fd-81 **EtherCAT state machine and PHYLink state**

Address:	0xFD51	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the state machine and PHYLink state.

Fd-82 **EtherCAT - AL fault code**

Address:	0xFD52	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the AL fault code.

Fd-83 **EtherCAT - XML file version**

Address:	0xFD53	Effective mode:	-
Min.:	0.00	Unit:	-
Max.:	655.35	Data type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:
0.00 to 655.35
Description
This parameter defines the XML file version.

Fd-84 **EtherCAT - FPGA firmware version**

Address:	0xFD54	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the FPGA software version.

Fd-85 **Station alias backup display**

Address:	0xFD55	Effective mode:	-

Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the station alias backup display.

Fd-86 **EtherCAT - EEPROM reading time**

Address:	0xFD56	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
This parameter defines the EtherCAT EEPROM reading time.

Fd-87 **EtherCAT - DC gain**

Address:	0xFD57	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
This parameter defines the EtherCAT DC gain.

Fd-88 **EtherCAT - DC acceleration limit**

Address:	0xFD58	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
This parameter defines the EtherCAT DC acceleration limit.

Fd-89 **EtherCAT - DC speed limit**

Address:	0xFD59	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
This parameter defines the EtherCAT DC speed limit.

Fd-90 **EtherCAT - DC integral coefficient**

Address:	0xFD5A	Effective mode:	-
Min.:	0	Unit:	-

Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535

Description
This parameter defines the EtherCAT DC integral coefficient.

Fd-91 Communication card version

Address: 0xFD5B | Effective mode: -
Min.: 0.00 | Unit: -
Max.: 655.35 | Data type: UInt16
Default: 0.00 | Change: Unchangeable

Value Range:
0.00 to 655.35

Description
This parameter defines the software version of the communication extension card.

Fd-92 Communication version

Address: 0xFD5C | Effective mode: -
Min.: 0.00 | Unit: -
Max.: 655.35 | Data type: UInt16
Default: 0.00 | Change: Unchangeable

Value Range:
0.00 to 655.35

Description
This parameter defines the communication software version.

Fd-93 Station number of device connected to extension card slot 1

Address: 0xFD5D | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
0 to 65535

Description
This parameter defines the station number of the device connected to extension card slot 1.

Fd-94 Station number of device connected to extension card slot 2

Address: 0xFD5E | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
0 to 65535

Description
This parameter defines the station number of the device connected to extension card slot 2.

Fd-95 Station number of device connected to extension card slot 3

Address: 0xFD5F | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the station number of the device connected to extension card slot 3.

Fd-96 **Station number of device connected to reserved slot 4**

Address:	0xFD60	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the station number of the device connected to reserved slot 4.

Fd-97 **Station number of device connected to reserved slot 5**

Address:	0xFD61	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the station number of the device connected to reserved slot 5.

Fd-98 **Station number of device connected to reserved slot 6**

Address:	0xFD62	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the station number of the device connected to reserved slot 6.

Fd-99 **Station number of device connected to reserved slot 7**

Address:	0xFD63	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the station number of the device connected to reserved slot 7.

1.7 FF: Factory Parameters

FF-00 **Factory password**

Address:	0xFF00	Effective mode:	-
Min.:	0	Unit:	-

Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
-

FF-01 **Model**

Address:	0xFF01	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 2
Description
-

FF-02 **Power class**

Address:	0xFF02	Effective mode:	-
Min.:	0.0	Unit:	kW
Max.:	999.9	Data type:	UInt16
Default:	3.7	Change:	In real time

Value Range:
0.0 kW to 999.9 kW
Description
-

FF-03 **Voltage class**

Address:	0xFF03	Effective mode:	-
Min.:	0	Unit:	V
Max.:	999	Data type:	UInt16
Default:	380	Change:	In real time

Value Range:
0 V to 999 V
Description
-

FF-05 **Bus voltage correction coefficient**

Address:	0xFF05	Effective mode:	-
Min.:	80.0	Unit:	-
Max.:	140.0	Data type:	UInt16
Default:	100.0	Change:	In real time

Value Range:
80.0 to 140.0
Description
-

FF-10 **Any memory address**

Address:	0xFF0A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 0
Description
-

FF-11 **Parameter group display setting 1**

Address:	0xFF0B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	11111	Data type:	UInt16
Default:	11111	Change:	In real time

Value Range:
0 to 11111
Description
-

FF-12 **Parameter group display setting 2**

Address:	0xFF0C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	11111	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 11111
Description
-

FF-13 **Parameter group display setting 4**

Address:	0xFF0D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	11111	Data type:	UInt16
Default:	11111	Change:	In real time

Value Range:
0 to 11111
Description
-

FF-14 **Three-phase input imbalance detection threshold**

Address:	0xFF0E	Effective mode:	-
Min.:	3.00	Unit:	%
Max.:	10.00	Data type:	UInt16
Default:	10.00	Change:	In real time

Value Range:
3.00% to 10.00%
Description
-

FF-15 **Parameter group display setting 3**

Address:	0xFF0F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	11111	Data type:	UInt16
Default:	11111	Change:	In real time

Value Range:
0 to 11111

Description

-

FF-17 **Urs line voltage correction coefficient**

Address:	0xFF11	Effective mode:	-
Min.:	80.0	Unit:	%
Max.:	140.0	Data type:	UInt16
Default:	100.0	Change:	In real time

Value Range:

80.0% to 140.0%

Description

-

FF-18 **Ust line voltage correction coefficient**

Address:	0xFF12	Effective mode:	-
Min.:	80.0	Unit:	%
Max.:	140.0	Data type:	UInt16
Default:	100.0	Change:	In real time

Value Range:

80.0% to 140.0%

Description

-

FF-19 **Utr line voltage correction coefficient**

Address:	0xFF13	Effective mode:	-
Min.:	80.0	Unit:	%
Max.:	140.0	Data type:	UInt16
Default:	100.0	Change:	In real time

Value Range:

80.0% to 140.0%

Description

-

1.8 FP: User Password Parameters

FP-00 **User password**

Address:	0x1F00	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

This parameter defines the user password.

FP-01 **Parameter initialization**

Address:	0x1F01	Effective mode:	-
Min.:	0	Unit:	-
Max.:	501	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:

0: No operation

1: Restore default settings

2: Clear records

4: Back up current user parameters

501: Restore user backup parameters

Description

This parameter is used to set the corresponding action upon parameter initialization of the AC drive.

0: No operation

The AC drive does not perform any operation.

1: Restore default setting mode 1

Restore default parameters (excluding parameters in groups FA and FP).

2: Clear records

Clear record information. Clear fault records and accumulative running time of the power supply unit.

4: Back up the current user parameters

Back up the current parameter settings. The current parameter settings are backed up to facilitate restoration after parameter adjustment.

501: Restore user backup parameters

Restore your previously backed-up parameters, that is, restore parameters that are backed up by setting FP-01 to 4.

FP-03 **Monitoring parameter display**

Address:	0x1F03	Effective mode:	-
Min.:	0	Unit:	-
Max.:	127	Data type:	UInt16
Default:	79	Change:	In real time

Value Range:

Bit0: Bus voltage

Bit1: Heatsink temperature

Bit2: Ambient temperature

Bit3: Usr line voltage

Bit4: Ust line voltage

Bit5: Utr line voltage

Bit6: Three-phase imbalance factor

Description

This parameter defines the monitoring state of parameters switched by pressing the Shift key under the level 0 menu of the operating panel.

FP-05 **I/O card parameter restoration**

Address:	0x1F05	Effective mode:	-
Min.:	0	Unit:	-
Max.:	255	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Invalid

1: I/O extension card 1

2: I/O extension card 2

3: I/O extension card 3

255: All I/O extension cards

Description

This parameter defines whether to restore the extension card with AI input to factory defaults. All AI calibration can be set by using parameters in group AC. After parameters in group AC are set on site, you can set FP-05 to restore default settings if required.

FP-06 **Local parameter backup mode**

Address:	0x1F06	Effective mode:	Effective in real time
Min.:	1	Unit:	-
Max.:	2	Data type:	UInt16
Default:	2	Change:	In real time

Value Range:

1: Back up all parameters

2: Back up non-motor parameters

Description

This parameter defines the parameters to be backed up.

FP-07 **Local parameter backup operation**

Address:	0x1F07	Effective mode:	Effective in real time
Min.:	0	Unit:	-
Max.:	28	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 28

Description

This parameter defines the axis to be backed up and the backup type.

1.9 A0: Internal Communication Parameters

A0-00 **I/O extension card communication cycle**

Address:	0xA000	Effective mode:	-
Min.:	0	Unit:	-
Max.:	100	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 100

Description

This parameter defines the communication cycle of the I/O extension card.

A0-01 **Alarm threshold of consecutive drive unit frame loss**

Address:	0xA001	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1000	Data type:	UInt16
Default:	10	Change:	In real time

Value Range:

0 to 1000

Description

This parameter defines the allowed maximum number of I/O communication data frames lost by the drive unit.

When the consecutive frame loss count of the drive unit exceeds the value of A0-01, the system reports A98.01.
When the consecutive frame loss count of the I/O extension card exceeds the value of A0-02 and the consecutive frame loss count of the drive unit exceeds the value of A0-01, the system reports A98.03.

A0-02 **Alarm threshold of consecutive I/O extension card frame loss**

Address:	0xA002	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1000	Data type:	UInt16
Default:	10	Change:	In real time

Value Range:
0 to 1000
Description
This parameter defines the allowed maximum number of communication data frames lost by the I/O extension card.
When the consecutive frame loss count of the I/O extension card exceeds the value of A0-02, the system reports A98.02.
When the consecutive frame loss count of the I/O extension card exceeds the value of A0-02 and the consecutive frame loss count of the drive unit exceeds the value of A0-01, the system reports A98.03.

A0-03 **Display of station number of drive unit with frame loss**

Address:	0xA003	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
Bit0: Drive unit 1
Bit1: Drive unit 2
Bit2: Drive unit 3
Bit3: Drive unit 4
Bit4: Drive unit 5
Bit5: Drive unit 6
Bit6: Drive unit 7
Bit7: Drive unit 8
Description
The station number is displayed in hexadecimal. Bits 0 to 7 correspond to axes 1 to 8 respectively. If a bit is 1, the I/O communication between the power supply unit and the axis is interrupted.

A0-04 **Display of station number of I/O extension card with frame loss**

Address:	0xA004	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
Bit0: I/O extension card 1
Bit1: Extension card 2
Bit2: Extension card 3

Description

The station number is displayed in hexadecimal. Bits 0 to 2 correspond to extension cards 1 to 3, respectively. If a bit is 1, the I/O communication between the power supply unit and the extension card is interrupted.

A0-05 **Frame loss count of axis 1**

Address:	0xA005	Effective mode:	Effective in real time
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the consecutive I/O data frame loss count between the power supply unit and the axis.

A0-06 **Frame loss count of axis 2**

Address:	0xA006	Effective mode:	Effective in real time
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the consecutive I/O data frame loss count between the power supply unit and the axis.

A0-07 **Frame loss count of axis 3**

Address:	0xA007	Effective mode:	Effective in real time
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the consecutive I/O data frame loss count between the power supply unit and the axis.

A0-08 **Frame loss count of axis 4**

Address:	0xA008	Effective mode:	Effective in real time
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the consecutive I/O data frame loss count between the power supply unit and the axis.

A0-09 **Frame loss count of axis 5**

Address:	0xA009	Effective mode:	Effective in real time

Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the consecutive I/O data frame loss count between the power supply unit and the axis.

A0-10 Frame loss count of axis 6

Address:	0xA00A	Effective mode:	Effective in real time
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the consecutive I/O data frame loss count between the power supply unit and the axis.

A0-11 Frame loss count of axis 7

Address:	0xA00B	Effective mode:	Effective in real time
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the consecutive I/O data frame loss count between the power supply unit and the axis.

A0-12 Frame loss count of axis 8

Address:	0xA00C	Effective mode:	Effective in real time
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the consecutive I/O data frame loss count between the power supply unit and the axis.

A0-13 Frame loss count of extension card 1

Address:	0xA00D	Effective mode:	Effective in real time
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the consecutive I/O data frame loss count between the power supply unit and the extension card.

A0-14 **Frame loss count of extension card 2**

Address:	0xA00E	Effective mode:	Effective in real time
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the consecutive I/O data frame loss count between the power supply unit and the extension card.

A0-15 **Frame loss count of extension card 3**

Address:	0xA00F	Effective mode:	Effective in real time
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the consecutive I/O data frame loss count between the power supply unit and the extension card.

1.10 A1: Local I/O Function Parameters

A1-00 **Power supply unit - Filter time of DI1 to DI4**

Address:	0xA100	Effective mode:	-
Min.:	0.000	Unit:	s
Max.:	5.000	Data type:	UInt16
Default:	0.010	Change:	In real time

Value Range:

0.000s to 5.000s

Description

This parameter defines the filter time of DI1 to DI4.

A1-01 **Power supply unit - Filter time of DI5 to DI8**

Address:	0xA101	Effective mode:	-
Min.:	0.000	Unit:	s
Max.:	5.000	Data type:	UInt16
Default:	0.010	Change:	In real time

Value Range:

0.000s to 5.000s

Description

This parameter defines the filter time of DI5 to DI8.

A1-05 **Power supply unit - AI1 filter time**

Address:	0xA105	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	10.00	Data type:	UInt16
Default:	0.10	Change:	In real time

Value Range:

0.00s to 10.00s

Description

This parameter defines the AI1 filter time.

A1-06 **Power supply unit - AI2 filter time**

Address:	0xA106	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	10.00	Data type:	UInt16
Default:	0.10	Change:	In real time

Value Range:

0.00s to 10.00s

Description

This parameter defines the AI2 filter time.

A1-10 **Power supply unit - AI1 input**

Address:	0xA10A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	5	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Voltage input

1: Current input

2: PT100 input

3: PT1000 input

4: KTY84 input

5: PTC130 input

Description

This parameter defines the AI1 input.

A1-11 **Power supply unit - AI2 input**

Address:	0xA10B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	5	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Voltage input

1: Current input

2: PT100 input

3: PT1000 input

4: KTY84 input

5: PTC130 input

Description

This parameter defines the AI2 input.

1.11 A2: I/O Extension Card 1 Function Parameters

A2-00 **Extension card 1 - Filter time of DI1 to DI4**

Address:	0xA200	Effective mode:	-

Min.:	0.000	Unit:	s
Max.:	5.000	Data type:	UInt16
Default:	0.010	Change:	In real time

Value Range:

0.000s to 5.000s

Description

This parameter defines the filter time of DI1 to DI4.

A2-01 **Extension card 1 - Filter time of DI5 to DI8**

Address:	0xA201	Effective mode:	-
Min.:	0.000	Unit:	s
Max.:	5.000	Data type:	UInt16
Default:	0.010	Change:	In real time

Value Range:

0.000s to 5.000s

Description

This parameter defines the filter time of DI5 to DI8.

A2-05 **Extension card 1 - AI1 filter time**

Address:	0xA205	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	10.00	Data type:	UInt16
Default:	0.10	Change:	In real time

Value Range:

0.00s to 10.00s

Description

This parameter defines the AI1 filter time.

A2-06 **Extension card 1 - AI2 filter time**

Address:	0xA206	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	10.00	Data type:	UInt16
Default:	0.10	Change:	In real time

Value Range:

0.00s to 10.00s

Description

This parameter defines the AI2 filter time.

A2-10 **Extension card 1 - AI1 input**

Address:	0xA20A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	5	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Voltage input

1: Current input

2: PT100 input

3: PT1000 input

4: KTY84 input

5: PTC130 input

Description

This parameter defines the AI1 input.

A2-11 **Extension card 1 - AI2 input**

Address:	0xA20B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	5	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Voltage input

1: Current input

2: PT100 input

3: PT1000 input

4: KTY84 input

5: PTC130 input

Description

This parameter defines the AI2 input.

1.12 A3: I/O Extension Card 2 Function Parameters

A3-00 **Extension card 2 - Filter time of DI1 to DI4**

Address:	0xA300	Effective mode:	-
Min.:	0.000	Unit:	s
Max.:	5.000	Data type:	UInt16
Default:	0.010	Change:	In real time

Value Range:

0.000s to 5.000s

Description

This parameter defines the filter time of DI1 to DI4.

A3-01 **Extension card 2 - Filter time of DI5 to DI8**

Address:	0xA301	Effective mode:	-
Min.:	0.000	Unit:	s
Max.:	5.000	Data type:	UInt16
Default:	0.010	Change:	In real time

Value Range:

0.000s to 5.000s

Description

This parameter defines the filter time of DI5 to DI8.

A3-05 **Extension card 2 - AI1 filter time**

Address:	0xA305	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	10.00	Data type:	UInt16
Default:	0.10	Change:	In real time

Value Range:

0.00s to 10.00s

Description

This parameter defines the AI1 filter time.

A3-06 **Extension card 2 - AI2 filter time**

Address:	0xA306	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	10.00	Data type:	UInt16
Default:	0.10	Change:	In real time

Value Range:

0.00s to 10.00s

Description

This parameter defines the AI2 filter time.

A3-10 **Extension card 2 - AI1 input**

Address:	0xA30A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	5	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Voltage input

1: Current input

2: PT100 input

3: PT1000 input

4: KTY84 input

5: PTC130 input

Description

This parameter defines the AI1 input.

A3-11 **Extension card 2 - AI2 input**

Address:	0xA30B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	5	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Voltage input

1: Current input

2: PT100 input

3: PT1000 input

4: KTY84 input

5: PTC130 input

Description

This parameter defines the AI2 input.

1.13 AC: AI Correction Coefficient Parameters

AC-00 **Power supply unit - AI1 measured voltage 1**

Address:	0xAC00	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

When analog voltage correction is conducted on AI1, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI1 voltage before correction (U2-12).

AC-01 Power supply unit - AI1 displayed voltage 1

Address:	0xAC01	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

When analog voltage correction is conducted on AI1, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI1 voltage before correction (U2-12).

AC-02 Power supply unit - AI1 measured voltage 2

Address:	0xAC02	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

When analog voltage correction is conducted on AI1, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI1 voltage before correction (U2-12).

AC-03 Power supply unit - AI1 displayed voltage 2

Address:	0xAC03	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

When analog voltage correction is conducted on AI1, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI1 voltage before correction (U2-12).

AC-04 Power supply unit - AI2 measured voltage 1

Address:	0xAC04	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

When analog voltage correction is conducted on AI2, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI2 voltage before correction (U2-13).

AC-05 **Power supply unit - AI2 displayed voltage 1**

Address:	0xAC05	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

When analog voltage correction is conducted on AI2, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI2 voltage before correction (U2-13).

AC-06 **Power supply unit - AI2 measured voltage 2**

Address:	0xAC06	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

When analog voltage correction is conducted on AI2, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI2 voltage before correction (U2-13).

AC-07 **Power supply unit - AI2 displayed voltage 2**

Address:	0xAC07	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

When analog voltage correction is conducted on AI2, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI2 voltage before correction (U2-13).

AC-08 **Extension card 1 - AI1 measured voltage 1**

Address:	0xAC08	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V

Max.: 12.000 Data type: UInt16
Default: 2.000 Change: In real time

Value Range:
0.000 V to 12.000 V

Description
When analog voltage correction is conducted on AI1, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI1 voltage before correction (U3-12).

AC-09 Extension card 1 - AI1 displayed voltage 1

Address: 0xAC09 Effective mode: Effective in real time
Min.: 0.000 Unit: V
Max.: 12.000 Data type: UInt16
Default: 2.000 Change: In real time

Value Range:
0.000 V to 12.000 V

Description
When analog voltage correction is conducted on AI1, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI1 voltage before correction (U3-12).

AC-10 Extension card 1 - AI1 measured voltage 2

Address: 0xAC0A Effective mode: Effective in real time
Min.: 0.000 Unit: V
Max.: 12.000 Data type: UInt16
Default: 2.000 Change: In real time

Value Range:
0.000 V to 12.000 V

Description
When analog voltage correction is conducted on AI1, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI1 voltage before correction (U3-12).

AC-11 Extension card 1 - AI1 displayed voltage 2

Address: 0xAC0B Effective mode: Effective in real time
Min.: 0.000 Unit: V
Max.: 12.000 Data type: UInt16
Default: 2.000 Change: In real time

Value Range:
0.000 V to 12.000 V

Description
When analog voltage correction is conducted on AI1, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI1 voltage before correction (U3-12).

AC-12 **Extension card 1 - AI2 measured voltage 1**

Address:	0xAC0C	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

When analog voltage correction is conducted on AI2, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI2 voltage before correction (U3-13).

AC-13 **Extension card 1 - AI2 displayed voltage 1**

Address:	0xAC0D	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

When analog voltage correction is conducted on AI2, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI2 voltage before correction (U3-13).

AC-14 **Extension card 1 - AI2 measured voltage 2**

Address:	0xAC0E	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

When analog voltage correction is conducted on AI2, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI2 voltage before correction (U3-13).

AC-15 **Extension card 1 - AI2 displayed voltage 2**

Address:	0xAC0F	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

When analog voltage correction is conducted on AI2, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI2 voltage before correction (U3-13).

AC-16 **Extension card 2 - AI1 measured voltage 1**

Address:	0xAC10	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

When analog voltage correction is conducted on AI1, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI1 voltage before correction (U4-12).

AC-17 **Extension card 2 - AI1 displayed voltage 1**

Address:	0xAC11	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

When analog voltage correction is conducted on AI1, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI1 voltage before correction (U4-12).

AC-18 **Extension card 2 - AI1 measured voltage 2**

Address:	0xAC12	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

When analog voltage correction is conducted on AI1, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI1 voltage before correction (U4-12).

AC-19 **Extension card 2 - AI1 displayed voltage 2**

Address:	0xAC13	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
When analog voltage correction is conducted on AI1, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI1 voltage before correction (U4-12).

AC-20 **Extension card 2 - AI2 measured voltage 1**

Address:	0xAC14	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
When analog voltage correction is conducted on AI2, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI2 voltage before correction (U4-13).

AC-21 **Extension card 2 - AI2 displayed voltage 1**

Address:	0xAC15	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
When analog voltage correction is conducted on AI2, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI2 voltage before correction (U4-13).

AC-22 **Extension card 2 - AI2 measured voltage 2**

Address:	0xAC16	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
When analog voltage correction is conducted on AI2, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI2 voltage before correction (U4-13).

AC-23 **Extension card 2 - AI2 displayed voltage 2**

Address:	0xAC17	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V

Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

When analog voltage correction is conducted on AI2, a correction curve is obtained based on two points, each of which corresponds to a measured voltage and a displayed voltage. The measured voltage is the voltage measured using a meter, and the displayed voltage is the AI2 voltage before correction (U4-13).

AC-24 Extension card 3 - AI1 measured voltage 1

Address:	0xAC18	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

This parameter indicates measured voltage 1 of AI1 for extension card 3.

AC-25 Extension card 3 - AI1 displayed voltage 1

Address:	0xAC19	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

This parameter indicates displayed voltage 1 of AI1 for extension card 3.

AC-26 Extension card 3 - AI1 measured voltage 2

Address:	0xAC1A	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

This parameter indicates measured voltage 2 of AI1 for extension card 3.

AC-27 Extension card 3 - AI1 displayed voltage 2

Address:	0xAC1B	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

This parameter indicates displayed voltage 2 of AI1 for extension card 3.

AC-28 **Extension card 3 - AI2 measured voltage 1**

Address:	0xAC1C	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

This parameter indicates measured voltage 1 of AI2 for extension card 3.

AC-29 **Extension card 3 - AI2 displayed voltage 1**

Address:	0xAC1D	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

This parameter indicates displayed voltage 1 of AI2 for extension card 3.

AC-30 **Extension card 3 - AI2 measured voltage 2**

Address:	0xAC1E	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

This parameter indicates measured voltage 2 of AI2 for extension card 3.

AC-31 **Extension card 3 - AI2 displayed voltage 2**

Address:	0xAC1F	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

This parameter indicates displayed voltage 2 of AI2 for extension card 3.

1.14 AE: AI Factory-corrected Coefficient Parameters

AE-00 **Local AI1 measured voltage 1**

Address:	0xAE00	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

-

AE-01 **Local AI1 displayed voltage 1**

Address:	0xAE01	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

-

AE-02 **Local AI1 measured voltage 2**

Address:	0xAE02	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

-

AE-03 **Local AI1 displayed voltage 2**

Address:	0xAE03	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

-

AE-04 **Local AI2 measured voltage 1**

Address:	0xAE04	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

-

AE-05 **Local AI2 displayed voltage 1**

Address:	0xAE05	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

-

AE-06 **Local AI2 measured voltage 2**

Address:	0xAE06	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
-

AE-07 **Local AI2 displayed voltage 2**

Address:	0xAE07	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
-

AE-08 **Extension card 1 - AI1 measured voltage 1**

Address:	0xAE08	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
-

AE-09 **Extension card 1 - AI1 displayed voltage 1**

Address:	0xAE09	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
-

AE-10 **Extension card 1 - AI1 measured voltage 2**

Address:	0xAE0A	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
-

AE-11 **Extension card 1 - AI1 displayed voltage 2**

Address:	0xAE0B	Effective mode:	Effective in real time

Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
-

AE-12 **Extension card 1 - AI2 measured voltage 1**

Address:	0xAE0C	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
-

AE-13 **Extension card 1 - AI2 displayed voltage 1**

Address:	0xAE0D	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
-

AE-14 **Extension card 1 - AI2 measured voltage 2**

Address:	0xAE0E	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
-

AE-15 **Extension card 1 - AI2 displayed voltage 2**

Address:	0xAE0F	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
-

AE-16 **Extension card 2 - AI1 measured voltage 1**

Address:	0xAE10	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16

Default: 2.000 Change: In real time

Value Range:

0.000 V to 12.000 V

Description

-

AE-17 **Extension card 2 - AI1 displayed voltage 1**

Address:	0xAE11	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

-

AE-18 **Extension card 2 - AI1 measured voltage 2**

Address:	0xAE12	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

-

AE-19 **Extension card 2 - AI1 displayed voltage 2**

Address:	0xAE13	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

-

AE-20 **Extension card 2 - AI2 measured voltage 1**

Address:	0xAE14	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

-

AE-21 **Extension card 2 - AI2 displayed voltage 1**

Address:	0xAE15	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

-

AE-22 **Extension card 2 - AI2 measured voltage 2**

Address:	0xAE16	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

-

AE-23 **Extension card 2 - AI2 displayed voltage 2**

Address:	0xAE17	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

-

AE-24 **Extension card 3 - AI1 measured voltage 1**

Address:	0xAE18	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

-

AE-25 **Extension card 3 - AI1 displayed voltage 1**

Address:	0xAE19	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description

-

AE-26 **Extension card 3 - AI1 measured voltage 2**

Address:	0xAE1A	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:

0.000 V to 12.000 V

Description
-

AE-27 **Extension card 3 - AI1 displayed voltage 2**

Address:	0xAE1B	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
-

AE-28 **Extension card 3 - AI2 measured voltage 1**

Address:	0xAE1C	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
-

AE-29 **Extension card 3 - AI2 displayed voltage 1**

Address:	0xAE1D	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
-

AE-30 **Extension card 3 - AI2 measured voltage 2**

Address:	0xAE1E	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
-

AE-31 **Extension card 3 - AI2 displayed voltage 2**

Address:	0xAE1F	Effective mode:	Effective in real time
Min.:	0.000	Unit:	V
Max.:	12.000	Data type:	UInt16
Default:	2.000	Change:	In real time

Value Range:
0.000 V to 12.000 V
Description
-

1.15 AF: Process Data Address Mapping Parameters

AF-00 **RPDO1-SubIndex0-H**

Address:	0xAF00	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
RPDO1-SubIndex0-H

AF-01 **RPDO1-SubIndex0-L**

Address:	0xAF01	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
RPDO1-SubIndex0-L

AF-02 **RPDO1-SubIndex1-H**

Address:	0xAF02	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
RPDO1-SubIndex1-H

AF-03 **RPDO1-SubIndex1-L**

Address:	0xAF03	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
RPDO1-SubIndex1-L

AF-04 **RPDO1-SubIndex2-H**

Address:	0xAF04	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
RPDO1-SubIndex2-H

AF-05 **RPDO1-SubIndex2-L**

Address: 0xAF05 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
RPDO1-SubIndex2-L

AF-06 **RPDO1-SubIndex3-H**

Address: 0xAF06 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
RPDO1-SubIndex3-H

AF-07 **RPDO1-SubIndex3-L**

Address: 0xAF07 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
RPDO1-SubIndex3-L

AF-08 **RPDO2-SubIndex0-H**

Address: 0xAF08 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
RPDO2-SubIndex0-H

AF-09 **RPDO2-SubIndex0-L**

Address: 0xAF09 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
RPDO2-SubIndex0-L

AF-10 **RPDO2-SubIndex1-H**

Address: 0xAF0A | Effective mode: -

Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
RPDO2-SubIndex1-H

AF-11 **RPDO2-SubIndex1-L**

Address: 0xAF0B | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
RPDO2-SubIndex1-L

AF-12 **RPDO2-SubIndex2-H**

Address: 0xAF0C | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
RPDO2-SubIndex2-H

AF-13 **RPDO2-SubIndex2-L**

Address: 0xAF0D | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
RPDO2-SubIndex2-L

AF-14 **RPDO2-SubIndex3-H**

Address: 0xAF0E | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
RPDO2-SubIndex3-H

AF-15 **RPDO2-SubIndex3-L**

Address: 0xAF0F | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16

Default: 0 Change: In real time

Value Range:

0 to 65535

Description

RPDO2-SubIndex3-L

AF-16 **RPDO3-SubIndex0-H**

Address: 0xAF10 Effective mode: -

Min.: 0 Unit: -

Max.: 65535 Data type: UInt16

Default: 0 Change: In real time

Value Range:

0 to 65535

Description

RPDO3-SubIndex0-H

AF-17 **RPDO3-SubIndex0-L**

Address: 0xAF11 Effective mode: -

Min.: 0 Unit: -

Max.: 65535 Data type: UInt16

Default: 0 Change: In real time

Value Range:

0 to 65535

Description

RPDO3-SubIndex0-L

AF-18 **RPDO3-SubIndex1-H**

Address: 0xAF12 Effective mode: -

Min.: 0 Unit: -

Max.: 65535 Data type: UInt16

Default: 0 Change: In real time

Value Range:

0 to 65535

Description

RPDO3-SubIndex1-H

AF-19 **RPDO3-SubIndex1-L**

Address: 0xAF13 Effective mode: -

Min.: 0 Unit: -

Max.: 65535 Data type: UInt16

Default: 0 Change: In real time

Value Range:

0 to 65535

Description

RPDO3-SubIndex1-L

AF-20 **RPDO3-SubIndex2-H**

Address: 0xAF14 Effective mode: -

Min.: 0 Unit: -

Max.: 65535 Data type: UInt16

Default: 0 Change: In real time

Value Range:

0 to 65535

Description

RPDO3-SubIndex2-H

AF-21 **RPDO3-SubIndex2-L**

Address:	0xAF15	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

RPDO3-SubIndex2-L

AF-22 **RPDO3-SubIndex3-H**

Address:	0xAF16	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

RPDO3-SubIndex3-H

AF-23 **RPDO3-SubIndex3-L**

Address:	0xAF17	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

RPDO3-SubIndex3-L

AF-24 **RPDO4-SubIndex0-H**

Address:	0xAF18	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

RPDO4-SubIndex0-H

AF-25 **RPDO4-SubIndex0-L**

Address:	0xAF19	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

RPDO4-SubIndex0-L

AF-26 **RPDO4-SubIndex1-H**

Address:	0xAF1A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

RPDO4-SubIndex1-H

AF-27 **RPDO4-SubIndex1-L**

Address:	0xAF1B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

RPDO4-SubIndex1-L

AF-28 **RPDO4-SubIndex2-H**

Address:	0xAF1C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

RPDO4-SubIndex2-H

AF-29 **RPDO4-SubIndex2-L**

Address:	0xAF1D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

RPDO4-SubIndex2-L

AF-30 **RPDO4-SubIndex3-H**

Address:	0xAF1E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

RPDO4-SubIndex3-H

AF-31 **RPDO4-SubIndex3-L**

Address: 0xAF1F
Min.: 0
Max.: 65535
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: In real time

Value Range:
0 to 65535

Description
RPDO4-SubIndex3-L

AF-32 **TPDO1-SubIndexO-H**

Address: 0xAF20
Min.: 0
Max.: 65535
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: In real time

Value Range:
0 to 65535

Description
TPDO1-SubIndexO-H

AF-33 **TPDO1-SubIndexO-L**

Address: 0xAF21
Min.: 0
Max.: 65535
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: In real time

Value Range:
0 to 65535

Description
TPDO1-SubIndexO-L

AF-34 **TPDO1-SubIndex1-H**

Address: 0xAF22
Min.: 0
Max.: 65535
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: In real time

Value Range:
0 to 65535

Description
TPDO1-SubIndex1-H

AF-35 **TPDO1-SubIndex1-L**

Address: 0xAF23
Min.: 0
Max.: 65535
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: In real time

Value Range:
0 to 65535

Description
TPDO1-SubIndex1-L

AF-36 **TPDO1-SubIndex2-H**

Address: 0xAF24
Effective mode: -

Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
TPDO1-SubIndex2-H

AF-37 **TPDO1-SubIndex2-L**

Address:	0xAF25	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
TPDO1-SubIndex2-L

AF-38 **TPDO1-SubIndex3-H**

Address:	0xAF26	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
TPDO1-SubIndex3-H

AF-39 **TPDO1-SubIndex3-L**

Address:	0xAF27	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
TPDO1-SubIndex3-L

AF-40 **TPDO2-SubIndex0-H**

Address:	0xAF28	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
TPDO2-SubIndex0-H

AF-41 **TPDO2-SubIndex0-L**

Address:	0xAF29	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16

Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
TPDO2-SubIndex0-L

AF-42 **TPDO2-SubIndex1-H**
Address: 0xAF2A | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time
Value Range:
0 to 65535
Description
TPDO2-SubIndex1-H

AF-43 **TPDO2-SubIndex1-L**
Address: 0xAF2B | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time
Value Range:
0 to 65535
Description
TPDO2-SubIndex1-L

AF-44 **TPDO2-SubIndex2-H**
Address: 0xAF2C | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time
Value Range:
0 to 65535
Description
TPDO2-SubIndex2-H

AF-45 **TPDO2-SubIndex2-L**
Address: 0xAF2D | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time
Value Range:
0 to 65535
Description
TPDO2-SubIndex2-L

AF-46 **TPDO2-SubIndex3-H**
Address: 0xAF2E | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time
Value Range:

0 to 65535

Description

TPDO2-SubIndex3-H

AF-47 **TPDO2-SubIndex3-L**

Address:	0xAF2F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

TPDO2-SubIndex3-L

AF-48 **TPDO3-SubIndex0-H**

Address:	0xAF30	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

TPDO3-SubIndex0-H

AF-49 **TPDO3-SubIndex0-L**

Address:	0xAF31	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

TPDO3-SubIndex0-L

AF-50 **TPDO3-SubIndex1-H**

Address:	0xAF32	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

TPDO3-SubIndex1-H

AF-51 **TPDO3-SubIndex1-L**

Address:	0xAF33	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description
TPDO3-SubIndex1-L

AF-52 **TPDO3-SubIndex2-H**

Address:	0xAF34	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
TPDO3-SubIndex2-H

AF-53 **TPDO3-SubIndex2-L**

Address:	0xAF35	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
TPDO3-SubIndex2-L

AF-54 **TPDO3-SubIndex3-H**

Address:	0xAF36	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
TPDO3-SubIndex3-H

AF-55 **TPDO3-SubIndex3-L**

Address:	0xAF37	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
TPDO3-SubIndex3-L

AF-56 **TPDO4-SubIndex0-H**

Address:	0xAF38	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
TPDO4-SubIndex0-H

AF-57 **TPDO4-SubIndex0-L**

Address: 0xAF39 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
TPDO4-SubIndex0-L

AF-58 **TPDO4-SubIndex1-H**

Address: 0xAF3A | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
TPDO4-SubIndex1-H

AF-59 **TPDO4-SubIndex1-L**

Address: 0xAF3B | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
TPDO4-SubIndex1-L

AF-60 **TPDO4-SubIndex2-H**

Address: 0xAF3C | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
TPDO4-SubIndex2-H

AF-61 **TPDO4-SubIndex2-L**

Address: 0xAF3D | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
TPDO4-SubIndex2-L

AF-62 **TPDO4-SubIndex3-H**

Address: 0xAF3E | Effective mode: -

Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
TPDO4-SubIndex3-H

AF-63 **TPDO4-SubIndex3-L**

Address:	0xAF3F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
TPDO4-SubIndex3-L

AF-66 **Number of valid RPDOs**

Address:	0xAF42	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the number of valid RPDOs.

AF-67 **Number of valid TPDOs**

Address:	0xAF43	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the number of valid TPDOs.

1.16 U0: Monitoring Parameters

U0-00 **Bus voltage**

Address:	0x7000	Effective mode:	-
Min.:	0.0	Unit:	V
Max.:	1000.0	Data type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:
0.0 V to 1000.0 V
Description
This parameter defines the bus voltage.

U0-01 **Heatsink temperature**

Address:	0x7001	Effective mode:	-
Min.:	–50	Unit:	°C
Max.:	150	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

–50°C to +150°C

Description

This parameter defines the heatsink temperature.

U0-02 **Ambient temperature**

Address:	0x7002	Effective mode:	-
Min.:	–50	Unit:	°C
Max.:	150	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

–50°C to +150°C

Description

This parameter defines the ambient temperature.

U0-04 **Input voltage Usr**

Address:	0x7004	Effective mode:	-
Min.:	0	Unit:	V
Max.:	1000	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 V to 1000 V

Description

This parameter defines the input RST voltage Usr.

U0-05 **Input voltage Ust**

Address:	0x7005	Effective mode:	-
Min.:	0	Unit:	V
Max.:	1000	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 V to 1000 V

Description

This parameter defines the input RST voltage Ust.

U0-06 **Input voltage Utr**

Address:	0x7006	Effective mode:	-
Min.:	0	Unit:	V
Max.:	1000	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 V to 1000 V

Description

This parameter defines the input RST voltage Utr.

U0-07 **Three-phase imbalance factor**

Address:	0x7007	Effective mode:	-
Min.:	0.00	Unit:	%
Max.:	100.00	Data type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:

0.00% to 100.00%

Description

This parameter defines the input RST imbalance factor.

U0-12 **Current fault code**

Address:	0x700C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	99	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 99

Description

This parameter defines the fault code of the current fault.

U0-13 **Current fault subcode**

Address:	0x700D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	10	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 10

Description

This parameter defines the subcode of the current fault.

U0-14 **Current alarm code**

Address:	0x700E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	99	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 99

Description

This parameter defines the alarm code of the current alarm.

U0-15 **Current alarm subcode**

Address:	0x700F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	10	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 10

Description

This parameter defines the subcode of the current alarm.

U0-16 **Online module list**

Address:	0x7010	Effective mode:	-

Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the online module list.

U0-17 Number of online modules

Address:	0x7011	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the number of current online axes. It shows the number of axes installed under normal circumstances.

U0-18 Number of online I/O modules

Address:	0x7012	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the number of current online I/O modules. It shows the number of axes installed under normal circumstances.

U0-19 Running state of power supply unit

Address:	0x7013	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 2

Description

-

U0-20 Current power-on duration (hour)

Address:	0x7014	Effective mode:	-
Min.:	0	Unit:	h
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 h to 65535 h

Description

This parameter shows the current power-on duration (hour).

U0-21 Current power-on duration (minute)

Address:	0x7015	Effective mode:	-

Min.:	0	Unit:	min
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 min to 65535 min

Description

This parameter shows the current power-on duration (minute).

U0-22 **Current power-on duration (second)**

Address:	0x7016	Effective mode:	-
Min.:	0	Unit:	s
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0s to 65535s

Description

This parameter shows the current power-on duration (second).

U0-23 **Current power-on duration (millisecond)**

Address:	0x7017	Effective mode:	-
Min.:	0	Unit:	ms
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 ms to 65535 ms

Description

This parameter shows the current power-on duration (millisecond).

U0-25 **Braking unit control command word**

Address:	0x7019	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 1

Description

This parameter shows the braking unit control command word.

U0-27 **Running inhibition flag**

Address:	0x701B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

-

U0-30 **Total power-on duration (hour)**

Address:	0x701E	Effective mode:	-
Min.:	0	Unit:	h

Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 h to 65535 h

Description

This parameter shows the total power-on duration (hour).

U0-31 **Total power-on duration (minute)**

Address:	0x701F	Effective mode:	-
Min.:	0	Unit:	min
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 min to 65535 min

Description

This parameter shows the total power-on duration (minute).

U0-32 **Total power-on duration (second)**

Address:	0x7020	Effective mode:	-
Min.:	0	Unit:	s
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0s to 65535s

Description

This parameter shows the total power-on duration (second).

U0-33 **Total power-on duration (millisecond)**

Address:	0x7021	Effective mode:	-
Min.:	0	Unit:	ms
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 ms to 65535 ms

Description

This parameter shows the total power-on duration (millisecond).

U0-35 **Power supply unit state**

Address:	0x7023	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 2

Description

This parameter shows the state of the power supply unit.

1.17 U2: Local I/O Monitoring Parameters

U2-00 Local I/O type

Address:	0x7200	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the type of the current extension card.

U2-01 Local I/O version

Address:	0x7201	Effective mode:	-
Min.:	0.00	Unit:	-
Max.:	655.35	Data type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:

0.00 to 655.35

Description

This parameter defines the software version of the current extension card.

U2-02 Local I/O - Original DI hardware resource

Address:	0x7202	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the number of DIs supported by the current extension card hardware.

U2-03 Local I/O - Available DI hardware resource

Address:	0x7203	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the number of DIs currently available.

U2-04 Local I/O - Original AI hardware resource

Address:	0x7204	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the number of AIs supported by the current extension card hardware.

U2-05 **Local I/O - Available AI hardware resource**

Address:	0x7205	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the number of AIs currently available.

U2-06 **Local I/O - Original DO hardware resource**

Address:	0x7206	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the number of DOs supported by the current extension card hardware.

U2-07 **Local I/O - Available DO hardware resource**

Address:	0x7207	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the number of DOs currently available.

U2-08 **Local I/O - Original AO hardware resource**

Address:	0x7208	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the number of AOs supported by the current extension card hardware.

U2-09 **Local I/O - Available AO hardware resource**

Address:	0x7209	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the number of AOs currently available.

U2-10 **Local I/O - DI input**

Address:	0x720A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the current hardware DI input state. Bit0 corresponds to DI1, bit1 corresponds to DI2, and so on.

U2-11 **Local I/O - DO output**

Address:	0x720B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the current hardware DO output state. Bit0 corresponds to DO1, bit1 corresponds to DO2, and so on.

U2-12 **Local - AI1 input (before correction)**

Address:	0x720C	Effective mode:	-
Min.:	–12.00	Unit:	V
Max.:	12.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:
–12.00 V to +12.00 V
Description
This parameter shows the current AI1 input, which is not corrected.

U2-13 **Local - AI2 input (before correction)**

Address:	0x720D	Effective mode:	-
Min.:	–12.00	Unit:	V
Max.:	12.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:
–12.00 V to +12.00 V
Description
This parameter shows the current AI2 input, which is not corrected.

U2-14 **Local - AI1 input (after correction)**

Address:	0x720E	Effective mode:	-
Min.:	–12.00	Unit:	V
Max.:	12.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:
–12.00 V to +12.00 V
Description
This parameter shows the current corrected AI1 input.

U2-15 **Local - AI2 input (after correction)**

Address:	0x720F	Effective mode:	-
Min.:	–12.00	Unit:	V
Max.:	12.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:

–12.00 V to +12.00 V

Description

This parameter shows the current corrected AI2 input.

U2-20 **Local I/O - Condition of DI1 used by drive unit**

Address:	0x7214	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DI usage.

U2-21 **Local I/O - Condition of DI2 used by drive unit**

Address:	0x7215	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DI usage.

U2-22 **Local I/O - Condition of DI3 used by drive unit**

Address:	0x7216	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DI usage.

U2-23 **Local I/O - Condition of DI4 used by drive unit**

Address:	0x7217	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DI usage.

U2-24 **Local I/O - Condition of DI5 used by drive unit**

Address:	0x7218	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the current DI usage.

U2-25 **Local I/O - Condition of DI6 used by drive unit**

Address:	0x7219	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the current DI usage.

U2-26 **Local I/O - Condition of DI7 used by drive unit**

Address:	0x721A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the current DI usage.

U2-27 **Local I/O - Condition of DI8 used by drive unit**

Address:	0x721B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the current DI usage.

U2-30 **Local I/O - Condition of AI1 used by drive unit**

Address:	0x721E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the current AI usage.

U2-31 **Local I/O - Condition of AI2 used by drive unit**

Address:	0x721F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current AI usage.

U2-40 **Local I/O - Condition of DO1 used by drive unit**

Address:	0x7228	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

U2-41 **Local I/O - Condition of DO2 used by drive unit**

Address:	0x7229	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

U2-42 **Local I/O - Condition of DO3 used by drive unit**

Address:	0x722A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

U2-43 **Local I/O - Condition of DO4 used by drive unit**

Address:	0x722B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

U2-44 **Local I/O - Condition of DO5 used by drive unit**

Address:	0x722C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

U2-45 **Local I/O - Condition of DO6 used by drive unit**

Address:	0x722D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

U2-46 **Local I/O - Condition of DO7 used by drive unit**

Address:	0x722E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

U2-47 **Local I/O - Condition of DO8 used by drive unit**

Address:	0x722F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

1.18 U3: I/O Extension Card 1 Monitoring Parameters

U3-00 **Type of I/O extension card 1**

Address:	0x7300	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the type of the current extension card.

U3-01 **Version of I/O extension card 1**

Address:	0x7301	Effective mode:	-
Min.:	0.00	Unit:	-
Max.:	655.35	Data type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:

0.00 to 655.35

Description

This parameter defines the software version of the current extension card.

U3-02 **I/O extension card 1 - Original DI hardware resource**

Address:	0x7302	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the number of DIs supported by the current extension card hardware.

U3-03 **I/O extension card 1 - Available DI hardware resource**

Address:	0x7303	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the number of DIs currently available.

U3-04 **I/O extension card 1 - Original AI hardware resource**

Address:	0x7304	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the number of AIs supported by the current extension card hardware.

U3-05 **I/O extension card 1 - Available AI hardware resource**

Address:	0x7305	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the number of AIs currently available.

U3-06 **I/O extension card 1 - Original DO hardware resource**

Address:	0x7306	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the number of DOs supported by the current extension card hardware.

U3-07 **I/O extension card 1 - Available DO hardware resource**

Address:	0x7307	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the number of DOs currently available.

U3-08 **I/O extension card 1 - Original AO hardware resource**

Address:	0x7308	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the number of AOs supported by the current extension card hardware.

U3-09 **I/O extension card 1 - Available AO hardware resource**

Address:	0x7309	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the number of AOs currently available.

U3-10 **I/O extension card 1 - DI input**

Address:	0x730A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current hardware DI input state. Bit0 corresponds to DI1, bit1 corresponds to DI2, and so on.

U3-11 **I/O extension card 1 - DO output**

Address:	0x730B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current hardware DO output state. Bit0 corresponds to DO1, bit1 corresponds to DO2, and so on.

U3-12 **I/O extension card 1 - AI1 input (before correction)**

Address:	0x730C	Effective mode:	-
Min.:	–12.00	Unit:	V
Max.:	12.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:

–12.00 V to +12.00 V

Description

This parameter shows the current AI1 input, which is not corrected.

U3-13 **I/O extension card 1 - AI2 input (before correction)**

Address:	0x730D	Effective mode:	-
Min.:	–12.00	Unit:	V
Max.:	12.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:

–12.00 V to +12.00 V

Description

This parameter shows the current AI2 input, which is not corrected.

U3-14 **I/O extension card 1 - AI1 input (after correction)**

Address:	0x730E	Effective mode:	-
Min.:	–12.00	Unit:	V
Max.:	12.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:

–12.00 V to +12.00 V

Description

This parameter shows the current corrected AI1 input.

U3-15 **I/O extension card 1 - AI2 input (after correction)**

Address:	0x730F	Effective mode:	-
Min.:	–12.00	Unit:	V
Max.:	12.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:

–12.00 V to +12.00 V

Description

This parameter shows the current corrected AI2 input.

U3-20 **I/O extension card 1 - Condition of DI1 used by drive unit**

Address:	0x7314	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DI usage.

U3-21 **I/O extension card 1 - Condition of DI2 used by drive unit**

Address:	0x7315	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DI usage.

U3-22 **I/O extension card 1 - Condition of DI3 used by drive unit**

Address:	0x7316	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DI usage.

U3-23 **I/O extension card 1 - Condition of DI4 used by drive unit**

Address:	0x7317	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DI usage.

U3-24 **I/O extension card 1 - Condition of DI5 used by drive unit**

Address:	0x7318	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DI usage.

U3-25 **I/O extension card 1 - Condition of DI6 used by drive unit**

Address:	0x7319	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DI usage.

U3-26 **I/O extension card 1 - Condition of DI7 used by drive unit**

Address:	0x731A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DI usage.

U3-27 **I/O extension card 1 - Condition of DI8 used by drive unit**

Address:	0x731B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DI usage.

U3-30 **I/O extension card 1 - Condition of AI1 used by drive unit**

Address:	0x731E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current AI usage.

U3-31 **I/O extension card 1 - Condition of AI2 used by drive unit**

Address:	0x731F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current AI usage.

U3-40 **I/O extension card 1 - Condition of DO1 used by drive unit**

Address:	0x7328	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

U3-41 **I/O extension card 1 - Condition of DO2 used by drive unit**

Address:	0x7329	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

U3-42 **I/O extension card 1 - Condition of DO3 used by drive unit**

Address:	0x732A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

U3-43 **I/O extension card 1 - Condition of DO4 used by drive unit**

Address:	0x732B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

U3-44 **I/O extension card 1 - Condition of DO5 used by drive unit**

Address:	0x732C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description
This parameter shows the current DO usage.

U3-45 **I/O extension card 1 - Condition of DO6 used by drive unit**

Address:	0x732D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the current DO usage.

U3-46 **I/O extension card 1 - Condition of DO7 used by drive unit**

Address:	0x732E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the current DO usage.

U3-47 **I/O extension card 1 - Condition of DO8 used by drive unit**

Address:	0x732F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the current DO usage.

1.19 U4: I/O Extension Card 2 Monitoring Parameters

U4-00 **Type of I/O extension card 2**

Address:	0x7400	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the type of the current extension card.

U4-01 **Version of I/O extension card 2**

Address:	0x7401	Effective mode:	-
Min.:	0.00	Unit:	-
Max.:	655.35	Data type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:
0.00 to 655.35
Description
This parameter defines the software version of the current extension card.

U4-02 **I/O extension card 2 - Original DI hardware resource**

Address:	0x7402	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the number of DIs supported by the current extension card hardware.

U4-03 **I/O extension card 2 - Available DI hardware resource**

Address:	0x7403	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the number of DIs currently available.

U4-04 **I/O extension card 2 - Original AI hardware resource**

Address:	0x7404	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the number of AIs supported by the current extension card hardware.

U4-05 **I/O extension card 2 - Available AI hardware resource**

Address:	0x7405	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter defines the number of AIs currently available.

U4-06 **I/O extension card 2 - Original DO hardware resource**

Address:	0x7406	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the number of DOs supported by the current extension card hardware.

U4-07 **I/O extension card 2 - Available DO hardware resource**

Address:	0x7407	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the number of DOs currently available.

U4-08 **I/O extension card 2 - Original AO hardware resource**

Address:	0x7408	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the number of AOs supported by the current extension card hardware.

U4-09 **I/O extension card 2 - Available AO hardware resource**

Address:	0x7409	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the number of AOs currently available.

U4-10 **I/O extension card 2 - DI input**

Address:	0x740A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current hardware DI input state. Bit0 corresponds to DI1, bit1 corresponds to DI2, and so on.

U4-11 **I/O extension card 2 - DO output**

Address:	0x740B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current hardware DO output state. Bit0 corresponds to DO1, bit1 corresponds to DO2, and so on.

U4-12 **I/O extension card 2 - AI1 input (before correction)**

Address:	0x740C	Effective mode:	-
Min.:	–12.00	Unit:	V
Max.:	12.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:

–12.00 V to +12.00 V

Description

This parameter shows the current AI1 input, which is not corrected.

U4-13 **I/O extension card 2 - AI2 input (before correction)**

Address:	0x740D	Effective mode:	-
Min.:	–12.00	Unit:	V
Max.:	12.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:

–12.00 V to +12.00 V

Description

This parameter shows the current AI2 input, which is not corrected.

U4-14 **I/O extension card 2 - AI1 input (after correction)**

Address:	0x740E	Effective mode:	-
Min.:	–12.00	Unit:	V
Max.:	12.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:

–12.00 V to +12.00 V

Description

This parameter shows the current corrected AI1 input.

U4-15 **I/O extension card 2 - AI2 input (after correction)**

Address:	0x740F	Effective mode:	-
Min.:	–12.00	Unit:	V
Max.:	12.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:

–12.00 V to +12.00 V

Description

This parameter shows the current corrected AI2 input.

U4-20 **I/O extension card 2 - Condition of DI1 used by drive unit**

Address:	0x7414	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DI usage.

U4-21 **I/O extension card 2 - Condition of DI2 used by drive unit**

Address:	0x7415	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DI usage.

U4-22 **I/O extension card 2 - Condition of DI3 used by drive unit**

Address:	0x7416	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DI usage.

U4-23 **I/O extension card 2 - Condition of DI4 used by drive unit**

Address:	0x7417	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DI usage.

U4-24 **I/O extension card 2 - Condition of DI5 used by drive unit**

Address:	0x7418	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DI usage.

U4-25 **I/O extension card 2 - Condition of DI6 used by drive unit**

Address:	0x7419	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description
This parameter shows the current DI usage.

U4-26 **I/O extension card 2 - Condition of DI7 used by drive unit**

Address:	0x741A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the current DI usage.

U4-27 **I/O extension card 2 - Condition of DI8 used by drive unit**

Address:	0x741B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the current DI usage.

U4-30 **I/O extension card 2 - Condition of AI1 used by drive unit**

Address:	0x741E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the current AI usage.

U4-31 **I/O extension card 2 - Condition of AI2 used by drive unit**

Address:	0x741F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the current AI usage.

U4-40 **I/O extension card 2 - Condition of DO1 used by drive unit**

Address:	0x7428	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535

Description

This parameter shows the current DO usage.

U4-41 **I/O extension card 2 - Condition of DO2 used by drive unit**

Address:	0x7429	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

U4-42 **I/O extension card 2 - Condition of DO3 used by drive unit**

Address:	0x742A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

U4-43 **I/O extension card 2 - Condition of DO4 used by drive unit**

Address:	0x742B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

U4-44 **I/O extension card 2 - Condition of DO5 used by drive unit**

Address:	0x742C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

U4-45 **I/O extension card 2 - Condition of DO6 used by drive unit**

Address:	0x742D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

U4-46 **I/O extension card 2 - Condition of DO7 used by drive unit**

Address:	0x742E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

U4-47 **I/O extension card 2 - Condition of DO8 used by drive unit**

Address:	0x742F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the current DO usage.

Parameter List for the Drive Unit

Table –1 Parameter list for the drive unit

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
F0-00	0xF000	G and P type display	1: G type (constant torque load) 2: P type (fan and pump)	1	-	Unchangeable	"F0-00" on page 223
F0-01	0xF001	Motor 1 control mode	0: SVC 1: Reserved 2: V/f control 3: Reserved 4: Reserved 5: VC++	2	-	At stop	"F0-01" on page 223
F0-02	0xF002	Command source	0: Operating panel of the power supply unit/SOP-20 operating panel/Software 1: Terminal 2: Communication command	0	-	At stop	"F0-02" on page 223
F0-03	0xF003	Main frequency source X	0: Digital setting (F0-08, can be changed by UP/DOWN keys, non-retentive upon power failure) 1: Digital setting (F0-08, can be changed by UP/DOWN keys, retentive upon power failure) 2: AI1 3: AI2 4: AI3 5: Reserved 6: Multi-reference 7: Simple PLC 8: PID 9: Communication command 10: Reserved	0	-	At stop	"F0-03" on page 224
F0-04	0xF004	Auxiliary frequency source Y	0: Digital setting (F0-08, can be changed by UP/DOWN keys, non-retentive upon power failure) 1: Digital setting (F0-08, can be changed by UP/DOWN keys, retentive upon power failure) 2: AI1 3: AI2 4: AI3 5: Reserved 6: Multi-reference 7: Simple PLC 8: PID 9: Communication command 10: Reserved	0	-	At stop	"F0-04" on page 225

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
F0-05	0xF005	Base value of range of auxiliary frequency source Y upon superposition	0: Relative to the maximum frequency 1: Relative to the main frequency source X	0	-	Real-time	" F0-05" on page 226
F0-06	0xF006	Range of auxiliary frequency reference Y upon superposition	0% to 150%	100	%	Real-time	" F0-06" on page 226
F0-07	0xF007	Frequency source superposition	Ones: 0: Main frequency source X 1: Calculation result (determined by tens position) 2: Switchover between main frequency source X and auxiliary frequency source Y 3: Switchover between main frequency source X and calculation result 4: Switchover between auxiliary frequency source Y and calculation result Tens: 0: Main + Auxiliary 1: Main - Auxiliary 2: Max. (main, auxiliary) 3: Min. (main, auxiliary) 4: Main x auxiliary	0	-	Real-time	" F0-07" on page 226
F0-08	0xF008	Preset frequency	0.00 Hz to 600.00 Hz	50.0 0	Hz	Real-time	" F0-08" on page 227
F0-09	0xF009	Running direction	0: Same as default direction 1: Reverse to default direction	0	-	Real-time	" F0-09" on page 228
F0-10	0xF00A	Maximum frequency	50.00 Hz to 600.00 Hz	50.0 0	Hz	At stop	" F0-10" on page 228
F0-11	0xF00B	Frequency upper limit source	0: Set by F0-12 (Frequency upper limit) 1: AI1 2: AI2 3: AI3 4: Reserved 5 Communication setting 6: Multi-speed reference	0	-	At stop	" F0-11" on page 228
F0-12	0xF00C	Frequency upper limit	0.00 Hz to 600.00 Hz	50.0 0	Hz	Real-time	" F0-12" on page 229
F0-13	0xF00D	Frequency upper limit offset	0.00 Hz to 600.00 Hz	0.00	Hz	Real-time	" F0-13" on page 229
F0-14	0xF00E	Frequency lower limit	0.00 Hz to 600.00 Hz	0.00	Hz	Real-time	" F0-14" on page 229

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
F0-15	0xF00F	Carrier frequency	0.8 kHz to 15.0 kHz	6.0	kHz	Real-time	"F0-15" on page 229
F0-16	0xF010	Carrier frequency changing with temperature	0: No 1: Yes	1	-	Real-time	"F0-16" on page 230
F0-17	0xF011	Acceleration time 1	0.0s to 6500.0s	20.0	s	Real-time	"F0-17" on page 230
F0-18	0xF012	Deceleration time 1	0.0s to 6500.0s	20.0	s	Real-time	"F0-18" on page 230
F0-19	0xF013	Acceleration/Deceleration time unit	0: 1s 1: 0.1s 2: 0.01s	1	-	At stop	"F0-19" on page 231
F0-21	0xF015	Offset of auxiliary frequency source during superposition	0.00 Hz to 655.35 Hz	0.00	Hz	Real-time	"F0-21" on page 231
F0-22	0xF016	Frequency reference resolution	1: 0.1 Hz 2: 0.01 Hz	2	Hz	At stop	"F0-22" on page 231
F0-23	0xF017	Retention of frequency by digital setting upon stop	0: Non-retentive 1: Retentive	0	-	Real-time	"F0-23" on page 231
F0-25	0xF019	Acceleration/Deceleration time base frequency	0: Maximum frequency (F0-10) 1: Frequency reference 2: 100 Hz	0	-	At stop	"F0-25" on page 232
F0-26	0xF01A	Base of frequency adjusted by UP/DOWN keys during running	0: Running frequency 1: Frequency reference	0	-	At stop	"F0-26" on page 232
F0-27	0xF01B	Main frequency coefficient	0.00% to 100.00%	10.00	%	Real-time	"F0-27" on page 232
F0-28	0xF01C	Auxiliary frequency coefficient	0.00% to 100.00%	10.00	%	Real-time	"F0-28" on page 232
F0-29	0xF01D	G and P type	1: G type (constant torque load) 2: P type (fan and pump)	1	-	At stop	"F0-29" on page 233
F1-00	0xF100	Motor type	0: Common asynchronous motor 1: Variable frequency asynchronous motor 2: Synchronous motor	0	-	At stop	"F1-00" on page 233
F1-01	0xF101	Rated motor power	0.1 kW to 1000.0 kW	3.7	kW	At stop	"F1-01" on page 233
F1-02	0xF102	Rated motor voltage	1 V to 2000 V	380	V	At stop	"F1-02" on page 233
F1-03	0xF103	Rated motor current	0.1 A to 6553.5 A	9.0	A	At stop	"F1-03" on page 234
F1-04	0xF104	Rated motor frequency	0.01 Hz to 655.35 Hz	50.00	Hz	At stop	"F1-04" on page 234

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
F1-05	0xF105	Rated motor speed	1 RPM to 65535 RPM	1460	RPM	At stop	"F1-05" on page 234
F1-06	0xF106	Asynchronous motor stator resistance	0.001 Ω to 65.535 Ω	1.204	Ω	At stop	"F1-06" on page 234
F1-07	0xF107	Asynchronous motor rotor resistance	0.001 Ω to 65.535 Ω	0.908	Ω	At stop	"F1-07" on page 235
F1-08	0xF108	Leakage inductive reactance of asynchronous motor	0.01 mH to 655.35 mH	5.28	mH	At stop	"F1-08" on page 235
F1-09	0xF109	Mutual inductive reactance of asynchronous motor	0.01 mH to 655.35 mH	156.8	mH	At stop	"F1-09" on page 235
F1-10	0xF10A	No-load current of asynchronous motor	0.1 A to 6553.5 A	4.2	A	At stop	"F1-10" on page 235
F1-11	0xF10B	Core saturation coefficient 1 of asynchronous motor	50.0% to 100.0%	86.0	%	Real-time	"F1-11" on page 236
F1-12	0xF10C	Core saturation coefficient 2 of asynchronous motor	100.0% to 150.0%	130.0	%	Real-time	"F1-12" on page 236
F1-13	0xF10D	Core saturation coefficient 3 of asynchronous motor	100.0% to 170.0%	140.0	%	Real-time	"F1-13" on page 236
F1-14	0xF10E	Core saturation coefficient 4 of asynchronous motor	100.0% to 180.0%	150.0	%	Real-time	"F1-14" on page 236
F1-17	0xF111	Axis D inductance of synchronous motor	1.00 mH to 65535.00 mH	1586.00	mH	At stop	"F1-17" on page 236
F1-18	0xF112	Axis Q inductance of synchronous motor	1.00 mH to 65535.00 mH	1586.00	mH	At stop	"F1-18" on page 237
F1-19	0xF113	Back EMF coefficient of synchronous motor	0.0 V to 6553.5 V	0.0	V	At stop	"F1-19" on page 237
F1-24	0xF118	Number of motor pole pairs	0 to 65535	0	-	Unchangeable	"F1-24" on page 237
F1-37	0xF125	Auto-tuning	0: No auto-tuning 1: Static auto-tuning on parameters of asynchronous motors 2: Auto-tuning on all parameters of asynchronous motors 3: With-load auto-tuning on all parameters of asynchronous motors 4: Reserved 11: No-load auto-tuning on some parameters (excluding back EMF) of synchronous motors 12: No-load dynamic auto-tuning on parameters of synchronous motors	0	-	At stop	"F1-37" on page 237

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
			13: Static auto-tuning on all parameters of synchronous motors 14: Reserved				
F2-00	0xF200	Low speed loop Kp	1 to 200	30	-	Real-time	"F2-00" on page 238
F2-01	0xF201	Low speed loop Ti	0.001s to 10.000s	0.500	s	Real-time	"F2-01" on page 238
F2-02	0xF202	Switchover frequency 1	0.00 Hz to 655.35 Hz	5.00	Hz	Real-time	"F2-02" on page 239
F2-03	0xF203	High speed loop Kp	1 to 200	20	-	Real-time	"F2-03" on page 239
F2-04	0xF204	High speed loop Ti	0.001s to 10.000s	1.000	s	Real-time	"F2-04" on page 239
F2-05	0xF205	Switchover frequency 2	0.00 Hz to 655.35 Hz	10.00	Hz	Real-time	"F2-05" on page 240
F2-06	0xF206	VC slip compensation gain	50% to 200%	100	%	Real-time	"F2-06" on page 240
F2-07	0xF207	Speed feedback filter time	0.000s to 0.100s	0.004	s	Real-time	"F2-07" on page 240
F2-08	0xF208	VC deceleration over-excitation gain	0–200	64	-	Real-time	"F2-08" on page 240
F2-09	0xF209	Torque upper limit source in speed control (motoring)	0: Digital setting (F2-10) 1: AI1 2: AI2 3: AI3 4: Reserved 5: Communication setting 6: Min. (AI1, AI2) 7: Max. (AI1, AI2)	0	-	Real-time	"F2-09" on page 241
F2-10	0xF20A	Setting of torque upper limit in speed control (motoring)	0.0% to 200.0%	150.0	%	Real-time	"F2-10" on page 241
F2-11	0xF20B	Torque upper limit source in speed control (generating)	0: Digital setting (F2-10) 1: AI1 2: AI2 3: AI3 4: Reserved 5: Communication setting 6: Min. (AI1, AI2) 7: Max. (AI1, AI2) 8: Digital setting (F2-12)	0	-	Real-time	"F2-11" on page 242
F2-12	0xF20C	Setting of torque upper limit in speed control (generating)	0.0% to 200.0%	150.0	%	Real-time	"F2-12" on page 242

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
F2-13	0xF20D	Current loop Kp adjustment at low speed	0.1–10.0	1.0	-	Real-time	"F2-13" on page 243
F2-14	0xF20E	Current loop Ki adjustment at low speed	0.1–10.0	1.0	-	Real-time	"F2-14" on page 243
F2-15	0xF20F	Current loop Kp adjustment at high speed	0.1–10.0	1.0	-	Real-time	"F2-15" on page 243
F2-16	0xF210	Current loop Ki adjustment at high speed	0.1–10.0	1.0	-	Real-time	"F2-16" on page 243
F2-17	0xF211	Speed loop Kp upon zero speed lock	1–100	30	-	Real-time	"F2-17" on page 244
F2-18	0xF212	Speed loop Ki upon zero speed lock	0.001s to 10.000s	0.500	s	Real-time	"F2-18" on page 244
F2-20	0xF214	Speed loop switchover frequency upon zero speed lock	0.00 Hz to 655.35 Hz	0.05	Hz	Real-time	"F2-20" on page 244
F2-21	0xF215	Maximum output voltage coefficient	100–110	100	-	Real-time	"F2-21" on page 244
F2-22	0xF216	Output voltage filter time	0.000s to 0.010s	0.000	s	Real-time	"F2-22" on page 244
F2-23	0xF217	Zero speed lock	0: Disable 1: Enable	0	-	At stop	"F2-23" on page 245
F2-24	0xF218	Overvoltage suppression Kp in vector control mode	0–1000	40	-	Real-time	"F2-24" on page 245
F2-25	0xF219	Acceleration compensation gain	0–200	0	-	Real-time	"F2-25" on page 245
F2-26	0xF21A	Acceleration compensation filter time	0–500	10	-	Real-time	"F2-26" on page 245
F2-27	0xF21B	Overvoltage suppression in vector control mode	0: Disable 1: Enable	1	-	Real-time	"F2-27" on page 246
F2-28	0xF21C	Cut-off frequency of torque filter	50 Hz to 1000 Hz	500	Hz	Real-time	"F2-28" on page 246
F2-29	0xF21D	Current detected at initial position angle of synchronous motor	50–180	80	-	Real-time	"F2-29" on page 246
F2-30	0xF21E	Auto-calculation of speed loop parameters	0: Disable 1: Enable	0	-	At stop	"F2-30" on page 246
F2-31	0xF21F	Expected speed loop bandwidth at high speed	1.0 Hz to 200.0 Hz	10.0	Hz	Real-time	"F2-31" on page 246
F2-32	0xF220	Expected speed loop bandwidth at low speed	1.0 Hz to 200.0 Hz	10.0	Hz	Real-time	"F2-32" on page 247

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
F2-33	0xF221	Expected speed loop bandwidth at zero speed	1.0 Hz to 200.0 Hz	10.0	Hz	Real-time	"F2-33" on page 247
F2-34	0xF222	Expected speed loop damping ratio (unchanged generally)	0.100–65.000	1.000	-	Real-time	"F2-34" on page 247
F2-52	0xF234	Decoupling control	0: Disable 1: Enable	0	-	At stop	"F2-52" on page 247
F2-53	0xF235	Power limit during generating	0: Disable 1: Enable	0	-	At stop	"F2-53" on page 247
F2-54	0xF236	Generating power limit	0.0% to 200.0%	0.0	%	At stop	"F2-54" on page 248
F2-55	0xF237	Flux closed loop mode	Ones: Reserved Tens: Reserved Hundreds: Reserved Thousands: Torque base value 0: Rated motor current 1: Rated motor torque current	1010	-	At stop	"F2-55" on page 248
F2-56	0xF238	Output current upper limit of AC drive	0.0% to 170.0%	150.0	%	At stop	"F2-56" on page 248
F3-00	0xF300	V/f curve setting	0: Linear V/f curve 1: Multi-point V/f curve 2: Square V/f curve 3: 1.2-power V/f curve 4: 1.4-power V/f curve 6: 1.6-power V/f curve 8: 1.8-power V/f curve 10: V/f complete separation mode 11: V/f half separation mode	0	-	At stop	"F3-00" on page 248
F3-01	0xF301	Torque boost	0.0% to 30.0%	0.0	%	Real-time	"F3-01" on page 250
F3-02	0xF302	Cutoff frequency of torque boost	0.00 Hz to 655.35 Hz	50.00	Hz	At stop	"F3-02" on page 250
F3-03	0xF303	Multi-point V/f frequency 1	0.00 Hz to 655.35 Hz	0.00	Hz	At stop	"F3-03" on page 250
F3-04	0xF304	Multi-point V/f voltage 1	0.0% to +100.0%	0.0	%	At stop	"F3-04" on page 250
F3-05	0xF305	Multi-point V/f frequency 2	0.00 Hz to 655.35 Hz	0.00	Hz	At stop	"F3-05" on page 250
F3-06	0xF306	Multi-point V/f voltage 2	0.0% to 100.0%	0.0	%	At stop	"F3-06" on page 251

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
F3-07	0xF307	Multi-point V/f frequency 3	0.00 Hz to 655.35 Hz	0.00	Hz	At stop	"F3-07" on page 251
F3-08	0xF308	Multi-point V/f voltage 3	0.0% to 100.0%	0.0	%	At stop	"F3-08" on page 251
F3-09	0xF309	V/f slip compensation gain	0.0% to 200.0%	0.0	%	Real-time	"F3-09" on page 251
F3-10	0xF30A	V/f over-excitation gain	0–200	64	-	Real-time	"F3-10" on page 251
F3-11	0xF30B	V/f oscillation suppression gain	0–100	0	-	Real-time	"F3-11" on page 252
F3-12	0xF30C	Oscillation suppression gain	0: Invalid 3: Valid	3	-	At stop	"F3-12" on page 252
F3-13	0xF30D	Voltage source for V/f separation	0: Digital setting (F3-14) 1: AI1 2: AI2 3: AI3 4: Reserved 5: Multi-reference 6: Simple PLC 7: PID 8 Communication setting	0	-	Real-time	"F3-13" on page 252
F3-14	0xF30E	Voltage digital setting for V/f separation	0 V to 65535 V	0	V	Real-time	"F3-14" on page 253
F3-15	0xF30F	Voltage acceleration time for V/f separation	0.0s to 1000.0s	0.0	s	Real-time	"F3-15" on page 253
F3-16	0xF310	Voltage deceleration time for V/f separation	0.0s to 1000.0s	0.0	s	Real-time	"F3-16" on page 253
F3-17	0xF311	Stop mode for V/f separation	0: Frequency and voltage decline to 0. 1: Frequency declines to 0 after voltage declines to 0.	0	-	At stop	"F3-17" on page 254
F3-18	0xF312	Action current for V/f overcurrent stall	50% to 180%	150	%	At stop	"F3-18" on page 254
F3-19	0xF313	V/f overcurrent stall	0: Disable 1: Enable	1	-	At stop	"F3-19" on page 254
F3-20	0xF314	V/f overcurrent stall suppression gain	0–100	20	-	Real-time	"F3-20" on page 254
F3-21	0xF315	Action current compensation coefficient for V/f speed overcurrent stall	50–180	50	-	At stop	"F3-21" on page 255
F3-22	0xF316	V/f overvoltage stall action voltage	330.0 V to 800.0 V	770.0	V	At stop	"F3-22" on page 255

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
F3-23	0xF317	V/f overvoltage stall	0: Disable 1: Enable	1	-	At stop	"F3-23" on page 255
F3-24	0xF318	Suppression frequency gain for V/f overvoltage stall	0–100	30	-	Real-time	"F3-24" on page 255
F3-25	0xF319	Suppression voltage gain for V/f overvoltage stall	0–100	30	-	Real-time	"F3-25" on page 256
F3-26	0xF31A	Frequency rise threshold during overvoltage stall	0–50	5	-	At stop	"F3-26" on page 256
F3-27	0xF31B	Slip compensation time constant	0.1–10.0	0.5	-	Real-time	"F3-27" on page 256
F3-28	0xF31C	Automatic frequency rise	0: Disable 1: Enable	0	-	At stop	"F3-28" on page 256
F3-29	0xF31D	Minimum motoring torque current	10 to 100	50	-	At stop	"F3-29" on page 257
F3-30	0xF31E	Maximum generating torque current	10 to 100	20	-	At stop	"F3-30" on page 257
F3-31	0xF31F	Automatic frequency rise Kp	0–100	50	-	Real-time	"F3-31" on page 257
F3-32	0xF320	Automatic frequency rise Ki	0–100	50	-	Real-time	"F3-32" on page 257
F3-33	0xF321	Online torque compensation gain	80–150	100	-	At stop	"F3-33" on page 257
F3-34	0xF322	Slip startup	0–1	0	-	At stop	"F3-34" on page 258
F3-35	0xF323	Slip startup threshold	0–50	10	-	Real-time	"F3-35" on page 258
F3-36	0xF324	Slip startup Kp	0.0–200.0	10.0	-	Real-time	"F3-36" on page 258
F3-37	0xF325	Slip startup Ki	0.00–500.00	1.00	-	Real-time	"F3-37" on page 258
F3-38	0xF326	Current at slip startup	0–200	180	-	Real-time	"F3-38" on page 258
F4-00	0xF400	DI1 hardware source	0: No selection 1: Power supply unit - DI1 2: Power supply unit - DI2 3: Power supply unit - DI3 4: Power supply unit - DI4 5: Power supply unit - DIO1 6: Power supply unit - DIO2 7: Power supply unit - DIO3 8: Power supply unit - DIO4 101: Expansion card 1 - DI1	0	-	At stop	"F4-00" on page 259

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
			102: Expansion card 1 - DI2 103: Expansion card 1 - DI3 104: Expansion card 1 - DI4 105: Expansion card 1 - DI5 106: Expansion card 1 - DI6 107: Expansion card 1 - DI7 108: Expansion card 1 - DI8 201: Expansion card 2 - DI1 202: Expansion card 2 - DI2 203: Expansion card 2 - DI3 204: Expansion card 2 - DI4 205: Expansion card 2 - DI5 206: Expansion card 2 - DI6 207: Expansion card 2 - DI7 208: Expansion card 2 - DI8				
F4-01	0xF401	DI1 function	0: No function 1: Forward run (FWD) 2: Reverse run (REV) 3: Three-wire motion control 4: Forward jog (FJOG) 5: Reverse jog (RJOG) 6: Same as the UP key 7: Same as the DOWN key 8: Clear information set by UP/DOWN keys on the operating panel or by terminals functioning as the UP/DOWN keys 9: Fault reset (RESET) 10: External fault NO input 11: External fault NC input 12: User-defined fault 1	1	-	At stop	"F4-01" on page 259
F4-01	0xF401	DI1 function	13: User-defined fault 2 14: Multi-reference terminal 1 15: Multi-reference terminal 2 16: Multi-reference terminal 3 17: Multi-reference terminal 4 18: Acceleration/Deceleration terminal 1 19: Acceleration/Deceleration terminal 2 20: Acceleration/Deceleration prohibition 21: Command source switchover terminal 1 22: Command source switchover terminal 2 23: Frequency reference switchover	1	-	At stop	"F4-01" on page 259

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
			24:Switchover between main frequency reference X and preset frequency 25: Switchover between auxiliary frequency reference Y and preset frequency 26: Frequency modification enable 27: Counter input 28: Counter reset 29: Length input 30: Length reset				
F4-01	0xF401	DI1 function	31: PID pause 32: PID integral pause 33: PID parameter switchover 34: PID action direction reverse 35: Torque control prohibition 36: Speed control/Torque control switchover 38: Speed tracking enable 39: Immediate DC braking 40: Deceleration DC braking 41: External stop terminal 1 42: External stop terminal 2 43: Running pause 44: Coast to stop 45: Emergency stop 46: Motor selection terminal 47: Current running time clear 48: Two-wire/Three-wire motion control switchover 49: PLC state reset 50: Wobble pause 94: Braking feedback 1 95: Braking feedback 2	1	-	At stop	" F4-01" on page 259
F4-02	0xF402	DI2 hardware source	Same as F4–00	0	-	At stop	" F4-02" on page 261
F4-03	0xF403	DI2 function	Same as F4–01	4	-	At stop	" F4-03" on page 261
F4-04	0xF404	DI3 hardware source	Same as F4–00	0	-	At stop	" F4-04" on page 263
F4-05	0xF405	DI3 function	Same as F4–01	9	-	At stop	" F4-05" on page 263
F4-06	0xF406	DI4 hardware source	Same as F4–00	0	-	At stop	" F4-06" on page 265
F4-07	0xF407	DI4 function	Same as F4–01	14	-	At stop	" F4-07" on page 265

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
F4-08	0xF408	DI5 hardware source	Same as F4–00	0	-	At stop	"F4-08" on page 267
F4-09	0xF409	DI5 function	Same as F4–01	15	-	At stop	"F4-09" on page 267
F4-10	0xF40A	DI6 hardware source	Same as F4–00	0	-	At stop	"F4-10" on page 269
F4-11	0xF40B	DI6 function	Same as F4–01	0	-	At stop	"F4-11" on page 269
F4-12	0xF40C	DI7 hardware source	Same as F4–00	0	-	At stop	"F4-12" on page 271
F4-13	0xF40D	DI7 function	Same as F4–01	0	-	At stop	"F4-13" on page 271
F4-14	0xF40E	DI8 hardware source	Same as F4–00	0	-	At stop	"F4-14" on page 273
F4-15	0xF40F	DI8 function	Same as F4–01	0	-	At stop	"F4-15" on page 273
F4-17	0xF411	Terminal command mode	0: Two-wire mode 1 1: Two-wire mode 2 2: Three-wire mode 1 3: Three-wire mode 2	0	-	At stop	"F4-17" on page 275
F4-18	0xF412	Change rate of the terminal functioning as UP/DOWN keys	0.001–65.535 Hz/s	1.000	Hz/s	Real-time	"F4-18" on page 275
F4-19	0xF413	DI1 delay	0.0s to 3600.0s	0.0	s	Real-time	"F4-19" on page 275
F4-20	0xF414	DI2 delay	0.0s to 3600.0s	0.0	s	Real-time	"F4-20" on page 276
F4-21	0xF415	DI3 delay	0.0s to 3600.0s	0.0	s	Real-time	"F4-21" on page 276
F4-22	0xF416	DI valid mode settings 1	Ones: 0: Active high 1: Active low Tens: 0: Active high 1: Active low Hundreds: 0: Active high 1: Active low Thousands: 0: Active high 1: Active low Ten thousands: 0: Active high 1: Active low	0	-	At stop	"F4-22" on page 276

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
F4-23	0xF417	DI valid mode settings 2	Ones: 0: Active high 1: Active low Tens: 0: Active high 1: Active low Hundreds: 0: Active high 1: Active low Thousands: 0: Reserved Ten thousands: 0: Reserved	0	-	At stop	"F4-23" on page 277
F4-25	0xF419	AI1 hardware source	0: No selection 1: AI1 of power supply unit 2: AI2 of power supply unit 101: AI1 of expansion card 1 102: AI2 of expansion card 1 201: AI1 of expansion card 2 202: AI2 of expansion card 2	0	-	At stop	"F4-25" on page 277
F4-27	0xF41B	AI2 hardware source	0: No selection 1: AI1 of power supply unit 2: AI2 of power supply unit 101: AI1 of expansion card 1 102: AI2 of expansion card 1 201: AI1 of expansion card 2 202: AI2 of expansion card 2	0	-	At stop	"F4-27" on page 278
F4-29	0xF41D	AI3 hardware source	0: No selection 1: AI1 of power supply unit 2: AI2 of power supply unit 101: AI1 of expansion card 1 102: AI2 of expansion card 1 201: AI1 of expansion card 2 202: AI2 of expansion card 2	0	-	At stop	"F4-29" on page 278
F4-31	0xF41F	Minimum input of AI curve 1	-10.00 V to +10.00 V	0.00	V	Real-time	"F4-31" on page 278
F4-32	0xF420	Percentage corresponding to minimum input of AI curve 1	-100.0% to +100.0%	0.0	%	Real-time	"F4-32" on page 279
F4-33	0xF421	Maximum input of AI curve 1	-10.00 V to +10.00 V	10.00	V	Real-time	"F4-33" on page 279
F4-34	0xF422	Percentage corresponding to maximum input of AI curve 1	-100.0% to +100.0%	100.0	%	Real-time	"F4-34" on page 279
F4-35	0xF423	Minimum input of AI curve 2	-10.00 V to +10.00 V	0.00	V	Real-time	"F4-35" on page 279

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
F4-36	0xF424	Percentage corresponding to minimum input of AI curve 2	-100.0% to +100.0%	0.0	%	Real-time	"F4-36" on page 280
F4-37	0xF425	Maximum input of AI curve 2	-10.00 V to +10.00 V	10.00	V	Real-time	"F4-37" on page 280
F4-38	0xF426	Percentage corresponding to maximum input of AI curve 2	-100.0% to +100.0%	100.0	%	Real-time	"F4-38" on page 280
F4-39	0xF427	Minimum input of AI curve 3	-10.00 V to +10.00 V	0.00	V	Real-time	"F4-39" on page 280
F4-40	0xF428	Percentage corresponding to minimum input of AI curve 3	-100.0% to +100.0%	0.0	%	Real-time	"F4-40" on page 281
F4-41	0xF429	Maximum input of AI curve 3	-10.00 V to +10.00 V	10.00	V	Real-time	"F4-41" on page 281
F4-42	0xF42A	Percentage corresponding to maximum input of AI curve 3	-100.0% to +100.0%	100.0	%	Real-time	"F4-42" on page 281
F4-48	0xF430	AI curve	Ones: 1: Curve 1 (2 points) 2: Curve 2 (2 points) 3: Curve 3 (2 points) 4: Curve 4 (4 points) 5: Curve 5 (4 points) Tens: 1: Curve 1 (2 points) 2: Curve 2 (2 points) 3: Curve 3 (2 points) 4: Curve 4 (4 points) 5: Curve 5 (4 points) Hundreds: 1: Curve 1 (2 points) 2: Curve 2 (2 points) 3: Curve 3 (2 points) 4: Curve 4 (4 points) 5: Curve 5 (4 points)	801	-	Real-time	"F4-48" on page 281
F4-49	0xF431	Setting for AI lower than the minimum input	Ones: 0: Percentage corresponding to the minimum input 1: 0.0% Tens: 0: Percentage corresponding to the minimum input 1: 0.0% Hundreds: 0: Percentage corresponding to the minimum input 1: 0.0%	0	-	Real-time	"F4-49" on page 282

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
F5-00	0xF500	DO1/RO1 hardware source	0: No selection 1: Power supply unit - DIO1 2: Power supply unit - DIO2 3: Power supply unit - DIO3 4: Power supply unit - DIO4 5: Power supply unit - RO1 101: Expansion card 1 - DO1/RO1 102: Expansion card 1 - DO2/RO2 103: Expansion card 1 - DO3/RO3 104: Expansion card 1 - DO4/RO4 105: Expansion card 1 - DO5/RO5 106: Expansion card 1 - DO6/RO6 107: Expansion card 1 - DO7/RO7 108: Expansion card 1 - DO8/RO8 201: Expansion card 2 - DO1/RO1 202: Expansion card 2 - DO2/RO2 203: Expansion card 2 - DO3/RO3 204: Expansion card 2 - DO4/RO4 205: Expansion card 2 - DO5/RO5 206: Expansion card 2 - DO6/RO6 207: Expansion card 2 - DO7/RO7 208: Expansion card 2 - DO8/RO8	0	-	Real-time	" F5-00" on page 283
F5-01	0xF501	DO1/RO1 output function	0: No output 1: AC drive in running 2: Ready to run 3: Fault 1 (stop upon fault) 4: Fault 2 5: Fault 3 6: Abnormality (output upon fault or alarm) 7: Motor overload warning 8: AC drive overload warning 9: Motor overheat warning 10: AC drive load loss 11: Undervoltage 12: Output current overrange	3	-	Real-time	" F5-01" on page 283
F5-01	0xF501	DO1/RO1 output function	13: Frequency detection value 1 (FDT1) 14: Frequency detection value 2 (FDT2) 15: Detection frequency 16: Detection frequency 1 17: Detection frequency 2 18: Frequency upper limit 19: Frequency lower limit (output at stop) 20: Frequency lower limit (no output at stop) 21: Preset running time 22: Accumulative power-on time	3	-	Real-time	" F5-01" on page 283

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
			23: Accumulative running time 24: Current running time 25: Zero current state 26: Current 1 27: Current 2 28: Module temperature Reference count value 30: Designated count value				
F5-01	0xF501	DO1/RO1 output function	31: Length 32: Frequency limit 33: Torque limit 34: AI1 input overrange 35: AI1 > AI2 36: PLC cycle 37: Communication setting 38: STO-EDM 39: Reserved 40: Zero-speed running 1 (no output at stop) 41: Zero-speed running 2 (valid at stop) 42: Reserved 43: Reverse running 44: Process 1 45: Process 2 46: Process 3 47: Process 4 48: Process 5 49: Process 6 50: Process 7 53: Braking output	3	-	Real-time	"F5-01" on page 283
F5-02	0xF502	DO2/RO2 hardware source	Same as F5–00	0	-	Real-time	"F5-02" on page 285
F5-03	0xF503	DO2/RO2 output function	Same as F5–01	15	-	Real-time	"F5-03" on page 285
F5-04	0xF504	DO3/RO3 hardware source	Same as F5–00	0	-	Real-time	"F5-04" on page 286
F5-05	0xF505	DO3/RO3 output function	Same as F5–01	0	-	Real-time	"F5-05" on page 287
F5-06	0xF506	DO4/RO4 hardware source	Same as F5–00	0	-	Real-time	"F5-06" on page 288
F5-07	0xF507	DO4/RO4 output function	Same as F5–01	0	-	Real-time	"F5-07" on page 289
F5-08	0xF508	DO5/RO5 hardware source	Same as F5–00	0	-	Real-time	"F5-08" on page 290

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
F5-09	0xF509	DO5/RO5 output function	Same as F5–01	0	-	Real-time	"F5-09" on page 291
F5-10	0xF50A	DO1/RO1 output delay	0.0s to 3600.0s	0.0	s	Real-time	"F5-10" on page 292
F5-11	0xF50B	DO2/RO2 output delay	0.0s to 3600.0s	0.0	s	Real-time	"F5-11" on page 293
F5-12	0xF50C	DO3/RO3 output delay	0.0s to 3600.0s	0.0	s	Real-time	"F5-12" on page 293
F5-13	0xF50D	DO4/RO4 output delay	0.0s to 3600.0s	0.0	s	Real-time	"F5-13" on page 293
F5-14	0xF50E	DO5/RO5 output delay	0.0s to 3600.0s	0.0	s	Real-time	"F5-14" on page 293
F5-15	0xF50F	DO/RO valid state selection	Ones: 0: Positive logic 1: Negative logic Tens: 0: Positive logic 1: Negative logic Hundreds: 0: Positive logic 1: Negative logic Thousands: 0: Positive logic 1: Negative logic Ten thousands: 0: Positive logic 1: Negative logic	0	-	Real-time	"F5-15" on page 293
F6-00	0xF600	Start mode	0: Direct start 1: Flying start (asynchronous motor) 2: Vector pre-excitation start (asynchronous motor)	0	-	Real-time	"F6-00" on page 294
F6-01	0xF601	Flying start mode	0: From frequency at stop 1: From 50 Hz 2: From the maximum frequency 3: Flying start	0	-	At stop	"F6-01" on page 294
F6-02	0xF602	Flying start speed	1 to 100	20	-	Real-time	"F6-02" on page 295
F6-03	0xF603	Start frequency	0.00 Hz to 10.00 Hz	0.00	Hz	Real-time	"F6-03" on page 295
F6-04	0xF604	Start frequency hold time	0.0s to 100.0s	0.0	s	At stop	"F6-04" on page 295
F6-05	0xF605	DC braking/Pre-excitation current at startup	0% to 100%	0	%	At stop	"F6-05" on page 295

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
F6-06	0xF606	DC braking/Pre-excitation time at startup	0.0s to 100.0s	0.0	s	At stop	" F6-06" on page 296
F6-07	0xF607	Acceleration/Deceleration mode	0: Linear acceleration/ deceleration 1: S-curve acceleration/ deceleration 2: Four-segment S-curve acceleration/deceleration	0	-	At stop	" F6-07" on page 296
F6-10	0xF60A	Stop mode	0: Decelerate to stop 1: Coast to stop	0	-	Real-time	" F6-10" on page 296
F6-11	0xF60B	DC braking/Position lock start frequency at stop	0.00 Hz to 655.35 Hz	0.00	Hz	Real-time	" F6-11" on page 297
F6-12	0xF60C	Waiting time of DC braking at stop	0.0s to 100.0s	0.0	s	Real-time	" F6-12" on page 297
F6-13	0xF60D	DC braking current at stop	0% to 100%	50	%	Real-time	" F6-13" on page 297
F6-14	0xF60E	DC braking time at stop	0.0s to 100.0s	0.5	s	Real-time	" F6-14" on page 297
F6-15	0xF60F	Brake usage rate	0% to 100%	100	%	At stop	" F6-15" on page 297
F6-16	0xF610	Closed loop current Kp of flying start	0–1000	500	-	Real-time	" F6-16" on page 298
F6-17	0xF611	Closed loop current Ki of torque track	0–1000	800	-	Real-time	" F6-17" on page 298
F6-18	0xF612	Current of flying start	30–200	100	-	Real-time	" F6-18" on page 298
F6-19	0xF613	Gain coefficient of flying start	1.0–20.0	10.0	-	At stop	" F6-19" on page 298
F6-20	0xF614	Filter cut-off frequency of flying start	0.5 Hz to 3.0 Hz	1.1	Hz	At stop	" F6-20" on page 299
F6-21	0xF615	Demagnetization time	0.00s to 10.00s	1.00	s	Real-time	" F6-21" on page 299
F6-22	0xF616	Start pre-torque setting	0.0% to 200.0%	0.0	%	Real-time	" F6-22" on page 299
F6-23	0xF617	Operation command from power supply unit	0: Stop according to F6-10 1: Ignore stop command from power supply unit	0	-	At stop	" F6-23" on page 299
F6-24	0xF618	Position lock Kp	0.0–100.0	10.0	-	Real-time	" F6-24" on page 299
F6-25	0xF619	Position lock end amplitude	0–16383	10	-	Real-time	" F6-25" on page 300

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
F6-26	0xF61A	Time proportion of S-curve acceleration start segment	0.0% to 100.0%	30.0	%	At stop	"F6-26" on page 300
F6-27	0xF61B	Time proportion of S-curve acceleration end segment	0.0% to 100.0%	30.0	%	At stop	"F6-27" on page 300
F6-28	0xF61C	Time proportion of S-curve deceleration start segment	0.0% to 100.0%	30.0	%	At stop	"F6-28" on page 300
F6-29	0xF61D	Time proportion of S-curve deceleration end segment	0.0% to 100.0%	30.0	%	At stop	"F6-29" on page 301
F6-30	0xF61E	Trial current of speed track for synchronous motor	5.0% to 50.0%	20.0	%	At stop	"F6-30" on page 301
F6-31	0xF61F	Minimum track frequency for synchronous motor speed track	0.0 Hz to 100.0 Hz	0.0	Hz	At stop	"F6-31" on page 301
F6-32	0xF620	Angle compensation for synchronous motor speed track	0–360	0	-	At stop	"F6-32" on page 301
F6-33	0xF621	Proportion coefficient of synchronous motor speed track	0.1–10.0	2.0	-	At stop	"F6-33" on page 301
F6-34	0xF622	Integral coefficient of synchronous motor speed track	0.1–10.0	6.0	-	At stop	"F6-34" on page 302
F6-35	0xF623	Reverse running inhibition for speed track	0–2	0	-	Real-time	"F6-35" on page 302
F7-00	0xF700	Drive unit indicator test	0–2	0	-	Real-time	"F7-00" on page 302
F7-01	0xF701	MF.K key function	0: MF.K key disabled 1: Switchover between operating panel control and remote control (terminal or communication) 2: Switchover between forward run and reverse run 3: Forward jog 4: Reverse jog	0	-	At stop	"F7-01" on page 302
F7-02	0xF702	STOP/RES key function	0: Stop by the STOP/RES key enabled only in operating panel control mode 1: Stop by the STOP/RES key enabled in any operating mode	1	-	Real-time	"F7-02" on page 303
F7-03	0xF703	Parameter 1 display on LED during operation	Bit 0: Running frequency (Hz) Bit 1: Frequency reference (Hz) Bit 2 Bus voltage (V) Bit 3: Output voltage (V) Bit 4: Output current (A) Bit 5 Output power (kW)	31	-	Real-time	"F7-03" on page 303

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
			Bit 6: Output torque (%) Bit 7: DI status Bit 8: DO status Bit 9: AI1 voltage (V) Bit 10: AI2 voltage (V) Bit 11: AI3 voltage (V) Bit 12: Count value Bit 13: Length value Bit 14: Load speed display Bit 15: PID reference				
F7-04	0xF704	Parameter 2 display on LED during operation	Bit 0: PID feedback Bit 1: PLC stage Bit 2: Reserved Bit 3: Running frequency 2 (Hz) Bit 4: Remaining running time Bit 5: Reserved Bit 6: Reserved Bit 7: Reserved Bit 8: Linear speed Bit 9: Current power-on time (min.) Bit 10: Current running time (min.) Bit 11: Reserved Bit 12: Communication setting value Bit 13: Reserved Bit 14: Main frequency X display Bit 15: Auxiliary frequency Y display	0	-	Real-time	“ F7-04” on page 304
F7-05	0xF705	Parameter display on LED during stop	Bit 1: Frequency reference (Hz) Bit 1: Bus voltage (V) Bit 2: DI state Bit 3: DO state Bit 4: AI1 voltage (V) Bit 5: AI2 voltage (V) Bit 6: AI3 voltage (V) Bit 7: Count value Bit 8: Length value Bit 9: PLC stage Bit 10: Load speed display Bit 11: PID reference Bit 12: Reserved	51	-	Real-time	“ F7-05” on page 305
F7-06	0xF706	STO Software version	0.0–6553.5	0.0	-	Unchange able	“ F7-06” on page 305
F7-07	0xF707	Drive unit heatsink temperature	-20°C to +120°C	0	°C	Unchange able	“ F7-07” on page 305
F7-08	0xF708	Product No.	0–1000	0	-	Unchange able	“ F7-08” on page 305

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
F7-09	0xF709	Accumulative running time	0 h to 65535 h	0	h	Unchangeable	"F7-09" on page 306
F7-10	0xF70A	Performance software version	0.00	0.00	-	Unchangeable	"F7-10" on page 306
F7-11	0xF70B	Function software version	0.00	0.00	-	Unchangeable	"F7-11" on page 306
F7-12	0xF70C	Accumulative power-on time	0 h to 65535 h	0	h	Unchangeable	"F7-12" on page 306
F7-13	0xF70D	Accumulative power output	0 kWh to 65535 kWh	0	kWh	Unchangeable	"F7-13" on page 306
F7-14	0xF70E	Accumulative power consumption	0 kWh to 65535 kWh	0	kWh	Unchangeable	"F7-14" on page 307
F7-15	0xF70F	Temporary performance software version	0.00	0.00	-	Unchangeable	"F7-15" on page 307
F7-16	0xF710	Temporary function software version	0.00	0.00	-	Unchangeable	"F7-16" on page 307
F8-00	0xF800	Jog frequency	0.00 Hz to 655.35 Hz	2.00	Hz	Real-time	"F8-00" on page 307
F8-01	0xF801	Jog acceleration time	0.0s to 6500.0s	20.0	s	Real-time	"F8-01" on page 307
F8-02	0xF802	Jog deceleration time	0.0s to 6500.0s	20.0	s	Real-time	"F8-02" on page 308
F8-03	0xF803	Acceleration time 2	0.0s to 6500.0s	0.0	s	Real-time	"F8-03" on page 308
F8-04	0xF804	Deceleration time 2	0.0s to 6500.0s	0.0	s	Real-time	"F8-04" on page 308
F8-05	0xF805	Acceleration time 3	0.0s to 6500.0s	0.0	s	Real-time	"F8-05" on page 308
F8-06	0xF806	Deceleration time 3	0.0s to 6500.0s	0.0	s	Real-time	"F8-06" on page 308
F8-07	0xF807	Acceleration time 4	0.0s to 6500.0s	0.0	s	Real-time	"F8-07" on page 309
F8-08	0xF808	Deceleration time 4	0.0s to 6500.0s	0.0	s	Real-time	"F8-08" on page 309
F8-09	0xF809	Jump frequency 1	0.00 Hz to 655.35 Hz	0.00	Hz	Real-time	"F8-09" on page 309
F8-10	0xF80A	Jump frequency 2	0.00 Hz to 655.35 Hz	0.00	Hz	Real-time	"F8-10" on page 309
F8-11	0xF80B	Jump frequency amplitude	0.00 Hz to 5.00 Hz	0.00	Hz	Real-time	"F8-11" on page 310

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
F8-12	0xF80C	Jump frequency state during acceleration/ deceleration	0: Invalid 1: Valid	0	-	Real-time	" F8-12" on page 310
F8-13	0xF80D	Dead-zone time of forward/ reverse run	0.0s to 3000.0s	0.0	s	Real-time	" F8-13" on page 310
F8-14	0xF80E	Reverse run	0: Allowed 1: Inhibited	0	-	Real-time	" F8-14" on page 310
F8-15	0xF80F	Running mode when frequency is below the frequency lower limit	0: Run at frequency lower limit 1: Stop 2: Run at zero speed	0	-	Real-time	" F8-15" on page 311
F8-17	0xF811	NO input mode of external fault	0: Active at any time 1: Active only in operation	0	-	At stop	" F8-17" on page 311
F8-18	0xF812	NC input mode of external fault	0: Always active 1: Active only in running	0	-	At stop	" F8-18" on page 311
F8-19	0xF813	Accumulative power-on time threshold	0 h to 65000 h	0	h	Real-time	" F8-19" on page 312
F8-20	0xF814	Accumulative running time threshold	0 h to 65000 h	0	h	Real-time	" F8-20" on page 312
F8-21	0xF815	Protection upon start	0: Disable 1: Enable	0	-	Real-time	" F8-21" on page 312
F8-22	0xF816	Frequency detection value 1 (FDT1)	0.00 Hz to 655.35 Hz	50.0 0	Hz	Real-time	" F8-22" on page 312
F8-23	0xF817	Frequency detection hysteresis value 1 (FDT1)	0.00 Hz to 655.35 Hz	2.50	Hz	Real-time	" F8-23" on page 313
F8-24	0xF818	Frequency detection value 2 (FDT2)	0.00 Hz to 655.35 Hz	50.0 0	Hz	Real-time	" F8-24" on page 313
F8-25	0xF819	Frequency detection hysteresis value 2 (FDT2)	0.00 Hz to 655.35 Hz	2.50	Hz	Real-time	" F8-25" on page 313
F8-26	0xF81A	Range of detection frequency	0.00 Hz to 655.35 Hz	2.50	Hz	Real-time	" F8-26" on page 313
F8-27	0xF81B	Detection frequency 1	0.00 Hz to 655.35 Hz	50.0 0	Hz	Real-time	" F8-27" on page 314
F8-28	0xF81C	Range of detection frequency 1	0.00 Hz to 655.35 Hz	2.50	Hz	Real-time	" F8-28" on page 314
F8-29	0xF81D	Detection mode when running frequency reaches detection frequency 1	0: Detection is performed at any time. 1: Detection is not performed during acceleration/deceleration.	0	-	At stop	" F8-29" on page 314
F8-30	0xF81E	Detection value 2 for frequency reach	0.00 Hz to 655.35 Hz	50.0 0	Hz	Real-time	" F8-30" on page 314
F8-31	0xF81F	Range of detection frequency 2	0.00 Hz to 655.35 Hz	2.50	Hz	Real-time	" F8-31" on page 315

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
F8-32	0xF820	Detection mode when running frequency reaches detection frequency 2	0: Detection is performed at any time. 1: Detection is not performed during acceleration/deceleration.	0	-	At stop	"F8-32" on page 315
F8-35	0xF823	Frequency of switchover between acceleration time 1 and acceleration time 2	0.00 Hz to 655.35 Hz	0.00	Hz	Real-time	"F8-35" on page 315
F8-36	0xF824	Frequency of switchover between deceleration time 1 and deceleration time 2	0.00 Hz to 655.35 Hz	0.00	Hz	Real-time	"F8-36" on page 315
F8-37	0xF825	Jog with priority	0: Invalid 1: Valid	0	-	At stop	"F8-37" on page 316
F8-38	0xF826	Zero current detection level	0.0% to 300.0%	5.0	%	Real-time	"F8-38" on page 316
F8-39	0xF827	Zero current detection delay	0.01s to 600.00s	0.10	s	Real-time	"F8-39" on page 316
F8-40	0xF828	Output overcurrent threshold	0.0% to 300.0%	200.0	%	Real-time	"F8-40" on page 316
F8-41	0xF829	Software overcurrent detection delay	0.00s to 600.00s	0.00	s	Real-time	"F8-41" on page 317
F8-42	0xF82A	Detection level of current 1	0.0% to 300.0%	100.0	%	Real-time	"F8-42" on page 317
F8-43	0xF82B	Detection width of current 1	0.0% to 300.0%	0.0	%	Real-time	"F8-43" on page 317
F8-44	0xF82C	Detection level of current 2	0.0% to 300.0%	100.0	%	Real-time	"F8-44" on page 317
F8-45	0xF82D	Detection width of current 2	0.0% to 300.0%	0.0	%	Real-time	"F8-45" on page 318
F8-46	0xF82E	Timing function	0: Invalid 1: Valid	0	-	At stop	"F8-46" on page 318
F8-47	0xF82F	Scheduled running time setting	0: F8-48 1: AI1 2: AI2	0	-	At stop	"F8-47" on page 318
F8-48	0xF830	Scheduled running time	0.0 min to 6500.0 min	0.0	min	At stop	"F8-48" on page 318
F8-49	0xF831	Lower limit of AI1 input voltage	0.00 V to 655.35 V	3.10	V	Real-time	"F8-49" on page 319
F8-50	0xF832	Upper limit of AI1 input voltage	0.00 V to 11.00 V	6.80	V	Real-time	"F8-50" on page 319
F8-51	0xF833	Module temperature threshold	0°C to 100°C	75	°C	Real-time	"F8-51" on page 319

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
F8-52	0xF834	Fan run control	0: The fan runs forward during AC drive operation. 1: The fan runs forward at any time. 2: The fan runs forward or reversely at any time. 3: The fan runs forward or reversely during AC drive operation.	0	-	Real-time	"F8-52" on page 319
F8-54	0xF836	Wakeup frequency	0.00 Hz to 655.35 Hz	0.00	Hz	Real-time	"F8-54" on page 320
F8-55	0xF837	Wakeup delay	0.0s to 6500.0s	0.0	s	Real-time	"F8-55" on page 320
F8-56	0xF838	Hibernation frequency	0.00 Hz to 655.35 Hz	0.00	Hz	Real-time	"F8-56" on page 320
F8-57	0xF839	Hibernation delay	0.0s to 6500.0s	0.0	s	Real-time	"F8-57" on page 320
F8-58	0xF83A	Current running time	0.0 min to 6500.0 min	0.0	min	Real-time	"F8-58" on page 321
F8-59	0xF83B	Communication address 2000H/2001H switchover	0: General protocol 1: Specialized protocol	0	-	At stop	"F8-59" on page 321
F8-60	0xF83C	Deceleration time for emergency stop	0.0s to 6500.0s	0.0	s	Real-time	"F8-60" on page 321
F8-61	0xF83D	Jog enabled by LED operating panel	0	0	-	Unchange able	"F8-61" on page 321
F8-62	0xF83E	Load speed display coefficient	0.0000–6.5000	1.00 00	-	Real-time	"F8-62" on page 322
F8-63	0xF83F	Number of decimal places for load speed display	0: 0 decimal place 1: 1 decimal place 2: 2 decimal places 3: 3 decimal places	1	-	Real-time	"F8-63" on page 322
F8-64	0xF840	7310H address data unit	0: Frequency (Hz) 1: Speed (RPM)	0	-	At stop	"F8-64" on page 322
F9-00	0xF900	AC drive overload protection	0–1	0	-	Real-time	"F9-00" on page 323
F9-01	0xF901	Motor overload protection gain	0.20 to 10.00	1.00	-	Real-time	"F9-01" on page 323
F9-02	0xF902	Motor overload warning coefficient	50% to 100%	80	%	Real-time	"F9-02" on page 323
F9-06	0xF906	Output phase loss detection before start	0: Invalid 1: Valid	0	%	Real-time	"F9-06" on page 324

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
F9-07	0xF907	Detection of short circuit to ground before power-on	0: Disable 1: Enable	1	-	At stop	"F9-07" on page 324
F9-09	0xF909	Number of automatic reset times upon fault	0–20	0	-	Real-time	"F9-09" on page 324
F9-10	0xF90A	DO action during automatic fault reset	0: Disable 1: Enable	0	-	Real-time	"F9-10" on page 324
F9-11	0xF90B	Interval for automatic fault reset	0.1s to 100.0s	1.0	s	Real-time	"F9-11" on page 324
F9-12	0xF90C	Restart interval upon fault reset	0.0s to 100.0s	1.0	s	Real-time	"F9-12" on page 325
F9-13	0xF90D	Reset mode upon STO fault	0: Manual reset 1: Automatic reset	1	-	At stop	"F9-13" on page 325
F9-14	0xF90E	1st fault type	0–99	0	-	Unchangeable	"F9-14" on page 325
F9-15	0xF90F	2nd fault type	0–99	0	-	Unchangeable	"F9-15" on page 325
F9-16	0xF910	3rd (latest) fault type	0–99	0	-	Unchangeable	"F9-16" on page 326
F9-17	0xF911	Frequency upon the 3rd (latest) fault	0	0	-	Unchangeable	"F9-17" on page 326
F9-18	0xF912	Current upon the 3rd (latest) fault	0	0	-	Unchangeable	"F9-18" on page 326
F9-19	0xF913	Bus voltage upon the 3rd (latest) fault	0	0	-	Unchangeable	"F9-19" on page 326
F9-20	0xF914	Input terminal state upon the 3rd (latest) fault	0	0	-	Unchangeable	"F9-20" on page 326
F9-21	0xF915	Output terminal state upon the 3rd (latest) fault	0	0	-	Unchangeable	"F9-21" on page 327
F9-22	0xF916	AC drive state upon the 3rd (latest) fault	0	0	-	Unchangeable	"F9-22" on page 327
F9-23	0xF917	Power-on time upon the 3rd (latest) fault	0	0	-	Unchangeable	"F9-23" on page 327
F9-24	0xF918	Running time upon the 3rd (latest) fault	0	0	-	Unchangeable	"F9-24" on page 327
F9-25	0xF919	IGBT temperature upon the 3rd fault (latest)	0	0	-	Unchangeable	"F9-25" on page 327
F9-26	0xF91A	3rd (latest) fault subcode	0	0	-	Unchangeable	"F9-26" on page 328
F9-27	0xF91B	Frequency upon the 2nd fault	0	0	-	Unchangeable	"F9-27" on page 328

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
F9-28	0xF91C	Current upon the 2nd fault	0	0	-	Unchangeable	"F9-28" on page 328
F9-29	0xF91D	Bus voltage upon the 2nd fault	0	0	-	Unchangeable	"F9-29" on page 328
F9-30	0xF91E	Input terminal state upon the 2nd fault	0	0	-	Unchangeable	"F9-30" on page 328
F9-31	0xF91F	Output terminal state upon the 2nd fault	0	0	-	Unchangeable	"F9-31" on page 329
F9-32	0xF920	AC drive state upon the 2nd fault	0	0	-	Unchangeable	"F9-32" on page 329
F9-33	0xF921	Power-on time upon the 2nd fault	0	0	-	Unchangeable	"F9-33" on page 329
F9-34	0xF922	Running time upon the 2nd fault	0	0	-	Unchangeable	"F9-34" on page 329
F9-35	0xF923	IGBT temperature upon the 2nd fault	0	0	-	Unchangeable	"F9-35" on page 329
F9-36	0xF924	2nd fault subcode	0	0	-	Unchangeable	"F9-36" on page 330
F9-37	0xF925	Frequency upon the 1st fault	0	0	-	Unchangeable	"F9-37" on page 330
F9-38	0xF926	Current upon the 1st fault	0	0	-	Unchangeable	"F9-38" on page 330
F9-39	0xF927	Bus voltage upon the 1st fault	0	0	-	Unchangeable	"F9-39" on page 330
F9-40	0xF928	Input terminal state upon the 1st fault	0	0	-	Unchangeable	"F9-40" on page 330
F9-41	0xF929	Output terminal state upon the 1st fault	0 to 0	0	-	Unchangeable	"F9-41" on page 331
F9-42	0xF92A	AC drive state upon the 1st fault	0 to 0	0	-	Unchangeable	"F9-42" on page 331
F9-43	0xF92B	Power-on time upon the 1st fault	0 to 0	0	-	Unchangeable	"F9-43" on page 331
F9-44	0xF92C	Running time upon the 1st fault	0	0	-	Unchangeable	"F9-44" on page 331
F9-45	0xF92D	IGBT temperature upon the 1st fault	0	0	-	Unchangeable	"F9-45" on page 331
F9-46	0xF92E	1st fault subcode	0	0	-	Unchangeable	"F9-46" on page 332
F9-47	0xF92F	Fault protection action selection 0	0–55555	500	-	At stop	"F9-47" on page 332

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
F9-48	0xF930	Fault protection action selection 1	Ones: Value of E11 0: Coast to stop 1: Decelerate to stop 2: Special action 4: Warning 5: Disable Tens: Reserved 0: Coast to stop 1: Decelerate to stop 4: Warning 5: Disable Hundreds: Value of E13 0: Coast to stop 1: Decelerate to stop 2: Special action 4: Warning 5: Disable Thousands: Value of E14 0: Coast to stop Ten thousands: Value of E15 0: Coast to stop 1: Decelerate to stop 4: Warning 5: Disable	10050	-	At stop	"F9-48" on page 332
F9-49	0xF931	Fault protection action selection 2	Ones: Value of E16 0: Coast to stop 1: Decelerate to stop 4: Warning 5: Disable Tens: Reserved 5: Disable Hundreds: Reserved 0: Coast to stop Thousands: Value of E19 0: Coast to stop 4: Warning 5: Disable Ten thousands: Reserved 5: Disable	50050	-	At stop	"F9-49" on page 333
F9-50	0xF932	Fault protection action selection 3	Ones: Value of E21 0: Coast to stop Tens: Value of E22 0: Coast to stop Hundreds: Value of E23 0: Coast to stop 5: Disable Thousands: Reserved 5: Disable Ten thousands: Value of E25 2: Decelerate to stop	25000	-	At stop	"F9-50" on page 334

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
			5: Disable				
F9-51	0xF933	Fault protection action selection 4	Ones: Value of E26 0: Coast to stop 1: Decelerate to stop 4: Warning 5: Disable Tens: Value of E27 0: Coast to stop 1: Decelerate to stop 4: Warning 5: Disable Hundreds: Value of E28 0: Coast to stop 1: Decelerate to stop 4: Warning 5: Disable Thousands: Value of E29 0: Coast to stop 1: Decelerate to stop 4: Warning 5: Disable Ten thousands: Value of E30 0: Coast to stop 1: Decelerate to stop 4: Warning 5: Disable	51111	-	At stop	*" F9-51" on page 334*
F9-52	0xF934	Fault protection action selection 5	Ones: Value of E31 0: Coast to stop 1: Decelerate to stop 4: Warning 5: Disable Tens: Reserved 5: Disable Hundreds: Reserved 5: Disable Thousands: Value of E42 0: Coast to stop 1: Decelerate to stop 4: Warning 5: Disable Ten thousands: Value of E43 0: Coast to stop 1: Decelerate to stop 4: Warning 5: Disable	551	-	At stop	*" F9-52" on page 335*
F9-53	0xF935	Fault protection action selection 6	Ones: Value of E45 0: Coast to stop 1: Decelerate to stop 4: Warning 5: Disable	5500	-	At stop	*" F9-53" on page 336*

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
			Tens: Reserved 5: Disable Hundreds: Reserved 5: Disable Thousands: Reserved 5: Disable Ten thousands: Value of E80 0: Coast to stop 1: Decelerate to stop 5: Disable				
F9-54	0xF936	Frequency for continuing to run upon fault	0: Current running frequency 1: Frequency reference 2: Frequency upper limit 3: Frequency lower limit 4: Backup frequency upon abnormality	1	-	Real-time	"F9-54" on page 337
F9-55	0xF937	Backup frequency reference upon abnormality	0.0% to 100.0%	100.0	%	Real-time	"F9-55" on page 337
F9-57	0xF939	Motor overheat protection threshold 1	0°C to 200°C	110	°C	Real-time	"F9-57" on page 337
F9-58	0xF93A	Motor overheat warning threshold 1	0°C to 200°C	90	°C	Real-time	"F9-58" on page 338
F9-59	0xF93B	Motor overheat protection threshold 2	0°C to 200°C	110	°C	Real-time	"F9-59" on page 338
F9-60	0xF93C	Motor overheat warning threshold 2	0°C to 200°C	90	°C	Real-time	"F9-60" on page 338
F9-61	0xF93D	Motor overheat protection threshold 3	0°C to 200°C	110	°C	Real-time	"F9-61" on page 338
F9-62	0xF93E	Motor overheat warning threshold 3	0°C to 200°C	90	°C	Real-time	"F9-62" on page 339
F9-63	0xF93F	Power dip ride-through function	0: Disabled 1: Decelerate 2: Decelerate to stop	0	-	At stop	"F9-63" on page 339
F9-64	0xF940	Threshold for recovering from power dip ride-through	8.0% to 10.0%	8.5	%	Real-time	"F9-64" on page 339
F9-65	0xF941	Time to determine voltage recovery from instantaneous power failure	0.0s to 100.0s	0.5	s	Real-time	"F9-65" on page 340
F9-66	0xF942	Voltage to determine instantaneous power failure	60% to 100%	80	%	Real-time	"F9-66" on page 340
F9-67	0xF943	Alarm threshold of continuous frame loss times for I/O module	1–1000	60	-	At stop	"F9-67" on page 340

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
F9-68	0xF944	Load loss detection level	0.0% to 100.0%	10.0	%	Real-time	" F9-68" on page 340
F9-69	0xF945	Load loss detection time	0.1s to 60.0s	1.0	s	Real-time	" F9-69" on page 341
F9-71	0xF947	Overspeed detection level	0.0% to 50.0%	5.0	%	Real-time	" F9-71" on page 341
F9-72	0xF948	Overspeed detection time	0.0–60.0	1.0	-	Real-time	" F9-72" on page 341
F9-73	0xF949	Detection level of excessive speed deviation	0.0% to 50.0%	20.0	%	Real-time	" F9-73" on page 342
F9-74	0xF94A	Detection time of excessive speed deviation	0.0s to 60.0s	5.0	s	Real-time	" F9-74" on page 342
F9-75	0xF94B	Power dip ride-through gain	0–100	40	-	Real-time	" F9-75" on page 342
F9-76	0xF94C	Power dip ride-through integral	0–100	30	-	Real-time	" F9-76" on page 342
F9-77	0xF94D	Deceleration time of power dip ride-through	0.0s to 300.0s	20.0	s	Real-time	" F9-77" on page 343
FA-00	0xFA00	PID reference source	0: PID digital reference (FA-01) 1: AI1 2: AI2 3: AI3 4: Reserved 5 Communication 6: Multi-reference	0	-	Real-time	" FA-00" on page 343
FA-01	0xFA01	PID digital reference	0.0% to 100.0%	50.0	%	Real-time	" FA-01" on page 344
FA-02	0xFA02	PID feedback source	0: AI1 1: AI2 2: AI3 3: AI1 – AI2 4: Reserved 5: Communication 6: AI1 + AI2 7: Max. (|AI1|, |AI2|) 8: Min. (|AI1|, |AI2|)	0	-	Real-time	" FA-02" on page 344
FA-03	0xFA03	PID action direction	0: Forward 1: Reverse	0	-	Real-time	" FA-03" on page 344
FA-04	0xFA04	PID reference and feedback range	0–65535	1000	-	Real-time	" FA-04" on page 345
FA-05	0xFA05	Proportional gain Kp1	0.0–1000.0	20.0	-	Real-time	" FA-05" on page 345

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
FA-06	0xFA06	Integral time Ti1	0.01s to 100.00s	2.00	s	Real-time	"FA-06" on page 345
FA-07	0xFA07	Derivative time Td1	0.000s to 10.000s	0.000	s	Real-time	"FA-07" on page 345
FA-08	0xFA08	PID cut-off frequency in reverse direction	0.00 Hz to 655.35 Hz	2.00	Hz	Real-time	"FA-08" on page 346
FA-09	0xFA09	PID deviation limit	0.0% to 100.0%	0.0	%	Real-time	"FA-09" on page 346
FA-10	0xFA0A	PID differential limit	0.00% to 100.00%	0.10	%	Real-time	"FA-10" on page 346
FA-11	0xFA0B	PID reference change time	0.00s to 650.00s	0.00	s	Real-time	"FA-11" on page 346
FA-12	0xFA0C	PID feedback filter time	0.00s to 60.00s	0.00	s	Real-time	"FA-12" on page 347
FA-13	0xFA0D	PID error gain	0.0% to 100.0%	100.0	%	Real-time	"FA-13" on page 347
FA-15	0xFA0F	Proportional gain Kp2	0.0–1000.0	20.0	-	Real-time	"FA-15" on page 347
FA-16	0xFA10	Integral time Ti2	0.01s to 100.00s	2.00	s	Real-time	"FA-16" on page 347
FA-17	0xFA11	Derivative time Td2	0.000s to 10.000s	0.000	s	Real-time	"FA-17" on page 347
FA-18	0xFA12	PID parameter switchover condition	0: No switchover 1: Switchover by DI 2: Automatic switchover based on deviation 3: Switchover based on running frequency 6: Automatic adjustment based on roll diameter 7: Automatic adjustment based on maximum roll diameter percentage	0	-	Real-time	"FA-18" on page 348
FA-19	0xFA13	PID parameter switchover deviation 1	0.0% to 6553.5%	20.0	%	Real-time	"FA-19" on page 349
FA-20	0xFA14	PID parameter switchover deviation 2	0.0% to 100.0%	80.0	%	Real-time	"FA-20" on page 349
FA-21	0xFA15	PID initial value	0.0% to 100.0%	0.0	%	Real-time	"FA-21" on page 349
FA-22	0xFA16	PID initial value holding time	0.00s to 650.00s	0.00	s	Real-time	"FA-22" on page 349

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
FA-23	0xFA17	Maximum positive deviation between two PID outputs	0.00% to 100.00%	1.00	%	Real-time	"FA-23" on page 349
FA-24	0xFA18	Maximum negative deviation between two PID outputs	0.00% to 100.00%	1.00	%	Real-time	"FA-24" on page 350
FA-25	0xFA19	PID integral	0: Invalid 1: Valid	0	-	Real-time	"FA-25" on page 350
FA-26	0xFA1A	Detection level of PID feedback loss	0.0% to 100.0%	0.0	%	Real-time	"FA-26" on page 350
FA-27	0xFA1B	Detection time of PID feedback loss	0.0s to 20.0s	0.0	s	Real-time	"FA-27" on page 350
FB-00	0xFB00	Wobble setting mode	0: Relative to central frequency 1: Relative to maximum frequency	0	-	Real-time	"Fb-00" on page 351
FB-01	0xFB01	Wobble amplitude	0.0% to 100.0%	0.0	%	Real-time	"Fb-01" on page 351
FB-02	0xFB02	Jump frequency amplitude	0.0% to 50.0%	0.0	%	Real-time	"Fb-02" on page 351
FB-03	0xFB03	Wobble cycle	0.1s to 3000.0s	10.0	s	Real-time	"Fb-03" on page 351
FB-04	0xFB04	Triangular wave rising time of wobble	0.1% to 100.0%	50.0	%	Real-time	"Fb-04" on page 352
FB-05	0xFB05	Reference length	0 m to 65535 m	1000	m	Real-time	"Fb-05" on page 352
FB-06	0xFB06	Actual length	0 m to 65535 m	0	m	Real-time	"Fb-06" on page 352
FB-07	0xFB07	Number of pulses per meter	0.1–6553.5	100.0	-	Real-time	"Fb-07" on page 352
FB-08	0xFB08	Reference count value	1–65535	1000	-	Real-time	"Fb-08" on page 352
FB-09	0xFB09	Designated count value	1–65535	1000	-	Real-time	"Fb-09" on page 353
FC-00	0xFC00	Multi-reference 0	-100.0% to +100.0%	0.0	%	Real-time	"FC-00" on page 353
FC-01	0xFC01	Multi-reference 1	-100.0% to +100.0%	0.0	%	Real-time	"FC-01" on page 353
FC-02	0xFC02	Multi-reference 2	-100.0% to +100.0%	0.0	%	Real-time	"FC-02" on page 354
FC-03	0xFC03	Multi-reference 3	-100.0% to +100.0%	0.0	%	Real-time	"FC-03" on page 354
FC-04	0xFC04	Multi-reference 4	-100.0% to +100.0%	0.0	%	Real-time	"FC-04" on page 354

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
FC-05	0xFC05	Multi-reference 5	-100.0% to +100.0%	0.0	%	Real-time	"FC-05" on page 354
FC-06	0xFC06	Multi-reference 6	-100.0% to +100.0%	0.0	%	Real-time	"FC-06" on page 354
FC-07	0xFC07	Multi-reference 7	-100.0% to +100.0%	0.0	%	Real-time	"FC-07" on page 355
FC-08	0xFC08	Multi-reference 8	-100.0% to +100.0%	0.0	%	Real-time	"FC-08" on page 355
FC-09	0xFC09	Multi-reference 9	-100.0% to +100.0%	0.0	%	Real-time	"FC-09" on page 355
FC-10	0xFC0A	Multi-reference 10	-100.0% to +100.0%	0.0	%	Real-time	"FC-10" on page 355
FC-11	0xFC0B	Multi-reference 11	-100.0% to +100.0%	0.0	%	Real-time	"FC-11" on page 355
FC-12	0xFC0C	Multi-reference 12	-100.0% to +100.0%	0.0	%	Real-time	"FC-12" on page 356
FC-13	0xFC0D	Multi-reference 13	-100.0% to +100.0%	0.0	%	Real-time	"FC-13" on page 356
FC-14	0xFC0E	Multi-reference 14	-100.0% to +100.0%	0.0	%	Real-time	"FC-14" on page 356
FC-15	0xFC0F	Multi-reference 15	-100.0% to +100.0%	0.0	%	Real-time	"FC-15" on page 356
FC-16	0xFC10	Simple PLC running mode	0: Stop after running for one cycle 1: Keep final values after running for one cycle 2: Repeat after running for one cycle	0	-	Real-time	"FC-16" on page 356
FC-17	0xFC11	Simple PLC retention selection upon power failure	Ones: 0: Non-retentive upon power failure 1: Retentive upon power failure Tens: 0: Non-retentive upon stop 1: Retentive upon stop	0	-	Real-time	"FC-17" on page 357
FC-18	0xFC12	Running time of speed reference 0 set by simple PLC	0.0s (h) to 6553.5s (h)	0.0	s (h)	Real-time	"FC-18" on page 357
FC-19	0xFC13	Acceleration/deceleration time of speed reference 0 set by simple PLC	0–3	0	-	Real-time	"FC-19" on page 358
FC-20	0xFC14	Running time of speed reference 1 set by simple PLC	0.0s (h) to 6553.5s (h)	0.0	s (h)	Real-time	"FC-20" on page 358

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
FC-21	0xFC15	Acceleration/deceleration time of speed reference 1 set by simple PLC	0–3	0	-	Real-time	“FC-21” on page 358
FC-22	0xFC16	Running time of speed reference 2 set by simple PLC	0.0 s(h) to 6553.5 s(h)	0.0	s (h)	Real-time	“FC-22” on page 358
FC-23	0xFC17	Acceleration/deceleration time of speed reference 2 set by simple PLC	0–3	0	-	Real-time	“FC-23” on page 359
FC-24	0xFC18	Running time of speed reference 3 set by simple PLC	0.0s (h) to 6553.5s (h)	0.0	s (h)	Real-time	“FC-24” on page 359
FC-25	0xFC19	Acceleration/deceleration time of speed reference 3 set by simple PLC	0–3	0	-	Real-time	“FC-25” on page 359
FC-26	0xFC1A	Running time of speed reference 4 set by simple PLC	0.0s (h) to 6553.5s (h)	0.0	s (h)	Real-time	“FC-26” on page 359
FC-27	0xFC1B	Acceleration/deceleration time of speed reference 4 set by simple PLC	0–3	0	-	Real-time	“FC-27” on page 360
FC-28	0xFC1C	Running time of speed reference 5 set by simple PLC	0.0s (h) to 6553.5s (h)	0.0	s (h)	Real-time	“FC-28” on page 360
FC-29	0xFC1D	Acceleration/deceleration time of speed reference 5 set by simple PLC	0–3	0	-	Real-time	“FC-29” on page 360
FC-30	0xFC1E	Running time of speed reference 6 set by simple PLC	0.0s(h) to 6553.5s(h)	0.0	s (h)	Real-time	“FC-30” on page 360
FC-31	0xFC1F	Acceleration/deceleration time of speed reference 6 set by simple PLC	0–3	0	-	Real-time	“FC-31” on page 361
FC-32	0xFC20	Running time of speed reference 7 set by simple PLC	0.0s (h) to 6553.5s (h)	0.0	s (h)	Real-time	“FC-32” on page 361
FC-33	0xFC21	Acceleration/deceleration time of speed reference 7 set by simple PLC	0–3	0	-	Real-time	“FC-33” on page 361
FC-34	0xFC22	Running time of speed reference 8 set by simple PLC	0.0s(h) to 6553.5s(h)	0.0	s (h)	Real-time	“FC-34” on page 361
FC-35	0xFC23	Acceleration/deceleration time of speed reference 8 set by simple PLC	0–3	0	-	Real-time	“FC-35” on page 362

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
FC-36	0xFC24	Running time of speed reference 9 set by simple PLC	0.0s (h) to 6553.5s (h)	0.0	s (h)	Real-time	"FC-36" on page 362
FC-37	0xFC25	Acceleration/deceleration time of speed reference 9 set by simple PLC	0–3	0	-	Real-time	"FC-37" on page 362
FC-38	0xFC26	Running time of speed reference 10 set by simple PLC	0.0s (h) to 6553.5s (h)	0.0	s (h)	Real-time	"FC-38" on page 362
FC-39	0xFC27	Acceleration/deceleration time of speed reference 10 set by simple PLC	0–3	0	-	Real-time	"FC-39" on page 363
FC-40	0xFC28	Running time of speed reference 11 set by simple PLC	0.0s (h) to 6553.5s (h)	0.0	s (h)	Real-time	"FC-40" on page 363
FC-41	0xFC29	Acceleration/deceleration time of speed reference 11 set by simple PLC	0–3	0	-	Real-time	"FC-41" on page 363
FC-42	0xFC2A	Running time of speed reference 12 set by simple PLC	0.0s (h) to 6553.5s (h)	0.0	s (h)	Real-time	"FC-42" on page 363
FC-43	0xFC2B	Acceleration/deceleration time of speed reference 12 set by simple PLC	0–3	0	-	Real-time	"FC-43" on page 364
FC-44	0xFC2C	Running time of speed reference 13 set by simple PLC	0.0s (h) to 6553.5s (h)	0.0	s (h)	Real-time	"FC-44" on page 364
FC-45	0xFC2D	Acceleration/deceleration time of speed reference 13 set by simple PLC	0–3	0	-	Real-time	"FC-45" on page 364
FC-46	0xFC2E	Running time of speed reference 14 set by simple PLC	0.0s (h) to 6553.5s (h)	0.0	s (h)	Real-time	"FC-46" on page 364
FC-47	0xFC2F	Acceleration/deceleration time of speed reference 14 set by simple PLC	0–3	0	-	Real-time	"FC-47" on page 365
FC-48	0xFC30	Running time of speed reference 15 set by simple PLC	0.0s(h) to 6553.5s(h)	0.0	s (h)	Real-time	"FC-48" on page 365
FC-49	0xFC31	Acceleration/deceleration time of speed reference 15 set by simple PLC	0–3	0	-	Real-time	"FC-49" on page 365
FC-50	0xFC32	PLC running time unit	0: second (s) 1: hour (h)	0	-	Real-time	"FC-50" on page 365

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
FC-51	0xFC33	Multi-reference 0 source	0: FC-00 (Multi-reference 0) 1: AI1 2: AI2 3: AI3 4: Reserved 5: PID 6: F0-08 (Preset frequency, which can be changed by pressing UP or DOWN key)	0	-	Real-time	“FC-51” on page 366
FD-02	0xFD02	Local address	0–247	1	-	Unchangeable	“Fd-02” on page 366
FD-03	0xFD03	Modbus response delay	0 ms to 20 ms	2	ms	Real-time	“Fd-03” on page 366
FD-04	0xFD04	Modbus communication timeout	0.0s to 60.0s	0.0	s	Unchangeable	“Fd-04” on page 367
FD-06	0xFD06	Communication fault reset	0–1	1	-	At stop	“Fd-06” on page 367
FD-08	0xFD08	Last allocated station number	0 to 65535	0	-	Unchangeable	“Fd-08” on page 367
FD-09	0xFD09	Communication status	Ones: CANopen 0: Stop 1: Initialization 2: Pre-running 8: Running Tens: CANlink 0: Stop 1: Initialization 2: Pre-running 8: Running Hundreds position: Reserved 0: Stop 1: Initialization 2-8: Running	0	-	Unchangeable	“Fd-09” on page 367
FD-10	0xFD0A	CANopen/CANlink switchover	1: CANopen 2: CANlink	1	-	Unchangeable	“Fd-10” on page 368
FD-11	0xFD0B	CiA 402	0: Disable 1: Enable	0	-	At stop	“Fd-11” on page 368
FD-13	0xFD0D	CAN station number	1–127	1	-	At stop	“Fd-13” on page 368
FD-14	0xFD0E	Number of CAN frames received per unit of time	0–65535	1	-	Unchangeable	“Fd-14” on page 369
FD-19	0xFD13	CAN communication disconnection coefficient	1–15	5	-	At stop	“Fd-19” on page 369

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
FD-92	0xFD5C	Communication version	0.00–655.35	0.00	-	Unchangeable	"Fd-92" on page 369
FE-00	0xFE00	User-defined parameter 0	0	0	-	Real-time	"FE-00" on page 369
FE-01	0xFE01	User-defined parameter 1	0	0	-	Real-time	"FE-01" on page 369
FE-02	0xFE02	User-defined parameter 2	0	0	-	Real-time	"FE-02" on page 370
FE-03	0xFE03	User-defined parameter 3	0	0	-	Real-time	"FE-03" on page 370
FE-04	0xFE04	User-defined parameter 4	0	0	-	Real-time	"FE-04" on page 370
FE-05	0xFE05	User-defined parameter 5	0	0	-	Real-time	"FE-05" on page 370
FE-06	0xFE06	User-defined parameter 6	0	0	-	Real-time	"FE-06" on page 370
FE-07	0xFE07	User-defined parameter 7	0	0	-	Real-time	"FE-07" on page 371
FE-08	0xFE08	User-defined parameter 8	0	0	-	Real-time	"FE-08" on page 371
FE-09	0xFE09	User-defined parameter 9	0	0	-	Real-time	"FE-09" on page 371
FE-10	0xFE0A	User-defined parameter 10	0	0	-	Real-time	"FE-10" on page 371
FE-11	0xFE0B	User-defined parameter 11	0	0	-	Real-time	"FE-11" on page 372
FE-12	0xFE0C	User-defined parameter 12	0	0	-	Real-time	"FE-12" on page 372
FE-13	0xFE0D	User-defined parameter 13	0	0	-	Real-time	"FE-13" on page 372
FE-14	0xFE0E	User-defined parameter 14	0	0	-	Real-time	"FE-14" on page 372
FE-15	0xFE0F	User-defined parameter 15	0	0	-	Real-time	"FE-15" on page 372
FE-16	0xFE10	User-defined parameter 16	0	0	-	Real-time	"FE-16" on page 373
FE-17	0xFE11	User-defined parameter 17	0	0	-	Real-time	"FE-17" on page 373
FE-18	0xFE12	User-defined parameter 18	0	0	-	Real-time	"FE-18" on page 373

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
FE-19	0xFE13	User-defined parameter 19	0	0	-	Real-time	" FE-19" on page 373
FE-20	0xFE14	User-defined parameter 20	0	0	-	Real-time	" FE-20" on page 373
FE-21	0xFE15	User-defined parameter 21	0	0	-	Real-time	" FE-21" on page 374
FE-22	0xFE16	User-defined parameter 22	0	0	-	Real-time	" FE-22" on page 374
FE-23	0xFE17	User-defined parameter 23	0	0	-	Real-time	" FE-23" on page 374
FE-24	0xFE18	User-defined parameter 24	0	0	-	Real-time	" FE-24" on page 374
FE-25	0xFE19	User-defined parameter 25	0	0	-	Real-time	" FE-25" on page 375
FE-26	0xFE1A	User-defined parameter 26	0	0	-	Real-time	" FE-26" on page 375
FE-27	0xFE1B	User-defined parameter 27	0	0	-	Real-time	" FE-27" on page 375
FE-28	0xFE1C	User-defined parameter 28	0	0	-	Real-time	" FE-28" on page 375
FE-29	0xFE1D	User-defined parameter 29	0	0	-	Real-time	" FE-29" on page 375
FE-30	0xFE1E	User-defined parameter 30	0	0	-	Real-time	" FE-30" on page 376
FE-31	0xFE1F	User-defined parameter 31	0	0	-	Real-time	" FE-31" on page 376
FF-00	0xFF00	Manufacturer password	0–65535	0	-	Real-time	" FF-00" on page 376
FF-01	0xFF01	AC drive model	5–14	11	-	At stop	" FF-01" on page 376
FF-03	0xFF03	AC drive power	0.0 kW to 6553.5 kW	3.7	kW	Unchange able	" FF-03" on page 376
FF-04	0xFF04	Temperature curve	1–2	2	-	At stop	" FF-04" on page 377
FF-05	0xFF05	Current sampling gain error between U and V phases	90.00% to 110.00%	100. 00	%	At stop	" FF-05" on page 377
FF-06	0xFF06	Current sampling gain error between U and W phases	90.0% to 110.0%	100. 0	%	At stop	" FF-06" on page 377
FF-07	0xFF07	Transistor voltage drop	0.00–655.35	0.00	-	Unchange able	" FF-07" on page 377

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
FF-08	0xFF08	Voltage correction coefficient	85.0% to 150.0%	100.0	%	Real-time	"FF-08" on page 377
FF-09	0xFF09	Current correction coefficient	85.0% to 115.0%	100.0	%	Real-time	"FF-09" on page 378
FF-12	0xFF0C	Setting of any memory data address	0–1	0	-	Real-time	"FF-12" on page 378
FP-00	0x1F00	User password	0 to 65535	0	-	Unchangeable	"FP-00" on page 378
FP-01	0x1F01	Parameter initialization	0: No operation 1: Restore to factory settings 1 2: Clear records 4: Back up current user parameters 501: Restore user backup parameters	1	-	Real-time	"FP-01" on page 378
FP-02	0x1F02	Parameter display settings	Ones: 0: Hidden 1: Displayed Tens: 0: Hidden 1: Displayed Hundreds: 0: Hidden 1: Displayed Thousands: 0: Hidden 1: Displayed	111	-	Real-time	"FP-02" on page 379
FP-03	0x1F03	Individualized parameter display settings	Ones: 0: Hidden 1: Displayed Tens: 0: Hidden 1: Displayed	0	-	Real-time	"FP-03" on page 379
FP-04	0x1F04	Parameter modification	0: Enable 1: Disable	0	-	Real-time	"FP-04" on page 380
A0-00	0xA000	Speed/Torque control	0: Speed control 1: Torque control	0	-	At stop	"A0-00" on page 380
A0-01	0xA001	Torque setting source	0: Torque digital setting (A0-03) 1: AI1 2: AI2 3: AI3 4: Reserved 5: Communication setting (1000H) 6: Min. (AI1, AI2) 7: Max. (AI1, AI2)	0	-	At stop	"A0-01" on page 380

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
A0-03	0xA003	Torque digital setting	-200.0% to +200.0%	1.0	%	Real-time	"A0-03" on page 381
A0-04	0xA004	Torque filter time	0.000s to 5.000s	0.000	s	Real-time	"A0-04" on page 381
A0-05	0xA005	Speed limit digital setting	-120.0% to +120.0%	0.0	%	Real-time	"A0-05" on page 381
A0-07	0xA007	Torque acceleration time	0.00s to 650.00s	1.00	s	Real-time	"A0-07" on page 381
A0-08	0xA008	Torque deceleration time	0.00s to 650.00s	1.00	s	Real-time	"A0-08" on page 381
A0-09	0xA009	Speed limit reference source	0: A0-05 1: Frequency source	0	-	Real-time	"A0-09" on page 382
A0-10	0xA00A	Speed limit offset	0.00–655.35	5.00	-	Real-time	"A0-10" on page 382
A0-11	0xA00B	Effective mode of speed limit offset	0: Bidirectional offset 1: Unidirectional offset	0	-	At stop	"A0-11" on page 382
A0-12	0xA00C	Frequency acceleration time	0.0s to 6500.0s	1.0	s	Real-time	"A0-12" on page 382
A0-13	0xA00D	Frequency deceleration time	0.0s to 6500.0s	1.0	s	Real-time	"A0-13" on page 382
A0-14	0xA00E	Torque mode switchover	0: No switchover 1: Switch to speed control at stop. 2: Set the target torque to 0 at stop.	1	-	At stop	"A0-14" on page 383
A1-00	0xA100	VDI1 function	0: No function 1: Forward run (FWD) 2: Reverse run (REV) 3: Three-wire motion control 4: Forward jog (FJOG) 5: Reverse jog (RJOG) 6: Same as the UP key 7: Same as the DOWN key 8: Clear information set by UP/DOWN keys on the operating panel or by terminals functioning as the UP/DOWN keys 9: Fault reset (RESET) 10: External fault NO input 11: External fault NC input 12: User-defined fault 1 13: User-defined fault 2	0	-	At stop	"A1-00" on page 383
A1-00	0xA100	VDI1 function	14: Multi-reference terminal 1 15: Multi-reference terminal 2 16: Multi-reference terminal 3 17: Multi-reference terminal 4	0	-	At stop	"A1-00" on page 383

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
			18: Acceleration/Deceleration terminal 1 19: Acceleration/Deceleration terminal 2 20: Acceleration/Deceleration prohibition 21: Command source switchover terminal 1 22: Command source switchover terminal 2 23: Frequency reference switchover 24: Switchover between main frequency reference X and preset frequency 25: Switchover between auxiliary frequency reference Y and preset frequency 26: Frequency modification enable 27: Counter input 28: Counter reset 29: Length input 30: Length reset				
A1-00	0xA100	VDI1 function	31: PID pause 32: PID integral pause 33: PID parameter switchover 34: PID action direction reverse 35: Torque control prohibition 36: Speed control/Torque control switchover 38: Speed tracking enable 39: Immediate DC braking 40: Deceleration DC braking 41: External stop terminal 1 42: External stop terminal 2 43: Running pause 44: Coast to stop 45: Emergency stop 46: Motor selection terminal 47: Current running time clear 48: Two-wire/Three-wire motion control switchover 49: PLC state reset 50: Wobble pause 94: Braking feedback 1 95: Braking feedback 2	0	-	At stop	"A1-00" on page 383
A1-01	0xA101	VDI2 function	Same as A1–00	0	-	At stop	"A1-01" on page 384

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
A1-02	0xA102	VDI3 function	Same as A1–00	0	-	At stop	"A1-02" on page 386
A1-03	0xA103	VDI4 function	Same as A1–00	0	-	At stop	"A1-03" on page 387
A1-04	0xA104	VDI5 function	Same as A1–00	0	-	At stop	"A1-04" on page 388
A1-05	0xA105	VDI state setting mode	Ones: 0: Set by A1-06 1: DO state 2: DI state Tens: 0: Set by A1-06 1: DO state 2: DI state Hundreds: 0: Set by A1-06 1: DO state 2: DI state Thousands: 0: Set by A1-06 1: DO state 2: DI state Ten thousands: 0: Set by A1-06 1: DO state 2: DI state	0	-	At stop	"A1-05" on page 390
A1-06	0xA106	VDI state	Ones: 0: Invalid 1: Valid Tens: 0: Invalid 1: Valid Hundreds: 0: Invalid 1: Valid Thousands: 0: Invalid 1: Valid Ten thousands: 0: Invalid 1: Valid	0	-	Real-time	"A1-06" on page 390
A1-07	0xA107	AI1 function (used as DI)	Same as A1–00	0	-	At stop	"A1-07" on page 391
A1-08	0xA108	AI2 function (used as DI)	Same as A1–00	0	-	At stop	"A1-08" on page 392
A1-09	0xA109	AI3 function (used as DI)	Same as A1–00	0	-	At stop	"A1-09" on page 393

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
A1-10	0xA10A	State of AI used as DI	Ones: 0: Active high 1: Active low Tens: 0: Active high 1: Active low Hundreds: 0: Active high 1: Active low	0	-	At stop	"A1-10" on page 395
A5-00	0xA500	Frequency upper limit for DPWM switchover	0.00 Hz to 50.00 Hz	12.00	Hz	Real-time	"A5-00" on page 395
A5-01	0xA501	PWM modulation mode	0: Asynchronous modulation 1: Synchronous modulation	0	-	Real-time	"A5-01" on page 395
A5-02	0xA502	Dead-zone compensation	0: Disable 1: Enable	1	-	At stop	"A5-02" on page 396
A5-03	0xA503	Random PWM depth	0–10	0	-	Real-time	"A5-03" on page 396
A5-04	0xA504	Fast current limit	0: Disable 1: Enable	0	-	Real-time	"A5-04" on page 396
A5-05	0xA505	Sampling delay	1–13	5	-	Real-time	"A5-05" on page 396
A5-06	0xA506	Undervoltage threshold	150.0 V to 455.0 V	350.0	V	Real-time	"A5-06" on page 397
A5-07	0xA507	SVC optimization	0: No optimization 1: Optimization mode 1 2: Optimization mode 2	1	-	At stop	"A5-07" on page 397
A6-00	0xA600	Curve 4 minimum input	-10.00 V to +10.00 V	0.00	V	Real-time	"A6-00" on page 397
A6-01	0xA601	Percentage corresponding to curve 4 minimum input	-100.0% to +100.0%	0.0	%	Real-time	"A6-01" on page 397
A6-02	0xA602	Input of curve 4 inflexion point 1	-10.00 V to +10.00 V	3.00	V	Real-time	"A6-02" on page 398
A6-03	0xA603	Percentage corresponding to input of curve 4 inflexion point 1	-100.0% to +100.0%	30.0	%	Real-time	"A6-03" on page 398
A6-04	0xA604	Input of curve 4 inflexion 2	-10.00 V to +10.00 V	6.00	V	Real-time	"A6-04" on page 398
A6-05	0xA605	Percentage corresponding to input of curve 4 inflexion 2	-100.0% to +100.0%	60.0	%	Real-time	"A6-05" on page 398
A6-06	0xA606	Curve 4 maximum input	-10.00 V to +10.00 V	10.00	V	Real-time	"A6-06" on page 398

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
A6-07	0xA607	Percentage corresponding to curve 4 maximum input	-100.0% to +100.0%	100.0	%	Real-time	"A6-07" on page 399
A6-08	0xA608	Curve 5 minimum input	-10.00 V to +10.00 V	-10.00	V	Real-time	"A6-08" on page 399
A6-09	0xA609	Percentage corresponding to curve 5 minimum input	-100.0% to +100.0%	-100.0	%	Real-time	"A6-09" on page 399
A6-10	0xA60A	Input of curve 5 inflexion 1	-10.00 V to +10.00 V	-3.00	V	Real-time	"A6-10" on page 399
A6-11	0xA60B	Percentage corresponding to input of curve 5 inflexion 1	-100.0% to +100.0%	-30.0	%	Real-time	"A6-11" on page 399
A6-12	0xA60C	Input of curve 5 inflexion 2	-10.00 V to +10.00 V	3.00	V	Real-time	"A6-12" on page 400
A6-13	0xA60D	Percentage corresponding to input of curve 5 inflexion 2	-100.0% to +100.0%	30.0	%	Real-time	"A6-13" on page 400
A6-14	0xA60E	Curve 5 maximum input	-10.00 V to 10.00 V	10.00	V	Real-time	"A6-14" on page 400
A6-15	0xA60F	Percentage corresponding to curve 5 maximum input	-100.0% to +100.0%	100.0	%	Real-time	"A6-15" on page 400
A6-16	0xA610	AI1 gain	-10.00 to +10.00	1.00	-	Real-time	"A6-16" on page 401
A6-17	0xA611	AI1 offset	-100.0% to +100.0%	0.0	%	Real-time	"A6-17" on page 401
A6-18	0xA612	AI2 gain	-10.00 to +10.00	1.00	-	Real-time	"A6-18" on page 401
A6-19	0xA613	AI2 offset	-100.0% to +100.0%	0.0	%	Real-time	"A6-19" on page 401
A6-20	0xA614	AI3 gain	-10.00 to +10.00	1.00	-	Real-time	"A6-20" on page 401
A6-21	0xA615	AI3 offset	-100.0% to +100.0%	0.0	%	Real-time	"A6-21" on page 402
A6-24	0xA618	Jump point of AI1 input corresponding setting	-100.0% to +100.0%	0.0	%	Real-time	"A6-24" on page 402
A6-25	0xA619	Jump amplitude of AI1 input corresponding setting	0.0% to +100.0%	0.5	%	Real-time	"A6-25" on page 402
A6-26	0xA61A	Jump point of AI3 setting	-100.0% to +100.0%	0.0	%	Real-time	"A6-26" on page 402
A6-27	0xA61B	Jump amplitude of AI3 setting	0.0% to +100.0%	0.5	%	Real-time	"A6-27" on page 402

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
A6-28	0xA61C	Jump point of AI2 setting	-100.0% to +100.0%	0.0	%	Real-time	"A6-28" on page 403
A6-29	0xA61D	Jump amplitude of AI2 setting	0.0% to +100.0%	0.5	%	Real-time	"A6-29" on page 403
A9-00	0xA900	Online auto-tuning on the rotor time constant of asynchronous motors	0: Disabled 1: Enabled	0	-	Real-time	"A9-00" on page 403
A9-04	0xA904	Maximum torque limit coefficient in the field-weakening range for asynchronous motors	30 to 150	80	-	Real-time	"A9-04" on page 403
A9-05	0xA905	Speed filter of asynchronous motors in SVC mode	5 ms to 32 ms	15	ms	Real-time	"A9-05" on page 403
A9-06	0xA906	Speed feedback handling in speed control of asynchronous motors in SVC mode	0: No operation 1: Minimum synchronization frequency limited based on load change 2: Reserved 3: Reserved	0	-	Real-time	"A9-06" on page 404
A9-07	0xA907	Magnetic field regulation bandwidth of asynchronous motor in SVC mode	0.0 to 8.0	2.0	-	Real-time	"A9-07" on page 404
A9-08	0xA908	Low-speed running current of asynchronous motor in SVC mode	30 to 170	100	-	Real-time	"A9-08" on page 404
A9-09	0xA909	Switchover frequency of output fixed current for asynchronous motor in SVC mode	2.0 Hz to 100.0 Hz	3.0	Hz	Real-time	"A9-09" on page 404
A9-10	0xA90A	Speed fluctuation suppression coefficient of asynchronous motor in SVC mode	0–6	3	-	Real-time	"A9-10" on page 405
A9-11	0xA90B	Acceleration/Deceleration time of asynchronous motors in SVC mode	0.1s to 3000.0s	20.0	s	Real-time	"A9-11" on page 405
A9-12	0xA90C	Quick auto-tuning of stator resistance before asynchronous motor startup	0: Disabled 1: Enabled	0	-	Real-time	"A9-12" on page 405
A9-13	0xA90D	Quick auto-tuning of stator resistance coefficient 1 of asynchronous motors	0 to 65535	10	-	At stop	"A9-13" on page 405
A9-14	0xA90E	Quick auto-tuning of stator resistance coefficient 2 for asynchronous motors	0 to 65535	10	-	At stop	"A9-14" on page 405

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
A9-15	0xA90F	Quick auto-tuning of stator resistance coefficient 3 for asynchronous motors	0 to 65535	0	-	At stop	"A9-15" on page 406
A9-17	0xA911	Synchronous motor real-time angle	0 to 65535	0	-	Unchangeable	"A9-17" on page 406
A9-18	0xA912	Initial position angle detection of synchronous motor	0: Detected upon running 1: Not detected 2: Detected upon initial power-on	0	-	Real-time	"A9-18" on page 406
A9-20	0xA914	Flux weakening mode	0: Automatic mode 1: Synchronous motor adjustment mode 2: Synchronous motor hybrid mode 3: Disabled	1	-	At stop	"A9-20" on page 406
A9-21	0xA915	Flux weakening gain of synchronous motors	0 to 50	5	-	Real-time	"A9-21" on page 407
A9-22	0xA916	Upper limit margin of synchronous motor output voltage	0% to 50%	5	%	Real-time	"A9-22" on page 407
A9-23	0xA917	Maximum force adjustment gain of synchronous motors	20% to 300%	100	%	Real-time	"A9-23" on page 407
A9-24	0xA918	Exciting current adjustment gain calculated by synchronous motor	40% to 200%	100	%	Real-time	"A9-24" on page 407
A9-25	0xA919	Estimated speed integral gain of synchronous motor in SVC mode	5 to 1000	30	-	Real-time	"A9-25" on page 407
A9-26	0xA91A	Estimated speed proportional gain of synchronous motor in SVC mode	5 to 300	20	-	Real-time	"A9-26" on page 408
A9-27	0xA91B	Estimated speed filter of synchronous motor in SVC mode	10 to 2000	100	-	Real-time	"A9-27" on page 408
A9-28	0xA91C	Minimum carrier frequency of synchronous motor in SVC mode	8 to 65535	20	-	Real-time	"A9-28" on page 408
A9-29	0xA91D	Low speed excitation current of synchronous motor in SVC mode	0% to 80%	30	%	Real-time	"A9-29" on page 408
A9-40	0xA928	Closed-loop current at low speed (used for PMVVC)	0: Disable 1: Enable	0	-	At stop	"A9-40" on page 409
A9-41	0xA929	Low-speed closed-loop current (used for PMVVCVVC)	30 to 200	50	-	At stop	"A9-41" on page 409

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
A9-42	0xA92A	Oscillation suppression damping coefficient (used for PMVVCVVC)	0 to 500	100	-	Real-time	"A9-42" on page 409
A9-43	0xA92B	Reserved	0 to 65535	0	-	Unchange able	"A9-43" on page 409
A9-44	0xA92C	Initial position compensation angle (used for PMVVCVVC)	0 to 5	0	-	At stop	"A9-44" on page 409
A9-45	0xA92D	Low-speed handling of synchronous motor	0: Disable 1: Enable	0	-	At stop	"A9-45" on page 410
A9-46	0xA92E	Switchover frequency for low-speed handling of synchronous motor	0.01 Hz to 655.35 Hz	5.00	Hz	At stop	"A9-46" on page 410
A9-47	0xA92F	Low-speed handling current of synchronous motor	10 to 200	100	-	At stop	"A9-47" on page 410
A9-48	0xA930	Feedback suppression coefficient for Low-speed handling of synchronous motor	0 to 300	32	-	At stop	"A9-48" on page 410
A9-51	0xA933	Advanced settings for parameter auto-tuning of asynchronous motor	Ones: Rotor resistance and leakage inductance DC offset 0: Standard offset 1: Large offset Tens: New rotor resistance and leakage inductance auto-tuning algorithm 0: Disable 1: Enable Hundreds: New mutual inductance static auto-tuning algorithm 0: Disable 1: Enable Thousands: Stator resistance auto-tuning algorithm 0: Current open loop 1: Current closed loop	111	-	At stop	"A9-51" on page 410
A9-52	0xA934	Feedback torque (U0-06)	0: The motoring torque direction is positive and the generating torque direction is negative. 1: The torque direction that is the same as the forward speed direction is positive, and the torque direction that is the same as the reverse speed direction is negative.	1	-	Real-time	"A9-52" on page 411

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
AD-00	0xAD00	Background oscilloscope start/stop	0 to 1	1	-	Real-time	"AD-00" on page 411
AD-01	0xAD01	Channel 1 parameter	0 to 999	0	-	Real-time	"AD-01" on page 411
AD-02	0xAD02	Channel 2 parameter	0 to 999	0	-	Real-time	"AD-02" on page 412
AD-03	0xAD03	Channel 3 parameter	0 to 999	0	-	Real-time	"AD-03" on page 412
AD-04	0xAD04	Channel 4 parameter	0 to 999	0	-	Real-time	"AD-04" on page 412
AD-05	0xAD05	Sampling interval (carrier cycle)	1 to 65535	1	-	Real-time	"AD-05" on page 412
AD-06	0xAD06	Triggering object A	0 to 999	1	-	Real-time	"AD-06" on page 412
AD-07	0xAD07	Triggering condition A	0: > 1: = 2: <	0	-	Real-time	"AD-07" on page 412
AD-08	0xAD08	Triggering level A	0 to 65535	0	-	Real-time	"AD-08" on page 413
AD-09	0xAD09	Triggering object B	0 to 999	1	-	Real-time	"AD-09" on page 413
AD-10	0xAD0A	Triggering condition B	0: > 1: = 2: <	0	-	Real-time	"AD-10" on page 413
AD-11	0xAD0B	Triggering level B	0 to 65535	0	-	Real-time	"AD-11" on page 413
AD-12	0xAD0C	Triggering condition	0: When condition A is satisfied 1: When condition B is satisfied 2: When condition A and condition B are satisfied	0	-	Real-time	"AD-12" on page 414
AD-13	0xAD0D	Carrier frequency cycle during data storage	0 to 65535	0	-	Unchangeable	"AD-13" on page 414
AD-14	0xAD0E	Fault value	0 to 65535	0	-	Unchangeable	"AD-14" on page 414
AD-15	0xAD0F	Data saving cycle	0: Carrier cycle 1: 0.5 ms 2: 2 ms	0	-	Real-time	"AD-15" on page 414
AD-16	0xAD10	Data reading mode for host controller	0: From RAM 1: From flash	0	-	Real-time	"AD-16" on page 414
AD-17	0xAD11	Flash rewriting	0: Disable 1: Enable	1	-	Real-time	"AD-17" on page 415

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
AF-00	0xAF00	RPDO1-SubIndex0-H	0 to 65535	0	-	Real-time	"AF-00" on page 415
AF-01	0xAF01	RPDO1-SubIndex0-L	0 to 65535	0	-	Real-time	"AF-01" on page 415
AF-02	0xAF02	RPDO1-SubIndex1-H	0 to 65535	0	-	Real-time	"AF-02" on page 415
AF-03	0xAF03	RPDO1-SubIndex1-L	0 to 65535	0	-	Real-time	"AF-03" on page 415
AF-04	0xAF04	RPDO1-SubIndex2-H	0 to 65535	0	-	Real-time	"AF-04" on page 416
AF-05	0xAF05	RPDO1-SubIndex2-L	0 to 65535	0	-	Real-time	"AF-05" on page 416
AF-06	0xAF06	RPDO1-SubIndex3-H	0 to 65535	0	-	Real-time	"AF-06" on page 416
AF-07	0xAF07	RPDO1-SubIndex3-L	0 to 65535	0	-	Real-time	"AF-07" on page 416
AF-08	0xAF08	RPDO2-SubIndex0-H	0 to 65535	0	-	Real-time	"AF-08" on page 416
AF-09	0xAF09	RPDO2-SubIndex0-L	0 to 65535	0	-	Real-time	"AF-09" on page 417
AF-10	0xAF0A	RPDO2-SubIndex1-H	0 to 65535	0	-	Real-time	"AF-10" on page 417
AF-11	0xAF0B	RPDO2-SubIndex1-L	0 to 65535	0	-	Real-time	"AF-11" on page 417
AF-12	0xAF0C	RPDO2-SubIndex2-H	0 to 65535	0	-	Real-time	"AF-12" on page 417
AF-13	0xAF0D	RPDO2-SubIndex2-L	0 to 65535	0	-	Real-time	"AF-13" on page 417
AF-14	0xAF0E	RPDO2-SubIndex3-H	0 to 65535	0	-	Real-time	"AF-14" on page 418
AF-15	0xAF0F	RPDO2-SubIndex3-L	0 to 65535	0	-	Real-time	"AF-15" on page 418
AF-16	0xAF10	RPDO3-SubIndex0-H	0 to 65535	0	-	Real-time	"AF-16" on page 418
AF-17	0xAF11	RPDO3-SubIndex0-L	0 to 65535	0	-	Real-time	"AF-17" on page 418
AF-18	0xAF12	RPDO3-SubIndex1-H	0 to 65535	0	-	Real-time	"AF-18" on page 418
AF-19	0xAF13	RPDO3-SubIndex1-L	0 to 65535	0	-	Real-time	"AF-19" on page 419

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
AF-20	0xAF14	RPDO3-SubIndex2-H	0 to 65535	0	-	Real-time	"AF-20" on page 419
AF-21	0xAF15	RPDO3-SubIndex2-L	0 to 65535	0	-	Real-time	"AF-21" on page 419
AF-22	0xAF16	RPDO3-SubIndex3-H	0 to 65535	0	-	Real-time	"AF-22" on page 419
AF-23	0xAF17	RPDO3-SubIndex3-L	0 to 65535	0	-	Real-time	"AF-23" on page 419
AF-24	0xAF18	RPDO4-SubIndex0-H	0 to 65535	0	-	Real-time	"AF-24" on page 419
AF-25	0xAF19	RPDO4-SubIndex0-L	0 to 65535	0	-	Real-time	"AF-25" on page 420
AF-26	0xAF1A	RPDO4-SubIndex1-H	0 to 65535	0	-	Real-time	"AF-26" on page 420
AF-27	0xAF1B	RPDO4-SubIndex1-L	0 to 65535	0	-	Real-time	"AF-27" on page 420
AF-28	0xAF1C	RPDO4-SubIndex2-H	0 to 65535	0	-	Real-time	"AF-28" on page 420
AF-29	0xAF1D	RPDO4-SubIndex2-L	0 to 65535	0	-	Real-time	"AF-29" on page 420
AF-30	0xAF1E	RPDO4-SubIndex3-H	0 to 65535	0	-	Real-time	"AF-30" on page 421
AF-31	0xAF1F	RPDO4-SubIndex3-L	0 to 65535	0	-	Real-time	"AF-31" on page 421
AF-32	0xAF20	TPDO1-SubIndexO-H	0 to 65535	0	-	Real-time	"AF-32" on page 421
AF-33	0xAF21	TPDO1-SubIndexO-L	0 to 65535	0	-	Real-time	"AF-33" on page 421
AF-34	0xAF22	TPDO1-SubIndex1-H	0 to 65535	0	-	Real-time	"AF-34" on page 421
AF-35	0xAF23	TPDO1-SubIndex1-L	0 to 65535	0	-	Real-time	"AF-35" on page 422
AF-36	0xAF24	TPDO1-SubIndex2-H	0 to 65535	0	-	Real-time	"AF-36" on page 422
AF-37	0xAF25	TPDO1-SubIndex2-L	0 to 65535	0	-	Real-time	"AF-37" on page 422
AF-38	0xAF26	TPDO1-SubIndex3-H	0 to 65535	0	-	Real-time	"AF-38" on page 422
AF-39	0xAF27	TPDO1-SubIndex3-L	0 to 65535	0	-	Real-time	"AF-39" on page 422

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
AF-40	0xAF28	TPDO2-SubIndex0-H	0 to 65535	0	-	Real-time	"AF-40" on page 423
AF-41	0xAF29	TPDO2-SubIndex0-L	0 to 65535	0	-	Real-time	"AF-41" on page 423
AF-42	0xAF2A	TPDO2-SubIndex1-H	0 to 65535	0	-	Real-time	"AF-42" on page 423
AF-43	0xAF2B	TPDO2-SubIndex1-L	0 to 65535	0	-	Real-time	"AF-43" on page 423
AF-44	0xAF2C	TPDO2-SubIndex2-H	0 to 65535	0	-	Real-time	"AF-44" on page 423
AF-45	0xAF2D	TPDO2-SubIndex2-L	0 to 65535	0	-	Real-time	"AF-45" on page 424
AF-46	0xAF2E	TPDO2-SubIndex3-H	0 to 65535	0	-	Real-time	"AF-46" on page 424
AF-47	0xAF2F	TPDO2-SubIndex3-L	0 to 65535	0	-	Real-time	"AF-47" on page 424
AF-48	0xAF30	TPDO3-SubIndex0-H	0 to 65535	0	-	Real-time	"AF-48" on page 424
AF-49	0xAF31	TPDO3-SubIndex0-L	0 to 65535	0	-	Real-time	"AF-49" on page 424
AF-50	0xAF32	TPDO3-SubIndex1-H	0 to 65535	0	-	Real-time	"AF-50" on page 424
AF-51	0xAF33	TPDO3-SubIndex1-L	0 to 65535	0	-	Real-time	"AF-51" on page 425
AF-52	0xAF34	TPDO3-SubIndex2-H	0 to 65535	0	-	Real-time	"AF-52" on page 425
AF-53	0xAF35	TPDO3-SubIndex2-L	0 to 65535	0	-	Real-time	"AF-53" on page 425
AF-54	0xAF36	TPDO3-SubIndex3-H	0 to 65535	0	-	Real-time	"AF-54" on page 425
AF-55	0xAF37	TPDO3-SubIndex3-L	0 to 65535	0	-	Real-time	"AF-55" on page 425
AF-56	0xAF38	TPDO4-SubIndex0-H	0 to 65535	0	-	Real-time	"AF-56" on page 426
AF-57	0xAF39	TPDO4-SubIndex0-L	0 to 65535	0	-	Real-time	"AF-57" on page 426
AF-58	0xAF3A	TPDO4-SubIndex1-H	0 to 65535	0	-	Real-time	"AF-58" on page 426
AF-59	0xAF3B	TPDO4-SubIndex1-L	0 to 65535	0	-	Real-time	"AF-59" on page 426

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
AF-60	0xAF3C	TPDO4-SubIndex2-H	0 to 65535	0	-	Real-time	"AF-60" on page 426
AF-61	0xAF3D	TPDO4-SubIndex2-L	0 to 65535	0	-	Real-time	"AF-61" on page 427
AF-62	0xAF3E	TPDO4-SubIndex3-H	0 to 65535	0	-	Real-time	"AF-62" on page 427
AF-63	0xAF3F	TPDO4-SubIndex3-L	0 to 65535	0	-	Real-time	"AF-63" on page 427
AF-66	0xAF42	Number of valid RPDOs	0 to 65535	0	-	Unchange able	"AF-66" on page 427
AF-67	0xAF43	Number of valid TPDOs	0 to 65535	0	-	Unchange able	"AF-67" on page 427
B7-00	0xB700	Target frequency limit	0.00 Hz to 20.00 Hz	2.00	Hz	Real-time	"B7-00" on page 428
B7-01	0xB701	Brake release frequency (forward)	0.00 Hz to 20.00 Hz	2.00	Hz	Real-time	"B7-01" on page 428
B7-02	0xB702	Brake release frequency (reverse)	0.00 Hz to 20.00 Hz	2.00	Hz	Real-time	"B7-02" on page 428
B7-03	0xB703	Brake release torque (forward)	0.0% to 200.0%	30.0	%	Real-time	"B7-03" on page 428
B7-04	0xB704	Brake release torque (reverse)	0.0% to 200.0%	30.0	%	Real-time	"B7-04" on page 429
B7-05	0xB705	Brake release time	0.00s to 5.00s	0.50	s	Real-time	"B7-05" on page 429
B7-06	0xB706	Brake engage frequency (forward)	0.00 Hz to 20.00 Hz	2.00	Hz	Real-time	"B7-06" on page 429
B7-07	0xB707	Brake engage frequency (reverse)	0.00 Hz to 20.00 Hz	2.00	Hz	Real-time	"B7-07" on page 429
B7-08	0xB708	Brake engage delay	0.00s to 5.00s	0.00	s	Real-time	"B7-08" on page 429
B7-09	0xB709	Brake engage time	0.00s to 5.00s	0.50	s	Real-time	"B7-09" on page 430
B7-10	0xB70A	Excitation time at stop	0.00s to 500.00s	0.00	s	Real-time	"B7-10" on page 430
B7-11	0xB70B	Restart waiting time	0.00s to 15.00s	0.30	s	Real-time	"B7-11" on page 430
B7-12	0xB70C	Startup direction	0: Same as the running direction 1:Forward	0	-	Real-time	"B7-12" on page 430
B7-13	0xB70D	Pre-torque source	0: Digital setting 1: Pre-torque 2: Disable	2	-	Real-time	"B7-13" on page 431

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
B7-14	0xB70E	Pre-torque setting value (forward)	0.0% to 200.0%	30.0	%	Real-time	"B7-14" on page 431
B7-15	0xB70F	Pre-torque setting value (reverse)	0.0% to 200.0%	30.0	%	Real-time	"B7-15" on page 431
B7-16	0xB710	Current acceleration/ deceleration time	0.00s to 5.00s	0.50	s	Real-time	"B7-16" on page 431
B7-17	0xB711	Reverse running	0: Disable 1: Enable (FVC)	0	-	Real-time	"B7-17" on page 432
B7-18	0xB712	Brake release timeout period	0.00s to 5.00s	2.00	s	Real-time	"B7-18" on page 432
B7-21	0xB715	Abnormality detection period of frequency	0.00s to 1.00s	0.50	s	Real-time	"B7-21" on page 432
B7-22	0xB716	Frequency following error	0% to 30%	20	%	Real-time	"B7-22" on page 432
B7-23	0xB717	Frequency following detection time	0.00s to 1.00s	0.50	s	Real-time	"B7-23" on page 432
B7-24	0xB718	Detection time for torque to reach the limit	0.00s to 5.00s	0.00	s	Real-time	"B7-24" on page 433
U0-00	0x7000	Running frequency	0.00 Hz	0.00	Hz	Unchange able	"U0-00" on page 433
U0-01	0x7001	Frequency reference	0.00 Hz	0.00	Hz	Unchange able	"U0-01" on page 433
U0-02	0x7002	Bus voltage	0.0 V	0.0	V	Unchange able	"U0-02" on page 433
U0-03	0x7003	Output voltage	0 V	0	V	Unchange able	"U0-03" on page 434
U0-04	0x7004	Output current	0.00 A	0.00	A	Unchange able	"U0-04" on page 434
U0-05	0x7005	Output power	0.0 kW	0.0	kW	Unchange able	"U0-05" on page 434
U0-06	0x7006	Output torque	0.0%	0.0	%	Unchange able	"U0-06" on page 434
U0-07	0x7007	DI state	0	0	-	Unchange able	"U0-07" on page 434
U0-08	0x7008	DO/RO output mode	0	0	-	Unchange able	"U0-08" on page 435
U0-09	0x7009	AI1 voltage	0.00 V	0.00	V	Unchange able	"U0-09" on page 435
U0-10	0x700A	AI2 voltage	0.00 V	0.00	V	Unchange able	"U0-10" on page 435

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
U0-11	0x700B	AI3 voltage	0.00 V	0.00	V	Unchange able	"U0-11" on page 436
U0-12	0x700C	Count value	0	0	-	Unchange able	"U0-12" on page 436
U0-13	0x700D	Length value	0	0	-	Unchange able	"U0-13" on page 436
U0-14	0x700E	Load speed display	0	0	-	Unchange able	"U0-14" on page 436
U0-15	0x700F	PID reference	0	0	-	Unchange able	"U0-15" on page 436
U0-16	0x7010	PID feedback	0	0	-	Unchange able	"U0-16" on page 436
U0-17	0x7011	PLC stage	0	0	-	Unchange able	"U0-17" on page 437
U0-19	0x7013	Feedback speed	0.00 Hz	0.00	Hz	Unchange able	"U0-19" on page 437
U0-20	0x7014	Remaining running time	0.0 min	0.0	min	Unchange able	"U0-20" on page 437
U0-21	0x7015	AI1 gain and voltage after offset	0.000 V	0.00 0	V	Unchange able	"U0-21" on page 437
U0-22	0x7016	AI2 gain and voltage after offset	0.000 V	0.00 0	V	Unchange able	"U0-22" on page 437
U0-23	0x7017	AI3 gain and voltage after offset	0.000 V	0.00 0	V	Unchange able	"U0-23" on page 438
U0-24	0x7018	Linear speed	0 m/min	0	m/ min	Unchange able	"U0-24" on page 438
U0-25	0x7019	Current power-on time	0 min	0	min	Unchange able	"U0-25" on page 438
U0-26	0x701A	Current running time	0.0 min	0.0	min	Unchange able	"U0-26" on page 438
U0-28	0x701C	Reference value set through communication	0.00%	0.00	%	Unchange able	"U0-28" on page 438
U0-30	0x701E	Main frequency X display	0.00 Hz	0.00	Hz	Unchange able	"U0-30" on page 439
U0-31	0x701F	Auxiliary frequency Y display	0.00 Hz	0.00	Hz	Unchange able	"U0-31" on page 439
U0-33	0x7021	Synchronous motor rotor position	0.0°	0.0	°	Unchange able	"U0-33" on page 439
U0-35	0x7023	Target torque	0.0%	0.0	%	Unchange able	"U0-35" on page 439

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
U0-37	0x7025	Power factor angle	0.0°	0.0	°	Unchangeable	"U0-37" on page 439
U0-39	0x7027	Target voltage upon V/f separation	0 V	0	V	Unchangeable	"U0-39" on page 440
U0-40	0x7028	Output voltage upon V/f separation	0 V	0	V	Unchangeable	"U0-40" on page 440
U0-41	0x7029	DI input state visual display	0	0	-	Unchangeable	"U0-41" on page 440
U0-42	0x702A	DO/RO output state visual display	0	0	-	Unchangeable	"U0-42" on page 440
U0-43	0x702B	DI function state visual display 1	0	0	-	Unchangeable	"U0-43" on page 440
U0-44	0x702C	DI function state visual display 2	0	0	-	Unchangeable	"U0-44" on page 441
U0-45	0x702D	Fault code	0	0	-	Unchangeable	"U0-45" on page 441
U0-46	0x702E	Fault subcode	0	0	-	Unchangeable	"U0-46" on page 441
U0-47	0x702F	Drive unit temperature	0°C	0	°C	Unchangeable	"U0-47" on page 441
U0-48	0x7030	Voltage received through PTC channel 1	0.000 V	0.000	V	Unchangeable	"U0-48" on page 441
U0-49	0x7031	Voltage received through PTC channel 2	0.000 V	0.000	V	Unchangeable	"U0-49" on page 442
U0-50	0x7032	Voltage received through PTC channel 3	0.000 V	0.000	V	Unchangeable	"U0-50" on page 442
U0-51	0x7033	PTC1 temperature	0°C	0	°C	Unchangeable	"U0-51" on page 442
U0-52	0x7034	PTC2 temperature	0°C	0	°C	Unchangeable	"U0-52" on page 442
U0-53	0x7035	PTC3 temperature	0°C	0	°C	Unchangeable	"U0-53" on page 442
U0-54	0x7036	Motor speed	0 RPM	0	RPM	Unchangeable	"U0-54" on page 443
U0-55	0x7037	Station number allocated automatically	0	0	-	Unchangeable	"U0-55" on page 443
U0-56	0x7038	Recognized axis type	0	0	-	Unchangeable	"U0-56" on page 443
U0-61	0x703D	AC drive operation status word 1	0	0	-	Unchangeable	"U0-61" on page 443

Code	Communication Address	Name	Value Range	Default	Unit	Change Mode	Reference
U0-64	0x7040	Special protocol status word	0	0	-	Unchangeable	"U0-64" on page 443
U0-68	0x7044	AC drive operation status word 2	0	0	-	Unchangeable	"U0-68" on page 444
U0-78	0x704E	Rated AC drive current	0.0 A	0.0	A	Unchangeable	"U0-78" on page 444
U0-79	0x704F	AC drive power	0.0 kW	0.0	kW	Unchangeable	"U0-79" on page 444
U0-81	0x7051	Local LED status	0	0	-	Unchangeable	"U0-81" on page 445
U0-88	0x7058	Warning code	0	0	-	Unchangeable	"U0-88" on page 445
U0-89	0x7059	Warning subcode	0	0	-	Unchangeable	"U0-89" on page 445
U0-90	0x705A	Percentage of preset fan speed	0	0	-	Unchangeable	"U0-90" on page 445
U0-91	0x705B	PTC1 mode	0	0	-	Unchangeable	"U0-91" on page 445
U0-92	0x705C	PTC2 mode	0	0	-	Unchangeable	"U0-92" on page 446
U0-93	0x705D	PTC3 mode	0	0	-	Unchangeable	"U0-93" on page 446
U0-95	0x705F	STO initialization flag	0	0	-	Unchangeable	"U0-95" on page 446
U0-96	0x7060	STO status word monitoring	0	0	-	Unchangeable	"U0-96" on page 447
U0-97	0x7061	STO model	0	0	-	Unchangeable	"U0-97" on page 447
U0-98	0x7062	STO AD sampling value	0	0	-	Unchangeable	"U0-98" on page 447
U0-99	0x7063	STO internal execution flag	0	0	-	Unchangeable	"U0-99" on page 447
U3-16	0x7310	Frequency set by communication	0 to 65535	0	-	Unchangeable	"U3-16" on page 448
U3-17	0x7311	Communication control command	0 to 65535	0	-	Unchangeable	"U3-17" on page 448
U3-18	0x7312	Communication control DO/RO	0 to 65535	0	-	Unchangeable	"U3-18" on page 448
U4-00	0x7400	Support mode (6502h high-order bit)	0 to 65535	0	-	Unchangeable	"U4-00" on page 449

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
U4-01	0x7401	Support mode (6502h low-order bit)	0 to 65535	0	-	Unchange able	"U4-01" on page 449
U4-02	0x7402	Fault code (603Fh)	0 to 65535	0	-	Unchange able	"U4-02" on page 449
U4-03	0x7403	Control word (6040h)	0 to 65535	0	-	Unchange able	"U4-03" on page 449
U4-04	0x7404	Status word (6041h)	0 to 65535	0	-	Unchange able	"U4-04" on page 449
U4-05	0x7405	Target speed (6042h)	-32767 to +32767	0	-	Unchange able	"U4-05" on page 450
U4-14	0x740E	Acceleration time (6048h-2)	0 to 65535	0	-	Unchange able	"U4-14" on page 450
U4-16	0x7410	Deceleration setting (6049h-1 low-order bit)	0 to 65535	0	-	Unchange able	"U4-16" on page 450
U4-17	0x7411	Deceleration time (6049h-2)	0 to 65535	0	-	Unchange able	"U4-17" on page 450
U4-18	0x7412	Stop mode upon emergency (605Ah)	-32767 to +32767	0	-	Unchange able	"U4-18" on page 450
U4-22	0x7416	Stop mode upon fault (605Eh)	-32767 to +32767	0	-	Unchange able	"U4-22" on page 451
U5-00	0x7500	Power supply unit DI - hardware resource	0 to 65535	0	-	Unchange able	"U5-00" on page 451
U5-01	0x7501	Power supply unit DO/RO - hardware resource	0 to 65535	0	-	Unchange able	"U5-01" on page 451
U5-02	0x7502	Power supply unit AI - hardware resource	0 to 65535	0	-	Unchange able	"U5-02" on page 451
U5-04	0x7504	Expansion card 1 - DI hardware resource	0 to 65535	0	-	Unchange able	"U5-04" on page 451
U5-05	0x7505	Expansion card 1 - DO/RO hardware resource	0 to 65535	0	-	Unchange able	"U5-05" on page 452
U5-06	0x7506	Expansion card 1 - AI hardware resource	0 to 65535	0	-	Unchange able	"U5-06" on page 452
U5-08	0x7508	Expansion card 2 - DI hardware resource	0 to 65535	0	-	Unchange able	"U5-08" on page 452
U5-09	0x7509	Expansion card 2 - DO/RO hardware resource	0 to 65535	0	-	Unchange able	"U5-09" on page 452
U5-10	0x750A	Expansion card 2 - AI hardware resource	0 to 65535	0	-	Unchange able	"U5-10" on page 452
U5-12	0x750C	Expansion card 3 - DI hardware resource	0 to 65535	0	-	Unchange able	"U5-12" on page 453

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
U5-13	0x750D	Expansion card 3 - DO/RO hardware resource	0 to 65535	0	-	Unchangeable	"U5-13" on page 453
U5-14	0x750E	Expansion card 3 - AI hardware resource	0 to 65535	0	-	Unchangeable	"U5-14" on page 453
U5-20	0x7514	Power supply unit DI - mapping relation	0 to 65535	0	-	Unchangeable	"U5-20" on page 453
U5-21	0x7515	Power supply unit DO/RO - mapping relation	0 to 65535	0	-	Unchangeable	"U5-21" on page 453
U5-22	0x7516	Power supply unit AI - mapping relation	0 to 65535	0	-	Unchangeable	"U5-22" on page 454
U5-24	0x7518	Expansion card 1 - DI mapping relation	0 to 65535	0	-	Unchangeable	"U5-24" on page 454
U5-25	0x7519	Expansion card 1 - DO/RO mapping relation	0 to 65535	0	-	Unchangeable	"U5-25" on page 454
U5-26	0x751A	Expansion card 1 - AI mapping relation	0 to 65535	0	-	Unchangeable	"U5-26" on page 454
U5-28	0x751C	Expansion card 2 - DI mapping relation	0 to 65535	0	-	Unchangeable	"U5-28" on page 454
U5-29	0x751D	Expansion card 2 - DO/RO mapping relation	0 to 65535	0	-	Unchangeable	"U5-29" on page 455
U5-30	0x751E	Expansion card 2 - AI mapping relation	0 to 65535	0	-	Unchangeable	"U5-30" on page 455
U5-32	0x7520	Expansion card 3 - DI mapping relation	0 to 65535	0	-	Unchangeable	"U5-32" on page 455
U5-33	0x7521	Expansion card 3 - DO/RO mapping relation	0 to 65535	0	-	Unchangeable	"U5-33" on page 455
U5-34	0x7522	Expansion card 3 - AI mapping relation	0 to 65535	0	-	Unchangeable	"U5-34" on page 455
U5-40	0x7528	Power supply unit - DI data	0 to 65535	0	-	Unchangeable	"U5-40" on page 456
U5-41	0x7529	Expansion card 1 - DI data	0 to 65535	0	-	Unchangeable	"U5-41" on page 456
U5-42	0x752A	Expansion card 2 - DI data	0 to 65535	0	-	Unchangeable	"U5-42" on page 456
U5-43	0x752B	Expansion card 3 - DI data	0 to 65535	0	-	Unchangeable	"U5-43" on page 456
U5-45	0x752D	Drive unit DO/ RO data	0 to 65535	0	-	Unchangeable	"U5-45" on page 456
U5-50	0x7532	Power supply unit - AI1 function	0 to 65535	0	-	Unchangeable	"U5-50" on page 457

Code	Communication Address	Name	Value Range	De fault	Unit	Change Mode	Reference
U5-51	0x7533	Power supply unit - AI2 function	0 to 65535	0	-	Unchange able	" U5-51" on page 457
U5-52	0x7534	Expansion card 1 - AI1 function	0 to 65535	0	-	Unchange able	" U5-52" on page 457
U5-53	0x7535	Expansion card 1 - AI2 function	0 to 65535	0	-	Unchange able	" U5-53" on page 457
U5-54	0x7536	Expansion card 2 - AI1 function	0 to 65535	0	-	Unchange able	" U5-54" on page 458
U5-55	0x7537	Expansion card 2 - AI2 function	0 to 65535	0	-	Unchange able	" U5-55" on page 458
U5-56	0x7538	Expansion card 3 - AI1 function	0 to 65535	0	-	Unchange able	" U5-56" on page 458
U5-57	0x7539	Expansion card 3 - AI2 function	0 to 65535	0	-	Unchange able	" U5-57" on page 459
U5-58	0x753A	Reserved	0 to 65535	0	-	Unchange able	" U5-58" on page 459
U5-59	0x753B	Reserved	0 to 65535	0	-	Unchange able	" U5-59" on page 459
U5-60	0x753C	Power supply unit - AI1 voltage	-32767 to 32767	0	-	Unchange able	" U5-60" on page 459
U5-61	0x753D	Power supply unit - AI2 voltage	-32767 to +32767	0	-	Unchange able	" U5-61" on page 460
U5-62	0x753E	Expansion card 1 - AI1 voltage	-32767 to +32767	0	-	Unchange able	" U5-62" on page 460
U5-63	0x753F	Expansion card 1 - AI2 voltage	-32767 to +32767	0	-	Unchange able	" U5-63" on page 460
U5-64	0x7540	Expansion card 2 - AI1 voltage	-32767 to +32767	0	-	Unchange able	" U5-64" on page 460
U5-65	0x7541	Expansion card 2 - AI2 voltage	-32767 to +32767	0	-	Unchange able	" U5-65" on page 460
U5-66	0x7542	Expansion card 3 - AI1 voltage	-32767 to +32767	0	-	Unchange able	" U5-66" on page 461
U5-67	0x7543	Expansion card 3 - AI2 voltage	-32767 to +32767	0	-	Unchange able	" U5-67" on page 461

2 Drive Unit Parameters

2.1 F0: Basic Function Parameters

F0-00 **G/P model**

Address:	0xF000	Effective mode:	-
Min.:	1	Unit:	-
Max.:	2	Data type:	UInt16
Default:	1	Change:	Unchangeable

Value Range:

1: G model (constant-torque load)

2: P model (fan and pump)

Description

1: G model (constant-torque load)

The G models typically carry constant-torque loads with large overload capacity. The overload capacity is 150% in general. Such loads include conveyor belts and cranes, for example.

2: P model (fan and pump)

F0-01 **Motor 1 control mode**

Address:	0xF001	Effective mode:	-
Min.:	0	Unit:	-
Max.:	5	Data type:	UInt16
Default:	2	Change:	At stop

Value Range:

0: SVC

1: Reserved

2: V/f control

3: Reserved

4: Reserved

5: VC++

Description

0: Sensorless vector control (SVC)

It is a type of open-loop vector control applicable to high-performance control applications, where one AC drive can drive only one motor. It is used for loads such as machine tools, centrifuges, wire drawing machines, and injection molding machines.

2: V/f control (open loop speed control)

It is applicable to applications with no high requirements on load control performance, such as fans and pumps. The V/f control mode is the only choice if one AC drive needs to drive multiple motors.

5: PMVVC (synchronous motor speed open loop control)

It is suitable for loads with low precision requirements, such as fans and pumps.

F0-02 **Command source**

Address:	0xF002	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Operating panel of the power supply unit/LCD operating panel/Software tool

1: Terminal

2: Communication

Description

This parameter defines the input channel of the AC drive control commands, such as run, stop, forward run, reverse run, and jog operation.

0: Operating panel of the power supply unit/LCD operating panel/Software tool

Control commands are input through the operating panel of the power supply unit, LCD operating panel, or commissioning software. This mode is applicable to initial commissioning.

1: Terminal

In terminal I/O control mode, control commands are input through the DI terminals of the AC drive. The DI terminal control commands can be set according to different scenarios, such as start/stop, forward/reverse run, jog, two-wire/three-wire mode, multi-speed, and other functions. It is suitable for most applications.

2: Communication

Control commands are input through remote communication. The AC drive must be equipped with a communication card to implement communication with the host controller. This mode applies to remote control or centralized control of multiple equipment.

F0-03 **Main frequency source X**

Address:	0xF003	Effective mode:	-
Min.:	0	Unit:	-
Max.:	10	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Digital setting (F0-08, preset frequency that can be changed by pressing UP/DOWN, non-retentive upon power failure)

1: Digital setting (F0-08, preset frequency that can be changed by pressing UP/DOWN, retentive at power failure)

2: AI1

3: AI2

4: AI3

5: Reserved

6: Multi-reference

7: Simple PLC

8: PID

9: Communication

10: Reserved

Description

0: Digital setting (non-retentive upon power failure)

The initial value of the frequency reference is the value of F0-08 (Preset frequency), which can be changed by using the ▲ and ▼ keys on the operating panel (or UP and DOWN of the multi-functional input terminal). The frequency reference reverts to the value of F0-08 (Preset frequency) at next power-on.

1: Digital setting (retentive upon power failure)

The initial value of the frequency reference is the value of F0-08 (Preset frequency), which can be changed by using the ▲ and ▼ keys on the operating panel (or UP and DOWN of the multi-functional input terminal). When the AC drive is powered on again after power failure, the frequency reference is the same as that at the moment of the last power failure. Modifications made by using keys ▲ and ▼ or the terminal UP/DOWN function remain effective.

2: AI1

The frequency reference is input with current or voltage signals through the AI1 terminal. The frequency is calculated according to the preset AI curve.

3: AI2

The frequency reference is input with current or voltage signals through the AI2 terminal. The frequency is calculated according to the preset AI curve.

4: AI3

The frequency reference is input with current or voltage signals through the AI3 terminal. The frequency is calculated according to the preset AI curve.

6: Multi-reference

When multi-reference is used as the frequency source, different combinations of DI terminal states correspond to different frequency references. The four multi-reference terminals can provide 16 state combinations, corresponding to 16 reference values.

7: Simple PLC

Simple PLC provides multi-speed running commands that can control the running time and acceleration and deceleration time. Parameters FC-00 to FC-15 set the frequency references, and FC-18 to FC-49 set the running time and the acceleration and deceleration time of each frequency reference. Up to 16 speeds can be set.

8: PID

PID is selected as the main frequency. As a general process control method, PID control is a closed-loop mechanism in which each controlled variable is stabilized at the target level through proportional, integral, and differential calculation of the difference between the feedback signal and the target signal of the controlled variable. PID control is generally used in closed-loop control, such as constant pressure closed-loop control and constant tension closed-loop control.

9: Communication

The main frequency is set through communication. The frequency reference can be input through remote communication. The AC drive must be equipped with a communication card to implement communication with the host controller. This mode applies to remote control or centralized control of multiple equipment.

10: Reserved

F0-04 **Auxiliary frequency source Y**

Address:	0xF004	Effective mode:	-
Min.:	0	Unit:	-
Max.:	10	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Digital setting (F0-08, preset frequency that can be changed by pressing UP/DOWN, non-retentive upon power failure)

1: Digital setting (F0-08, preset frequency that can be changed by pressing UP/DOWN, retentive at power failure)

2: AI1

3: AI2

4: AI3

5: Reserved

6: Multi-reference

7: Simple PLC

8: PID

9: Communication

10: Reserved

Description

Same as F0-03

F0-05 **Base value of range of auxiliary frequency source Y for superposition**

Address:	0xF005	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Relative to maximum frequency

1: Relative to main frequency X

Description

0: Relative to maximum frequency

The auxiliary frequency at superposition is equal to F0-06 (Range of auxiliary frequency source Y for superposition) multiplied by F0-10 (Maximum frequency).

1: Relative to main frequency X

The auxiliary frequency at superposition is equal to F0-06 (Range of auxiliary frequency source Y for superposition) multiplied by the main frequency X.

F0-06 **Range of auxiliary frequency source Y for superposition**

Address:	0xF006	Effective mode:	-
Min.:	0	Unit:	%
Max.:	150	Data type:	UInt16
Default:	100	Change:	In real time

Value Range:

0% to 150%

Description

0: Relative to maximum frequency

The auxiliary frequency at superposition is equal to F0-06 (Range of auxiliary frequency source Y for superposition) multiplied by F0-10 (Maximum frequency).

1: Relative to main frequency X

The auxiliary frequency at superposition is equal to F0-06 (Range of auxiliary frequency source Y for superposition) multiplied by the main frequency X.

F0-07 **Frequency source superposition**

Address:	0xF007	Effective mode:	-
Min.:	0	Unit:	-
Max.:	44	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

Ones:

0: Main frequency source X

1: Main and auxiliary operation result (based on the tens place)

2: Switchover between main frequency source X and auxiliary frequency source Y

3: Switchover between main frequency source X and the main and auxiliary operation result

4: Switchover between auxiliary frequency source Y and the main and auxiliary operation result

Tens:

0: Main + Auxiliary

1: Main – Auxiliary
2: Max. (main, auxiliary)
3: Min. (main, auxiliary)
4: Main x Auxiliary

Description

Ones:

0: Main frequency source X

The running frequency of the AC drive is directly determined by the main frequency source X.

1: Main and auxiliary operation result (based on the tens place)

The running frequency of the AC drive is the calculation result of the main and auxiliary frequencies, and the calculation method is determined by the tens place of F0-07 (Frequency source superposition).

2: Switchover between main frequency source X and auxiliary frequency source Y

The running frequency of the AC drive is selected or switched between the main frequency source X and the auxiliary frequency source Y through the DI terminal. In this case, the corresponding DI terminal must be assigned with the frequency source switching function. For example, if the DI2 terminal is used for switchover, set F4-01 to 18.

3: Switchover between main frequency source X and main and auxiliary operation result

The running frequency of the AC drive is selected or switched between the main frequency source X and the main and auxiliary operation result through the DI terminal.

4: Switchover between auxiliary frequency source Y and main and auxiliary operation result

The running frequency of the AC drive is selected or switched between the auxiliary frequency source Y and the main and auxiliary operation result through the DI terminal.

Tens:

0: Main + Auxiliary

The main and auxiliary operation result is the main frequency X plus the auxiliary frequency Y.

1: Main – Auxiliary

The main and auxiliary operation result is the main frequency X minus the auxiliary frequency Y.

2: Maximum value

The main and auxiliary operation result is the larger value between the main frequency X and the auxiliary frequency Y.

3: Minimum value

The main and auxiliary operation result is the smaller value between the main frequency X and the auxiliary frequency Y.

4: Main x Auxiliary

The main and auxiliary operation result is the main frequency X multiplied by the auxiliary frequency Y.

F0-08 **Preset frequency**

Address:	0xF008	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	600.00	Data type:	UInt16
Default:	50.00	Change:	In real time

Value Range:

0.00 Hz to 600.00 Hz

Description

This parameter defines the target frequency.

F0-09 **Running direction**

Address:	0xF009	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Same as default direction

1: Reverse to default direction

Description

You can change the rotation direction of the motor by modifying this parameter without changing the motor wiring. Modifying this parameter is equivalent to exchanging any two of the motor's U, V, W wires.

F0-10 **Maximum frequency**

Address:	0xF00A	Effective mode:	-
Min.:	50.00	Unit:	Hz
Max.:	600.00	Data type:	UInt16
Default:	50.00	Change:	At stop

Value Range:

50.00 Hz to 600.00 Hz

Description

This parameter defines the maximum output frequency of the AC drive.

F0-11 **Source of frequency upper limit**

Address:	0xF00B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	6	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Frequency upper limit reference (F0-12)

1: AI1

2: AI2

3: AI3

4: Reserved

5: Communication

6: Multi-speed reference

Description

0: F0-12 (Frequency upper limit)

The frequency upper limit is set by F0-12.

1: AI1

The frequency upper limit is input with current or voltage signals through the AI1 terminal. The frequency is calculated according to the preset AI curve.

2: AI2

The frequency upper limit is input with current or voltage signals through the AI2 terminal. The frequency is calculated according to the preset AI curve.

3: AI3

The frequency upper limit is input with current or voltage signals through the AI3 terminal. The frequency is calculated according to the preset AI curve.

5: Communication

The frequency upper limit is set through communication.

6: Multi-speed reference

The frequency upper limit is determined by the multi-speed references set in FC-00 to FC-15.

F0-12 **Frequency upper limit**

Address:	0xF00C	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	600.00	Data type:	UInt16
Default:	50.00	Change:	In real time

Value Range:

0.00 Hz to 600.00 Hz

Description

This parameter defines the maximum running frequency allowed for the motor.

F0-13 **Frequency upper limit offset**

Address:	0xF00D	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00 Hz to 600.00 Hz

Description

This parameter defines the offset of the frequency upper limit. It is used to adjust the output frequency value upon the minimum frequency reference when the frequency is set by an external analog signal (voltage or current).

F0-14 **Frequency lower limit**

Address:	0xF00E	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00 Hz to 600.00 Hz

Description

This parameter defines the minimum running frequency for the motor.

F0-15 **Carrier frequency**

Address:	0xF00F	Effective mode:	-
Min.:	0.8	Unit:	kHz
Max.:	15.0	Data type:	UInt16
Default:	6.0	Change:	In real time

Value Range:

0.8 kHz to 15.0 kHz

Description

The carrier frequency, also called switching frequency, determines the number of ON/OFF cycles of power switches (such as IGBT). It mainly affects the following aspects:

1. Power loss of the power module IGBT. A higher carrier frequency incurs higher power consumption and higher temperature of the power module, which is unfavorable to the AC drive.
2. Waveform of the secondary current output by the AC drive: A high carrier frequency allows a smooth sinusoidal current waveform and low harmonics, but it may intensify interference. A low carrier frequency reduces the effective torque of the motor and intensifies motor power loss and temperature rise. A high carrier frequency intensifies power loss of the AC drive and IGBT temperature rise as well as the change rate dv/dt of the output voltage, which affects the motor insulation performance.

F0-16 **Temperature-based carrier frequency adjustment**

Address:	0xF010	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:

0: No

1: Yes

Description

This parameter defines whether the carrier frequency changes with the temperature.

F0-17 **Acceleration time 1**

Address:	0xF011	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	6500.0	Data type:	UInt16
Default:	20.0	Change:	In real time

Value Range:

0.0s to 6500.0s

Description

The acceleration time indicates the time required for the output frequency to rise from 0 to F0-25 (Base frequency for acceleration/deceleration). It is usually determined by the rise of the frequency reference signal. When the motor accelerates, the rising rate of the frequency reference must be limited to prevent overcurrent.

The acceleration current must be limited below the overcurrent capacity of the AC drive to prevent the AC drive from tripping due to overcurrent stall.

F0-18 **Deceleration time 1**

Address:	0xF012	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	6500.0	Data type:	UInt16
Default:	20.0	Change:	In real time

Value Range:

0.0s to 6500.0s

Description

The deceleration time indicates the time required for the output frequency to decrease from F0-25 (Base frequency for acceleration/deceleration) to 0. It is usually determined by the decrease of the frequency reference signal. When the motor decelerates, the falling rate of the frequency reference must be limited to prevent overvoltage.

The deceleration time must be set properly to avoid excessively high voltage of the smoothing circuit, preventing the AC drive from tripping due to regenerative overvoltage stall.

F0-19 **Acceleration/Deceleration time unit**

Address:	0xF013	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: 1s

1: 0.1s

2: 0.01s

Description

This parameter defines the acceleration/deceleration time unit.

F0-21 **Offset of auxiliary frequency source during superposition**

Address:	0xF015	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

This parameter defines the offset of the auxiliary frequency during superposition. It is used to adjust the auxiliary frequency upon the minimum frequency reference when the frequency is set by an external analog signal (voltage or current).

F0-22 **Frequency reference resolution**

Address:	0xF016	Effective mode:	-
Min.:	1	Unit:	Hz
Max.:	2	Data type:	UInt16
Default:	2	Change:	At stop

Value Range:

1: 0.1 Hz

2: 0.01 Hz

Description

This parameter defines the number of decimal places of the frequency reference.

F0-23 **Retention of digital setting of frequency upon stop**

Address:	0xF017	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Non-retentive

1: Retentive

Description

0: Non-retentive

F0-08 (Preset frequency) set through the operating panel and frequency modifications made by using the ▲ and ▼ keys or UP and DOWN of terminals are cleared when the AC drive stops.

1: Retentive

F0-08 (Preset frequency) set through the operating panel and frequency modifications made by using the ▲ and ▼ keys or UP and DOWN of terminals are retained when the AC drive stops.

F0-25 **Base frequency for acceleration/deceleration**

Address:	0xF019	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Maximum frequency (F0-10)

1: Frequency reference

2: 100 Hz

Description

This parameter defines the target frequency during acceleration and the starting frequency during deceleration.

F0-26 **Base frequency for UP/DOWN modification during running**

Address:	0xF01A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Running frequency

1: Frequency reference

Description

This parameter defines the base frequency from which the target frequency is adjusted by using the UP/DOWN key of the operating panel during operation.

If it is set to 0 and the running frequency is 25 Hz, the target frequency will change from 25 Hz at a certain rate when the UP key is pressed.

If it is set to 1, the target frequency will change from the original target frequency when the UP key is pressed.

F0-27 **Main frequency coefficient**

Address:	0xF01B	Effective mode:	-
Min.:	0.00	Unit:	%
Max.:	100.00	Data type:	UInt16
Default:	10.00	Change:	In real time

Value Range:

0.00% to 100.00%

Description

This parameter defines the main frequency reference coefficient when the frequency superposition mode is Main x Auxiliary. The value 100.00% corresponds to the target main frequency reference.

F0-28 **Auxiliary frequency coefficient**

Address:	0xF01C	Effective mode:	-
Min.:	0.00	Unit:	%
Max.:	100.00	Data type:	UInt16
Default:	10.00	Change:	In real time

Value Range:

0.00% to 100.00%

Description

This parameter defines the auxiliary frequency reference coefficient when the frequency superposition mode is Main x Auxiliary. The value 100.00% corresponds to the target auxiliary frequency reference.

F0-29 **G/P model**

Address:	0xF01D	Effective mode:	-
Min.:	1	Unit:	-
Max.:	2	Data type:	UInt16
Default:	1	Change:	At stop

Value Range:

1: G model (constant-torque load)

2: P model (fan and pump)

Description

1: G model (constant-torque load)

The G models typically carry constant-torque loads with large overload capacity. The overload capacity is 150% in general. Such loads include conveyor belts and cranes, for example.

2: P model (fan and pump)

2.2 F1: Motor 1 Parameters

F1-00 **Motor type**

Address:	0xF100	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Common asynchronous motor

1: Variable-frequency asynchronous motor

2: Synchronous motor

Description

A variable-frequency motor can adjust its frequency and speed according to the load. When the voltage is low, it can reduce the frequency and start reliably. When the load is light, it can reduce the frequency, speed, and current to save electric energy.

A common asynchronous motor is suitable for applications with normal voltage but often full load. It is designed based on constant frequency and constant voltage. Therefore, it may not meet all the frequency and speed control requirements.

F1-01 **Rated motor power**

Address:	0xF101	Effective mode:	-
Min.:	0.1	Unit:	kW
Max.:	1000.0	Data type:	UInt16
Default:	3.7	Change:	At stop

Value Range:

0.1 kW to 1000.0 kW

Description

The rated motor power indicates the axis output power of the motor working in rated conditions. You need to select a motor of proper power rating based on the requirements of the mechanical load, with due consideration to factors such as motor heating, overload capacity, and starting capacity.

F1-02 **Rated motor voltage**

Address:	0xF102	Effective mode:	-
Min.:	1	Unit:	V

Max.:	2000	Data type:	UInt16
Default:	380	Change:	At stop

Value Range:

1 V to 2000 V

Description

The rated motor voltage indicates the voltage of the motor during normal operation, which usually refers to the line voltage.

F1-03 **Rated motor current**

Address:	0xF103	Effective mode:	-
Min.:	0.1	Unit:	A
Max.:	6553.5	Data type:	UInt16
Default:	9.0	Change:	At stop

Value Range:

0.1 A to 6553.5 A

Description

The rated motor current indicates the current of the motor during normal operation, which usually refers to the line current.

F1-04 **Rated motor frequency**

Address:	0xF104	Effective mode:	-
Min.:	0.01	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	50.00	Change:	At stop

Value Range:

0.01 Hz to 655.35 Hz

Description

The rated motor frequency indicates the frequency of the power supply connected to the stator winding under the rated operation conditions of the motor.

F1-05 **Rated motor speed**

Address:	0xF105	Effective mode:	-
Min.:	1	Unit:	RPM
Max.:	65535	Data type:	UInt16
Default:	1460	Change:	At stop

Value Range:

1 RPM to 65535 RPM

Description

The rated motor speed indicates the speed (in the unit of RPM) of the rotor under the rated operating conditions.

F1-06 **Stator resistance of asynchronous motor**

Address:	0xF106	Effective mode:	-
Min.:	0.001	Unit:	Ω
Max.:	65.535	Data type:	UInt16
Default:	1.204	Change:	At stop

Value Range:

0.001 Ω to 65.535 Ω

Description

This parameter defines the DC resistance (phase value) of stator winding of the asynchronous motor, which can be obtained by motor auto-tuning.

F1-07 **Rotor resistance of asynchronous motor**

Address:	0xF107	Effective mode:	-
Min.:	0.001	Unit:	Ω
Max.:	65.535	Data type:	UInt16
Default:	0.908	Change:	At stop

Value Range:

0.001 Ω to 65.535 Ω

Description

This parameter defines the DC resistance of rotor winding of the asynchronous motor, which can be obtained by static auto-tuning or dynamic auto-tuning of the motor.

F1-08 **Leakage inductance of asynchronous motor**

Address:	0xF108	Effective mode:	-
Min.:	0.01	Unit:	mH
Max.:	655.35	Data type:	UInt16
Default:	5.28	Change:	At stop

Value Range:

0.01 mH to 655.35 mH

Description

The leakage inductance of the asynchronous motor is caused by the leakage flux of motor winding. In the winding of the motor, when current is introduced, magnetic flux will be generated. The magnetic flux can be divided into two parts based on the path: main flux and leakage flux. The leakage flux is the leakage inductance. This parameter can be obtained by static auto-tuning or dynamic auto-tuning of the motor.

F1-09 **Mutual inductance of asynchronous motor**

Address:	0xF109	Effective mode:	-
Min.:	0.0	Unit:	mH
Max.:	655.4	Data type:	UInt16
Default:	156.8	Change:	At stop

Value Range:

0.01 mH to 655.35 mH

Description

When the current in one coil of the motor changes, induced EMF is generated in the coil adjacent to it. This mutually induced EMF can be expressed by mutual inductance.

The mutual inductance of a motor can be roughly divided into two types. One is the inter-phase inductance of the stator, which is the reactance between two phases of the stator. The other is the inductance between the stator and the rotor. The inductance of the first type does not change with the rotation of the rotor, while the inductance of the second type changes accordingly with the rotation of the rotor.

This parameter can be obtained by dynamic auto-tuning of the motor.

F1-10 **Asynchronous motor no-load current**

Address:	0xF10A	Effective mode:	-
Min.:	0.1	Unit:	A
Max.:	6553.5	Data type:	UInt16
Default:	4.2	Change:	At stop

Value Range:

0.1 A to 6553.5 A

Description

This parameter defines the current passing through the three-phase winding of the stator when the motor is running without load. It can be obtained by dynamic auto-tuning of the motor.

F1-11 **Core saturation coefficient 1 of asynchronous motor**

Address:	0xF10B	Effective mode:	-
Min.:	50.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	86.0	Change:	In real time

Value Range:

50.0% to 100.0%

Description

This parameter defines core saturation coefficient 1 of the asynchronous motor.

F1-12 **Core saturation coefficient 2 of asynchronous motor**

Address:	0xF10C	Effective mode:	-
Min.:	100.0	Unit:	%
Max.:	150.0	Data type:	UInt16
Default:	130.0	Change:	In real time

Value Range:

100.0% to 150.0%

Description

This parameter defines core saturation coefficient 2 of the asynchronous motor.

F1-13 **Core saturation coefficient 3 of asynchronous motor**

Address:	0xF10D	Effective mode:	-
Min.:	100.0	Unit:	%
Max.:	170.0	Data type:	UInt16
Default:	140.0	Change:	In real time

Value Range:

100.0% to 170.0%

Description

This parameter defines core saturation coefficient 3 of the asynchronous motor.

F1-14 **Core saturation coefficient 4 of asynchronous motor**

Address:	0xF10E	Effective mode:	-
Min.:	100.0	Unit:	%
Max.:	180.0	Data type:	UInt16
Default:	150.0	Change:	In real time

Value Range:

100.0% to 180.0%

Description

This parameter defines core saturation coefficient 4 of the asynchronous motor.

F1-17 **D axis inductance of synchronous motor**

Address:	0xF111	Effective mode:	-
Min.:	1.00	Unit:	mH
Max.:	65535.00	Data type:	UInt16
Default:	1586.00	Change:	At stop

Value Range:

1.00 mH to 65535.00 mH

Description

This parameter defines the inductance of the main pole axis (longitudinal axis) of the synchronous motor.

F1-18 **Q axis inductance of synchronous motor**

Address:	0xF112	Effective mode:	-
Min.:	1.00	Unit:	mH
Max.:	65535.00	Data type:	UInt16
Default:	1586.00	Change:	At stop

Value Range:

1.00 mH to 65535.00 mH

Description

This parameter defines the inductance of the center line (quadrature axis) between the adjacent pole axes of the synchronous motor rotor.

F1-19 **Back EMF coefficient of synchronous motor**

Address:	0xF113	Effective mode:	-
Min.:	0.0	Unit:	V
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0 V to 6553.5 V

Description

This parameter defines the valid value of the motor back EMF at the rated frequency (F1-04).

F1-24 **Number of motor pole pairs**

Address:	0xF118	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter defines the number of motor pole pairs.

F1-37 **Auto-tuning**

Address:	0xF125	Effective mode:	-
Min.:	0	Unit:	-
Max.:	14	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No operation

1: Static auto-tuning on asynchronous motor

2: Auto-tuning on all parameters of asynchronous motor

3: With-load auto-tuning on all parameters of asynchronous motor

4: Reserved

11: No-load auto-tuning on some parameters of synchronous motor (excluding back EMF)

12: No-load dynamic auto-tuning on synchronous motor

13: Static auto-tuning on all parameters of synchronous motor

14: Reserved

Description

0: No operation

Auto-tuning is not performed.

1: Static auto-tuning on asynchronous motor

This mode applies to scenarios where motors cannot be disconnected from the load and dynamic auto-tuning is not allowed.

In this mode, some motor parameters are auto-tuned, including F1-06 (Stator resistance of asynchronous motor), F1-07 (Rotor resistance of asynchronous motor), and F1-08 (Leakage inductance of asynchronous motor).

2: Auto-tuning on all parameters of asynchronous motor

This mode applies to scenarios where the motor can be disconnected from the load.

In this mode, all motor parameters are auto-tuned, including F1-06 (Stator resistance of asynchronous motor), F1-07 (Rotor resistance of asynchronous motor), F1-08 (Leakage inductance of asynchronous motor), F1-09 (Mutual inductance of asynchronous motor), and F1-10 (No-load current of asynchronous motor).

3: With-load auto-tuning on all parameters of asynchronous motor

This mode applies to scenarios where motors cannot be disconnected from the load and dynamic auto-tuning on all parameters is not allowed.

In this mode, all motor parameters are auto-tuned, including F1-06 (Stator resistance of asynchronous motor), F1-07 (Rotor resistance of asynchronous motor), F1-08 (Leakage inductance of asynchronous motor), F1-09 (Mutual inductance of asynchronous motor), and F1-10 (No-load current of asynchronous motor). 11: No-load auto-tuning on some parameters of synchronous motor (excluding back EMF)

12: No-load dynamic auto-tuning on synchronous motor

13: Static auto-tuning on all parameters of synchronous motor

2.3 F2: Motor 1 Vector Control Parameters

F2-00 Low-speed speed loop Kp

Address:	0xF200	Effective mode:	-
Min.:	1	Unit:	-
Max.:	200	Data type:	UInt16
Default:	30	Change:	In real time

Value Range:

1 to 200

Description

This is the PID control parameter Kp for the speed loop, which affects the response to the motor speed. A larger Kp value indicates higher adjustment sensitivity and adjustment intensity. A smaller Kp value indicates lower adjustment sensitivity and adjustment intensity. The low-speed speed loop Kp is used in the case of low speed.

F2-01 Low-speed speed loop Ti

Address:	0xF201	Effective mode:	-
Min.:	0.001	Unit:	s
Max.:	10.000	Data type:	UInt16
Default:	0.500	Change:	In real time

Value Range:

0.001s to 10.000s

Description

The reciprocal of the speed loop integral time constant is the integral gain. The speed loop integral time constant affects the steady-state speed error of the motor and the stability of the speed loop system. Increasing the speed loop integral time constant slows down the response of the speed loop. In this case, you need to increase the speed loop proportional gain to shorten the response time of the speed loop. The low-speed speed loop Ti is used in the case of low speed.

F2-02 **Switchover frequency 1**

Address:	0xF202	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	5.00	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

The speed loop PI parameters are divided into low-speed and high-speed groups. When the running frequency is lower than F2-02 (Switchover frequency 1), the speed loop PI is adjusted by F2-00 and F2-01. When the running frequency is higher than F2-05 (Switchover frequency 2), the speed loop PI is adjusted by F2-03 and F3-04. When the running frequency falls between switchover frequency 1 and switchover frequency 2, PI parameters are obtained from linear switchover between the two groups of PI parameters. The value of this parameter must be smaller than F2-05 (Switchover frequency 2).

F2-03 **High-speed speed loop Kp**

Address:	0xF203	Effective mode:	-
Min.:	1	Unit:	-
Max.:	200	Data type:	UInt16
Default:	20	Change:	In real time

Value Range:

1 to 200

Description

This is the PID control parameter Kp for the speed loop, which affects the response to the motor speed. A larger Kp value indicates higher adjustment sensitivity and adjustment intensity. A smaller Kp value indicates lower adjustment sensitivity and adjustment intensity. The high-speed speed loop Kp is used in the case of high speed.

F2-04 **High-speed speed loop Ti**

Address:	0xF204	Effective mode:	-
Min.:	0.001	Unit:	s
Max.:	10.000	Data type:	UInt16
Default:	1.000	Change:	In real time

Value Range:

0.001s to 10.000s

Description

The reciprocal of the speed loop integral time constant is the integral gain. The speed loop integral time constant affects the steady-state speed error of the motor and the stability of the speed loop system. Increasing the speed loop integral time constant slows down the response of the speed loop. In this case, you need to increase the speed loop proportional gain to shorten the response time of the speed loop. The high speed loop Ti is used in the case of high speed.

F2-05 **Switchover frequency 2**

Address:	0xF205	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	10.00	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

The speed loop PI parameters are divided into low-speed and high-speed groups. When the running frequency is lower than F2-02 (Switchover frequency 1), the speed loop PI is adjusted by F2-00 and F2-01. When the running frequency is higher than F2-05 (Switchover frequency 2), the speed loop PI is adjusted by F2-03 and F3-04. When the running frequency falls between switchover frequency 1 and switchover frequency 2, PI parameters are obtained from linear switchover between the two groups of PI parameters. The value of this parameter must be smaller than F2-05 (Switchover frequency 2).

F2-06 **VC slip compensation gain**

Address:	0xF206	Effective mode:	-
Min.:	50	Unit:	%
Max.:	200	Data type:	UInt16
Default:	100	Change:	In real time

Value Range:

50% to 200%

Description

In SVC mode, this parameter is used to adjust the speed stability accuracy of the motor. For example, when the running frequency of the motor is lower than the output frequency of the AC drive, you can increase the value of this parameter.

In FVC mode, this parameter is used to adjust the output current of the AC drive with the same load. For example, you can decrease the value of this parameter gradually when a high-rate AC drive is used to control a motor with low load capacity. No adjustment is required under normal circumstances.

F2-07 **Speed feedback filter time**

Address:	0xF207	Effective mode:	-
Min.:	0.000	Unit:	s
Max.:	0.100	Data type:	UInt16
Default:	0.004	Change:	In real time

Value Range:

0.000s to 0.100s

Description

In SVC mode (F0-01 = 0), the speed loop feedback filter time is valid. You can improve the stability of the motor by adjusting this parameter. Increasing the setpoint can enhance motor stability but slow down dynamic response. Decreasing the setpoint enhances dynamic response, but an excessively low setpoint can cause motor oscillation. Generally, the motor stability meets requirements, and no adjustment is required.

F2-08 **VC deceleration over-excitation gain**

Address:	0xF208	Effective mode:	-
Min.:	0	Unit:	-
Max.:	200	Data type:	UInt16
Default:	64	Change:	In real time

Value Range:
0 to 200
Description
-

F2-09 **Torque upper limit source in speed control (motoring)**

Address:	0xF209	Effective mode:	-
Min.:	0	Unit:	-
Max.:	7	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0: Digital setting (F2-10)
1: AI1
2: AI2
3: AI3
4: Reserved
5: Communication
6: MIN (AI1, AI2)
7: MAX (AI1, AI2)
Description
0: Digital setting (F2-10)
The torque upper limit in speed control mode is set by F2-10 (Torque upper limit reference in speed control).
1: AI1
The torque upper limit is input with the current or voltage signal through the AI1 terminal. The frequency is calculated according to the preset AI curve.
2: AI2
The torque upper limit is input with the current or voltage signal through the AI2 terminal. The frequency is calculated according to the preset AI curve.
3: AI3
The torque upper limit is input with the current or voltage signal through the AI3 terminal. The frequency is calculated according to the preset AI curve.
5: Communication
The main frequency is set through communication. The running frequency is input through remote communication. The AC drive must be equipped with a communication card to implement communication with the host controller. This mode applies to remote control or centralized control of multiple equipment.
6: MIN (AI1, AI2)
The torque upper limit in speed control mode is the smaller value between AI1 and AI2 inputs.
7: MAX (AI1, AI2)
The torque upper limit in speed control mode is the larger value between AI1 and AI2 inputs.

F2-10 **Torque upper limit reference in speed control (motoring)**

Address:	0xF20A	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	200.0	Data type:	UInt16
Default:	150.0	Change:	In real time

Value Range:
0.0% to 200.0%

Description

The torque upper limit under motoring state is determined based on the rated current of the motor.

F2-11 **Torque upper limit source in speed control (generating)**

Address:	0xF20B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	8	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Digital setting (F2-10)

1: AI1

2: AI2

3: AI3

4: Reserved

5: Communication

6: MIN (AI1, AI2)

7: MAX (AI1, AI2)

8: Digital setting (F2-12)

Description

0: Digital setting (F2-10)

The torque upper limit in speed control mode is set by F2-10 (Torque upper limit reference in speed control).

1: AI1

The torque upper limit is input with the current or voltage signal through the AI1 terminal. The frequency is calculated according to the preset AI curve.

2: AI2

The torque upper limit is input with the current or voltage signal through the AI2 terminal. The frequency is calculated according to the preset AI curve.

3: AI3

The torque upper limit is input with the current or voltage signal through the AI3 terminal. The frequency is calculated according to the preset AI curve.

5: Communication

The main frequency is set through communication. The running frequency is input through remote communication. The AC drive must be equipped with a communication card to implement communication with the host controller. This mode applies to remote control or centralized control of multiple equipment.

6: MIN (AI1, AI2)

The torque upper limit in speed control mode is the smaller value between AI1 and AI2 inputs.

7: MAX (AI1, AI2)

The torque upper limit in speed control mode is the larger value between AI1 and AI2 inputs.

8: Digital setting (F2-12)

The torque upper limit in speed control mode is set by F2-12 (Torque upper limit reference in speed control).

F2-12 **Torque upper limit reference in speed control (generating)**

Address:	0xF20C	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	200.0	Data type:	UInt16

Default: 150.0 Change: In real time

Value Range:

0.0% to 200.0%

Description

The torque upper limit under generating state is determined based on the rated current of the AC drive.

F2-13 **Low-speed current loop Kp adjustment**

Address:	0xF20D	Effective mode:	-
Min.:	0.1	Unit:	-
Max.:	10.0	Data type:	UInt16
Default:	1.0	Change:	In real time

Value Range:

0.1 to 10.0

Description

This parameter defines the proportional coefficient of the low-speed current loop.
A larger value indicates faster current response. The default value is recommended.

F2-14 **Low-speed current loop Ki adjustment**

Address:	0xF20E	Effective mode:	-
Min.:	0.1	Unit:	-
Max.:	10.0	Data type:	UInt16
Default:	1.0	Change:	In real time

Value Range:

0.1 to 10.0

Description

This parameter defines the integral coefficient of the low-speed current loop.
A larger value indicates faster current response. The default value is recommended.

F2-15 **High-speed current loop Kp adjustment**

Address:	0xF20F	Effective mode:	-
Min.:	0.1	Unit:	-
Max.:	10.0	Data type:	UInt16
Default:	1.0	Change:	In real time

Value Range:

0.1 to 10.0

Description

This parameter defines the proportional coefficient of the high-speed current loop.
A larger value indicates faster current response. The default value is recommended.

F2-16 **High-speed current loop Ki adjustment**

Address:	0xF210	Effective mode:	-
Min.:	0.1	Unit:	-
Max.:	10.0	Data type:	UInt16
Default:	1.0	Change:	In real time

Value Range:

0.1 to 10.0

Description

This parameter defines the integral coefficient of the high-speed current loop.
A larger value indicates faster current response. The default value is recommended.

F2-17 **Speed loop Kp upon zero speed lock**

Address:	0xF211	Effective mode:	-
Min.:	1	Unit:	-
Max.:	100	Data type:	UInt16
Default:	30	Change:	In real time

Value Range:

1 to 100

Description

This parameter defines the proportional coefficient of the speed loop at zero speed.
A larger value indicates stronger rigidity. The default value is recommended.

F2-18 **Speed loop Ti upon zero speed lock**

Address:	0xF212	Effective mode:	-
Min.:	0.001	Unit:	s
Max.:	10.000	Data type:	UInt16
Default:	0.500	Change:	In real time

Value Range:

0.001s to 10.000s

Description

This parameter defines the integral coefficient of the speed loop at zero speed.
A smaller value indicates stronger rigidity. The default value is recommended.

F2-20 **Speed loop switchover frequency upon zero speed lock**

Address:	0xF214	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	0.05	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

This parameter defines the switchover frequency of the speed loop upon zero speed lock. The default value is recommended as an excessively high setpoint may cause vibration.

F2-21 **Maximum output voltage coefficient**

Address:	0xF215	Effective mode:	-
Min.:	100	Unit:	-
Max.:	110	Data type:	UInt16
Default:	100	Change:	In real time

Value Range:

100 to 110

Description

This parameter defines the boost capacity of the maximum output voltage of the AC drive.
Increasing the value of F2-21 (Maximum output voltage coefficient) will enhance the maximum loading capacity in the field-weakening range of the motor. However, this may lead to an increase in motor current ripple and an increase in motor heating. Decreasing it will reduce motor current ripple and motor heating, but this will also reduce the maximum loading capacity in the field-weakening range of the motor. No adjustment is required under normal circumstances.

F2-22 **Output voltage filter time**

Address:	0xF216	Effective mode:	-
Min.:	0.000	Unit:	s

Max.:	0.010	Data type:	UInt16
Default:	0.000	Change:	In real time

Value Range:

0.000s to 0.010s

Description

This parameter defines the output voltage filter time. An excessively high setpoint weakens the delay control effect.

F2-23 Zero speed lock

Address:	0xF217	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

This parameter defines whether to enable the zero speed lock.

F2-24 Overvoltage suppression Kp in vector control mode

Address:	0xF218	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1000	Data type:	UInt16
Default:	40	Change:	In real time

Value Range:

0 to 1000

Description

This parameter defines the proportional coefficient of overvoltage suppression in vector control mode. If overvoltage occurs, increase the parameter value appropriately.

F2-25 Acceleration compensation gain

Address:	0xF219	Effective mode:	-
Min.:	0	Unit:	-
Max.:	200	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 200

Description

This parameter defines the acceleration compensation gain.

F2-26 Acceleration compensation filter time

Address:	0xF21A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	500	Data type:	UInt16
Default:	10	Change:	In real time

Value Range:

0 to 500

Description

This parameter defines the acceleration compensation filter time.

F2-27 **Overvoltage suppression in vector control mode**

Address: 0xF21B | Effective mode: -
Min.: 0 | Unit: -
Max.: 1 | Data type: UInt16
Default: 1 | Change: In real time

Value Range:

0: Disabled

1: Enabled

Description

This parameter defines whether to enable overvoltage suppression in vector control mode

F2-28 **Torque filter cut-off frequency**

Address: 0xF21C | Effective mode: -
Min.: 50 | Unit: Hz
Max.: 1000 | Data type: UInt16
Default: 500 | Change: In real time

Value Range:

50 Hz to 1000 Hz

Description

This parameter defines the cut-off frequency of the torque filter. It can be adjusted based on the torque source.

F2-29 **Initial position angle detection current of synchronous motor**

Address: 0xF21D | Effective mode: -
Min.: 50 | Unit: -
Max.: 180 | Data type: UInt16
Default: 80 | Change: In real time

Value Range:

50 to 180

Description

This parameter defines the initial angle detection current of the synchronous motor. The default value is recommended.

F2-30 **Auto-calculation of speed loop parameters**

Address: 0xF21E | Effective mode: -
Min.: 0 | Unit: -
Max.: 1 | Data type: UInt16
Default: 0 | Change: At stop

Value Range:

0: Disabled

1: Enabled

Description

-

F2-31 **Expected speed loop bandwidth (high speed)**

Address: 0xF21F | Effective mode: -
Min.: 1.0 | Unit: Hz
Max.: 200.0 | Data type: UInt16
Default: 10.0 | Change: In real time

Value Range:

1.0 Hz to 200.0 Hz

Description

-

F2-32 **Expected speed loop bandwidth (low speed)**

Address:	0xF220	Effective mode:	-
Min.:	1.0	Unit:	Hz
Max.:	200.0	Data type:	UInt16
Default:	10.0	Change:	In real time

Value Range:

1.0 Hz to 200.0 Hz

Description

-

F2-33 **Expected speed loop bandwidth (zero speed)**

Address:	0xF221	Effective mode:	-
Min.:	1.0	Unit:	Hz
Max.:	200.0	Data type:	UInt16
Default:	10.0	Change:	In real time

Value Range:

1.0 Hz to 200.0 Hz

Description

-

F2-34 **Expected speed loop damping ratio (unchanged generally)**

Address:	0xF222	Effective mode:	-
Min.:	0.100	Unit:	-
Max.:	65.000	Data type:	UInt16
Default:	1.000	Change:	In real time

Value Range:

0.100 to 65.000

Description

-

F2-52 **Decoupling control**

Address:	0xF234	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

This parameter defines whether to enable decoupling control.

F2-53 **Generating power limiting**

Address:	0xF235	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

This parameter defines whether to limit the generating power.

F2-54 **Generating power limit**

Address:	0xF236	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	200.0	Data type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0% to 200.0%

Description

This parameter defines the power limit during generating, which can limit the generating power according to actual applications.

F2-55 **Flux closed loop mode**

Address:	0xF237	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1111	Data type:	UInt16
Default:	1010	Change:	At stop

Value Range:

Ones: Reserved

Tens: Reserved

Hundreds: Reserved

Thousands: Torque base value

0: Rated current of the motor

1: Rated torque current of the motor

Description

This parameter defines the flux closed loop mode. The default value is recommended.

F2-56 **Upper limit of AC drive output current**

Address:	0xF238	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	170.0	Data type:	UInt16
Default:	150.0	Change:	At stop

Value Range:

0.0% to 170.0%

Description

This parameter defines the output current upper limit of the AC drive. The default value is recommended.

2.4 F3: V/f Control Parameters

F3-00 **V/f curve**

Address:	0xF300	Effective mode:	-
Min.:	0	Unit:	-

Max.:	11	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Linear V/f curve

1: Multi-point V/f curve

2: Square V/f curve

3: 1.2-power V/f curve

4: 1.4-power V/f curve

6: 1.6-power V/f curve

8: 1.8-power V/f curve

10: V/f complete separation mode

11: V/f half separation mode

Description

0: Linear V/f curve

Under the rated frequency, the output voltage of the AC drive changes linearly with the output frequency. This curve is applicable to general mechanical drive applications such as large-inertia fan acceleration, punch presses, centrifuges, and water pumps.

1: Multi-point V/f curve

The frequency ranges from 0.00 Hz to the rated motor frequency. The range of the voltage points is 0.0% to 100.0%, which corresponds to the range of 0 V to the rated motor voltage. The multi-point V/f curve references are typically determined based on load of the motor. Ensure that the following conditions are met: F3-03 ⩽ F3-05 ⩽ F3-07.

2: Square V/f curve

Under the rated frequency, the output voltage changes with the output frequency of the AC drive according to the 2-power curve. This curve is applicable to applications with light loads that seldom change, such as fans and water pumps.

3: 1.2-power V/f curve

Under the rated frequency, the output voltage changes with the output frequency of the AC drive according to the 1.2-power curve.

4: 1.4-power V/f curve

Under the rated frequency, the output voltage changes with the output frequency of the AC drive according to the 1.4-power curve.

6: 1.6-power V/f curve

Under the rated frequency, the output voltage changes with the output frequency of the AC drive according to the 1.6-power curve.

8: 1.8-power V/f curve

Under the rated frequency, the output voltage changes with the output frequency of the AC drive according to the 1.8-power curve.

10: V/f complete separation mode

The output frequency and output voltage of the AC drive are independent of each other. The output frequency is determined by the frequency source, and the output voltage is determined by voltage source for V/f separation. This curve is generally applicable to scenarios such as motor torque control.

11: V/f half separation mode

In this mode, the voltage (V) is proportional to the frequency (f). The relationship between V and f can be set by the voltage source, and it is also related to the rated motor voltage and rated motor frequency in group F1. Assuming that the voltage source input is X (X ranges from 0% to 100%), the relationship between V and f is as follows: V/f = 2 x X x (Rated motor voltage)/(Rated motor frequency).

F3-01 **Torque boost**

Address:	0xF301	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	30.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0% to 30.0%

Description

The torque boost function generally applies to the AC drive at low frequency. The output torque of the AC drive in V/f control mode is proportional to the frequency. Under the condition of low frequency, the torque is very low when the motor is running at a low speed. In this case, you can set this parameter to increase the output voltage of the AC drive, thereby increasing the current and output torque.

Do not set this parameter to a large value, otherwise, overload protection may be triggered.

F3-02 **Cutoff frequency of torque boost**

Address:	0xF302	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	50.00	Change:	At stop

Value Range:

0.00 Hz to 655.35 Hz

Description

When the running frequency reaches the cutoff frequency of torque boost, the torque boost function is disabled.

F3-03 **Frequency point 1 on multi-point V/f curve**

Address:	0xF303	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	0.00	Change:	At stop

Value Range:

0.00 Hz to 655.35 Hz

Description

This parameter defines frequency point 1 on a multi-point V/f curve.

F3-04 **Voltage point 1 on multi-point V/f curve**

Address:	0xF304	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

This parameter defines voltage point 1 on a multi-point V/f curve.

F3-05 **Frequency point 2 on multi-point V/f curve**

Address:	0xF305	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	0.00	Change:	At stop

Value Range:
0.00 Hz to 655.35 Hz
Description
This parameter defines frequency point 2 on a multi-point V/f curve.

F3-06 **Voltage point 2 on multi-point V/f curve**

Address:	0xF306	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	0.0	Change:	At stop

Value Range:
0.0% to 100.0%
Description
This parameter defines voltage point 2 on a multi-point V/f curve.

F3-07 **Frequency point 3 on multi-point V/f curve**

Address:	0xF307	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	0.00	Change:	At stop

Value Range:
0.00 Hz to 655.35 Hz
Description
This parameter defines frequency point 3 on a multi-point V/f curve.

F3-08 **Voltage point 3 on multi-point V/f curve**

Address:	0xF308	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	0.0	Change:	At stop

Value Range:
0.0% to 100.0%
Description
This parameter defines voltage point 3 on a multi-point V/f curve.

F3-09 **V/f slip compensation gain**

Address:	0xF309	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	200.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:
0.0% to 200.0%
Description
In V/f mode, increasing the output frequency compensates for reduction in the motor speed. A higher gain indicates a higher compensation frequency. However, an excessively high gain can incur overcompensation.

F3-10 **V/f overexcitation gain**

Address:	0xF30A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	200	Data type:	UInt16

Default: 64 | Change: In real time

Value Range:

0 to 200

Description

A larger overexcitation gain indicates better suppression effect.

When a braking resistor, braking unit, or energy feedback unit is used, set this parameter to 0. Otherwise, overcurrent may occur during operation.

F3-11 **V/f oscillation suppression gain**

Address:	0xF30B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	100	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 100

Description

A larger oscillation gain indicates better suppression effect.

F3-12 **Oscillation suppression gain mode**

Address:	0xF30C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	3	Change:	At stop

Value Range:

0: Disabled

3: Enabled

Description

In V/f mode, speed and current oscillation typically occurs when the motor runs at low frequency, which may lead to overcurrent of the AC drive. In this case, you can enable this function to eliminate oscillation.

F3-13 **Voltage source for V/f separation**

Address:	0xF30D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	8	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Digital setting (F3-14)

1: AI1

2: AI2

3: AI3

4: Reserved

5: Multi-reference

6: Simple PLC

7: PID

8: Communication

Description

This parameter defines the source of the target voltage in V/f separation mode.

0: Digital setting (F3-14)

The V/f separation voltage is set by F3-14 (V/f separation voltage).

1: AI1

The V/f separation voltage is input with current or voltage signals through the AI1 terminal. The frequency is calculated according to the preset AI curve.

2: AI2

The V/f separation voltage is input with current or voltage signals through the AI2 terminal. The frequency is calculated according to the preset AI curve.

3: AI3

The V/f separation voltage is input with current or voltage signals through the AI3 terminal. The frequency is calculated according to the preset AI curve. The AC drive has two AI terminals by default, and the AI3 terminal needs to be provided through the I/O extension card.

5: Multi-reference

When multi-reference is used as the source of the V/f separation voltage, different combinations of DI terminal states correspond to different reference values. The four multi-reference terminals can provide 16 state combinations, corresponding to 16 reference values (percentage x maximum frequency) of parameters in group FC.

6: Simple PLC

The V/f separation voltage is set by simple PLC. For details, see the function description of simple PLC.

7: PID

The V/f separation voltage is set by PID. For details, see the PID function description.

9: Communication

The main frequency is set through communication. The running frequency is input through remote communication. The AC drive must be equipped with a communication card to implement communication with the host controller. This mode applies to remote control or centralized control of multiple equipment.

F3-14 **V/f separation voltage**

Address:	0xF30E	Effective mode:	-
Min.:	0	Unit:	V
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 V to 65535 V

Description

The reference value is between 0 V and the rated voltage.

F3-15 **Voltage acceleration time of V/f separation**

Address:	0xF30F	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	1000.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 1000.0s

Description

This parameter defines the time required for the output voltage to rise from 0 to the rated motor voltage.

F3-16 **Voltage deceleration time of V/f separation**

Address:	0xF310	Effective mode:	-

Min.:	0.0	Unit:	s
Max.:	1000.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 1000.0s

Description

This parameter defines the time required for the output voltage to fall from the rated motor voltage to 0.

F3-17 **Stop mode for V/f separation**

Address:	0xF311	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Frequency and voltage decline to 0.

1: Frequency declines to 0 after voltage declines to 0.

Description

This parameter defines the stop mode for V/f separation. Stop mode 1 is recommended for applications requiring energy discharge upon stop with load.

F3-18 **Current threshold for enabling V/f overcurrent stall suppression**

Address:	0xF312	Effective mode:	-
Min.:	50	Unit:	%
Max.:	180	Data type:	UInt16
Default:	150	Change:	At stop

Value Range:

50% to 180%

Description

When the motor current reaches the value of this parameter, the AC drive starts overcurrent stall suppression. The default value is 150%, indicating 1.5 times the rated current of the AC drive.

F3-19 **V/f overcurrent stall suppression**

Address:	0xF313	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

This parameter defines whether to enable V/f overcurrent stall suppression.

F3-20 **V/f overcurrent stall suppression gain**

Address:	0xF314	Effective mode:	-
Min.:	0	Unit:	-
Max.:	100	Data type:	UInt16
Default:	20	Change:	In real time

Value Range:

0 to 100

Description

When the current exceeds the overcurrent stall suppression action current, overcurrent stall suppression is triggered. The output frequency decreases until the current falls below the overcurrent stall threshold, and then the output frequency increases to the target frequency, which prolongs the actual acceleration time automatically. A larger parameter value indicates better suppression effect.

F3-21 **Compensation coefficient of current threshold for enabling V/f speed multiplying overcurrent stall suppression**

Address:	0xF315	Effective mode:	-
Min.:	50	Unit:	-
Max.:	180	Data type:	UInt16
Default:	50	Change:	At stop

Value Range:

50 to 180

Description

This parameter defines the compensation coefficient of the current threshold for enabling V/f speed multiplying overcurrent stall suppression, which can be used to adjust the overcurrent suppression current threshold in the field-weakening range.

F3-22 **Voltage threshold for enabling V/f overvoltage stall suppression**

Address:	0xF316	Effective mode:	-
Min.:	330.0	Unit:	V
Max.:	800.0	Data type:	UInt16
Default:	770.0	Change:	At stop

Value Range:

330.0 V to 800.0 V

Description

When the bus voltage reaches the value of this parameter, the AC drive starts overvoltage stall protection.

F3-23 **V/f overvoltage stall suppression**

Address:	0xF317	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

This parameter defines whether to enable V/f overvoltage stall suppression.

F3-24 **Frequency gain for V/f overvoltage stall suppression**

Address:	0xF318	Effective mode:	-
Min.:	0	Unit:	-
Max.:	100	Data type:	UInt16
Default:	30	Change:	In real time

Value Range:

0 to 100

Description

Increasing F3-24 (Frequency gain for V/f overvoltage stall suppression) will improve the bus voltage control effect, but the output frequency will fluctuate. If the output frequency fluctuates greatly, reduce F3-24 (Frequency gain for V/f overvoltage stall suppression) appropriately.

F3-25 **Voltage gain for V/f overvoltage stall suppression**

Address:	0xF319	Effective mode:	-
Min.:	0	Unit:	-
Max.:	100	Data type:	UInt16
Default:	30	Change:	In real time

Value Range:

0 to 100

Description

This parameter is used to suppress the bus voltage. Increasing the parameter value reduces the overshoot of the bus voltage.

F3-26 **Frequency rise threshold during overvoltage stall suppression**

Address:	0xF31A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	50	Data type:	UInt16
Default:	5	Change:	At stop

Value Range:

0 to 50

Description

The running frequency may increase when overvoltage stall suppression is enabled. This parameter limits the increase of the running frequency.

F3-27 **Slip compensation time constant**

Address:	0xF31B	Effective mode:	-
Min.:	0.1	Unit:	-
Max.:	10.0	Data type:	UInt16
Default:	0.5	Change:	In real time

Value Range:

0.1 to 10.0

Description

This parameter defines the time constant of the slip compensation frequency. As the time constant increases, the slip compensation frequency becomes more stable and less affected by load disturbance and noise interference. However, the response to load change will be slower.

F3-28 **Automatic frequency rise**

Address:	0xF31C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

-

F3-29 **Minimum motoring torque current**

Address:	0xF31D	Effective mode:	-
Min.:	10	Unit:	-
Max.:	100	Data type:	UInt16
Default:	50	Change:	At stop

Value Range:

10 to 100

Description

-

F3-30 **Maximum generating torque current**

Address:	0xF31E	Effective mode:	-
Min.:	10	Unit:	-
Max.:	100	Data type:	UInt16
Default:	20	Change:	At stop

Value Range:

10 to 100

Description

-

F3-31 **Automatic frequency rise Kp**

Address:	0xF31F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	100	Data type:	UInt16
Default:	50	Change:	In real time

Value Range:

0 to 100

Description

-

F3-32 **Automatic frequency rise Ki**

Address:	0xF320	Effective mode:	-
Min.:	0	Unit:	-
Max.:	100	Data type:	UInt16
Default:	50	Change:	In real time

Value Range:

0 to 100

Description

-

F3-33 **Online torque compensation gain**

Address:	0xF321	Effective mode:	-
Min.:	80	Unit:	-
Max.:	150	Data type:	UInt16
Default:	100	Change:	At stop

Value Range:

80 to 150

Description

This parameter defines the automatic torque boost gain. The automatic torque boost function takes effect when the value of this parameter is greater than or equal to 100. The default value is recommended.

F3-34 **Slip start enable**

Address: 0xF322 | Effective mode: -
Min.: 0 | Unit: -
Max.: 1 | Data type: UInt16
Default: 0 | Change: At stop

Value Range:
0 to 1
Description
-

F3-35 **Slip start threshold**

Address: 0xF323 | Effective mode: -
Min.: 0 | Unit: -
Max.: 50 | Data type: UInt16
Default: 10 | Change: In real time

Value Range:
0 to 50
Description
-

F3-36 **Slip start Kp**

Address: 0xF324 | Effective mode: -
Min.: 0.0 | Unit: -
Max.: 200.0 | Data type: UInt16
Default: 10.0 | Change: In real time

Value Range:
0.0 to 200.0
Description
-

F3-37 **Slip start Ki**

Address: 0xF325 | Effective mode: -
Min.: 0.00 | Unit: -
Max.: 500.00 | Data type: UInt16
Default: 1.00 | Change: In real time

Value Range:
0.00 to 500.00
Description
-

F3-38 **Slip start current**

Address: 0xF326 | Effective mode: -
Min.: 0 | Unit: -
Max.: 200 | Data type: UInt16
Default: 180 | Change: In real time

Value Range:
0 to 200
Description
-

2.5 F4: Input Terminal Parameters

F4-00 **DI1 hardware source**

Address:	0xF400	Effective mode:	-
Min.:	0	Unit:	-
Max.:	308	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DI1

2: Power supply unit - DI2

3: Power supply unit - DI3

4: Power supply unit - DI4

5: Power supply unit - DIO1

6: Power supply unit - DIO2

7: Power supply unit - DIO3

8: Power supply unit - DIO4

101: Extension card 1 - DI1

102: Extension card 1 - DI2

103: Extension card 1 - DI3

104: Extension card 1 - DI4

105: Extension card 1 - DI5

106: Extension card 1 - DI6

107: Extension card 1 - DI7

108: Extension card 1 - DI8

201: Extension card 2 - DI1

202: Extension card 2 - DI2

203: Extension card 2 - DI3

204: Extension card 2 - DI4

205: Extension card 2 - DI5

206: Extension card 2 - DI6

207: Extension card 2 - DI7

208: Extension card 2 - DI8

Description

This parameter defines the source of the input terminal.

F4-01 **DI1 function**

Address:	0xF401	Effective mode:	-
Min.:	0	Unit:	-
Max.:	95	Data type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: No function

1: Forward RUN (FWD)

2: Reverse RUN (REV)

3: Three-wire operation control

4: Forward jog (FJOG)

5: Reverse jog (RJOG)

6: Terminal UP
7: Terminal DOWN
8: UP and DOWN setting clear (terminal, operating panel)
9: Fault reset (RESET)
10: External fault NO input
11: External fault NC input
12: User-defined fault 1
13: User-defined fault 2
14: Multi-reference terminal 1
15: Multi-reference terminal 2
16: Multi-reference terminal 3
17: Multi-reference terminal 4
18: Acceleration/deceleration selection terminal 1
19: Acceleration/deceleration selection terminal 2
20: Acceleration/Deceleration prohibition
21: Command source switchover terminal 1
22: Command source switchover terminal 2
23: Frequency reference switchover
24: Switchover between main frequency reference X and preset frequency
25: Switchover between auxiliary frequency reference Y and preset frequency
26: Frequency modification enable
27: Counter input
28: Counter reset
29: Length count input
30: Length reset
31: PID pause
32: PID integral pause
33: PID parameter switchover
34: PID action direction reversal
35: Torque control prohibition
36: Switchover between speed control and torque control
38: Flying start
39: Immediate DC braking
40: Deceleration DC braking
41: External stop terminal 1
42: External stop terminal 2
43: Running pause
44: Coast to stop
45: Emergency stop
46: Motor selection terminal
47: Current running duration clear
48: Switchover between two-wire and three-wire control
49: PLC state reset
50: Wobble pause
94: Brake feedback 1
95: Brake feedback 2

Description

This parameter defines the function of the input terminal.

F4-02 **DI2 hardware source**

Address:	0xF402	Effective mode:	-
Min.:	0	Unit:	-
Max.:	308	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DI1

2: Power supply unit - DI2

3: Power supply unit - DI3

4: Power supply unit - DI4

5: Power supply unit - DIO1

6: Power supply unit - DIO2

7: Power supply unit - DIO3

8: Power supply unit - DIO4

101: Extension card 1 - DI1

102: Extension card 1 - DI2

103: Extension card 1 - DI3

104: Extension card 1 - DI4

105: Extension card 1 - DI5

106: Extension card 1 - DI6

107: Extension card 1 - DI7

108: Extension card 1 - DI8

201: Extension card 2 - DI1

202: Extension card 2 - DI2

203: Extension card 2 - DI3

204: Extension card 2 - DI4

205: Extension card 2 - DI5

206: Extension card 2 - DI6

207: Extension card 2 - DI7

208: Extension card 2 - DI8

Description

Same as F4-00

F4-03 **DI2 function**

Address:	0xF403	Effective mode:	-
Min.:	0	Unit:	-
Max.:	95	Data type:	UInt16
Default:	4	Change:	At stop

Value Range:

0: No function

1: Forward RUN (FWD)

2: Reverse RUN (REV)

3: Three-wire operation control

4: Forward jog (FJOG)

5: Reverse jog (RJOG)
6: Terminal UP
7: Terminal DOWN
8: UP and DOWN setting clear (terminal, operating panel)
9: Fault reset (RESET)
10: External fault NO input
11: External fault NC input
12: User-defined fault 1
13: User-defined fault 2
14: Multi-reference terminal 1
15: Multi-reference terminal 2
16: Multi-reference terminal 3
17: Multi-reference terminal 4
18: Acceleration/deceleration selection terminal 1
19: Acceleration/deceleration selection terminal 2
20: Acceleration/Deceleration prohibition
21: Command source switchover terminal 1
22: Command source switchover terminal 2
23: Frequency reference switchover
24: Switchover between main frequency reference X and preset frequency
25: Switchover between auxiliary frequency reference Y and preset frequency
26: Frequency modification enable
27: Counter input
28: Counter reset
29: Length count input
30: Length reset
31: PID pause
32: PID integral pause
33: PID parameter switchover
34: PID action direction reversal
35: Torque control prohibition
36: Switchover between speed control and torque control
38: Flying start
39: Immediate DC braking
40: Deceleration DC braking
41: External stop terminal 1
42: External stop terminal 2
43: Running pause
44: Coast to stop
45: Emergency stop
46: Motor selection terminal
47: Current running duration clear
48: Switchover between two-wire and three-wire control
49: PLC state reset
50: Wobble pause
94: Brake feedback 1

95: Brake feedback 2

Description

Same as F4-01

F4-04 **DI3 hardware source**

Address:	0xF404	Effective mode:	-
Min.:	0	Unit:	-
Max.:	308	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DI1

2: Power supply unit - DI2

3: Power supply unit - DI3

4: Power supply unit - DI4

5: Power supply unit - DIO1

6: Power supply unit - DIO2

7: Power supply unit - DIO3

8: Power supply unit - DIO4

101: Extension card 1 - DI1

102: Extension card 1 - DI2

103: Extension card 1 - DI3

104: Extension card 1 - DI4

105: Extension card 1 - DI5

106: Extension card 1 - DI6

107: Extension card 1 - DI7

108: Extension card 1 - DI8

201: Extension card 2 - DI1

202: Extension card 2 - DI2

203: Extension card 2 - DI3

204: Extension card 2 - DI4

205: Extension card 2 - DI5

206: Extension card 2 - DI6

207: Extension card 2 - DI7

208: Extension card 2 - DI8

Description

Same as F4-00

F4-05 **DI3 function**

Address:	0xF405	Effective mode:	-
Min.:	0	Unit:	-
Max.:	95	Data type:	UInt16
Default:	9	Change:	At stop

Value Range:

0: No function

1: Forward RUN (FWD)

2: Reverse RUN (REV)

3: Three-wire operation control

4: Forward jog (FJOG)
5: Reverse jog (RJOG)
6: Terminal UP
7: Terminal DOWN
8: UP and DOWN setting clear (terminal, operating panel)
9: Fault reset (RESET)
10: External fault NO input
11: External fault NC input
12: User-defined fault 1
13: User-defined fault 2
14: Multi-reference terminal 1
15: Multi-reference terminal 2
16: Multi-reference terminal 3
17: Multi-reference terminal 4
18: Acceleration/deceleration selection terminal 1
19: Acceleration/deceleration selection terminal 2
20: Acceleration/Deceleration prohibition
21: Command source switchover terminal 1
22: Command source switchover terminal 2
23: Frequency reference switchover
24: Switchover between main frequency reference X and preset frequency
25: Switchover between auxiliary frequency reference Y and preset frequency
26: Frequency modification enable
27: Counter input
28: Counter reset
29: Length count input
30: Length reset
31: PID pause
32: PID integral pause
33: PID parameter switchover
34: PID action direction reversal
35: Torque control prohibition
36: Switchover between speed control and torque control
38: Flying start
39: Immediate DC braking
40: Deceleration DC braking
41: External stop terminal 1
42: External stop terminal 2
43: Running pause
44: Coast to stop
45: Emergency stop
46: Motor selection terminal
47: Current running duration clear
48: Switchover between two-wire and three-wire control
49: PLC state reset
50: Wobble pause

94: Brake feedback 1

95: Brake feedback 2

Description

Same as F4-01

F4-06 **DI4 hardware source**

Address:	0xF406	Effective mode:	-
Min.:	0	Unit:	-
Max.:	308	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DI1

2: Power supply unit - DI2

3: Power supply unit - DI3

4: Power supply unit - DI4

5: Power supply unit - DIO1

6: Power supply unit - DIO2

7: Power supply unit - DIO3

8: Power supply unit - DIO4

101: Extension card 1 - DI1

102: Extension card 1 - DI2

103: Extension card 1 - DI3

104: Extension card 1 - DI4

105: Extension card 1 - DI5

106: Extension card 1 - DI6

107: Extension card 1 - DI7

108: Extension card 1 - DI8

201: Extension card 2 - DI1

202: Extension card 2 - DI2

203: Extension card 2 - DI3

204: Extension card 2 - DI4

205: Extension card 2 - DI5

206: Extension card 2 - DI6

207: Extension card 2 - DI7

208: Extension card 2 - DI8

Description

Same as F4-00

F4-07 **DI4 function**

Address:	0xF407	Effective mode:	-
Min.:	0	Unit:	-
Max.:	95	Data type:	UInt16
Default:	14	Change:	At stop

Value Range:

0: No function

1: Forward RUN (FWD)

2: Reverse RUN (REV)

3: Three-wire operation control

4: Forward jog (FJOG)
5: Reverse jog (RJOG)
6: Terminal UP
7: Terminal DOWN
8: UP and DOWN setting clear (terminal, operating panel)
9: Fault reset (RESET)
10: External fault NO input
11: External fault NC input
12: User-defined fault 1
13: User-defined fault 2
14: Multi-reference terminal 1
15: Multi-reference terminal 2
16: Multi-reference terminal 3
17: Multi-reference terminal 4
18: Acceleration/deceleration selection terminal 1
19: Acceleration/deceleration selection terminal 2
20: Acceleration/Deceleration prohibition
21: Command source switchover terminal 1
22: Command source switchover terminal 2
23: Frequency reference switchover
24: Switchover between main frequency reference X and preset frequency
25: Switchover between auxiliary frequency reference Y and preset frequency
26: Frequency modification enable
27: Counter input
28: Counter reset
29: Length count input
30: Length reset
31: PID pause
32: PID integral pause
33: PID parameter switchover
34: PID action direction reversal
35: Torque control prohibition
36: Switchover between speed control and torque control
38: Flying start
39: Immediate DC braking
40: Deceleration DC braking
41: External stop terminal 1
42: External stop terminal 2
43: Running pause
44: Coast to stop
45: Emergency stop
46: Motor selection terminal
47: Current running duration clear
48: Switchover between two-wire and three-wire control
49: PLC state reset
50: Wobble pause

94: Brake feedback 1

95: Brake feedback 2

Description

Same as F4-01

F4-08 **DI5 hardware source**

Address:	0xF408	Effective mode:	-
Min.:	0	Unit:	-
Max.:	308	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DI1

2: Power supply unit - DI2

3: Power supply unit - DI3

4: Power supply unit - DI4

5: Power supply unit - DIO1

6: Power supply unit - DIO2

7: Power supply unit - DIO3

8: Power supply unit - DIO4

101: Extension card 1 - DI1

102: Extension card 1 - DI2

103: Extension card 1 - DI3

104: Extension card 1 - DI4

105: Extension card 1 - DI5

106: Extension card 1 - DI6

107: Extension card 1 - DI7

108: Extension card 1 - DI8

201: Extension card 2 - DI1

202: Extension card 2 - DI2

203: Extension card 2 - DI3

204: Extension card 2 - DI4

205: Extension card 2 - DI5

206: Extension card 2 - DI6

207: Extension card 2 - DI7

208: Extension card 2 - DI8

Description

Same as F4-00

F4-09 **DI5 function**

Address:	0xF409	Effective mode:	-
Min.:	0	Unit:	-
Max.:	95	Data type:	UInt16
Default:	15	Change:	At stop

Value Range:

0: No function

1: Forward RUN (FWD)

2: Reverse RUN (REV)

3: Three-wire operation control

4: Forward jog (FJOG)
5: Reverse jog (RJOG)
6: Terminal UP
7: Terminal DOWN
8: UP and DOWN setting clear (terminal, operating panel)
9: Fault reset (RESET)
10: External fault NO input
11: External fault NC input
12: User-defined fault 1
13: User-defined fault 2
14: Multi-reference terminal 1
15: Multi-reference terminal 2
16: Multi-reference terminal 3
17: Multi-reference terminal 4
18: Acceleration/deceleration selection terminal 1
19: Acceleration/deceleration selection terminal 2
20: Acceleration/Deceleration prohibition
21: Command source switchover terminal 1
22: Command source switchover terminal 2
23: Frequency reference switchover
24: Switchover between main frequency reference X and preset frequency
25: Switchover between auxiliary frequency reference Y and preset frequency
26: Frequency modification enable
27: Counter input
28: Counter reset
29: Length count input
30: Length reset
31: PID pause
32: PID integral pause
33: PID parameter switchover
34: PID action direction reversal
35: Torque control prohibition
36: Switchover between speed control and torque control
38: Flying start
39: Immediate DC braking
40: Deceleration DC braking
41: External stop terminal 1
42: External stop terminal 2
43: Running pause
44: Coast to stop
45: Emergency stop
46: Motor selection terminal
47: Current running duration clear
48: Switchover between two-wire and three-wire control
49: PLC state reset
50: Wobble pause

94: Brake feedback 1

95: Brake feedback 2

Description

Same as F4-01

F4-10 **DI6 hardware source**

Address:	0xF40A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	308	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DI1

2: Power supply unit - DI2

3: Power supply unit - DI3

4: Power supply unit - DI4

5: Power supply unit - DIO1

6: Power supply unit - DIO2

7: Power supply unit - DIO3

8: Power supply unit - DIO4

101: Extension card 1 - DI1

102: Extension card 1 - DI2

103: Extension card 1 - DI3

104: Extension card 1 - DI4

105: Extension card 1 - DI5

106: Extension card 1 - DI6

107: Extension card 1 - DI7

108: Extension card 1 - DI8

201: Extension card 2 - DI1

202: Extension card 2 - DI2

203: Extension card 2 - DI3

204: Extension card 2 - DI4

205: Extension card 2 - DI5

206: Extension card 2 - DI6

207: Extension card 2 - DI7

208: Extension card 2 - DI8

Description

Same as F4-00

F4-11 **DI6 function**

Address:	0xF40B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	95	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function

1: Forward RUN (FWD)

2: Reverse RUN (REV)

3: Three-wire operation control

4: Forward jog (FJOG)
5: Reverse jog (RJOG)
6: Terminal UP
7: Terminal DOWN
8: UP and DOWN setting clear (terminal, operating panel)
9: Fault reset (RESET)
10: External fault NO input
11: External fault NC input
12: User-defined fault 1
13: User-defined fault 2
14: Multi-reference terminal 1
15: Multi-reference terminal 2
16: Multi-reference terminal 3
17: Multi-reference terminal 4
18: Acceleration/deceleration selection terminal 1
19: Acceleration/deceleration selection terminal 2
20: Acceleration/Deceleration prohibition
21: Command source switchover terminal 1
22: Command source switchover terminal 2
23: Frequency reference switchover
24: Switchover between main frequency reference X and preset frequency
25: Switchover between auxiliary frequency reference Y and preset frequency
26: Frequency modification enable
27: Counter input
28: Counter reset
29: Length count input
30: Length reset
31: PID pause
32: PID integral pause
33: PID parameter switchover
34: PID action direction reversal
35: Torque control prohibition
36: Switchover between speed control and torque control
38: Flying start
39: Immediate DC braking
40: Deceleration DC braking
41: External stop terminal 1
42: External stop terminal 2
43: Running pause
44: Coast to stop
45: Emergency stop
46: Motor selection terminal
47: Current running duration clear
48: Switchover between two-wire and three-wire control
49: PLC state reset
50: Wobble pause

94: Brake feedback 1

95: Brake feedback 2

Description

Same as F4-01

F4-12 **DI7 hardware source**

Address:	0xF40C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	308	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DI1

2: Power supply unit - DI2

3: Power supply unit - DI3

4: Power supply unit - DI4

5: Power supply unit - DIO1

6: Power supply unit - DIO2

7: Power supply unit - DIO3

8: Power supply unit - DIO4

101: Extension card 1 - DI1

102: Extension card 1 - DI2

103: Extension card 1 - DI3

104: Extension card 1 - DI4

105: Extension card 1 - DI5

106: Extension card 1 - DI6

107: Extension card 1 - DI7

108: Extension card 1 - DI8

201: Extension card 2 - DI1

202: Extension card 2 - DI2

203: Extension card 2 - DI3

204: Extension card 2 - DI4

205: Extension card 2 - DI5

206: Extension card 2 - DI6

207: Extension card 2 - DI7

208: Extension card 2 - DI8

Description

Same as F4-00

F4-13 **DI7 function**

Address:	0xF40D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	95	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function

1: Forward RUN (FWD)

2: Reverse RUN (REV)

3: Three-wire operation control

4: Forward jog (FJOG)
5: Reverse jog (RJOG)
6: Terminal UP
7: Terminal DOWN
8: UP and DOWN setting clear (terminal, operating panel)
9: Fault reset (RESET)
10: External fault NO input
11: External fault NC input
12: User-defined fault 1
13: User-defined fault 2
14: Multi-reference terminal 1
15: Multi-reference terminal 2
16: Multi-reference terminal 3
17: Multi-reference terminal 4
18: Acceleration/deceleration selection terminal 1
19: Acceleration/deceleration selection terminal 2
20: Acceleration/Deceleration prohibition
21: Command source switchover terminal 1
22: Command source switchover terminal 2
23: Frequency reference switchover
24: Switchover between main frequency reference X and preset frequency
25: Switchover between auxiliary frequency reference Y and preset frequency
26: Frequency modification enable
27: Counter input
28: Counter reset
29: Length count input
30: Length reset
31: PID pause
32: PID integral pause
33: PID parameter switchover
34: PID action direction reversal
35: Torque control prohibition
36: Switchover between speed control and torque control
38: Flying start
39: Immediate DC braking
40: Deceleration DC braking
41: External stop terminal 1
42: External stop terminal 2
43: Running pause
44: Coast to stop
45: Emergency stop
46: Motor selection terminal
47: Current running duration clear
48: Switchover between two-wire and three-wire control
49: PLC state reset
50: Wobble pause

94: Brake feedback 1

95: Brake feedback 2

Description

Same as F4-01

F4-14 **DI8 hardware source**

Address:	0xF40E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	308	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - DI1

2: Power supply unit - DI2

3: Power supply unit - DI3

4: Power supply unit - DI4

5: Power supply unit - DIO1

6: Power supply unit - DIO2

7: Power supply unit - DIO3

8: Power supply unit - DIO4

101: Extension card 1 - DI1

102: Extension card 1 - DI2

103: Extension card 1 - DI3

104: Extension card 1 - DI4

105: Extension card 1 - DI5

106: Extension card 1 - DI6

107: Extension card 1 - DI7

108: Extension card 1 - DI8

201: Extension card 2 - DI1

202: Extension card 2 - DI2

203: Extension card 2 - DI3

204: Extension card 2 - DI4

205: Extension card 2 - DI5

206: Extension card 2 - DI6

207: Extension card 2 - DI7

208: Extension card 2 - DI8

Description

Same as F4-00

F4-15 **DI8 function**

Address:	0xF40F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	95	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function

1: Forward RUN (FWD)

2: Reverse RUN (REV)

3: Three-wire operation control

4: Forward jog (FJOG)
5: Reverse jog (RJOG)
6: Terminal UP
7: Terminal DOWN
8: UP and DOWN setting clear (terminal, operating panel)
9: Fault reset (RESET)
10: External fault NO input
11: External fault NC input
12: User-defined fault 1
13: User-defined fault 2
14: Multi-reference terminal 1
15: Multi-reference terminal 2
16: Multi-reference terminal 3
17: Multi-reference terminal 4
18: Acceleration/deceleration selection terminal 1
19: Acceleration/deceleration selection terminal 2
20: Acceleration/Deceleration prohibition
21: Command source switchover terminal 1
22: Command source switchover terminal 2
23: Frequency reference switchover
24: Switchover between main frequency reference X and preset frequency
25: Switchover between auxiliary frequency reference Y and preset frequency
26: Frequency modification enable
27: Counter input
28: Counter reset
29: Length count input
30: Length reset
31: PID pause
32: PID integral pause
33: PID parameter switchover
34: PID action direction reversal
35: Torque control prohibition
36: Switchover between speed control and torque control
38: Flying start
39: Immediate DC braking
40: Deceleration DC braking
41: External stop terminal 1
42: External stop terminal 2
43: Running pause
44: Coast to stop
45: Emergency stop
46: Motor selection terminal
47: Current running duration clear
48: Switchover between two-wire and three-wire control
49: PLC state reset
50: Wobble pause

94: Brake feedback 1

95: Brake feedback 2

Description

Same as F4-01

F4-17 **Terminal control mode**

Address:	0xF411	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Two-wire mode 1

1: Two-wire mode 2

2: Three-wire mode 1

3: Three-wire mode 2

Description

This parameter defines the mode in which the AC drive is controlled by external terminals.

0: Two-wire mode 1

Two DI terminals are connected: one is used to start/stop the AC drive in forward run mode, and the other is used to start/stop the AC drive in reverse run mode.

1: Two-wire mode 2

Two DI terminals are connected: one is used to start/stop the AC drive, and the other is used to control the running direction.

2: Three-wire mode 1

Three DI terminals are connected: one is used to start/stop the AC drive, and the other two are used to control the running direction.

3: Three-wire mode 2

Three DI terminals are connected: one is used to start the AC drive, one is used to stop the AC drive, and the other is used to control the running direction.

F4-18 **Terminal UP/DOWN change rate**

Address:	0xF412	Effective mode:	-
Min.:	0.001	Unit:	Hz/s
Max.:	65.535	Data type:	UInt16
Default:	1.000	Change:	In real time

Value Range:

0.001 Hz/s to 65.535 Hz/s

Description

This parameter defines the change rate when the frequency is adjusted through terminal UP/DOWN. It must be set when the function of a DI terminal is set to terminal UP or terminal DOWN (any one of F4-01 to F4-15 is set to 6 or 7).

F4-19 **DI1 delay**

Address:	0xF413	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	3600.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 3600.0s

Description

This parameter defines the delay of the DI state change. The delay setting function is available only for DI1, DI2, and DI3 currently.

F4-20 **DI2 delay**

Address:	0xF414	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	3600.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 3600.0s

Description

This parameter defines the delay of the DI state change. The delay setting function is available only for DI1, DI2, and DI3 currently.

F4-21 **DI3 delay**

Address:	0xF415	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	3600.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 3600.0s

Description

This parameter defines the delay of the DI state change. The delay setting function is available only for DI1, DI2, and DI3 currently.

F4-22 **DI active mode setting 1**

Address:	0xF416	Effective mode:	-
Min.:	0	Unit:	-
Max.:	11111	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

Ones:

0: Active high

1: Active low

Tens:

0: Active high

1: Active low

Hundreds:

0: Active high

1: Active low

Thousands:

0: Active high

1: Active low

Ten thousands:

0: Active high

1: Active low

Description

The ones, tens, hundreds, thousands, and ten thousands places of this parameter define the active mode of terminals DI1 to DI5, respectively.

0: Active high

The DI terminals (DI1 to DI5) are active when connected to COM and inactive when disconnected from COM.

1: Active low

The DI terminals (DI1 to DI5) are inactive when connected to COM and active when disconnected from COM.

F4-23 **DI active mode setting 2**

Address:	0xF417	Effective mode:	-
Min.:	0	Unit:	-
Max.:	11111	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

Ones:

0: Active high

1: Active low

Tens:

0: Active high

1: Active low

Hundreds:

0: Active high

1: Active low

Thousands:

0: Reserved

Ten thousands:

0: Reserved

Description

The ones, tens, hundreds, thousands, and ten thousands places of this parameter define the active mode of terminals DI6 to DI8, respectively.

0: Active high

The DI terminals (DI6 to DI8) are active when connected to COM and inactive when disconnected from COM.

1: Active low

The DI terminals (DI6 to DI8) are inactive when connected to COM and active when disconnected from COM.

F4-25 **AI1 hardware source**

Address:	0xF419	Effective mode:	-
Min.:	0	Unit:	-
Max.:	308	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - AI1

2: Power supply unit - AI2

101: Extension card 1 - AI1

102: Extension card 1 - AI2

201: Extension card 2 - AI1

202: Extension card 2 - AI2

Description

This parameter defines the analog/temperature input source.

F4-27 **AI2 hardware source**

Address:	0xF41B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	308	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - AI1

2: Power supply unit - AI2

101: Extension card 1 - AI1

102: Extension card 1 - AI2

201: Extension card 2 - AI1

202: Extension card 2 - AI2

Description

This parameter defines the analog/temperature input source.

F4-29 **AI3 hardware source**

Address:	0xF41D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	308	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Not selected

1: Power supply unit - AI1

2: Power supply unit - AI2

101: Extension card 1 - AI1

102: Extension card 1 - AI2

201: Extension card 2 - AI1

202: Extension card 2 - AI2

Description

This parameter defines the analog/temperature input source.

F4-31 **Minimum input of AI curve 1**

Address:	0xF41F	Effective mode:	-
Min.:	–10.00	Unit:	V
Max.:	10.00	Data type:	Int16
Default:	0.00	Change:	In real time

Value Range:

–10.00 V to +10.00 V

Description

When the main frequency is set by analog input, the AI terminals are used as frequency sources. Five types of AI curves can be set for each AI terminal. The AI curve sets the relationship between the analog input voltage (or analog input current) and the percentage corresponding to the maximum frequency (F0-10). The x-axis of the AI curve indicates the analog input voltage (or analog input current), and the y-axis indicates the setpoint corresponding to the analog input, that is, the percentage to the maximum frequency (F0-10). Five AI curves are provided. Curves 1 to 3 are two-point curves, and the relevant parameters are F4-31 to F4-42. Curves 4 and 5 are four-point curves, and the relevant parameters are A6-00 to A6-15.
The two points on curves 1 to 3 are the minimum input point and maximum input point, respectively. F4-31 defines the x-axis of the minimum input point on AI curve 1, that is, the minimum analog input voltage (or minimum analog input current).

F4-32 **Percentage corresponding to minimum input of AI curve 1**

Address:	0xF420	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:
–100.0% to +100.0%
Description
This parameter defines the y-axis of the minimum input point on AI curve 1, that is, the percentage of the minimum analog input relative to the maximum frequency.

F4-33 **Maximum input of AI curve 1**

Address:	0xF421	Effective mode:	-
Min.:	–10.00	Unit:	V
Max.:	10.00	Data type:	Int16
Default:	10.00	Change:	In real time

Value Range:
–10.00 V to +10.00 V
Description
This parameter defines the x-axis of the maximum input point on AI curve 1, that is, the maximum analog input voltage (or maximum analog input current).

F4-34 **Percentage corresponding to maximum input of AI curve 1**

Address:	0xF422	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	100.0	Change:	In real time

Value Range:
–100.0% to +100.0%
Description
This parameter defines the y-axis of the maximum input point on AI curve 1, that is, the percentage of the maximum analog input relative to the maximum frequency.

F4-35 **Minimum input of AI curve 2**

Address:	0xF423	Effective mode:	-
Min.:	–10.00	Unit:	V
Max.:	10.00	Data type:	Int16
Default:	0.00	Change:	In real time

Value Range:
–10.00 V to +10.00 V
Description
This parameter defines the x-axis of the minimum input point on AI curve 2, that is, the minimum analog input voltage (or minimum analog input current).

F4-36 **Percentage corresponding to minimum input of AI curve 2**

Address:	0xF424	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:
–100.0% to +100.0%
Description
This parameter defines the y-axis of the minimum input point on AI curve 2, that is, the percentage of the minimum analog input relative to the maximum frequency.

F4-37 **Maximum input of AI curve 2**

Address:	0xF425	Effective mode:	-
Min.:	–10.00	Unit:	V
Max.:	10.00	Data type:	Int16
Default:	10.00	Change:	In real time

Value Range:
–10.00 V to +10.00 V
Description
This parameter defines the x-axis of the maximum input point on AI curve 2, that is, the maximum analog input voltage (or maximum analog input current).

F4-38 **Percentage corresponding to maximum input of AI curve 2**

Address:	0xF426	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	100.0	Change:	In real time

Value Range:
–100.0% to +100.0%
Description
This parameter defines the y-axis of the maximum input point on AI curve 2, that is, the percentage of the maximum analog input relative to the maximum frequency.

F4-39 **Minimum input of AI curve 3**

Address:	0xF427	Effective mode:	-
Min.:	–10.00	Unit:	V
Max.:	10.00	Data type:	Int16
Default:	0.00	Change:	In real time

Value Range:
–10.00 V to +10.00 V
Description
This parameter defines the x-axis of the minimum input point on AI curve 3, that is, the minimum analog input voltage (or minimum analog input current).

F4-40 **Percentage corresponding to minimum input of AI curve 3**

Address:	0xF428	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:

–100.0% to +100.0%

Description

This parameter defines the y-axis of the minimum input point on AI curve 3, that is, the percentage of the minimum analog input relative to the maximum frequency.

F4-41 **Maximum input of AI curve 3**

Address:	0xF429	Effective mode:	-
Min.:	–10.00	Unit:	V
Max.:	10.00	Data type:	Int16
Default:	10.00	Change:	In real time

Value Range:

–10.00 V to +10.00 V

Description

This parameter defines the x-axis of the maximum input point on AI curve 3, that is, the maximum analog input voltage (or maximum analog input current).

F4-42 **Percentage corresponding to maximum input of AI curve 3**

Address:	0xF42A	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	100.0	Change:	In real time

Value Range:

–100.0% to +100.0%

Description

This parameter defines the y-axis of the maximum input point on AI curve 3, that is, the percentage of the maximum analog input relative to the maximum frequency.

F4-48 **AI curve**

Address:	0xF430	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1365	Data type:	UInt16
Default:	801	Change:	In real time

Value Range:

Ones:

1: Curve 1 (2 points)

2: Curve 2 (2 points)

3: Curve 3 (2 points)

4: Curve 4 (4 points)

5: Curve 5 (4 points)

Tens:

1: Curve 1 (2 points)

2: Curve 2 (2 points)

3: Curve 3 (2 points)

4: Curve 4 (4 points)

5: Curve 5 (4 points)
Hundreds:
1: Curve 1 (2 points)
2: Curve 2 (2 points)
3: Curve 3 (2 points)
4: Curve 4 (4 points)
5: Curve 5 (4 points)

Description

The curves for AI1 to AI3 are set through the ones, tens, and hundreds places of this parameter. You can select any AI curve for each AI.

1: Curve 1 (2 points)
Two-point curve. The relationship between the voltage and frequency is set by F4-31 to F4-34.
2: Curve 2 (2 points)
Two-point curve. The relationship between the voltage and frequency is set by F4-35 to F4-38.
3: Curve 3 (2 points)
Two-point curve. The relationship between the voltage and frequency is set by F4-39 to F4-42.
4: Curve 4 (4 points)
Four-point curve. The relationship between the voltage and frequency is set by A6-00 to A6-07.
5: Curve 5 (4 points)
Four-point curve. The relationship between the voltage and frequency is set by A6-08 to A6-15.

F4-49 **Setting for AI less than minimum input**

Address:	0xF431	Effective mode:	-
Min.:	0	Unit:	-
Max.:	111	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

Ones:
0: Percentage corresponding to minimum input
1: 0.0%
Tens:
0: Percentage corresponding to minimum input
1: 0.0%
Hundreds:
0: Percentage corresponding to minimum input
1: 0.0%

Description

The settings for AI1 to AI3 less than the minimum input are set through the ones, tens, and hundreds places of this parameter.

0: Percentage corresponding to minimum input
When the AI input is less than the minimum setting value, the frequency is calculated based on the minimum input
1: 0.0%
When the AI input is less than the minimum setting value, the frequency is calculated based on the AI input being 0.0%

2.6 F5: Output Terminal Parameters

F5-00 **DO1/RO1 hardware source**

Address:	0xF500	Effective mode:	-
Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Not selected

1: Power supply unit - DIO1

2: Power supply unit - DIO2

3: Power supply unit - DIO3

4: Power supply unit - DIO4

5: Power supply unit - RO1

101: Extension card 1 - DO1/RO1

102: Extension card 1 - DO2/RO2

103: Extension card 1 - DO3/RO3

104: Extension card 1 - DO4/RO4

105: Extension card 1 - DO5/RO5

106: Extension card 1 - DO6/RO6

107: Extension card 1 - DO7/RO7

108: Extension card 1 - DO8/RO8

201: Extension card 2 - DO1/RO1

202: Extension card 2 - DO2/RO2

203: Extension card 2 - DO3/RO3

204: Extension card 2 - DO4/RO4

205: Extension card 2 - DO5/RO5

206: Extension card 2 - DO6/RO6

207: Extension card 2 - DO7/RO7

208: Extension card 2 - DO8/RO8

Description

This parameter defines the hardware source of the output terminal.

F5-01 **DO1/RO1 function**

Address:	0xF501	Effective mode:	-
Min.:	0	Unit:	-
Max.:	51	Data type:	UInt16
Default:	3	Change:	In real time

Value Range:

0: No output

1: AC drive in running

2: Ready to run

3: Fault output 1 (stop upon fault)

4: Fault output 2

5: Fault output 3

6: Abnormal output (direct output upon fault or alarm)

7: Motor overload pre-warning

8: AC drive overload pre-warning

9: Motor overtemperature pre-warning
10: AC drive load loss output
11: Undervoltage state output
12: Output overcurrent
13: Frequency-level detection FDT1 output
14: Frequency-level detection FDT2 output
15: Frequency reach
16: Frequency 1 reach output
17: Frequency 2 reach output
18: Frequency upper limit reach
19: Frequency lower limit reach (output at stop)
20: Frequency lower limit reach (no output at stop)
21: Timing reach output
22: Accumulative power-on duration reach
23: Accumulative running duration reach
24: Current running duration reach
25: Zero current state
26: Current 1 reach output
27: Current 2 reach output
28: IGBT temperature reach
29: Reference count value reach
30: Designated count value reach
31: Length reach
32: Frequency limit reach
33: Torque limit reach
34: AI1 input overlimit
35: AI1 > AI2
36: PLC cycle completion
37: Communication setting
38: STO-EDM
39: Reserved
40: Running at zero speed 2 (no output at stop)
41: Running at zero speed 2 (output at stop)
42: Reserved
43: Reverse running
44: Process 1
45: Process 2
46: Process 3
47: Process 4
48: Process 5
49: Process 6
50: Process 7
53: Brake output

Description

This parameter defines the function of the output terminal.

F5-02 **DO2/RO2 hardware source**

Address:	0xF502	Effective mode:	-
Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Not selected

1: Power supply unit - DIO1

2: Power supply unit - DIO2

3: Power supply unit - DIO3

4: Power supply unit - DIO4

5: Power supply unit - RO1

101: Extension card 1 - DO1/RO1

102: Extension card 1 - DO2/RO2

103: Extension card 1 - DO3/RO3

104: Extension card 1 - DO4/RO4

105: Extension card 1 - DO5/RO5

106: Extension card 1 - DO6/RO6

107: Extension card 1 - DO7/RO7

108: Extension card 1 - DO8/RO8

201: Extension card 2 - DO1/RO1

202: Extension card 2 - DO2/RO2

203: Extension card 2 - DO3/RO3

204: Extension card 2 - DO4/RO4

205: Extension card 2 - DO5/RO5

206: Extension card 2 - DO6/RO6

207: Extension card 2 - DO7/RO7

208: Extension card 2 - DO8/RO8

Description

Same as F5-00

F5-03 **DO2/RO2 function**

Address:	0xF503	Effective mode:	-
Min.:	0	Unit:	-
Max.:	51	Data type:	UInt16
Default:	15	Change:	In real time

Value Range:

0: No output

1: AC drive in running

2: Ready to run

3: Fault output 1 (stop upon fault)

4: Fault output 2

5: Fault output 3

6: Abnormal output (direct output upon fault or alarm)

7: Motor overload pre-warning

8: AC drive overload pre-warning

9: Motor overtemperature pre-warning

10: AC drive load loss output

11: Undervoltage state output
12: Output overcurrent
13: Frequency-level detection FDT1 output
14: Frequency-level detection FDT2 output
15: Frequency reach
16: Frequency 1 reach output
17: Frequency 2 reach output
18: Frequency upper limit reach
19: Frequency lower limit reach (output at stop)
20: Frequency lower limit reach (no output at stop)
21: Timing reach output
22: Accumulative power-on duration reach
23: Accumulative running duration reach
24: Current running duration reach
25: Zero current state
26: Current 1 reach output
27: Current 2 reach output
28: IGBT temperature reach
29: Reference count value reach
30: Designated count value reach
31: Length reach
32: Frequency limit reach
33: Torque limit reach
34: AI1 input overlimit
35: AI1 > AI2
36: PLC cycle completion
37: Communication setting
38: STO-EDM
39: Reserved
40: Running at zero speed 2 (no output at stop)
41: Running at zero speed 2 (output at stop)
42: Reserved
43: Reverse running
44: Process 1
45: Process 2
46: Process 3
47: Process 4
48: Process 5
49: Process 6
50: Process 7
53: Brake output

Description

Same as F5-01

F5-04 **DO3/RO3 hardware source**

Address: 0xF504 Effective mode: -

Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Not selected

1: Power supply unit - DIO1

2: Power supply unit - DIO2

3: Power supply unit - DIO3

4: Power supply unit - DIO4

5: Power supply unit - RO1

101: Extension card 1 - DO1/RO1

102: Extension card 1 - DO2/RO2

103: Extension card 1 - DO3/RO3

104: Extension card 1 - DO4/RO4

105: Extension card 1 - DO5/RO5

106: Extension card 1 - DO6/RO6

107: Extension card 1 - DO7/RO7

108: Extension card 1 - DO8/RO8

201: Extension card 2 - DO1/RO1

202: Extension card 2 - DO2/RO2

203: Extension card 2 - DO3/RO3

204: Extension card 2 - DO4/RO4

205: Extension card 2 - DO5/RO5

206: Extension card 2 - DO6/RO6

207: Extension card 2 - DO7/RO7

208: Extension card 2 - DO8/RO8

Description

Same as F5-00

F5-05 **DO3/RO3 function**

Address:	0xF505	Effective mode:	-
Min.:	0	Unit:	-
Max.:	51	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: No output

1: AC drive in running

2: Ready to run

3: Fault output 1 (stop upon fault)

4: Fault output 2

5: Fault output 3

6: Abnormal output (direct output upon fault or alarm)

7: Motor overload pre-warning

8: AC drive overload pre-warning

9: Motor overtemperature pre-warning

10: AC drive load loss output

11: Undervoltage state output

12: Output overcurrent

13: Frequency-level detection FDT1 output
14: Frequency-level detection FDT2 output
15: Frequency reach
16: Frequency 1 reach output
17: Frequency 2 reach output
18: Frequency upper limit reach
19: Frequency lower limit reach (output at stop)
20: Frequency lower limit reach (no output at stop)
21: Timing reach output
22: Accumulative power-on duration reach
23: Accumulative running duration reach
24: Current running duration reach
25: Zero current state
26: Current 1 reach output
27: Current 2 reach output
28: IGBT temperature reach
29: Reference count value reach
30: Designated count value reach
31: Length reach
32: Frequency limit reach
33: Torque limit reach
34: AI1 input overlimit
35: AI1 > AI2
36: PLC cycle completion
37: Communication setting
38: STO-EDM
39: Reserved
40: Running at zero speed 2 (no output at stop)
41: Running at zero speed 2 (output at stop)
42: Reserved
43: Reverse running
44: Process 1
45: Process 2
46: Process 3
47: Process 4
48: Process 5
49: Process 6
50: Process 7
53: Brake output

Description

Same as F5-01

F5-06 **DO4/RO4 hardware source**

Address:	0xF506	Effective mode:	-
Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0: Not selected
1: Power supply unit - DIO1
2: Power supply unit - DIO2
3: Power supply unit - DIO3
4: Power supply unit - DIO4
5: Power supply unit - RO1
101: Extension card 1 - DO1/RO1
102: Extension card 1 - DO2/RO2
103: Extension card 1 - DO3/RO3
104: Extension card 1 - DO4/RO4
105: Extension card 1 - DO5/RO5
106: Extension card 1 - DO6/RO6
107: Extension card 1 - DO7/RO7
108: Extension card 1 - DO8/RO8
201: Extension card 2 - DO1/RO1
202: Extension card 2 - DO2/RO2
203: Extension card 2 - DO3/RO3
204: Extension card 2 - DO4/RO4
205: Extension card 2 - DO5/RO5
206: Extension card 2 - DO6/RO6
207: Extension card 2 - DO7/RO7
208: Extension card 2 - DO8/RO8

Description
Same as F5-00

F5-07 **DO4/RO4 function**

Address:	0xF507	Effective mode:	-
Min.:	0	Unit:	-
Max.:	51	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0: No output
1: AC drive in running
2: Ready to run
3: Fault output 1 (stop upon fault)
4: Fault output 2
5: Fault output 3
6: Abnormal output (direct output upon fault or alarm)
7: Motor overload pre-warning
8: AC drive overload pre-warning
9: Motor overtemperature pre-warning
10: AC drive load loss output
11: Undervoltage state output
12: Output overcurrent
13: Frequency-level detection FDT1 output
14: Frequency-level detection FDT2 output

15: Frequency reach
16: Frequency 1 reach output
17: Frequency 2 reach output
18: Frequency upper limit reach
19: Frequency lower limit reach (output at stop)
20: Frequency lower limit reach (no output at stop)
21: Timing reach output
22: Accumulative power-on duration reach
23: Accumulative running duration reach
24: Current running duration reach
25: Zero current state
26: Current 1 reach output
27: Current 2 reach output
28: IGBT temperature reach
29: Reference count value reach
30: Designated count value reach
31: Length reach
32: Frequency limit reach
33: Torque limit reach
34: AI1 input overlimit
35: AI1 > AI2
36: PLC cycle completion
37: Communication setting
38: STO-EDM
39: Reserved
40: Running at zero speed 2 (no output at stop)
41: Running at zero speed 2 (output at stop)
42: Reserved
43: Reverse running
44: Process 1
45: Process 2
46: Process 3
47: Process 4
48: Process 5
49: Process 6
50: Process 7
53: Brake output

Description

Same as F5-01

F5-08 **DO5/RO5 hardware source**

Address:	0xF508	Effective mode:	-
Min.:	0	Unit:	-
Max.:	208	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Not selected

1: Power supply unit - DIO1
2: Power supply unit - DIO2
3: Power supply unit - DIO3
4: Power supply unit - DIO4
5: Power supply unit - RO1
101: Extension card 1 - DO1/RO1
102: Extension card 1 - DO2/RO2
103: Extension card 1 - DO3/RO3
104: Extension card 1 - DO4/RO4
105: Extension card 1 - DO5/RO5
106: Extension card 1 - DO6/RO6
107: Extension card 1 - DO7/RO7
108: Extension card 1 - DO8/RO8
201: Extension card 2 - DO1/RO1
202: Extension card 2 - DO2/RO2
203: Extension card 2 - DO3/RO3
204: Extension card 2 - DO4/RO4
205: Extension card 2 - DO5/RO5
206: Extension card 2 - DO6/RO6
207: Extension card 2 - DO7/RO7
208: Extension card 2 - DO8/RO8

Description

Same as F5-00

F5-09 **DO5/RO5 function**

Address:	0xF509	Effective mode:	-
Min.:	0	Unit:	-
Max.:	51	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: No output
1: AC drive in running
2: Ready to run
3: Fault output 1 (stop upon fault)
4: Fault output 2
5: Fault output 3
6: Abnormal output (direct output upon fault or alarm)
7: Motor overload pre-warning
8: AC drive overload pre-warning
9: Motor overtemperature pre-warning
10: AC drive load loss output
11: Undervoltage state output
12: Output overcurrent
13: Frequency-level detection FDT1 output
14: Frequency-level detection FDT2 output
15: Frequency reach
16: Frequency 1 reach output

17: Frequency 2 reach output
18: Frequency upper limit reach
19: Frequency lower limit reach (output at stop)
20: Frequency lower limit reach (no output at stop)
21: Timing reach output
22: Accumulative power-on duration reach
23: Accumulative running duration reach
24: Current running duration reach
25: Zero current state
26: Current 1 reach output
27: Current 2 reach output
28: IGBT temperature reach
29: Reference count value reach
30: Designated count value reach
31: Length reach
32: Frequency limit reach
33: Torque limit reach
34: AI1 input overlimit
35: AI1 > AI2
36: PLC cycle completion
37: Communication setting
38: STO-EDM
39: Reserved
40: Running at zero speed 2 (no output at stop)
41: Running at zero speed 2 (output at stop)
42: Reserved
43: Reverse running
44: Process 1
45: Process 2
46: Process 3
47: Process 4
48: Process 5
49: Process 6
50: Process 7
53: Brake output

Description

Same as F5-01

F5-10 **DO1/RO1 output delay**

Address:	0xF50A	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	3600.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 3600.0s

Description

This parameter defines the delay of the DO/RO terminal state change.

F5-11 **DO2/RO2 output delay**

Address:	0xF50B	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	3600.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 3600.0s

Description

This parameter defines the delay of the DO/RO terminal state change.

F5-12 **DO3/RO3 output delay**

Address:	0xF50C	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	3600.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 3600.0s

Description

This parameter defines the delay of the DO/RO terminal state change.

F5-13 **DO4/RO4 output delay**

Address:	0xF50D	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	3600.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 3600.0s

Description

This parameter defines the delay of the DO/RO terminal state change.

F5-14 **DO5/RO5 output delay**

Address:	0xF50E	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	3600.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 3600.0s

Description

This parameter defines the delay of the DO/RO terminal state change.

F5-15 **DO/RO active mode**

Address:	0xF50F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	11111	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

Ones:

0: Positive logic active

1: Negative logic active

Tens:

0: Positive logic active

1: Negative logic active
Hundreds:
0: Positive logic active
1: Negative logic active
Thousands:
0: Positive logic active
1: Negative logic active
Ten thousands:
0: Positive logic active
1: Negative logic active

Description

0: Positive logic active (same as NO contact)
The DO terminal is active when it is internally connected to the COM terminal.
The DO terminal is inactive when it is disconnected from the COM terminal.
1: Negative logic active (same as NC contact)
The DO terminal is active when it is disconnected from the COM terminal.
The DO terminal is inactive when it is internally connected to the COM terminal.

2.7 F6: Start/Stop Control Parameters

F6-00 **Start mode**

Address:	0xF600	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Direct start
1: Flying start (asynchronous motor)
2: Pre-excitation start (asynchronous motor)

Description

0: Direct start
This mode is applicable to most loads. Startup with the startup frequency is applicable to load hoisting applications such as elevators and cranes.
1: Flying start
In some applications, the motor rotates before the AC drive is started. With this setting, the AC drive can automatically track the motor speed and direction to start the rotating motor smoothly without impact. For example, when transient power failure occurs, the AC drive restarts but the motor is still rotating due to inertia. In this case, the AC drive must detect the actual speed of the motor first to control the asynchronous motor again. Otherwise, overcurrent or overvoltage can occur on the AC drive during start, which may damage the power transistor of the AC drive.
2: Pre-excitation start (asynchronous motor)
This mode applies only to asynchronous motors in SVC or FVC mode. Performing pre-excitation on the motor before start improves the responsiveness of the motor and reduces the starting current. The startup timing is the same as that of DC braking restart.

F6-01 **Speed tracking mode**

Address:	0xF601	Effective mode:	-

Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: From stop frequency

1: From 50 Hz

2: From the maximum frequency

3: Fast flying start

Description

This parameter defines the starting frequency for speed tracking upon flying start.

F6-02 Speed of speed tracking

Address:	0xF602	Effective mode:	-
Min.:	1	Unit:	-
Max.:	100	Data type:	UInt16
Default:	20	Change:	In real time

Value Range:

1 to 100

Description

This parameter defines the speed coefficient for speed tracking. A larger value indicates faster speed. It applies only to flying start mode 0/1/2. The default value is recommended.

F6-03 Startup frequency

Address:	0xF603	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	10.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00 Hz to 10.00 Hz

Description

This parameter defines the startup frequency for direct start of the AC drive. When the startup frequency is higher than the frequency reference, the AC drive will not start but stay standby.

F6-04 Startup frequency hold time

Address:	0xF604	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	100.0	Data type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0s to 100.0s

Description

This parameter defines the hold time during which the output frequency remains at the startup frequency. After this hold time elapses, the AC drive will accelerate to the reference frequency.

F6-05 DC braking current/Pre-excitation current at startup

Address:	0xF605	Effective mode:	-
Min.:	0	Unit:	%
Max.:	100	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0% to 100%

Description

When startup with DC braking is enabled, the AC drive starts only after DC braking upon receiving the start command. A larger DC braking current indicates stronger braking force. 100% corresponds to the rated motor current (the current upper limit is 80% of the rated current of the AC drive).

F6-06 **DC braking time/Pre-excitation time at startup**

Address:	0xF606	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	100.0	Data type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0s to 100.0s

Description

This parameter defines the time for DC braking at startup, which applies only to the direct start mode.

F6-07 **Acceleration/Deceleration mode**

Address:	0xF607	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Linear acceleration/deceleration

1: S-curve acceleration/deceleration

2: Four-segment S-curve acceleration/deceleration

Description

This parameter defines the frequency change mode during the AC drive start and stop process.

0: The output frequency increases or decreases linearly.

1: When the target frequency changes dynamically in real time, the output frequency increases or decreases based on the S-curve. This mode is applicable to applications requiring supreme comfort and quick response in real time.

2: On the basis of 1, the start and end sections of acceleration and deceleration of the S-curve can be set by F6-26 to F6-29.

F6-10 **Stop mode**

Address:	0xF60A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Decelerate to stop

1: Coast to stop

Description

0: Decelerate to stop

Upon receiving the stop command, the AC drive decreases the output frequency to 0 based on the deceleration time and then stops.

1: Coast to stop

Upon receiving the stop command, the AC drive immediately stops output. The motor then coasts to stop under the action of the mechanical inertia.

F6-11 **DC braking/Position lock start frequency at stop**

Address:	0xF60B	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

The AC drive starts DC braking when the running frequency decreases to the value of this parameter during deceleration to stop.

F6-12 **Waiting time of DC braking at stop**

Address:	0xF60C	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	100.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 100.0s

Description

When the running frequency decreases to the DC braking start frequency at stop, the AC drive stops output for a period of time and then starts DC braking. This prevents faults such as overcurrent caused due to DC braking at high speed.

F6-13 **DC braking current at stop**

Address:	0xF60D	Effective mode:	-
Min.:	0	Unit:	%
Max.:	100	Data type:	UInt16
Default:	50	Change:	In real time

Value Range:

0% to 100%

Description

A larger DC braking current indicates stronger braking force. 100% corresponds to the rated motor current (the current upper limit is 80% of the rated current of the AC drive).

F6-14 **DC braking time at stop**

Address:	0xF60E	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	100.0	Data type:	UInt16
Default:	0.5	Change:	In real time

Value Range:

0.0s to 100.0s

Description

This parameter indicates the hold time of DC braking. If this parameter is set to 0, DC braking is disabled.

F6-15 **Brake usage**

Address:	0xF60F	Effective mode:	-
Min.:	0	Unit:	%
Max.:	100	Data type:	UInt16
Default:	100	Change:	At stop

Value Range:
0% to 100%
Description
This parameter defines the brake usage.

F6-16 **Closed-loop current Kp of speed tracking**

Address:	0xF610	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1000	Data type:	UInt16
Default:	500	Change:	In real time

Value Range:
0 to 1000
Description
This parameter defines the proportional gain of the current suppression PI regulator during speed tracking of flying start. It is valid when F6-01 (Speed tracking mode) is set to 0, 1, or 2.

F6-17 **Closed-loop current Ki of speed tracking**

Address:	0xF611	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1000	Data type:	UInt16
Default:	800	Change:	In real time

Value Range:
0 to 1000
Description
This parameter defines the integral gain of the current suppression PI regulator during speed tracking of flying start. It is valid when F6-01 (Speed tracking mode) is set to 0, 1, or 2.

F6-18 **Current of speed tracking**

Address:	0xF612	Effective mode:	-
Min.:	30	Unit:	-
Max.:	200	Data type:	UInt16
Default:	100	Change:	In real time

Value Range:
30 to 200
Description
Overcurrent may occur on the asynchronous motor during flying start due to large slip. Current limit is a must for preventing overcurrent. This parameter defines the motor current to be suppressed during speed tracking of flying start.

F6-19 **Gain coefficient of fast speed tracking**

Address:	0xF613	Effective mode:	-
Min.:	1.0	Unit:	-
Max.:	20.0	Data type:	UInt16
Default:	10.0	Change:	At stop

Value Range:
1.0 to 20.0
Description
This parameter defines the gain coefficient of fast speed tracking. It is valid when F6-01 (Speed tracking mode) is set to 3. A larger value indicates faster flying start.

F6-20 **Cut-off frequency of fast speed tracking**

Address: 0xF614 | Effective mode: -
Min.: 0.5 | Unit: Hz
Max.: 3.0 | Data type: UInt16
Default: 1.1 | Change: At stop

Value Range:

0.5 Hz to 3.0 Hz

Description

This parameter defines the cut-off frequency of fast speed tracking. It is valid when F6-01 (Speed tracking mode) is set to 3. The default value is recommended.

F6-21 **Demagnetization time**

Address: 0xF615 | Effective mode: -
Min.: 0.00 | Unit: s
Max.: 10.00 | Data type: UInt16
Default: 1.00 | Change: In real time

Value Range:

0.00s to 10.00s

Description

In vector control mode, when flying start is enabled (F6-00 = 1), the AC drive cannot be started when residual magnetism is still present in the motor. The AC drive can be started only after the voltage of the AC drive has been disconnected for at least the time set by F6-21 (Demagnetization time).

F6-22 **Startup pre-torque**

Address: 0xF616 | Effective mode: -
Min.: 0.0 | Unit: %
Max.: 200.0 | Data type: UInt16
Default: 0.0 | Change: In real time

Value Range:

0.0% to 200.0%

Description

This parameter defines the startup pre-torque setpoint, which can be used to speed up dynamic response of the motor.

F6-23 **Operation at command from power supply unit**

Address: 0xF617 | Effective mode: -
Min.: 0 | Unit: -
Max.: 1 | Data type: UInt16
Default: 0 | Change: At stop

Value Range:

0: Stop according to F6-10

1: Ignore stop command from the power supply unit

Description

This parameter defines whether the drive unit stops according to the specified mode when receiving a stop command from the power supply unit.

0: Stop according to the mode set by F6-10 (Stop mode) of the drive unit.

1: Continue to run, ignoring the stop command sent by the power supply unit.

F6-24 **Position lock Kp**

Address: 0xF618 | Effective mode: -

Min.:	0.0	Unit:	-
Max.:	100.0	Data type:	UInt16
Default:	10.0	Change:	In real time

Value Range:

0.0 to 100.0

Description

This parameter defines the proportional coefficient of position lock. A larger value indicates stronger rigidity.

F6-25 **Position lock end amplitude**

Address:	0xF619	Effective mode:	-
Min.:	0	Unit:	-
Max.:	16383	Data type:	UInt16
Default:	10	Change:	In real time

Value Range:

0 to 16383

Description

This parameter defines the position lock end amplitude. An excessively large value may cause vibration.

F6-26 **Time proportion of S-curve acceleration start segment**

Address:	0xF61A	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	30.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

This parameter defines the time proportion of the acceleration start segment of the S-curve. 100% corresponds to the acceleration time of the current frequency.

F6-27 **Time proportion of S-curve acceleration end segment**

Address:	0xF61B	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	30.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

This parameter defines the time proportion of the acceleration end segment of the S-curve. 100% corresponds to the acceleration time of the current frequency.

F6-28 **Time proportion of S-curve deceleration start segment**

Address:	0xF61C	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	30.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

This parameter defines the time proportion of the deceleration start segment of the S-curve. 100% corresponds to the deceleration time of the current frequency.

F6-29 Time proportion of S-curve deceleration end segment

Address:	0xF61D	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	30.0	Change:	At stop

Value Range:

0.0% to 100.0%

Description

This parameter defines the time proportion of the deceleration end segment of the S-curve. 100% corresponds to the deceleration time of the current frequency.

F6-30 Trial current for speed tracking of synchronous motor

Address:	0xF61E	Effective mode:	-
Min.:	5.0	Unit:	%
Max.:	50.0	Data type:	UInt16
Default:	20.0	Change:	At stop

Value Range:

5.0% to 50.0%

Description

This parameter defines the trial current for speed tracking of the synchronous motor. The default value is recommended.

F6-31 Minimum frequency for speed tracking of synchronous motor

Address:	0xF61F	Effective mode:	-
Min.:	0.0	Unit:	Hz
Max.:	100.0	Data type:	UInt16
Default:	0.0	Change:	At stop

Value Range:

0.0 Hz to 100.0 Hz

Description

This parameter defines the minimum speed tracking frequency for the synchronous motor. The default value is recommended.

F6-32 Angle compensation for speed tracking of synchronous motor

Address:	0xF620	Effective mode:	-
Min.:	0	Unit:	-
Max.:	360	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0 to 360

Description

This parameter defines the angle compensation for speed tracking of the synchronous motor. The default value is recommended.

F6-33 Proportion coefficient for speed tracking of synchronous motor

Address:	0xF621	Effective mode:	-
Min.:	0.1	Unit:	-

Max.:	10.0	Data type:	UInt16
Default:	2.0	Change:	At stop

Value Range:

0.1 to 10.0

Description

This parameter defines the proportion coefficient for speed tracking of the synchronous motor. The default value is recommended.

F6-34 **Integral coefficient for speed tracking of synchronous motor**

Address:	0xF622	Effective mode:	-
Min.:	0.1	Unit:	-
Max.:	10.0	Data type:	UInt16
Default:	6.0	Change:	At stop

Value Range:

0.1 to 10.0

Description

This parameter defines the integral coefficient for speed tracking of the synchronous motor. The default value is recommended.

F6-35 **Reverse running inhibition for flying start**

Address:	0xF623	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 2

Description

-

2.8 F7: Operating Panel and Display Parameters

F7-00 **IGBT module indicator testing**

Address:	0xF700	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 2

Description

-

F7-01 **MF.K key function**

Address:	0xF701	Effective mode:	-
Min.:	0	Unit:	-
Max.:	4	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: MF.K key disabled

1: Switchover between operating panel control and remote control (terminal I/O or communication)

2: Switchover between forward and reverse running

3: Forward jog

4: Reverse jog

Description

The MF.K key is a multi-functional key. This parameter is used to set the function of the MF.K key.

0: MF.K key disabled

The MF.K key does not work.

1: Switchover between operating panel control and remote control (terminal I/O control or communication control)

When F0-02 is set to 0 (operating panel), the MF.K key does not work. When F0-02 is set to 1 (terminal), the MF.K key is used for switchover between terminal I/O control and operating panel control. When F0-02 is set to 2 (communication), the MF.K key is used for switchover between the communication control and operating panel control.

2: Switchover between forward and reverse running

The MF.K key is used for changing the direction of the frequency reference. This function is valid only when the command source is set to operating panel control.

3: Forward jog

The MF.K key is used for enabling forward jog (FJOG). This function is valid only when the command source is set to operating panel control.

4: Reverse jog

The MF.K key is used for enabling reverse jog (RJOG). This function is available only when the command source is set to the operating panel.

F7-02 **STOP key function**

Address:	0xF702	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:

0: STOP/RES key enabled only under operating panel control

1: STOP/RES key enabled in any operating mode

Description

The STOP key on the operating panel is used for stop/reset. This parameter is used to set the function of this key.

0: STOP key enabled only under operating panel control

The STOP key is valid only in operating panel control mode.

1: STOP key enabled in any operating mode

The STOP key is valid in any operating mode.

F7-03 **LED display 1 during running**

Address:	0xF703	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	31	Change:	In real time

Value Range:

Bit0: Running frequency (Hz)

Bit1: Reference frequency (Hz)

Bit2: Bus voltage (V)

Bit3: Output voltage (V)
Bit4: Output current (A)
Bit5: Output power (kW)
Bit6: Output torque (%)
Bit7: DI state
Bit8: DO state
Bit9: AI1 voltage (V)
Bit10: AI2 voltage (V)
Bit11: AI3 voltage (V)
Bit12: Count value
Bit13: Length value
Bit14: Load speed
Bit15: PID reference

Description

To display a parameter during running, set the corresponding bit to 1, convert the binary number to a hexadecimal equivalent, and set it in F7-03.

For example, to display the parameters corresponding to bit0, bit7, bit8, and bit15, convert the corresponding binary number 1000 0001 1000 0001 into the hexadecimal equivalent, that is, 8181H.

F7-04 **LED display 2 during running**

Address:	0xF704	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

Bit0: PID feedback
Bit1: PLC stage
Bit2: Reserved
Bit3: Running frequency 2 (Hz)
Bit4: Remaining running time
Bit5: Reserved
Bit6: Reserved
Bit7: Reserved
Bit8: Linear speed
Bit9: Current power-on duration (Hour)
Bit10: Current running duration (min)
Bit11: Reserved
Bit12: Communication setpoint
Bit13: Reserved
Bit14: Main frequency X
Bit15: Auxiliary frequency Y

Description

To display a parameter during running, set the corresponding bit to 1, convert the binary number to a hexadecimal equivalent, and set it in F7-04.

For example, to display the parameters corresponding to bit0, bit7, bit8, and bit15, convert the corresponding binary number 1000 0001 1000 0001 into the hexadecimal equivalent, that is, 8181H.

F7-05 **LED display at stop**

Address:	0xF705	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	51	Change:	In real time

Value Range:

Bit0: Frequency reference (Hz)

Bit1: Bus voltage (V)

Bit2: DI state

Bit3: DO state

Bit4: AI1 voltage (V)

Bit5: AI2 voltage (V)

Bit6: AI3 voltage (V)

Bit7: Count value

Bit8: Length value

Bit9: PLC stage

Bit10: Load speed

Bit11: PID reference

Bit12: Reserved

Description

To display a parameter upon stop, set the corresponding bit to 1, convert the binary number to a hexadecimal equivalent, and set it in F7-05.

For example, to display the parameters corresponding to bit0, bit7, bit8, and bit15, convert the corresponding binary number 1000 0001 1000 0001 into the hexadecimal equivalent, that is, 8181H.

F7-06 **STO software version**

Address:	0xF706	Effective mode:	-
Min.:	0.0	Unit:	-
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0 to 6553.5

Description

This parameter shows the STO software version of the AC drive.

F7-07 **IGBT heatsink temperature**

Address:	0xF707	Effective mode:	-
Min.:	–20	Unit:	°C
Max.:	120	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

–20°C to +120°C

Description

This parameter shows the IGBT heatsink temperature.

F7-08 **Product SN**

Address:	0xF708	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1000	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 1000
Description
This parameter shows the product SN of the AC drive.

F7-09 **Accumulative running duration**

Address:	0xF709	Effective mode:	-
Min.:	0	Unit:	h
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 h to 65535 h
Description
This parameter shows the accumulative running duration of the AC drive.

F7-10 **Performance software version**

Address:	0xF70A	Effective mode:	-
Min.:	0.00	Unit:	-
Max.:	0.00	Data type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:
0.00 to 0.00
Description
This parameter shows the performance software version of the AC drive.

F7-11 **Function software version**

Address:	0xF70B	Effective mode:	-
Min.:	0.00	Unit:	-
Max.:	0.00	Data type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:
0.00 to 0.00
Description
This parameter shows the function software version of the AC drive.

F7-12 **Accumulative power-on duration**

Address:	0xF70C	Effective mode:	-
Min.:	0	Unit:	h
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 h to 65535 h
Description
This parameter shows the accumulative power-on duration of the AC drive.

F7-13 **Accumulative power generation**

Address:	0xF70D	Effective mode:	-
Min.:	0	Unit:	kWh
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 kWh to 65535 kWh

Description

This parameter shows the accumulative power generation of the AC drive.

F7-14 **Accumulative power consumption**

Address:	0xF70E	Effective mode:	-
Min.:	0	Unit:	kWh
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 kWh to 65535 kWh

Description

This parameter shows the accumulative power consumption of the AC drive.

F7-15 **Temporary performance software version**

Address:	0xF70F	Effective mode:	-
Min.:	0.00	Unit:	-
Max.:	0.00	Data type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:

0.00 to 0.00

Description

This parameter shows the temporary performance software version.

F7-16 **Temporary function software version**

Address:	0xF710	Effective mode:	-
Min.:	0.00	Unit:	-
Max.:	0.00	Data type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:

0.00 to 0.00

Description

This parameter shows the temporary function software version.

2.9 F8: Auxiliary Function Parameters

F8-00 **Jog frequency**

Address:	0xF800	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	2.00	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

This parameter defines the running frequency of the AC drive in jogging mode.

F8-01 **Jog acceleration time**

Address:	0xF801	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	6500.0	Data type:	UInt16

Default: 20.0 Change: In real time

Value Range:

0.0s to 6500.0s

Description

This parameter defines the acceleration time of the AC drive in jogging mode.

F8-02 **Jog deceleration time**

Address:	0xF802	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	6500.0	Data type:	UInt16
Default:	20.0	Change:	In real time

Value Range:

0.0s to 6500.0s

Description

This parameter defines the deceleration time of the AC drive in jogging mode.

F8-03 **Acceleration time 2**

Address:	0xF803	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	6500.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 6500.0s

Description

The AC drive provides four groups of acceleration time, which can be switched by using the DI terminal. This parameter defines the second group of acceleration time.

F8-04 **Deceleration time 2**

Address:	0xF804	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	6500.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 6500.0s

Description

The AC drive provides four groups of deceleration time, which can be switched by using the DI terminal. This parameter defines the second group of deceleration time.

F8-05 **Acceleration time 3**

Address:	0xF805	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	6500.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 6500.0s

Description

The AC drive provides four groups of acceleration time, which can be switched by using the DI terminal. This parameter defines the third group of acceleration time.

F8-06 **Deceleration time 3**

Address:	0xF806	Effective mode:	-

Min.: 0.0 | Unit: s
Max.: 6500.0 | Data type: UInt16
Default: 0.0 | Change: In real time

Value Range:

0.0s to 6500.0s

Description

The AC drive provides four groups of deceleration time, which can be switched by using the DI terminal. This parameter defines the third group of deceleration time.

F8-07 **Acceleration time 4**

Address: 0xF807 | Effective mode: -
Min.: 0.0 | Unit: s
Max.: 6500.0 | Data type: UInt16
Default: 0.0 | Change: In real time

Value Range:

0.0s to 6500.0s

Description

The AC drive provides four groups of acceleration time, which can be switched by using the DI terminal. This parameter defines the fourth group of acceleration time.

F8-08 **Deceleration time 4**

Address: 0xF808 | Effective mode: -
Min.: 0.0 | Unit: s
Max.: 6500.0 | Data type: UInt16
Default: 0.0 | Change: In real time

Value Range:

0.0s to 6500.0s

Description

The AC drive provides four groups of deceleration time, which can be switched by using the DI terminal. This parameter defines the fourth group of deceleration time.

F8-09 **Skip frequency 1**

Address: 0xF809 | Effective mode: -
Min.: 0.00 | Unit: Hz
Max.: 655.35 | Data type: UInt16
Default: 0.00 | Change: In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

The skip frequency enables the AC drive to avoid any frequency at which a mechanical resonance may occur. This parameter defines the first skip frequency. If it is set to 0, the first skip frequency is canceled.

F8-10 **Skip frequency 2**

Address: 0xF80A | Effective mode: -
Min.: 0.00 | Unit: Hz
Max.: 655.35 | Data type: UInt16
Default: 0.00 | Change: In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

The skip frequency enables the AC drive to avoid any frequency at which a mechanical resonance may occur. This parameter defines the second skip frequency. If it is set to 0, the second skip frequency is canceled.

F8-11 **Skip frequency band**

Address:	0xF80B	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	5.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00 Hz to 5.00 Hz

Description

When the running frequency approaches the skip frequency during acceleration, the AC drive runs for a period at the current frequency and then skips over the skip frequency. The skip range is twice the value of F8-11 (Skip frequency band).

When the running frequency approaches the skip frequency during deceleration, the AC drive runs for a period at the current frequency and then skips over the skip frequency. The skip range is twice the value of F8-11 (Skip frequency band).

F8-12 **Skip frequency enable during acceleration/deceleration**

Address:	0xF80C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Disabled

1: Enabled

Description

This parameter defines whether to enable the skip frequency function during acceleration and deceleration.

0: Disabled

The skip frequency is invalid during acceleration and deceleration.

1: Enabled

The skip frequency is valid during acceleration and deceleration.

F8-13 **FWD/REV switchover deadzone time**

Address:	0xF80D	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	3000.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 3000.0s

Description

This parameter defines the transition time at 0 Hz output during transition between forward running and reverse running.

F8-14 **Reverse run inhibition**

Address:	0xF80E	Effective mode:	-
Min.:	0	Unit:	-

Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Disabled

1: Enabled

Description

When F8-14 (Reverse run inhibition) is set to 1, the motor runs at zero frequency when a reverse run command is input to the AC drive.

F8-15 **Running mode when frequency reference lower than lower limit**

Address:	0xF80F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Run at frequency lower limit

1: Stop

2: Run at zero speed

Description

0: Run at frequency lower limit

If the running frequency is lower than the frequency lower limit, the AC drive runs at the frequency lower limit.

1: Stop

If the running frequency is lower than the frequency lower limit, the AC drive stops.

2: Run at zero speed

If the running frequency is lower than the frequency lower limit, the AC drive runs at zero speed.

F8-17 **Active mode of external fault NO input**

Address:	0xF811	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Always active

1: Active only during running

Description

This parameter defines the active mode of DI function 10 (external fault NO input).

0: Always active

E15.01 is reported whenever DI function 10 (external fault NO input) is triggered.

1: Active only during running

E15.01 is reported when DI function 10 (external fault NO input) is triggered during running.

F8-18 **Active mode of external fault NC input**

Address:	0xF812	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Always active

1: Active only during running

Description

This parameter defines the active mode of DI function 11 (external fault NC input).

0: Always active

E15.02 is reported whenever DI function 11 (external fault NC input) is triggered.

1: Active only during running

E15.02 is reported when DI function 11 (external fault NC input) is triggered during running.

F8-19 **Accumulative power-on duration threshold**

Address:	0xF813	Effective mode:	-
Min.:	0	Unit:	h
Max.:	65000	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 h to 65000 h

Description

This parameter defines the accumulative power-on duration threshold of the AC drive. When F7-12 (Accumulative power-on duration) exceeds F8-19 (Accumulative power-on duration threshold), the DO/RO terminal outputs an active signal.

F8-20 **Accumulative running duration threshold**

Address:	0xF814	Effective mode:	-
Min.:	0	Unit:	h
Max.:	65000	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 h to 65000 h

Description

This parameter defines the accumulative running duration threshold of the AC drive. When F7-09 (Accumulative running duration) exceeds F8-20 (Accumulative running duration threshold), the DO/RO terminal outputs an active signal.

F8-21 **Startup protection**

Address:	0xF815	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Disabled

1: Enabled

Description

The AC drive is equipped with the startup protection function to prevent the motor from responding to commands upon unexpected power-on or fault reset.

F8-22 **Frequency detection value 1 (FDT1)**

Address:	0xF816	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	50.00	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

When the running frequency is higher than the frequency detection value (FDT1), the DO terminal outputs an active signal; when the running frequency is lower than the result of the frequency detection value (FDT1) minus the frequency detection hysteresis (FDT1), the DO terminal outputs an inactive signal. The valid value range is 0.00 Hz to F0-10 (Maximum frequency).

F8-23 Frequency detection hysteresis 1 (FDT1)

Address:	0xF817	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	2.50	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

When the running frequency is higher than F8-22 (Frequency detection value 1), the DO terminal outputs an active signal. When the running frequency is lower than a specific value (F8-22 minus F8-23), the DO terminal outputs an inactive signal.

F8-24 Frequency detection value 2 (FDT2)

Address:	0xF818	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	50.00	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

When the running frequency is higher than the frequency detection value (FDT2), the DO terminal outputs an active signal; when the running frequency is lower than the result of the frequency detection value (FDT2) minus the frequency detection hysteresis (FDT2), the DO terminal outputs an inactive signal. The valid value range is 0.00 Hz to F0-10 (Maximum frequency).

F8-25 Frequency detection hysteresis 2 (FDT2)

Address:	0xF819	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	2.50	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

When the running frequency is higher than F8-24 (Frequency detection value 2), the DO terminal outputs an active signal. When the running frequency is lower than a specific value (F8-24 minus F8-25), the DO terminal outputs an inactive signal.

F8-26 Frequency detection range

Address:	0xF81A	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	2.50	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

The DO terminal outputs an active signal when the running frequency of the AC drive falls within the specified range (Frequency reference±F8-26).

F8-27 **Frequency reach detection value 1**

Address:	0xF81B	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	50.00	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

When the running frequency of the AC drive is within the frequency detection range, the DO terminal outputs an active signal. The valid value range is 0.00 Hz to F0-10 (Maximum frequency).

F8-28 **Frequency reach detection width 1**

Address:	0xF81C	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	2.50	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

This parameter defines frequency reach detection width 1. The frequency detection range is F8-27 (Frequency reach detection value 1) ± F8-28 (Frequency reach detection width 1).

F8-29 **Frequency 1 reach detection mode**

Address:	0xF81D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Always detect

1: Not detect during acceleration/deceleration

Description

Assign a DO terminal with function 16 (Frequency 1 reach output).

0: Detect at any time

The DO terminal assigned with function 16 outputs an active signal whenever the frequency satisfies the detection condition.

1: Not detect during acceleration/deceleration

The DO terminal assigned with function 16 does not output during acceleration and deceleration even if the frequency satisfies the detection condition.

F8-30 **Frequency reach detection value 2**

Address:	0xF81E	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	50.00	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

When the running frequency of the AC drive is within the frequency detection range, the DO terminal outputs an active signal. The valid value range is 0.00 Hz to F0-10 (Maximum frequency).

F8-31 **Frequency reach detection width 2**

Address:	0xF81F	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	2.50	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

This parameter defines frequency reach detection width 2. The frequency detection range is F8-30 (Frequency reach detection value 2) ± F8-31 (Frequency reach detection width 2).

F8-32 **Frequency 2 reach detection mode**

Address:	0xF820	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Always detect

1: Not detect during acceleration/deceleration

Description

Assign a DO terminal with function 17 (Frequency 2 reach output).

0: Detect at any time

The DO terminal assigned with function 17 outputs an active signal whenever the frequency satisfies the detection condition.

1: Not detect during acceleration/deceleration

The DO terminal assigned with function 17 does not output during acceleration and deceleration even if the frequency satisfies the detection condition.

F8-35 **Frequency threshold for switching between acceleration time 1 and acceleration time 2**

Address:	0xF823	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

This function is used to switch the acceleration/deceleration time based on the running frequency range when the AC drive is running. This function is available only when motor 1 is selected (F0-24 = 0) and the DI terminal is not assigned with function 16 (acceleration/deceleration time selection terminal 1) or 17 (acceleration/deceleration time selection terminal 2).

The valid value range is 0.00 Hz to F0-10 (Maximum frequency).

F8-36 **Frequency threshold for switching between deceleration time 1 and deceleration time 2**

Address:	0xF824	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16

Default: 0.00 Change: In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

This function is used to switch the acceleration/deceleration time based on the running frequency range when the AC drive is running. This function is available only when motor 1 is selected (F0-24 = 0) and the DI terminal is not assigned with function 16 (acceleration/deceleration time selection terminal 1) or 17 (acceleration/deceleration time selection terminal 2).

The valid value range is 0.00 Hz to F0-10 (Maximum frequency).

F8-37 **Jog preference**

Address:	0xF825	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

This parameter defines whether to set the highest priority to the terminal jog function. If it is set to 1, the AC drive enters the jog running state immediately when any of F4-00 to F4-09 is set to 4 (forward jog) or 5 (reverse jog).

F8-38 **Zero current detection level**

Address:	0xF826	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	300.0	Data type:	UInt16
Default:	5.0	Change:	In real time

Value Range:

0.0% to 300.0%

Description

When the output current of the AC drive is lower than or equal to F8-38 (Zero current detection level) for longer than the time set by F8-39 (Zero current detection delay), the DO terminal outputs an active signal.

F8-39 **Zero current detection delay**

Address:	0xF827	Effective mode:	-
Min.:	0.01	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.10	Change:	In real time

Value Range:

0.01s to 600.00s

Description

When the output current of the AC drive is lower than or equal to F8-38 (Zero current detection level) for longer than the time set by F8-39 (Zero current detection delay), the DO terminal outputs an active signal.

F8-40 **Output overcurrent threshold**

Address:	0xF828	Effective mode:	-
Min.:	0.0	Unit:	%

Max.:	300.0	Data type:	UInt16
Default:	200.0	Change:	In real time

Value Range:

0.0% to 300.0%

Description

When the output current of the AC drive is higher than F8-40 (Output current threshold) for longer than the time set by F8-41 (Software overcurrent detection delay), the DO terminal outputs an active signal.

F8-41 **Software overcurrent detection delay**

Address:	0xF829	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	600.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 600.00s

Description

When the output current of the AC drive is higher than F8-40 (Output current threshold) for longer than the time set by F8-41 (Software overcurrent detection delay), the DO terminal outputs an active signal.

F8-42 **Detection level of current 1**

Address:	0xF82A	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	300.0	Data type:	UInt16
Default:	100.0	Change:	In real time

Value Range:

0.0% to 300.0%

Description

When the output current of the AC drive is within the range of F8-42 (Detection level of current 1) ± F8-43 (Detection width of current 1) x F1-03 (Rated motor current), the DO terminal outputs an active signal.

F8-43 **Detection width of current 1**

Address:	0xF82B	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	300.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0% to 300.0%

Description

When the output current of the AC drive is within the range of F8-42 (Detection level of current 1) ± F8-43 (Detection width of current 1) x F1-03 (Rated motor current), the DO terminal outputs an active signal.

F8-44 **Detection level of current 2**

Address:	0xF82C	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	300.0	Data type:	UInt16
Default:	100.0	Change:	In real time

Value Range:

0.0% to 300.0%

Description

When the output current of the AC drive is within the range of F8-44 (Detection level of current 2) ± F8-45 (Detection width of current 2) x F1-03 (Rated motor current), the DO terminal outputs an active signal.

F8-45 **Detection width of current 2**

Address:	0xF82D	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	300.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0% to 300.0%

Description

The detection width of current 2 is F8-45 (Detection width of current 2) multiplied by F1-03 (Rated motor current).

F8-46 **Timing function**

Address:	0xF82E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

If F8-46 (Timing function) is set to 1, the DO terminal outputs an active signal when the current running duration of the AC drive reaches the specified timing duration. The timing duration is set by F8-47 and F8-48.

F8-47 **Timing duration source**

Address:	0xF82F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: F8-48

1: AI1

2: AI2

Description

0: Timing duration = F8-48.

1: Timing duration = (AI1 voltage/10 V) x F8-48. 100% of analog input corresponds to the value of F8-48.

2: Timing duration = (AI2 voltage/10 V) x F8-48. 100% of analog input corresponds to the value of F8-48.

F8-48 **Timing duration**

Address:	0xF830	Effective mode:	-
Min.:	0.0	Unit:	min
Max.:	6500.0	Data type:	UInt16

Default:	0.0	Change:	At stop

Value Range:
0.0 min to 6500.0 min
Description
The timing duration is determined by F8-47 and F8-48.

F8-49 **AI1 input voltage lower limit**

Address:	0xF831	Effective mode:	-
Min.:	0.00	Unit:	V
Max.:	655.35	Data type:	UInt16
Default:	3.10	Change:	In real time

Value Range:
0.00 V to 655.35 V
Description
When the AI1 input is higher than F8-50 (AI1 input voltage upper limit) or lower than F8-49 (AI1 input voltage lower limit), the DO terminal outputs an "AI1 input overlimit" active signal to indicate whether the AI1 input voltage is within the setting range.

F8-50 **AI1 input voltage upper limit**

Address:	0xF832	Effective mode:	-
Min.:	0.00	Unit:	V
Max.:	11.00	Data type:	UInt16
Default:	6.80	Change:	In real time

Value Range:
0.00 V to 11.00 V
Description
When the AI1 input is higher than F8-50 (AI1 input voltage upper limit) or lower than F8-49 (AI1 input voltage lower limit), the DO terminal outputs an "AI1 input overlimit" active signal to indicate whether the AI1 input voltage is within the setting range.

F8-51 **IGBT temperature reach**

Address:	0xF833	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	100	Data type:	UInt16
Default:	75	Change:	In real time

Value Range:
0°C to 100°C
Description
When the IGBT heatsink temperature reaches the value of F8-51 (IGBT temperature reach), the DO terminal outputs an active signal.

F8-52 **Cooling fan working mode**

Address:	0xF834	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0: Working during AC drive running (forward)
1: Working continuously (forward)
2: Working continuously (forward and reverse)
3: Working during AC drive running (forward and reverse)

Description

When this parameter is set to 0, the fan works when the AC drive is running. When the AC drive stops, the fan works if the heatsink temperature is higher than 40°C and stops if the heatsink temperature is lower than 40°C.

When this parameter is set to 1, the fan keeps working after power-on.

F8-54 **Wakeup frequency**

Address:	0xF836	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

In hibernation state, when the frequency reference is equal to or higher than F8-54 (Wakeup frequency) and the current operating command is valid, the AC drive starts directly after the delay set by F8-55 (Wakeup delay) elapses.

F8-55 **Wakeup delay**

Address:	0xF837	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	6500.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 6500.0s

Description

In hibernation state, when the frequency reference is equal to or higher than F8-54 (Wakeup frequency) and the current operating command is valid, the AC drive starts directly after the delay set by F8-55 (Wakeup delay) elapses.

F8-56 **Hibernation frequency**

Address:	0xF838	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

When the frequency reference is lower than or equal to F8-56 (Hibernation frequency) during running, the AC drive enters the hibernation state and coasts to stop after the time defined by F8-57 (Hibernation delay) elapses.

F8-57 **Hibernation delay**

Address:	0xF839	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	6500.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 6500.0s

Description

When the frequency reference is lower than or equal to F8-56 (Hibernation frequency) during running, the AC drive enters the hibernation state and coasts to stop after the time defined by F8-57 (Hibernation delay) elapses.

F8-58 Current running duration threshold

Address:	0xF83A	Effective mode:	-
Min.:	0.0	Unit:	min
Max.:	6500.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0 min to 6500.0 min

Description

The DO terminal outputs an active signal when the current running duration reaches the value of F8-58. Only the present running duration counts. The previous running duration is not included.

F8-59 Switchover between communication addresses 2000H and 2001H

Address:	0xF83B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: General protocol

1: Special protocol

Description

This parameter defines the meaning of addresses 2000H and 2001H.

0: General protocol

The control word is written to 2000H, and DO output control is written to 2001H.

1: Special protocol

The special control word is written to 2000H, and the frequency reference is written to 2001H.

F8-60 Deceleration time for emergency stop

Address:	0xF83C	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	6500.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s to 6500.0s

Description

This parameter defines the deceleration time for emergency stop.

F8-61 Jogging by LED operating panel

Address:	0xF83D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

You can select F8-61 on the operating panel of the power supply unit, press the ENT key to enter the jog mode, and then press the UP/DOWN key to implement forward/reverse jog.

F8-62 **Load speed display coefficient**

Address:	0xF83E	Effective mode:	-
Min.:	0.0000	Unit:	-
Max.:	6.5000	Data type:	UInt16
Default:	1.0000	Change:	In real time

Value Range:

0.0000 to 6.5000

Description

This parameter defines the ratio of the actual with-load speed to motor speed.

F8-63 **Number of decimal places for load speed display**

Address:	0xF83F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:

0: No decimal place

1: 1 decimal place

2: 2 decimal places

3: 3 decimal places

Description

The ones place of this parameter defines the number of decimal places of the value of U0-14 (With-load speed).

0: No decimal place

No decimal places are retained.

1: 1 decimal place

The value is rounded to one decimal place.

2: 2 decimal place

The value is rounded to two decimal places.

3: 3 decimal place

The value is rounded to three decimal places.

F8-64 **7310H address data unit**

Address:	0xF840	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Frequency (Hz)

1: Speed (RPM)

Description

This parameter defines the unit of data written to the address 7310.

0: Frequency (Hz)

The unit of the written data is Hz.

1: Speed (RPM)

The unit of the written data is RPM.

2.10 F9: Fault and Protection Parameters

F9-00 AC drive overload protection

Address:	0xF900	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 1

Description

This parameter specifies whether to enable the motor overload protection function. The AC drive determines whether the motor is overloaded according to the inverse time delay curve. When motor overload is detected, the AC drive will report an overload fault.

0: Disabled

Motor overload protection is disabled. If this parameter is set to 0, you are advised to install a thermal relay before the motor for protection.

1: Enabled

Motor overload protection is enabled.

F9-01 Motor overload protection gain

Address:	0xF901	Effective mode:	-
Min.:	0.20	Unit:	-
Max.:	10.00	Data type:	UInt16
Default:	1.00	Change:	In real time

Value Range:

0.20 to 10.00

Description

The motor overload protection gain is calculated according to the percentage of time during which the motor runs continuously at an overload threshold without reporting an overload fault.

It is used to adjust the actual overload fault report time of the AC drive when motor overload occurs.

F9-02 Motor overload pre-warning coefficient

Address:	0xF902	Effective mode:	-
Min.:	50	Unit:	%
Max.:	100	Data type:	UInt16
Default:	80	Change:	In real time

Value Range:

50% to 100%

Description

The motor overload pre-warning coefficient is calculated according to the percentage of time during which the motor runs continuously at a certain overload threshold without reporting overload pre-warning. A pre-warning signal is sent to the control system through DO before motor overload protection starts.

This signal is used to determine how early to send the pre-warning signal before the motor overload protection starts. The larger the coefficient is, the later the pre-warning signal is sent.

When the accumulative output current of the AC drive is greater than the overload time (value Y of the motor overload protection inverse time delay curve) multiplied by F9-02 (Motor overload pre-warning coefficient), the multi-function DO terminal of the AC drive outputs a motor overload pre-warning signal.

F9-06 **Output phase loss detection before startup**

Address:	0xF906	Effective mode:	-
Min.:	0	Unit:	%
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Disabled

1: Enabled

Description

Output phase loss detection during running takes about several seconds. For low-frequency running applications or applications where risks exist during startup with phase loss, this function enables quick detection of output phase loss during startup. However, it does not apply to applications that have strict requirements on startup time.

F9-07 **Software detection of short-circuit to ground**

Address:	0xF907	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Not detected

1: Detected before power-on

Description

This parameter defines whether to enable or disable short-circuit to ground detection upon power-on.

F9-09 **Auto fault reset limit**

Address:	0xF909	Effective mode:	-
Min.:	0	Unit:	-
Max.:	20	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 20

Description

This parameter defines the maximum number of auto fault reset times of the AC drive. If the number of auto resets exceeds the value of this parameter, the AC drive will remain in the faulty state.

F9-10 **DO fault output during auto fault reset**

Address:	0xF90A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Disabled

1: Enabled

Description

This parameter defines whether to activate fault output of the DO terminal during auto fault reset. The fault output function of the DO terminal is defined by setting F5-04 to 2.

F9-11 **Auto fault reset interval**

Address:	0xF90B	Effective mode:	-

Min.:	0.1	Unit:	s
Max.:	100.0	Data type:	UInt16
Default:	1.0	Change:	In real time

Value Range:

0.1s to 100.0s

Description

This parameter defines the delay of auto fault reset after the AC drive reports a fault.

F9-12 Restart interval upon fault reset

Address:	0xF90C	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	100.0	Data type:	UInt16
Default:	1.0	Change:	In real time

Value Range:

0.0s to 100.0s

Description

This parameter defines the delay of restart after automatic fault reset of the AC drive.

F9-13 Auto reset of STO fault

Address:	0xF90D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Manual reset

1: Auto reset

Description

This parameter defines whether auto reset is performed after the system triggers STO and then recovers.

0: Manual reset

After the system triggers STO and then recovers, manual reset is required.

1: Auto reset

After the system triggers STO and then recovers, auto reset is performed.

F9-14 Type of the 1st fault

Address:	0xF90E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	99	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 99

Description

This parameter defines the fault codes of the latest three (1st, 2nd, and 3rd (latest)) faults. The host controller reads the communication address to obtain the current fault code of the AC drive and triggers the AC drive to report the fault. The fault code can be viewed on the operating panel.

F9-15 Type of the 2nd fault

Address:	0xF90F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	99	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 99
Description
This parameter defines the fault codes of the latest three (1st, 2nd, and 3rd (latest)) faults. The host controller reads the communication address to obtain the current fault code of the AC drive and triggers the AC drive to report the fault. The fault code can be viewed on the operating panel.

F9-16 **Type of the 3rd (latest) fault**

Address:	0xF910	Effective mode:	-
Min.:	0	Unit:	-
Max.:	99	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 99
Description
This parameter defines the fault codes of the latest three (1st, 2nd, and 3rd (latest)) faults. The host controller reads the communication address to obtain the current fault code of the AC drive and triggers the AC drive to report the fault. The fault code can be viewed on the operating panel.

F9-17 **Frequency upon the 3rd (latest) fault**

Address:	0xF911	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the frequency of the AC drive upon the latest fault.

F9-18 **Current upon the 3rd (latest) fault**

Address:	0xF912	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the current of the AC drive upon the latest fault.

F9-19 **Bus voltage upon the 3rd (latest) fault**

Address:	0xF913	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the bus voltage of the AC drive upon the latest fault.

F9-20 **Input terminal state upon the 3rd (latest) fault**

Address:	0xF914	Effective mode:	-

Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the input terminal state of the AC drive upon the latest fault.

F9-21 Output terminal state upon the 3rd (latest) fault

Address:	0xF915	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the output terminal state of the AC drive upon the latest fault.

F9-22 AC drive state upon the 3rd (latest) fault

Address:	0xF916	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the state of the AC drive upon the latest fault.

F9-23 Power-on duration upon the 3rd (latest) fault

Address:	0xF917	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the power-on duration of the AC drive upon the latest fault.

F9-24 Running duration upon the 3rd (latest) fault

Address:	0xF918	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the running duration of the AC drive upon the latest fault.

F9-25 IGBT temperature upon the 3rd (latest) fault

Address:	0xF919	Effective mode:	-
Min.:	0	Unit:	-

Max.: 0 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
0 to 0

Description
This parameter shows the IGBT temperature of the AC drive upon the latest fault.

F9-26 **Fault subcode of the 3rd (latest) fault**

Address: 0xF91A | Effective mode: -
Min.: 0 | Unit: -
Max.: 0 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
0 to 0

Description
This parameter shows the fault subcode of the latest fault.

F9-27 **Frequency upon the 2nd fault**

Address: 0xF91B | Effective mode: -
Min.: 0 | Unit: -
Max.: 0 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
0 to 0

Description
This parameter shows the frequency of the AC drive upon the second fault.

F9-28 **Current upon the 2nd fault**

Address: 0xF91C | Effective mode: -
Min.: 0 | Unit: -
Max.: 0 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
0 to 0

Description
This parameter shows the current of the AC drive upon the second fault.

F9-29 **Bus voltage upon the 2nd fault**

Address: 0xF91D | Effective mode: -
Min.: 0 | Unit: -
Max.: 0 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
0 to 0

Description
This parameter shows the bus voltage of the AC drive upon the second fault.

F9-30 **Input terminal state upon the 2nd fault**

Address: 0xF91E | Effective mode: -
Min.: 0 | Unit: -
Max.: 0 | Data type: UInt16

Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the input terminal state of the AC drive upon the second fault.

F9-31 **Output terminal state upon the 2nd fault**

Address:	0xF91F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter show the output terminal state of the AC drive upon the second fault.

F9-32 **AC drive state upon 2nd fault**

Address:	0xF920	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the state of the AC drive upon the second fault.

F9-33 **Power-on duration upon the 2nd fault**

Address:	0xF921	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the power-on duration of the AC drive upon the second fault.

F9-34 **Running duration upon the 2nd fault**

Address:	0xF922	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the running duration of the AC drive upon the second fault.

F9-35 **IGBT temperature upon the 2nd fault**

Address:	0xF923	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the IGBT temperature of the AC drive upon the second fault.

F9-36 **Fault subcode of the 2nd fault**

Address:	0xF924	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the fault subcode of the second fault.

F9-37 **Frequency upon the 1st fault**

Address:	0xF925	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the frequency of the AC drive upon the first fault.

F9-38 **Current upon the 1st fault**

Address:	0xF926	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the current of the AC drive upon the first fault.

F9-39 **Bus voltage upon the 1st fault**

Address:	0xF927	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the bus voltage of the AC drive upon the first fault.

F9-40 **Input terminal state upon the 1st fault**

Address:	0xF928	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the input terminal state of the AC drive upon the first fault.

F9-41 **Output terminal state upon the 1st fault**

Address:	0xF929	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the output terminal state of the AC drive upon the first fault.

F9-42 **AC drive state upon the 1st fault**

Address:	0xF92A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the state of the AC drive upon the first fault.

F9-43 **Power-on duration upon the 1st fault**

Address:	0xF92B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the power-on duration of the AC drive upon the first fault.

F9-44 **Running duration upon the 1st fault**

Address:	0xF92C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the running duration of the AC drive upon the first fault.

F9-45 **IGBT temperature upon the 1st fault**

Address:	0xF92D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the IGBT temperature of the AC drive upon the first fault.

F9-46 **Fault subcode of the 1st fault**

Address:	0xF92E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the fault subcode of the first fault.

F9-47 **Fault protection action selection 0**

Address:	0xF92F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	55555	Data type:	UInt16
Default:	500	Change:	At stop

Value Range:

0 to 55555

Description

This parameter defines the fault protection actions for different types of faults.

0: Coast to stop

The AC drive coasts to stop.

1: Decelerate to stop

The AC drive decelerates to stop.

2: Restart upon fault

The AC drive restarts upon a fault.

4: Report alarm

The AC drive continues to run.

5: Cancel

The fault is ignored.

F9-48 **Fault protection action selection 1**

Address:	0xF930	Effective mode:	-
Min.:	0	Unit:	-
Max.:	55555	Data type:	UInt16
Default:	10050	Change:	At stop

Value Range:

Ones: E11

0: Coast to stop

1: Decelerate to stop

2: Special action

4: Report alarm

5: Cancel

Tens: Reserved

0: Coast to stop

1: Decelerate to stop

4: Report alarm

5: Cancel

Hundreds: E13

0: Coast to stop

1: Decelerate to stop

2: Special action

4: Report alarm

5: Cancel

Thousands: E14

0: Coast to stop

Ten thousands: E15

0: Coast to stop

1: Decelerate to stop

4: Report alarm

5: Cancel

Description

This parameter defines the fault protection actions for different types of faults.

0: Coast to stop

The AC drive coasts to stop.

1: Decelerate to stop

The AC drive decelerates to stop.

2: Restart upon fault

The AC drive restarts upon a fault.

4: Report alarm

The AC drive continues to run.

5: Cancel

The fault is ignored.

F9-49 Fault protection action selection 2

Address:	0xF931	Effective mode:	-
Min.:	0	Unit:	-
Max.:	55555	Data type:	UInt16
Default:	50050	Change:	At stop

Value Range:

Ones: E16

0: Coast to stop

1: Decelerate to stop

4: Report alarm

5: Cancel

Tens: Reserved

5: Cancel

Hundreds: Reserved

0: Coast to stop

Thousands: E19

0: Coast to stop

4: Report alarm

5: Cancel

Ten thousands: Reserved

5: Cancel

Description

This parameter defines the fault protection actions for different types of faults.
0: Coast to stop
The AC drive coasts to stop.
1: Decelerate to stop
The AC drive decelerates to stop.
2: Restart upon fault
The AC drive restarts upon a fault.
4: Report alarm
The AC drive continues to run.
5: Cancel
The fault is ignored.

F9-50 **Fault protection action selection 3**

Address:	0xF932	Effective mode:	-
Min.:	0	Unit:	-
Max.:	55555	Data type:	UInt16
Default:	25000	Change:	At stop

Value Range:
Ones: E21
0: Coast to stop
Tens: E22
0: Coast to stop
Hundreds: E23
0: Coast to stop
5: Cancel
Thousands: Reserved
5: Cancel
Ten thousands: E25
2: Decelerate to stop
5: Cancel
Description
This parameter defines the fault protection actions for different types of faults.
0: Coast to stop
The AC drive coasts to stop.
1: Decelerate to stop
The AC drive decelerates to stop.
2: Restart upon fault
The AC drive restarts upon a fault.
4: Report alarm
The AC drive continues to run.
5: Cancel
The fault is ignored.

F9-51 **Fault protection action selection 4**

Address:	0xF933	Effective mode:	-
Min.:	0	Unit:	-
Max.:	55555	Data type:	UInt16
Default:	51111	Change:	At stop

Value Range:

Ones: E26
0: Coast to stop
1: Decelerate to stop
4: Report alarm
5: Cancel
Tens: E27
0: Coast to stop
1: Decelerate to stop
4: Report alarm
5: Cancel
Hundreds: E28
0: Coast to stop
1: Decelerate to stop
4: Report alarm
5: Cancel
Thousands: E29
0: Coast to stop
1: Decelerate to stop
4: Report alarm
5: Cancel
Ten thousands: E30
0: Coast to stop
1: Decelerate to stop
4: Report alarm
5: Cancel

Description

This parameter defines the fault protection actions for different types of faults.

0: Coast to stop

The AC drive coasts to stop.

1: Decelerate to stop

The AC drive decelerates to stop.

2: Restart upon fault

The AC drive restarts upon a fault.

4: Report alarm

The AC drive continues to run.

5: Cancel

The fault is ignored.

F9-52 **Fault protection action selection 5**

Address:	0xF934	Effective mode:	-
Min.:	0	Unit:	-
Max.:	55555	Data type:	UInt16
Default:	551	Change:	At stop

Value Range:

Ones: E31
0: Coast to stop
1: Decelerate to stop
4: Report alarm

5: Cancel
Tens: Reserved
5: Cancel
Hundreds: Reserved
5: Cancel
Thousands: E42
0: Coast to stop
1: Decelerate to stop
4: Report alarm
5: Cancel
Ten thousands: E43
0: Coast to stop
1: Decelerate to stop
4: Report alarm
5: Cancel

Description

This parameter defines the fault protection actions for different types of faults.

0: Coast to stop

The AC drive coasts to stop.

1: Decelerate to stop

The AC drive decelerates to stop.

2: Restart upon fault

The AC drive restarts upon a fault.

4: Report alarm

The AC drive continues to run.

5: Cancel

The fault is ignored.

F9-53 **Fault protection action selection 6**

Address:	0xF935	Effective mode:	-
Min.:	0	Unit:	-
Max.:	55555	Data type:	UInt16
Default:	5500	Change:	At stop

Value Range:

Ones: E45
0: Coast to stop
1: Decelerate to stop
4: Report alarm
5: Cancel
Tens: Reserved
5: Cancel
Hundreds: Reserved
5: Cancel
Thousands: Reserved
5: Cancel
Ten thousands: E80
0: Coast to stop
1: Decelerate to stop

5: Cancel

Description

This parameter defines the fault protection actions for different types of faults.

0: Coast to stop

The AC drive coasts to stop.

1: Decelerate to stop

The AC drive decelerates to stop.

2: Restart upon fault

The AC drive restarts upon a fault.

4: Report alarm

The AC drive continues to run.

5: Cancel

The fault is ignored.

F9-54 **Frequency selection for continuing to run upon fault**

Address:	0xF936	Effective mode:	-
Min.:	0	Unit:	-
Max.:	4	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:

0: Current running frequency

1: Frequency reference

2: Frequency upper limit

3: Frequency lower limit

4: Alternative frequency upon exception

Description

This parameter defines the frequency at which the AC drive continues to run upon a fault. If a fault occurs during running of the AC drive and the fault protection action is to continue to run, the AC drive displays "A**" and continues to run at the frequency defined by F9-54 (Frequency selection for continuing to run upon fault).

F9-55 **Alternative frequency upon fault**

Address:	0xF937	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	100.0	Change:	In real time

Value Range:

0.0% to 100.0%

Description

This parameter defines the alternative frequency of the AC drive upon a fault. If a fault occurs during running of the AC drive and the fault protection action is to run at the alternative frequency upon fault (F9-54 = 4), the AC drive displays "A**" and continues to run at the alternative frequency.

F9-57 **Motor overheat protection threshold 1**

Address:	0xF939	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	200	Data type:	UInt16
Default:	110	Change:	In real time

Value Range:

0°C to 200°C

Description

When AI1 is assigned with the temperature sensor input function and the motor temperature exceeds the value of F9-57 (Motor overheat protection threshold 1), the AC drive reports a motor overheat fault (E45.00) and acts according to F9-53 (Fault protection action selection 6).

F9-58 **Motor overheat pre-warning threshold 1**

Address:	0xF93A	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	200	Data type:	UInt16
Default:	90	Change:	In real time

Value Range:

0°C to 200°C

Description

When AI1 is assigned with the temperature sensor input function and the motor temperature exceeds the value of F9-58 (Motor overheat pre-warning threshold 1), the DO terminal assigned with function 9 (Motor overtemperature pre-warning) outputs an active signal.

F9-59 **Motor overheat protection threshold 2**

Address:	0xF93B	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	200	Data type:	UInt16
Default:	110	Change:	In real time

Value Range:

0°C to 200°C

Description

When AI2 is assigned with the temperature sensor input function and the motor temperature exceeds the value of F9-59 (Motor overheat protection threshold 2), the AC drive reports a motor overheat fault (E45.00) and acts according to F9-53 (Fault protection action selection 6).

F9-60 **Motor overheat pre-warning threshold 2**

Address:	0xF93C	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	200	Data type:	UInt16
Default:	90	Change:	In real time

Value Range:

0°C to 200°C

Description

When AI2 is assigned with the temperature sensor input function and the motor temperature exceeds the value of F9-60 (Motor overheat pre-warning threshold 2), the DO terminal assigned with function 9 (Motor overtemperature pre-warning) outputs an active signal.

F9-61 **Motor overheat protection threshold 3**

Address:	0xF93D	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	200	Data type:	UInt16
Default:	110	Change:	In real time

Value Range:

0°C to 200°C

Description

When AI3 is assigned with the temperature sensor input function and the motor temperature exceeds the value of F9-61 (Motor overheat protection threshold 3), the AC drive reports a motor overheat fault (E45.00) and acts according to F9-53 (Fault protection action selection 6).

F9-62 Motor overheat pre-warning threshold 3

Address:	0xF93E	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	200	Data type:	UInt16
Default:	90	Change:	In real time

Value Range:

0°C to 200°C

Description

When AI3 is assigned with the temperature sensor input function and the motor temperature exceeds the value of F9-62 (Motor overheat pre-warning threshold 3), the DO terminal assigned with function 9 (Motor overtemperature pre-warning) outputs an active signal.

F9-63 Power dip ride-through action

Address:	0xF93F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Decelerate

2: Decelerate to stop

Description

This parameter defines whether the AC drive runs continuously upon instantaneous power failure. When instantaneous power failure occurs, the AC drive keeps the motor in the power generating state to keep the bus voltage around the "voltage threshold for enabling power dip ride-through". This prevents the AC drive from stopping due to undervoltage.

0: Disabled

The power dip ride-through function is disabled.

1: Decelerate

When power failure occurs, the bus voltage stays at a value around the "voltage threshold for enabling power dip ride-through". In this mode, when the grid voltage recovers, the AC drive accelerates to the target frequency based on the acceleration time.

2: Decelerate to stop

When power failure occurs, the AC drive decelerates to stop. In this mode, when the grid resumes power supply, the AC drive decelerates to 0 Hz and stops. The AC drive will start again only when a new start command is received.

"Keep bus voltage constant" is recommended for large-inertia applications such as fans, water pumps, and centrifuges. "Decelerate to stop" is recommended for the textile industry.

F9-64 Voltage threshold for disabling power dip ride-through

Address:	0xF940	Effective mode:	-
Min.:	8.0	Unit:	%
Max.:	10.0	Data type:	UInt16
Default:	8.5	Change:	In real time

Value Range:
8.0% to 10.0%
Description
This parameter defines the voltage threshold for disabling power dip ride-through. 100% corresponds to 540 V. This value is slightly lower than the bus voltage before power failure.
Upon grid power failure, the bus voltage is maintained around F9-66 (Voltage threshold for enabling power dip ride-through). When the power supply recovers, the bus voltage rises from F9-66 (Voltage threshold for enabling power dip ride-through) to F9-64 (Voltage threshold for disabling power dip ride-through). During this period, the output frequency of the AC drive keeps decreasing until the bus voltage reaches F9-64 (Voltage threshold for disabling power dip ride-through).

F9-65 **Delay of voltage recovery from power dip**

Address:	0xF941	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	100.0	Data type:	UInt16
Default:	0.5	Change:	In real time

Value Range:
0.0s to 100.0s
Description
This parameter defines the time required for the bus voltage to rise from F9-64 (Voltage threshold for disabling power dip ride-through) to the voltage before power failure.

F9-66 **Voltage threshold for enabling power dip ride-through**

Address:	0xF942	Effective mode:	-
Min.:	60	Unit:	%
Max.:	100	Data type:	UInt16
Default:	80	Change:	In real time

Value Range:
60% to 100%
Description
This parameter defines the bus voltage level upon power failure. When power failure occurs, the bus voltage retains at a value around F9-66 (Voltage threshold for enabling power dip ride-through).

F9-67 **Alarm threshold of consecutive I/O frame loss**

Address:	0xF943	Effective mode:	-
Min.:	1	Unit:	-
Max.:	1000	Data type:	UInt16
Default:	60	Change:	At stop

Value Range:
1 to 1000
Description
This parameter defines the alarm threshold for consecutive I/O data frame loss. The AC drive reports E16.04 when the number of consecutive frames lost is greater than the value of this parameter.

F9-68 **Load loss detection level**

Address:	0xF944	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	10.0	Change:	In real time

Value Range:

0.0% to 100.0%

Description

When the output current of the AC drive stays below F9-68 (Load loss detection level) for a period longer than the time set by F9-69 (Load loss detection time), the AC drive performs the load loss protection action (defined by F9-49).

Once the load recovers during protection, the AC drive automatically runs at the reference frequency.

F9-69 **Load loss detection time**

Address:	0xF945	Effective mode:	-
Min.:	0.1	Unit:	s
Max.:	60.0	Data type:	UInt16
Default:	1.0	Change:	In real time

Value Range:

0.1s to 60.0s

Description

When the output current of the AC drive stays below F9-68 (Load loss detection level) for a period longer than the time set by F9-69 (Load loss detection time), the AC drive performs the load loss protection action (defined by F9-49).

Once the load recovers during protection, the AC drive automatically runs at the reference frequency.

F9-71 **Overspeed detection level**

Address:	0xF947	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	50.0	Data type:	UInt16
Default:	5.0	Change:	In real time

Value Range:

0.0% to 50.0%

Description

When overspeed protection is enabled, if the AC drive detects that the actual motor speed exceeds F0-10 (Maximum frequency) by a percentage greater than F9-67 (Overspeed detection level) for a period longer than F9-68 (Overspeed detection time), the AC drive reports E43.00 (Motor overspeed fault) and acts according to F9-50 (Fault protection action selection 3).

When F9-72 (Overspeed detection time) is set to 0.0s, the overspeed detection function is disabled.

Overspeed protection is active only when the AC drive works in FVC mode (F0-01 = 1).

F9-72 **Overspeed detection time**

Address:	0xF948	Effective mode:	-
Min.:	0.0	Unit:	-
Max.:	60.0	Data type:	UInt16
Default:	1.0	Change:	In real time

Value Range:

0.0 to 60.0

Description

When overspeed protection is enabled, if the AC drive detects that the actual motor speed exceeds F0-10 (Maximum frequency) by a percentage greater than F9-67 (Overspeed detection level) for a period longer than F9-68 (Overspeed detection time), the AC drive reports E43.00 (Motor overspeed fault) and acts according to F9-50 (Fault protection action selection 3).

When F9-72 (Overspeed detection time) is set to 0.0s, the overspeed detection function is disabled.

Overspeed protection is active only when the AC drive works in FVC mode (F0-01 = 1).

F9-73 **Detection level of excessive speed deviation**

Address:	0xF949	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	50.0	Data type:	UInt16
Default:	20.0	Change:	In real time

Value Range:

0.0% to 50.0%

Description

When protection against excessive speed deviation is enabled, if the AC drive detects that the deviation between the actual motor running frequency and the frequency reference stays above F9-73 (Detection level of excessive speed deviation) for a period longer than F9-74 (Detection time of excessive speed deviation), the AC drive reports E42.00 (Excessive speed deviation) and acts according to F9-50 (Fault protection action selection 3).

When F9-74 (Detection time of excessive speed deviation) is set to 0.0s, protection against excessive speed deviation is disabled.

Protection against excessive speed deviation is active only when the AC drive works in FVC mode (F0-01 = 1).

F9-74 **Excessive speed deviation detection time**

Address:	0xF94A	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	60.0	Data type:	UInt16
Default:	5.0	Change:	In real time

Value Range:

0.0s to 60.0s

Description

When protection against excessive speed deviation is enabled, if the AC drive detects that the deviation between the actual motor running frequency and the frequency reference stays above F9-73 (Detection level of excessive speed deviation) for a period longer than F9-74 (Detection time of excessive speed deviation), the AC drive reports E42.00 (Excessive speed deviation) and acts according to F9-50 (Fault protection action selection 3).

When F9-74 (Detection time of excessive speed deviation) is set to 0.0s, protection against excessive speed deviation is disabled.

Protection against excessive speed deviation is active only when the AC drive works in FVC mode (F0-01 = 1).

F9-75 **Power dip ride-through gain**

Address:	0xF94B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	100	Data type:	UInt16
Default:	40	Change:	In real time

Value Range:

0 to 100

Description

This parameter is valid only when F9-63 (Power dip ride-through action) is set to 1.

If undervoltage occurs frequently during power dip ride-through, increase the power dip ride-through gain and integral coefficient.

F9-76 **Power dip ride-through integral**

Address:	0xF94C	Effective mode:	-

Min.:	0	Unit:	-
Max.:	100	Data type:	UInt16
Default:	30	Change:	In real time

Value Range:
0 to 100
Description
This parameter is valid only when F9-63 (Power dip ride-through action) is set to 1.
If undervoltage occurs frequently during power dip ride-through, increase the power dip ride-through gain and integral coefficient.

F9-77 **Deceleration time of power dip ride-through**

Address:	0xF94D	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	300.0	Data type:	UInt16
Default:	20.0	Change:	In real time

Value Range:
0.0s to 300.0s
Description
This parameter is valid only when F9-63 (Power dip ride-through action) is set to 2.
When the bus voltage is lower than the value of F9-62, the AC drive decelerates to stop. The deceleration time is determined by this parameter but not F0-18.

2.11 FA: Process Control PID Function Parameters

FA-00 **PID reference source**

Address:	0xFA00	Effective mode:	-
Min.:	0	Unit:	-
Max.:	6	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0: FA-01
1: AI1
2: AI2
3: AI3
4: Reserved
5: Communication reference
6: Multi-speed reference
Description
This parameter specifies the PID reference source. The PID reference is a relative value. The value 100% corresponds to 100% of the feedback signal of the controlled system.
0: FA-01
The PID target reference is the value of FA-01 (PID reference).
1: AI1
The PID reference source is the AI1 input.
2: AI2
The PID reference source is the AI2 input.
3: AI3
The PID reference source is the AI3 input.

5: Communication reference

The PID reference is set by remote communication.

6: Multi-reference

In the multi-reference mode, different combinations of DI terminal states correspond to different frequency references. The four multi-reference terminals can provide 16 state combinations, corresponding to 16 frequency reference values. Note: When FA-00 is set to 6 (multi-reference), FC-51 (Source of multi-reference 0) cannot be set to 5 (PID reference).

FA-01 **PID reference**

Address:	0xFA01	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	50.0	Change:	In real time

Value Range:

0.0% to 100.0%

Description

When FA-00 (PID reference source) is set to 0, this parameter must be set. The setpoint 100% corresponds to the maximum feedback value.

FA-02 **PID feedback source**

Address:	0xFA02	Effective mode:	-
Min.:	0	Unit:	-
Max.:	8	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: AI1

1: AI2

2: AI3

3: AI1–AI2

4: Reserved

5: Communication reference

6: AI1+AI2

7: MAX (|AI1|, |AI2|)

8: Min (|AI1|, |AI2|)

Description

This parameter defines the PID feedback source.

FA-03 **PID action direction**

Address:	0xFA03	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Forward

1: Reverse

Description

0: Forward

When the feedback value is lower than the PID reference, the output frequency of the AC drive increases.

1: Reverse

When the feedback value is lower than the PID reference, the output frequency of the AC drive decreases.

FA-04 **PID reference and feedback range**

Address:	0xFA04	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	1000	Change:	In real time

Value Range:

0 to 65535

Description

This parameter is used for display of the PID reference and feedback, which are dimensionless. For example, if this parameter is set to 1000, the PID reference (0% to 100%) corresponds linearly to the feedback value (0 to 1000).

FA-05 **Proportional gain Kp1**

Address:	0xFA05	Effective mode:	-
Min.:	0.0	Unit:	-
Max.:	1000.0	Data type:	UInt16
Default:	20.0	Change:	In real time

Value Range:

0.0 to 1000.0

Description

This parameter defines the proportional gain Kp in PID control. The deviation reduction speed depends on the proportional coefficient Kp. A larger Kp tends to reduce the deviation faster, but may cause system oscillation, especially at large hysteresis. A smaller Kp indicates lower possibility of oscillation but also slower deviation reduction.

FA-06 **Integral time Ti1**

Address:	0xFA06	Effective mode:	-
Min.:	0.01	Unit:	s
Max.:	100.00	Data type:	UInt16
Default:	2.00	Change:	In real time

Value Range:

0.01s to 100.00s

Description

This parameter defines the integral time Ti in PID control. It determines the integral adjustment intensity of the PID controller. Shorter integral time indicates greater adjustment intensity.

FA-07 **Derivative time Td1**

Address:	0xFA07	Effective mode:	-
Min.:	0.000	Unit:	s
Max.:	10.000	Data type:	UInt16
Default:	0.000	Change:	In real time

Value Range:

0.000s to 10.000s

Description

This parameter defines the derivative time Td in PID control. It determines the deviation variation adjustment intensity of the PID controller. Longer derivative time indicates greater adjustment intensity.

FA-08 **PID cut-off frequency in reverse direction**

Address:	0xFA08	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	2.00	Change:	In real time

Value Range:

0.00 Hz to 655.35 Hz

Description

When the frequency source is "PID only", the PID cut-off frequency in reverse direction is the minimum value of the current PID output. When the frequency source is "main + PID", FA-08 takes into account the "main + PID" as a whole and outputs the minimum frequency value calculated based on the "main + PID" operation.

FA-09 **PID deviation limit**

Address:	0xFA09	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0% to 100.0%

Description

When the deviation is within the PID deviation limit, no adjustment is required. This parameter helps balance the accuracy and stability of the system output.

FA-10 **PID derivative limit**

Address:	0xFA0A	Effective mode:	-
Min.:	0.00	Unit:	%
Max.:	100.00	Data type:	UInt16
Default:	0.10	Change:	In real time

Value Range:

0.00% to 100.00%

Description

This parameter defines the PID derivative output range. In PID control, the derivative may easily cause system oscillation. Therefore, the PID derivative action is restricted to a small range.

FA-11 **PID reference change time**

Address:	0xFA0B	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	650.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 650.00s

Description

This parameter defines the time required for the PID reference to change from 0.0% to 100.0%.

FA-12 **PID feedback filter time**

Address:	0xFA0C	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	60.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 60.00s

Description

This parameter defines the filter time of PID feedback. The filter helps to reduce interference on the feedback but lowers the responsiveness of the process closed-loop system.

FA-13 **PID deviation gain**

Address:	0xFA0D	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	100.0	Change:	In real time

Value Range:

0.0% to 100.0%

Description

This parameter is used to reduce the deviation value proportionally, and the reduced deviation value is the product of the original deviation value multiplied by the value of FA-13 (PID deviation gain).

FA-15 **Proportional gain Kp2**

Address:	0xFA0F	Effective mode:	-
Min.:	0.0	Unit:	-
Max.:	1000.0	Data type:	UInt16
Default:	20.0	Change:	In real time

Value Range:

0.0 to 1000.0

Description

This parameter defines the proportional gain Kp in PID control. The deviation reduction speed depends on the proportional coefficient Kp. A larger Kp tends to reduce the deviation faster, but may cause system oscillation, especially at large hysteresis. A smaller Kp indicates lower possibility of oscillation but also slower deviation reduction.

FA-16 **Integral time Ti2**

Address:	0xFA10	Effective mode:	-
Min.:	0.01	Unit:	s
Max.:	100.00	Data type:	UInt16
Default:	2.00	Change:	In real time

Value Range:

0.01s to 100.00s

Description

This parameter defines the integral time Ti in PID control. It determines the integral adjustment intensity of the PID controller. Shorter integral time indicates greater adjustment intensity.

FA-17 **Derivative time Td2**

Address:	0xFA11	Effective mode:	-
Min.:	0.000	Unit:	s
Max.:	10.000	Data type:	UInt16
Default:	0.000	Change:	In real time

Value Range:
0.000s to 10.000s
Description
This parameter defines the derivative time Td in PID control. It determines the deviation variation adjustment intensity of the PID controller. Longer derivative time indicates greater adjustment intensity.

FA-18 **PID parameter switchover condition**

Address:	0xFA12	Effective mode:	-
Min.:	0	Unit:	-
Max.:	7	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0: No switchover
1: Switchover by DI
2: Automatic switchover based on deviation
3: Switchover based on running frequency
6: Automatic adjustment based on roll diameter
7: Automatic adjustment based on percentage of maximum roll diameter
Description
This parameter defines the switchover between two groups of PID parameters.
0: No switchover
No switchover is performed.
1: Switchover by DI
To use this function, the DI terminal must be assigned with function 43 (PID parameter switchover). If the DI is inactive, parameter group 1 (FA-05 to FA-07) is selected. If the DI is active, parameter group 2 (FA-15 to FA-17) is selected.
2: Automatic switchover based on deviation
If the absolute value of the deviation between the reference and the feedback is smaller than FA-19 (PID parameter switchover deviation 1), parameter group 1 applies. If the absolute value of the deviation between the reference and the feedback is greater than FA-20 (PID parameter switchover deviation 2), parameter group 2 applies. If this absolute value is between FA-19 (PID parameter switchover deviation 1) and FA-20 (PID parameter switchover deviation 2), the PID parameters are the linear interpolation values of the two groups of parameters.
3: Switchover based on running frequency
PID parameters are switched automatically based on the running frequency of the AC drive.
6: Automatic adjustment based on roll diameter
When the current roll diameter changes between B0-08 (Maximum roll diameter) and B0-09 (Minimum roll diameter), the PID parameters are the linear interpolation values of the two groups of PID parameters. The minimum roll diameter corresponds to parameter group 1 (FA-05 to FA-07), and the maximum roll diameter corresponds to parameter group 2 (FA-15 to FA-17).
7: Automatic adjustment based on percentage of maximum roll diameter
When the current roll diameter changes between B0-08 (Maximum roll diameter) x FA-20 (PID parameter switchover deviation 2) and B0-08 (Maximum roll diameter) x FA-19 (PID parameter switchover deviation 1), the PID parameters are the linear interpolation values of the two groups of PID parameters.

FA-19 **PID parameter switchover deviation 1**

Address:	0xFA13	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	6553.5	Data type:	UInt16
Default:	20.0	Change:	In real time

Value Range:

0.0% to 6553.5%

Description

The value 100% corresponds to the maximum deviation between the reference and feedback. The value range is 0.0% to FA-20 (PID parameter switchover deviation 2).

FA-20 **PID parameter switchover deviation 2**

Address:	0xFA14	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	80.0	Change:	In real time

Value Range:

0.0% to 100.0%

Description

The value 100% corresponds to the maximum deviation between the reference and feedback. The value range is FA-19 (PID parameter switchover deviation 1) to 100.0%.

FA-21 **PID initial value**

Address:	0xFA15	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0% to 100.0%

Description

When the AC drive starts up, the PID starts the closed-loop algorithm only after the PID output is fixed to FA-21 (PID initial value) for longer than the time set by FA-22 (Hold time of PID initial value).

FA-22 **Hold time of PID initial value**

Address:	0xFA16	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	650.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 650.00s

Description

When the AC drive starts up, the PID starts the closed-loop algorithm only after the PID output is fixed to FA-21 (PID initial value) for longer than the time set by FA-22 (Hold time of PID initial value).

FA-23 **Maximum deviation between two PID outputs in forward direction**

Address:	0xFA17	Effective mode:	-
Min.:	0.00	Unit:	%
Max.:	100.00	Data type:	UInt16
Default:	1.00	Change:	In real time

Value Range:

0.00% to 100.00%

Description

When the deviation between two adjacent outputs is greater than FA-23 (Maximum deviation between two PID outputs in forward direction), the PID output value is the calculated value plus the value of FA-23 (Maximum deviation between two PID outputs in forward direction).

FA-24 **Maximum deviation between two PID outputs in reverse direction**

Address:	0xFA18	Effective mode:	-
Min.:	0.00	Unit:	%
Max.:	100.00	Data type:	UInt16
Default:	1.00	Change:	In real time

Value Range:

0.00% to 100.00%

Description

When the deviation between two adjacent outputs is less than FA-24 (Maximum deviation between two PID outputs in reverse direction), the PID output value is the calculated value minus the value of FA-24 (Maximum deviation between two PID outputs in reverse direction).

FA-25 **PID integral property**

Address:	0xFA19	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Inactive

1: Active

Description

0: Inactive When integral pause is inactive, it remains inactive no matter whether the multi-functional DI is active.

1: Active When integral pause is active, PID integration stops when the DI assigned with the PID integral pause function is active (F4-00 = 22, for example). In this case, only PID proportional and derivative actions are active.

FA-26 **Detection level of PID feedback loss**

Address:	0xFA1A	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0% to 100.0%

Description

This parameter is used to determine whether the PID feedback is lost. When the PID feedback remains lower than FA-26 (PID feedback loss detection value) for longer than FA-27 (PID feedback loss detection time), the AC drive reports E31.00.

When this parameter is set to 0, feedback loss detection is disabled.

FA-27 **PID feedback loss detection time**

Address:	0xFA1B	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	20.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:
0.0s to 20.0s
Description
This parameter is used to determine whether the PID feedback is lost. When the PID feedback remains lower than FA-26 (PID feedback loss detection value) for longer than FA-27 (PID feedback loss detection time), the AC drive reports E31.00.

2.12 FB: Wobble, Fixed Length, and Counting Parameters

Fb-00 Wobble setting mode

Address:	0xFB00	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0: Relative to center frequency
1: Relative to maximum frequency
Description
0: Relative to center frequency (F0-07, frequency reference superposition). This mode applies to variable swing systems, in which the swing changes with the center frequency (frequency reference).
1: Relative to maximum frequency (F0-10, maximum frequency). This mode applies to fixed swing systems, in which the swing is a fixed value calculated based on the maximum frequency.

Fb-01 Wobble amplitude

Address:	0xFB01	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:
0.0% to 100.0%
Description
When Fb-01 is set to 0, the wobble amplitude is 0, indicating that the wobble function is disabled.

Fb-02 Wobble step

Address:	0xFB02	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	50.0	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:
0.0% to 50.0%
Description
This parameter defines the wobble amplitude and step. The wobble running frequency is limited by the frequency upper limit and frequency lower limit.

Fb-03 Wobble cycle

Address:	0xFB03	Effective mode:	-
Min.:	0.1	Unit:	s
Max.:	3000.0	Data type:	UInt16
Default:	10.0	Change:	In real time

Value Range:
0.1s to 3000.0s
Description
This parameter defines the time of a complete wobble cycle.

Fb-04 **Triangular wave rising time coefficient**

Address:	0xFB04	Effective mode:	-
Min.:	0.1	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	50.0	Change:	In real time

Value Range:
0.1% to 100.0%
Description
This parameter defines the percentage of the triangular wave rising time relative to the wobble cycle (Fb-03).

Fb-05 **Reference length**

Address:	0xFB05	Effective mode:	-
Min.:	0	Unit:	m
Max.:	65535	Data type:	UInt16
Default:	1000	Change:	In real time

Value Range:
0 m to 65535 m
Description
This parameter specifies the length value to be controlled in fixed length control mode.

Fb-06 **Actual length**

Address:	0xFB06	Effective mode:	-
Min.:	0	Unit:	m
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 m to 65535 m
Description
The actual length is a monitored value. Actual length (FB-06) = Number of pulses sampled by DI/ Number of pulses per meter (FB-07).

Fb-07 **Number of pulses per meter**

Address:	0xFB07	Effective mode:	-
Min.:	0.1	Unit:	-
Max.:	6553.5	Data type:	UInt16
Default:	100.0	Change:	In real time

Value Range:
0.1 to 6553.5
Description
This parameter defines the number of pulses output per meter. The length pulses are sampled by a DI terminal assigned with function 27 (F4-04 = 27).

Fb-08 **Set count value**

Address:	0xFB08	Effective mode:	-
Min.:	1	Unit:	-

Max.:	65535	Data type:	UInt16
Default:	1000	Change:	In real time

Value Range:

1 to 65535

Description

When the count value reaches Fb-08 (Set count value), the DO terminal outputs an active signal indicating that the reference count value is reached.

Fb-09 **Designated count value**

Address:	0xFB09	Effective mode:	-
Min.:	1	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	1000	Change:	In real time

Value Range:

1 to 65535

Description

When the count value reaches Fb-09 (Designated count value), the DO terminal outputs an active signal indicating that the designated count value is reached. Fb-09 (Designated count value) must be less than or equal to Fb-08 (Set count value).

2.13 FC: Multi-Reference and Simple PLC Parameters

FC-00 **Multi-reference 0**

Address:	0xFC00	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:

–100.0% to +100.0%

Description

This parameter defines the frequency reference of each speed. FC-00 to FC-15 correspond to a total of 16 frequency setpoints for 16 segments numbered from 0 to 15. The frequency setpoint is calculated as a percentage to the maximum frequency. The value 100% corresponds to F0-10 (Maximum frequency). The AC drive provides four multi-reference terminals, which provide 16 state combinations, corresponding to 16 frequency setpoints.

When the simple PLC is used as the main frequency source, you need to set parameters in group FC. In some industrial applications, the AC motor is only used to implement simple functions including start/stop, timed and segmented speed regulation, and automatic forward and reverse running. With the simple PLC, you can implement other control functions without adding a physical PLC. The simple PLC is generally used in industrial equipment such as mixture mixing and industrial washing machines.

When the simple PLC is used as the main frequency source (F0-03 = 7), you need to set the parameters in group FC.

FC-01 **Multi-reference 1**

Address:	0xFC01	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16

Default: 0.0 | Change: In real time

Value Range:
–100.0% to +100.0%

Description
Same as FC-00

FC-02 **Multi-reference 2**

Address: 0xFC02 | Effective mode: -
Min.: –100.0 | Unit: %
Max.: 100.0 | Data type: Int16
Default: 0.0 | Change: In real time

Value Range:
–100.0% to +100.0%

Description
Same as FC-00

FC-03 **Multi-reference 3**

Address: 0xFC03 | Effective mode: -
Min.: –100.0 | Unit: %
Max.: 100.0 | Data type: Int16
Default: 0.0 | Change: In real time

Value Range:
–100.0% to +100.0%

Description
Same as FC-00

FC-04 **Multi-reference 4**

Address: 0xFC04 | Effective mode: -
Min.: –100.0 | Unit: %
Max.: 100.0 | Data type: Int16
Default: 0.0 | Change: In real time

Value Range:
–100.0% to +100.0%

Description
Same as FC-00

FC-05 **Multi-reference 5**

Address: 0xFC05 | Effective mode: -
Min.: –100.0 | Unit: %
Max.: 100.0 | Data type: Int16
Default: 0.0 | Change: In real time

Value Range:
–100.0% to +100.0%

Description
Same as FC-00

FC-06 **Multi-reference 6**

Address: 0xFC06 | Effective mode: -
Min.: –100.0 | Unit: %
Max.: 100.0 | Data type: Int16
Default: 0.0 | Change: In real time

Value Range:

–100.0% to +100.0%

Description

Same as FC-00

FC-07 **Multi-reference 7**

Address:	0xFC07	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:

–100.0% to +100.0%

Description

Same as FC-00

FC-08 **Multi-reference 8**

Address:	0xFC08	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:

–100.0% to +100.0%

Description

Same as FC-00

FC-09 **Multi-reference 9**

Address:	0xFC09	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:

–100.0% to +100.0%

Description

Same as FC-00

FC-10 **Multi-reference 10**

Address:	0xFC0A	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:

–100.0% to +100.0%

Description

Same as FC-00

FC-11 **Multi-reference 11**

Address:	0xFC0B	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:

–100.0% to +100.0%

Description
Same as FC-00

FC-12 **Multi-reference 12**

Address:	0xFC0C	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:
–100.0% to +100.0%
Description
Same as FC-00

FC-13 **Multi-reference 13**

Address:	0xFC0D	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:
–100.0% to +100.0%
Description
Same as FC-00

FC-14 **Multi-reference 14**

Address:	0xFC0E	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:
–100.0% to +100.0%
Description
Same as FC-00

FC-15 **Multi-reference 15**

Address:	0xFC0F	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:
–100.0% to +100.0%
Description
Same as FC-00

FC-16 **Simple PLC running mode**

Address:	0xFC10	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0: Stop after running for one cycle
1: Keep final values after running for one cycle
2: Repeat after running for one cycle

Description

When the simple PLC is used as the main frequency source, FC-16 (Simple PLC running mode) defines the running mode of the simple PLC, and FC-17 (Simple PLC memory retention) defines whether the running stage and running frequency of the PLC before power failure are retentive upon power failure or stop.

0: Stop after running for one cycle

The AC drive stops automatically after running for one cycle, and starts again only upon another running command.

1: Keep final values after running for one cycle

The AC drive automatically maintains the final running frequency and direction after running for one cycle, and it starts from the initial PLC state upon restart.

2: Repeat after running for one cycle

The AC drive automatically starts another cycle after running for one cycle, and it stops only upon a stop command.

FC-17 **Simple PLC memory retention**

Address:	0xFC11	Effective mode:	-
Min.:	0	Unit:	-
Max.:	11	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

Ones:

0: Non-retentive upon power failure

1: Retentive upon power failure

Tens:

0: Non-retentive upon stop

1: Retentive upon stop

Description

When the simple PLC is used as the main frequency source, FC-16 (Simple PLC running mode) defines the running mode of the simple PLC, and FC-17 (Simple PLC memory retention) defines whether the running stage and running frequency of the PLC before power failure are retentive upon power failure or stop.

Ones: Memory retention upon power failure

This parameter defines whether the PLC process starts all over again upon power-on. When it is set to 1, the AC drive retains the PLC running stage and running frequency before power failure and continues to run from the retained values after it is powered on again.

Tens: Memory retention upon stop

This parameter defines whether the PLC process starts all over again upon startup. When it is set to 1, the AC drive retains the PLC running stage and running frequency before stop and continues to run from the retained values after it is started again.

FC-18 **Running time of PLC reference 0**

Address:	0xFC12	Effective mode:	-
Min.:	0.0	Unit:	s (h)
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s (h) to 6553.5s (h)

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-19 **Acceleration/Deceleration time of PLC reference 0**

Address:	0xFC13	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 3

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-20 **Running time of PLC reference 1**

Address:	0xFC14	Effective mode:	-
Min.:	0.0	Unit:	s (h)
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s (h) to 6553.5s (h)

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-21 **Acceleration/Deceleration time of PLC reference 1**

Address:	0xFC15	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 3

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-22 **Running time of PLC reference 2**

Address:	0xFC16	Effective mode:	-
Min.:	0.0	Unit:	s (h)
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s (h) to 6553.5s (h)

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-23 **Acceleration/Deceleration time of PLC reference 2**

Address:	0xFC17	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 3

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-24 **Running time of PLC reference 3**

Address:	0xFC18	Effective mode:	-
Min.:	0.0	Unit:	s (h)
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s (h) to 6553.5s (h)

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-25 **Acceleration/Deceleration time of PLC reference 3**

Address:	0xFC19	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 3

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-26 **Running time of PLC reference 4**

Address:	0xFC1A	Effective mode:	-
Min.:	0.0	Unit:	s (h)
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s (h) to 6553.5s (h)

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-27 Acceleration/Deceleration time of PLC reference 4

Address:	0xFC1B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 3

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-28 Running time of PLC reference 5

Address:	0xFC1C	Effective mode:	-
Min.:	0.0	Unit:	s (h)
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s (h) to 6553.5s (h)

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-29 Acceleration/Deceleration time of PLC reference 5

Address:	0xFC1D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 3

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-30 Running time of PLC reference 6

Address:	0xFC1E	Effective mode:	-
Min.:	0.0	Unit:	s (h)
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s (h) to 6553.5s (h)

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-31 Acceleration/Deceleration time of PLC reference 6

Address:	0xFC1F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 3

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-32 Running time of PLC reference 7

Address:	0xFC20	Effective mode:	-
Min.:	0.0	Unit:	s (h)
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s (h) to 6553.5s (h)

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-33 Acceleration/Deceleration time of PLC reference 7

Address:	0xFC21	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 3

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-34 Running time of PLC reference 8

Address:	0xFC22	Effective mode:	-
Min.:	0.0	Unit:	s (h)
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s (h) to 6553.5s (h)

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-35 **Acceleration/Deceleration time of PLC reference 8**

Address:	0xFC23	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 3

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-36 **Running time of PLC reference 9**

Address:	0xFC24	Effective mode:	-
Min.:	0.0	Unit:	s (h)
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s (h) to 6553.5s (h)

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-37 **Acceleration/Deceleration time of PLC reference 9**

Address:	0xFC25	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 3

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-38 **Running time of PLC reference 10**

Address:	0xFC26	Effective mode:	-
Min.:	0.0	Unit:	s (h)
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s (h) to 6553.5s (h)

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-39 **Acceleration/Deceleration time of PLC reference 10**

Address:	0xFC27	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 3

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-40 **Running time of PLC reference 11**

Address:	0xFC28	Effective mode:	-
Min.:	0.0	Unit:	s (h)
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s (h) to 6553.5s (h)

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-41 **Acceleration/Deceleration time of PLC reference 11**

Address:	0xFC29	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 3

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-42 **Running time of PLC reference 12**

Address:	0xFC2A	Effective mode:	-
Min.:	0.0	Unit:	s (h)
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s (h) to 6553.5s (h)

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-43 **Acceleration/Deceleration time of PLC reference 12**

Address:	0xFC2B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 3

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-44 **Running time of PLC reference 13**

Address:	0xFC2C	Effective mode:	-
Min.:	0.0	Unit:	s (h)
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s (h) to 6553.5s (h)

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-45 **Acceleration/Deceleration time of PLC reference 13**

Address:	0xFC2D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 3

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-46 **Running time of PLC reference 14**

Address:	0xFC2E	Effective mode:	-
Min.:	0.0	Unit:	s (h)
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s (h) to 6553.5s (h)

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-47 **Acceleration/Deceleration time of PLC reference 14**

Address:	0xFC2F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 3

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-48 **Running time of PLC reference 15**

Address:	0xFC30	Effective mode:	-
Min.:	0.0	Unit:	s (h)
Max.:	6553.5	Data type:	UInt16
Default:	0.0	Change:	In real time

Value Range:

0.0s (h) to 6553.5s (h)

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-49 **Acceleration/Deceleration time of PLC reference 15**

Address:	0xFC31	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 3

Description

FC-18 to FC-49 define the running time and acceleration/deceleration time of the 16 multi-speed references. The running time of each reference is the sum of the acceleration or deceleration time plus the time of running at constant speed and target frequency.

FC-50 **PLC running time unit**

Address:	0xFC32	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: s (second)

1: h (hour)

Description

This parameter defines the running time unit for PLC references.

FC-51 Source of multi-reference 0

Address:	0xFC33	Effective mode:	-
Min.:	0	Unit:	-
Max.:	6	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: FC-00 (Multi-reference 0)

1: AI1

2: AI2

3: AI3

4: Reserved

5: PID

6: F0-08 (Preset frequency, which can be changed by pressing UP/DOWN)

Description

Reference 0 can be set by digital setting, analog input, PID, and preset frequency.

0: FC-00 (Multi-reference 0)

The frequency reference of multi-reference 0 is set by FC-00.

1: AI1

The frequency reference of multi-reference 0 is set by AI1 input.

2: AI2

The frequency reference of multi-reference 0 is set by AI2 input.

3: AI3

The frequency reference of multi-reference 0 is set by AI3 input.

5: PID

The frequency reference of multi-reference 0 is set by PID.

6: F0-08 (Preset frequency)

The frequency reference of multi-reference 0 is set by F0-08 (Preset frequency).

2.14 FD: Communication Parameters

Fd-02 Local address

Address:	0xFD02	Effective mode:	-
Min.:	0	Unit:	-
Max.:	247	Data type:	UInt16
Default:	1	Change:	Unchangeable

Value Range:

0 to 247

Description

When the local address is set to 0 (broadcast address), host controller broadcast is enabled.

The local address must be unique in the range of 1 to 247, which is the basis for point-to-point communication between the AC drive and host controller.

Fd-03 Modbus response delay

Address:	0xFD03	Effective mode:	-
Min.:	0	Unit:	ms

Max.: 20 | Data type: UInt16
Default: 2 | Change: In real time

Value Range:
0 ms to 20 ms
Description
-

Fd-04 **Modbus communication timeout**

Address: 0xFD04 | Effective mode: -
Min.: 0.0 | Unit: s
Max.: 60.0 | Data type: UInt16
Default: 0.0 | Change: Unchangeable

Value Range:
0.0s to 60.0s
Description
-

Fd-06 **Communication fault reset**

Address: 0xFD06 | Effective mode: -
Min.: 0 | Unit: -
Max.: 1 | Data type: UInt16
Default: 1 | Change: At stop

Value Range:
0 to 1
Description
This parameter defines whether to reset the communication fault automatically.

Fd-08 **Last allocated station number**

Address: 0xFD08 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
0 to 65535
Description
When the station number allocation is normal, this value is the station number allocated this time. When the station number allocation is abnormal, the current value is used as the current station number.

Fd-09 **Communication state**

Address: 0xFD09 | Effective mode: -
Min.: 0 | Unit: -
Max.: 999 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
Ones: CANopen
0: Stopped
1: Initialized
2: Pre-running
8: Running
Tens: CANlink

0: Stopped

1: Initialized

2: Pre-running

8: Running

Hundreds: Reserved

0: Stopped

1: Initialized

2: -

8: Running

Description

This read-only parameter is used to monitor the communication status.

Fd-10 **CANopen/CANlink switchover**

Address:	0xFD0A	Effective mode:	-
Min.:	1	Unit:	-
Max.:	2	Data type:	UInt16
Default:	1	Change:	Unchangeable

Value Range:

1: CANopen

2: CANlink

Description

This parameter shows the CAN communication protocol for the power supply unit.

1 indicates CANopen communication or other CANopen network bridge, and 2 indicates CANlink communication.

Fd-11 **CANopen402**

Address:	0xFD0B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

This parameter defines whether to enable the CANopen mode.

0 indicates the common mode, and 1 indicates the CiA402 mode.

Fd-13 **CAN station number**

Address:	0xFD0D	Effective mode:	-
Min.:	1	Unit:	-
Max.:	127	Data type:	UInt16
Default:	1	Change:	At stop

Value Range:

1 to 127

Description

This parameter defines the CAN station number, including that for CANlink and CANopen communication. In the same network, all station numbers must be unique. Otherwise, communication will fail.

Fd-14 Number of CAN frames received per unit of time

Address:	0xFD0E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	1	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter is used to monitor the bus load. It defines the number of CAN frames received by the station per second.

Fd-19 CAN communication disconnection coefficient

Address:	0xFD13	Effective mode:	-
Min.:	1	Unit:	-
Max.:	15	Data type:	UInt16
Default:	5	Change:	At stop

Value Range:

1 to 15

Description

-

Fd-92 Communication version

Address:	0xFD5C	Effective mode:	-
Min.:	0.00	Unit:	-
Max.:	655.35	Data type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:

0.00 to 655.35

Description

This parameter shows the communication software version of the AC drive.

2.15 FE: User-Defined Parameters

FE-00 User-defined parameter 0

Address:	0xFE00	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-01 User-defined parameter 1

Address:	0xFE01	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-02 **User-defined parameter 2**

Address:	0xFE02	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-03 **User-defined parameter 3**

Address:	0xFE03	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-04 **User-defined parameter 4**

Address:	0xFE04	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-05 **User-defined parameter 5**

Address:	0xFE05	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-06 **User-defined parameter 6**

Address:	0xFE06	Effective mode:	-
Min.:	0	Unit:	-

Max.: 0 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-07 **User-defined parameter 7**

Address:	0xFE07	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-08 **User-defined parameter 8**

Address:	0xFE08	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-09 **User-defined parameter 9**

Address:	0xFE09	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-10 **User-defined parameter 10**

Address:	0xFE0A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-11 **User-defined parameter 11**

Address:	0xFE0B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-12 **User-defined parameter 12**

Address:	0xFE0C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-13 **User-defined parameter 13**

Address:	0xFE0D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-14 **User-defined parameter 14**

Address:	0xFE0E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-15 **User-defined parameter 15**

Address:	0xFE0F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-16 **User-defined parameter 16**

Address:	0xFE10	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-17 **User-defined parameter 17**

Address:	0xFE11	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-18 **User-defined parameter 18**

Address:	0xFE12	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-19 **User-defined parameter 19**

Address:	0xFE13	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-20 **User-defined parameter 20**

Address:	0xFE14	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16

Default: 0 Change: In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-21 **User-defined parameter 21**

Address:	0xFE15	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-22 **User-defined parameter 22**

Address:	0xFE16	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-23 **User-defined parameter 23**

Address:	0xFE17	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-24 **User-defined parameter 24**

Address:	0xFE18	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-25 **User-defined parameter 25**

Address:	0xFE19	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-26 **User-defined parameter 26**

Address:	0xFE1A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-27 **User-defined parameter 27**

Address:	0xFE1B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-28 **User-defined parameter 28**

Address:	0xFE1C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-29 **User-defined parameter 29**

Address:	0xFE1D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-30 **User-defined parameter 30**

Address:	0xFE1E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

FE-31 **User-defined parameter 31**

Address:	0xFE1F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 0

Description

Group FE consists of user-defined parameters. Users can add commonly used parameters to group FE for easier check and modification.

2.16 FF: Factory Parameters

FF-00 **Factory password**

Address:	0xFF00	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

FF-01 **AC drive model**

Address:	0xFF01	Effective mode:	-
Min.:	5	Unit:	-
Max.:	14	Data type:	UInt16
Default:	11	Change:	At stop

Value Range:

5 to 14

Description

-

FF-03 **AC drive power**

Address:	0xFF03	Effective mode:	-

Min.:	0.0	Unit:	kW
Max.:	6553.5	Data type:	UInt16
Default:	3.7	Change:	Unchangeable

Value Range:
0.0 kW to 6553.5 kW
Description
-

FF-04 **Temperature curve**

Address:	0xFF04	Effective mode:	-
Min.:	1	Unit:	-
Max.:	2	Data type:	UInt16
Default:	2	Change:	At stop

Value Range:
1 to 2
Description
-

FF-05 **U and V phase current sampling gain deviation**

Address:	0xFF05	Effective mode:	-
Min.:	90.00	Unit:	%
Max.:	110.00	Data type:	UInt16
Default:	100.00	Change:	At stop

Value Range:
90.00% to 110.00%
Description
-

FF-06 **U and W phase current sampling gain deviation**

Address:	0xFF06	Effective mode:	-
Min.:	90.0	Unit:	%
Max.:	110.0	Data type:	UInt16
Default:	100.0	Change:	At stop

Value Range:
90.0% to 110.0%
Description
-

FF-07 **Transistor voltage drop**

Address:	0xFF07	Effective mode:	-
Min.:	0.00	Unit:	-
Max.:	655.35	Data type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:
0.00 to 655.35
Description
-

FF-08 **Voltage correction coefficient**

Address:	0xFF08	Effective mode:	-
Min.:	85.0	Unit:	%
Max.:	150.0	Data type:	UInt16

Default: 100.0 | Change: In real time

Value Range:
85.0% to 150.0%
Description
-

FF-09 **Current correction coefficient**

Address:	0xFF09	Effective mode:	-
Min.:	85.0	Unit:	%
Max.:	115.0	Data type:	UInt16
Default:	100.0	Change:	In real time

Value Range:
85.0% to 115.0%
Description
-

FF-12 **Setting of any memory data address**

Address:	0xFF0C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 1
Description
-

2.17 FP: User Parameters

FP-00 **User password**

Address:	0x1F00	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
After the password is set, you need to input the password before you control the drive unit by using the operating panel of the power supply unit.

FP-01 **Parameter initialization**

Address:	0x1F01	Effective mode:	-
Min.:	0	Unit:	-
Max.:	501	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:
0: No operation
1: Restore default settings (mode 1)
2: Clear records
4: Back up current user parameters
501: Restore user parameters from backup

Description

This parameter is used to set the corresponding action upon parameter initialization of the AC drive.

0: No operation

The AC drive does not perform any operation.

1: Restore default settings (mode 1)

Most of the parameters are restored to default settings. However, motor parameters, F0-22 (Frequency reference resolution), fault records, F7-09 (Accumulative running duration), F7-13 (Accumulative power-on duration), F7-14 (Accumulative power consumption), and F7-07 (IGBT heatsink temperature) are not restored.

2: Clear records

The fault records, F7-09 (Accumulative running duration), F7-13 (Accumulative power-on duration), and F7-14 (Accumulative power consumption) are cleared.

4: Back up current user parameters

The current parameter settings are backed up.

501: Restore user parameters from backup

Parameters backed up by setting FP-01 (Parameter initialization) to 4 are restored.

FP-02 **Parameter display**

Address:	0x1F02	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1111	Data type:	UInt16
Default:	111	Change:	In real time

Value Range:

Ones:

0: Hide

1: Display

Tens:

0: Hide

1: Display

Hundreds:

0: Hide

1: Display

Thousands:

0: Hide

1: Display

Description

This parameter is used to determine whether to display the parameters of groups U, A, B, and C on the operating panel.

FP-03 **Display of individualized parameters**

Address:	0x1F03	Effective mode:	-
Min.:	0	Unit:	-
Max.:	11	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

Ones:

0: Hide

1: Display

Tens:

0: Hide

1: Display

Description

This parameter is used to determine whether to display the user-customized parameter group and the user-modified parameter group on the operating panel.

FP-04 **Parameter modification**

Address:	0x1F04	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Modification allowed

1: Modification prohibited

Description

This parameter defines whether the user password can be modified.

2.18 A0: Torque Control and Limit Parameters

A0-00 **Speed/Torque control mode**

Address:	0xA000	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Speed control

1: Torque control

Description

Under vector control, speed control and torque control modes are available.

A0-01 **Torque reference source**

Address:	0xA001	Effective mode:	-
Min.:	0	Unit:	-
Max.:	7	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Digital setting (A0-03)

1: AI1

2: AI2

3: AI3

4: Reserved

5: Communication reference (1000H)

6: MIN (AI1, AI2)

7: MAX (AI1, AI2)

Description

This parameter defines the torque reference source. A total of seven torque reference sources are available.

A0-03 **Torque reference**

Address:	0xA003	Effective mode:	-
Min.:	–200.0	Unit:	%
Max.:	200.0	Data type:	Int16
Default:	1.0	Change:	In real time

Value Range:
–200.0% to +200.0%

Description
This parameter defines digital setting of the torque in torque control mode. The torque reference is a relative value. 100.0% corresponds to the rated torque of the AC drive. (The motor output torque can be viewed in U0-06. 100.0% corresponds to the rated motor torque.) The value range is –200.0% to +200.0%, indicating that the maximum torque is twice the rated torque.
When the torque reference is positive, the AC drive runs in the forward direction. When it is negative, the AC drive runs in the reverse direction.

A0-04 **Torque filter time**

Address:	0xA004	Effective mode:	-
Min.:	0.000	Unit:	s
Max.:	5.000	Data type:	UInt16
Default:	0.000	Change:	In real time

Value Range:
0.000s to 5.000s

Description
This parameter defines the torque filter time. It can be adjusted based on the torque source.

A0-05 **Speed limit**

Address:	0xA005	Effective mode:	-
Min.:	–120.0	Unit:	%
Max.:	120.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:
–120.0% to +120.0%

Description
This parameter defines the speed limit.

A0-07 **Torque acceleration time**

Address:	0xA007	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	650.00	Data type:	UInt16
Default:	1.00	Change:	In real time

Value Range:
0.00s to 650.00s

Description
This parameter defines the torque reference acceleration time.

A0-08 **Torque deceleration time**

Address:	0xA008	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	650.00	Data type:	UInt16
Default:	1.00	Change:	In real time

Value Range:

0.00s to 650.00s

Description

This parameter defines the torque reference deceleration time.

A0-09 **Speed limit reference source**

Address:	0xA009	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: A0-05

1: Frequency source

Description

This parameter defines the speed limit reference source. When it is set to 0, A0-05 is used as the source. When it is set to 1, the frequency source is used as the source.

A0-10 **Speed limit offset**

Address:	0xA00A	Effective mode:	-
Min.:	0.00	Unit:	-
Max.:	655.35	Data type:	UInt16
Default:	5.00	Change:	In real time

Value Range:

0.00 to 655.35

Description

The parameter defines the speed limit offset. If the actual speed exceeds the limit by a value greater than the speed limit offset, the output torque will be limited.

A0-11 **Active mode of speed limit offset**

Address:	0xA00B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Bidirectional offset active

1: Unidirectional offset active

Description

This parameter defines the active mode of the speed limit offset. 0 indicates bidirectional offset active, and 1 indicates unidirectional offset active.

A0-12 **Frequency acceleration time**

Address:	0xA00C	Effective mode:	-
Min.:	0.0	Unit:	s
Max.:	6500.0	Data type:	UInt16
Default:	1.0	Change:	In real time

Value Range:

0.0s to 6500.0s

Description

This parameter defines the frequency acceleration time, and it is valid in torque mode.

A0-13 **Frequency deceleration time**

Address:	0xA00D	Effective mode:	-

Min.:	0.0	Unit:	s
Max.:	6500.0	Data type:	UInt16
Default:	1.0	Change:	In real time

Value Range:

0.0s to 6500.0s

Description

This parameter defines the frequency deceleration time, and it is valid in torque mode.

A0-14 **Torque mode switchover**

Address:	0xA00E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: No switchover

1: Switched to speed control at stop

2: Target torque switched to 0 at stop

Description

This parameter is used to switch the torque mode. If it is set to 0, no switchover is performed. If it is set to 1, the drive switches to the speed mode upon stop. If it is set to 2, the target torque is changed to 0 upon stop.

2.19 A1: VDI and AI Used as DI

A1-00 **VDI1 function**

Address:	0xA100	Effective mode:	-
Min.:	0	Unit:	-
Max.:	95	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function

1: Forward RUN (FWD)

2: Reverse RUN (REV)

3: Three-wire operation control

4: Forward jog (FJOG)

5: Reverse jog (RJOG)

6: Terminal UP

7: Terminal DOWN

8: UP and DOWN setting clear (terminal, operating panel)

9: Fault reset (RESET)

10: External fault NO input

11: External fault NC input

12: User-defined fault 1

13: User-defined fault 2

14: Multi-reference terminal 1

15: Multi-reference terminal 2

16: Multi-reference terminal 3

17: Multi-reference terminal 4

18: Acceleration/deceleration selection terminal 1
19: Acceleration/deceleration selection terminal 2
20: Acceleration/Deceleration prohibition
21: Command source switchover terminal 1
22: Command source switchover terminal 2
23: Frequency reference switchover
24: Switchover between main frequency reference X and preset frequency
25: Switchover between auxiliary frequency reference Y and preset frequency
26: Frequency modification enable
27: Counter input
28: Counter reset
29: Length count input
30: Length reset
31: PID pause
32: PID integral pause
33: PID parameter switchover
34: PID action direction reversal
35: Torque control prohibition
36: Switchover between speed control and torque control
38: Flying start
39: Immediate DC braking
40: Deceleration DC braking
41: External stop terminal 1
42: External stop terminal 2
43: Running pause
44: Coast to stop
45: Emergency stop
46: Motor selection terminal
47: Current running duration clear
48: Switchover between two-wire and three-wire control
49: PLC state reset
50: Wobble pause
94: Brake feedback 1
95: Brake feedback 2

Description

VDI1 to VDI5 can be used as multi-functional DIs. The setting of functions 0 to 63 is similar to that of common DIs.

A1-01 **VDI2 function**

Address:	0xA101	Effective mode:	-
Min.:	0	Unit:	-
Max.:	95	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function
1: Forward RUN (FWD)
2: Reverse RUN (REV)
3: Three-wire operation control

4: Forward jog (FJOG)
5: Reverse jog (RJOG)
6: Terminal UP
7: Terminal DOWN
8: UP and DOWN setting clear (terminal, operating panel)
9: Fault reset (RESET)
10: External fault NO input
11: External fault NC input
12: User-defined fault 1
13: User-defined fault 2
14: Multi-reference terminal 1
15: Multi-reference terminal 2
16: Multi-reference terminal 3
17: Multi-reference terminal 4
18: Acceleration/deceleration selection terminal 1
19: Acceleration/deceleration selection terminal 2
20: Acceleration/Deceleration prohibition
21: Command source switchover terminal 1
22: Command source switchover terminal 2
23: Frequency reference switchover
24: Switchover between main frequency reference X and preset frequency
25: Switchover between auxiliary frequency reference Y and preset frequency
26: Frequency modification enable
27: Counter input
28: Counter reset
29: Length count input
30: Length reset
31: PID pause
32: PID integral pause
33: PID parameter switchover
34: PID action direction reversal
35: Torque control prohibition
36: Switchover between speed control and torque control
38: Flying start
39: Immediate DC braking
40: Deceleration DC braking
41: External stop terminal 1
42: External stop terminal 2
43: Running pause
44: Coast to stop
45: Emergency stop
46: Motor selection terminal
47: Current running duration clear
48: Switchover between two-wire and three-wire control
49: PLC state reset
50: Wobble pause

94: Brake feedback 1

95: Brake feedback 2

Description

Same as A1-00

A1-02 **VDI3 function**

Address:	0xA102	Effective mode:	-
Min.:	0	Unit:	-
Max.:	95	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function

1: Forward RUN (FWD)

2: Reverse RUN (REV)

3: Three-wire operation control

4: Forward jog (FJOG)

5: Reverse jog (RJOG)

6: Terminal UP

7: Terminal DOWN

8: UP and DOWN setting clear (terminal, operating panel)

9: Fault reset (RESET)

10: External fault NO input

11: External fault NC input

12: User-defined fault 1

13: User-defined fault 2

14: Multi-reference terminal 1

15: Multi-reference terminal 2

16: Multi-reference terminal 3

17: Multi-reference terminal 4

18: Acceleration/deceleration selection terminal 1

19: Acceleration/deceleration selection terminal 2

20: Acceleration/Deceleration prohibition

21: Command source switchover terminal 1

22: Command source switchover terminal 2

23: Frequency reference switchover

24: Switchover between main frequency reference X and preset frequency

25: Switchover between auxiliary frequency reference Y and preset frequency

26: Frequency modification enable

27: Counter input

28: Counter reset

29: Length count input

30: Length reset

31: PID pause

32: PID integral pause

33: PID parameter switchover

34: PID action direction reversal

35: Torque control prohibition

36: Switchover between speed control and torque control
38: Flying start
39: Immediate DC braking
40: Deceleration DC braking
41: External stop terminal 1
42: External stop terminal 2
43: Running pause
44: Coast to stop
45: Emergency stop
46: Motor selection terminal
47: Current running duration clear
48: Switchover between two-wire and three-wire control
49: PLC state reset
50: Wobble pause
94: Brake feedback 1
95: Brake feedback 2

Description

Same as A1-00

A1-03 **VDI4 function**

Address:	0xA103	Effective mode:	-
Min.:	0	Unit:	-
Max.:	95	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function
1: Forward RUN (FWD)
2: Reverse RUN (REV)
3: Three-wire operation control
4: Forward jog (FJOG)
5: Reverse jog (RJOG)
6: Terminal UP
7: Terminal DOWN
8: UP and DOWN setting clear (terminal, operating panel)
9: Fault reset (RESET)
10: External fault NO input
11: External fault NC input
12: User-defined fault 1
13: User-defined fault 2
14: Multi-reference terminal 1
15: Multi-reference terminal 2
16: Multi-reference terminal 3
17: Multi-reference terminal 4
18: Acceleration/deceleration selection terminal 1
19: Acceleration/deceleration selection terminal 2
20: Acceleration/Deceleration prohibition
21: Command source switchover terminal 1

22: Command source switchover terminal 2
23: Frequency reference switchover
24: Switchover between main frequency reference X and preset frequency
25: Switchover between auxiliary frequency reference Y and preset frequency
26: Frequency modification enable
27: Counter input
28: Counter reset
29: Length count input
30: Length reset
31: PID pause
32: PID integral pause
33: PID parameter switchover
34: PID action direction reversal
35: Torque control prohibition
36: Switchover between speed control and torque control
38: Flying start
39: Immediate DC braking
40: Deceleration DC braking
41: External stop terminal 1
42: External stop terminal 2
43: Running pause
44: Coast to stop
45: Emergency stop
46: Motor selection terminal
47: Current running duration clear
48: Switchover between two-wire and three-wire control
49: PLC state reset
50: Wobble pause
94: Brake feedback 1
95: Brake feedback 2

Description

Same as A1-00

A1-04 **VDI5 function**

Address:	0xA104	Effective mode:	-
Min.:	0	Unit:	-
Max.:	95	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function
1: Forward RUN (FWD)
2: Reverse RUN (REV)
3: Three-wire operation control
4: Forward jog (FJOG)
5: Reverse jog (RJOG)
6: Terminal UP
7: Terminal DOWN

8: UP and DOWN setting clear (terminal, operating panel)
9: Fault reset (RESET)
10: External fault NO input
11: External fault NC input
12: User-defined fault 1
13: User-defined fault 2
14: Multi-reference terminal 1
15: Multi-reference terminal 2
16: Multi-reference terminal 3
17: Multi-reference terminal 4
18: Acceleration/deceleration selection terminal 1
19: Acceleration/deceleration selection terminal 2
20: Acceleration/Deceleration prohibition
21: Command source switchover terminal 1
22: Command source switchover terminal 2
23: Frequency reference switchover
24: Switchover between main frequency reference X and preset frequency
25: Switchover between auxiliary frequency reference Y and preset frequency
26: Frequency modification enable
27: Counter input
28: Counter reset
29: Length count input
30: Length reset
31: PID pause
32: PID integral pause
33: PID parameter switchover
34: PID action direction reversal
35: Torque control prohibition
36: Switchover between speed control and torque control
38: Flying start
39: Immediate DC braking
40: Deceleration DC braking
41: External stop terminal 1
42: External stop terminal 2
43: Running pause
44: Coast to stop
45: Emergency stop
46: Motor selection terminal
47: Current running duration clear
48: Switchover between two-wire and three-wire control
49: PLC state reset
50: Wobble pause
94: Brake feedback 1
95: Brake feedback 2

Description

Same as A1-00

A1-05 **VDI active state source**

Address: 0xA105 | Effective mode: -
Min.: 0 | Unit: -
Max.: 22222 | Data type: UInt16
Default: 0 | Change: At stop

Value Range:

Ones:

0: A1-06

1: DO state

2: DI state

Tens:

0: A1-06

1: DO state

2: DI state

Hundreds:

0: A1-06

1: DO state

2: DI state

Thousands:

0: A1-06

1: DO state

2: DI state

Ten thousands:

0: A1-06

1: DO state

2: DI state

Description

The VDI state can be set in three ways, which is specified by A1-05.

When this parameter is set to 0, the VDI state is determined by the binary bit of A1-06.

When it is set to 1, the VDI state is determined by the state (active or inactive) of the corresponding DO/RO. VDIx is uniquely bound to DOx/ROx (x ranges from 1 to 5).

When it is set to 2, the VDI state is determined by the state (active or inactive) of the corresponding DI. VDIx is uniquely bound to DIx (x ranges from 1 to 5).

A1-06 **VDI state**

Address: 0xA106 | Effective mode: -
Min.: 0 | Unit: -
Max.: 11111 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:

Ones:

0: Inactive

1: Active

Tens:

0: Inactive

1: Active

Hundreds:

0: Inactive

1: Active

Thousands:

0: Inactive

1: Active

Ten thousands:

0: Inactive

1: Active

Description

This parameter defines whether VDIx (x ranges from 1 to 5) is active or inactive.

A1-07 **AI1 function (used as DI)**

Address:	0xA107	Effective mode:	-
Min.:	0	Unit:	-
Max.:	95	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function

1: Forward RUN (FWD)

2: Reverse RUN (REV)

3: Three-wire operation control

4: Forward jog (FJOG)

5: Reverse jog (RJOG)

6: Terminal UP

7: Terminal DOWN

8: UP and DOWN setting clear (terminal, operating panel)

9: Fault reset (RESET)

10: External fault NO input

11: External fault NC input

12: User-defined fault 1

13: User-defined fault 2

14: Multi-reference terminal 1

15: Multi-reference terminal 2

16: Multi-reference terminal 3

17: Multi-reference terminal 4

18: Acceleration/deceleration selection terminal 1

19: Acceleration/deceleration selection terminal 2

20: Acceleration/Deceleration prohibition

21: Command source switchover terminal 1

22: Command source switchover terminal 2

23: Frequency reference switchover

24: Switchover between main frequency reference X and preset frequency

25: Switchover between auxiliary frequency reference Y and preset frequency

26: Frequency modification enable

27: Counter input

28: Counter reset

29: Length count input

30: Length reset

31: PID pause

32: PID integral pause
33: PID parameter switchover
34: PID action direction reversal
35: Torque control prohibition
36: Switchover between speed control and torque control
38: Flying start
39: Immediate DC braking
40: Deceleration DC braking
41: External stop terminal 1
42: External stop terminal 2
43: Running pause
44: Coast to stop
45: Emergency stop
46: Motor selection terminal
47: Current running duration clear
48: Switchover between two-wire and three-wire control
49: PLC state reset
50: Wobble pause
94: Brake feedback 1
95: Brake feedback 2

Description

Same as F4-01

A1-08 **AI2 function (used as DI)**

Address:	0xA108	Effective mode:	-
Min.:	0	Unit:	-
Max.:	95	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function
1: Forward RUN (FWD)
2: Reverse RUN (REV)
3: Three-wire operation control
4: Forward jog (FJOG)
5: Reverse jog (RJOG)
6: Terminal UP
7: Terminal DOWN
8: UP and DOWN setting clear (terminal, operating panel)
9: Fault reset (RESET)
10: External fault NO input
11: External fault NC input
12: User-defined fault 1
13: User-defined fault 2
14: Multi-reference terminal 1
15: Multi-reference terminal 2
16: Multi-reference terminal 3
17: Multi-reference terminal 4

18: Acceleration/deceleration selection terminal 1
19: Acceleration/deceleration selection terminal 2
20: Acceleration/Deceleration prohibition
21: Command source switchover terminal 1
22: Command source switchover terminal 2
23: Frequency reference switchover
24: Switchover between main frequency reference X and preset frequency
25: Switchover between auxiliary frequency reference Y and preset frequency
26: Frequency modification enable
27: Counter input
28: Counter reset
29: Length count input
30: Length reset
31: PID pause
32: PID integral pause
33: PID parameter switchover
34: PID action direction reversal
35: Torque control prohibition
36: Switchover between speed control and torque control
38: Flying start
39: Immediate DC braking
40: Deceleration DC braking
41: External stop terminal 1
42: External stop terminal 2
43: Running pause
44: Coast to stop
45: Emergency stop
46: Motor selection terminal
47: Current running duration clear
48: Switchover between two-wire and three-wire control
49: PLC state reset
50: Wobble pause
94: Brake feedback 1
95: Brake feedback 2

Description

Same as F4-01

A1-09 **AI3 function (used as DI)**

Address:	0xA109	Effective mode:	-
Min.:	0	Unit:	-
Max.:	95	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: No function
1: Forward RUN (FWD)
2: Reverse RUN (REV)
3: Three-wire operation control

4: Forward jog (FJOG)
5: Reverse jog (RJOG)
6: Terminal UP
7: Terminal DOWN
8: UP and DOWN setting clear (terminal, operating panel)
9: Fault reset (RESET)
10: External fault NO input
11: External fault NC input
12: User-defined fault 1
13: User-defined fault 2
14: Multi-reference terminal 1
15: Multi-reference terminal 2
16: Multi-reference terminal 3
17: Multi-reference terminal 4
18: Acceleration/deceleration selection terminal 1
19: Acceleration/deceleration selection terminal 2
20: Acceleration/Deceleration prohibition
21: Command source switchover terminal 1
22: Command source switchover terminal 2
23: Frequency reference switchover
24: Switchover between main frequency reference X and preset frequency
25: Switchover between auxiliary frequency reference Y and preset frequency
26: Frequency modification enable
27: Counter input
28: Counter reset
29: Length count input
30: Length reset
31: PID pause
32: PID integral pause
33: PID parameter switchover
34: PID action direction reversal
35: Torque control prohibition
36: Switchover between speed control and torque control
38: Flying start
39: Immediate DC braking
40: Deceleration DC braking
41: External stop terminal 1
42: External stop terminal 2
43: Running pause
44: Coast to stop
45: Emergency stop
46: Motor selection terminal
47: Current running duration clear
48: Switchover between two-wire and three-wire control
49: PLC state reset
50: Wobble pause

94: Brake feedback 1

95: Brake feedback 2

Description

Same as F4-01

A1-10 **AI active mode (used as DI)**

Address:	0xA10A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	111	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

Ones:

0: Active high

1: Active low

Tens:

0: Active high

1: Active low

Hundreds:

0: Active high

1: Active low

Description

Same as F4-01

2.20 A5: Control Optimization Parameters

A5-00 **DPWM switchover frequency**

Address:	0xA500	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	50.00	Data type:	UInt16
Default:	12.00	Change:	In real time

Value Range:

0.00 Hz to 50.00 Hz

Description

The AC drive supports two PWM modes: CPWM and DPWM. When the running frequency is higher than A5-00 (DPWM switchover frequency), the DPWM mode is used. When the running frequency is lower than A5-00 (DPWM switchover frequency), the CPWM mode is used. The DPWM mode can improve the AC drive efficiency, whereas the CPWM mode can reduce the motor noise.

Increasing the value of this parameter to the maximum frequency will reduce the motor noise.

A5-01 **PWM modulation mode**

Address:	0xA501	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Asynchronous modulation

1: Synchronous modulation

Description
This parameter defines the PWM modulation mode. Synchronous modulation applies to scenarios that require constant ratio of carrier frequency to modulated wave.

A5-02 **Dead-zone compensation**

Address:	0xA502	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	1	Change:	At stop

Value Range:
0: Disabled
1: Enabled
Description
A deadzone must be reserved for the switch signals of the upper and lower switch transistors on the same bridge arm of the AC drive. Deadzone compensation can improve the current waveform when the motor runs at low frequency.

A5-03 **Random PWM depth**

Address:	0xA503	Effective mode:	-
Min.:	0	Unit:	-
Max.:	10	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 10
Description
If the motor noise is strong, setting A5-03 (Random PWM depth) to a non-zero value can suppress the motor noise. A larger value indicates better noise suppression effect. However, an excessively high value may affect motor control. Therefore, set this parameter to 1 first during commissioning and then increase it by 1 each time as required.

A5-04 **Fast current limiting**

Address:	0xA504	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0: Disabled
1: Enabled
Description
This function is used to minimize the possibility of overcurrent faults, ensuring normal operation of the AC drive.
You are advised to disable this function in hoist applications such as cranes.

A5-05 **Sampling delay**

Address:	0xA505	Effective mode:	-
Min.:	1	Unit:	-
Max.:	13	Data type:	UInt16
Default:	5	Change:	In real time

Value Range:
1 to 13

Description

-

A5-06 **Undervoltage threshold**

Address:	0xA506	Effective mode:	-
Min.:	150.0	Unit:	V
Max.:	455.0	Data type:	UInt16
Default:	350.0	Change:	In real time

Value Range:

150.0 V to 455.0 V

Description

When the bus voltage is lower than the value of A5-06 (Undervoltage threshold), the AC drive reports E05.00 to E07.00 and E09.00.

A5-07 **SVC optimization mode**

Address:	0xA507	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: No optimization

1: Optimization mode 1

2: Optimization mode 2

Description

-

2.21 A6: AI Curve Setting Parameters

A6-00 **Minimum input of AI curve 4**

Address:	0xA600	Effective mode:	-
Min.:	–10.00	Unit:	V
Max.:	10.00	Data type:	Int16
Default:	0.00	Change:	In real time

Value Range:

–10.00 V to +10.00 V

Description

This parameter defines the x-axis of the minimum input point on AI curve 4, that is, the minimum analog input voltage (or minimum analog input current).

A6-01 **Percentage corresponding to minimum input of AI curve 4**

Address:	0xA601	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:

–100.0% to +100.0%

Description

This parameter defines the y-axis of the minimum input point on AI curve 4, that is, the percentage of the minimum analog input relative to the maximum frequency.

A6-02 **Inflection 1 input of AI curve 4**

Address: 0xA602 | Effective mode: -
Min.: –10.00 | Unit: V
Max.: 10.00 | Data type: Int16
Default: 3.00 | Change: In real time

Value Range:

–10.00 V to +10.00 V

Description

This parameter defines the x-axis of inflection 1 on AI curve 4, that is, the analog input voltage (or analog input current) at inflection 1.

A6-03 **Percentage corresponding to inflection 1 input of AI curve 4**

Address: 0xA603 | Effective mode: -
Min.: –100.0 | Unit: %
Max.: 100.0 | Data type: Int16
Default: 30.0 | Change: In real time

Value Range:

–100.0% to +100.0%

Description

This parameter defines the y-axis of inflection 1 on AI curve 4, that is, the percentage of the analog input at inflection 1 relative to the maximum frequency.

A6-04 **Inflection 2 input of AI curve 4**

Address: 0xA604 | Effective mode: -
Min.: –10.00 | Unit: V
Max.: 10.00 | Data type: Int16
Default: 6.00 | Change: In real time

Value Range:

–10.00 V to +10.00 V

Description

This parameter defines the x-axis of inflection 2 on AI curve 4, that is, the analog input voltage (or analog input current) at inflection 2.

A6-05 **Percentage corresponding to inflection 2 input of AI curve 4**

Address: 0xA605 | Effective mode: -
Min.: –100.0 | Unit: %
Max.: 100.0 | Data type: Int16
Default: 60.0 | Change: In real time

Value Range:

–100.0% to +100.0%

Description

This parameter defines the y-axis of inflection 2 on AI curve 4, that is, the percentage of the analog input at inflection 2 relative to the maximum frequency.

A6-06 **Maximum input of AI curve 4**

Address: 0xA606 | Effective mode: -
Min.: –10.00 | Unit: V
Max.: 10.00 | Data type: Int16
Default: 10.00 | Change: In real time

Value Range:

–10.00 V to +10.00 V

Description

This parameter defines the x-axis of the maximum input point on AI curve 4, that is, the maximum analog input voltage (or maximum analog input current).

A6-07 **Percentage corresponding to maximum input of AI curve 4**

Address:	0xA607	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	100.0	Change:	In real time

Value Range:

–100.0% to +100.0%

Description

This parameter defines the y-axis of the maximum input point on AI curve 4, that is, the percentage of the maximum analog input relative to the maximum frequency.

A6-08 **Minimum input of AI curve 5**

Address:	0xA608	Effective mode:	-
Min.:	–10.00	Unit:	V
Max.:	10.00	Data type:	Int16
Default:	–10.00	Change:	In real time

Value Range:

–10.00 V to +10.00 V

Description

This parameter defines the x-axis of the minimum input point on AI curve 5, that is, the minimum analog input voltage (or minimum analog input current).

A6-09 **Percentage corresponding to minimum input of AI curve 5**

Address:	0xA609	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	–100.0	Change:	In real time

Value Range:

–100.0% to +100.0%

Description

This parameter defines the y-axis of the minimum input point on AI curve 5, that is, the percentage of the minimum analog input relative to the maximum frequency.

A6-10 **Inflection 1 input of AI curve 5**

Address:	0xA60A	Effective mode:	-
Min.:	–10.00	Unit:	V
Max.:	10.00	Data type:	Int16
Default:	–3.00	Change:	In real time

Value Range:

–10.00 V to +10.00 V

Description

This parameter defines the x-axis of inflection 1 on AI curve 5, that is, the analog input voltage (or analog input current) at inflection 1.

A6-11 **Percentage corresponding to inflection 1 input of AI curve 5**

Address:	0xA60B	Effective mode:	-
Min.:	–100.0	Unit:	%

Max.: 100.0 | Data type: Int16
Default: –30.0 | Change: In real time

Value Range:

–100.0% to +100.0%

Description

This parameter defines the y-axis of inflection 1 on AI curve 5, that is, the percentage of the analog input at inflection 1 relative to the maximum frequency.

A6-12 **Inflection 2 input of AI curve 5**

Address:	0xA60C	Effective mode:	-
Min.:	–10.00	Unit:	V
Max.:	10.00	Data type:	Int16
Default:	3.00	Change:	In real time

Value Range:

–10.00 V to +10.00 V

Description

This parameter defines the x-axis of inflection 2 on AI curve 5, that is, the analog input voltage (or analog input current) at inflection 2.

A6-13 **Percentage corresponding to inflection 2 input of AI curve 5**

Address:	0xA60D	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	30.0	Change:	In real time

Value Range:

–100.0% to +100.0%

Description

This parameter defines the y-axis of inflection 2 on AI curve 5, that is, the percentage of the analog input at inflection 2 relative to the maximum frequency.

A6-14 **Maximum input of AI curve 5**

Address:	0xA60E	Effective mode:	-
Min.:	–10.00	Unit:	V
Max.:	10.00	Data type:	Int16
Default:	10.00	Change:	In real time

Value Range:

–10.00 V to +10.00 V

Description

This parameter defines the x-axis of the maximum input point on AI curve 5, that is, the maximum analog input voltage (or maximum analog input current).

A6-15 **Percentage corresponding to maximum input of AI curve 5**

Address:	0xA60F	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	100.0	Change:	In real time

Value Range:

–100.0% to +100.0%

Description

This parameter defines the y-axis of the maximum input point on AI curve 5, that is, the percentage of the maximum analog input relative to the maximum frequency.

A6-16 **AI1 gain**

Address:	0xA610	Effective mode:	-
Min.:	–10.00	Unit:	-
Max.:	10.00	Data type:	Int16
Default:	1.00	Change:	In real time

Value Range:

–10.00 to +10.00

Description

This parameter defines the AI1 voltage correction gain.

A6-17 **AI1 offset**

Address:	0xA611	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:

–100.0% to +100.0%

Description

This parameter defines the zero offset coefficient for AI1 voltage correction.

A6-18 **AI2 gain**

Address:	0xA612	Effective mode:	-
Min.:	–10.00	Unit:	-
Max.:	10.00	Data type:	Int16
Default:	1.00	Change:	In real time

Value Range:

–10.00 to +10.00

Description

This parameter defines the AI2 voltage correction gain.

A6-19 **AI2 offset**

Address:	0xA613	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:

–100.0% to +100.0%

Description

This parameter defines the zero offset coefficient for AI2 voltage correction.

A6-20 **AI3 gain**

Address:	0xA614	Effective mode:	-
Min.:	–10.00	Unit:	-
Max.:	10.00	Data type:	Int16
Default:	1.00	Change:	In real time

Value Range:

–10.00 to +10.00

Description

This parameter defines the AI3 voltage correction gain.

A6-21 **AI3 offset**

Address:	0xA615	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:
–100.0% to +100.0%

Description
This parameter defines the zero offset coefficient for AI3 voltage correction.

A6-24 **AI1 skip point**

Address:	0xA618	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:
–100.0% to +100.0%

Description
This parameter defines the skip point for AI1 setting.

A6-25 **AI1 skip amplitude**

Address:	0xA619	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	0.5	Change:	In real time

Value Range:
0.0% to 100.0%

Description
This parameter defines the skip amplitude for AI1 setting.

A6-26 **AI2 skip point**

Address:	0xA61A	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:
–100.0% to +100.0%

Description
This parameter defines the skip point for AI2 setting.

A6-27 **AI2 skip amplitude**

Address:	0xA61B	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	0.5	Change:	In real time

Value Range:
0.0% to 100.0%

Description
This parameter defines the skip amplitude for AI2 setting.

A6-28 **AI3 skip point**

Address:	0xA61C	Effective mode:	-
Min.:	–100.0	Unit:	%
Max.:	100.0	Data type:	Int16
Default:	0.0	Change:	In real time

Value Range:

–100.0% to +100.0%

Description

This parameter defines the skip point for AI3 setting.

A6-29 **AI3 skip amplitude**

Address:	0xA61D	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	100.0	Data type:	UInt16
Default:	0.5	Change:	In real time

Value Range:

0.0% to 100.0%

Description

This parameter defines the skip amplitude for AI3 setting.

2.22 A9: Vector Control Supplementary Parameters

A9-00 **Online auto-tuning on rotor time constant of asynchronous motor**

Address:	0xA900	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Disabled

1: Enabled

Description

This parameter defines whether to enable online auto-tuning on the rotor time constant of the asynchronous motor. Enabling it can improve the accuracy of field orientation. The default value is recommended.

A9-04 **Maximum torque limit coefficient for asynchronous motor in field-weakening range**

Address:	0xA904	Effective mode:	-
Min.:	30	Unit:	-
Max.:	150	Data type:	UInt16
Default:	80	Change:	In real time

Value Range:

30 to 150

Description

This parameter defines the maximum torque limit coefficient for the asynchronous motor in the field-weakening range. The default value is recommended.

A9-05 **Speed filter of asynchronous motor in SVC mode**

Address:	0xA905	Effective mode:	-
Min.:	5	Unit:	ms

Max.:	32	Data type:	UInt16
Default:	15	Change:	In real time

Value Range:

5 ms to 32 ms

Description

This parameter defines the speed filter of the asynchronous motor in SVC mode. Increase the value as appropriate in scenarios where the speed fluctuates greatly. The default value is recommended.

A9-06 **Speed feedback processing of asynchronous motor in SVC mode**

Address:	0xA906	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: No specific processing

1: Limit minimum synchronization frequency based on load change

2: Output fixed current during low-speed running

3: Output fixed current during low-speed running

Description

This parameter defines speed feedback processing of the synchronous motor in SVC mode. The default value is recommended.

A9-07 **Magnetic field adjustment bandwidth of asynchronous motor in SVC mode**

Address:	0xA907	Effective mode:	-
Min.:	0.0	Unit:	-
Max.:	8.0	Data type:	UInt16
Default:	2.0	Change:	In real time

Value Range:

0.0 to 8.0

Description

This parameter defines the magnetic field adjustment bandwidth of the asynchronous motor in SVC mode. The default value is recommended.

A9-08 **Low-speed running current of asynchronous motor in SVC mode**

Address:	0xA908	Effective mode:	-
Min.:	30	Unit:	-
Max.:	170	Data type:	UInt16
Default:	100	Change:	In real time

Value Range:

30 to 170

Description

This parameter defines the low-speed running current of the asynchronous motor in SVC mode. The default value is recommended.

A9-09 **Switchover frequency for fixed current output of asynchronous motor in SVC mode**

Address:	0xA909	Effective mode:	-
Min.:	2.0	Unit:	Hz
Max.:	100.0	Data type:	UInt16
Default:	3.0	Change:	In real time

Value Range:

2.0 Hz to 100.0 Hz

Description

This parameter defines the switchover frequency for fixed current output of the asynchronous motor in SVC mode. The default value is recommended.

A9-10 **Speed fluctuation suppression coefficient of asynchronous motor in SVC mode**

Address:	0xA90A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	6	Data type:	UInt16
Default:	3	Change:	In real time

Value Range:

0 to 6

Description

This parameter defines the speed fluctuation suppression coefficient of the asynchronous motor in SVC mode. The default value is recommended.

A9-11 **Acceleration/Deceleration time of asynchronous motor in SVC mode**

Address:	0xA90B	Effective mode:	-
Min.:	0.1	Unit:	s
Max.:	3000.0	Data type:	UInt16
Default:	20.0	Change:	In real time

Value Range:

0.1s to 3000.0s

Description

This parameter defines the acceleration/deceleration time of the asynchronous motor in SVC mode. The default value is recommended.

A9-12 **Quick auto-tuning of stator resistance of asynchronous motor before startup**

Address:	0xA90C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Disabled

1: Enabled

Description

This parameter defines whether to enable quick auto-tuning of the stator resistance of the asynchronous motor before startup. The default value is recommended.

A9-13 **Coefficient 1 of quick auto-tuning on stator resistance of asynchronous motor**

Address:	0xA90D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	10	Change:	At stop

Value Range:

0 to 65535

Description

This parameter defines coefficient 1 of quick auto-tuning on the stator resistance of the asynchronous motor.

A9-14 **Coefficient 2 of quick auto-tuning on stator resistance of asynchronous motor**

Address:	0xA90E	Effective mode:	-

Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	10	Change:	At stop

Value Range:

0 to 65535

Description

This parameter defines coefficient 2 of quick auto-tuning on the stator resistance of the asynchronous motor.

A9-15 **Coefficient 3 of quick auto-tuning on stator resistance of asynchronous motor**

Address:	0xA90F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0 to 65535

Description

This parameter defines coefficient 3 of quick auto-tuning on the stator resistance of the asynchronous motor.

A9-17 **Real-time angle of synchronous motor**

Address:	0xA911	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the real-time angle of the synchronous motor.

A9-18 **Initial angle detection of synchronous motor**

Address:	0xA912	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Detected upon running

1: Not detected

2: Detected upon initial running after power-on

Description

This parameter defines the detection mode of the initial position angle of the synchronous motor. The default value is recommended.

A9-20 **Field weakening mode**

Address:	0xA914	Effective mode:	-
Min.:	0	Unit:	-
Max.:	3	Data type:	UInt16
Default:	1	Change:	At stop

Value Range:

0: Automatic mode

1: Synchronous motor adjustment mode

2: Synchronous motor hybrid mode

3: Disabled

Description

This parameter defines the field weakening mode. The default value is recommended.

A9-21 **Field-weakening gain of synchronous motor**

Address:	0xA915	Effective mode:	-
Min.:	0	Unit:	-
Max.:	50	Data type:	UInt16
Default:	5	Change:	In real time

Value Range:

0 to 50

Description

This parameter defines the field-weakening gain of the synchronous motor. The default value is recommended.

A9-22 **Output voltage upper limit margin of synchronous motor**

Address:	0xA916	Effective mode:	-
Min.:	0	Unit:	%
Max.:	50	Data type:	UInt16
Default:	5	Change:	In real time

Value Range:

0% to 50%

Description

This parameter defines the margin of the output voltage upper limit of the synchronous motor. The default value is recommended.

A9-23 **Maximum output adjustment gain of synchronous motor**

Address:	0xA917	Effective mode:	-
Min.:	20	Unit:	%
Max.:	300	Data type:	UInt16
Default:	100	Change:	In real time

Value Range:

20% to 300%

Description

This parameter defines the maximum output adjustment gain of the synchronous motor. The default value is recommended.

A9-24 **Adjustment gain of calculated excitation current of synchronous motor**

Address:	0xA918	Effective mode:	-
Min.:	40	Unit:	%
Max.:	200	Data type:	UInt16
Default:	100	Change:	In real time

Value Range:

40% to 200%

Description

This parameter defines the adjustment gain of the calculated excitation current of the synchronous motor. The default value is recommended.

A9-25 **Integral gain for speed estimation of synchronous motor in SVC mode**

Address:	0xA919	Effective mode:	-

Min.:	5	Unit:	-
Max.:	1000	Data type:	UInt16
Default:	30	Change:	In real time

Value Range:
5 to 1000
Description
This parameter defines the integral gain for speed estimation of the synchronous motor in SVC mode. The default value is recommended.

A9-26 Proportional gain for speed estimation of synchronous motor in SVC mode

Address:	0xA91A	Effective mode:	-
Min.:	5	Unit:	-
Max.:	300	Data type:	UInt16
Default:	20	Change:	In real time

Value Range:
5 to 300
Description
This parameter defines the proportional gain for speed estimation of the synchronous motor in SVC mode. The default value is recommended.

A9-27 Speed estimation filter of synchronous motor in SVC mode

Address:	0xA91B	Effective mode:	-
Min.:	10	Unit:	-
Max.:	2000	Data type:	UInt16
Default:	100	Change:	In real time

Value Range:
10 to 2000
Description
This parameter defines the speed estimation filter of the synchronous motor in SVC mode. The default value is recommended.

A9-28 Minimum carrier frequency of synchronous motor in SVC mode

Address:	0xA91C	Effective mode:	-
Min.:	8	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	20	Change:	In real time

Value Range:
8 to 65535
Description
This parameter defines the minimum carrier frequency of the synchronous motor in SVC mode. The default value is recommended.

A9-29 Low-speed excitation current of synchronous motor in SVC mode

Address:	0xA91D	Effective mode:	-
Min.:	0	Unit:	%
Max.:	80	Data type:	UInt16
Default:	30	Change:	In real time

Value Range:
0% to 80%
Description
This parameter defines the low-speed excitation current of the synchronous motor in SVC mode. The default value is recommended.

A9-40 **Low-speed closed-loop current enable (for PMVVC)**

Address:	0xA928	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

This parameter defines whether to enable the closed-loop current at low speed (for PMVVC).
The default value is recommended.

A9-41 **Low-speed closed-loop current (for PMVVC)**

Address:	0xA929	Effective mode:	-
Min.:	30	Unit:	-
Max.:	200	Data type:	UInt16
Default:	50	Change:	At stop

Value Range:

30 to 200

Description

This parameter defines the low-speed closed-loop current (for PMVVC).
The default value is recommended.

A9-42 **Oscillation suppression damping coefficient (for PMVVC)**

Address:	0xA92A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	500	Data type:	UInt16
Default:	100	Change:	In real time

Value Range:

0 to 500

Description

This parameter defines the oscillation suppression damping coefficient (for PMVVC).
The default value is recommended.

A9-43 **Reserved**

Address:	0xA92B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

-

A9-44 **Initial position compensation angle (for PMVVC)**

Address:	0xA92C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	5	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0 to 5

Description

This parameter defines the initial position compensation angle (for PMVVC). The default value is recommended.

A9-45 **Synchronous motor low-speed handling**

Address:	0xA92D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	At stop

Value Range:

0: Disabled

1: Enabled

Description

-

A9-46 **Low-speed handling switchover frequency of synchronous motor**

Address:	0xA92E	Effective mode:	-
Min.:	0.01	Unit:	Hz
Max.:	655.35	Data type:	UInt16
Default:	5.00	Change:	At stop

Value Range:

0.01 Hz to 655.35 Hz

Description

-

A9-47 **Low-speed handling current of synchronous motor**

Address:	0xA92F	Effective mode:	-
Min.:	10	Unit:	-
Max.:	200	Data type:	UInt16
Default:	100	Change:	At stop

Value Range:

10 to 200

Description

-

A9-48 **Low-speed handling feedback suppression coefficient of synchronous motor**

Address:	0xA930	Effective mode:	-
Min.:	0	Unit:	-
Max.:	300	Data type:	UInt16
Default:	32	Change:	At stop

Value Range:

0 to 300

Description

-

A9-51 **Advanced settings for asynchronous motor parameter auto-tuning**

Address:	0xA933	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1111	Data type:	UInt16
Default:	111	Change:	At stop

Value Range:

Ones: Rotor resistance and leakage inductance DC offset

0: Standard offset

1: Large offset
Tens: New rotor resistance and leakage inductance auto-tuning algorithm
0: Disabled
1: Enabled
Hundreds: New mutual inductance static auto-tuning algorithm
0: Disabled
1: Enabled
Thousands: Stator resistance auto-tuning algorithm
0: Current open loop
1: Current closed loop

Description

-

A9-52 **Feedback torque selection (displayed in U0-06)**

Address:	0xA934	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:

0: Motoring torque being positive and generating torque being negative
1: Torque direction being positive in the case of positive speed direction; torque direction being negative in the case of negative speed direction

Description

-

2.23 AD: Black Box Parameters

AD-00 **Start/Stop of background oscilloscope**

Address:	0xAD00	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:

0 to 1

Description

-

AD-01 **Channel 1 parameter**

Address:	0xAD01	Effective mode:	-
Min.:	0	Unit:	-
Max.:	999	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 999

Description

-

AD-02 **Channel 2 parameter**

Address:	0xAD02	Effective mode:	-
Min.:	0	Unit:	-
Max.:	999	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 999
Description
-

AD-03 **Channel 3 parameter**

Address:	0xAD03	Effective mode:	-
Min.:	0	Unit:	-
Max.:	999	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 999
Description
-

AD-04 **Channel 4 parameter**

Address:	0xAD04	Effective mode:	-
Min.:	0	Unit:	-
Max.:	999	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 999
Description
-

AD-05 **Sampling interval (carrier period)**

Address:	0xAD05	Effective mode:	-
Min.:	1	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:
1 to 65535
Description
-

AD-06 **Trigger object A**

Address:	0xAD06	Effective mode:	-
Min.:	0	Unit:	-
Max.:	999	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:
0 to 999
Description
-

AD-07 **Trigger condition A**

Address:	0xAD07	Effective mode:	-

Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Greater than (>)

1: Equal to (=)

2: Less than (<)

Description

-

AD-08 **Trigger level A**

Address:	0xAD08	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AD-09 **Trigger object B**

Address:	0xAD09	Effective mode:	-
Min.:	0	Unit:	-
Max.:	999	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:

0 to 999

Description

-

AD-10 **Trigger condition B**

Address:	0xAD0A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Greater than (>)

1: Equal to (=)

2: Less than (<)

Description

-

AD-11 **Trigger level B**

Address:	0xAD0B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AD-12 **Trigger group**

Address:	0xAD0C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Triggered when condition A satisfied

1: Triggered when condition B satisfied

2: Triggered when both conditions A and B satisfied

Description

-

AD-13 **Carrier frequency cycle during data storage**

Address:	0xAD0D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

-

AD-14 **Fault value**

Address:	0xAD0E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

-

AD-15 **Data saving cycle**

Address:	0xAD0F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Carrier cycle

1: 0.5 ms

1: 2 ms

Description

-

AD-16 **Source of data read by host controller**

Address:	0xAD10	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: RAM

1: FLASH

Description

-

AD-17 **Flash rewriting**

Address:	0xAD11	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	1	Change:	In real time

Value Range:

0: No

1: Yes

Description

-

2.24 AF: Process Data Address Mapping Parameters

AF-00 **RPDO1-SubIndex0-H**

Address:	0xAF00	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-01 **RPDO1-SubIndex0-L**

Address:	0xAF01	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-02 **RPDO1-SubIndex1-H**

Address:	0xAF02	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-03 **RPDO1-SubIndex1-L**

Address:	0xAF03	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16

Default: 0 Change: In real time

Value Range:

0 to 65535

Description

-

AF-04 **RPDO1-SubIndex2-H**

Address: 0xAF04 Effective mode: -

Min.: 0 Unit: -

Max.: 65535 Data type: UInt16

Default: 0 Change: In real time

Value Range:

0 to 65535

Description

-

AF-05 **RPDO1-SubIndex2-L**

Address: 0xAF05 Effective mode: -

Min.: 0 Unit: -

Max.: 65535 Data type: UInt16

Default: 0 Change: In real time

Value Range:

0 to 65535

Description

-

AF-06 **RPDO1-SubIndex3-H**

Address: 0xAF06 Effective mode: -

Min.: 0 Unit: -

Max.: 65535 Data type: UInt16

Default: 0 Change: In real time

Value Range:

0 to 65535

Description

-

AF-07 **RPDO1-SubIndex3-L**

Address: 0xAF07 Effective mode: -

Min.: 0 Unit: -

Max.: 65535 Data type: UInt16

Default: 0 Change: In real time

Value Range:

0 to 65535

Description

-

AF-08 **RPDO2-SubIndex0-H**

Address: 0xAF08 Effective mode: -

Min.: 0 Unit: -

Max.: 65535 Data type: UInt16

Default: 0 Change: In real time

Value Range:

0 to 65535

Description

-

AF-09 **RPDO2-SubIndex0-L**

Address:	0xAF09	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-10 **RPDO2-SubIndex1-H**

Address:	0xAF0A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-11 **RPDO2-SubIndex1-L**

Address:	0xAF0B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-12 **RPDO2-SubIndex2-H**

Address:	0xAF0C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-13 **RPDO2-SubIndex2-L**

Address:	0xAF0D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-14 **RPDO2-SubIndex3-H**

Address:	0xAF0E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-15 **RPDO2-SubIndex3-L**

Address:	0xAF0F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-16 **RPDO3-SubIndex0-H**

Address:	0xAF10	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-17 **RPDO3-SubIndex0-L**

Address:	0xAF11	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-18 **RPDO3-SubIndex1-H**

Address:	0xAF12	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-19 **RPDO3-SubIndex1-L**

Address:	0xAF13	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-20 **RPDO3-SubIndex2-H**

Address:	0xAF14	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-21 **RPDO3-SubIndex2-L**

Address:	0xAF15	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-22 **RPDO3-SubIndex3-H**

Address:	0xAF16	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-23 **RPDO3-SubIndex3-L**

Address:	0xAF17	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-24 **RPDO4-SubIndex0-H**

Address:	0xAF18	Effective mode:	-

Min.: 0
Max.: 65535
Default: 0
Unit: -
Data type: UInt16
Change: In real time

Value Range:
0 to 65535
Description
-

AF-25 **RPDO4-SubIndex0-L**

Address: 0xAF19
Min.: 0
Max.: 65535
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: In real time

Value Range:
0 to 65535
Description
-

AF-26 **RPDO4-SubIndex1-H**

Address: 0xAF1A
Min.: 0
Max.: 65535
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: In real time

Value Range:
0 to 65535
Description
-

AF-27 **RPDO4-SubIndex1-L**

Address: 0xAF1B
Min.: 0
Max.: 65535
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: In real time

Value Range:
0 to 65535
Description
-

AF-28 **RPDO4-SubIndex2-H**

Address: 0xAF1C
Min.: 0
Max.: 65535
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: In real time

Value Range:
0 to 65535
Description
-

AF-29 **RPDO4-SubIndex2-L**

Address: 0xAF1D
Min.: 0
Max.: 65535
Effective mode: -
Unit: -
Data type: UInt16

Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
-

AF-30 **RPDO4-SubIndex3-H**

Address: 0xAF1E | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
-

AF-31 **RPDO4-SubIndex3-L**

Address: 0xAF1F | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
-

AF-32 **TPDO1-SubIndex0-H**

Address: 0xAF20 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
-

AF-33 **TPDO1-SubIndex0-L**

Address: 0xAF21 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
-

AF-34 **TPDO1-SubIndex1-H**

Address: 0xAF22 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:

0 to 65535

Description

-

AF-35 **TPDO1-SubIndex1-L**

Address:	0xAF23	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-36 **TPDO1-SubIndex2-H**

Address:	0xAF24	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-37 **TPDO1-SubIndex2-L**

Address:	0xAF25	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-38 **TPDO1-SubIndex3-H**

Address:	0xAF26	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-39 **TPDO1-SubIndex3-L**

Address:	0xAF27	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-40 **TPDO2-SubIndex0-H**

Address:	0xAF28	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-41 **TPDO2-SubIndex0-L**

Address:	0xAF29	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-42 **TPDO2-SubIndex1-H**

Address:	0xAF2A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-43 **TPDO2-SubIndex1-L**

Address:	0xAF2B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-44 **TPDO2-SubIndex2-H**

Address:	0xAF2C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-45 **TPDO2-SubIndex2-L**

Address: 0xAF2D
Min.: 0
Max.: 65535
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: In real time

Value Range:

0 to 65535

Description

-

AF-46 **TPDO2-SubIndex3-H**

Address: 0xAF2E
Min.: 0
Max.: 65535
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: In real time

Value Range:

0 to 65535

Description

-

AF-47 **TPDO2-SubIndex3-L**

Address: 0xAF2F
Min.: 0
Max.: 65535
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: In real time

Value Range:

0 to 65535

Description

-

AF-48 **TPDO3-SubIndex0-H**

Address: 0xAF30
Min.: 0
Max.: 65535
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: In real time

Value Range:

0 to 65535

Description

-

AF-49 **TPDO3-SubIndex0-L**

Address: 0xAF31
Min.: 0
Max.: 65535
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: In real time

Value Range:

0 to 65535

Description

-

AF-50 **TPDO3-SubIndex1-H**

Address: 0xAF32
Effective mode: -

Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
-

AF-51 **TPDO3-SubIndex1-L**

Address:	0xAF33	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
-

AF-52 **TPDO3-SubIndex2-H**

Address:	0xAF34	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
-

AF-53 **TPDO3-SubIndex2-L**

Address:	0xAF35	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
-

AF-54 **TPDO3-SubIndex3-H**

Address:	0xAF36	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:
0 to 65535
Description
-

AF-55 **TPDO3-SubIndex3-L**

Address:	0xAF37	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16

Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
-

AF-56 **TPDO4-SubIndex0-H**

Address: 0xAF38 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
-

AF-57 **TPDO4-SubIndex0-L**

Address: 0xAF39 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
-

AF-58 **TPDO4-SubIndex1-H**

Address: 0xAF3A | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
-

AF-59 **TPDO4-SubIndex1-L**

Address: 0xAF3B | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:
0 to 65535
Description
-

AF-60 **TPDO4-SubIndex2-H**

Address: 0xAF3C | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: In real time

Value Range:

0 to 65535

Description

-

AF-61 **TPDO4-SubIndex2-L**

Address:	0xAF3D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-62 **TPDO4-SubIndex3-H**

Address:	0xAF3E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-63 **TPDO4-SubIndex3-L**

Address:	0xAF3F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0 to 65535

Description

-

AF-66 **Number of valid RPDOs**

Address:	0xAF42	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

-

AF-67 **Number of valid TPDOs**

Address:	0xAF43	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

-

2.25 B7: Brake Control Parameters

B7-00 **Target frequency limit**

Address:	0xB700	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	20.00	Data type:	UInt16
Default:	2.00	Change:	In real time

Value Range:

0.00 Hz to 20.00 Hz

Description

This parameter defines the lower limit for the frequency reference when the brake mode is enabled. It does not conflict with the frequency lower limit defined by F0-14. The larger value between the two takes effect.

B7-01 **Brake release frequency (forward)**

Address:	0xB701	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	20.00	Data type:	UInt16
Default:	2.00	Change:	In real time

Value Range:

0.00 Hz to 20.00 Hz

Description

This parameter defines the output frequency of the AC drive during forward running before the brake releases completely, that is, the minimum frequency at which the motor can output full torque.

B7-02 **Brake release frequency (reverse)**

Address:	0xB702	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	20.00	Data type:	UInt16
Default:	2.00	Change:	In real time

Value Range:

0.00 Hz to 20.00 Hz

Description

This parameter defines the output frequency of the AC drive during reverse running before the brake releases completely, that is, the minimum frequency at which the motor can output full torque.

B7-03 **Brake release torque (forward)**

Address:	0xB703	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	200.0	Data type:	UInt16
Default:	30.0	Change:	In real time

Value Range:

0.0% to 200.0%

Description

This parameter defines the percentage of the rated current or torque of the motor during forward running. When the output of the AC drive reaches the value of this parameter, the AC drive outputs the brake release command immediately (output 1 active, DO function 53).

B7-04 **Brake release torque (reverse)**

Address: 0xB704 | Effective mode: -
Min.: 0.0 | Unit: %
Max.: 200.0 | Data type: UInt16
Default: 30.0 | Change: In real time

Value Range:

0.0% to 200.0%

Description

This parameter defines the percentage of the rated current or torque of the motor during reverse running. When the output of the AC drive reaches the value of this parameter, the AC drive outputs the brake release command immediately (output 1 active, DO function 53).

B7-05 **Brake release time**

Address: 0xB705 | Effective mode: -
Min.: 0.00 | Unit: s
Max.: 5.00 | Data type: UInt16
Default: 0.50 | Change: In real time

Value Range:

0.00s to 5.00s

Description

This parameter defines the time required for the brake to release completely upon receiving the brake release command. The AC drive maintains the output at the brake release frequency within this period of time.

B7-06 **Brake applying frequency (forward)**

Address: 0xB706 | Effective mode: -
Min.: 0.00 | Unit: Hz
Max.: 20.00 | Data type: UInt16
Default: 2.00 | Change: In real time

Value Range:

0.00 Hz to 20.00 Hz

Description

When the output frequency of the AC drive falls below the value of this parameter during deceleration after the forward running command is canceled, the AC drive outputs the brake applying command immediately.

B7-07 **Brake applying frequency (reverse)**

Address: 0xB707 | Effective mode: -
Min.: 0.00 | Unit: Hz
Max.: 20.00 | Data type: UInt16
Default: 2.00 | Change: In real time

Value Range:

0.00 Hz to 20.00 Hz

Description

When the output frequency of the AC drive falls below the value of this parameter during deceleration after the reverse running command is canceled, the AC drive outputs the brake applying command immediately.

B7-08 **Brake applying delay**

Address: 0xB708 | Effective mode: -

Min.:	0.00	Unit:	s
Max.:	5.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 5.00s

Description

This parameter defines the delay time for the AC drive to output the brake applying command when the brake applying condition is met.

B7-09 Brake applying time

Address:	0xB709	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	5.00	Data type:	UInt16
Default:	0.50	Change:	In real time

Value Range:

0.00s to 5.00s

Description

This parameter defines the time required for the mechanical brake to apply completely. The AC drive maintains the output at the brake applying frequency within this period of time.

B7-10 Excitation holding time after stop

Address:	0xB70A	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	500.00	Data type:	UInt16
Default:	0.00	Change:	In real time

Value Range:

0.00s to 500.00s

Description

This parameter defines the holding time of the excitation state after the AC drive stops. During this holding time, the AC drive provides zero speed output and retains excitation current. If the AC drive receives the RUN command during this period, it can skip the pre-excitation stage and release the brake quickly.

B7-11 Restart delay

Address:	0xB70B	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	15.00	Data type:	UInt16
Default:	0.30	Change:	In real time

Value Range:

0.00s to 15.00s

Description

This parameter defines the delay time for the AC drive to wait before a restart every time it stops.

B7-12 Startup direction

Address:	0xB70C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Same as the running direction

1: Always forward

Description

This parameter defines the output torque direction of the AC drive within the brake release time.

B7-13 **Pre-torque source**

Address:	0xB70D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	2	Data type:	UInt16
Default:	2	Change:	In real time

Value Range:

0: Digital setting

1: Pre-torque memory

2: Disabled

Description

0: The target torque before output of the brake release frequency is defined by B7-14 and B7-15.

1: The target torque before output of the brake release frequency is the output torque recorded upon the previous stop.

2: The pre-torque function is disabled. There is no torque output before output of the brake release frequency.

B7-14 **Pre-torque reference (forward)**

Address:	0xB70E	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	200.0	Data type:	UInt16
Default:	30.0	Change:	In real time

Value Range:

0.0% to 200.0%

Description

This parameter defines the target torque before output of the brake release frequency during forward running.

B7-15 **Pre-torque reference (reverse)**

Address:	0xB70F	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	200.0	Data type:	UInt16
Default:	30.0	Change:	In real time

Value Range:

0.0% to 200.0%

Description

This parameter defines the target torque before output of the brake release frequency during reverse running.

B7-16 **Current acceleration/deceleration time**

Address:	0xB710	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	5.00	Data type:	UInt16
Default:	0.50	Change:	In real time

Value Range:

0.00s to 5.00s

Description

This parameter defines the pre-torque acceleration/deceleration time.

B7-17 **Reverse running command**

Address:	0xB711	Effective mode:	-
Min.:	0	Unit:	-
Max.:	1	Data type:	UInt16
Default:	0	Change:	In real time

Value Range:

0: Prohibited

1: Allowed (FVC)

Description

-

B7-18 **Brake release timeout time**

Address:	0xB712	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	5.00	Data type:	UInt16
Default:	2.00	Change:	In real time

Value Range:

0.00s to 5.00s

Description

After the output frequency reaches the brake release frequency, the AC drive will report a brake release fault if the current/torque condition for brake release is not satisfied after the timeout period defined by this parameter elapses.

B7-21 **Frequency exception detection cycle**

Address:	0xB715	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	1.00	Data type:	UInt16
Default:	0.50	Change:	In real time

Value Range:

0.00s to 1.00s

Description

When the direction of the running frequency is opposite to that of the frequency reference for a period longer than the time defined by this parameter, the AC drive reports a frequency exception fault (No. 37).

B7-22 **Frequency following error**

Address:	0xB716	Effective mode:	-
Min.:	0	Unit:	%
Max.:	30	Data type:	UInt16
Default:	20	Change:	In real time

Value Range:

0% to 30%

Description

When the difference between the running frequency and the frequency reference is greater than the value of this parameter for a period longer than the time defined by B7-23, the AC drive reports a frequency following fault (No. 38).

B7-23 **Frequency following detection cycle**

Address:	0xB717	Effective mode:	-
Min.:	0.00	Unit:	s
Max.:	1.00	Data type:	UInt16

Default: 0.50 Change: In real time

Value Range:

0.00s to 1.00s

Description

When the difference between the running frequency and the frequency reference is greater than B7-22 (Frequency following error) for a period longer than the time defined by this parameter, the AC drive reports a frequency following fault (No. 38).

B7-24 **Torque limit reach detection cycle**

Address: 0xB718 Effective mode: -

Min.: 0.00 Unit: s

Max.: 5.00 Data type: UInt16

Default: 0.00 Change: In real time

Value Range:

0.00s to 5.00s

Description

When the torque reaches the limit and remains so for longer than the time defined by B7-24 (Torque limit reach detection cycle), the AC drive reports a torque limit fault (No. 36).

2.26 U0: General Monitoring Parameters

U0-00 **Running frequency**

Address: 0x7000 Effective mode: -

Min.: 0.00 Unit: Hz

Max.: 0.00 Data type: UInt16

Default: 0.00 Change: Unchangeable

Value Range:

0.00 Hz to 0.00 Hz

Description

This parameter shows the running frequency (Hz) of the AC drive.

U0-01 **Frequency reference**

Address: 0x7001 Effective mode: -

Min.: 0.00 Unit: Hz

Max.: 0.00 Data type: UInt16

Default: 0.00 Change: Unchangeable

Value Range:

0.00 Hz to 0.00 Hz

Description

This parameter shows the frequency reference (Hz) of the AC drive.

U0-02 **Bus voltage**

Address: 0x7002 Effective mode: -

Min.: 0.0 Unit: V

Max.: 0.0 Data type: UInt16

Default: 0.0 Change: Unchangeable

Value Range:

0.0 V to 0.0 V

Description

This parameter defines the bus voltage (V) of the AC drive.

U0-03 **Output voltage**

Address:	0x7003	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 V to 0 V

Description

This parameter shows the output voltage (V) of the AC drive.

U0-04 **Output current**

Address:	0x7004	Effective mode:	-
Min.:	0.00	Unit:	A
Max.:	0.00	Data type:	UInt16
Default:	0.00	Change:	Unchangeable

Value Range:

0.00 A to 0.00 A

Description

This parameter shows the output current (A) of the AC drive.

U0-05 **Output power**

Address:	0x7005	Effective mode:	-
Min.:	0.0	Unit:	kW
Max.:	0.0	Data type:	Int16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0 kW to 0.0 kW

Description

This parameter shows the output power (kW) of the AC drive.

U0-06 **Output torque**

Address:	0x7006	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	0.0	Data type:	Int16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0% to 0.0%

Description

This parameter shows the output torque (%) of the AC drive.

U0-07 **DI state**

Address:	0x7007	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the input state of the DI terminal of the AC drive.
Bit0: DI1
Bit1: DI2
Bit2: DI3
Bit3: DI4
Bit4: DI5
Bit5: DI6
Bit6: DI7
Bit7: DI8
Bit8: VDI1
Bit9: VDI2
Bit10: VDI3
Bit11: VDI4
Bit12: VDI5
Bit13: AI1-DI
Bit14: AI2-DI
Bit15: AI3-DI

U0-08 **DO/RO state**

Address:	0x7008	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the output state of the DO/RO terminal of the AC drive.
Bit0: DO1/RO1
Bit1: DO2/RO2
Bit2: DO3/RO3
Bit3: DO4/RO4
Bit4: DO5/RO5

U0-09 **AI1 voltage**

Address:	0x7009	Effective mode:	-
Min.:	0.00	Unit:	V
Max.:	0.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:
0.00 V to 0.00 V
Description
This parameter shows the current voltage (V) of AI1.

U0-10 **AI2 voltage**

Address:	0x700A	Effective mode:	-
Min.:	0.00	Unit:	V
Max.:	0.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:
0.00 V to 0.00 V
Description
This parameter shows the current voltage (V) of AI2.

U0-11 **AI3 voltage**

Address: 0x700B
Min.: 0.00
Max.: 0.00
Default: 0.00
Effective mode: -
Unit: V
Data type: Int16
Change: Unchangeable

Value Range:
0.00 V to 0.00 V

Description
This parameter shows the current voltage (V) of AI3.

U0-12 **Count value**

Address: 0x700C
Min.: 0
Max.: 0
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: Unchangeable

Value Range:
0 to 0

Description
-

U0-13 **Length value**

Address: 0x700D
Min.: 0
Max.: 0
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: Unchangeable

Value Range:
0 to 0

Description
-

U0-14 **Load speed**

Address: 0x700E
Min.: 0
Max.: 0
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: Unchangeable

Value Range:
0 to 0

Description
-

U0-15 **PID reference**

Address: 0x700F
Min.: 0
Max.: 0
Default: 0
Effective mode: -
Unit: -
Data type: UInt16
Change: Unchangeable

Value Range:
0 to 0

Description
-

U0-16 **PID feedback**

Address: 0x7010
Effective mode: -

Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
-

U0-17 **PLC stage**

Address:	0x7011	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
-

U0-19 **Feedback speed**

Address:	0x7013	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	0.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:
0.00 Hz to 0.00 Hz
Description
-

U0-20 **Remaining running duration**

Address:	0x7014	Effective mode:	-
Min.:	0.0	Unit:	min
Max.:	0.0	Data type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:
0.0 min to 0.0 min
Description
-

U0-21 **AI1 voltage after gain and offset adjustment**

Address:	0x7015	Effective mode:	-
Min.:	0.000	Unit:	V
Max.:	0.000	Data type:	Int16
Default:	0.000	Change:	Unchangeable

Value Range:
0.000 V to 0.000 V
Description
This parameter shows the voltage (V) of AI1 after gain and offset adjustment.

U0-22 **AI2 voltage after gain and offset adjustment**

Address:	0x7016	Effective mode:	-
Min.:	0.000	Unit:	V
Max.:	0.000	Data type:	Int16

Default: 0.000 Change: Unchangeable

Value Range:

0.000 V to 0.000 V

Description

This parameter shows the voltage (V) of AI2 after gain and offset adjustment.

U0-23 AI3 voltage after gain and offset adjustment

Address:	0x7017	Effective mode:	-
Min.:	0.000	Unit:	V
Max.:	0.000	Data type:	Int16
Default:	0.000	Change:	Unchangeable

Value Range:

0.000 V to 0.000 V

Description

This parameter defines the voltage (V) of AI3 after gain and offset adjustment.

U0-24 Linear speed

Address:	0x7018	Effective mode:	-
Min.:	0	Unit:	m/min
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 m/min to 0 m/min

Description

-

U0-25 Current power-on duration

Address:	0x7019	Effective mode:	-
Min.:	0	Unit:	min
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 min to 0 min

Description

This parameter shows the duration (min) from power-on to the current time.

U0-26 Current running duration

Address:	0x701A	Effective mode:	-
Min.:	0.0	Unit:	min
Max.:	0.0	Data type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0 min to 0.0 min

Description

This parameter shows the duration (min) from power-on to the current time.

U0-28 Communication reference

Address:	0x701C	Effective mode:	-
Min.:	0.00	Unit:	%
Max.:	0.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:
0.00% to 0.00%
Description
-

U0-30 **Main frequency X**

Address:	0x701E	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	0.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:
0.00 Hz to 0.00 Hz
Description
This parameter shows the main frequency (Hz) of the AC drive.

U0-31 **Auxiliary frequency Y**

Address:	0x701F	Effective mode:	-
Min.:	0.00	Unit:	Hz
Max.:	0.00	Data type:	Int16
Default:	0.00	Change:	Unchangeable

Value Range:
0.00 Hz to 0.00 Hz
Description
This parameter shows the auxiliary frequency (Hz) of the AC drive.

U0-33 **Rotor position of synchronous motor**

Address:	0x7021	Effective mode:	-
Min.:	0.0	Unit:	°
Max.:	0.0	Data type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:
0.0° to 0.0°
Description
-

U0-35 **Target torque**

Address:	0x7023	Effective mode:	-
Min.:	0.0	Unit:	%
Max.:	0.0	Data type:	Int16
Default:	0.0	Change:	Unchangeable

Value Range:
0.0% to 0.0%
Description
-

U0-37 **Power factor angle**

Address:	0x7025	Effective mode:	-
Min.:	0.0	Unit:	°
Max.:	0.0	Data type:	Int16
Default:	0.0	Change:	Unchangeable

Value Range:
0.0° to 0.0°

Description

-

U0-39 **Target voltage upon V/f separation**

Address:	0x7027	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 V to 0 V

Description

-

U0-40 **Output voltage upon V/f separation**

Address:	0x7028	Effective mode:	-
Min.:	0	Unit:	V
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 V to 0 V

Description

-

U0-41 **DI state**

Address:	0x7029	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

-

U0-42 **DO/RO state**

Address:	0x702A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

-

U0-43 **DI function state display 1**

Address:	0x702B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

-

U0-44 **DI function state display 2**

Address:	0x702C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

-

U0-45 **Fault code**

Address:	0x702D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the fault code when the AC drive has a fault.

U0-46 **Fault subcode**

Address:	0x702E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the fault subcode when the AC drive has a fault.

U0-47 **IGBT temperature**

Address:	0x702F	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	0	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

0°C to 0°C

Description

This parameter shows the IGBT heatsink temperature.

U0-48 **Voltage received by PTC channel 1**

Address:	0x7030	Effective mode:	-
Min.:	0.000	Unit:	V
Max.:	0.000	Data type:	Int16
Default:	0.000	Change:	Unchangeable

Value Range:

0.000 V to 0.000 V

Description

This parameter shows the voltage (V) received from the power supply unit when AI1 is used for temperature sensor input.

U0-49 **Voltage received by PTC channel 2**

Address:	0x7031	Effective mode:	-
Min.:	0.000	Unit:	V
Max.:	0.000	Data type:	Int16
Default:	0.000	Change:	Unchangeable

Value Range:

0.000 V to 0.000 V

Description

This parameter shows the voltage (V) received from the power supply unit when AI2 is used for temperature sensor input.

U0-50 **Voltage received by PTC channel 3**

Address:	0x7032	Effective mode:	-
Min.:	0.000	Unit:	V
Max.:	0.000	Data type:	Int16
Default:	0.000	Change:	Unchangeable

Value Range:

0.000 V to 0.000 V

Description

This parameter shows the voltage (V) received from the power supply unit when AI3 is used for temperature sensor input.

U0-51 **PTC1 temperature**

Address:	0x7033	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	0	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

0°C to 0°C

Description

This parameter shows the calculated temperature (°C) when AI1 is used for temperature sensor input.

U0-52 **PTC2 temperature**

Address:	0x7034	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	0	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

0°C to 0°C

Description

This parameter shows the calculated temperature (°C) when AI2 is used for temperature sensor input.

U0-53 **PTC3 temperature**

Address:	0x7035	Effective mode:	-
Min.:	0	Unit:	°C
Max.:	0	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

0°C to 0°C

Description

This parameter shows the calculated temperature (°C) when AI3 is used for temperature sensor input.

U0-54 **Motor speed**

Address:	0x7036	Effective mode:	-
Min.:	0	Unit:	RPM
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 RPM to 0 RPM

Description

This parameter shows the current motor speed (RPM).

U0-55 **Station number auto allocated**

Address:	0x7037	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the station number automatically allocated.

U0-56 **Identified axis type**

Address:	0x7038	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the axis type identified by the AC drive.

1: Single axis

2: Axis 1 of dual-axis drive unit

3: Axis 2 of dual-axis drive unit

U0-61 **AC drive operation status word 1**

Address:	0x703D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows AC drive operation status word 1.

1: Forward running

2: Reverse running

3: Stopped

4: Motor auto-tuning

5: Faulty

U0-64 **Special protocol status word**

Address:	0x7040	Effective mode:	-
Min.:	0	Unit:	-

Max.: 0 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:

0 to 0

Description

This parameter shows the special protocol status word.

Bit0 to bit1: Running state

Bit2: Jog enabled or not

Bit3 to bit4: Running direction

Bit5 to bit7: Reserved

Bit8: Main frequency set by communication

Bit9: Main frequency set by AI

Bit10: Command set by communication

Bit11 to bit15: Reserved

U0-68 **AC drive operation status word 2**

Address:	0x7044	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows AC drive operation status word 2.

Bit0: Running state

Bit1: Running direction

Bit2: Faulty or not

Bit3: Frequency reference reached or not

Bit4: Communication normal flag

Bit5 to bit7: Reserved

Bit8 to bit15: Fault codes

U0-78 **AC drive rated current**

Address:	0x704E	Effective mode:	-
Min.:	0.0	Unit:	A
Max.:	0.0	Data type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0 A to 0.0 A

Description

This parameter shows the rated current (A) of the AC drive.

U0-79 **AC drive power**

Address:	0x704F	Effective mode:	-
Min.:	0.0	Unit:	kW
Max.:	0.0	Data type:	UInt16
Default:	0.0	Change:	Unchangeable

Value Range:

0.0 kW to 0.0 kW

Description

This parameter shows the rated power (kW) of the AC drive.

U0-81 **Local LED state**

Address:	0x7051	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the LED state of the drive unit.
Bit0: RUN indicator
Bit1: Fault indicator

U0-88 **Alarm code**

Address:	0x7058	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter defines the alarm code of the AC drive when it has an alarm.

U0-89 **Alarm subcode**

Address:	0x7059	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the alarm subcode of the AC drive when it has an alarm.

U0-90 **Percentage of preset fan speed**

Address:	0x705A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the current speed reference of the fan.

U0-91 **PTC1 mode**

Address:	0x705B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description

This parameter shows the AI1 input type.

0: Voltage input

1: Current input

2: PT100 input

3: PT1000 input

4: KTY84 input

5: PTC130 input

U0-92 **PTC2 mode**

Address:	0x705C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the AI2 input type.

0: Voltage input

1: Current input

2: PT100 input

3: PT1000 input

4: KTY84 input

5: PTC130 input

U0-93 **PTC3 mode**

Address:	0x705D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the AI3 input type.

0: Voltage input

1: Current input

2: PT100 input

3: PT1000 input

4: KTY84 input

5: PTC130 input

U0-95 **STO initialization flag**

Address:	0x705F	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 0

Description

This parameter shows the STO initialization flag.
0: Initialization failed
1: Initialization succeeded

U0-96 **STO status word**

Address:	0x7060	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the STO internal status word.

U0-97 **STO model**

Address:	0x7061	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows whether the machine is an STO model.
0: Non-STO model
1: STO model

U0-98 **STO AD sampling value**

Address:	0x7062	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the AD value of the supply voltage of the STO circuit.

U0-99 **STO internal execution flag**

Address:	0x7063	Effective mode:	-
Min.:	0	Unit:	-
Max.:	0	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 0
Description
This parameter shows the execution flag of the STO internal detection program.

2.27 U3: 73xxH Address Communication Data Monitoring Parameters

U3-16 **Frequency set by communication**

Address:	0x7310	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the frequency reference set through communication.

U3-17 **Control command by communication**

Address:	0x7311	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the control command written through communication.

0: Stop according to F6-10

1: Run in forward direction

2: Run in reverse direction

3: Jog in forward direction

4: Jog in reverse direction

5: Coast to stop

6: Decelerate to stop

7: Reset upon fault

U3-18 **DO/RO control by communication**

Address:	0x7312	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the DO/RO control value written through communication.

Bit0: DO1/RO1

Bit1: DO2/RO2

Bit2: DO3/RO3

Bit3: DO4/RO4

Bit4: DO5/RO5

2.28 U4 CANopen 402 Data Monitoring Parameters

U4-00 **Supported mode (High-order bits of 6502h)**

Address:	0x7400	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
-

U4-01 **Supported mode (Low-order bits of 6502h)**

Address:	0x7401	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
-

U4-02 **Fault code (603Fh)**

Address:	0x7402	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
-

U4-03 **Control word (6040h)**

Address:	0x7403	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
-

U4-04 **Status word (6041h)**

Address:	0x7404	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
-

U4-05 **Target velocity (6042h)**

Address:	0x7405	Effective mode:	-
Min.:	–32767	Unit:	-
Max.:	32767	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:
–32767 to +32767
Description
-

U4-14 **Acceleration time (6048h-2)**

Address:	0x740E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
-

U4-16 **Deceleration setting (6049h-1, low-order bits)**

Address:	0x7410	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
-

U4-17 **Deceleration time (6049h-2)**

Address:	0x7411	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
-

U4-18 **Emergency stop mode (605Ah)**

Address:	0x7412	Effective mode:	-
Min.:	–32767	Unit:	-
Max.:	32767	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:
–32767 to +32767
Description
-

U4-22 **Stop mode upon fault (605Eh)**

Address:	0x7416	Effective mode:	-
Min.:	–32767	Unit:	-
Max.:	32767	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:
–32767 to +32767
Description
-

2.29 U5: I/O Data Monitoring Parameters

U5-00 **Power supply unit - DI hardware resource**

Address:	0x7500	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the DI resources of the power supply unit received by the AC drive.

U5-01 **Power supply unit - DO/RO hardware resource**

Address:	0x7501	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the DO/RO resources of the power supply unit received by the AC drive.

U5-02 **Power supply unit - AI hardware resource**

Address:	0x7502	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the AI resources of the power supply unit received by the AC drive.

U5-04 **Extension card 1 - DI hardware resource**

Address:	0x7504	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535

Description

This parameter shows the DI resources of extension card 1 received by the AC drive.

U5-05 **Extension card 1 - DO/RO hardware resource**

Address:	0x7505	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the DO/RO resources of extension card 1 received by the AC drive.

U5-06 **Extension card 1 - AI hardware resource**

Address:	0x7506	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the AI resources of extension card 1 received by the AC drive.

U5-08 **Extension card 2 - DI hardware resource**

Address:	0x7508	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the DI resources of extension card 2 received by the AC drive.

U5-09 **Extension card 2 - DO/RO hardware resource**

Address:	0x7509	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the DO/RO resources of extension card 2 received by the AC drive.

U5-10 **Extension card 2 - AI hardware resource**

Address:	0x750A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the AI resources of extension card 2 received by the AC drive.

U5-12 **Extension card 3 - DI hardware resource**

Address:	0x750C	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the DI resources of extension card 3 received by the AC drive.

U5-13 **Extension card 3 - DO/RO hardware resource**

Address:	0x750D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the DO/RO resources of extension card 3 received by the AC drive.

U5-14 **Extension card 3 - AI hardware resource**

Address:	0x750E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the AI resources of extension card 3 received by the AC drive.

U5-20 **Power supply unit - DI mapping**

Address:	0x7514	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the DI mapping between the AC drive and the power supply unit.

U5-21 **Power supply unit - DO/RO mapping**

Address:	0x7515	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the DO/RO mapping between the AC drive and the power supply unit.

U5-22 **Power supply unit - AI mapping**

Address: 0x7516 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
0 to 65535

Description
This parameter shows the AI mapping between the AC drive and the power supply unit.

U5-24 **Extension card 1 - DI mapping**

Address: 0x7518 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
0 to 65535

Description
This parameter shows the DI mapping between the AC drive and extension card 1.

U5-25 **Extension card 1 - DO/RO mapping**

Address: 0x7519 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
0 to 65535

Description
This parameter shows the DO/RO mapping between the AC drive and extension card 1.

U5-26 **Extension card 1 - AI mapping**

Address: 0x751A | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
0 to 65535

Description
This parameter shows the AI mapping between the AC drive and extension card 1.

U5-28 **Extension card 2 - DI mapping**

Address: 0x751C | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
0 to 65535

Description
-

U5-29 **Extension card 2 - DO/RO mapping**

Address:	0x751D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the DO/RO mapping between the AC drive and extension card 2.

U5-30 **Extension card 2 - AI mapping**

Address:	0x751E	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the AI mapping between the AC drive and extension card 2.

U5-32 **Extension card 3 - DI mapping**

Address:	0x7520	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the DI mapping between the AC drive and extension card 3.

U5-33 **Extension card 3 - DO/RO mapping**

Address:	0x7521	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the DO/RO mapping between the AC drive and extension card 3.

U5-34 **Extension card 3 - AI mapping**

Address:	0x7522	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the AI mapping between the AC drive and extension card 3.

U5-40 **Power supply unit - DI data**

Address:	0x7528	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the DI triggering state of the power supply unit received by the AC drive.

U5-41 **Extension card 1 - DI data**

Address:	0x7529	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the DI triggering state of extension card 1 received by the AC drive.

U5-42 **Extension card 2 - DI data**

Address:	0x752A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the DI triggering state of extension card 2 received by the AC drive.

U5-43 **Extension card 3 - DI data**

Address:	0x752B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the DI triggering state of extension card 3 received by the AC drive.

U5-45 **Drive unit DO/RO data**

Address:	0x752D	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the DO/RO data sent by the AC drive.

U5-50 **Power supply unit - AI1 function**

Address:	0x7532	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the AI1 function of the power supply unit received by the AC drive.

0: Voltage input

1: Current input

2: PT100 input

3: PT1000 input

4: KTY84 input

5: PTC130 input

U5-51 **Power supply unit - AI2 function**

Address:	0x7533	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the AI2 function of the power supply unit received by the AC drive.

0: Voltage input

1: Current input

2: PT100 input

3: PT1000 input

4: KTY84 input

5: PTC130 input

U5-52 **Extension card 1 - AI1 function**

Address:	0x7534	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the AI1 function of extension card 1 received by the AC drive.

0: Voltage input

1: Current input

2: PT100 input

3: PT1000 input

4: KTY84 input

5: PTC130 input

U5-53 **Extension card 1 - AI2 function**

Address:	0x7535	Effective mode:	-

Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the AI2 function of extension card 1 received by the AC drive.
0: Voltage input
1: Current input
2: PT100 input
3: PT1000 input
4: KTY84 input
5: PTC130 input

U5-54 **Extension card 2 - AI1 function**

Address: 0x7536 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the AI1 function of extension card 2 received by the AC drive.
0: Voltage input
1: Current input
2: PT100 input
3: PT1000 input
4: KTY84 input
5: PTC131 input

U5-55 **Extension card 2 - AI2 function**

Address: 0x7537 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16
Default: 0 | Change: Unchangeable

Value Range:
0 to 65535
Description
This parameter shows the AI2 function of extension card 2 received by the AC drive.
0: Voltage input
1: Current input
2: PT100 input
3: PT1000 input
4: KTY84 input
5: PTC131 input

U5-56 **Extension card 3 - AI1 function**

Address: 0x7538 | Effective mode: -
Min.: 0 | Unit: -
Max.: 65535 | Data type: UInt16

Default: 0 | Change: Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the AI1 function of extension card 3 received by the AC drive.

0: Voltage input

1: Current input

2: PT100 input

3: PT1000 input

4: KTY84 input

5: PTC132 input

U5-57 **Extension card 3 - AI2 function**

Address:	0x7539	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

This parameter shows the AI2 function of extension card 3 received by the AC drive.

0: Voltage input

1: Current input

2: PT100 input

3: PT1000 input

4: KTY84 input

5: PTC132 input

U5-58 **Reserved**

Address:	0x753A	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

-

U5-59 **Reserved**

Address:	0x753B	Effective mode:	-
Min.:	0	Unit:	-
Max.:	65535	Data type:	UInt16
Default:	0	Change:	Unchangeable

Value Range:

0 to 65535

Description

-

U5-60 **Power supply unit - AI1 voltage**

Address:	0x753C	Effective mode:	-

Min.:	–32767	Unit:	-
Max.:	32767	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:
–32767 to +32767
Description
This parameter shows the AI1 voltage of the power supply unit received by the AC drive.

U5-61 Power supply unit - AI2 voltage

Address:	0x753D	Effective mode:	-
Min.:	–32767	Unit:	-
Max.:	32767	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:
–32767 to +32767
Description
This parameter shows the AI2 voltage of the power supply unit received by the AC drive.

U5-62 Extension card 1 - AI1 voltage

Address:	0x753E	Effective mode:	-
Min.:	–32767	Unit:	-
Max.:	32767	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:
–32767 to +32767
Description
This parameter shows the AI1 voltage of extension card 1 received by the AC drive.

U5-63 Extension card 1 - AI2 voltage

Address:	0x753F	Effective mode:	-
Min.:	–32767	Unit:	-
Max.:	32767	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:
–32767 to +32767
Description
This parameter shows the AI2 voltage of extension card 1 received by the AC drive.

U5-64 Extension card 2 - AI1 voltage

Address:	0x7540	Effective mode:	-
Min.:	–32767	Unit:	-
Max.:	32767	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:
–32767 to +32767
Description
This parameter shows the AI1 voltage of extension card 2 received by the AC drive.

U5-65 Extension card 2 - AI2 voltage

Address:	0x7541	Effective mode:	-
Min.:	–32767	Unit:	-

Max.:	32767	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

–32767 to +32767

Description

This parameter shows the AI2 voltage of extension card 2 received by the AC drive.

U5-66 **Extension card 3 - AI1 voltage**

Address:	0x7542	Effective mode:	-
Min.:	–32767	Unit:	-
Max.:	32767	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

–32767 to +32767

Description

This parameter shows the AI1 voltage of extension card 3 received by the AC drive.

U5-67 **Extension card 3 - AI2 voltage**

Address:	0x7543	Effective mode:	-
Min.:	–32767	Unit:	-
Max.:	32767	Data type:	Int16
Default:	0	Change:	Unchangeable

Value Range:

–32767 to +32767

Description

This parameter shows the AI2 voltage of extension card 3 received by the AC drive.

3 Commissioning Tool

3.1 LED Operating Panel

3.1.1 Description of the Operating Panel

The LED operating panel displays the running status and allows you to set parameters and view fault information. The following figure shows the operating panel.

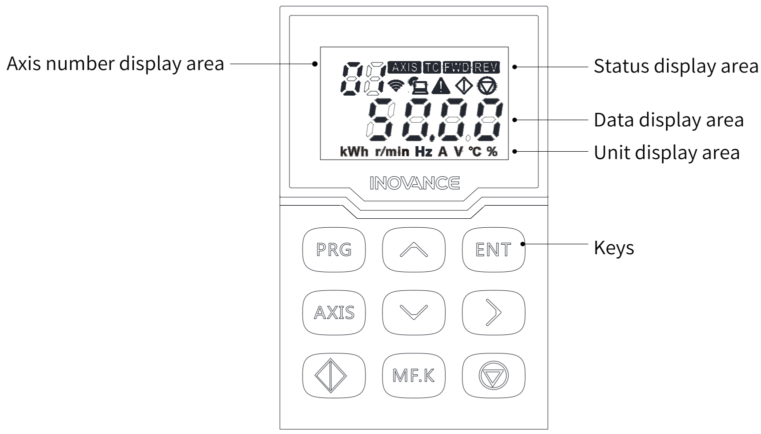
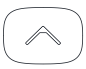
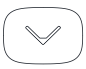
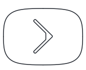
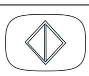
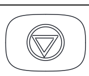


Figure 3-1 Operating panel

Keys

Table 3–1 Keys

Key	Name	Function
PRG	Programming	Returns to the previous page. Enters Level I menu.
ENT	Enter	Goes to the next page. Confirms the mode, parameter, and value.
AXIS	Axis switchover key	Switches between multiple axes. The power supply unit is selected by default.
	Increment	Changes (Increases) the parameter number and value.
	Decrement	Changes (Decreases) the parameter number and value.
	Shift	Shifts to the right to select parameters to display in cycle. Shifts the bit to modify to the right when setting the parameter number or value.
MF.K	Multifunction	Switches among selected functions according to the setting of F7-01.
	Run	Runs the AC drive when the operating panel control mode is used.
	Stop/Fault reset	Stops the AC drive when the AC drive is running. Resets to clear the fault when a fault is reported.

Status Indicators

The status indicators are on the drive unit.

Table 3–2 Indicators on the drive unit

Symbol	Name	Status
PWR (yellow)	Power indicator	Steady ON: The device is powered on. OFF: The device is powered off.
RUN (green)	RUN indicator	Steady ON: The device is running. OFF: The device is stopped. Blinking: The device is operated through the operating panel of the power supply unit.
ERR (red)	Alarm indicator	Steady ON: The device is faulty. OFF: The device is normal. Blinking: An alarm is generated.

Data Display

- Axis number display area
  Two-digit LED display is used: 0 indicates the power supply unit and 1 to 8 indicates the drive units.
- Status display area

Table 3–3 Status icons

Icon	Name	Function	Status
AXIS	Axis (AXIS)	Axis switchover key	-
TC	Torque control (TC)	Torque control mode	Steady ON: The torque control mode is used. Blinking: Auto-tuning is in progress.
FWD	Forward (FWD)	Forward running	-
REV	Reverse (REV)	Reverse running	-
	Wi-Fi	Wi-Fi connection mode	-
	Remote	Remote connection mode	Steady ON: terminal control as command source Blinking: communication control as command source
	Alarm	Alarm state	Steady ON: The device is faulty. Blinking: An alarm is generated.
	Run	Running state	-
	Stop	Stop state	-

- Data display area
  Five-digit data is displayed on the LED display of the operating panel. The data is used to indicate the frequency reference, output frequency, various monitoring data, and fault codes.
- Unit display area

Table 3–4 Units

Unit	Description
kWh	Energy unit
RPM	Speed unit
Hz	Frequency unit
A	Current unit
V	Voltage unit
°C	Temperature unit
%	Percentage

3.1.2 Related Parameters

Table 3–5 Parameters related to the operating panel

Para. No.	Name	Default	Value Range	Description
F7-01	MF.K key function	0	0: MF.K key disabled 1: Switchover between operating panel control and remote command control (terminal or communication) 2: Switchover between forward and reverse run 3: Forward jog 4: Reverse jog	The MF.K key is a multi-functional key. This parameter is used to set the function of the MF.K key. 0: MF.K key disabled The MF.K key does not work. 1: Switchover between operating panel control and remote command control (terminal or communication) When F0-02 is set to 0 (operating panel), the MF.K does not work. When F0-02 is set to 1 (terminal), the MF.K key implements switchover from terminal I/O control to operating panel control. When F0-02 is set to 2 (communication), the MF.K key implements switchover from communication control to operating panel control. 2: Switchover between forward and reverse run The direction of the frequency reference can be changed by using the MF.K key. This function is valid only when the command source is set to operating panel control. 3: Forward jog Forward jog (FJOG) can be enabled by using the MF.K key. This function is valid only when the command source is set to operating panel control. 4: Reverse jog Reverse jog (RJOG) can be enabled by using the MF.K key. This function is valid only when the command source is set to operating panel control.
F7-02	STOP key function	0	0: Valid only under operating panel control 1: Valid in all operation modes	The STOP key on the operating panel is used for stop/ reset. This parameter is used to set the function of this key. 0: Valid only under operating panel control This key is valid only under operating panel control. 1: Valid in all operation modes This key is valid in all operation modes.

Para. No.	Name	Default	Value Range	Description
F7-03	LED display 1 in running state	31	Bit00: Running frequency (Hz) Bit01: Frequency reference (Hz) Bit02: Bus voltage (V) Bit03: Output voltage (V) Bit04: Output current (A) Bit05: Output power (kW) Bit06: Output torque (%) Bit07: DI state Bit08: DO state Bit09: AI1 voltage (V) Bit10: AI2 voltage (V) Bit11: AI3 voltage (V) Bit12: Count value Bit13: Length value Bit14: Load speed display Bit15: PID reference	To display a parameter during running, set the corresponding bit to 1, convert the binary number to a hexadecimal equivalent, and set it in F7-03.
F7-04	LED display 2 in running state	0	Bit00: PID feedback Bit01: PLC stage Bit02: Reserved Bit03: Running frequency 2 (Hz) Bit04: Remaining running time Bit05: Reserved Bit06: Reserved Bit07: Reserved Bit08: Linear speed Bit09: Current power-on time (min) Bit10: Current running time (min) Bit11: Reserved Bit12: Communication Bit13: Reserved Bit14: Main frequency X display Bit15: Auxiliary frequency Y display	To display a parameter during running, set the corresponding bit to 1, convert the binary number to a hexadecimal equivalent, and set it in F7-04.
F7-05	LED display in stop state	51	Bit00: Frequency reference (Hz) Bit01: Bus voltage (V) BIT02: DI state BIT03: DO state Bit04: AI1 voltage (V) Bit05: AI2 voltage (V) Bit06: AI3 voltage (V)	To display a parameter upon stop, set the corresponding bit to 1, convert the binary number to a hexadecimal equivalent, and set it in F7-05.

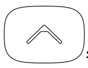
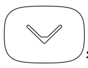
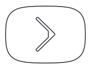
Para. No.	Name	Default	Value Range	Description
			Bit07: Count value Bit08: Length value Bit09: PLC stage Bit10: Load speed display Bit11: PID reference Bit12: Reserved	
FP-01	Parameter initialization	1	0: No operation 1: Restore factory defaults mode 1 2: Clear records 4: Back up current parameters 501: Restore user backup parameters	This parameter is used to set the corresponding action upon parameter initialization of the AC drive. 0: No operation The AC drive does not perform any operation. 1: Restore factory defaults mode 1 Most of the parameters are restored to factory defaults. However, motor parameters including F0-10 (maximum frequency), F0-22 (decimal places of frequency reference), fault records, F7-09 (accumulative running time), F7-12 (accumulative power-on time), F7-13 (accumulative power generation), and F7-14 (accumulative power consumption) are not restored. 2: Clear records The fault records, F7-09 (accumulative running time), F7-12 (accumulative power-on time), F7-13 (accumulative power generation), and F7-14 (accumulative power consumption) are cleared. 4: Back up current parameters The current parameter setting is backed up. 501: Restore user backup parameters Parameters backed up by setting FP-01 to 4 are restored.

Para. No.	Name	Default	Value Range	Description
FP-02	Parameter display	111	Ones: Group U 0: Hide 1: Display Tens: Group A 0: Hide 1: Display Hundreds: Group B 0: Hide 1: Display Thousands: Group C 0: Hide 1: Display	This parameter is used to determine whether to display the parameters of groups U, A, B, and C on the operating panel.
FP-03	Individualized parameter display mode	0	Ones: 0: Hide 1: Display Tens: 0: Hide 1: Display	This parameter is used to determine whether to display the user-customized parameter group and the user-modified parameter group on the operating panel.

3.1.3 Setting Parameters

The operating panel adopts the following three-level menu to perform operations such as parameter settings:

- Level I: parameter group
- Level II: parameter No.
- Level III: parameter setting value

After entering the menu, you can press , , and  to modify the blinking bit on the operating panel.

Example: changing the value of F3-02 from 10.00 Hz to 15.00 Hz

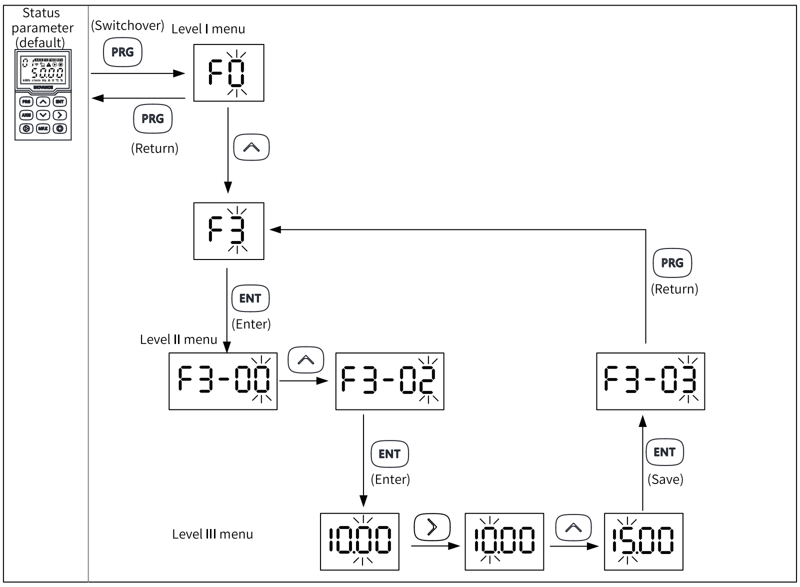


Figure 3-2 Parameter modification example

You can return to Level II menu from Level III menu by pressing PRG or ENT. The difference between the two keys is as follows:

1. After you press ENT, the system saves the parameter setting and then goes back to Level II menu and shifts to the next parameter number.
2. After you press PRG, the system does not save the parameter setting, but directly returns to Level II menu and remains at the current parameter number.

If a parameter does not include a blinking digit in Level III menu, the parameter cannot be modified. This may be because:

1. The parameter is an unmodifiable parameter such as the product model, actual detection parameter, and running record parameter.
2. This parameter can be modified only after the AC drive stops.

3.1.4 Viewing Parameters

You can set FP-03 to 11 to view all parameters on the operating panel. The following figure shows the operation procedure.

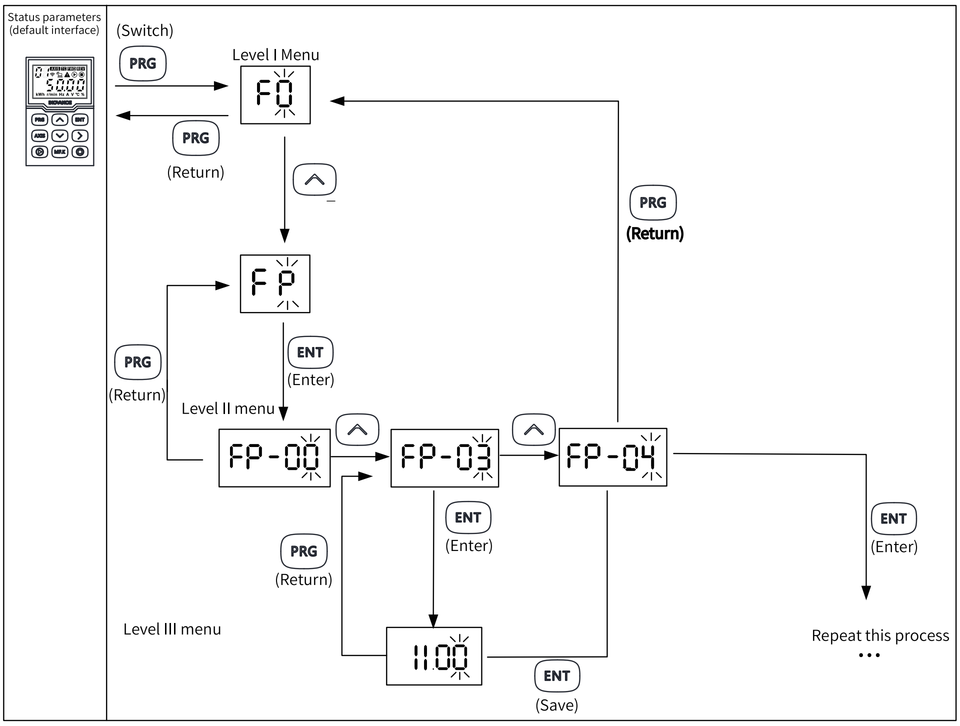


Figure 3-3 Viewing parameters

Note the following when viewing status parameters:

- When the AC drive is running, you can press to view status parameters. The following status parameters are displayed by default: running frequency, frequency reference, bus voltage, output voltage, and output current. To view more status parameters, see description of F7-03 and F7-04 in *"3.1.2 Related Parameters" on page 464*.
- When the AC drive stops, you can press to view status parameters. The following status parameters are displayed by default: frequency reference, bus voltage, AI1 voltage, and AI2 voltage. To view more status parameters, see description of F7-05 in *"3.1.2 Related Parameters" on page 464*.

3.1.5 Fault and Alarm Display

When the equipment fails, the fault indicator is steady on, and the equipment immediately stops outputting. The operating panel displays the fault code, as shown in the following figure. Find and remove the fault cause. Then, reset the fault.

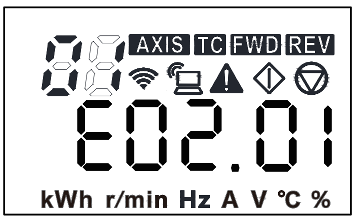


Figure 3-4 Fault code displayed on the operating panel

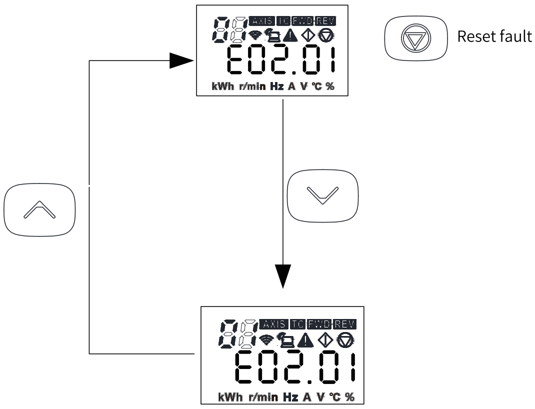
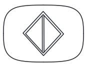
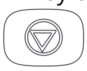


Figure 3-5 Viewing and resetting a fault

3.1.6 Using the MF.K Multi-functional Key

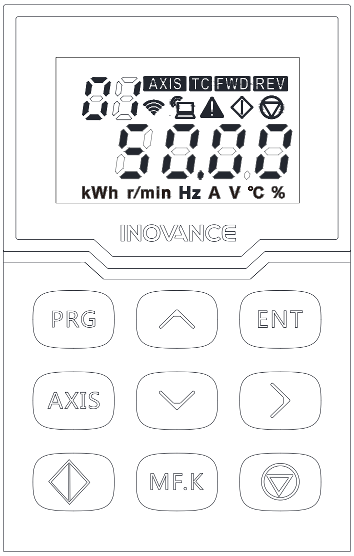
The MF.K key on the operating panel is a multi-functional key. Its function can be set through F7-01. When the AC drive stops or is running, you can press this key to switch over between control channels and enable forward/reverse running and jog of the AC drive.

3.1.7 Driving the Motor with the Operating Panel

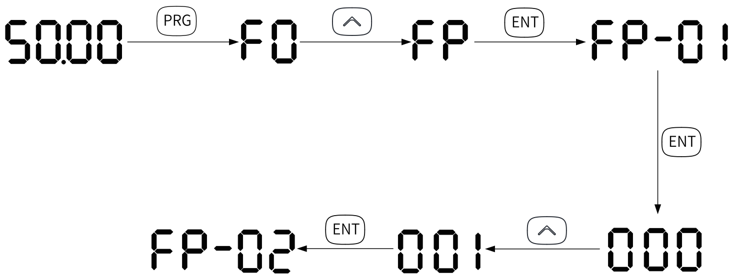
You can press the MF.K key on the operating panel to control the motor (forward and reverse jog) and press the  or  keys to start or stop the motor.

Procedure

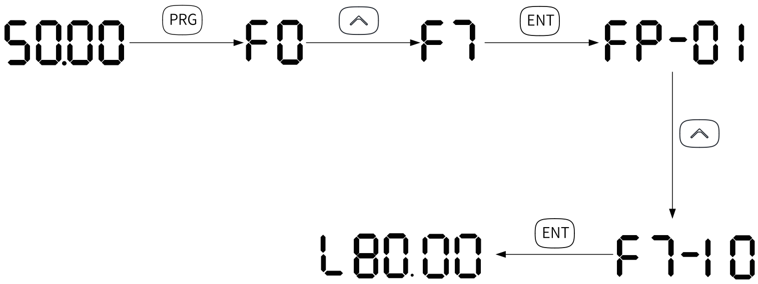
1. Check before power-on.
   Check the installation and wiring according to the installation guide. For details, see the description of inspection before power-on in the *Installation Guide*.
2. Press the power switch to connect the power supply of the AC drive.
3. Check that 50.00 is displayed on the operating panel, which indicates successful power-on.



4. Set FP-01 to 001 to restore all parameters to default values. The following shows an example.



5. Check the values of F7-10/F7-11, which indicate the software version.

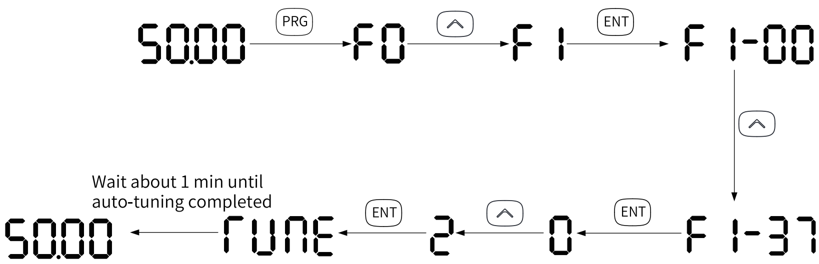


6. Set motor parameters in group F1 according to the motor nameplate.

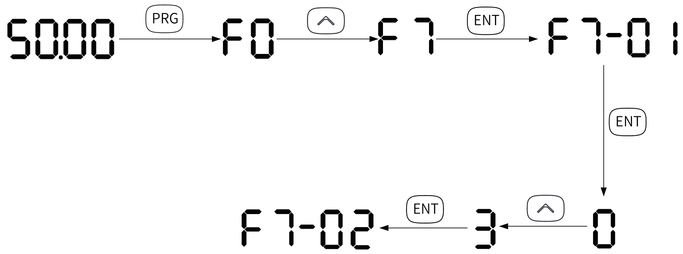
Table 3–6 Motor parameters

Para. No.	Name	Default	Value Range	Description	Setpoint
F1-00	Motor type selection	0	0: Common asynchronous motor 1: Variable frequency asynchronous motor 2: Synchronous motor	A variable frequency motor can adjust its frequency and speed according to the load. Where the voltage is low, it can reduce the frequency and start reliably. Where the load is light, it can reduce the frequency, speed, and current to save electric energy. A common asynchronous motor is suitable for applications with normal voltage but often full load. It is designed based on constant frequency and constant voltage. Therefore, it may not meet all the frequency and speed control requirements.	0
F1-01	Rated motor power	Model dependent	0.1 kW to 1000.0 kW	Rated motor power indicates the axis output power of the motor working in rated conditions. Select a motor of proper power rating based on the requirements of the mechanical load, with due consideration to factors such as motor heating, overload capacity, and starting capacity.	3.7 kW
F1-02	Rated motor voltage	Model dependent	1 V to 2000 V	Rated motor voltage indicates the voltage of the motor during normal operation, which usually refers to the line voltage.	380.0 V
F1-03	Rated motor current	Model dependent	0.1 A to 6553.5 A	Rated motor current indicates the current of the motor during normal operation, which usually refers to the line current.	9.0 A
F1-04	Rated motor frequency	Model dependent	0.01 Hz to 600.00 Hz	Rated motor frequency indicates the frequency of the power supply connected to the stator winding under the rated operation state of the motor.	50.00 Hz
F1-05	Rated motor speed	Model dependent	1 RPM to 65535 RPM	Rated motor speed indicates the speed of the rotor under the rated operating state, and the unit is RPM.	1460 rpm

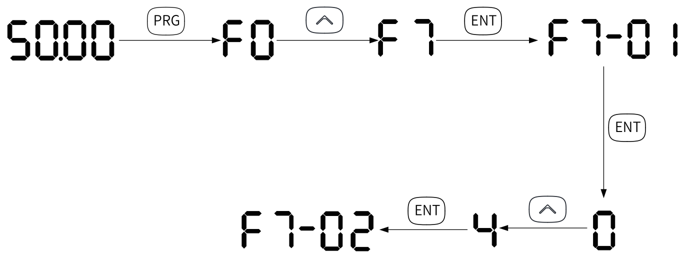
7. Set F1-37 to 2, and press ENTER. The operating panel displays . Press the RUN key on the operating panel for more than 3 seconds to start motor auto-tuning. During this process, the RUN indicator is steady on, the TC indicator flashes, and the AC drive energizes the motor. After about 1 minute, the panel displays 50.00, indicating that auto-tuning is completed.

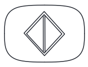
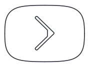


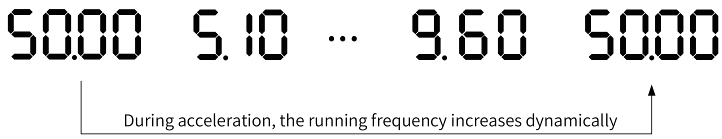
8. Set F7-01 to 3, and then press MF.K to start forward jog of the motor.

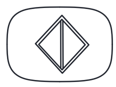


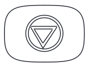
9. Set F7-01 to 4, and then press  to start reverse jog of the motor.



10. Press  to start the motor. The motor shaft starts to accelerate and rotate, and the panel displays the current running frequency, as shown in the following figure. After acceleration is completed, the displayed frequency is 50.00. Press  to switch the displayed running status parameters.





11. Press  to decelerate and stop the motor.

4 Function Applications

4.1 Drive Configuration

4.1.1 Operation Command Sources

4.1.1.1 Setting Operation Command Source

Operation commands are used to control the start, stop, forward run, reverse run, and jog operations of the AC drive. Three operation command sources are available: operating panel, terminals, and communication. You can select the operation command source by setting F0-02.

Para. No.	Name	Default	Value Range	Description
F0-02	Operation command source	0	0: Operating panel control 1: Terminal I/O control 2: Communication control	This parameter defines the source of the AC drive control commands, such as run, stop, forward run, reverse run, and jog. 0: Operating panel control When this command source is selected, control commands are input by using (RUN key), (stop command/fault reset key), and MF.K (multi-function key) on the operating panel. It applies to initial commissioning. 1: Terminal I/O control When this command source is selected, control commands are input through the DI terminals of the AC drive. The DI terminal control commands can be set according to different scenarios, such as start/stop, forward/reverse run, jog, two-wire/three-wire control, multi-speed, and other functions. It is suitable for most applications. 2: Communication control When this command source is selected, control commands are input through remote communication. It is applicable to scenarios requiring remote control or centralized control of multiple devices.

4.1.1.2 Operating Panel Control

When F0-02 is set to 0, the operation commands for the AC drive are issued by pressing (RUN key) and (stop command/fault reset key) on the operating panel.

- Pressing (RUN key) on the operating panel enables the AC drive to run immediately (the RUN indicator is ON).

- When the AC drive is running, pressing (stop command/fault reset key) on the operating panel stops the AC drive immediately (the RUN indicator is OFF).

4.1.1.3 Terminal I/O Control

When F0-02 is set to 1, the start and stop of the AC drive are controlled through terminals.

F4-17 defines the terminal I/O control mode. Four terminal I/O control modes are available, including two-wire mode 1, two-wire mode 2, three-wire mode 1, and three-wire mode 2.

Para. No.	Name	Default	Value Range	Description
F4-17	Terminal control mode	0	0: Two-wire mode 1 1: Two-wire mode 2 2: Three-wire mode 1 3: Three-wire mode 2	This parameter defines the mode in which the AC drive is controlled by external terminals.

Terminals DI1 to DI8 can be used as the external terminals. The following uses DI1 to DI3 as an example to describe the control modes using external terminals. That is, set F4-01, F4-03, and F4 -05 to select the functions for DI1, DI2, and DI3.

Two-wire Mode 1 (F4-17 = 0)

It is the most commonly used two-wire mode. In this mode, DI1 and DI2 determine the forward or reverse running of the motor. The parameters are set as follows.

Para. No.	Name	Setpoint	Function Description
F4-17	Terminal control mode	0	Two-wire mode 1
F4-00	DI1 hardware source	1	DI1 of the power supply unit
F4-01	DI1 function	1	Forward RUN (FWD)
F4-02	DI2 hardware source	2	DI2 of the power supply unit
F4-03	DI2 function	2	Reverse RUN (REV)

When SW1 is closed and SW2 is open, the motor rotates in the forward direction. When SW1 is open and SW2 is closed, the motor rotates in the reverse direction. When SW1 and SW2 are both open or closed, the motor stops. See the following figure.

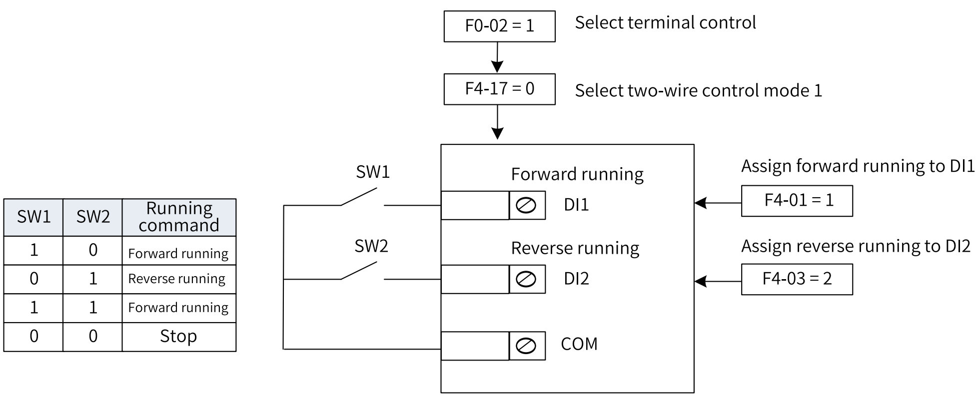


Figure 4-1 Wiring and parameter setting for two-wire mode 1

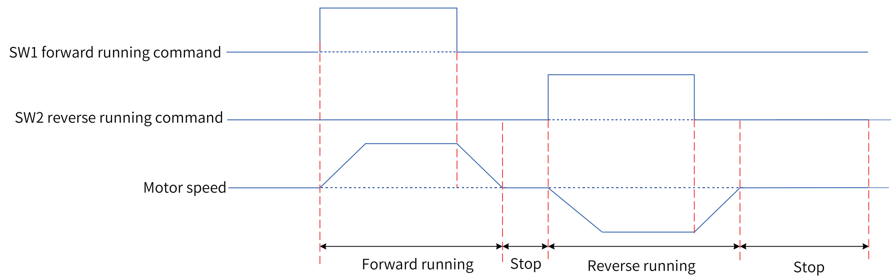


Figure 4-2 Timing diagram of two-wire mode 1 (normal)

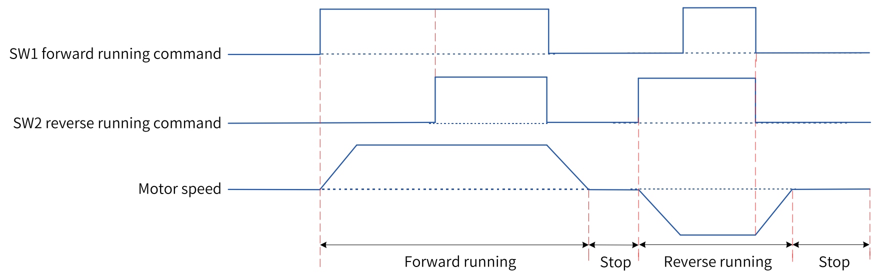


Figure 4-3 Timing diagram of two-wire mode 1 (abnormal)

Two-wire Mode 2 (F4-17 = 1)

In this mode, DI1 is assigned with the operation command function, and DI2 is assigned with the running direction function. The parameters are set as follows.

Para. No.	Name	Setpoint	Function Description
F4-17	Terminal control mode	0	Two-wire mode 2
F4-00	DI1 hardware source	1	DI1 of the power supply unit
F4-01	DI1 function	1	Operation command
F4-02	DI2 hardware source	2	DI2 of the power supply unit
F4-03	DI2 function	2	Running direction

When SW1 is closed, the motor rotates in the forward direction with SW2 open, and it rotates in the reverse direction with SW2 closed. When SW1 is open, the motor stops regardless of the status of SW2. See the following figure.

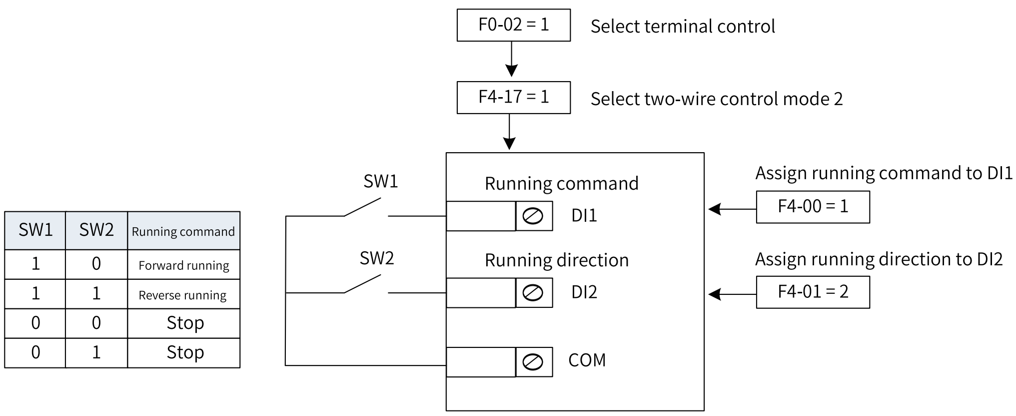


Figure 4-4 Wiring and parameter setting for two-wire mode 2

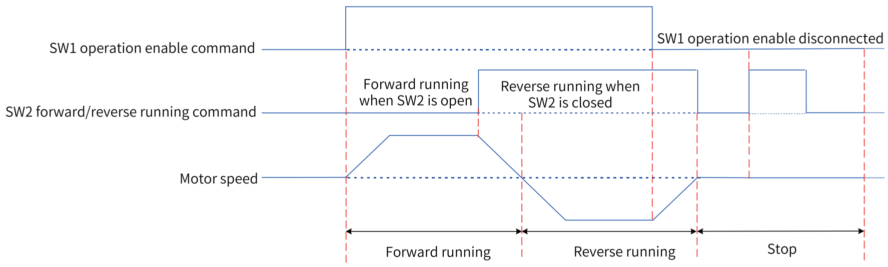


Figure 4-5 Timing diagram of two-wire mode 2

Three-wire Mode 1 (F4-17 = 2)

In this mode, DI3 is assigned with the three-wire operation control function, DI1 is assigned with the forward run function, and DI2 is assigned with the reverse run function. The AC drive buttons are used as the start/stop switch. The start/stop button is connected to DI3, the forward RUN button is connected to DI1, and the reverse RUN button is connected to DI2. The parameters are set as follows.

Para. No.	Name	Setpoint	Function Description
F4-17	Terminal control mode	0	Three-wire mode 1
F4-00	DI1 hardware source	1	DI1 of the power supply unit
F4-01	DI1 function	1	Forward RUN (FWD)
F4-02	DI2 hardware source	2	DI2 of the power supply unit
F4-03	DI2 function	2	Reverse RUN (REV)
F4-04	DI3 hardware source	3	DI3 of the power supply unit
F4-05	DI3 function	3	Three-wire operation control

SW3 is a normally-closed (NC) button, whereas SW1 and SW2 are normally-open (NO) buttons. If SW3 is closed, the motor rotates in the forward direction when you press down SW1, and it rotates in the reverse direction when you press down SW2. The motor stops immediately when SW3 opens. SW3 must remain closed during normal start and running. A signal from SW1 or SW2 takes effect once SW1 or SW2 is closed.

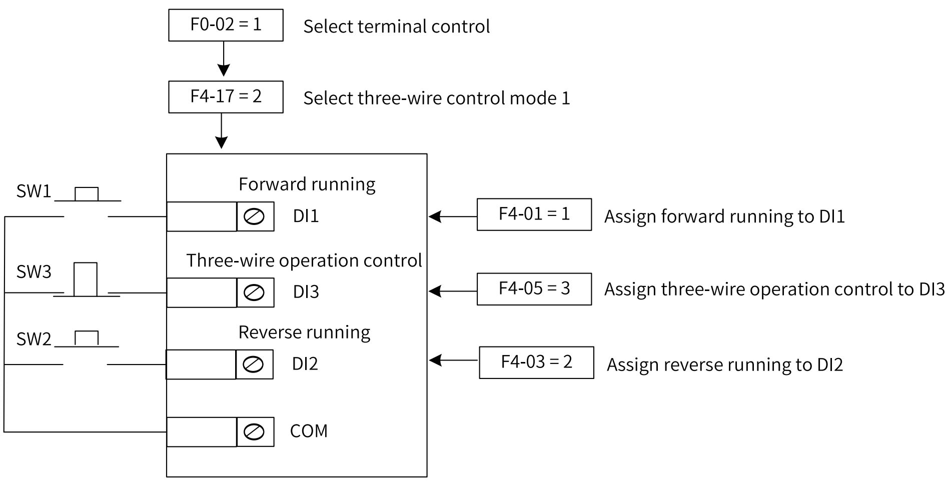


Figure 4-6 Wiring and parameter setting for three-wire mode 1

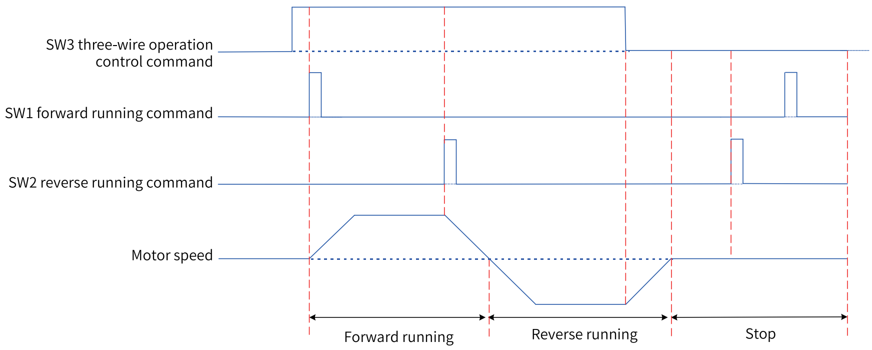


Figure 4-7 Timing diagram of three-wire mode 1

Three-wire Mode 2 (F4-17 = 3)

In this mode, DI3 is assigned with the three-wire operation control function, DI1 is assigned with the operation command function, and DI2 is assigned with the running direction function. The start/stop button is connected to DI3, running enabling is connected to DI1, and the forward/reverse RUN button is connected to DI2. The parameters are set as follows.

Para. No.	Name	Setpoint	Function Description
F4-17	Terminal control mode	0	Three-wire mode 2
F4-00	DI1 hardware source	1	DI1 of the power supply unit
F4-01	DI1 function	1	Operation command
F4-02	DI2 hardware source	2	DI2 of the power supply unit
F4-03	DI2 function	2	Running direction
F4-04	DI3 hardware source	3	DI3 of the power supply unit
F4-05	DI3 function	3	Three-wire operation control

With SW3 closed, pressing SW1 makes the drive rotates in the forward direction if SW2 is open, and in the reverse direction if SW2 is closed. The motor stops immediately when SW3 opens. SW3 must remain closed during normal start and running. A signal from SW1 takes effect once SW1 is closed.

Figure 4-8 Wiring and parameter setting for three-wire mode 2

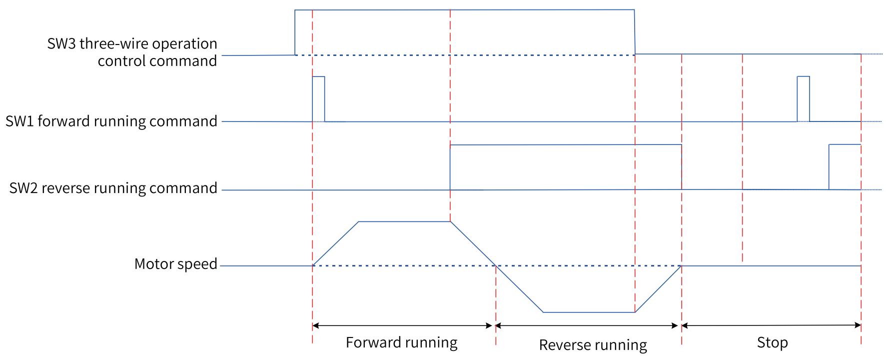


Figure 4-9 Timing diagram of three-wire mode 2

4.1.1.4 Communication Control

When F0-02 is set to 2, the operation commands such as start and stop of the AC drive are issued through communication.

The following five methods are available for communication with the host controller: Modbus, CANopen, CANlink, PROFINET, and EtherCAT. Extension cards are required when PROFINET or EtherCAT communication is used.

<table>
<tr><th>Step</th><th>Related Parameter</th><th colspan="2">Description</th></tr>
<tr><td>Step 1: Select communication as the frequency reference.</td><td>F0-02</td><td colspan="2">F0-02 = 2</td></tr>
<tr><td rowspan="4">Step 2: Select a communication mode.</td><td rowspan="4">Fd-10</td><td>CANopen communication</td><td rowspan="3">Fd-10 = 1</td></tr>
<tr><td>PROFINET communication</td></tr>
<tr><td>EtherCAT communication</td></tr>
<tr><td>CANlink communication</td><td>Fd-10 = 2</td></tr>
<tr><td colspan="4">Modbus is always enabled and no setting is required.</td></tr>
</table>

4.1.2 Frequency Reference Sources

4.1.2.1 Frequency Reference Input Mode

The AC drive supports three frequency reference input modes: main frequency reference, auxiliary frequency reference, and superposition of main and auxiliary frequencies.

4.1.2.2 Selecting Source of Main Frequency Reference

There are nine main frequency reference sources available, including digital setting (non-retentive at power failure), digital setting (retentive at power failure), AI1, AI2, AI3, multi-reference, simple PLC, PID, and communication, which can be selected by setting F0-03 (0 to 9).

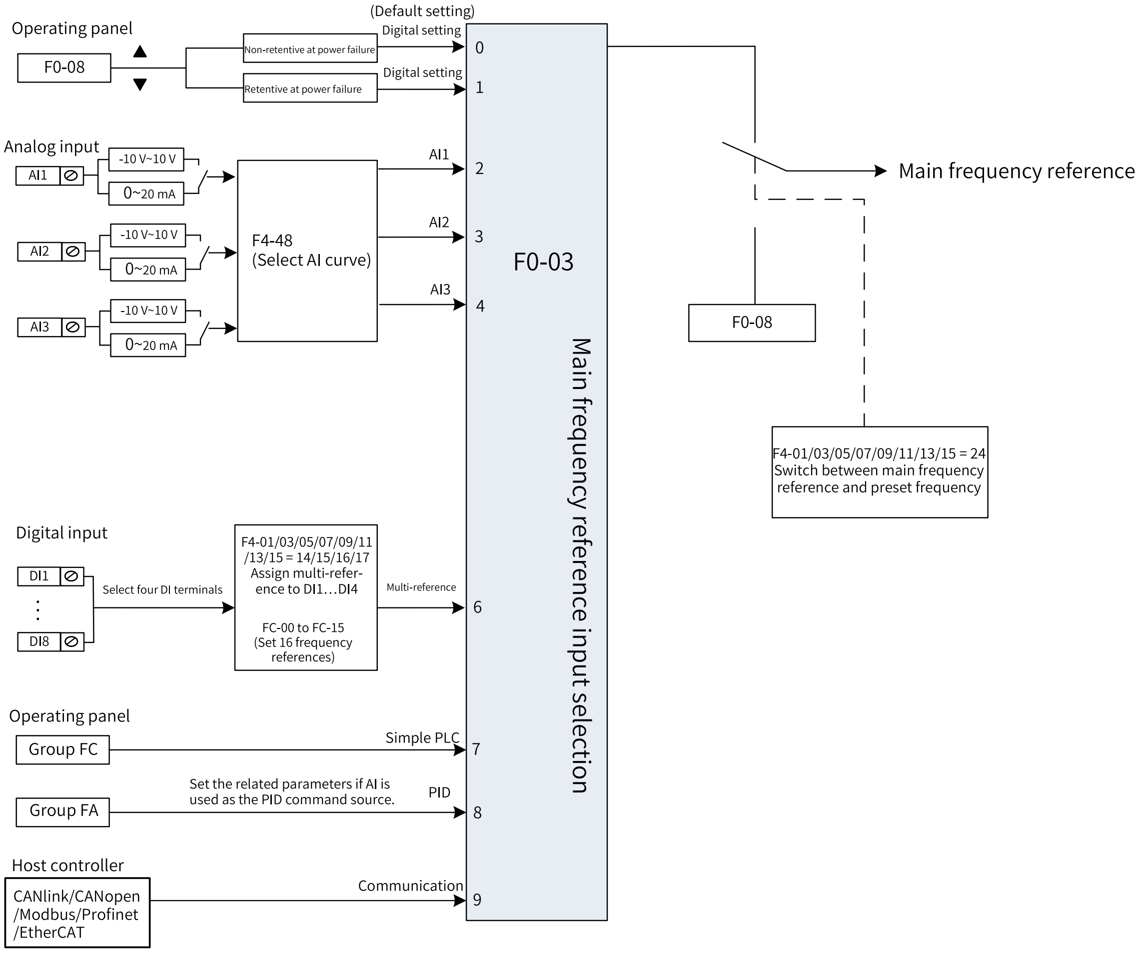


Figure 4-10 Main frequency reference selection

Para. No.	Name	Value Range	Default
F0-03	Main frequency source X	0: Digital setting (preset frequency (F0-08) that can be changed by pressing UP/DOWN, non-retentive upon power failure) 1: Digital setting (preset frequency (F0-08) that can be changed by pressing UP/DOWN, retentive upon power failure) 2: AI1 3: AI2 4: AI3 6: Multi-reference 7: Simple PLC 8: PID 9: Communication 10: Reserved	0

4.1.2.3 Operating Panel Control

There are two ways to set the main frequency by using the operating panel:

- F0-03 = 0 (non-retentive at power failure): When the AC drive is powered on again after stop or power failure, the frequency reference is restored to the preset frequency (F0-08). Frequency modifications made to the preset frequency (F0-08) by using the and keys or UP and DOWN of terminals are cleared when the AC drive stops.
- F0-03 = 1 (retentive at power failure): When the AC drive is powered on again after stop or power failure, the frequency reference is restored to the value memorized at the moment of the last power failure. Frequency modifications made to the preset frequency (F0-08) by using the and keys or UP and DOWN of terminals remain effective when the AC drive stops.

  For example, F0-08 is set to 40 Hz, and it is adjusted to 45 Hz by using the key of the operating panel. If F0-23 is set to 0 (non-retentive), the target frequency is restored to 40 Hz (value of F0-08) after the AC drive stops; if F0-23 is set to 1 (retentive), the target frequency is still 45 Hz after the AC drive stops.

Note

Distinguish this parameter from F0-23 (Retentive memory of digital setting frequency upon stop). F0-23 determines whether the frequency setting is retained or cleared after the AC drive stops. F0-23 is related only to the stop state of the AC drive, rather than power failure.

The related parameters are as follows.

Para. No.	Name	Default	Value Range
F0-08	Preset frequency	50.00 Hz	0.00 Hz to maximum frequency (F0-10)
F0-10	Maximum frequency	50.00 Hz	50.00 Hz to 600.00 Hz

Para. No.	Name	Default	Value Range
F0-23	Retention of digital setting of frequency upon stop	0	0: Non-retentive 1: Retentive

4.1.2.4 AI Control

Three analog inputs can be configured for the drive unit: AI1, AI2, and AI3. You can select the AI source (F4-25, F4-27, and F4-29) to map the analog data of the power supply unit or extension cards. The power supply unit and I/O extension cards 1 and 2 each is equipped with two AI terminals. The following table describes the characteristics of AI terminals of the power supply unit. The AI terminals of the I/O extension cards are similar.

Table 4–1 Characteristics of AI terminals of the power supply unit

Terminal	Name	Type	Input Voltage Range	Input Impedance
AI1-GND	Control board AI terminal 1	Voltage type Current type	–10 V to +10 V DC 0 mA to 20 mA	22 kΩ 500 Ω
AI2-GND	Control board AI terminal 2			

When the main frequency is to be set through analog input, AI1, AI2, or AI3 can be used. When F0-03 is set to 2, AI1 is used as the main frequency reference source; when F0-03 is set to 3, AI2 is used as the main frequency reference source; when F0-03 is set to 4, AI3 is used as the main frequency reference source.

When an AI terminal is used as the frequency source, one among five types of AI curves can be set for the AI terminal. The AI curve defines the relationship between the analog input voltage (or current) and the corresponding setpoint.

<table>
<tr><th>Step</th><th>Related Parameters</th><th>Description</th></tr>
<tr><td rowspan="3">(Step 1) Select an AI terminal as the frequency reference source:
Select the terminal for setting the frequency reference based on terminal characteristics.</td><td rowspan="3">F0-03 (main frequency reference source)</td><td>F0-03 = 2
Select AI1.</td></tr>
<tr><td>F0-03 = 3
Select AI2.</td></tr>
<tr><td>F0-03 = 4
Select AI3.</td></tr>
<tr><td rowspan="2">(Step 2) Select the AI hardware source:
Select the AI hardware source and function.</td><td>F4-25, F4-27, F4-29</td><td>Select the analog input source.
F4-25: Select the hardware source for AI1.
F4-27: Select the hardware source for AI2.
F4-29: Select the hardware source for AI3.
The power supply unit and I/O extension cards 1 and 2 each are equipped with two AI terminals (AI1 and AI2). The mapping between the parameter values and AI hardware sources is as follows:
1: AI1 of the power supply unit
2: AI2 of the power supply unit
101: AI1 of extension card 1
102: AI2 of extension card 1
201: AI1 of extension card 2
202: AI2 of extension card 2</td></tr>
<tr><td>Set the following parameters on the power supply unit:
A1-10, A1-11
A2-10, A2-11
A3-10, A3-11</td><td>Select the analog input function, which can be voltage input, current input, or temperature input (PT100/PT1000/KTY84-130/PTC-130).
A1-10 and A1-11: Input selection for AI1 and AI2 of the power supply unit
A2-10 and A2-11: Input selection for AI1 and AI2 of I/O extension card 1
A3-10 and A3-11: Input selection for AI1 and AI2 of I/O extension card 2
The mapping between the parameter values and input selections is as follows:
0: Voltage input
1: Current input
2: Temperature input PT100
3: Temperature input PT1000
4: Temperature input KTY84-130
5: Temperature input PTC-130</td></tr>
<tr><td>(Step 3) Select an AI curve for the AI terminal:</td><td>F4-48</td><td>Select the AI curve. (You can select any AI curve for an AI terminal. Typically, F4-48 is set</td></tr>
</table>

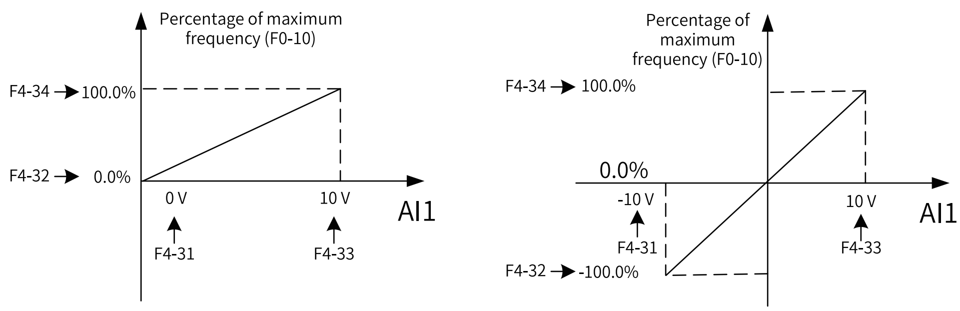
Step	Related Parameters	Description
Select a curve and filter time for the AI terminal.		to the default value 321. That is, curve 1 is selected for AI1, curve 2 for AI2, and curve 3 for AI3.)
	Set the following parameters on the power supply unit: A1-05, A1-06 A2-05, A2-06 A3-05, A3-06	Set the AI filter time. A1-05 and A1-06: Filter time of AI1 and AI2 of the power supply unit A2-05 and A2-06: Filter time of AI1 and AI2 of I/O extension card 1 A3-05 and A3-06: Filter time of AI1 and AI2 of I/O extension card 2
(Step 4) Set the AI curve: Set the relationship between the AI voltage/current inputs and frequency setpoints.	F4-31 to F4-34	Set curve 1.
	F4-35 to F4-38	Set curve 2.
	F4-39 to F4-42	Set curve 3.
	A6-00 to A6-07	Set curve 4.
	A6-08 to A6-15	Set curve 5.
	F4-49	Set the solution for cases where AI input is less than the minimum input reference (When AI is used as the frequency reference source, the setpoint 100% corresponds to the maximum frequency (F0-10).)

Setting AI Curve

Five types of AI curves are available. Curves 1 to 3 are two-point curves, and the related parameters are F4-31 to F4-42. Curves 4 and 5 are four-point curves, and the related parameters are in group A6.

- For the current-type AI curve, 1 mA current corresponds to 0.5 V voltage, that is, 20 mA corresponds to 10 V.
- When the analog input voltage is greater than the maximum input voltage (F4-31), the maximum input voltage is used. Similarly, when the analog input voltage is less than the minimum input voltage (F4-33), the minimum input voltage or 0.0% is used as defined by F4-49 (setting for the AI lower than the minimum input).

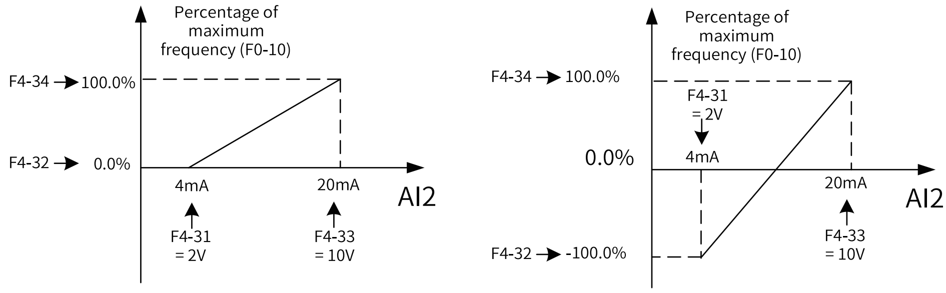
Take the setting of AI curve 1 as an example. The following figure shows the voltage-type AI curves and current-type AI curves. When the voltage-type curve is used, 4 mA to 20 mA typically corresponds to 0 Hz to 50 Hz or –50 Hz to +50 Hz. The related parameters include F4-31 to F4-34.



Setting when there are no negative frequency references

Setting when there are negative frequency references (default)

Figure 4-11 Voltage-type AI curves



Setting when there are no negative frequency references   Setting when there are negative frequency references

Figure 4-12 Current-type AI curves

Curve 2 and curve 3 are set in a similar way as curve 1. Parameters related to curve 2 are F4-35 to F4-38, and those related to curve 3 are F4-39 to F4-26.

The function of curve 4 and curve 5 is similar to that of curve 1 to curve 3. However, curve 1 to curve 3 are straight lines, while curve 4 and curve 5 are 4-point curves, which offer more flexible mapping. The x-axis of the AI curves 4 and 5 indicates the analog input voltage (or current), and the y-axis indicates the setpoint corresponding to the analog input, that is, the percentage relative to the maximum frequency (F0-10). The four points on curves 4 and 5 are the minimum input point, inflection 1, inflection 2, and maximum input point, respectively. A6-00 corresponds to the x-axis of the minimum input point, that is, the minimum analog input voltage (or minimum analog input current).

When setting curve 4 and curve 5, note that the curve's minimum input voltage, inflexion 1 voltage, inflexion 2 voltage, and maximum voltage must be in ascending order. Parameters related to curve 4 are A6-00 to A6-07, and those related to curve 5 are A6-08 to A6-15.

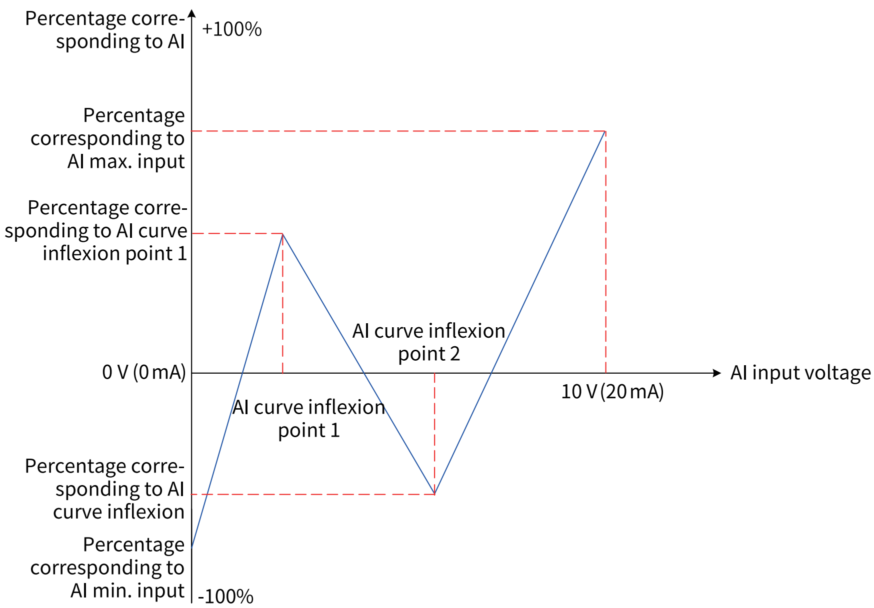


Figure 4-13 Curve 4 and curve 5

Selecting AI Curve for AI Terminal

The AI curves for AI1 and AI2 are defined by the ones and tens of F4-48. You can select any one among the five types of curves for each of the two AI terminals.

Longer AI input filter time indicates stronger anti-interference capability but slower adjustment response. Shorter filter time indicates faster adjustment response but weaker anti-interference capability. If the analog input is liable to interference, increase the filter time to stabilize the detected analog input. However, increasing the AI filter time will slow the response to analog detection. Therefore, the filter time must be set properly based on actual conditions.

Selecting AI Terminal as Frequency Reference Source

The power supply unit and I/O extension cards 1 and 2 each provide two AI terminals, which offer –10 V to +10 V voltage inputs or 0 mA to 20 mA current inputs. The following describes how to set the AI terminal as the main frequency reference source.

In this example, AI1 of the power supply unit is selected as the AI1 hardware source (F4–25 = 1), and curve 1 is selected (the ones of F4-48 is set to 1) for AI1. When the voltage-type AI1 terminal is used as the frequency source, 2 V to 10 V voltage corresponds to 10 Hz to 40 Hz frequency. The following figure shows how to set the parameters.

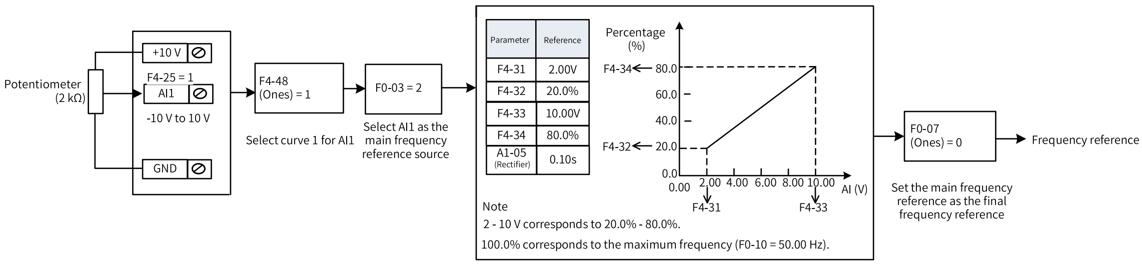


Figure 4-14 Parameter settings for using AI1 voltage input as main frequency reference

In this example, AI2 of the power supply unit is selected as the AI2 hardware source (F4–27 = 2), and curve 2 is selected (the tens of F4-48 is set to 2) for AI2. When the current-type AI2 terminal is used as the frequency source, 4 mA to 20 mA current corresponds to 0 Hz to 50 Hz frequency. The following figure shows how to set the parameters.

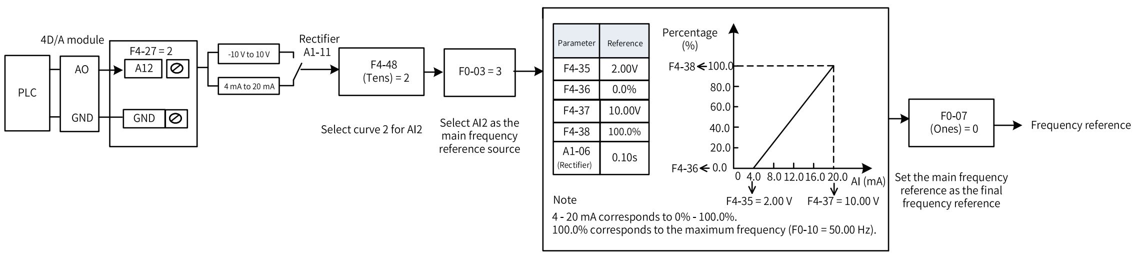


Figure 4-15 Parameter settings for using AI2 current input as main frequency reference

4.1.2.5 Multi-reference Control

When F0-03 is set to 6, multi-reference is selected as the main frequency reference source. It is suitable for applications where only several frequency values are required without the need for continuous frequency adjustment.

The AC drive supports a total of 16 running frequencies, which can be defined by different combinations of input signals of four DI terminals. You can also use less than four DI terminals, and the missing bit is considered to be 0.

The required multi-reference frequencies are defined by the multi-reference table in group FC. The following table describes the related parameters.

Para. No.	Name	Default	Value Range	Description
FC-00	Multi-reference 0	0.00%	–100.0% to +100.0%	The multi-reference value is a relative value, which is a percentage relative to the maximum frequency. The positive or negative property of the parameter value determines the running direction. If the value is negative, the AC drive runs in the reverse direction. The acceleration and deceleration time are defined by F0-17 and F0-18 by default.
FC-01	Multi-reference 1	0.00%	–100.0% to +100.0%	
FC-02	Multi-reference 2	0.00%	–100.0% to +100.0%	
FC-03	Multi-reference 3	0.00%	–100.0% to +100.0%	
FC-04	Multi-reference 4	0.00%	–100.0% to +100.0%	
FC-05	Multi-reference 5	0.00%	–100.0% to +100.0%	
FC-06	Multi-reference 6	0.00%	–100.0% to +100.0%	
FC-07	Multi-reference 7	0.00%	–100.0% to +100.0%	
FC-08	Multi-reference 8	0.00%	–100.0% to +100.0%	
FC-09	Multi-reference 9	0.00%	–100.0% to +100.0%	
FC-10	Multi-reference 10	0.00%	–100.0% to +100.0%	
FC-11	Multi-reference 11	0.00%	–100.0% to +100.0%	
FC-12	Multi-reference 12	0.00%	–100.0% to +100.0%	
FC-13	Multi-reference 13	0.00%	–100.0% to +100.0%	
FC-14	Multi-reference 14	0.00%	–100.0% to +100.0%	
FC-15	Multi-reference 15	0.00%	–100.0% to +100.0%	
FC-51	Multi-reference 0 source	0	0 to 6	0: FC-00 1: AI1 2: AI2 3: AI3 4: Reserved 5: PID 6: F0-08 (preset frequency), which can be changed by using terminal UP/DOWN

Table 4–2 Using multi-reference as the frequency reference source

Step	Related Parameters	Description
Step 1: Select multi-reference as the frequency reference source.	F0-03	F0-03 = 6
Step 2: Determine the number of speed references required.	None	A total of 16 speed references are supported, which are defined by using four DI terminals. The relationship between the number of speed references and the number of DI terminals is as follows: 2 speed references: 1 DI terminal (K1) 3 to 4 speed references: 2 DI terminals (K1 and K2) 5 to 8 speed references: 3 DI terminals (K1, K2, and K3) 9 to 16 speed references: 4 DI terminals (K1, K2, K3, and K4)
Step 3: Select the DI hardware source.	F4-00/F4-02/F4-04/F4-06/F4-08/	Set an available external terminal as the DI hardware source.

<table>
<tr><th>Step</th><th>Related Parameters</th><th colspan="2">Description</th></tr>
<tr><td></td><td>F4-10/F4-12/F4-14</td><td colspan="2"></td></tr>
<tr><td rowspan="4">Step 4: Assign the multi-reference function to the DI terminal.</td><td rowspan="4">F4-01/F4-03/F4-05/F4-07/F4-09/F4-11/F4-13/F4-15</td><td>Multi-reference terminal K1</td><td>Set the parameter to 14.</td></tr>
<tr><td>Multi-reference terminal K2</td><td>Set the parameter to 15.</td></tr>
<tr><td>Multi-reference terminal K3</td><td>Set the parameter to 16.</td></tr>
<tr><td>Multi-reference terminal K4</td><td>Set the parameter to 17.</td></tr>
<tr><td rowspan="2">Step 5: Set the frequency corresponding to each speed reference.</td><td>FC-00 to FC-15</td><td colspan="2">The frequency corresponding to each speed reference is set to a percentage value. 100% corresponds to the maximum frequency (F0-10).</td></tr>
<tr><td>F0-10</td><td colspan="2">When multi-reference is used as the frequency reference source, the value 100% of FC-00 to FC-15 corresponds to the maximum frequency (F0-10).</td></tr>
</table>

The four multi-reference terminals provide 16 state combinations, corresponding to 16 reference values, as listed in the following table.

Table 4–3 State combinations of the four multi-reference terminals

K4	K3	K2	K1	Reference	Parameter
OFF	OFF	OFF	OFF	Multi-reference 0	FC-00
OFF	OFF	OFF	ON	Multi-reference 1	FC-01
OFF	OFF	ON	OFF	Multi-reference 2	FC-02
OFF	OFF	ON	ON	Multi-reference 3	FC-03
OFF	ON	OFF	OFF	Multi-reference 4	FC-04
OFF	ON	OFF	ON	Multi-reference 5	FC-05
OFF	ON	ON	OFF	Multi-reference 6	FC-06
OFF	ON	ON	ON	Multi-reference 7	FC-07
ON	OFF	OFF	OFF	Multi-reference 8	FC-08
ON	OFF	OFF	ON	Multi-reference 9	FC-09
ON	OFF	ON	OFF	Multi-reference 10	FC-10
ON	OFF	ON	ON	Multi-reference 11	FC-11
ON	ON	OFF	OFF	Multi-reference 12	FC-12
ON	ON	OFF	ON	Multi-reference 13	FC-13
ON	ON	ON	OFF	Multi-reference 14	FC-14
ON	ON	ON	ON	Multi-reference 15	FC-15

4.1.2.6 Setting the Main Frequency Through Simple PLC

Step 1: Set F0-03 to 7 to select simple PLC as the main frequency reference.

Step 2: Set parameters FC-00...FC-15 and FC-18...FC-49 to define the running time and acceleration/deceleration time for each reference.

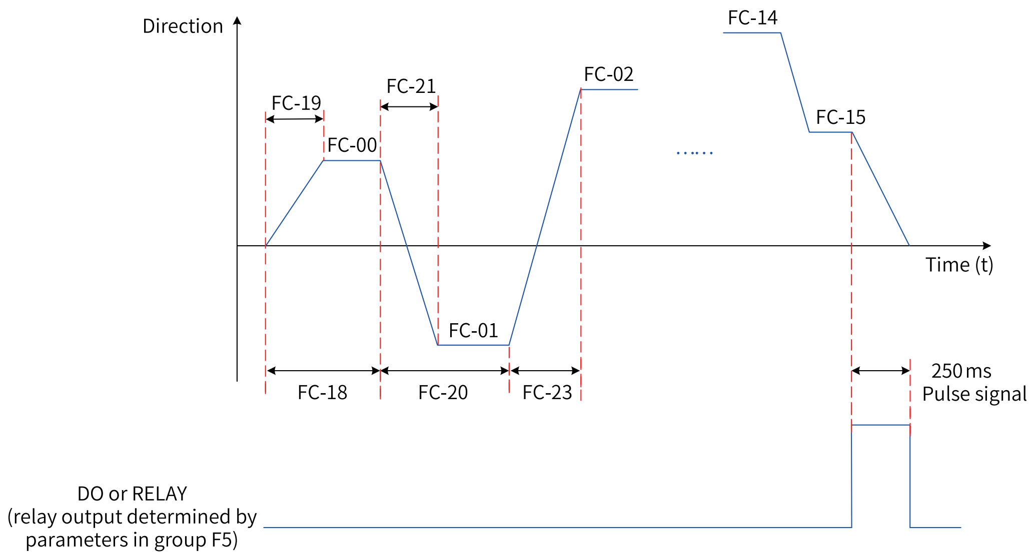


Figure 4-16 Simple PLC as the main frequency source

Step 3: Set FC-16 to select the simple PLC operation mode.

Step 4: Set FC-17 to determine whether to retain the PLC operation stage and operating frequency upon power failure or stop.

4.1.2.7 PID Control

PID control is a general process control method. PID control is used to form a closed-loop system in which each controlled variable is stabilized at the target level through proportional, integral, and differential calculation of the difference between the feedback signal and the target signal of the controlled variable. The output of PID control is used as the running frequency, which generally applies to on-site closed-loop control applications, such as constant pressure closed-loop control and constant tension closed-loop control.

- Proportional gain Kp: Once the deviation between PID output and input occurs, the PID controller adjusts the output to reduce the deviation. The speed at which the deviation decreases depends on the proportional coefficient Kp. A larger Kp tends to reduce the deviation faster, but may cause system oscillation, especially at large hysteresis. A smaller Kp indicates lower possibility of oscillation but also slower adjustment. (The value 100.0 indicates that when the difference between PID feedback and reference is 100.0%, the adjustment amplitude of the PID controller on the output frequency reference is the maximum frequency.)
- Integral time Ti: It determines the integral adjustment intensity of the PID controller. Shorter integral time indicates greater adjustment intensity. (Integral time refers to the time required for continuous adjustment of the integral regulator to reach the maximum frequency when the deviation between the PID feedback and reference is 100.0%.)
- Derivative time Td: It defines the deviation variation adjustment intensity of the PID controller. Longer derivative time indicates greater adjustment intensity. (Derivative time refers to the time within which the feedback value change reaches 100.0%, and the adjustment amplitude reaches the maximum frequency.)

Application

Step 1: Set F0-03 and F0-04 to 8 to select PID as the main frequency reference input source and auxiliary frequency input source.

Step 2: Set FA-00 to select a source of PID target reference. If FA-00 is set to 0, set FA-01 (digital setting of PID). The value 100% of this parameter corresponds to the maximum value of PID feedback.

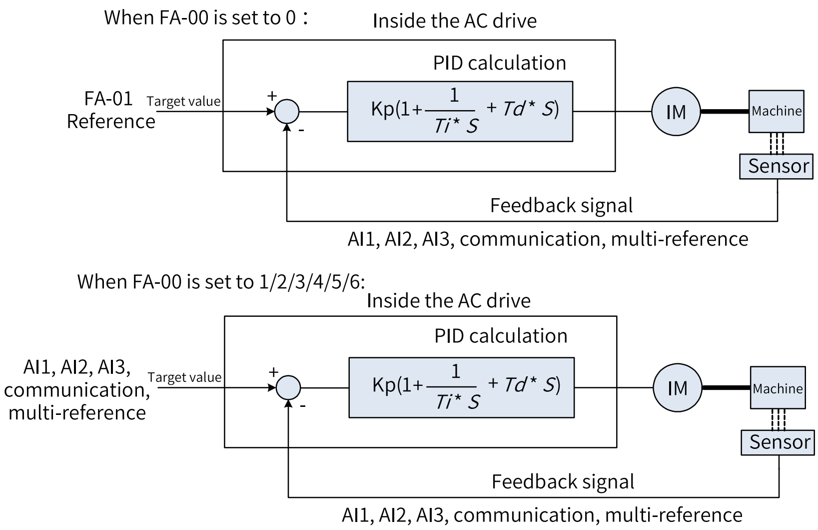


Figure 4-17 Block diagram of process PID control principle

Step 3: Set FA-02 to select a PID feedback source.

Step 4: Set FA-03 to select a PID action direction.

The following figure shows the logic of process PID control parameter configuration.

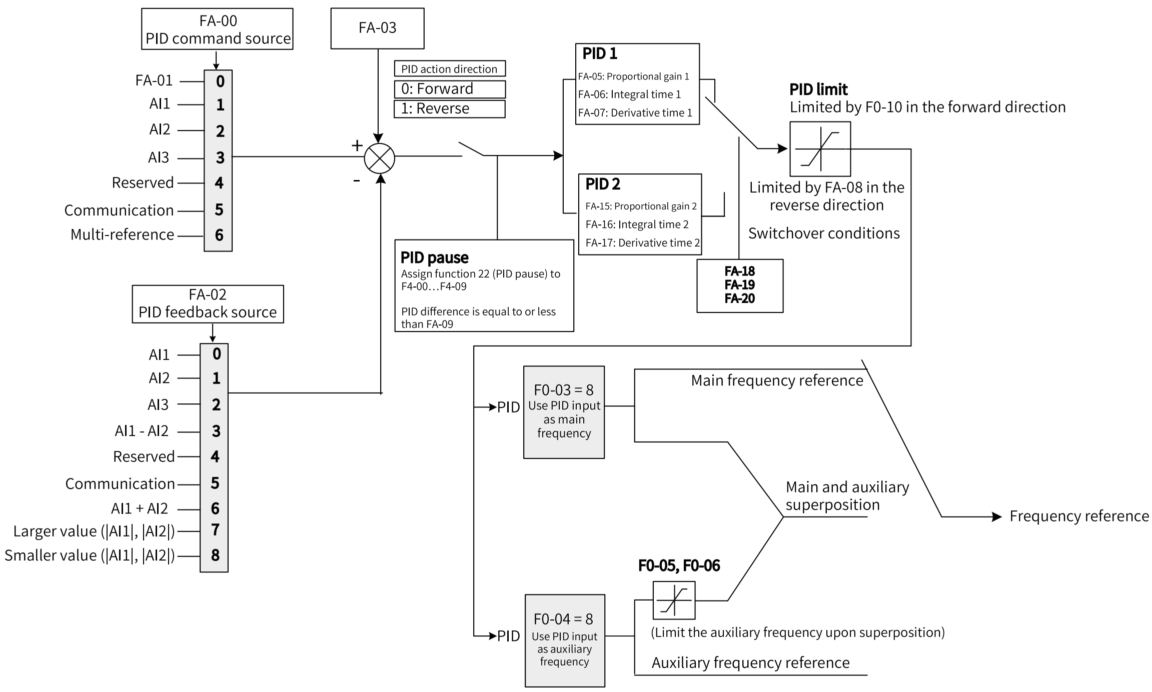


Figure 4-18 Block diagram of process PID control parameter configuration

The upper and lower limits and range of the frequency output when the PID is used as the main frequency source are described as follows (for example, when the frequency source is only PID or main + PID).

When the reverse cut-off frequency is 0 or reverse running is inhibited (that is, any of the following):

① FA-08 = 0, F8-13 = 0; ② FA-08 = 0, F8-13 = 1; ③ FA-08 ≠ 0, F8-13 = 1

Output upper limit = Frequency upper limit

Output lower limit = Frequency lower limit

Output range = Frequency lower limit to frequency upper limit (that is, F0-14 to F0-12)

When the reverse cut-off frequency is not 0 and reverse running is allowed (that is, FA-08 ≠ 0, F8-13 = 0):

Output upper limit = +Frequency upper limit, Output lower limit = –Reverse cut-off frequency

Output range = –Reverse cut-off frequency to +Frequency upper limit (–FA-08 to +F0-12)

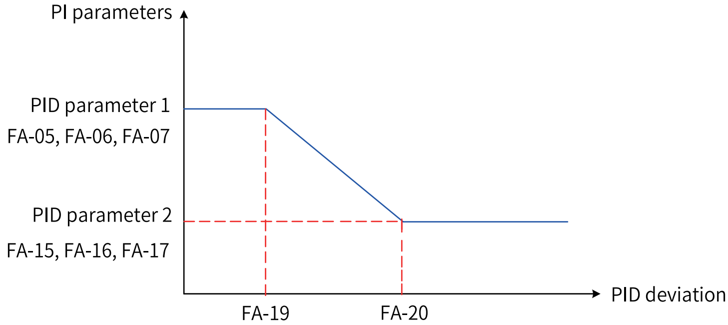


Figure 4-19 PID parameter switchover

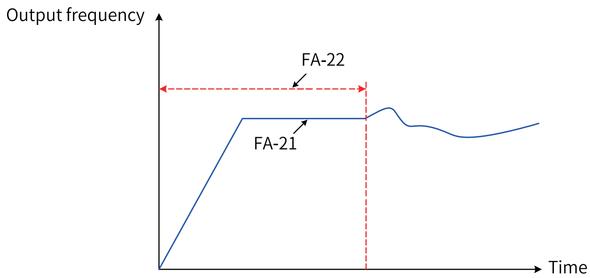


Figure 4-20 PID initial value function

4.1.2.8 Communication Control

When F0-02 is set to 2, the operation commands such as start and stop of the AC drive are set through communication (the "computer" indicator on the operating panel of the power supply unit blinks).

The AC drive supports the following five methods for communication with the host controller: Modbus, CANopen, CANlink, PROFINET, and EtherCAT, which cannot be used at the same time. The EtherCAT and PROFINET communication cards are optional, which can be selected as required. If EtherCAT or PROFINET communication is used, the corresponding communication card must be installed. CANopen, CANlink, PROFINET, and EtherCAT need to be selected according to the value of Fd-10 of the power supply unit. Modbus is always enabled.

Para. No.	Name	Default	Value Range
Fd-10	Communication type	1	1: CANopen 2: CANlink 3: Communication card mode

Application

Step 1: Set F0-03 to 9 to select communication as the main frequency reference source.

Step 2: Send a write command to the AC drive through the host controller.

The following takes the Modbus protocol as an example to describe how to set the main frequency through communication. To make the AC drive run in the reverse direction through communication, send the following write command: 01 06 20 00 00 02 03 CB.

The bytes are described as follows.

Byte	Description
01H (configurable)	AC drive address
06H	Write command
2000H	Control command communication address
02H (reverse RUN)	Control command
03CBH	CRC check

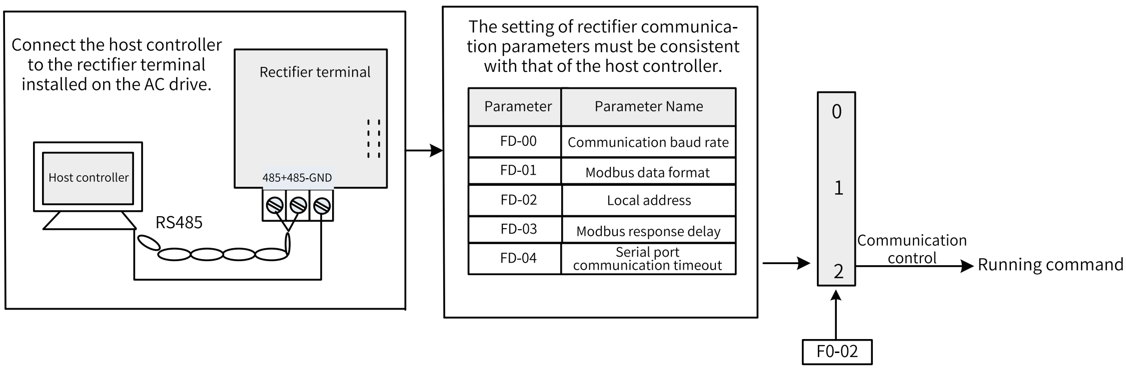


Figure 4-21 Parameter settings for using communication as the main frequency reference source

Table 4–4 Correspondence between host commands and slave responses

Host Command		Slave Response	
ADDR	01H	ADDR	01H
CMD	06H	CMD	06H
High bits of parameter address	20H	High bits of parameter address	20H
Low bits of parameter address	00H	Low bits of parameter address	00H
High bits of data content	00H	High bits of data content	00H
Low bits of data content	02H	Low bits of data content	02H
CRC high bits	03H	CRC high bits	03H
CRC low bits	CBH	CRC low bits	CBH

The range of frequency reference values written through communication by using the 1000H address is –10000 to 10000 (decimal), corresponding to the frequency range of –100.00% to +100.00%. (–100.00% corresponds to the negative maximum frequency, and +100.00% corresponds to the maximum frequency.) Assume that F0-10 (maximum frequency) is set to 50 Hz. If the frequency reference in the write command is 2710H, which is equivalent to 10000 in decimal, the actual written frequency reference is 50 Hz (50 x 100%).

4.1.2.9 Selecting Source of Auxiliary Frequency Reference

There are nine auxiliary frequency reference sources available, including digital setting (non-retentive at power failure), digital setting (retentive at power failure), AI1, AI2, AI3, multi-reference, simple PLC, PID, and communication, which can be selected by setting F0-04 (0 to 9).

When used as an independent frequency reference source, the auxiliary frequency reference source is used in the same way as the main frequency reference source. The following figure shows the block diagram. The auxiliary frequency reference source can also be used for superposition of the main and auxiliary frequency references. For details, see the "Selecting Source of Main Frequency and Auxiliary Frequency Superposition Reference" section.

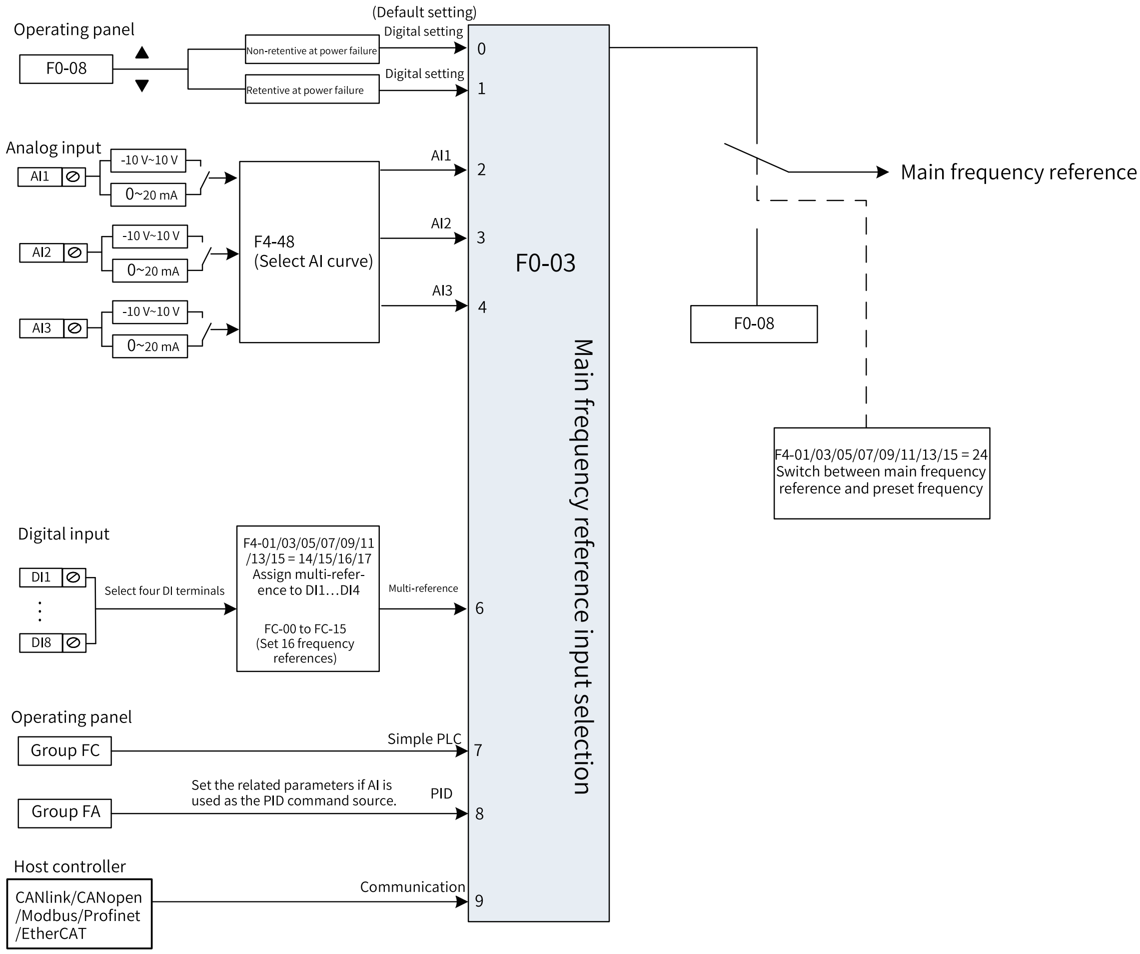


Figure 4-22 Setting auxiliary frequency reference source

Para. No.	Name	Value Range	Default
F0-04	Auxiliary frequency source Y	0: Digital setting (preset frequency (F0-08) that can be changed by pressing UP/DOWN, non-retentive upon power failure) 1: Digital setting (preset frequency (F0-08) that can be changed by pressing UP/DOWN, retentive upon power failure) 2: AI1 3: AI2 4: AI3 6: Multi-reference 7: Simple PLC 8: PID 9: Communication 10: Reserved	0

4.1.2.10 Selecting Source of Main Frequency and Auxiliary Frequency Superposition Reference

Main and auxiliary frequency reference superposition is used to set the frequency reference by combining the main frequency reference and auxiliary frequency reference. The relationship between the target frequency and the main and auxiliary frequency references is set in F0-07, which is described as follows.

Table 4–5 Relationship between target frequency and main and auxiliary frequency references

No.	Relationship Between Target Frequency and Main and Auxiliary Frequency References	
1	Main frequency reference	The main frequency reference is directly used as the target frequency.
2	Auxiliary frequency reference	The auxiliary frequency reference is directly used as the target frequency.
3	Main and auxiliary operation	There are 5 types of main and auxiliary operations: main frequency + auxiliary frequency, main frequency – auxiliary frequency, MAX (main frequency, auxiliary frequency), MIN (main frequency, auxiliary frequency), and main frequency x auxiliary frequency.
4	Frequency switchover	Any of the preceding three frequency sources selected or switched by using the DI terminal. The DI terminal must be assigned with function 23 (frequency reference switchover).

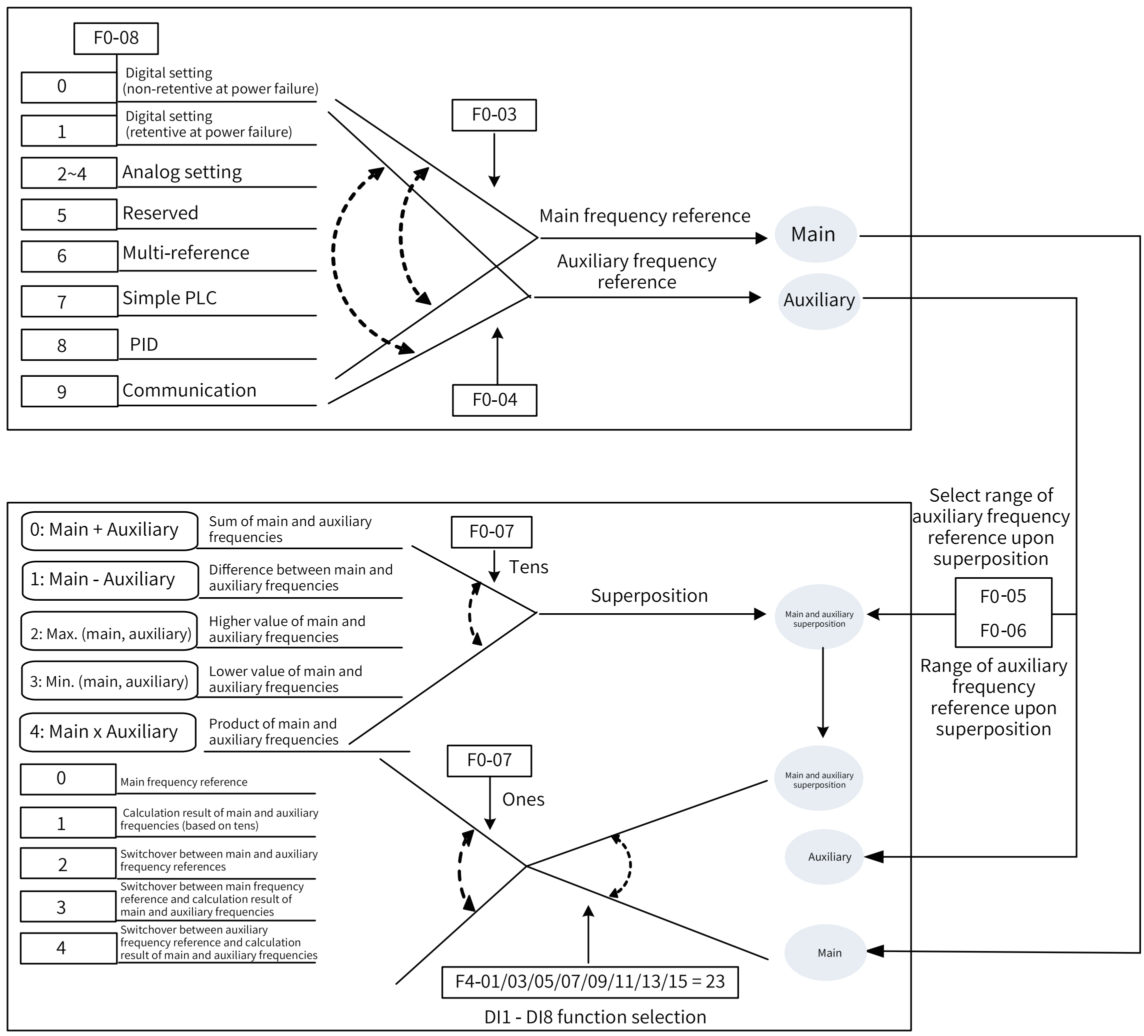


Figure 4-23 Main and auxiliary frequency reference superposition

Table 4–6 Main and auxiliary frequency reference superposition

Operation	Main Frequency Reference Source	Auxiliary Frequency Reference Source	Description
+	Digital setting	AI/Pulse/Multi-reference/Simple PLC/ Communication	1. UP/DOWN is invalid. 2. Output range: F0-08 + Auxiliary frequency reference.
	AI/Pulse/Multi-reference/Simple PLC/Communication	Digital setting	1. UP/DOWN is valid. 2. Output range: Main frequency reference + UP/ DOWN.
	Digital setting	PID	1. UP/DOWN is invalid. 2. Output range: Main frequency reference + Auxiliary frequency reference.
	PID	Digital setting	1. UP/DOWN is invalid. 2: Digital setting is forced to 0. Output range: Main frequency reference.

Operation	Main Frequency Reference Source	Auxiliary Frequency Reference Source	Description
	AI/Multi-reference/ Simple PLC/ Communication	PID	1. UP/DOWN is invalid. 2. Output range: Main frequency reference + Auxiliary frequency reference.
	PID	AI/Pulse/Multi-reference/Simple PLC/ Communication	1. UP/DOWN is invalid. 2. Output range: Auxiliary frequency reference.
–/x/MAX/MIN	Digital setting	Digital setting	1. UP/DOWN is valid. 2. Output range: Main frequency reference + UP/ DOWN, which is the same as digital setting of the single frequency source.
Single frequency source	Any	Any	1. When digital setting is used, UP/DOWN is inactive. The digital setting value is defined by F0-08. 2. When PID exists, PID is invalid. 3. When simple PLC exists, simple PLC is invalid. 4. When both the main and auxiliary frequency references are digital setting, the main frequency reference is active, the auxiliary frequency reference is inactive, and UP/DOWN is active.
	Digital setting	-	1. UP/DOWN is valid. 2. Output range: Main frequency reference + UP/ DOWN. 3. UP/DOWN adjustment range: (Frequency upper limit – Main frequency value) to (Frequency lower limit – Main frequency value). 4. UP/DOWN cannot reverse the frequency direction.
	PID	-	1. The frequency lower limit is invalid. 2. The PID output range is defined by the PID output frequency upper and lower limits. 3. When reverse rotation is prohibited and the lower limit of PID output is a negative value, the lower limit of PID output is 0.
	Others		None

Para. No.	Name	Default	Value Range
F0-05	Base value of range of auxiliary frequency source Y for superposition	0	0: Relative to the maximum frequency 1: Relative to main frequency reference
F0-06	Range of auxiliary frequency source Y for superposition	100%	0% to 150%

These two parameters are only valid in the main + auxiliary operation to limit the range of the auxiliary frequency.

Para. No.	Name	Default	Value Range
F0-27	Main frequency coefficient	10.00%	0.00% to 100.00%
F0-28	Auxiliary frequency coefficient	10.00%	0.00% to 100.00%

These two parameters are only used in the main x auxiliary operation. Assume that the main frequency is Frq1 and the auxiliary frequency is Frq2.

Frq = (Frq1 x F0-27) x (Frq2 x F0-28)

4.1.2.11 Frequency Reference Limits

Frequency upper limit: Defines the maximum running frequency of the motor.

Frequency lower limit: Defines the minimum running frequency of the motor.

Maximum frequency: Defines the maximum output frequency.

Source of frequency upper limit: Defines the source of the frequency upper limit reference.

Frequency upper limit offset: Defines the offset of the frequency upper limit. This parameter is valid only when the frequency upper limit source is set to AI.

Para. No.	Name	Default	Value Range
F0-10	Maximum frequency	50.00 Hz	50.00 Hz to 600.00 Hz
F0-11	Source of frequency upper limit	0	0: Frequency upper limit reference (F0-12) 1: AI1 2: AI2 3: AI3 5: Communication 6: Multi-speed reference
F0-12	Frequency upper limit	50.00 Hz	Frequency lower limit (F0-14) to maximum frequency (F0-10)
F0-13	Frequency upper limit offset	0.00 Hz	0.00 Hz to maximum frequency (F0-10)
F0-14	Frequency lower limit	0.00 Hz	0.00 Hz to frequency upper limit (F0-12)

4.1.2.12 Action to Take When Frequency Is Below Lower Limit

The frequency lower limit defines the minimum running frequency for the motor.

If the frequency reference of the AC drive is lower than the frequency lower limit (F0-14), you need to set F8-15 to further specify the corresponding action of the AC drive, including run at frequency lower limit, stop, run at zero speed, and coast to stop.

- 0: Run at frequency lower limit
  When the running frequency is lower than the frequency lower limit, the AC drive runs at the frequency lower limit.
- 1: Stop

When the running frequency is lower than the frequency lower limit, the AC drive stops.

- 2: Run at zero speed

  When the running frequency is lower than the frequency lower limit, the AC drive runs at zero speed.

Para. No.	Name	Default	Value Range	Description
F8-15	Action to take when frequency is below lower limit	0	0: Run at frequency lower limit 1: Stop 2: Run at zero speed	-

4.1.3 Start/Stop Modes

4.1.3.1 Start Modes

The AC drive can be started in three modes: direct start, flying start, and pre-excitation start. You can set F6-00 to select the startup mode of the AC drive.

Direct Start

When F6-00 is set to 0, the direct start mode is adopted, which applies to most load applications.

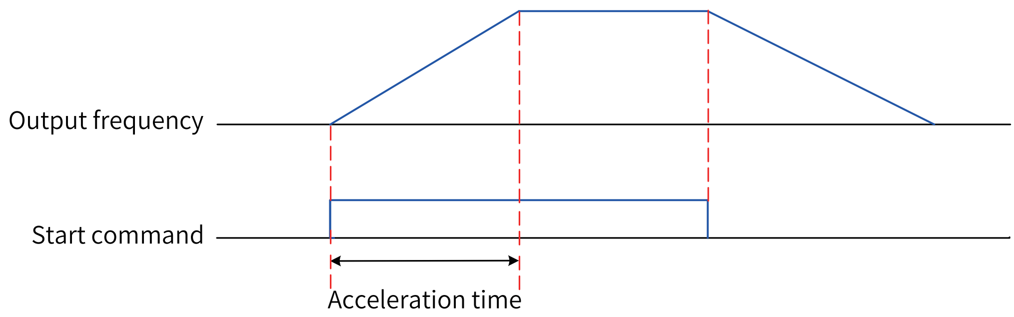


Figure 4-24 Timing diagram of direct start

Startup with startup frequency is applicable to lifting loads such as elevators and cranes.

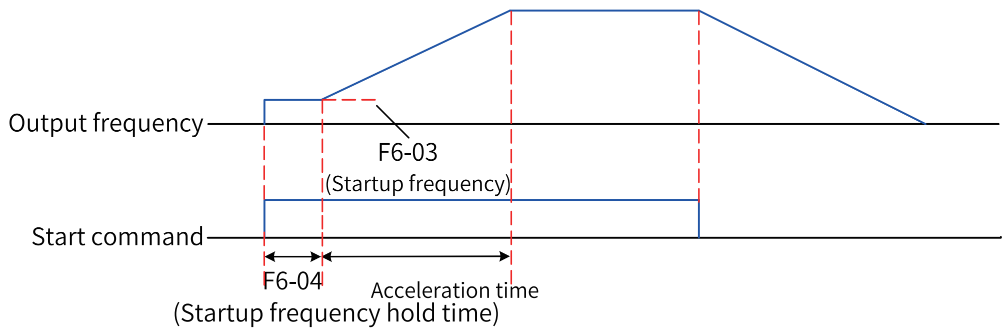


Figure 4-25 Timing diagram of startup with startup frequency

Startup with DC injection braking is applicable to load applications where the motor is likely to rotate at startup.

If the DC injection braking time is set to 0, the AC drive starts to run at the startup frequency. If the DC injection braking time is not 0, the AC drive performs DC injection braking first and then starts to run at the startup frequency. This mode applies to most small-inertia load applications where the motor is likely to rotate at startup.

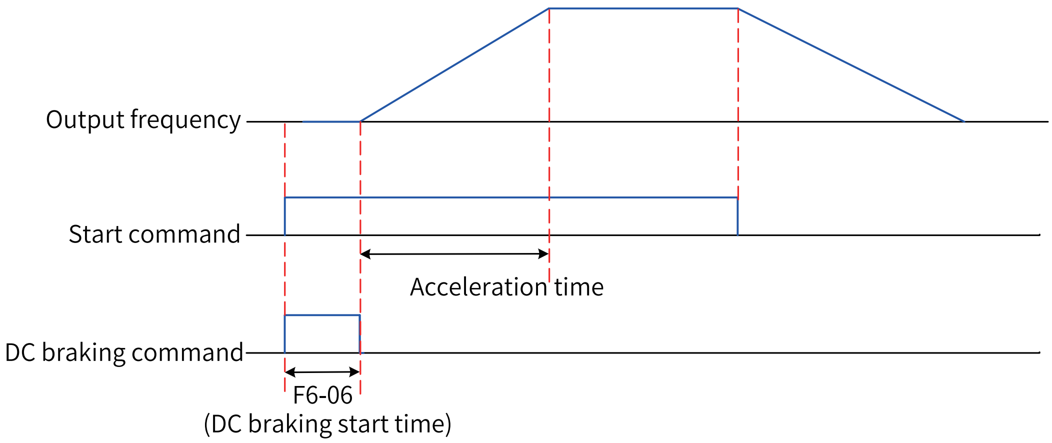
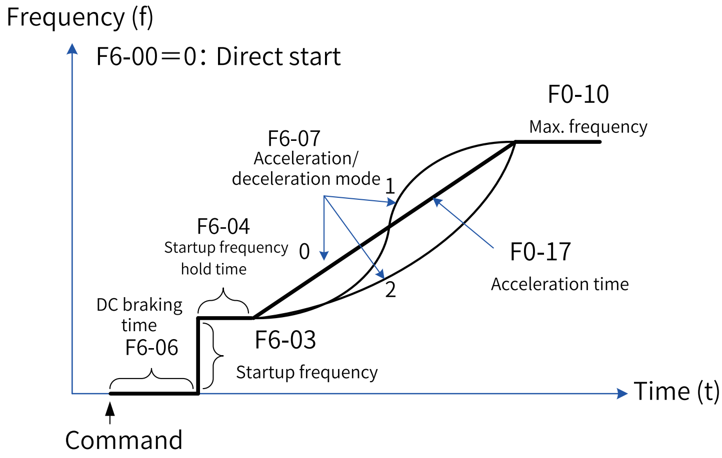


Figure 4-26 Timing diagram of startup with DC injection braking

Startup with DC injection braking is applicable to driving loads such as elevators and cranes. Startup with startup frequency is applicable to equipment drives that require burst startup under startup torque, such as cement mixers. The following figure shows the frequency curve during startup.



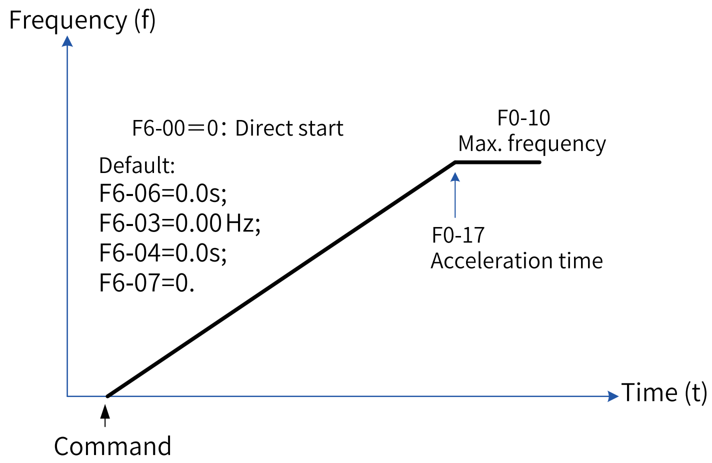


Figure 4-27 Direct start mode

Flying Start

When F6-00 is set to 1, the flying start mode is adopted. The AC drive first determines the speed and direction of the motor and then starts to run at the tracked motor frequency. This mode applies only to asynchronous motors. It is applicable when the AC drive is used to drive large-inertia machinery loads.

If the AC drive needs to be started again when the motor is still rotating due to inertia, the flying start mode can prevent overcurrent at startup. This startup mode is only valid in vector control mode. The following figure shows the frequency curve during startup.

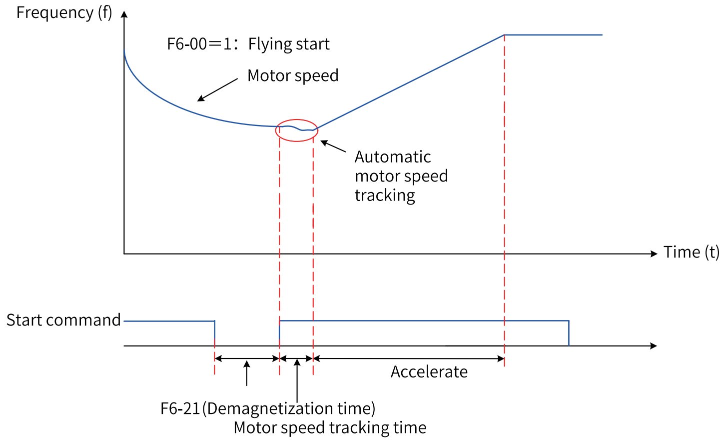


Figure 4-28 Flying start mode

Pre-excitation Start

When F6-00 is set to 2, the pre-excitation start mode is adopted. This mode is valid only for asynchronous motors in SVC control mode. Pre-excitation on the motor before startup can improve fast response of the motor and reduce the starting current. The startup timing is the same as that in startup with DC injection braking mode. The pre-excitation current is preferably 1.5 times the no-load current (F1-10), and in no case be greater than the rated current of the motor. If the pre-excitation current equals the no-load current (F1-10), the optimal pre-excitation time is 3 times the "rotor time constant". "Rotor time constant" = "Mutual inductance (F1-09) + Leakage inductance (F1-08)"/"Rotor resistance (F1-07)". The unit of mutual inductance and leakage inductance is L, and the unit of resistance is Ω. If the pre-excitation current is greater than the no-load current, the pre-excitation time can be reduced proportionally. If the pre-excitation current is less than the no-load current, the pre-excitation time can be increased proportionally.

4.1.3.2 Stop Modes

The AC drive supports two stop modes: decelerate to stop and coast to stop. You can set F6-10 to select a stop mode as required.

Para. No.	Name	Default	Value Range	Description
F6-10	Stop mode	0	0: Decelerate to stop 1: Coast to stop	0: Decelerate to stop Once the stop command takes effect, the AC drive decreases the output frequency to 0 based on the deceleration time and stops. 1: Coast to stop Once the stop command takes effect, the AC drive immediately stops output, and the motor coasts to stop under the action of mechanical inertia.
F6-11	Starting frequency of DC braking at stop	0.00 Hz	0.00 Hz to maximum frequency (F0-10)	The AC drive starts DC braking when the running frequency decreases to the value of this parameter during deceleration to stop.
F6-12	Waiting time of DC braking at stop	0.0s	0.0s to 100.0s	When the running frequency decreases to the start frequency of DC braking at stop, the AC drive stops output for a period of time and then starts DC braking. This

Para. No.	Name	Default	Value Range	Description
				prevents faults such as overcurrent caused due to DC braking at high speed.
F6-13	DC braking current at stop	0%	0% to 150%	A greater DC braking current indicates greater braking force. 100% corresponds to the rated motor current (the current upper limit is 80% of the rated current of the AC drive). The current upper limit can be set through F6-34, and the maximum upper limit allowed is 135% of the rated current of the AC drive.
F6-14	DC braking time at stop	0.0s	0.0s to 100.0s	This parameter indicates the hold time of DC braking. If this parameter is set to 0, DC braking is disabled.

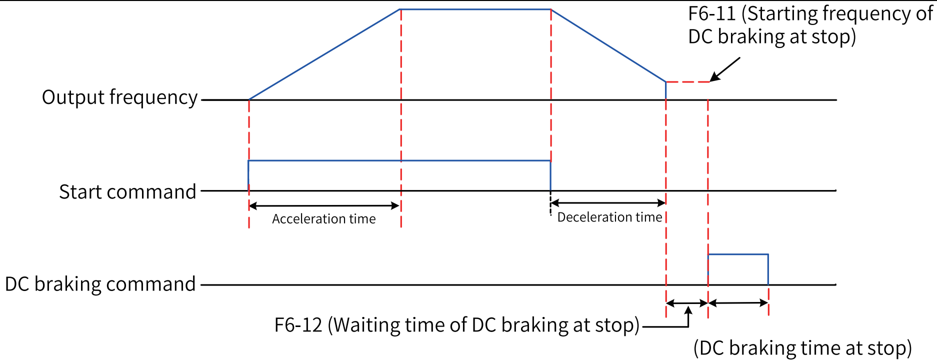


Figure 4-29 Timing diagram of DC braking during stop

Decelerate to stop

When F6-10 is set to 0, the AC drive decelerates to stop. Once the stop command takes effect, the AC drive decreases the output frequency to 0 based on the deceleration time and stops.

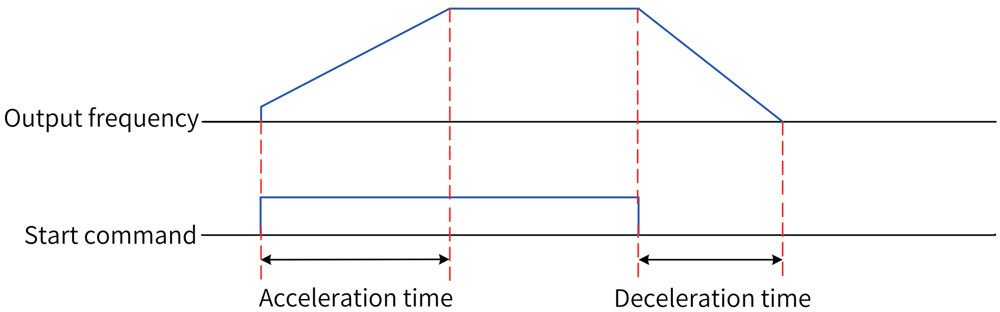


Figure 4-30 Timing diagram of decelerating to stop

Coast to stop

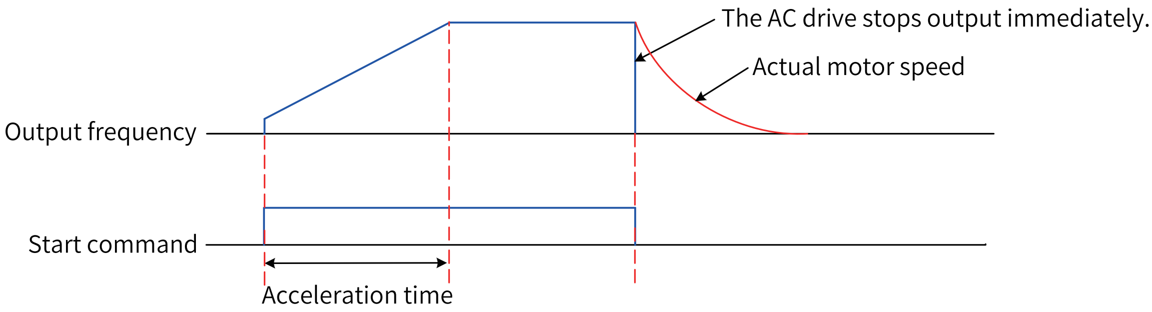


Figure 4-31 Timing diagram of coasting to stop

4.1.3.3 Acceleration/Deceleration Time

The acceleration time indicates the time required for the AC drive to accelerate from 0 Hz to F0-25 (acceleration/deceleration base frequency). The deceleration time indicates the time required for the AC drive to decelerate from F0-25 (acceleration/deceleration base frequency) to 0 Hz.

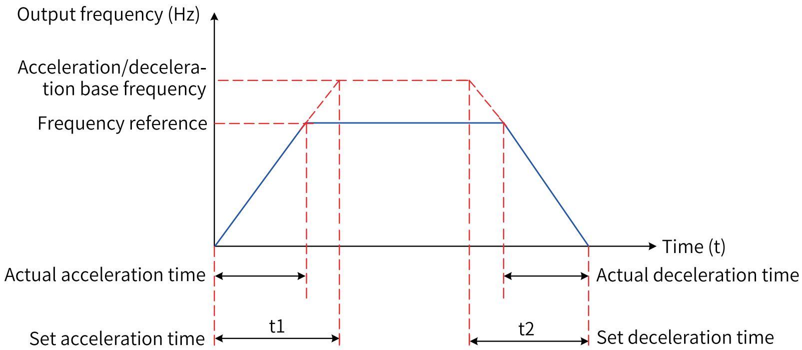


Figure 4-32 Acceleration/Deceleration time

The AC drive provides totally four groups of acceleration/deceleration time, which can be selected by using a DI terminal (assigned with function 18/19). The acceleration/deceleration time is defined by the following parameters:

Group 1: F0-17, F0-18

Group 2: F8-03, F8-04

Group 3: F8-05, F8-06

Group 4: F8-07, F8-08

Application

The following example uses DI6 and DI7 as the input switchover terminals to describe how to set the acceleration/deceleration time.

1. Set F4-10/F4-11 and F4-12/F4-13 to select DI6 and DI7 as the input switchover terminals.

Para. No.	Name	Reference	Function Description
F4-10	DI6 hardware source	001	1: DI1 of the power supply unit
F4-11	DI6 function	18	Acceleration/deceleration selection terminal 1
F4-12	DI7 hardware source	002	2: DI2 of the power supply unit
F4-13	DI7 function	19	Acceleration/deceleration selection terminal 2

2. Set the corresponding acceleration/deceleration time.

DI8 State	DI7 State	Acceleration/Deceleration Time
OFF	OFF	Group 1: F0-17, F0-18 (Acceleration time 1)
OFF	ON	Group 2: F8-03, F8-04 (Acceleration time 2. For details, see F0-17 and F0-18.)
ON	OFF	Group 3: F8-05, F8-06 (Acceleration time 3. For details, see F0-17 and F0-18.)
ON	ON	Group 4: F8-07, F8-08 (Acceleration time 4. For details, see F0-17 and F0-18.)

3. Set F0-19 (acceleration/deceleration time unit). Note that when this parameter is modified, the decimal places of the four groups of acceleration/deceleration time will change, and the corresponding acceleration/deceleration time will also change.
4. Set F6-07 (acceleration/deceleration mode) to select the frequency change mode during the start and stop process of the AC drive.

- 0: Linear acceleration/deceleration. The output frequency increases or decreases linearly.
- 1: S-curve acceleration/deceleration. When the target frequency changes dynamically in real time, the output frequency increases or decreases in real time based on the S-curve (as defined by F6-26 and F6-27). This mode is applicable to applications requiring supreme comfort and quick response in real time. F6-26 (time proportion of S-curve acceleration start segment) and F6-27 (time proportion of S-curve acceleration end segment) must be set and meet the following conditions: F6-26 + F6-27 ⩽ 100.0%.
- 2: Four-segment S-curve acceleration/deceleration. Compared with S-curve acceleration/deceleration, four curve segments of the S-curve can be set. F6-26 (time proportion of S-curve acceleration start segment), F6-27 (time proportion of S-curve acceleration end segment), F6-28 (time proportion of S-curve deceleration start segment), and F6-29 (time proportion of S-curve deceleration end segment) must be set and meet the following conditions: F6-26 + F6-27 ⩽ 100.0%; F6-28 + F6-29 ⩽ 100.0%.

4.2 Motor Configuration

4.2.1 Auto-tuning of Asynchronous Motor

Motor auto-tuning is the process by which the AC drive obtains the parameters of the controlled motor.

The following auto-tuning methods are available for asynchronous motors: static auto-tuning on some parameters of asynchronous motors, dynamic auto-tuning on all parameters of asynchronous motors, and static auto-tuning on all parameters of asynchronous motors.

Para. No.	Name	Default	Value Range	Description
F1-37	Auto-tuning	0	0: No operation	Auto-tuning is not performed.
			1: Static auto-tuning on some parameters of asynchronous motor	Auto-tuning is performed on only some motor parameters, including the stator resistance, rotor resistance, and leakage inductance.
			2: Dynamic auto-tuning on all parameters of asynchronous motor	Auto-tuning is performed on all motor parameters when the motor is running.
			3: Static auto-tuning on all parameters of asynchronous motor	Auto-tuning is performed on all motor parameters when the motor stops.

The auto-tuning effect is described as follows.

Table 4–7 Motor auto-tuning effect

Auto-tuning Method	Applicable Scenario	Auto-tuning Effect
Static auto-tuning on some parameters of asynchronous motor	Scenarios where the motor cannot be disconnected from the load and dynamic auto-tuning is not allowed	Ordinary
Dynamic auto-tuning on all parameters of asynchronous motor	Scenarios where the motor can be disconnected from the application system easily	Optimal
Static auto-tuning on all parameters of asynchronous motor	Scenarios where the motor cannot be disconnected from the load and dynamic auto-tuning on all parameters is not allowed	Good

In addition to the preceding motor auto-tuning methods, you can also input motor parameters manually.

To select the operating panel/LCD operating panel of the power supply unit as the auto-tuning operation command source, set F0-02 to 0; to select the DI terminals as the command source, set F0-02 to 1; to select communication as the command source, set F0-02 to 2.

To perform auto-tuning through communication, write the auto-tuning parameter to F1-37, and then write the operation command.

Application

The following uses the parameters of motor 1 (set F0-24 to 0 to select motor parameter group 1) as an example to describe the motor auto-tuning methods. If you need to perform auto-tuning on parameters of motor 2, set F0-24 to 1 (motor parameter group 2). The auto-tuning method for motor 2 is similar to that for motor 1. For details about the related parameters, see group A2.

- Static auto-tuning on some parameters of asynchronous motors

Table 4–8 Static auto-tuning on some parameters of asynchronous motors

Step	Description
Step 1	Power on the AC drive, and then set F0-02 to 0 to select the operating panel/LCD operating panel/software tool as the command source.
Step 2	Input motor nameplate parameters (F1-00 to F1-05) correctly.
Step 3	Set F1-37 to 1 to select static auto-tuning on some parameters of the asynchronous motor, and press Enter on the operating panel. The operating panel displays: 
Step 4	Press the RUN key on the operating panel or SOP20. The motor does not rotate but gets energized. The RUN indicator becomes ON. After the preceding display disappears and the operating panel returns to normal parameter display state, auto-tuning is completed. Parameters F1-06 to F1-08 are obtained.

- Dynamic auto-tuning on all parameters of asynchronous motors

If the motor has constant output or is used for high-accuracy applications, perform dynamic auto-tuning on all parameters after disconnecting the motor from the load for optimal auto-tuning effect.

Table 4–9 Dynamic auto-tuning on all parameters of asynchronous motors

Step	Description
Step 1	Power on the AC drive, and then set F0-02 to 0 to select the operating panel/LCD operating panel/software tool as the command source.
Step 2	Input motor nameplate parameters (F1-00 to F1-05) correctly.
Step 3	Set F1-37 to 2 to select dynamic auto-tuning on all parameters of the asynchronous motor, and press Enter on the operating panel. The operating panel displays: 
Step 4	Press the RUN key on the operating panel or SOP20. The AC drive drives the motor to accelerate/decelerate and run in the forward/reverse direction. The RUN indicator becomes ON and auto-tuning lasts for a period of time. After the preceding display disappears and the operating panel returns to normal parameter display state, auto-tuning is completed. Parameters F1-06 to F1-10 are obtained.

- Auto-tuning on all parameters of asynchronous motors with load

If the motor cannot be disconnected from the load, perform auto-tuning on all parameters of the asynchronous motor with load, that is, static auto-tuning on all parameters of the asynchronous motor.

Table 4–10 Static auto-tuning on all parameters of asynchronous motors

Step	Description
Step 1	Power on the AC drive, and then set F0-02 to 0 to select the operating panel/LCD operating panel/software tool as the command source.
Step 2	Input motor nameplate parameters (F1-00 to F1-05) correctly.

Step	Description
Step 3	Set F1-37 to 3 to select static auto-tuning on all parameters of the asynchronous motor, and press Enter on the operating panel. The operating panel displays: 
Step 4	Press the RUN key on the operating panel or SOP20. The motor does not rotate but gets energized. The RUN indicator becomes ON. After the preceding display disappears and the operating panel returns to normal parameter display state, auto-tuning is completed. Parameters F1-06 to F1-10 are obtained.

4.2.2 Auto-tuning of Synchronous Motor

Motor auto-tuning is the process by which the AC drive obtains the parameters of the controlled motor.

The following auto-tuning methods are available for synchronous motors: static auto-tuning on some parameters of synchronous motors, dynamic auto-tuning on all parameters of synchronous motors with no load, and static auto-tuning on all parameters of synchronous motors.

Para. No.	Name	Default	Value Range	Description
F1-37	Auto-tuning	0	0: No operation	Auto-tuning is not performed.
			11: Static auto-tuning on some parameters of synchronous motor	SVC, VVC: Auto-tuning is performed on only some motor parameters, including the stator resistance, axis D inductance, and axis Q inductance. The motor does not rotate during auto-tuning.
			12: Dynamic auto-tuning on all parameters of synchronous motor with no load	Ensure that the motor has no load during auto-tuning. SVC, VVC: Auto-tuning is performed on all motor parameters, including the stator resistance, axis D inductance, axis Q inductance, and back EMF. The motor rotates during auto-tuning.
			13: Static auto-tuning on all parameters of synchronous motor	SVC, VVC: Auto-tuning is performed on only some motor parameters, including the stator resistance, axis D inductance, and axis Q inductance. The motor does not rotate during auto-tuning.

The auto-tuning effect is described as follows.

Table 4–11 Motor auto-tuning effect

Auto-tuning Method	Applicable Scenario	Auto-tuning Effect
Static auto-tuning on some parameters of synchronous motor	Scenarios where the motor cannot be disconnected from the load and dynamic auto-tuning is not allowed After auto-tuning is completed, you need to manually set the back EMF (SVC, VVC) and encoder phase sequence.	Good
Dynamic auto-tuning on all parameters of synchronous motor with no load	Scenarios where the motor can be disconnected from the application system easily	Optimal
Static auto-tuning on all parameters of synchronous motor	Scenarios where the motor cannot be disconnected from the load and is not allowed to rotate at all After auto-tuning is completed, you need to manually set the back EMF (SVC, VVC).	Ordinary

In addition to the preceding motor auto-tuning methods, you can also input motor parameters manually.

To select the operating panel/LCD operating panel of the power supply unit as the auto-tuning operation command source, set F0-02 to 0; to select the DI terminals as the command source, set F0-02 to 1; to select communication as the command source, set F0-02 to 2.

To perform auto-tuning through communication, write the auto-tuning parameter to F1-37, and then write the operation command.

Application

- Static auto-tuning on some parameters of synchronous motors

Table 4–12 Static auto-tuning on some parameters of synchronous motors

Step	Description
Step 1	Power on the AC drive, and then set F0-02 to 0 to select the operating panel/LCD operating panel/software tool as the command source.
Step 2	Input motor nameplate parameters (F1-00 to F1-05) correctly.
Step 3	Set F1-37 to 11 to select static auto-tuning on some parameters of the synchronous motor, and press Enter on the operating panel. The operating panel displays: 
Step 4	Press the RUN key on the operating panel or SOP20. The motor gets energized. The RUN indicator becomes ON, and the auto-tuning indicator blinks. After the preceding display disappears and the operating panel returns to normal parameter display state, auto-tuning is completed. Parameters F1-06, F1-17, and F1-18 are obtained. F1-19 (SVC, VVC) needs to be set manually.

- Dynamic auto-tuning on all parameters of synchronous motors with no load

  If the motor has constant output or is used for high-accuracy applications, perform dynamic auto-tuning on all parameters after disconnecting the motor from the load for optimal auto-tuning effect.

Table 4–13 Dynamic auto-tuning on all parameters of synchronous motors

Step	Description
Step 1	Power on the AC drive, and then set F0-02 to 0 to select the operating panel/LCD operating panel/software tool as the command source.
Step 2	Input motor nameplate parameters (F1-00 to F1-05) correctly.
Step 3	Set F1-37 to 12 to select dynamic auto-tuning on all parameters of the synchronous motor with no load, and press Enter on the operating panel. The operating panel displays: 
Step 4	Press the RUN key on the operating panel or SOP20. The motor gets energized. The RUN indicator becomes ON, and the auto-tuning indicator blinks. After the preceding display disappears and the operating panel returns to normal parameter display state, auto-tuning is completed. Parameters F1-06, F1-17, F1-18, and F1-19 are obtained.

- Static auto-tuning on all parameters of synchronous motors

  You can use this method in scenarios where the motor is not allowed to rotate at all.

Table 4–14 Static auto-tuning on all parameters of synchronous motors

Step	Description
Step 1	Power on the AC drive, and then set F0-02 to 0 to select the operating panel/LCD operating panel/software tool as the command source.
Step 2	Input motor nameplate parameters (F1-00 to F1-05) correctly.
Step 3	Set F1-37 to 13 to select static auto-tuning on all parameters of the synchronous motor, and press Enter on the operating panel. The operating panel displays: 
Step 4	Press the RUN key on the operating panel or SOP20. The motor gets energized. The RUN indicator becomes ON, and the auto-tuning indicator blinks. After the preceding display disappears and the operating panel returns to normal parameter display state, auto-tuning is completed. Parameters F1-06, F1-17, and F1-18 are obtained. F1-19 (SVC, VVC) needs to be set manually.

4.3 Control Interfaces

4.3.1 Digital Input (DI)

4.3.1.1 Sources of DI Terminals

The drive unit of this product has no DI terminals and needs to map to input terminals of the power supply unit or extension card. Therefore, you need to set the DI terminal sources when the drive unit uses DI terminals.

The DI terminal source is displayed as follows when you modify related parameters on the operating panel.

Display	Description
Io000	Ten thousands, thousands: I/O Hundreds: Serial number (The serial number 0 indicates power supply unit, 1 indicates extension card 1, 2 indicates extension card 2, and so on.) Tens, ones: Hardware terminal

Example

Para.	Display	Description
F4-00	Io003	DI1 of the drive unit maps to DI3 of the power supply unit.
F4-02	Io008	DI2 of the drive unit maps to DIO4 of the power supply unit. When the drive unit uses DIO1 to DIO4 of the power supply unit as the DI hardware sources, set this parameter to Io005 to Io008 directly.
F4-08	Io108	DI5 of the drive unit maps to DI8 of extension card 1.

The following table describes the parameters related to the drive unit.

Table 4–15 Parameters related to the drive unit

Para.	Name	Default	Value Range	Description
F4-00	DI1 hardware source	0	0: None 1: DI1 of the power supply unit 2: DI2 of the power supply unit 3: DI3 of the power supply unit 4: DI4 of the power supply unit 5: DIO1 of the power supply unit 6: DIO2 of the power supply unit 7: DIO3 of the power supply unit 8: DIO4 of the power supply unit 101: DI1 of extension card 1 102: DI2 of extension card 1 103: DI3 of extension card 1 104: DI4 of extension card 1 105: DI5 of extension card 1 106: DI6 of extension card 1 107: DI7 of extension card 1 108: DI8 of extension card 1 201: DI1 of extension card 2 202: DI2 of extension card 2203: DI3 of extension card 2 204: DI4 of extension card 2 205: DI5 of extension card 2 206: DI6 of extension card 2 207: DI7 of extension card 2 208: DI8 of extension card 2	This parameter defines the source of the input terminal.
F4-02	DI2 hardware source	0		
F4-04	DI3 hardware source	0		
F4-06	DI4 hardware source	0		
F4-08	DI5 hardware source	0		
F4-10	DI6 hardware source	0		
F4-12	DI7 hardware source	0		
F4-14	DI8 hardware source	0		

The value range of the parameters in the preceding table changes automatically.

1. If extension cards 1 and 2 are not connected, non-existent hardware resources are skipped automatically when parameters are set on the local operating panel, and a write failure will be reported when the parameters are set to non-existent hardware resources at the background or by using an external operating panel.
   For example, if extension card 1 is not connected, the value of F4-00 (DI1 hardware source) will jump directly from 008 to 201 when you press the UP key.
2. For the same drive unit, the values of the parameters in the preceding table cannot be duplicate (that is, different DIs cannot use the same hardware source). If a hardware source has been selected, it is skipped automatically when other parameters are set on the local operating panel, and a write failure is reported when this hardware source is assigned to other parameters at the background or by using an external operating panel.
   For example, if F4-00 (DI1 hardware source) is set to 002, pressing the UP key will automatically skip 002 to 003 when you set F4-02 (DI2 hardware source).

3. If one device in a device group selects a DIO of the power supply unit as the input terminal (DI) source, the DO terminals of all devices in the group cannot select this DIO as the hardware source. If a DIO has been selected as the hardware source of a DI, this DIO is automatically skipped when you set hardware resources for DOs on the local operating panel, and a write failure occurs when this DIO is selected as the hardware source of a DO at the background or by using an external operating panel.
   Similarly, if one device in a device group selects a DIO of the power supply unit as the output terminal (DO/RO) source, the DI terminals of all devices in the group cannot select this DIO as the hardware source. If a DIO has been selected as the hardware source of a DO, this DIO is automatically skipped when you set hardware resources for DIs on the local operating panel, and a write failure occurs when this DIO is selected as the hardware source of a DI at the background or by using an external operating panel.

   For example:

   If F4-00 (DI1 hardware source) is set to 005, pressing the UP key will automatically skip 001 to 002 when you set F5-02 (DO2/RO2 hardware source).

   If F5-00 (DO1/RO1 hardware source) is set to 001, pressing the UP key will automatically skip 005 to 006 when you set F4-00 (DI1 hardware source).

4.3.1.2 Functions of DI Terminals

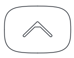
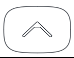
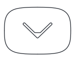
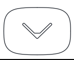
The AC drive is equipped with eight multi-function DI terminals, each of which can be assigned with a DI function. Note that the functions of the eight DIs of the same device cannot be duplicate.

Table 4–16 DI-related parameters

Para. No.	Name	Default	Value Range	Description
F4-01	DI1 function	1	0 to 63	For details about DI1 terminal function selection, see *"Table 4–17 DI function description" on page 512*.
F4-03	DI2 function	4		
F4-05	DI3 function	12		
F4-07	DI4 function	13		
F4-09	DI5 function	0		
F4-11	DI6 function	0		
F4-13	DI7 function	0		
F4-15	DI8 function	0		
F4-19	DI1 delay	0.0s	0.0s to 3600.0s	These parameters define the delay of the DI terminal state change. The delay setting function is available only for DI1, DI2, and DI3 currently.
F4-20	DI2 delay	0.0s	0.0s to 3600.0s	
F4-21	DI3 delay	0.0s	0.0s to 3600.0s	

Para. No.	Name	Default	Value Range	Description
F4-22	DI active mode selection 1	00000	0: Active high 1: Active low Ones: DI1 active mode Tens: DI2 active mode Hundreds: DI3 active mode Thousands: DI4 active mode Ten thousands: DI5 active mode	When active high is selected, the DI terminal is active when connected to COM and inactive when disconnected from COM. When active low is selected, the DI terminal is inactive when connected to COM and active when disconnected from COM.
F4-23	DI active mode selection 2	00000	0: Active high 1: Active low Ones: DI6 active mode Tens: DI7 active mode Hundreds: DI8 active mode Thousands: Reserved Ten thousands: Reserved	

Table 4–17 DI function description

Setpoint	Function	Description
0	Invalid	Set 0 for reserved terminals to avoid malfunction.
1	1: Forward RUN (FWD) or operation command	In the case of two-wire mode 1 (F4-17 = 0), forward run applies. In the case of two-wire mode 2 (F4-17 = 1), the operation command applies.
2	Reverse RUN (REV) or running direction	In the case of three-wire mode 1 (F4-17 = 2), reverse run applies. In the case of three-wire mode 2 (F4-17 = 3), the running direction applies.
3	Three-wire operation control	The operation mode of the AC drive is three-wire operation control. To set a running command through the terminal, set F4-17 (terminal control mode) to 2 (three-wire mode 1) or 3 (three-wire mode 2), and set this parameter to 3.
4	Forward jog (FJOG)	The operation mode of the AC drive is forward jog. The jog frequency, jog acceleration time, and jog deceleration time are described in F8-00, F8-01, and F8-02, respectively.
5	Reverse jog (RJOG)	The operation mode of the AC drive is reverse jog. The jog frequency, jog acceleration time, and jog deceleration time are described in F8-00, F8-01, and F8-02, respectively.
6	Terminal UP	The terminal is used to increase the frequency when the frequency is set through the terminal. When this terminal is active, it works as if the  key is pressed and held. When this terminal is inactive, it works as if the  key is released.
7	Terminal DOWN	The terminal is used to decrease the frequency when the frequency is set through the terminal. When this terminal is active, it works as if the  key is pressed and held. When this terminal is inactive, it works as if the  key is released.

Setpoint	Function	Description
8	UP and DOWN setting clear (terminal, operating panel)	When the main frequency is set through the operating panel and this function is selected, the frequency set through the and keys on the operating panel or terminal UP/DOWN (6 or 7) can be cleared and the frequency reference will be reset to the value of F0-08.
9	Fault reset (RESET)	The terminal is used to reset faults of the AC drive. Remote fault reset can be implemented by using this function.
10	External fault NO input	When the terminal is active, the AC drive reports E15.01 upon receiving an external signal.
11	External fault NC input	When the terminal is active, the AC drive reports E15.02 upon receiving an external signal.
12	User-defined fault 1	When E27.00 is reported, the AC drive will take measures according to the value of F9-51 (fault protection action).
13	User-defined fault 2	When E28.00 is reported, the AC drive will take measures according to the value of F9-51 (fault protection action).
14	Multi-reference terminal 1	The setting of 16 speeds or 16 other references can be implemented through combinations of 16 states of these four terminals.
15	Multi-reference terminal 2	
16	Multi-reference terminal 3	
17	Multi-reference terminal 4	
18	Acceleration/deceleration selection terminal 1	Totally four groups of acceleration/deceleration time can be selected through state combinations of these two terminals.
19	Acceleration/deceleration selection terminal 2	
20	Acceleration/Deceleration inhibition	The terminal is used to keep the AC drive at the current running frequency regardless of changes of the external input frequency (unless a stop command is received).
21	Command source switchover terminal 1	When the operation command is set through the terminal (F0-02 = 1), this function can implement switchover between terminal control and operating panel control. When the operation command is set through communication (F0-02 = 2), this function can implement switchover between communication control and operating panel control.
22	Command source switchover terminal 2	The terminal is used for switchover between terminal control and communication control. If terminal control is used, the system switches to communication control when the terminal is active. If communication control is used, the system switches to terminal control when the terminal is active.
23	Frequency source switchover	The terminal is used to switch between two frequency reference sources according to F0-07 (frequency reference superposition).
24	Switchover between main frequency source X and preset frequency	The terminal is used to switch from the main frequency to the preset frequency (F0-08).
25	Switchover between auxiliary frequency source Y and preset frequency	The terminal is used to switch from the auxiliary frequency to the preset frequency (F0-08).
26	Frequency modification enable	When the terminal is active, the frequency can be modified. When the terminal is inactive, the frequency cannot be modified.
27	Counter input	In the count process, a count pulse is input when the terminal is active.
28	Counter reset	In the count process, the counter status is cleared when the terminal is active.

Setpoint	Function	Description
29	Length count input	In the fixed length process, the length count is input when the terminal is active.
30	Length reset	In the fixed length process, the length is cleared when the terminal is active.
31	PID pause	The terminal is used to suspend PID control temporarily, so that the AC drive keeps the current output frequency with no more PID tuning on the frequency source.
32	PID integral pause	The integral adjustment function pauses when the terminal is active. However, the proportional and derivative adjustment functions are still valid.
33	PID parameter switchover	If PID parameters are switched by using the DI terminal (FA-18 = 1), the PID parameters FA-05 to FA-07 are used when the terminal is inactive, and the PID parameters FA-15 to FA-17 are used when the terminal is active.
34	PID action direction reversal	The terminal is used to reverse the direction set by FA-03 (PID action direction).
35	Torque control disable	In torque control mode, the system switches to speed control when this terminal is active. The system switches back to the torque control mode when the terminal becomes inactive.
36	Switchover between speed control and torque control	The terminal is used to switch between speed control and torque control. When A0-00 (speed/torque control mode) is set to 0, the torque control mode is used when the terminal is active, and the speed control mode is used when the terminal is inactive. When A0-00 (speed/torque control mode) is set to 1, the torque control mode is used when the terminal is inactive, and the speed control mode is used when the terminal is active.
38	Flying start	The AC drive starts in flying start mode.
39	Immediate DC braking	The AC drive switches to the DC braking state directly.
40	Deceleration DC braking	The terminal is used to make the AC drive decelerate to the start frequency of DC braking during stop (F6-11) and then enter the DC braking state.
41	External stop terminal 1	When the running command source is the operating panel (F0-02 = 0), this terminal is used to stop the AC drive.
42	External stop terminal 2	The terminal is used to make the AC drive decelerate to stop in any control mode (operating panel, terminal, or communication control). In this case, the deceleration time is fixed to deceleration time 4 (F8-08).
43	Running pause	When the terminal is active, the AC drive decelerates to stop with all running parameters memorized (such as the PLC, wobble, and PID parameters). When the terminal is inactive, the AC drive resumes its status before stop.
44	Coast to stop	When the terminal is active, the AC drive stops output, and the motor coasts to stop under the action of mechanical inertia.
45	Emergency stop	When the system is in the emergency state, the AC drive decelerates according to the deceleration time for emergency stop set in F8-59, and it decelerates according to the minimum unit time when the deceleration time for emergency stop is 0s in V/f mode. The input terminal does not need to be in the closed state continuously. Even if it is closed for only an instant, an emergency stop will be performed immediately. Different from general deceleration, the emergency stop action prevents the AC drive from restarting even if the emergency stop input terminal is

Setpoint	Function	Description
		opened after the deceleration time for emergency stop expires and the run signal is still valid on the AC drive terminal. To restart the AC drive in this case, disconnect the running terminal and input the run command.
46	Motor terminal selection	The terminal is used to select the motor. When the terminal is active, motor 2 is selected. When the terminal is inactive, motor 1 is selected.
47	Current running duration clear	The terminal is used to clear the current running duration of the AC drive. If the current running duration is less than the setpoint (greater than 0) of F8-57 (current running time threshold) and the terminal is active during this process, the current running duration is cleared. If the current running duration is greater than the setpoint (greater than 0) of F8-57 and the terminal is active, the current running duration is not cleared.
48	Switchover between two-wire and three-wire control	The terminal is used to switch between two-wire and three-wire control. If F4-17 is set to 0 (two-wire mode 1), the AC drive switches to three-wire mode 1 when the terminal is active. If F4-17 is set to 1 (two-wire mode 2), the AC drive switches to three-wire mode 2 when the terminal is active. If F4-17 is set to 2 (three-wire mode 1), the AC drive switches to two-wire mode 1 when the terminal is active. If F4-17 is set to 3 (three-wire mode 2), the AC drive switches to two-wire mode 2 when the terminal is active.
49	PLC state reset	The terminal is used to restore the AC drive to the initial state of the simple PLC.
50	Wobble pause	In the wobble process, when this terminal is active, the wobble function is paused (the AC drive outputs at the center frequency).
54 to 63	Reserved	-

4.3.2 Digital Output (DO)

4.3.2.1 Sources of DO Terminals

The drive unit of this product has no DO terminals and needs to map to output terminals of the power supply unit or extension card. Therefore, you need to set the DO terminal sources when the drive unit uses DO/RO terminals.

The DO terminal source is displayed in a way similar to that shown in *"4.3.1.1 Sources of DI Terminals" on page 508* when you modify related parameters on the operating panel. There are some differences in the selection of DIOs of the power supply unit, which are described as follows.

Para. No.	Display	Description
F5-00		D0/RO1 of the drive unit maps to DIO1 of the power supply unit.
F5-02		D0/RO2 of the drive unit maps to relay RO1 of the power supply unit.

Table 4–18 Related parameters

Para. No.	Name	Default	Value Range	Description
F5-00	DO1/RO1 hardware source	0	0: None 1: DIO1 of the power supply unit 2: DIO2 of the power supply unit 3: DIO3 of the power supply unit 4: DIO4 of the power supply unit 5: RO1 of the power supply unit 101: DO1/RO1 of extension card 1 102: DO2/RO2 of extension card 1 103: DO3/RO3 of extension card 1 104: DO4/RO4 of extension card 1 105: DO5/RO5 of extension card 1 106: DO6/RO6 of extension card 1 107: DO7/RO7 of extension card 1 108: DO8/RO8 of extension card 1 201: DO1/RO1 of extension card 2 202: DO2/RO2 of extension card 2 203: DO3/RO3 of extension card 2 204: DO4/RO4 of extension card 2 205: DO5/RO5 of extension card 2 206: DO6/RO6 of extension card 2 207: DO7/RO7 of extension card 2 208: DO8/RO8 of extension card 2	This parameter defines the hardware source of the output terminal.
F5-02	DO2/RO2 hardware source	0		
F5-04	DO3/RO3 hardware source	0		
F5-06	DO4/RO4 hardware source	0		
F5-08	DO5/RO5 hardware source	0		

The value range of the parameters in the preceding table changes automatically. For details, see *"4.3.1.1 Sources of DI Terminals" on page 508*.

4.3.2.2 Functions of DO Terminals

The AC drive is equipped with 5 multi-function digital output terminals. F5-01 to F5-09 define the functions of the DO/RO terminals to indicate various working states and alarms of the AC drive. There are a total of about 40 functions available to fulfill specific automatic control requirements.

Table 4–19 DO-related parameters

Para. No.	Name	Default	Value Range	Description
F5-01	DO1/RO1 function	2	0 to 50	For details about DO terminal function selection, see *"Table 4–20 DO function description" on page 517*.
F5-03	DO2/RO2 function	5		
F5-05	DO3/RO3 function	0		
F5-07	DO4/RO4 function	0		
F5-09	DO5/RO5 function	0		
F5-10	DO1/RO1 output delay	0.0s	0.0s to 3600.0s	These parameters define the delay of the DO/RO terminal state change.
F5-11	DO2/RO2 output delay	0.0s	0.0s to 3600.0s	
F5-12	DO3/RO3 output delay	0.0s	0.0s to 3600.0s	

Para. No.	Name	Default	Value Range	Description
F5-13	DO4/RO4 output delay	0.0s	0.0s to 3600.0s	
F5-14	DO5/RO5 output delay	0.0s	0.0s to 3600.0s	
F5-15	DO/RO active mode	00000	0: Positive logic 1: Negative logic Ones: DO1/RO1 Tens: DO2/RO2 Hundreds: DO3/RO3 Thousands: DO4/RO4 Ten thousands: DO5/RO5	0: Positive logic (same as NO contact) The DO/RO terminal is active when it is internally connected to the COM terminal. The DO/RO terminal is inactive when it is disconnected from the COM terminal. 1: Negative logic (same as NC contact) The DO/RO terminal is active when it is disconnected from the COM terminal. The DO/RO terminal is inactive when it is internally connected to the COM terminal.

Table 4–20 DO function description

Setpoint	Function	Description
0	No output	The output terminal has no function.
1	AC drive running	The terminal outputs an "active" signal when the AC drive is running with output frequency (which can be 0).
2	Ready to run	The terminal outputs an "active" signal when the AC drive is ready for running without any fault after power-on.
3	Fault output 1 (stop upon fault)	When the AC drive coasts to stop or decelerates to stop upon a fault, the DO terminal outputs an "active" signal after the AC drive stops completely.
4	Fault output 2	When the AC drive coasts to stop or decelerates to stop upon a fault (undervoltage excluded), the DO terminal outputs an "active" signal after the AC drive stops completely.
5	Fault output 3	When the AC drive coasts to stop or decelerates to stop upon a fault (undervoltage excluded), the DO terminal outputs an "active" signal.
6	Exception output (direct output upon fault or alarm)	When the AC drive has a fault or alarm, the DO/RO terminal outputs an "active" signal.
7	Motor overload pre-warning	The AC drive determines whether the motor load exceeds the overload pre-warning threshold according to the overload pre-warning coefficient (F9-02) before performing the protection action. The terminal outputs an "active" signal when the overload pre-warning threshold is exceeded.
8	AC drive overload pre-warning	The terminal outputs an "active" signal 10s before the AC drive performs overload protection.
9	Motor over-temperature pre-warning	The terminal outputs an "active" signal when the motor temperature reaches the threshold defined by F9-58, F9-60, or F9-62 (motor overtemperature pre-warning threshold).
10	AC drive load loss output	The terminal outputs an "active" signal when load loss occurs.
11	Undervoltage state output	The terminal outputs an "active" signal when undervoltage occurs on the AC drive.

Setpoint	Function	Description
12	Output overcurrent	The DO/RO terminal outputs an "active" signal when the output current of the AC drive remains higher than F8-40 (output overcurrent threshold) for longer than F8-41 (output overcurrent detection delay).
13	Frequency-level detection FDT1 output	When the running frequency is higher than the detected value, the DO/RO terminal outputs an "active" signal. When the running frequency is lower than the result of the detected value minus the FDT hysteresis value, the "active" signal is canceled. For details, see the description of F8-22 and F8-23.
14	Frequency-level detection FDT2 output	When the running frequency is higher than the detected value, the DO/RO terminal outputs an "active" signal. When the running frequency is lower than the result of the detected value minus the FDT hysteresis value, the "active" signal is canceled. For details, see the description of F8-24 and F8-25.
15	Frequency reach	The DO/RO terminal outputs an "active" signal when the running frequency of the AC drive is within a certain range (target frequency ±setpoint of F8-26).
16	Frequency 1 reach output	The DO/RO terminal outputs an "active" signal when the running frequency of the AC drive is within the frequency detection range of F8-27 (detection value 1 for frequency reach). The frequency detection range is as follows: (F8-27–F8-28) to (F8-27+F8-28).
17	Frequency 2 reach output	The DO/RO terminal outputs an "active" signal when the running frequency of the AC drive is within the frequency detection range of F8-30 (detection value 2 for frequency reach). The frequency detection range is as follows: (F8-30–F8-31) to (F8-30+F8-31).
18	Frequency upper limit reach	The terminal outputs an "active" signal when the running frequency reaches the frequency upper limit (F0-12).
19	Frequency lower limit reach (output even at stop)	The terminal outputs an "active" signal when the running frequency reaches the frequency lower limit (F0-14). The terminal also outputs the "active" signal when the AC drive stops.
20	Frequency lower limit reach (no output at stop)	If F8-15 (running mode when frequency reference lower than lower limit) is set to 1 (stop), the terminal outputs an "inactive" signal no matter whether the running frequency reaches the frequency lower limit. If F8-15 (running mode when frequency reference lower than lower limit) is set to 0 (run at frequency lower limit) or 2 (run at zero speed), the terminal outputs an "active" signal when the running frequency reaches the frequency lower limit.
21	Timing reach output	When the timing function (F8-46) is enabled, the terminal outputs an "active" signal when the current operation time of the AC drive reaches the set timing duration. The timing duration is defined by F8-47 and F8-48.
22	Accumulative power-on time reach	The terminal outputs an "active" signal when the accumulative power-on time of the AC drive (F7-12) exceeds the value of F8-19 (accumulative power-on time reach).
23	Accumulative running time reach	The terminal outputs an "active" signal when the accumulative running time of the AC drive exceeds the value of F8-20 (accumulative running time threshold).
24	Current running time reach	The terminal outputs an "active" signal when the current operation time of the AC drive exceeds the value of F8-57 (current running time threshold).
25	Zero current state	The DO/RO terminal outputs an "active" signal when the output current of the AC drive is within the zero-current range for longer than F8-39 (zero current detection delay). The zero current detection range is 0 to (F8-38 x F1-03).

Setpoint	Function	Description
26	Current 1 reach output	The DO/RO terminal outputs an "active" signal when the output current of the AC drive is within the detection range of F8-42 (detection level of current 1). The current detection range is (F8-42–F8-43) x F1-03 (rated motor current) to (F8-42+F8-43) x F1-03.
27	Current 2 reach output	The DO/RO terminal outputs an "active" signal when the output current of the AC drive is within the detection range of F8-44 (detection level of current 2). The current detection range is (F8-44–F8-45) x F1-03 (rated motor current) to (F8-44+F8-45) x F1-03.
28	IGBT temperature reach	The terminal outputs an "active" signal when the IGBT heatsink temperature (F7-07) reaches the value of F8-51 (IGBT temperature reach).
29	Reference count value reach	The terminal outputs an "active" signal when the count value reaches the value of Fb-08.
30	Designated count value reach	The terminal outputs an "active" signal when the count value reaches the value of Fb-09.
31	Length reach	The terminal outputs an "active" signal when the detected actual length exceeds the value of Fb-05.
32	Frequency limit reach	The terminal outputs an "active" signal when the frequency reference exceeds the frequency upper or lower limit, and the output frequency of AC drive reaches the upper or lower limit.
33	Torque limit reach	The terminal outputs an "active" signal when the output torque of the AC drive reaches the toque limit in speed control mode.
34	AI1 input limit exceeded	The terminal outputs an "active" signal when the AI1 input is higher than the value of F8-49 (AI1 input voltage upper limit) or lower than the value of F8-50 (AI1 input voltage lower limit).
35	AI1 > AI2	The terminal outputs an "active" signal when the AI1 input is higher than the AI2 input.
36	PLC cycle completed	The terminal outputs a pulse signal with a width of 250 ms when the simple PLC completes one cycle.
37	Communication control	Whether the terminal is active or inactive is determined by the setpoint in communication address 0x2001.
38	STO-EDM	The DO terminal outputs an "active" signal when STO is triggered.
40	Running at zero speed (no output at stop)	The terminal outputs an "active" signal when the output frequency of the AC drive is 0 during running. When the AC drive stops, the signal becomes "inactive".
41	Running at zero speed (output at stop)	The terminal outputs an "active" signal when the output frequency of the AC drive is 0 during running. When the AC drive stops, the signal is still "active".
43	Reverse running	The terminal outputs an "active" signal when the AC drive runs in the reverse direction.
44	Process 1	-
45	Process 2	-
46	Process 3	-
47	Process 4	-
48	Process 5	-
49	Process 6	-
50	Process 7	-

4.3.3 Virtual Digital Input (VDI)

VDI terminals have the same functions as DI terminals and can be used for multi-function digital inputs.

VDI has three sources:

- A1-06. You can directly set A1-06 to make the DI active. It is mainly applicable to communication scenarios, in which physical DIs are not used and DI functions are implemented by writing to A1-06. The ones place of A1-06 corresponds to VDI1, the tens position of A1-06 corresponds to VDI2, and so on.
- DO/RO state. The AC drive has five DO/RO terminals. DO/RO1 corresponds to VDI1, DO/RO2 corresponds to VDI2, and so on.
- DI state. DI1 corresponds to VDI1, DI2 corresponds to VDI2, and so on.

The following examples illustrate how to use the VDI.

Example 1: A1-05 (VDI1 active state source) is set to 00001 (DO/RO state). To enable the AC drive to report a fault alarm and stop when the AI1 input exceeds the upper or lower limit, set as follows.

Step	Setting Parameters
1	Assign VDI1 with function "user-defined fault 1" (A1-00 = 12).
2	Assign DO/ RO1 with function "AI input limit exceeded" (F5-01 = 34).
3	Set the VDI1 active state source to DO state (A1-05 = 00001).

After the setting, when the AI1 input exceeds the upper or lower limit, the DO/RO1 terminal outputs an ON signal. In this case, VDI1 becomes active and the AC drive receives user-defined fault 1 through VDI1. Then the AC drive reports E27.00 and stops.

Example 2: To use the VDI to implement the emergency stop function without physical DIs in a communication scenario, set as follows:

Step	Setting Parameters
1	Assign VDI1 with function "emergency stop" (A1-00 = 45).
2	Set the VDI1 active state source to the parameter (A1-05 = 00000).
3	Change the value of the ones place of A1-06 through communication.

After the setting, the emergency stop function can be implemented when the ones place of A1-06 is set to 1 through communication.

Table 4–21 Related parameters

Para. No.	Name	Default	Value Range	Description
A1-00	VDI1 function	0	0 to 60	VDI1 to VDI5 can be used as multi-functional DIs. The functions 0 to 60 are the same as those of common DIs. For details, see *"4.3.1.2 Functions of DI Terminals" on page 511*.
A1-01	VDI2 function	0	0 to 60	
A1-02	VDI3 function	0	0 to 60	
A1-03	VDI4 function	0	0 to 60	
A1-04	VDI5 function	0	0 to 60	

Para. No.	Name	Default	Value Range	Description
A1-05	VDI active state source	00000	0: A1-06 1: DO state 2: DI state Ones: VDI1 Tens: VDI2 Hundreds: VDI3 Thousands: VDI4 Ten thousands: VDI5	Three ways of setting VDI status are available and can be selected by using A1-05. When it is set to 0, the VDI state is determined by the binary bit of A1-06. When it is set to 1, the VDI state is determined by the state (active or inactive) of the corresponding DO/RO. VDIx is uniquely bound to DOx/ROx (x ranges from 1 to 5). When it is set to 2, the VDI state is determined by the state (active or inactive) of the corresponding DI. VDIx is uniquely bound to DIx (x ranges from 1 to 5).
A1-06	VDI state	00000	0: Inactive 1: Active Ones: VDI1 Tens: VDI2 Hundreds: VDI3 Thousands: VDI4 Ten thousands: VDI5	-

4.3.4 Analog or Temperature Input (AI)

4.3.4.1 Sources of Analog or Temperature Input Terminals

The AC drive itself has no analog or temperature input and needs to map to analog or temperature inputs of the power supply unit or extension card. Therefore, you need to set the analog or temperature input sources when the drive unit uses analog inputs or temperature sensors.

The analog or temperature input source is displayed as follows when you modify related parameters on the operating panel.

Display	Description
	Ten thousands, thousands: I/O Hundreds: Serial number 0 indicates the power supply unit, 1 indicates extension card 1, 2 indicates extension card 2, and so on. Tens, ones: Hardware terminal

Example:

Para. No.	Display	Description
F4-25		AI1 of the drive unit maps to analog or temperature input AI1 of the power supply unit.
F4-27		AI2 of the drive unit maps to analog or temperature input AI2 of extension card 1.

Table 4–22 Related parameters

Para. No.	Name	Default	Value Range	Description
F4-25	AI1 hardware source	0	0: None 1: AI1 of the power supply unit 2: AI2 of the power supply unit 101: AI1 of extension card 1 102: AI2 of extension card 1 201: AI1 of extension card 2 202: AI2 of extension card 2	This parameter defines the analog/temperature input source.
F4-27	AI2 hardware source	0		
F4-29	AI3 hardware source	0		

The value range of the parameters in the preceding table changes automatically. For details, see *"4.3.1.1 Sources of DI Terminals" on page 508*.

4.3.4.2 Functions of Analog or Temperature Input Terminals

You can configure three analog inputs for the drive unit and map the analog data of the power supply unit or extension cards by selecting the analog or temperature input sources. Analog data values and analog functions (voltage, current, or temperature) are received through the internal bus.

You can set the filter time and analog input functions of the two analog inputs of the power supply unit, and you can also set those of the external extension cards.

Table 4–23 Parameters of the power supply unit (A1 - I/O extension card of the power supply unit)

Para. No.	Name	Default	Value Range	Description
A1-05	AI1 filter time	0.01s	0.00 to 10.00s	This parameter defines the AI input filter time of the power supply unit, which is 0.1s by default. It is set based on the response requirements and field signal interference. Decrease this filter time if fast response is required, and increase it if field interference is strong.
A1-06	AI2 filter time	0.01s	0.00 to 10.00s	
A1-10	AI1 input	0	0: Voltage input 1: Current input 2: Temperature input PT100 3: Temperature input PT1000 4: Temperature input KTY84-130 5: Temperature input PTC-130	This parameter defines the AI input function of the power supply unit.
A1-11	AI2 input	0		

Table 4–24 Parameters of the power supply unit (A2 - I/O extension card 1)

Para. No.	Name	Default	Value Range	Description
A2-05	AI1 filter time	0.01s	0.00 to 10.00s	This parameter defines the AI input filter time of extension card 1, which is 0.1s by default. It is set based on the response requirements and field signal interference. Decrease this filter time if fast response is required, and increase it if field interference is strong.
A2-06	AI2 filter time	0.01s	0.00 to 10.00s	
A2-10	AI1 input	0	0: Voltage input 1: Current input 2: Temperature input PT100 3: Temperature input PT1000 4: Temperature input KTY84-130 5: Temperature input PTC-130	This parameter defines the AI input function of extension card 1.
A2-11	AI2 input	0		

Table 4–25 Parameters of the power supply unit (A3 - I/O extension card 2)

Para. No.	Name	Default	Value Range	Description
A3-05	AI1 filter time	0.01s	0.00 to 10.00s	This parameter defines the AI input filter time of extension card 2, which is 0.1s by default. It is set based on the response requirements and field signal interference. Decrease this filter time if fast response is required, and increase it if field interference is strong.
A3-06	AI2 filter time	0.01s	0.00 to 10.00s	
A3-10	AI1 input	0	0: Voltage input 1: Current input 2: Temperature input PT100 3: Temperature input PT1000 4: Temperature input KTY84-130 5: Temperature input PTC-130	This parameter defines the AI input function of extension card 2.
A3-10	AI2 input	0		

Note the following:

- When the drive unit requires analog voltage inputs, set the power supply unit parameters (parameters in the preceding tables) related to the hardware source defined by F4-25, F4-27, or F4-29 to 0 (voltage input).

- When the drive unit requires analog current inputs, set the power supply unit parameters (parameters in the preceding tables) related to the hardware source defined by F4-25, F4-27, or F4-29 to 1 (current input).
- When the drive unit requires temperature sensors, set the power supply unit parameters (parameters in the preceding tables) related to the hardware source defined by F4-25, F4-27, or F4-29 to 2/3/4/5 (temperature sensor input, the value varies according to the sensor type).
- The power supply unit can monitor the voltage values received by itself, extension card 1, and extension card 2 through U2-12, U2-13, U3-12, and U3-13.
- The drive unit can monitor the AI voltage values through U0-09, U0-10, and U0-11, monitor temperature values measured by the PT/KTY temperature sensor through U0-51, U0-52, and U0-53, and monitor the AI input function through U0-91, U0-92, and U0-93.

4.3.4.3 Functions of AI Terminals

When an AI is used as an DI, the AI state is high level if the input voltage is higher than 7 V and is low level if the input voltage is lower than 3 V. The AI is in hysteresis state if the input voltage is between 3 V and 7 V. The following figure shows the relationship between AI input voltages and DI states.

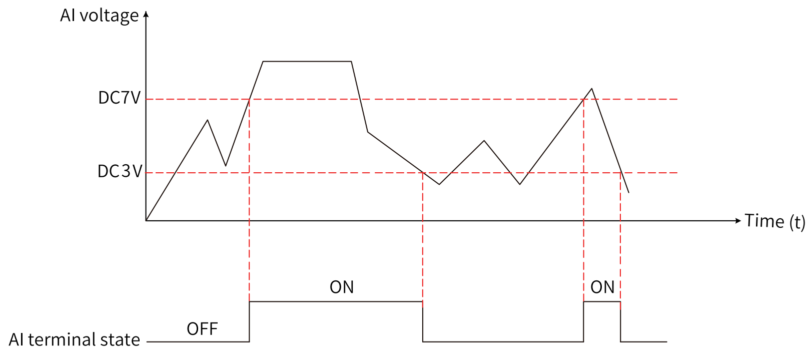


Figure 4-33 Relationship between AI input voltages and DI states

Table 4–26 Related parameters

Para. No.	Name	Default	Value Range	Description
A1-07	Function selection for AI1 used as DI	0	0 to 60	Function setting of the AI used as DI is the same as that of DIs. Functions 0 to 60 are set in the same way as normal DIs.
A1-08	Function selection for AI2 used as DI	0	0 to 60	
A1-09	Function selection for AI3 used as DI	0	0 to 60	
A1-10	AI active mode (used as DI)	000	0: Active high 1: Active low Ones: AI1 Tens: AI2 Hundreds: AI3	If the AI terminal is active high, it is active when the corresponding bit of A1-10 is set to 0 and inactive when that bit of A1-10 is set to 1. If the AI terminal is active low, it is inactive when the corresponding bit of A1-10 is set to 0 and active when that bit of A1-10 is set to 1.

4.4 Control Performance

4.4.1 V/f Curve Setting

Table 4–27 Straight-line, multi-point, and square V/f curve parameters

Para.	Name	Default	Value Range	Description
F3-00	V/f curve setting	0	0: Straight-line V/f curve 1: Multi-point V/f curve 2: Square V/f curve 3: 1.2-power V/f curve 4: 1.4-power V/f curve 6: 1.6-power V/f curve 8: 1.8-power V/f curve 10: V/f fully separated 11: V/f partially separated	0: Straight-line V/f curve Below the rated frequency, the output voltage of the AC drive changes linearly with the output frequency. This curve is applicable to general mechanical drive applications such as large-inertia fan acceleration, punch presses, centrifuges, and water pumps. 1: Multi-point V/f curve The range of the frequency points is 0.00 Hz to the rated motor frequency. The range of the voltage points is 0.0% to 100.0%, which corresponds to the range of 0 V to the rated motor voltage. The multi-point V/f curve references are typically determined based on load characteristics of the motor. Ensure that the following conditions are met: F3-03 ⩽ F3-05 ⩽ F3-07. 2: Square V/f curve Below the rated frequency, the output voltage changes with the output frequency of the AC drive according to the 2-power curve. This curve is applicable to applications with light loads that seldom change, such as fans and water pumps.
(Continued)				3: 1.2-power V/f curve Below the rated frequency, the output voltage changes with the output frequency of the AC drive according to the 1.2-power curve. 4: 1.4-power V/f curve Below the rated frequency, the output voltage changes with the output frequency of the AC drive according to the 1.4-power curve. 6: 1.6-power V/f curve Below the rated frequency, the output voltage changes with the output frequency of the AC drive according to the 1.6-power curve. 8: 1.8-power V/f curve Below the rated frequency, the output voltage changes with the output frequency of the AC drive according to the 1.8-power curve.
(Continued)				10: V/f fully separated The output frequency and output voltage of the AC drive are independent of each other. The output frequency is determined by the frequency source, and the output voltage is determined by voltage source for V/f separation. This curve is generally applicable to scenarios such as motor torque control. 11: V/f partially separated In this mode, the voltage (V) is proportional to the frequency (f). The relationship between V and f can be set by the voltage source, and it is also related to the rated motor voltage and rated motor frequency in group F1. Assuming that the voltage source input is X (X ranges from 0 to 100%), the relationship between V and f is as follows: V/f = 2 x X x (Rated motor voltage)/(Rated motor frequency).

Para.	Name	Default	Value Range	Description
F3-01	Torque boost	Model dependent	0.0 to 30.0 0.0%: Automatic torque boost	The torque boost function generally applies to the AC drive at low frequency. The output torque of the AC drive in V/f control mode is proportional to the frequency. Under the condition of low frequency, the torque is very low when the motor is running at a low speed. In this case, you can set this parameter to increase the output voltage of the AC drive, thereby increasing the current and output torque. Do not set this parameter to a large value, otherwise, overload protection may be triggered.
F3-02	Cutoff frequency of torque boost	50.00 Hz	0.00 Hz to maximum frequency	When the running frequency reaches the cutoff frequency of torque boost, the torque boost function is disabled.
F3-03	Multi-point V/f frequency 1	0.00Hz	0.00 Hz to F3-05	-
F3-04	Multi-point V/f voltage 1	0.0%	0.0% to 100.0%	
F3-05	Multi-point V/f frequency 2	0.00Hz	F3-03 to F3-07	
F3-06	Multi-point V/f voltage 2	0.0%	0.0% to 100.0%	
F3-07	Multi-point V/f frequency 3	0.00Hz	F3-05 to F1-04 (Rated motor frequency)	
F3-08	Multi-point V/f voltage 3	0.0%	0.0% to 100.0%	

Straight-line V/f Curve

The following figure shows the general constant-torque straight-line V/f curve.

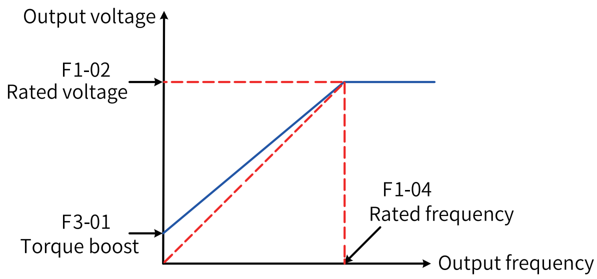


Figure 4-34 General constant-torque straight-line V/f curve

The output voltage changes linearly with the frequency at frequencies lower than the rated value. This curve is applicable to general mechanical drive applications such as large-inertia fan acceleration, punch presses, centrifuges and water pumps.

Multi-point V/f Curve

The following figure shows a user-defined multi-point V/f curve.

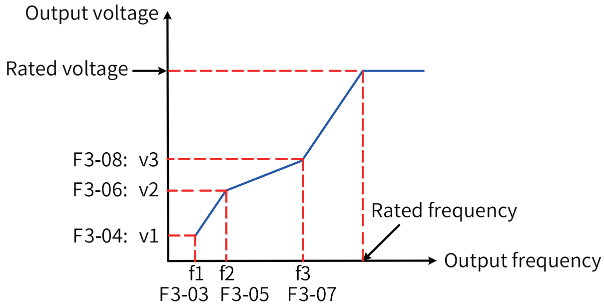


Figure 4-35 User-defined multi-point V/f curve

The multi-point V/f curve is defined by F3-03 to F3-08. The range of the frequency points is 0.00 Hz to the rated motor frequency. The range of the voltage points is 0.0% to 100%, which corresponds to the range of 0 V to the rated motor voltage. The multi-point V/f curve references are typically determined based on load characteristics of the motor. Ensure that the following conditions are met: F3-03 ≤ F3-05 ≤ F3-07. To ensure correct setting, this AC drive has restrictions on the relationship between the upper and lower limits of the frequency points F3-03, F3-05, and F3-07. F3-07, F3-05, and F3-03 must be set in order.

Square V/f Curve

The following figure shows the variable-torque square V/f curve.

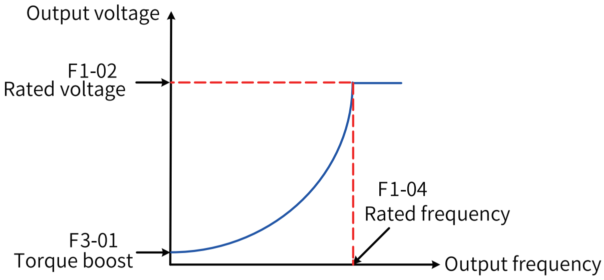


Figure 4-36 Variable-torque square V/f curve

The output voltage changes with the output frequency of the AC drive according to the 2-power curve at frequencies lower than the rated value. This curve is applicable to applications with light loads that seldom change, such as fans and water pumps.

Table 4–28 V/f separation curve parameters

Para.	Name	Default	Value Range	Description
F3-13	Voltage source for V/f separation	0	0: Digital setting (F3-14) 1: AI1 2: AI2 3: AI3 4: Reserved 5: Multi-reference 6: Simple PLC 7: PID 8: Communication Note: 100.0% corresponds to the rated motor voltage.	This parameter sets the target voltage in V/f separation mode. 0: Digital setting (F3-14) The V/f separation voltage is set by F3-14 (voltage digital setting of V/f separation). 1: AI1 The V/f separation voltage is input with current or voltage signals through the AI1 terminal. The frequency is calculated according to the preset AI curve. 2: AI2 The V/f separation voltage is input with current or voltage signals through the AI2 terminal. The frequency is calculated according to the preset AI curve.
(Continued)				3: AI3 The V/f separation voltage is input with current or voltage signals through the AI3 terminal. The frequency is calculated according to the preset AI curve. The AC drive has two AI terminals by default, and the AI3 terminal needs to be provided through the I/O extension card. 5: Multi-reference In multi-reference mode, different combinations of DI terminal states correspond to different reference values. The four multi-reference terminals can provide 16 state combinations, corresponding to 16 reference values (percentage x maximum frequency) of parameters in group FC.
(Continued)				6: Simple PLC The V/f separation voltage is set by simple PLC. For details, see the function description of simple PLC. 7: PID The V/f separation voltage is set by PID. For details, see the PID function description. 8: Communication The main frequency is set through communication. The running frequency is input through remote communication. The AC drive must be equipped with a communication card to implement communication with the host controller. This mode applies to remote control or centralized control systems of multiple equipment.
F3-14	Voltage digital setting for separated V/f	0 V	0 V to rated motor voltage (F1-02)	The reference value is between 0 V and the rated voltage. In V/f partially separated mode, the output voltage is twice the reference value.
F3-15	Voltage rise time for separated V/f	0.0s	0.0s to 1000.0s Note: This parameter indicates the time required for the voltage	This parameter indicates the time required for the output voltage to rise from 0 to the V/f separation voltage reference. In V/f partially separated mode, this parameter is invalid, and the voltage rise time is the same as that set by F0-17.

Para.	Name	Default	Value Range	Description
			to change from 0 V to the rated motor voltage.	
F3-16	Voltage fall time for separated V/f	0.0s	0.0s to 1000.0s Note: This parameter indicates the time required for the voltage to change from 0 V to the rated motor voltage.	This parameter indicates the time required for the output voltage to fall from the V/f separation voltage reference to 0. In V/f half separation mode, this parameter is invalid, and the voltage fall time is the same as that set by F0-18.
F3-17	Stop mode for separated V/f	0	0: The frequency and voltage decrease to 0 independently 1: The frequency decreases to 0 after the voltage decreases to 0	0: The frequency and voltage decrease to 0 independently 1: The frequency decreases to 0 after the voltage decreases to 0

The voltage rise time for separated V/f indicates the time required for the voltage to rise from 0 to the rated motor voltage. See t1 in the following figure.

The voltage fall time for separated V/f indicates the time required for the voltage to fall from rated motor voltage to 0. See t2 in the following figure.

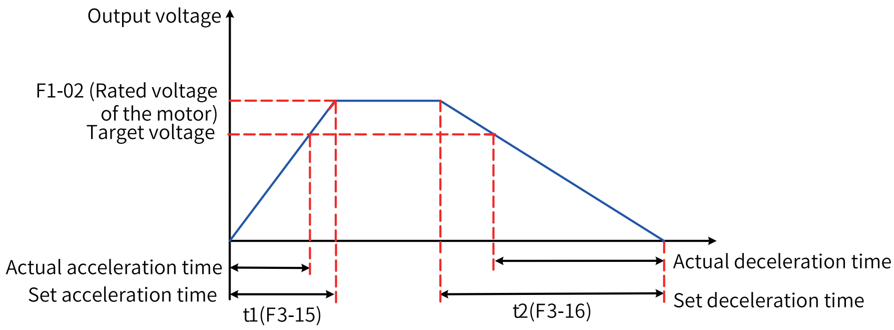


Figure 4-37 Schematic diagram for separated V/f

4.4.2 Output Current (Torque) Limit

During acceleration, operation at constant speed, or deceleration, if the current exceeds the overcurrent stall action current (default: 150%, indicating 1.5 times the rated AC drive current), the current limit mechanism is activated. In this case, the output frequency decreases until the current drops below the overcurrent stall action current. Then, the output frequency increases toward the target frequency. Therefore, the acceleration is prolonged. If the actual acceleration time cannot meet your requirement, increase the value of overcurrent stall action current (F3-18) accordingly.

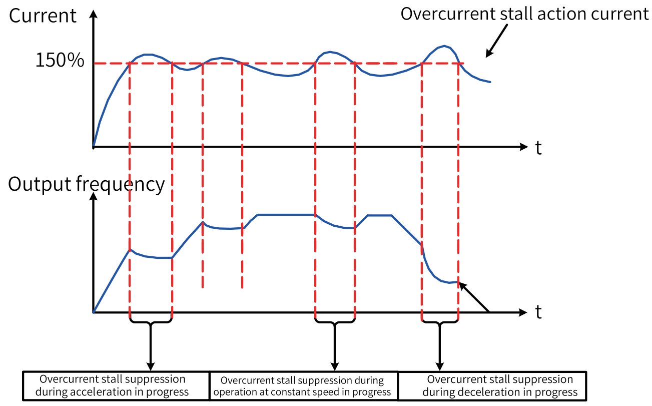


Figure 4-38 Overcurrent stall action

Table 4–29 Related parameters

Para. No.	Function	Default	Value Range	Description
F3-18	V/f overcurrent stall action current	150%	50% to 200%	When the motor current reaches this value, the AC drive starts the overcurrent stall function. The default value is 150%, corresponding to 1.5 times the rated current of the AC drive.
F3-19	V/f overcurrent stall selection	1	0: Disabled 1: Enabled	Used to enable/disable the V/f overcurrent stall function.
F3-20	V/f overcurrent stall suppression gain	20	0 to 100	When the current exceeds the overcurrent stall action current, the overcurrent stall function is enabled and the output frequency decreases. After the current falls below the overcurrent stall action current, the output frequency increases to the target frequency, which prolongs the actual acceleration automatically. A greater value of this parameter means better suppression effect.
F3-21	Compensation coefficient of V/f speed multiplying overcurrent stall action current	50%	50% to 200%	This parameter is used to reduce the overcurrent stall action current during high-speed operation. It is invalid when set to 50%. The recommended value for F3-18 in the field-weakening range is 100%.

When the frequency is high, motor drive current is small, and overcurrent stall action current can result in greater motor speed dip compared with situations when the frequency is below the rated level. To improve motor running performance, lower the overcurrent stall action current for situations when the frequency is above the rated level. This helps to improve acceleration performance and prevent motor stall in high-frequency applications with large load inertia multiple field weakening requirements, such as centrifuges.

When the frequency is above the rated level, overcurrent stall action current = (fn/fs) x k x LimitCur

In the formula, fs is the running frequency, fn is the rated motor frequency, k is the value of F3-21 (compensation coefficient of speed multiplying overcurrent stall action current), and LimitCur is the value of F3-18 (overcurrent stall action current).

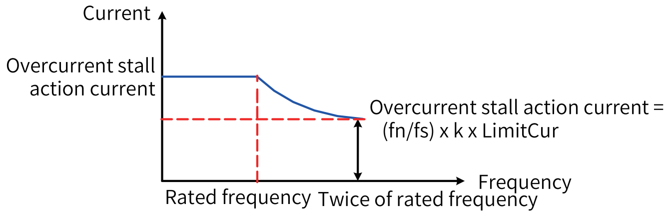


Figure 4-39 Speed multiplying overcurrent stall action current

Note

For high-power motors with carrier frequency below 2 kHz, lower the overcurrent stall action current. Otherwise, the pulse-by-pulse current limit function is enabled before the overcurrent stall prevention function as ripple current increases, resulting in insufficient torque output.

4.4.3 Overvoltage Stall Suppression

When the bus voltage exceeds the overvoltage stall suppression action voltage (F3-22), the motor becomes regenerative (motor speed > output frequency). In this case, overvoltage stall suppression is triggered to prevent overvoltage trips by adjusting the output frequency to extend the deceleration time. If the actual deceleration time cannot satisfy the requirement, increase the overexcitation gain as appropriate.

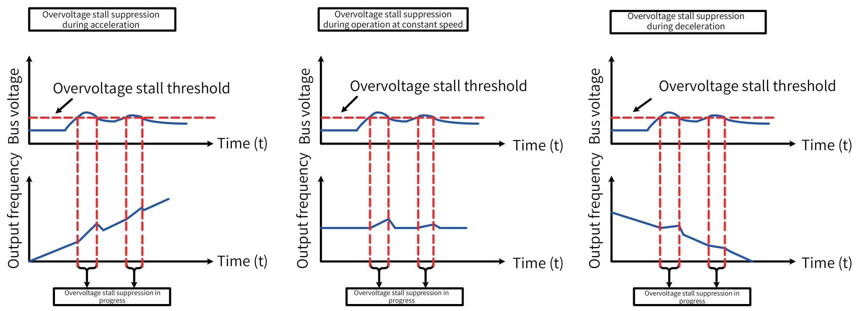


Figure 4-40 Overvoltage stall suppression action

Para. No.	Name	Default	Value Range	Description
F3-22	V/f overvoltage stall suppression action voltage	770.0 V	200.0 V to 2000.0 V	The function of F3-22 is similar to that of F9-04.
F3-23	V/f overvoltage stall suppression	1	0: Disabled 1: Enabled	0: Disabled 1: Enabled (default)
F3-24	Frequency gain for V/f overvoltage stall suppression	30	0 to 100	Increasing F3-24 will improve the bus voltage control effect, but the output frequency will fluctuate. If the output frequency fluctuates greatly, reduce F3-24 as appropriate.
F3-25	Voltage gain for V/f overvoltage stall suppression	30	0 to 100	This parameter is used to suppress the bus voltage. Increasing the parameter value reduces the overshoot of the bus voltage.
F3-26	Frequency rise threshold during	5 Hz	0 Hz to 50 Hz	The running frequency may increase when overvoltage stall suppression is

Para. No.	Name	Default	Value Range	Description
	overvoltage stall suppression			enabled. This parameter limits the rise of the running frequency.
F3-10	V/f overexcitation gain	64	0 to 200	A larger overexcitation gain indicates better suppression effect. When a braking resistor, braking unit, or energy feedback unit is used, set this parameter to 0. Otherwise, overcurrent may occur during operation.
F3-11	V/f oscillation suppression gain	Model dependent	0 to 100	A larger oscillation gain indicates better suppression effect.

Note

Observe the following requirements when using the braking resistor or energy feedback unit.

- Set F3–10 (Overexcitation gain) to 0. Failure to comply may lead to overcurrent during operation.
- Set F3–23 (Overvoltage stall selection) to 0. Failure to comply may prolong the deceleration time.

4.4.4 Speed Loop

The speed loop PI parameters are divided into two groups: low speed and high speed. When the running frequency is lower than switchover frequency 1 (F2-02), the speed loop PI is adjusted by F2-00 and F2-01. When the running frequency is higher than switchover frequency 2 (F2-05), the speed loop PI is adjusted by F2-03 and F2-04. When the running frequency is between switchover frequency 1 and switchover frequency 2, PI parameters are obtained from linear switchover between the two groups of PI parameters, as shown in the following figure.

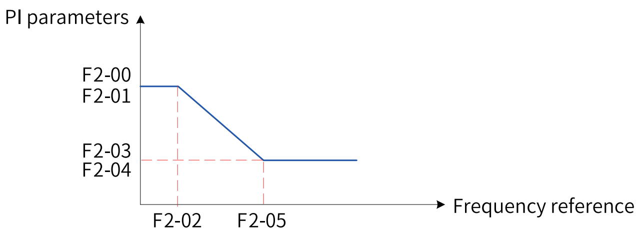


Figure 4-41 Speed loop PI parameters

By setting the proportional gain and integral time of the speed regulator, you can adjust the dynamic response to speed changes in vector control.

Increasing the proportional gain or reducing the integral time can speed up dynamic response of the speed loop. However, excessively large proportional gain or excessively short integral time may cause system oscillation.

If the factory defaults cannot meet the requirements, make fine adjustments based on the default values. Increase the proportional gain first to ensure that the system does not oscillate, and then reduce the integral time to ensure that the system has quick response and small overshoot.

Note

Improper PI parameter settings may lead to a high overshoot. Even worse, overvoltage may occur when overshoot drops.

Increasing the value of F2-07 can improve motor stability, but this may also slow dynamic response. Decreasing it will bring faster system response but also motor oscillation if the value is too small. No adjustment is required under normal circumstances.

Para. No.	Name	Default	Value Range	Description
F2-00	Low-speed speed loop Kp	30	1 to 200	This parameter indicates the speed loop PID control parameter Kp, which affects the response to the motor speed. A greater the Kp value indicates higher adjustment sensitivity and adjustment intensity. A smaller the Kp value indicates lower adjustment sensitivity and adjustment intensity. The low-speed speed loop Kp is used in the case of low speed.
F2-01	Low-speed speed loop Ti	0.500s	0.001s to 10.000s	The reciprocal of the speed loop integral time constant is the integral gain. The speed loop integral time constant affects the steady-state speed error of the motor and the stability of the speed loop system. Increasing the speed loop integral time constant slows down the response of the speed loop. In this case, increase the speed loop proportional gain to shorten the response time of the speed loop. The low-speed speed loop Ti is used in the case of low speed.
F2-02	Switchover frequency 1	5.00 Hz	0.00 to F2-05	The speed loop PI parameters are divided into two groups: low speed and high speed. When the running frequency is lower than switchover frequency 1 (F2-02), the speed loop PI is adjusted by F2-00 and F2-01. When the running frequency is higher than switchover frequency 2 (F2-05), the speed loop PI is adjusted by F2-03 and F3-04. When the running frequency falls between switchover frequency 1 and switchover frequency 2, PI parameters are obtained from linear switchover between the two groups of PI parameters. The value of this parameter must be smaller than F2-05 (switchover frequency 2).
F2-03	High-speed speed loop Kp	20	1 to 200	This parameter indicates the speed loop PID control parameter Kp, which affects the response to the motor speed. A greater the Kp value indicates higher adjustment sensitivity and adjustment intensity. A smaller the Kp value indicates lower adjustment sensitivity and adjustment intensity. The high-speed speed loop Kp is used in the case of high speed.
F2-04	High-speed speed loop Ti	1.00s	0.01s to 10.00s	The reciprocal of the speed loop integral time constant is the integral gain. The speed loop integral time constant affects the steady-state speed error of the motor and the stability of the speed loop system. Increasing the speed loop integral time constant slows down the response of the speed loop. In this case, increase the speed loop proportional gain to shorten the response time of the speed loop. The high speed loop Ti is used in the case of high speed.

Para. No.	Name	Default	Value Range	Description
F2-05	Switchover frequency 2	10.00 Hz	F2-02 to the maximum frequency	The speed loop PI parameters are divided into two groups: low speed and high speed. When the running frequency is lower than switchover frequency 1 (F2-02), the speed loop PI is adjusted by F2-00 and F2-01. When the running frequency is higher than switchover frequency 2 (F2-05), the speed loop PI is adjusted by F2-03 and F3-04. When the running frequency falls between switchover frequency 1 and switchover frequency 2, PI parameters are obtained from linear switchover between the two groups of PI parameters. The value of this parameter must be smaller than F2-05 (switchover frequency 2).
F2-07	Speed feedback filter time	0.004s	0.000s to 0.100s	In SVC control mode (F0-01 = 0), the speed loop feedback filter time is valid. You can improve the stability of the motor by adjusting this parameter. Increasing the speed loop feedback filter time can enhance motor stability but slow down dynamic response. Decreasing it will bring faster dynamic response. An excessively small parameter value may lead to motor oscillation. Generally, the motor stability meets requirements, and no adjustment is required.

4.4.5 Vector Control Slip Auto-tuning

In vector control mode (F0-01 = 0), this parameter is used to adjust the speed stability accuracy of the motor. For example, when the running frequency of the motor is lower than the output frequency of the AC drive, you can increase the value of this parameter.

Note: No adjustment is required under normal circumstances.

Para. No.	Name	Default	Value Range	Description
F2-06	VC slip compensation gain	100%	50% to 200%	In SVC control mode, this parameter is used to adjust the speed stability accuracy of the motor. For example, when the running frequency of the motor is lower than the output frequency of the AC drive, you can increase the value of this parameter.

4.4.6 Over-Excitation in Vector Control Mode

For high-inertia loads, vector control over-excitation can speed up the motor deceleration. A larger over-excitation gain means better improvement. However, vector control over-excitation increases the output current of the AC drive.

Para. No.	Function	Default	Value Range	Description
F2-08	VC deceleration over-excitation gain	64	0 to 200	-

4.4.7 Torque Upper Limit

In SVC mode, the torque upper limit is set as follows:

Para. No.	Name	Default	Value Range	Description
F2-09	Torque upper limit source in speed control (motoring)	0	0: F2-10 1: AI1 2: AI2 3: AI3 4: Reserved 5: Communication 6: MIN (AI1, AI2) 7: MAX (AI1, AI2)	0: F2-10 The torque upper limit in speed control mode is set by F2-10 (digital setting of torque upper limit in speed control). 1: AI1 The torque upper limit is input with the current or voltage signal through the AI1 terminal. The frequency is calculated according to the preset AI curve. 2: AI2 The torque upper limit is input with the current or voltage signal through the AI2 terminal. The frequency is calculated according to the preset AI curve. 3: AI3 The torque upper limit is input with the current or voltage signal through the AI3 terminal. The frequency is calculated according to the preset AI curve. 5: Communication The main frequency is set through communication. The running frequency is input through remote communication. The AC drive must be equipped with a communication card to implement communication with the host controller. This mode applies to remote control or centralized control systems of multiple equipment. 6: MIN (AI1, AI2) The torque upper limit in speed control mode is the smaller value between AI1 and AI2 inputs. 7: MAX (AI1, AI2) The torque upper limit in speed control mode is the larger value between AI1 and AI2 inputs.
F2-10	Torque upper limit reference in speed control (motoring)	150.0%	0.0% to 200.0%	The torque upper limit under motoring state takes the rated current of the AC drive as the base value.

Para. No.	Name	Default	Value Range	Description
F2-11	Torque upper limit source in speed control (generating)	0	0: F2-10 1: AI1 2: AI2 3: AI3 4: Reserved 5: Communication 6: MIN (AI1, AI2) 7: MAX (AI1, AI2) 8: F2-12	0: F2-10 The torque upper limit in speed control mode is set by F2-10 (digital setting of torque upper limit in speed control). 1: AI1 The torque upper limit is input with the current or voltage signal through the AI1 terminal. The frequency is calculated according to the preset AI curve. 2: AI2 The torque upper limit is input with the current or voltage signal through the AI2 terminal. The frequency is calculated according to the preset AI curve. 3: AI3 The torque upper limit is input with the current or voltage signal through the AI3 terminal. The frequency is calculated according to the preset AI curve. 5: Communication The main frequency is set through communication. The running frequency is input through remote communication. The AC drive must be equipped with a communication card to implement communication with the host controller. This mode applies to remote control or centralized control systems of multiple equipment. 6: MIN (AI1, AI2) The torque upper limit in speed control mode is the smaller value between AI1 and AI2 inputs. 7: MAX (AI1, AI2) The torque upper limit in speed control mode is the larger value between AI1 and AI2 inputs. 8: F2-12 The torque upper limit in speed control mode is set by F2-12 (torque upper limit reference in speed control (generating)).
F2-12	Torque upper limit reference in speed control (generating)	150.0%	0.0% to 200.0%	The torque upper limit under generating state takes the rated current of the AC drive as the base value.

There are eight torque upper limit sources available in speed control mode. In motoring state, the torque upper limit source is determined by F2-09; in generating state, the torque upper limit source is defined by F2-11.

In speed control mode, if F2-11 is set to 1 to 8, the torque upper limit differs in motoring state and generating state. The torque upper limit FS in motoring state is defined by F2-10, and that in generating state is defined by F2-12, as shown in the following figure.

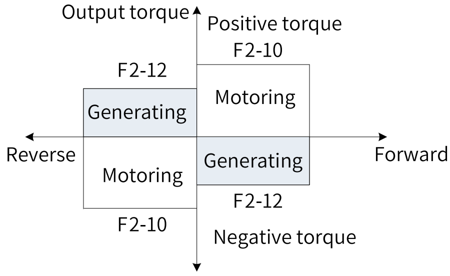


Figure 4-42 Torque upper limit in speed control mode

Description	Para. No.	Name	Default	Value Range
-	F2-53	Power limit during generating	0	0: Disabled 1: Enabled
-	F2-54	Power upper limit during generating	Model dependent	0.0% to 200.0%

For scenarios with cam load, quick acceleration/deceleration, and sudden unloading in which braking resistors are not used, enabling power limit during generating can effectively reduce bus voltage overshoot during motor braking so as to prevent overvoltage. F2-54 (power upper limit during generating) is a percentage relative to the rated motor power. If overvoltage still occurs after power limit during generating is enabled, decrease the value of F2-54.

4.4.8 Torque Control

Para. No.	Name	Default	Value Range	Description
A0-00	Speed/Torque control mode	0	0: Speed control 1: Torque control	Two control modes are provided in SVC mode: speed control and torque control.
A0-01	Torque reference source	0	0: Digital setting (A0-03) 1: AI1 2: AI2 3: AI3 4: Reserved 5: Communication (1000H) 6: MIN (AI1, AI2) 7: MAX (AI1, AI2)	Used to set the torque setting command. There are a total of eight torque setting modes.
A0-03	Torque digital setting	100.0%	–200.0% to +200.0%	This parameter defines digital setting of the torque in torque control mode. The torque reference is a relative value. The value 100.0% corresponds to the rated torque of the AC drive. (The output torque of the AC drive can be viewed by using

Para. No.	Name	Default	Value Range	Description
				U0-07, where the value 100% corresponds to the rated torque of the AC drive. The output torque of the motor can be viewed by using U0-06, where the value 100% corresponds to the rated torque of the motor.) The value range is –200.0% to +200.0%, indicating that the maximum torque is twice the rated torque. When the torque reference is a positive value, the AC drive runs in the forward direction. When it is a negative value, the AC drive runs in the reverse direction.
A0-04	Torque filter time	0.000s	0 to 5.000s	This parameter defines the torque filter time.
A0-05	Speed limit digital setting	0.0%	–120.0% to +120.0%	-
A0-07	Acceleration time (torque)	1.00s	0.00s to 650.00s	-
A0-08	Deceleration time (torque)	1.00s	0.00s to 650.00s	-
A0-09	Speed limit reference source	0	0: A0-05 1: Frequency source	-
A0-10	Speed limit offset	5.00	0 to maximum frequency (F0-10)	-
A0-11	Effective mode of speed limit offset	1	0: Bidirectional offset effective 1: Uni-directional offset effective	-
A0-12	Acceleration time (frequency)	1.0s	0.0 to 6500.0s	-
A0-13	Deceleration time (frequency)	1.0s	0.0 to 6500.0s	-
A0-14	Torque mode switchover	1	0: Not switched 1: Switched to speed mode upon stop 2: Target torque changed to 0 upon stop	-

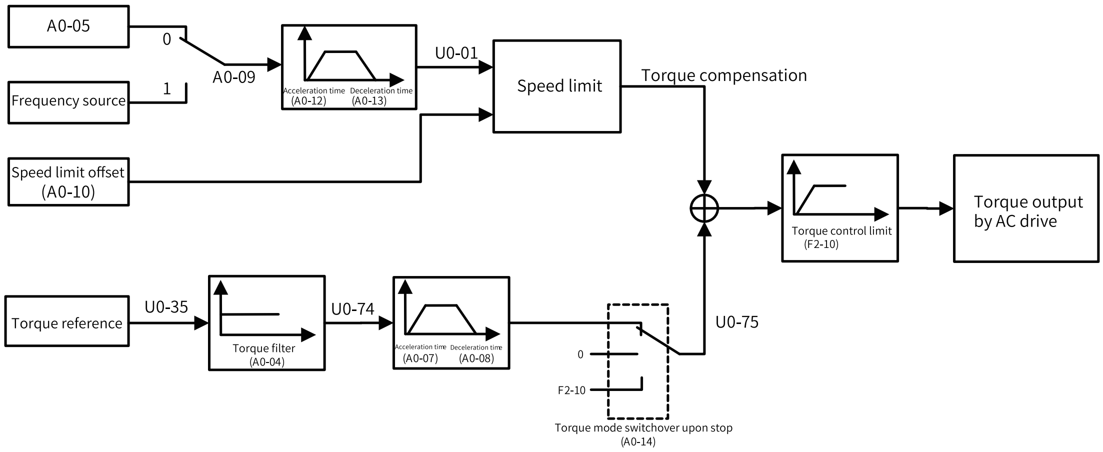


Figure 4-43 Torque control system diagram

1. Selecting speed/torque control mode (A0-00)
   The speed or torque control mode is defined by A0-00.

   The AC drive has two digital input functions related to torque control: "torque control disable" (function 35) and "switchover between speed control and torque control" (function 36). The two DI terminals work with A0-00 to implement switchover between speed control and torque control.

   When the terminal assigned with function 36 (switchover between speed control and torque control) is inactive, the control mode is determined by A0-00; when it is active, the control mode is reverse to A0-00.

   When the terminal assigned with function 35 (torque control disable) is active, the AC drive always runs in speed control mode.

2. Setting torque reference in torque control (A0-01, A0-03)
   A0-01 defines the torque reference source. There are a total of eight torque reference sources available.

   The torque reference is a relative value. 100.0% corresponds to the rated motor torque. (The output torque of the motor can be viewed by using U0-06, where the value 100% corresponds to the rated torque of the motor.) The value range is –200.0% to +200.0%, indicating that the maximum torque of the AC drive is twice the rated torque of the motor.

3. Setting the frequency upper limit in torque control (A0-05, A0-09, A0-10, A0-11)
   In torque control mode, the frequency upper limit can be set by A0-05 or the frequency source and switched by A0-09.

4. Setting the acceleration/deceleration time for the frequency upper limit in A0-12 (acceleration time)/A0-13 (deceleration time)
   In torque control mode, if the load torque is smaller than the output torque of the motor, the motor speed keeps rising. Therefore, to prevent accidents such as runaway in the mechanical system, the motor speed must be controlled within a proper range. That is, the frequency upper limit must be set in torque control mode.

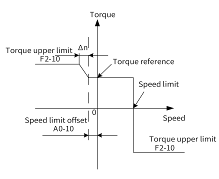
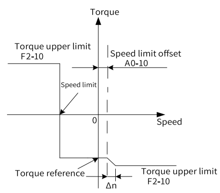
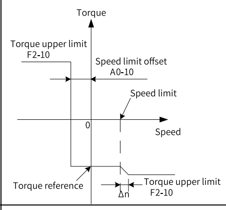
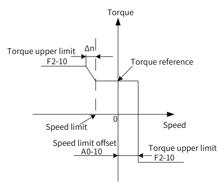
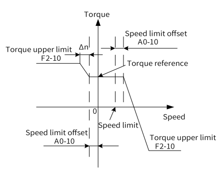
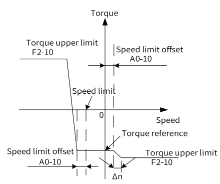
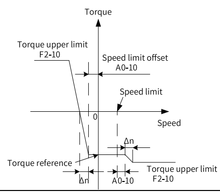
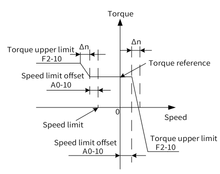
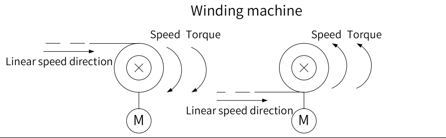
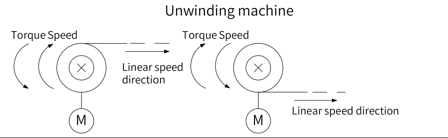
5. Setting torque acceleration/deceleration time in torque control (A0-07, A0-08)
   In torque control mode, the difference between the output torque of the motor and the torque of the load determines the speed change rate of the motor and load. The motor speed may change quickly,

which may result in too strong noise or mechanical stress. Setting the acceleration and deceleration time properly in torque control mode can ensure smooth change of the motor speed. The torque acceleration/deceleration time corresponds to the time required for the torque to increase from 0 to the value defined by A0-03.

However, do not set the torque acceleration/deceleration time in scenarios in which the startup torque is small. For scenarios where rapid torque response is required, set the torque acceleration/ deceleration time to 0.00s.

For example, two motors are rigidly connected to drive the same load. To ensure balanced load distribution, set one AC drive as the master in speed control and the other as the slave in torque control. The slave receives the master's output torque as the torque command and must follow the master rapidly. In this case, the acceleration/deceleration time of the slave in torque control is set to 0.00s.

Table 4–30 Speed limit/speed limit offset

Item	Operation Conditions			
Operation command	Forward RUN	Forward RUN	Forward RUN	Forward RUN
Torque reference direction	+	-	-	+
Speed limit direction	+	-	+	-
Normal running direction	Forward RUN	Reverse RUN	Forward RUN	Reverse RUN
Uni-directional speed limit offset (A0-11 = 1)				
Bidirectional speed limit offset (A0-11 = 0)				
Application	Winding machine 		Unwinding machine 	

4.4.9 Current Loop

Current loop PI parameters for vector control are divided into low-speed and high-speed groups. These parameters can be automatically obtained through auto-tuning on all parameters of asynchronous motor and generally do not need to be modified.

The dimension of the current loop integral regulator is integral gain rather than integral time. A large current loop PI gain may result in oscillation of the entire control loop. In the case of severe current oscillation or torque fluctuation, manually reduce the PI proportional gain or integral gain.

Para. No.	Function	Default	Value Range	Description
F2-13	Low-speed current loop Kp adjustment	1.0	0.1 to 10.0	The value is obtained automatically through motor auto-tuning.
F2-14	Low-speed current loop Ki adjustment	1.0	0.1 to 10.0	
F2-15	High-speed current loop Kp adjustment	1.0	0.1 to 10.0	
F2-16	High-speed current loop Ki adjustment	1.0	0.1 to 10.0	

4.4.10 Improving Performance of Field-Weakening Range

Para. No.	Function	Default	Value Range	Description
F2-21	Maximum output voltage coefficient	105%	100% to 110%	Indicates the boost capacity on the basis of maximum voltage of the AC drive. Increasing F2-21 improves the maximum loading capacity in motor field-weakening range, but increases motor current ripple and motor temperature. Decreasing F2-21 weakens the maximum loading capacity in motor field-weakening range, but reduces motor current ripple and motor temperature. Generally, this parameter needs no adjustment.

4.4.11 Auxiliary Control

Para. No.	Name	Default	Value Range	Description
A5-00	DPWM switchover frequency upper limit	12.00 Hz	0 to maximum frequency (F0-10)	The AC drive supports two PWM modes: CPWM and DPWM. When the running frequency is higher than A5-00 (switchover frequency), the DPWM mode is used. When the running frequency is lower than A5-00 (switchover frequency), the CPWM mode is used. The DPWM mode can improve the AC drive efficiency, and the CPWM mode can reduce the motor noise. Increasing the value of this parameter to the maximum frequency will reduce the motor noise.
A5-01	PWM modulation mode	0	0: Asynchronous modulation 1: Synchronous modulation	Current output oscillation or high harmonics can occur if the carrier frequency divided by the running frequency is less than 10. In this case, you can use the synchronous modulation mode to reduce current harmonics. 0: Asynchronous modulation In this mode, the carrier frequency and signal wave frequency are not synchronized. The carrier frequency usually remains unchanged. The carrier ratio changes with the signal wave frequency. 1: Synchronous modulation In this mode, the carrier frequency and signal wave frequency are synchronized. The carrier frequency and signal frequency change simultaneously, and the carrier ratio remains unchanged. Therefore, the number of transverse SPWM pulses formed in one cycle is fixed, and the equivalent sine wave has good symmetry.
A5-03	Random PWM depth	0	0: Random PWM inactive 1 to 10: Random PWM depth	If the motor noise is strong, setting A5-03 to a non-zero value can suppress the motor noise. A larger value indicates better noise suppression effect. However, an excessively high value may affect motor control. Therefore, set this parameter to 1 at the beginning of commissioning and then increase it by 1 each time as required.

4.4.12 Synchronous Motor PMVVC

Para. No.	Name	Value Range	Default	Description
F0-01	Motor 1 control mode	0: SVC 2: V/f control 5: PMVVC control (for synchronous motors only)	0	-
F1-24	Number of motor pole pairs	0 to 65535	2	-
F3-01	Torque boost	0.0%: Automatic torque boost 0.1% to 30.0%	Model dependent	The torque boost function generally applies to the AC drive at low frequency. The output torque of the AC drive in V/f control mode is proportional to the frequency. Under the condition of low frequency, the torque is very low when the motor is running at a low speed. In this case, you can set this parameter to increase the output voltage of the AC drive, thereby increasing the current and output torque. Do not set this parameter to a large value, otherwise, overload protection may be triggered.
A9-40	Low-speed closed-loop current selection (for VVC)	0: Disabled 1: Enabled	0	-
A9-41	Low-speed closed-loop current (for VVC)	30% to 200% (rated motor current as the base value)	50%	-
A9-42	Oscillation suppression damping coefficient (for VVC)	0 to 500	100%	-
A9-43	Initial position compensation angle (for VVC)	0 to 5	0	-

4.4.13 Wobble Control Function

With the wobble control function, the output frequency of the AC drive wobbles up and down around the frequency reference (F0-07). This function is applicable to industries such as textile and chemical fiber and winding and unwinding applications.

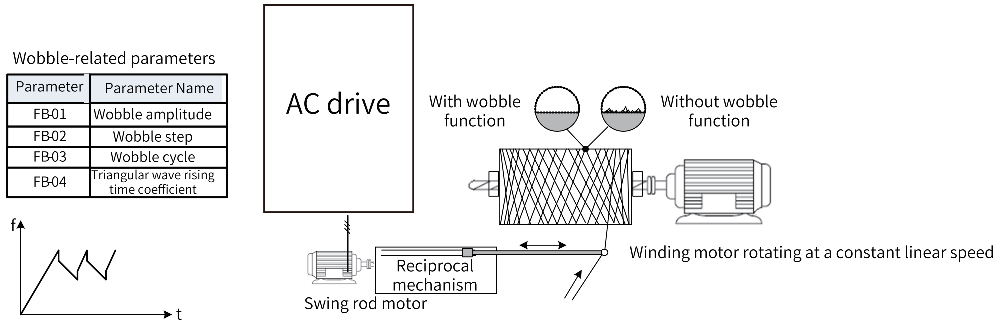


Figure 4-44 Application scenario of the wobble function

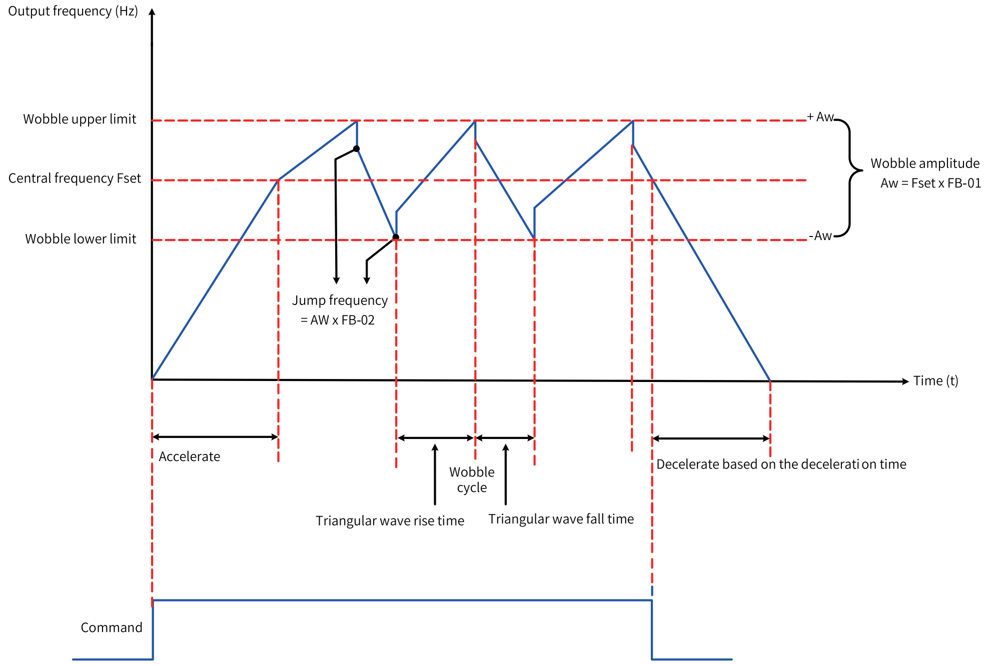


Figure 4-45 Schematic diagram of the wobble function

Table 4–31 Related parameters

Para. No.	Name	Default	Value Range	Description
Fb-00	Swing setting mode	0	0: Relative to the center frequency 1: Relative to the maximum frequency	0: Relative to center frequency (F0-07, frequency reference superposition). This mode applies to variable swing systems, in which the swing changes with the center frequency (frequency reference). 1: Relative to the maximum frequency (F0-10, maximum frequency). This mode applies to fixed swing systems, in which the swing is a fixed value calculated based on the maximum frequency.
Fb-01	Wobble amplitude	0.0%	0.0% to 100.0%	When Fb-01 is set to 0, the swing is 0, indicating that the wobble function is disabled.
Fb-02	Wobble step	0.0%	0.0% to 50.0%	This parameter determines the swing and startup frequency.

Para. No.	Name	Default	Value Range	Description
				The wobble running frequency is limited by the frequency upper limit and frequency lower limit.
Fb-03	Wobble cycle	10.0s	0.1s to 3000.0s	This parameter defines the time of a complete wobble cycle.
Fb-04	Triangular wave rise time coefficient	50.0%	0.1% to 100.0%	This parameter defines the percentage of the triangular wave rise time relative to the wobble cycle (Fb-03).

1. Calculation of the swing

   When Fb-00 is set to 0 (relative to center frequency): Swing AW = Frequency reference (F0-07) x Wobble amplitude (Fb-01).

   When Fb-00 is set to 1 (relative to maximum frequency): Swing AW = Maximum frequency (F0-10) x Wobble amplitude (Fb-01).

2. Calculation of the startup frequency

   When the wobble function is enabled, the startup frequency is the value relative to the swing. That is, Startup frequency = Swing AW x Wobble step (Fb-02).

   When Fb-00 is set to 0 (relative to center frequency), the startup frequency is a variable.

   When Fb-00 is set to 1 (relative to maximum frequency), the startup frequency is a fixed value.

3. Calculation of the triangular wave rise/fall time

   Triangular wave rise time = Fb-03 (wobble cycle) x Fb-04 (triangular wave rise time coefficient) (unit: s)

   Triangular wave fall time = Fb-03 (wobble cycle) x [1 – Fb-04 (triangular wave rise time coefficient)] (unit: s)

   (Wobble cycle = Triangular wave rise time + Triangular wave fall time)

4.4.14 Fixed Length Control Function

The AC drive supports fixed length control. Length pulses can be sampled by a DI terminal assigned with function 29 (length count input).

Para. No.	Name	Default	Value Range	Description
FB-05	Reference length	1000 m	0 m to 65535 m	This parameter specifies the length value to be controlled in fixed length control mode.
FB-06	Actual length	0 m	0 m to 65535 m	The actual length is a monitored value. Actual length (Fb-06) = Number of pulses sampled by DI/Number of pulses per meter (Fb-07).
FB-07	Number of pulses per meter	100.0	0.1 to 6553.5	This parameter indicates the number of pulses output per meter. The length pulses are sampled by a DI terminal assigned with function 29 (length count input).

In the following figure, the actual length is a monitored value. Actual length (Fb-06) = Number of pulses sampled by DI/Number of pulses per meter (Fb-07). When the actual length (Fb-06) exceeds the reference length (Fb-05), the relay or DO terminal (function 31) outputs the "length reach" ON signal.

During fixed length control, length reset can be implemented by a multi-function DI terminal (function 30). For details, see the following figure.

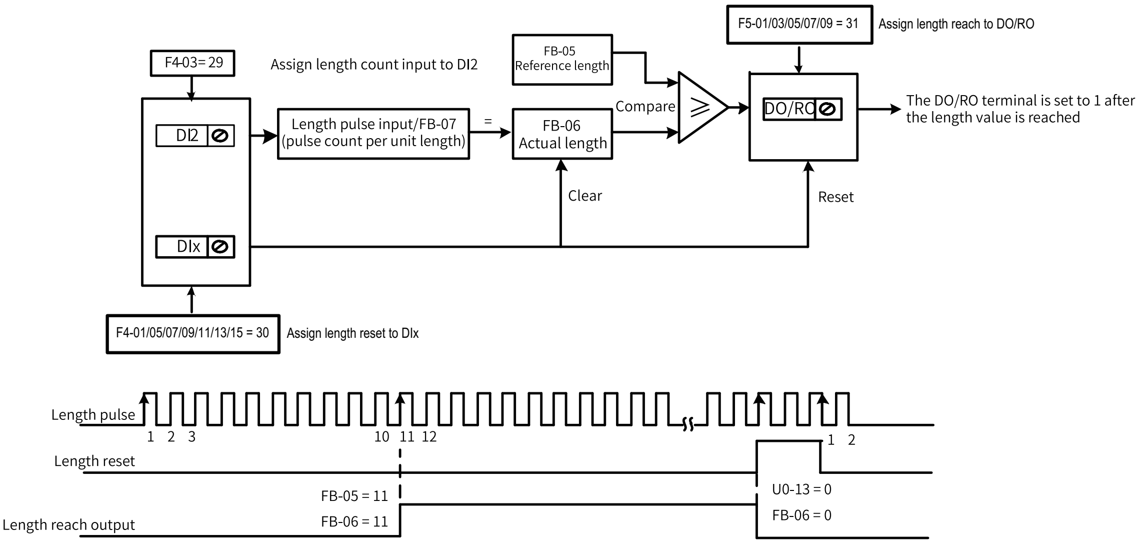


Figure 4-46 Schematic diagram of fixed length control

Para. No.	Name	Reference	Function Description
F4-03	DI2 function selection	29	Length count input
F4-01, F4-05, F4-07, F4-09, F4-11, F4-13, and F4-15 (any one)	DI1 to DI8 function selection (any one)	30	Length reset
F5-01, F5-03, F5-05, F5-07, and F5-09 (any one)	DO/RO terminal function selection (any one)	31	Length reach

Only length can be calculated according to the number of pulses but the rotation direction cannot be identified in fixed length control mode. An automatic stop system can be implemented by connecting the output length reach T/A-T/B signal of the relay to the stop input terminal.

4.4.15 Counting Function

If the count values need to be collected by DI terminals, assign function 27 (counter input) to the DI terminal.

Para. No.	Name	Default	Value Range	Description
Fb-08	Reference count value	1000	1 to 65535	When the count value reaches Fb-08, the DO terminal outputs an active signal indicating that the reference count value is reached.
Fb-09	Designated count value	1000	1 to 65535	When the count value reaches Fb-09, the DO terminal outputs an active signal indicating that the designated count value is reached. Fb-09 must be less than or equal to Fb-08 (reference count value).

In the following figure, the count values need to be collected by a DI terminal, and therefore the DI terminal is assigned with function 27 (counter input). When the count value reaches Fb-08, the DO terminal outputs an "ON" signal indicating that the reference count value is reached. When the count value reaches Fb-09, the DO terminal outputs an "ON" signal indicating that the designated count value is reached.

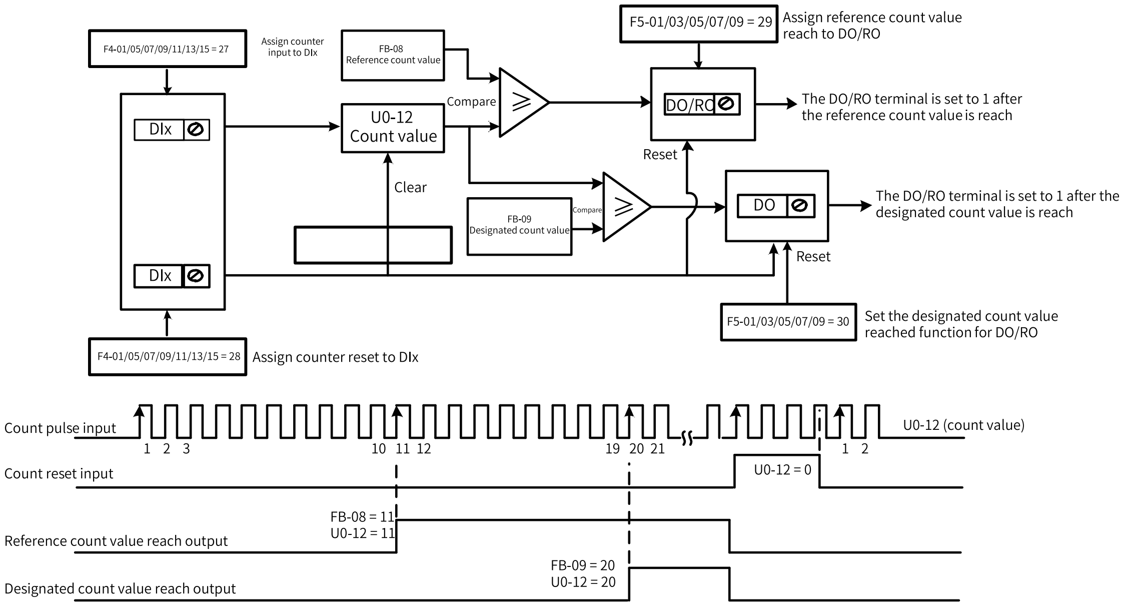


Figure 4-47 Schematic diagram of the counting function

Para. No.	Name	Reference	Function Description
F4-01, F4-05, F4-07, F4-09, F4-11, F4-13, and F4-15 (any one)	DI1 to DI8 function selection (any one)	27	Counter input
F4-01, F4-05, F4-07, F4-09, F4-11, F4-13, and F4-15 (any one)	DI1 to DI8 function selection (any one)	28	Counting reset
F5-01, F5-03, F5-05, F5-07, and F5-09 (any one)	DO/RO terminal function selection (any one)	29	Reference count value reach
F5-01, F5-03, F5-05, F5-07, and F5-09 (any one)	DO/RO terminal function selection (any one)	30	Designated count value reach

- A DO/RO terminal cannot be assigned with both the "reference count value reach" function and the "designated count value reach" function.
- The counter keeps counting when the AC drive is in the running/stop state until the reference count value is reached.
- The count value is retentive at power failure.
- An automatic stop system can be implemented by feeding the output count value reach signal of the DO/RO to the AC drive stop input terminal.

4.4.16 PID Adjustment Methods

This section describes general rules for PID parameter adjustment, which can be used as reference for adjusting closed-loop control PID parameters (FA-05 to FA-07, and FA-15 to FA-17) and speed loop PI parameters (F2-00, F2-01, F2-03, and F2-04).

1. In case of slow response, increase Kp.

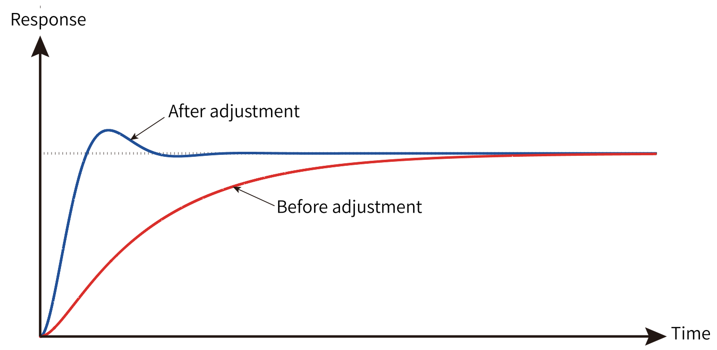


Figure 4-48 Response-time trend after increasing Kp

2. In case of frequent oscillation, reduce Kp.

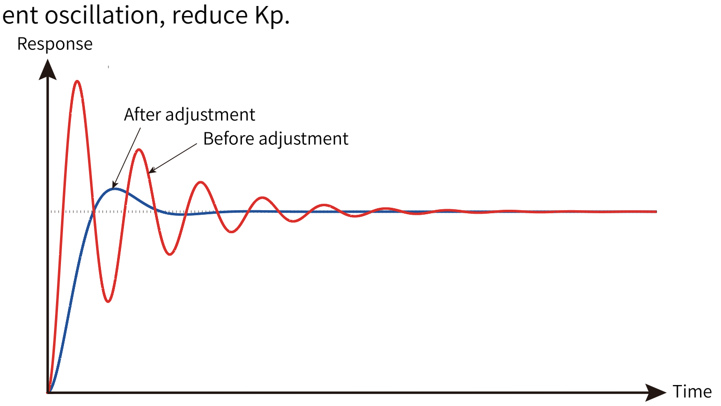


Figure 4-49 Response-time trend after decreasing Kp

3. In case of large overshoot and slow fluctuation, increase Ti.

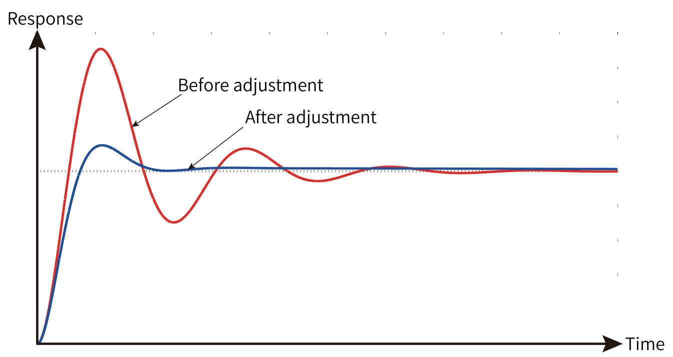


Figure 4-50 Response-time trend after increasing Ti

4. In case of large static difference and slow response at load fluctuation, increase Kp or decrease Ti.

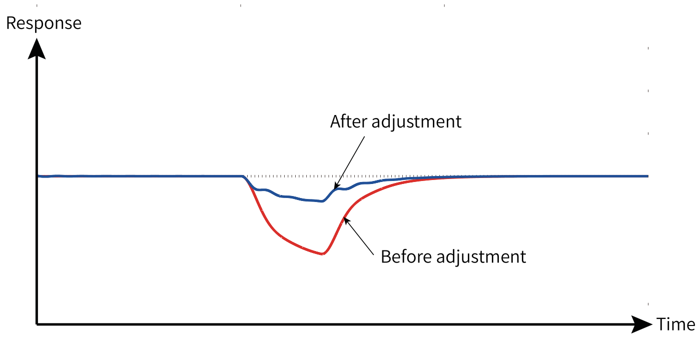


Figure 4-51 Response-time trend after increasing Kp at load fluctuation

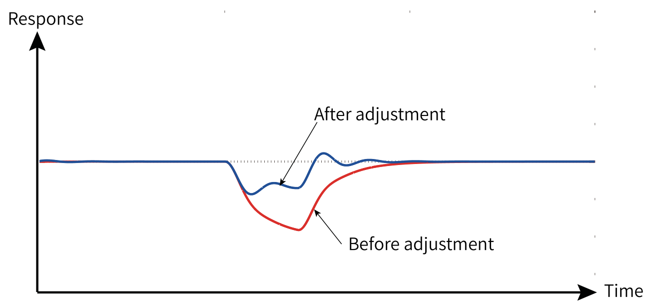


Figure 4-52 Response-time trend after decreasing Ti at load fluctuation

5. The system stability can be improved by incorporating derivative time Td properly (excessive proportion may cause interference and oscillation).

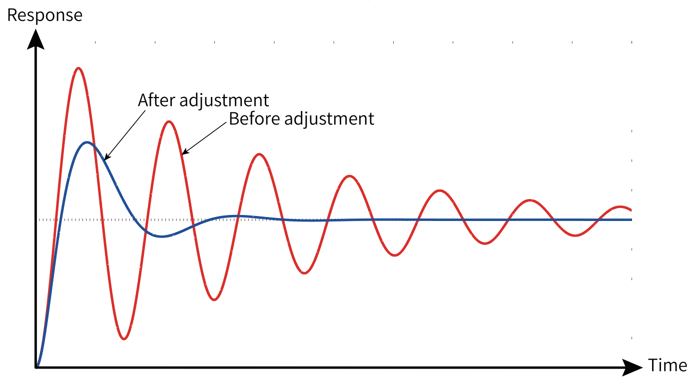


Figure 4-53 Response-time trend after incorporating Td

4.5 Application Control

4.5.1 Jog Running

In some applications, the AC drive needs to run at low speed temporarily to facilitate equipment testing. In this case, jog running applies. If jog running is adopted, F6-00 must be set to 0 (direct start) and F6-10 must be set to 0 (decelerate to stop). The following figure shows the relationship between the output frequency and acceleration/deceleration time during jog running.

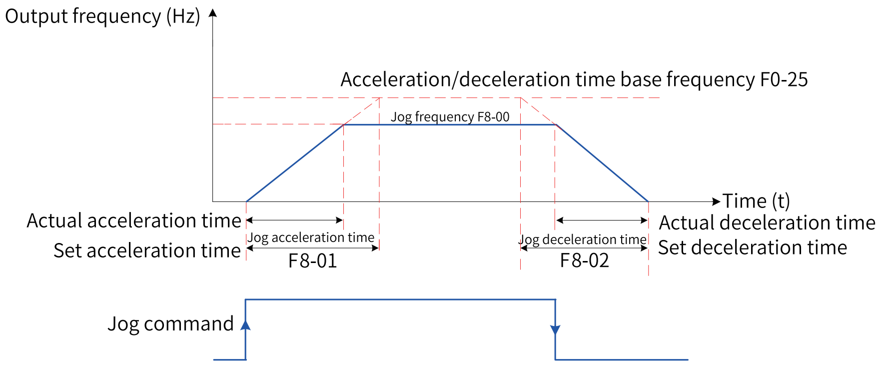


Figure 4-54 Schematic diagram of jog running

Related Parameters

Para. No.	Name	Default	Value Range	Description
F0-02	Operation command source	0	0: Operating panel control 1: Terminal I/O control 2: Communication control	-
F0-25	Acceleration/ Deceleration time base frequency	1	0: Maximum frequency (F0-10) 1: Target frequency 2: 100 Hz	-
F7-01	MF.K key function	0	0: MF.K key disabled 1: Switchover between operating panel control and remote control (terminal I/O control or communication control) 2: Switchover between forward and reverse run 3: Forward jog 4: Reverse jog	-
F8-00	Jog frequency	2.00 Hz	0 to maximum frequency (F0-10)	-
F8-01	Jog acceleration time	20.0s	0.0s to 6500.0s	-
F8-02	Jog deceleration time	20.0s	0.0s to 6500.0s	-
F8-14	Reverse running	0	0: Reverse running allowed 1: Reverse running inhibited	-
F8-37	Jog preferred	0	0: Disabled 1: Enabled	-

Application

The following introduces how to set parameters related to jog running by taking implementation of jog running using the operating panel as an example.

Table 4–32 Setting parameters related to jog running

Step	Forward Jog	Reverse Jog
1	Set F7-01 to 3 to assign the forward jog function to the MF.K key.	Set F7-01 to 4 to assign the reverse jog function to the MF.K key. Set F8-14 to 0 to allow reverse running.
2	Set F0-02 to 0 to select the operating panel as the command source.	Set F0-02 to 0 to select the operating panel as the command source.
3	Set F8-00 (jog frequency), F8-01 (jog acceleration time), and F8-02 (jog deceleration time) properly.	Set F8-00 (jog frequency), F8-01 (jog acceleration time), and F8-02 (jog deceleration time) properly.
4	Press down the MF.K key when the AC drive is in stop status. The drive starts to jog in the forward direction. Release the MF.K key. The AC drive decelerates to stop.	In stop status, press down the key. The drive starts to jog in the reverse direction. After you release the MF.K key, the AC drive decelerates to stop.

4.5.2 Frequency Detection

4.5.2.1 Multi-speed Reference

In multi-reference mode, different combinations of DI terminal states correspond to different frequency references.

Table 4–33 Using multi-reference as the frequency reference source

Step	Related Parameters	Description
Step 1: Select multi-reference as the frequency reference source.	F0-03	F0-03 = 6
Step 2: Determine the number of speed references required.	None	A total of 16 speed references are supported, which are defined by using four DI terminals. The relationship between the number of speed references and the number of DI terminals is as follows: 2 speed references: 1 DI terminal (K1) 3 to 4 speed references: 2 DI terminals (K1 and K2) 5 to 8 speed references: 3 DI terminals (K1, K2, and K3) 9 to 16 speed references: 4 DI terminals (K1, K2, K3, and K4)
Step 3: Select the DI hardware source.	F4-00/F4-02/F4-04/F4-06/F4-08/F4-10/F4-12/F4-14	Set an available external terminal as the DI hardware source.
Step 4: Assign the multi-reference function to the DI terminal.	F4-01/F4-03/F4-05/F4-07/F4-09/F4-11/F4-13/F4-15	Multi-reference terminal K1: Set the parameter to 14.
		Multi-reference terminal K2: Set the parameter to 15.
		Multi-reference terminal K3: Set the parameter to 16.
		Multi-reference terminal K4: Set the parameter to 17.
Step 5: Set the frequency corresponding to each speed reference.[Note]	FC-00 to FC-15	The frequency corresponding to each speed reference is set to a percentage value. 100% corresponds to the maximum frequency (F0-10).
	F0-10	When multi-reference is used as the frequency reference source, the value 100% of FC-00 to FC-15 corresponds to the maximum frequency (F0-10).

[Note] The four multi-reference terminals provide 16 state combinations, corresponding to 16 reference values, as listed in the following table.

Table 4–34 State combinations of the four multi-speed reference terminals

K4	K3	K2	K1	Reference	Percentage Relative to Max. Frequency
OFF	OFF	OFF	OFF	Multi-reference 0	FC-00
OFF	OFF	OFF	ON	Multi-reference 1	FC-01
OFF	OFF	ON	OFF	Multi-reference 2	FC-02
OFF	OFF	ON	ON	Multi-reference 3	FC-03
OFF	ON	OFF	OFF	Multi-reference 4	FC-04
OFF	ON	OFF	ON	Multi-reference 5	FC-05
OFF	ON	ON	OFF	Multi-reference 6	FC-06
OFF	ON	ON	ON	Multi-reference 7	FC-07
ON	OFF	OFF	OFF	Multi-reference 8	FC-08
ON	OFF	OFF	ON	Multi-reference 9	FC-09
ON	OFF	ON	OFF	Multi-reference 10	FC-10
ON	OFF	ON	ON	Multi-reference 11	FC-11
ON	ON	OFF	OFF	Multi-reference 12	FC-12
ON	ON	OFF	ON	Multi-reference 13	FC-13
ON	ON	ON	OFF	Multi-reference 14	FC-14
ON	ON	ON	ON	Multi-reference 15	FC-15

4.5.2.2 Frequency Detection (FDT)

This function sets the detection value of the output frequency as well as the hysteresis value upon output cancellation. The hysteresis value is valid only during deceleration. Hysteresis does not occur in detection during acceleration. The following figure shows the frequency detection function.

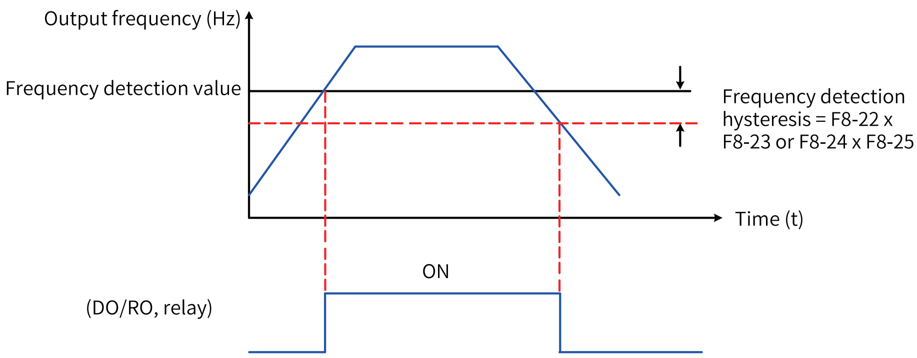


Figure 4-55 Schematic diagram of frequency detection

Table 4–35 Parameters related to frequency detection

Para. No.	Name	Default	Value Range	Description
F8-22	Frequency detection value (FDT1)	50.00 Hz	0 to maximum frequency (F0-10)	When the running frequency is higher than the frequency detection value (FDT1), the DO/RO terminal outputs an active signal; when the running frequency is lower than the result of the frequency detection value (FDT1) minus the frequency detection hysteresis (FDT1), the DO/RO terminal outputs an inactive signal. The valid value range is 0.00 Hz to F0-10 (maximum frequency).
F8-23	Frequency detection hysteresis rate (FDT1)	2.5 Hz	0.00 Hz to F8-22	When the running frequency is higher than F8-22, the DO/RO terminal outputs an active signal. When the running frequency is lower than a specific value (F8-22 minus F8-23), the DO/RO terminal outputs an inactive signal.
F8-24	Frequency detection value (FDT2)	50.00 Hz	0 to maximum frequency (F0-10)	When the running frequency is higher than the frequency detection value (FDT2), the DO/RO terminal outputs an active signal; when the running frequency is lower than the result of the frequency detection value (FDT2) minus the frequency detection hysteresis (FDT2), the DO/RO terminal outputs an inactive signal. The valid value range is 0.00 Hz to F0-10 (maximum frequency).
F8-25	Frequency detection hysteresis rate (FDT2)	2.5 Hz	0.00 Hz to F8-24	When the running frequency is higher than F8-24, the DO/RO terminal outputs an active signal. When the running frequency is lower than a specific value (F8-24 minus F8-25), the DO/RO terminal outputs an inactive signal.

4.5.2.3 Vibration Suppression

The jump frequency enables the AC drive to avoid any frequency at which a mechanical resonance may occur. The AC drive supports two frequency jump points. If both are set to 0, the frequency jump function is disabled.

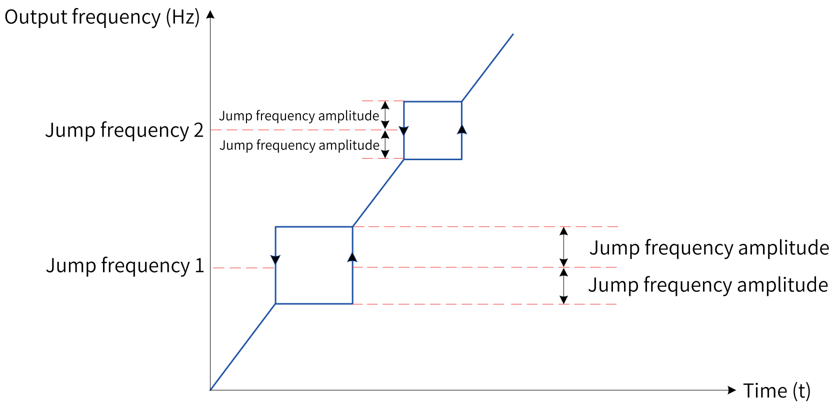


Figure 4-56 Jump frequency

As shown in the preceding figure, during acceleration, when the running frequency increases to a value that is close to the jump frequency, the AC drive runs for a period at the current frequency and then skips over the jump frequency. The jump range is twice the value of F8-11 (jump frequency amplitude).

During deceleration, when the running frequency decreases to a value that is close to the jump frequency, the AC drive runs for a period at the current frequency and then skips over the jump frequency. The jump range is twice the value of F8-11 (jump frequency amplitude).

Related Parameters

Para. No.	Name	Default	Value Range	Description
F8-09	Jump frequency 1	0.00 Hz	0.00 to maximum frequency (F0-10)	The jump frequency enables the AC drive to avoid any frequency at which a mechanical resonance may occur. This parameter defines the first jump frequency. If it is set to 0, the first jump frequency is canceled.
F8-10	Jump frequency 2	0.00 Hz	0.00 to maximum frequency (F0-10)	The jump frequency enables the AC drive to avoid any frequency at which a mechanical resonance may occur. This parameter defines the second jump frequency. If it is set to 0, the second jump frequency is canceled.
F8-11	Jump frequency amplitude	0.00 Hz	0.00 Hz to 5.00 Hz	During acceleration, when the running frequency increases to a value that is close to the jump frequency, the AC drive runs for a period at the current frequency and then skips over the jump frequency. The jump range is twice the value of F8-11 (jump frequency amplitude). During deceleration, when the running frequency decreases to a value that is close to the jump frequency, the AC drive runs for a period at the current frequency and then skips over the jump frequency. The jump range is twice the value of F8-11 (jump frequency amplitude).
F8-12	Jump frequency selection during acceleration/ deceleration	0	0: Inactive 1: Active	This parameter defines whether the jump frequency is active during acceleration/ deceleration. When it is inactive, the AC drive continues to run at the running frequency when the running frequency is near the jump frequency during acceleration and deceleration. When it is active, the AC drive skips over the jump frequency when the running frequency is near the jump frequency during acceleration and deceleration. The jump range is twice the value of F8-11 (jump frequency amplitude).

4.5.2.4 Reverse Frequency Inhibition

F8-14 defines reverse frequency inhibition. The following figure shows the schematic diagram of reverse frequency inhibition.

F0-09 defines the running direction of the motor. You can change the rotation direction of the motor by modifying this parameter without changing the motor wiring. Modifying this parameter is equivalent to exchanging any two of the motor's U, V, W wires.

Note

After the parameter is initialized, the original rotation direction of the motor is resumed. Exercise cautions when using this function if motor rotation direction change is prohibited after system commissioning is complete.

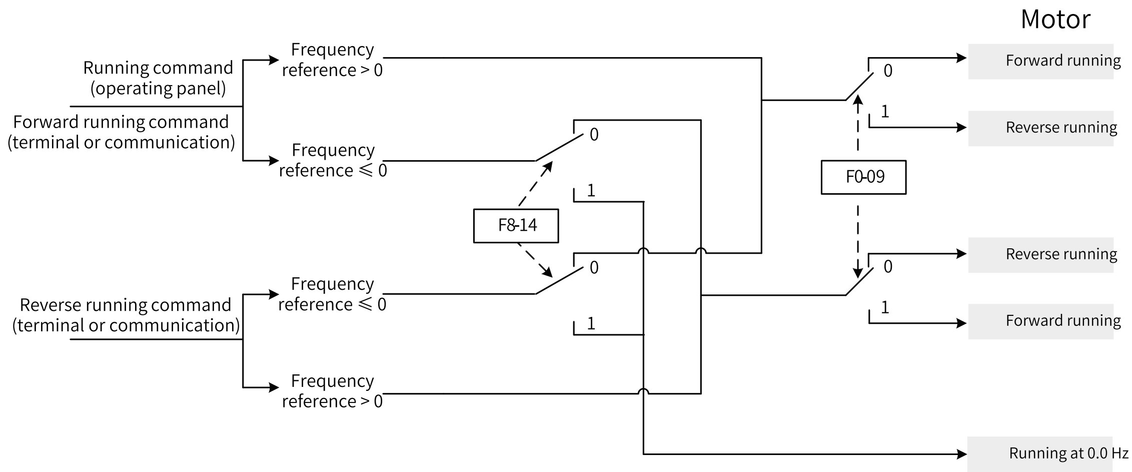


Figure 4-57 Reverse frequency inhibition

Related Parameters

Para. No.	Name	Default	Value Range	Description
F8-14	Reverse running	0	0: Reverse running allowed 1: Reverse running inhibited	When F8-14 is active, the motor runs at zero frequency when a reverse run command is input to the AC drive.
F0-09	Running direction	0	0: Default direction 1: Direction opposite to the default direction	You can change the rotation direction of the motor by modifying this parameter without changing the motor wiring. Modifying this parameter is equivalent to exchanging any two of the motor's U, V, W wires.

4.5.2.5 Frequency Detection Range

F8-26 defines the frequency detection range. The following figure shows the timing diagram of the frequency detection range.

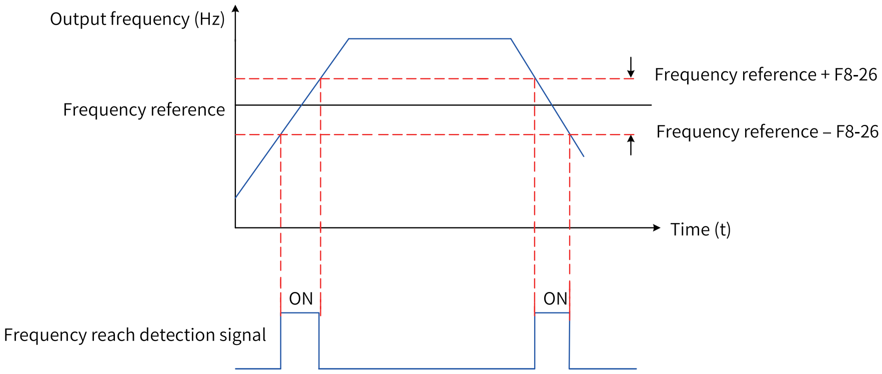


Figure 4-58 Timing diagram of the frequency detection range

Related Parameters

Para. No.	Name	Default	Value Range	Description
F8-26	Frequency Detection Range	0.00 Hz	0.00 Hz to maximum frequency	The DO terminal outputs an active signal when the running frequency of the AC drive is within the specified range (frequency reference±F8-26).

4.5.2.6 Acceleration/Deceleration Time Switchover Frequency

This function enables selection of different acceleration/deceleration time based on the running frequency during running of the AC drive.

The following figure shows the schematic diagram of acceleration/deceleration time switchover. During acceleration, if the running frequency is lower than F8-35, acceleration time 2 is selected; if it is higher than F8-35, acceleration time 1 is selected. During deceleration, if the running frequency is higher than F8-36, deceleration time 1 is selected; if it is lower than F8-36, deceleration time 2 is selected.

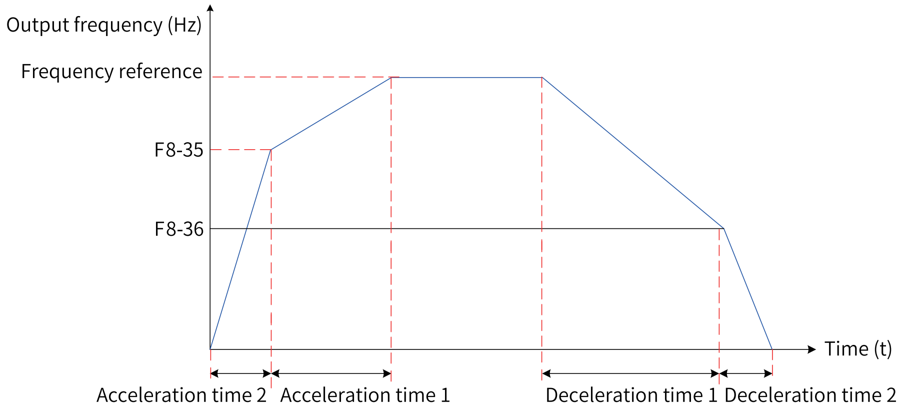


Figure 4-59 Acceleration/Deceleration time switchover

This function is available only when motor 1 is selected (F0-24 = 0) and the DI terminal is not assigned with function 18 (acceleration/deceleration time selection terminal 1) or 19 (acceleration/deceleration time selection terminal 2).

Related Parameters

Para. No.	Name	Default	Value Range	Description
F8-35	Switchover frequency of acceleration time 1 and acceleration time 2	0.00 Hz	0 to maximum frequency (F0-10)	This function is used to switch the acceleration/deceleration time based on the running frequency range when the AC drive is running. This function is available only when motor 1 is selected (F0-24 = 0) and the DI terminal is not assigned with function 18 (acceleration/deceleration time selection terminal 1) or 19 (acceleration/deceleration time selection terminal 2). The valid value range is 0.00 Hz to F0-10 (maximum frequency).
F8-36	Switchover frequency of deceleration time 1 and deceleration time 2	0.00 Hz	0 to maximum frequency (F0-10)	

4.5.2.7 Detection Value for Frequency Reach

The DO/RO terminal outputs an active signal when the running frequency of the AC drive is within the range of detection value for frequency reach±frequency detection range.

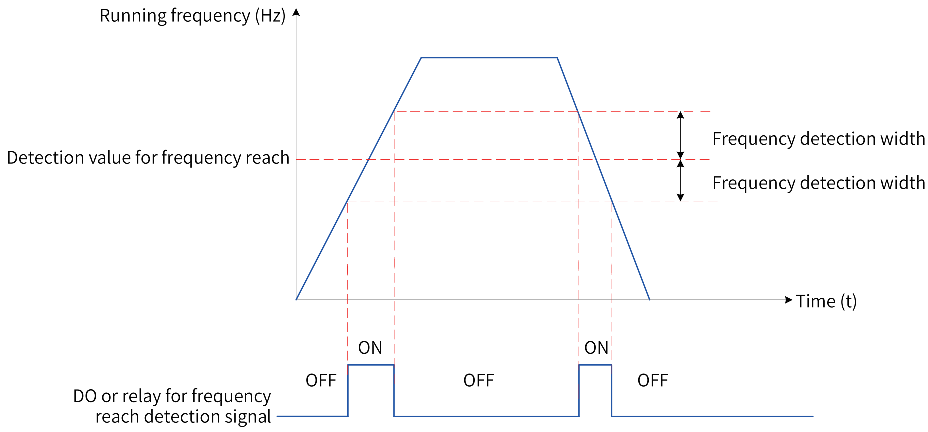


Figure 4-60 Frequency reach detection

Related Parameters

Para. No.	Name	Default	Value Range	Description
F8-27	Detection value 1 for frequency reach	50.00 Hz	0 to maximum frequency (F0-10)	When the running frequency of the AC drive is within the frequency detection range, the DO/RO terminal outputs an active signal. The valid value range is 0.00 Hz to F0-10 (maximum frequency).
F8-28	Detection frequency 1 for frequency reach	2.50 Hz	0.00 to F8-27	Frequency detection range = (Detection value 1 for frequency reach)±(Detection frequency 1 for frequency reach). That is, the frequency detection range is calculated using (F8-27)±(F8-28).
F8-29	Detection mode for frequency reach 1	0	0: Always detect 1: Not detect during acceleration/ deceleration	This parameter defines the frequency 1 reach detection mode. When it is set to 0, the DO/RO terminal outputs an active signal if the detection condition is met. When it is set to 1, the DO/RO terminal does not output an active signal during

Para. No.	Name	Default	Value Range	Description
				acceleration and deceleration even if the detection condition is met.
F8-30	Detection value 2 for frequency reach	50.00 Hz	0 to maximum frequency (F0-10)	When the running frequency of the AC drive is within the frequency detection range, the DO/RO terminal outputs an active signal. The valid value range is 0.00 Hz to F0-10 (maximum frequency).
F8-31	Detection frequency 2 for frequency reach	2.50 Hz	0.00 to F8-28	Frequency detection range = (Detection value 2 for frequency reach)±(Detection frequency 2 for frequency reach). That is, the frequency detection range is calculated using (F8-30)±(F8-31).
F8-32	Detection mode for frequency reach 2	1	0: Always detect 1: Not detect during acceleration/ deceleration	This parameter defines the frequency 1 reach detection mode. When it is set to 0, the DO terminal outputs an active signal if the detection condition is met. When it is set to 1, the DO terminal does not output an active signal during acceleration and deceleration even if the detection condition is met.

4.5.3 Current Detection

4.5.3.1 Zero Current Detection

When the output current of the AC drive is lower than or equal to F8-38 (zero current detection level) for longer than the time defined by F8-39 (zero current detection delay), the DO terminal outputs an active signal.

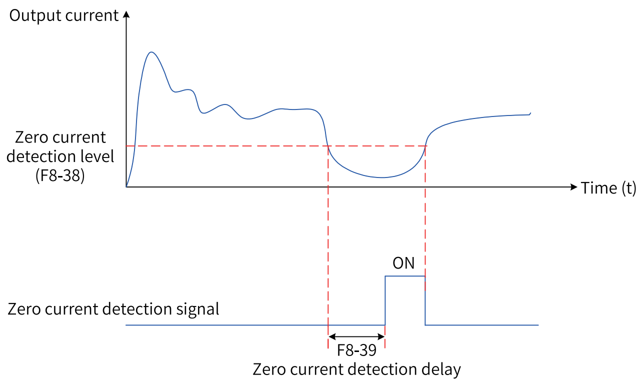


Figure 4-61 Zero current detection

Related Parameters

Para. No.	Name	Default	Value Range	Description
F8-38	Zero current detection level	5.0%	0.0% to 300.0% (rated motor current)	When the output current of the AC drive is lower than or equal to F8-38 (zero current detection level) for longer than the time defined by F8-39 (zero current detection delay), the DO terminal outputs an active signal.
F8-39	Zero current detection delay	0.10s	0.00s to 600.00s	

4.5.3.2 Output Overcurrent Threshold

When the output current of the AC drive is higher than F8-40 (output current threshold) for longer than the time defined by F8-41 (output overcurrent detection delay), the DO terminal outputs an active signal.

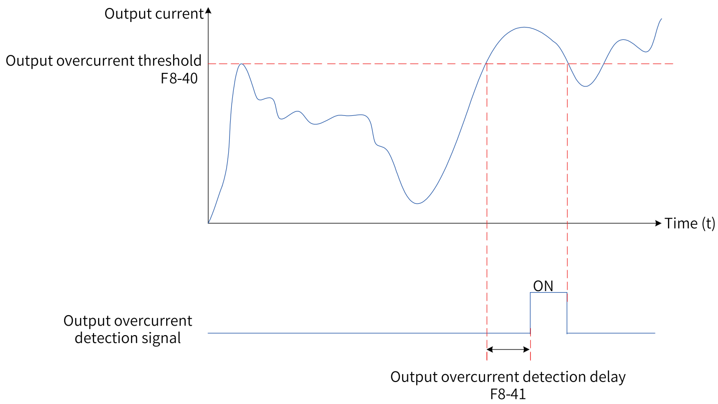


Figure 4-62 Output overcurrent threshold

Related Parameters

Para. No.	Name	Default	Value Range	Description
F8-40	Output overcurrent threshold	200.0%	0.0% (no detection) 0.1% to 300.0% (rated motor current)	When the output current of the AC drive is higher than F8-40 (output current threshold) for longer than the time defined by F8-41 (output overcurrent detection delay), the DO terminal outputs an active signal.
F8-41	Output overcurrent detection delay	0.00s	0.00s to 600.00s	

4.5.3.3 Detection Level of Current

When the output current of the AC drive is within the range of (detection level of current±detection width of current) x (rated motor current), the DO terminal outputs an active signal.

The AC drive provides two groups of current detection level and width parameters. The following figure shows the timing diagram.

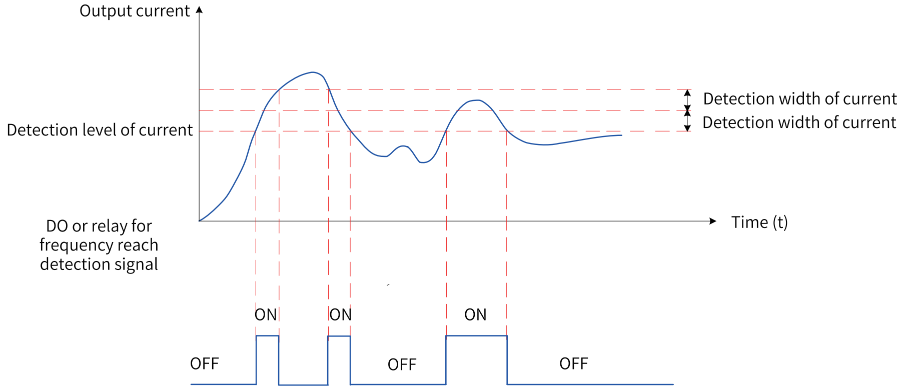


Figure 4-63 Current detection timing diagram

Related Parameters

Para. No.	Name	Default	Value Range	Description
F8-42	Detection level of current 1	100.0%	0.0% to 300.0% (rated motor current)	When the output current of the AC drive is within the range of [F8-42 (detection level of current 1)±F8-43 (detection width of current 1)] x F1-03 (rated motor current), the DO terminal outputs an active signal.
F8-43	Detection width of current 1	0.0%	0.0% to 300.0% (rated motor current)	Detection width of current 1 = F8-43 (detection width of current 1) x F1-03 (rated motor current)
F8-44	Detection level of current 2	100.0%	0.0% to 300.0% (rated motor current)	When the output current of the AC drive is within the range of [F8-44 (detection level of current 2)±F8-45 (detection width of current 2)] x F1-03 (rated motor current), the DO terminal outputs an active signal.
F8-45	Detection width of current 2	0.0%	0.0% to 300.0% (rated motor current)	Detection width of current 2 = F8-45 (detection width of current 2) x F1-03 (rated motor current)

4.5.4 FWD/REV Switchover Dead-zone Time

FWD/REV switchover dead-zone time (F8-13) indicates the transition time at 0 Hz output during transition between forward running and reverse running of the AC drive.

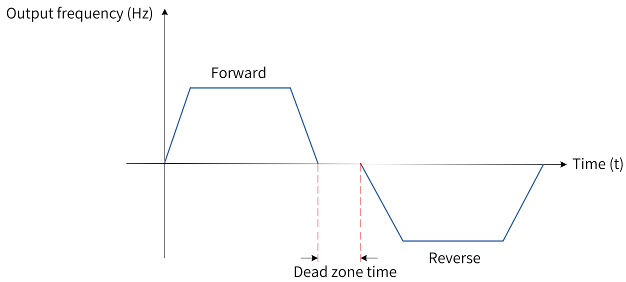


Figure 4-64 FWD/REV switchover dead-zone time

Related Parameters

Para. No.	Name	Default	Value Range	Description
F8-13	FWD/REV switchover dead-zone time	0.0s	0.0s to 3000.0s	This parameter defines the transition time at 0 Hz output during transition between forward running and reverse running.

4.5.5 Timing Function

The AC drive starts timing from 0 each time it starts. When the timing duration defined by F8-48 is reached, the AC drive stops automatically and the DO terminal outputs an active signal. The remaining timing duration can be viewed through U0-20.

- The DO terminal outputs an active signal when the accumulative power-on time of the AC drive (F7-12) exceeds F8-19 (accumulative power-on time threshold).
- The DO terminal outputs an active signal when the accumulative running time of the AC drive (F7-09) exceeds F8-20 (accumulative running time threshold).

Related Parameters

Para. No.	Name	Default	Value Range	Description
F8-19	Accumulative power-on time threshold	0 h	0 h to 65000 h	This parameter defines the accumulative power-on time threshold of the AC drive. The DO terminal outputs an active signal when F7-12 (accumulative power-on time) exceeds F8-19 (accumulative power-on time threshold).
F8-20	Accumulative running time threshold	0 h	0 h to 65000 h	This parameter defines the accumulative running time threshold of the AC drive. The DO terminal outputs an active signal when F7-09 (accumulative running time) exceeds F8-20 (accumulative running time threshold).
F8-46	Timing function	0	0: Disabled 1: Enabled	If F8-46 (timing function) is set to 1, the DO terminal outputs an active signal when the current operation time of the AC drive reaches the specified timing duration. The timing duration is defined by F8-47 and F8-48.

Para. No.	Name	Default	Value Range	Description
F8-47	Timing duration source	0	0: F8-48 1: AI1 2: AI2	When it is set to 0, the timing duration is set by F8-48. When it is set to 1, the timing duration = (AI1 voltage/10 V) x F8-48. 100% of analog input corresponds to the value of F8-48. When it is set to 2, the timing duration = (AI2 voltage/10 V) x F8-48. 100% of analog input corresponds to the value of F8-48.
F8-48	Timing duration	0.0 min	0.0 min to 6500.0 min	The timing duration is defined by F8-47 and F8-48.

4.5.6 AI1 Voltage Upper/Lower Limit

Para. No.	Name	Default	Value Range	Description
F8-49	AI1 input voltage lower limit	3.10 V	0.00 V to F8-50	When the AI1 input voltage is higher than F8-50 or lower than F8-49, the DO terminal outputs an active signal indicating "AI1 input limit exceeded".
F8-50	AI1 input voltage upper limit	6.80 V	F8-49 to 10.00 V	

4.5.7 IGBT Temperature

Para. No.	Name	Default	Value Range	Description
F8-51	IGBT temperature reach	75°C	0°C to 100°C	When the IGBT heatsink temperature reaches the value of F8-51, the DO/RO terminal outputs an active signal.
F7-07	Heatsink temperature of IGBT	-	–20.0°C to +120.0°C	Heatsink temperature of the IGBT

4.5.8 Cooling Fan Control

Para. No.	Name	Default	Value Range	Description
F8-52	Cooling fan control	0	0: Forward running during drive running 1: Forward running continuously 2: Forward and reverse running continuously 3: Forward and reverse running during drive running	Single-axis drive unit and axis 1 of dual-axis drive unit: F8-52 = 0: The fan works when the AC drive is running. When the AC drive stops, the fan works if the heatsink temperature is higher than 42°C and stops if the heatsink temperature is lower than 42°C. F8-52 = 1: The fan keeps rotating in the forward direction after power-on. F8-52 = 2: The fan keeps working after power-on. It rotates in the forward direction for 600s and then in the reverse direction for 200s, and repeats the cycle. F8-52 = 3: The fan works during drive running. When the AC drive is running, the fan rotates in the forward direction for 600s and then in the reverse direction for 200s, and repeats the cycle. When the AC drive stops, if the heatsink temperature is higher than 42°C, the fan rotates in the forward direction for 600s and then in the reverse direction for 200s, and repeats the cycle; if the heatsink temperature is lower than 42°C, the fan stops. Axis 2 of dual-axis drive unit: F8-52 is not editable. The default value is 0, that is, the fan rotates in the forward direction when axis 2 of the dual-axis drive unit is running.

4.5.9 Brake Control

4.5.9.1 Function Description

The brake control function is used to control the brake based on the frequency and current when the AC drive starts and stops to prevent accidents such as rollback and improve system safety.

4.5.9.2 Related Parameters

Para.	Name	Default	Value Range	Description
B7-00	Target frequency limit	2	0 to 20	This parameter defines the lower limit for the frequency reference when the brake mode is enabled. It does not conflict with the frequency lower limit defined by F0-14. The larger value between the two takes effect.
B7-01	Brake release frequency (forward)	2	0 to 20	This parameter defines the output frequency of the AC drive during forward running before the brake releases completely, that is, the minimum frequency at which the motor can output full torque.
B7-02	Brake release frequency (reverse)	2	0 to 20	This parameter defines the output frequency of the AC drive during reverse running before the brake releases completely, that is, the minimum frequency at which the motor can output full torque.
B7-03	Brake release torque (forward)	30	0 to 200	This parameter defines the percentage of the rated current or torque of the motor during forward running. When the output of the AC drive reaches the value of this parameter, the AC drive outputs the brake release command immediately (output 1 active, DO function 53).
B7-04	Brake release torque (reverse)	30	0 to 200	This parameter defines the percentage of the

Para.	Name	Default	Value Range	Description
				rated current or torque of the motor during reverse running. When the output of the AC drive reaches the value of this parameter, the AC drive outputs the brake release command immediately (output 1 active, DO function 53).
B7-05	Brake release time	0.5	0 to 5	This parameter defines the time required for the brake to release completely upon receiving the brake release command. The AC drive maintains the output at the brake release frequency within this period of time.
B7-06	Brake applying frequency (forward)	2	0 to 20	When the output frequency of the AC drive falls below the value of this parameter during deceleration after the forward running command is canceled, the AC drive outputs the brake applying command immediately.
B7-07	Brake applying frequency (reverse)	2	0 to 20	When the output frequency of the AC drive falls below the value of this parameter during deceleration after the reverse running command is canceled, the AC drive outputs the brake applying command immediately.
B7-08	Brake applying delay	0	0 to 5	This parameter defines the delay time for the AC drive

Para.	Name	Default	Value Range	Description
				to output the brake applying command when the brake applying condition is met.
B7-09	Brake applying time	0.5	0 to 5	This parameter defines the time required for the mechanical brake to apply completely. The AC drive maintains the output at the brake applying frequency within this period of time.
B7-10	Excitation holding time after stop	0	0 to 500	This parameter defines the holding time of the excitation state after the AC drive stops. During this holding time, the AC drive provides zero speed output and retains excitation current. If the AC drive receives the RUN command during this period, it can skip the pre-excitation stage and release the brake quickly.
B7-11	Restart delay	0.3	0 to 15	This parameter defines the delay time for the AC drive to wait before a restart every time it stops.
B7-12	Startup direction	0	0: Same as the running direction 1: Always forward	This parameter defines the output torque direction of the AC drive within the brake release time.
B7-13	Pre-torque source	2	0: Digital setting 1: Pre torque memory 2: Disabled	-
B7-14	Pre-torque reference (forward)	30	0 to 200	-
B7-15	Pre-torque reference (reverse)	30	0 to 200	-

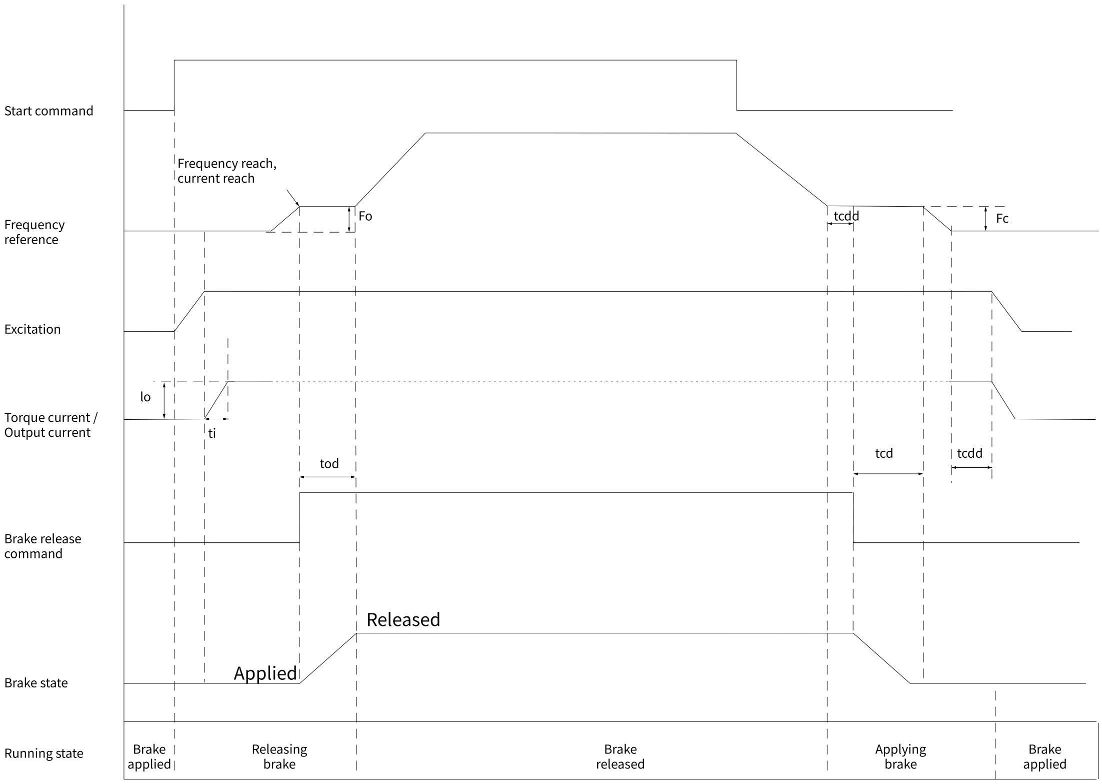
Para.	Name	Default	Value Range	Description
B7-16	Current acceleration/ deceleration time	0.5	0 to 5	This parameter defines the pre-torque acceleration/ deceleration time.
B7-17	Reverse running command	0	0: Prohibited 1: Allowed (FVC)	-
B7-18	Brake release timeout time	2	0 to 5	After the output frequency reaches the brake release frequency, the AC drive will report a brake release fault if the current/torque condition for brake release is not satisfied after the timeout period defined by this parameter elapses.
B7-21	Frequency exception detection cycle	0.5	0 to 1	When the direction of the running frequency is opposite to that of the frequency reference for a period longer than the time defined by this parameter, the AC drive reports a frequency exception fault (No. 37).
B7-22	Frequency following error	20	0 to 30	When the difference between the running frequency and the frequency reference is greater than the value of this parameter for a period longer than the time defined by B7-23, the AC drive reports a frequency following fault (No. 38).

Para.	Name	Default	Value Range	Description
B7-23	Frequency following detection cycle	0.5	0 to 1	When the difference between the running frequency and the frequency reference is greater than B7-22 (Frequency following error) for a period longer than the time defined by this parameter, the AC drive reports a frequency following fault (No. 38).
B7-24	Torque limit reach detection cycle	0	0 to 5	When the torque reaches the limit and remains so for longer than the time defined by B7-24 (Torque limit reach detection cycle), the AC drive reports a torque limit fault (No. 36).

4.5.9.3 Implementation

To enable the brake control function, you can assign an output terminal with function 53 by setting the corresponding parameter in group F5.

Brake Control Timing



Fo: Brake release frequency (B7-01, B7-02)
Io: Brake release current/torque (B7-03, B7-04)
tod: Brake release time (B7-05)
ti: Current acceleration/deceleration time (B7-16)

Fc: Brake applying frequency (B7-06, B7-07)
tcdd: Brake applying delay (B7-08)
tcd: Brake applying time (B7-09)
tcdd: Braking excitation time (B7-10)

Timing Chart Description

1. Brake applied (waiting stage)
   At this stage, the AC drive waits for the running signal. It enters the brake releasing stage when the start command becomes active.
2. Releasing brake
   This stage mainly consists of five parts: pre-excitation, torque acceleration, startup, brake release determination, and brake release time.
   - Pre-excitation
     The AC drive performs pre-excitation according to F6-05 (Pre-excitation current) and F6-06 (Pre-excitation time). It enters the torque acceleration phase (which applies to the asynchronous motor in FVC/SVC mode) after excitation is completed.
   - Torque acceleration
     The AC drive starts torque acceleration after pre-excitation. Its output torque accelerates from 0 to the target torque (the maximum value is the torque upper limit, valid in FVC/SVC mode).
   - Startup
     After torque acceleration is completed, the AC drive accelerates from 0 until its running frequency reaches the brake release frequency (B7-01 or B7-02).
   - Brake release determination

After the running frequency reaches the brake release frequency, the AC drive needs to determine whether to release the brake.

It compares the detected values with preset values to determine whether the brake release conditions are satisfied. If yes, it generates a brake release command. If not, it waits for brake release until the time defined by B7-18 (Brake release timeout time) elapses. In this case, the E91 brake release timeout fault is reported.

The brake release conditions are as follows:

- Running frequency ⩾ Brake release frequency;
- Actual current ⩾ Brake release current (V/f);
- Actual torque ⩾ Brake release torque (FVC/SVC).

- Brake release time
  After outputting the brake release command, the AC drive keeps running with the brake release frequency and the brake release current for the time period defined by B7-05 (Brake release time).

3. Brake released
   After the brake release time is over, the AC drive enters the running stage. At this time, it accelerates from the brake release frequency to the target frequency. During the running process, the target frequency can be changed to allow the AC drive to accelerate, decelerate, or run at a constant speed. When the running signal becomes inactive, the AC drive starts deceleration.

4. Applying brake
   This stage mainly consists of the following parts: deceleration and delay, brake applying time, frequency off, and torque off.

- Deceleration and delay
  During the deceleration phase, the AC drive decelerates from the current running frequency to the brake applying frequency defined by B7-06 or B7-07. Then it maintains the frequency and current output for the delay time defined by B7-08 (Brake applying delay).

- Brake applying time
  After the brake applying delay, the AC drive outputs the brake applying command and enters the brake applying holding phase. The AC drive outputs the brake frequency and the current and torque that match the load to prevent rollback during braking.

- Frequency off
  After the brake applying time is over, the AC drive enters the braking deceleration waiting phase. Its output frequency decreases from the brake applying frequency to 0.

- Torque off
  If the pre-torque function (B7-13) is enabled, the torque decreases to 0 after the frequency becomes 0.

5. Brake applied
   The AC drive enters the flux holding stage after the brake applying stage is over. At this time, the AC drive performs excitation according to the pre-excitation current defined by F6-05 for the time period defined by B7-10. During this process, the IGBT is not turned off, ensuring that the AC drive can quickly respond to a command and restart. You can set B7-10 (Excitation holding time after stop) to 0 to disable the flux holding function.

After the flux holding stage, the AC drive stops running and waits for restart.

Note

- The brake release and brake applying frequency of the drive and the brake release current cannot be set to low values to prevent the shorting stator braking mode upon brake release or applying.
- In vertical applications, the braking resistor must be installed, and B7-12 (start direction) must be set to 1 (forward run).
- When the brake control is effective, the startup protection function (F8-21) is forcibly enabled, and the overcurrent suppression function (F3-19) and overvoltage suppression function (F3-22) are forcibly disabled.

4.6 Faults and Protection

4.6.1 Startup Protection

Set F8-21 (F8-21 = 1) to enable the startup protection of the AC drive. This helps to avoid unexpected motor running at power-on or fault reset.

Startup protection can be used in the following scenarios:

- If the running command is valid when the AC drive is powered on (for example, an input terminal is ON before power-on), the AC drive does not respond to the command. The AC drive responds only after the running command is canceled and becomes valid again.
- If the running command is valid when the AC drive fault is reset, the AC drive does not respond to the running command. The startup protection can be disabled only after the running command is canceled.

Related Parameters

Parameter No.	Parameter Name	Default Value	Setting Range	Parameter Description
F8-21	Startup protection	0	0: Disabled 1: Enabled	This helps to avoid unexpected motor running at power-on or fault reset.

4.6.2 Undervoltage and Fast Current Limit Protection

When the bus voltage is lower than the value of A5-06, the AC drive reports a fault.

Related Parameters

Parameter No.	Parameter Name	Default Value	Setting Range	Parameter Description
A5-04	Fast current limit	1	0: Disabled 1: Enabled	This function is used to minimize the overcurrent faults, ensuring normal running of the AC drive. It is recommended to disable this function in hoist applications such as cranes.
A5-06	Undervoltage threshold	Three-phase 400 V: 350.0 V Single-phase 200 V: 200.0 V	150.0 V to 455.0 V	If the bus voltage is lower than the value of A5-06 when the AC drive is running, the AC drive reports E09.00. If the bus voltage is lower than the value of A5-06 when the AC drive stops, the AC drive reports A09.00.

4.6.3 Output Phase Loss Protection

Parameter No.	Parameter Name	Default Value	Setting Range	Parameter Description
F9-06	Output phase loss detection before startup	0	0: Disabled 1: Enabled	It takes about several seconds to detect output phase loss during running. In low-frequency running application or application where risks exist in start with phase loss, this function enables quick detection output phase loss during startup. In applications which have strict requirements on start time, do not use this function.
F9-48	Fault protection action selection 1	10050	Ones position: Motor overload (E11) 0: Coast to stop 1: Decelerate to stop 2: Restart upon fault 4: Alarm 5: Canceled Tens position: Reserved 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Canceled Hundreds position: Output phase loss (E13) 0: Coast to stop 1: Decelerate to stop 2: Special action 4: Alarm 5: Canceled Thousands position: IGBT overheat (E14) 0: Coast to stop Ten thousands position: External equipment fault (E15) 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Canceled	The fault protection actions are set through the ones, tens, hundreds, thousands, and ten thousands positions of this parameter. 0: Coast to stop The AC drive coasts to stop. 1: Decelerate to stop The AC drive decelerates to stop. 2: Restart upon fault The AC drive restarts upon fault. 4: Alarm The AC drive continues to run. 5: Canceled The fault detection is disabled.

4.6.4 Overheat Protection

Related Parameters

Para. No.	Name	Default	Value Range	Description
F9-57	Motor overheat protection threshold 1	110°C	0°C to 200°C	When the motor temperature measured by the sensor connected to the hardware source mapped to AI1 exceeds the value of F9-57 (motor overheat protection threshold 1), the AC drive reports a motor overtemperature fault (E45.00) and acts according to F9-53 (fault protection action selection 6).
F9-58	Motor overheat pre-warning threshold 1	90°C	0°C to 200°C	When the motor temperature measured by the sensor connected to the hardware source mapped to AI1 exceeds the value of F9-58 (motor overheat pre-warning threshold 1) and the function of the DO terminal is set to 9 (motor overtemperature), the DO terminal outputs an active signal.
F9-59	Motor overheat protection threshold 2	110°C	0°C to 200°C	When the motor temperature measured by the sensor connected to the hardware source mapped to AI2 exceeds the value of F9-59 (motor overheat protection threshold 2), the AC drive reports a motor overtemperature fault (E45.00) and acts according to F9-53 (fault protection action selection 6).
F9-60	Motor overheat pre-warning threshold 2	90°C	0°C to 200°C	When the motor temperature measured by the sensor connected to the hardware source mapped to AI2 exceeds the value of F9-60 (motor overheat pre-waring threshold 2) and the function of the DO terminal is set to 9 (motor overtemperature), the DO terminal outputs an active signal.
F9-61	Motor overheat protection threshold 3	110°C	0°C to 200°C	Motor overheat protection threshold 3 When the motor temperature measured by the sensor connected to the hardware source mapped to AI3 exceeds the value of F9-61 (motor overheat protection threshold 3), the AC drive reports a motor overtemperature fault (E45.00) and acts according to F9-53 (fault protection action selection 6).
F9-62	Motor overheat pre-warning threshold 3	90°C	0°C to 200°C	Motor overheat pre-warning threshold 3 When the motor temperature measured by the sensor connected to the hardware source mapped to AI3 exceeds the value of F9-62 (motor overheat pre-waring threshold 3) and the function of the DO terminal is set to 9 (motor overtemperature), the DO terminal outputs an active signal.

4.6.5 Overload Protection

To effectively protect motors with different loads, set the overload protection gain of motors based on their overload capacity. The motor overload protection curve is an inverse time delay curve, as shown in the following figure.

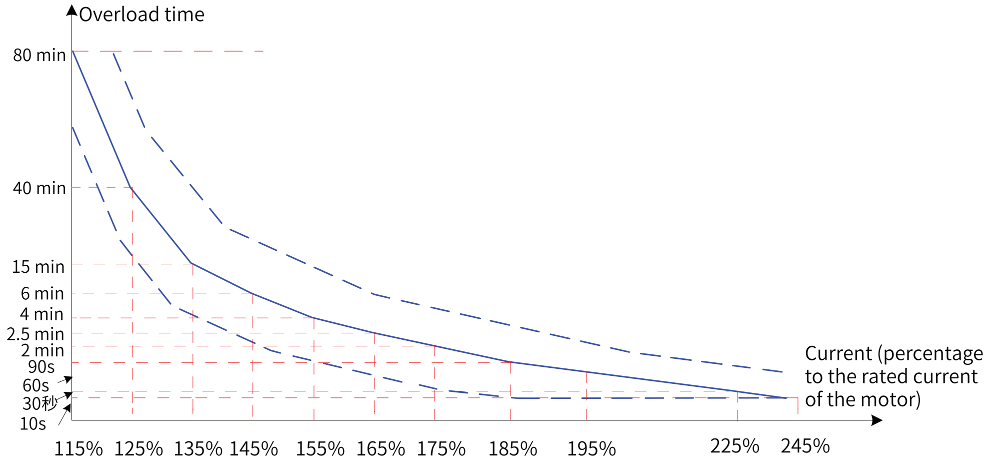


Figure 4-65 Inverse time delay curve of protection

When the running current reaches 175% of the rated motor current and the motor runs at this level for 2 minutes, or when the running current reaches 115% of the rated motor current and the motor runs at this level for 80 minutes, the motor overload fault (E11.00) is reported.

1. Example 1

   If the rated motor current is 100 A, when the running current reaches 125 A (125% of 100 A) and the motor runs at 125 A for 40 minutes, the AC drive reports the motor overload fault (E11.00).

Note

The maximum overload time is 80 minutes and the minimum overload time is 10 seconds.

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2. Example 2

   The AC drive reports a motor overload fault after the motor runs for 2 minutes at 150% of the rated current. As shown in the overload curve, 150% (I) of the rated current falls between 145% (I1) and 155% (I2) of the rated current. The overload fault reporting time for 145% of the rated current is 6 minutes (T1), and that for 155% of the rated current is 4 minutes (T2). Therefore, the overload fault reporting time for 150% of the rated current is 5 minutes by default. The calculation is as follows.

   “T = T1 + (T2 – T1) x (I – I1) / (I2 – I1) = 4 + (6 – 4) x (150% – 145%) / (155% – 145%) = 5 (minutes)”

   To report the overload fault after the motor runs continuously for 2 minutes at 150% of the rated current, set the motor overload protection gain according to the following calculation: F9-01 = Desired overload protection time/Default overload protection time = 2/5 = 0.4.

Caution

Set F9–01 properly based on the actual overload capacity of the motor. Note that setting F9–01 to an excessively high value may easily result in motor damage caused by overtemperature without warning.

When the motor overload detection level reaches the set motor overload pre-warning coefficient, the DO or fault relay outputs the motor overload pre-warning signal. The motor overload pre-warning coefficient is the percentage of time during which the motor runs continuously without reporting an overload fault.

For example, if the motor overload protection gain is set to 1.00 and the motor overload pre-warning coefficient is set to 80%, when the motor running current reaches 145% of the rated motor current and the motor runs at this level for 4.8 minutes (80% x 6), the DO terminal or fault relay outputs the motor overload pre-warning signal.

The motor overload pre-warning function enables the AC drive to send a warning signal to the control system through the DO before motor overload protection starts. The pre-warning coefficient is used to determine how early to send the pre-warning signal before the motor overload protection starts. The larger the value is, the later the pre-warning signal is sent. When the accumulative output current of the AC drive is greater than the overload time (value Y of the motor overload protection inverse time delay curve) multiplied by the motor overload pre-warning coefficient (F9-02), the multi-functional DO terminal of the AC drive outputs a motor overload pre-warning signal. When F9-02 is set to 100%, the motor overload pre-warning and motor overload protection are performed simultaneously.

Related Parameters

Para. No.	Name	Default	Value Range	Description
F9-00	AC drive overload protection	0	0: Disabled 1: Enabled	This parameter specifies whether to enable or disable the motor overload protection function. The AC drive determines whether the motor is overloaded according to the inverse time delay curve. When motor overload is detected, the AC drive will report an overload fault. 0: Disabled The motor overload protection function is disabled. If this parameter is set to 0, install a thermal relay before the motor for protection starts. 1: Enabled The motor overload protection function is enabled.
F9-01	Motor overload protection gain	1.00	0.20 to 10.00	The motor overload protection gain is calculated according to the percentage of time during which the motor runs continuously at a certain overload threshold without reporting an overload fault. It is used to adjust the actual overload fault report time of the AC drive when motor overload occurs.
F9-02	Motor overload pre-warning coefficient	80%	50% to 100%	The motor overload pre-warning coefficient is calculated according to the percentage of time during which the motor runs continuously at a certain overload threshold without reporting overload pre-warning. A pre-warning signal is sent to the control system through DO before motor overload protection starts. This signal is used to determine how early to send the pre-warning signal before the motor overload protection starts. The larger the value is, the later the pre-warning signal is sent. When the accumulative output current of the AC drive is greater than the overload time (value Y of the motor overload protection inverse time delay curve) multiplied by the motor overload pre-warning coefficient (F9-02), the multi-functional DO terminal of the AC drive outputs a motor overload pre-warning signal.

4.6.6 Load Loss Protection

Set the ten thousands position of F9-51 to enable load loss detection. When the output current of the AC drive falls below F9-68 (Load loss detection level) for longer than the value of F9-69 (Load loss detection time), the AC drive performs load loss protection action.

Parameter No.	Parameter Name	Default Value	Setting Range	Parameter Description
F9-51	Fault protection action 4	51111	-	The fault protection actions are set through the ones, tens, hundreds, thousands, and ten thousands positions of this parameter. 0: Coast to stop The AC drive coasts to stop. 1: Decelerate to stop The AC drive decelerates to stop. 4: Alarm The AC drive continues to run. 5: Canceled The fault detection is disabled.
F9-68	Load loss detection level	10.0%	0.0% to 100.0%	When the output current of the AC drive falls below F9-68 (Load loss detection level) for longer than the time set by F9-69 (Load loss detection time), the AC drive performs load loss protection action (selected through F9-49).
F9-69	Load loss detection time	1.0s	0.1s to 60.0s	

4.6.7 Speed Error Protection

The excessive speed error detection function is valid when the SVC mode is selected for the AC drive (F0-01 = 1).

When the detected motor speed is different from the frequency reference and the difference is larger than the value of F9-73 (Detection level of speed error) for longer than the time set by F9-74 (Detection time of speed error), the AC drive reports the excessive speed deviation fault (E42.00) and acts as selected by F9-50 (Fault protection action selection).

If F9-73 (Detection level of speed error) is set to 0.0% or F9-74 (Detection time of speed error) is set to 0.0s, the excessive speed error detection function is s disabled.

Related Parameters

Parameter No.	Parameter Name	Default Value	Setting Range	Parameter Description
F9-73	Detection level of excessive speed deviation	20.0%	0.0% to 50.0% (maximum frequency)	-
F9-74	Detection time of excessive speed deviation	5.0s	0.0s to 60.0s	

4.6.8 Power Dip Ride-Through Function

The power dip ride-through function enables the system to run continuously at occurrence of instantaneous power loss. When an instantaneous power loss occurs, the AC drive keeps the motor in the power generation state to keep the bus voltage at a value around the "Threshold of power dip ride-through function enabled", preventing the AC drive from stopping due to undervoltage, as shown in the following figure.

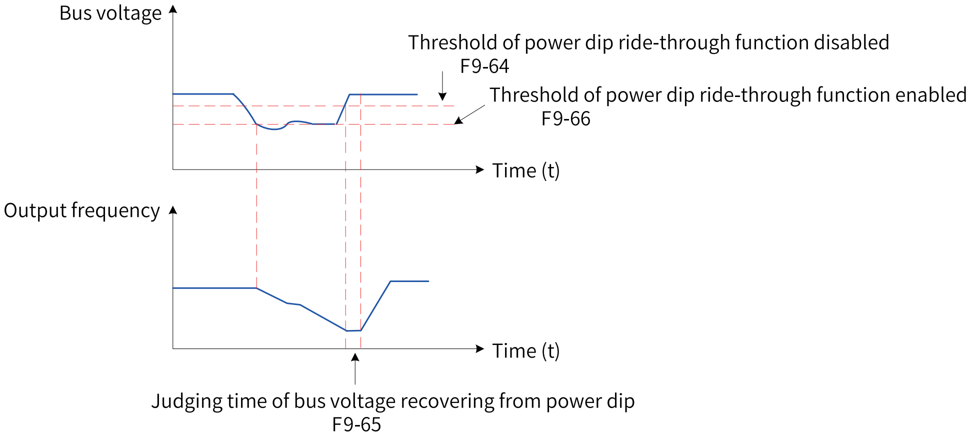


Figure 4-66 Power dip ride-through

In the bus voltage constant control mode, when line voltage recovers, the AC drive output frequency increases gradually to the target frequency based on the acceleration time. In the decelerate to stop mode, when the line voltage recovers, the AC drive decelerates to 0 Hz and stops. The AC drive will start again only when a new startup command is received.

Related Parameters

Parameter No.	Parameter Name	Default Value	Setting Range	Parameter Description
F9-63	Power dip ride-through function selection	0	0: Disabled 1: Decelerate 2: Decelerate to stop	The function enables the AC drive to run continuously at occurrence of instantaneous power loss. When an instantaneous power loss occurs, the AC drive keeps the motor in the power generation state to keep the bus voltage at a value around the "Threshold of power dip ride-through function enabled", preventing the AC drive from stopping due to undervoltage. 0: Disabled The power dip ride-through function is disabled. 1: Bus voltage constant control When a power loss occurs, the bus voltage is retained at a value around the "Threshold of power dip ride-through function enabled". In this mode, when the line voltage recovers, the AC drive accelerates to the target frequency based on the acceleration time. 2: Decelerate to stop When a power loss occurs, the AC drive decelerates to stop. In this mode, when the line voltage recovers, the AC drive decelerates to 0 Hz and stops. The AC drive will start again only when a new startup command is received. "Bus voltage constant control" is applicable to large-inertia applications such as fan, water pump and centrifuge. "Decelerate to stop" is applicable to the textile industry.
F9-64	Threshold of power dip ride-through function disabled	8.5%	8.0% to 10.0%	Used to set the threshold of power dip ride-through function disabled for the AC drive. 100% corresponds to 540 V. This value is slightly lower than the bus voltage before power loss. Upon power loss, the bus voltage is maintained at about F9-66 (Threshold of power dip ride-through function enabled). When the power supply recovers, the bus voltage rises from F9-66 (Threshold of power dip ride-through function enabled) to F9-64 (Threshold of power dip ride-through function disabled). During this period, the output frequency of the AC drive keeps decreasing until the bus voltage reaches F9-64 (Threshold of power dip ride-through function disabled).
F9-65	Judging time of bus voltage recovering from power dip	0.5s	0.0 to 100.0s	Used to set the time required for the bus voltage to rise from F9-64 (Threshold of power dip ride-through function disabled) to the voltage before power loss.

Parameter No.	Parameter Name	Default Value	Setting Range	Parameter Description
F9-66	Threshold of power dip ride-through function enabled	80%	60% to 100%	Used to set the voltage level at which the bus voltage is maintained upon power loss. When a power loss occurs, the bus voltage is retained at a value around F9-66 (Threshold of power dip ride-through function enabled).
F9-75	Power dip ride-through gain	0 to 100	40	This parameter is valid only in bus voltage constant control (F9-59 = 1). If undervoltage occurs frequently during power dip ride-through, increase the power dip ride-through gain and coefficient.
F9-76	Power dip ride-through integral	0 to +100	30	
F9-77	Deceleration time of power dip ride-through	0 to 300.0s	20.0s	This parameter is valid only for the decelerate to stop mode (F9-59 = 2). When the bus voltage is lower than the value of F9-62, the AC drive decelerates to stop. The deceleration time is determined by this parameter instead of F0-18.

4.6.9 Fault Reset

AC drive hardware fault (E01), EEPROM fault (E21), short-circuit to ground fault (E23), and STO-BUFFER fault (E47.05) cannot be reset automatically or manually. They can only be reset after power down. The fault protection action is performed after the fault auto reset times is reached.

Relevant Parameters

Parameter No.	Parameter Name	Default Value	Setting Range	Parameter Description
F9-09	Fault auto reset times	0	0 to 20	Used to set the fault auto reset times of the AC drive when automatic fault reset is selected for the AC drive. If the reset times exceed the value of this parameter, the AC drive will remain in the faulty state.
F9-10	DO action during auto fault reset	1	0: Not act 1: Act	Used to decide whether the DO (assigned with function 3) acts during the fault auto reset if the fault auto reset function is selected.
F9-11	Auto fault reset interval	1.0s	0.1s to 100.0s	Used to set the delay of auto reset after the AC drive reports a fault.

4.6.10 Fault Protection Action Selection

The faults of this product are divided into five grades, and the serious grades of faults from high to low are: coast to stop, decelerate to stop, restart upon fault, alarm, and fault cancellation.

When alarm is selected as the fault protection action, the operating panel displays Axx.xx, such as "A16.02".

When cancellation is selected as the fault protection action, no prompt will be displayed when the corresponding fault occurs, so be careful when using this setting.

Related Parameters

Parameter No.	Parameter Name	Default Value	Setting Range	Parameter Description
F9-47	Fault protection action selection 0	500	Ones position: E2/E3/E4 0: Coast to stop 2: Restart upon fault Tens position: E5/E6/E7 0: Coast to stop 2: Restart upon fault Hundreds position: Reserved 5: Canceled Thousands position: E9 0: Coast to stop 2: Restart upon fault Ten thousands position: E10 0: Coast to stop 2: Restart upon fault	The fault protection actions are set through the ones, tens, hundreds, thousands, and ten thousands positions of this parameter. 0: Coast to stop The AC drive coasts to stop. 1: Decelerate to stop The AC drive decelerates to stop. 2: Restart upon fault The AC drive will restart upon faults. 4: Alarm The AC drive continues to run. 5: Canceled The fault detection is disabled.
F9-48	Fault protection action selection 1	10050	Ones position: E11 0: Coast to stop 1: Decelerate to stop 2: Restart upon fault 4: Alarm 5: Canceled Tens position: Reserved 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Canceled Hundreds position: E13 0: Coast to stop 1: Decelerate to stop 2: Restart upon fault 4: Alarm 5: Canceled Thousands position: E14 0: Coast to stop Ten thousands position: E15 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Canceled	The fault protection actions are set through the ones, tens, hundreds, thousands, and ten thousands positions of this parameter. 0: Coast to stop The AC drive coasts to stop. 1: Decelerate to stop The AC drive decelerates to stop. 2: Restart upon fault The AC drive will restart upon faults. 4: Alarm The AC drive continues to run. 5: Canceled The fault detection is disabled.

Parameter No.	Parameter Name	Default Value	Setting Range	Parameter Description
F9-49	Fault protection action selection 2	00050	Ones position: E16 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Canceled Tens position: Reserved 5: Canceled Hundreds position: Reserved 0: Coast to stop Thousands position: E19 0: Coast to stop 4: Alarm 5: Canceled Ten thousands position: Reserved 5: Canceled	The fault protection actions are set through the ones, tens, hundreds, thousands, and ten thousands positions of this parameter. 0: Coast to stop The AC drive coasts to stop. 1: Decelerate to stop The AC drive decelerates to stop. 2: Restart upon fault The AC drive will restart upon faults. 4: Alarm The AC drive continues to run. 5: Canceled The fault detection is disabled.
F9-50	Fault protection action selection 3	25000	Ones position: E21 0: Coast to stop Tens position: E22 0: Coast to stop Hundreds position: E23 0: Coast to stop 5: Canceled Thousands position: Reserved 5: Canceled Ten thousands position: E25 2: Special action 5: Canceled	The fault protection actions are set through the ones, tens, hundreds, thousands, and ten thousands positions of this parameter. 0: Coast to stop The AC drive coasts to stop. 1: Decelerate to stop The AC drive decelerates to stop. 2: Special action The AC drive will stop according to the stop command sent by the power supply unit. 4: Alarm The AC drive continues to run. 5: Canceled The fault detection is disabled.
F9-51	Fault protection action selection 4	51111	Ones position: E26 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Canceled Tens position: E27 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Canceled	The fault protection actions are set through the ones, tens, hundreds, thousands, and ten thousands positions of this parameter. 0: Coast to stop The AC drive coasts to stop. 1: Decelerate to stop The AC drive decelerates to stop. 4: Alarm The AC drive continues to run. 5: Canceled

Parameter No.	Parameter Name	Default Value	Setting Range	Parameter Description
			Hundreds position: E28 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Canceled Thousands position: E29 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Canceled Ten thousands position: E30 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Canceled	The fault detection is disabled.
F9-52	Fault protection action selection 5	00101	Ones position: E31 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Canceled Tens position: Reserved 5: Canceled Hundreds position: Reserved 5: Canceled Thousands position: E42 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Canceled Ten thousands position: E43 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Canceled	The fault protection actions are set through the ones, tens, hundreds, thousands, and ten thousands positions of this parameter. 0: Coast to stop The AC drive coasts to stop. 1: Decelerate to stop The AC drive decelerates to stop. 4: Alarm The AC drive continues to run. 5: Canceled The fault detection is disabled.
F9-53	Fault protection action selection 6	05500	Ones position: E45 0: Coast to stop 1: Decelerate to stop 4: Alarm 5: Canceled	The fault protection actions are set through the ones, tens, hundreds, thousands, and ten thousands positions of this parameter. 0: Coast to stop The AC drive coasts to stop.

Parameter No.	Parameter Name	Default Value	Setting Range	Parameter Description
			Tens position: Reserved 5: Canceled Hundreds position: Reserved 5: Canceled Thousands position: Reserved 5: Canceled Ten thousands position: E80 0: Coast to stop 1: Decelerate to stop 5: Canceled	1: Decelerate to stop The AC drive decelerates to stop. 4: Alarm The AC drive continues to run. 5: Canceled The fault detection is disabled.
F9-54	Frequency for continuing to run upon fault	0	0: Current running frequency 1: Frequency reference 2: Frequency upper limit 3: Frequency lower limit 4: Backup frequency upon abnormality	Used to select the frequency when the AC drive is faulty. If a fault occurs during the running of the AC drive and the fault protection action is set to "Continue to run", the AC drive displays A** and continues to run at the frequency set by F9-54.
F9-55	Backup frequency upon abnormality	100.0%	0.0% to 100.0%	Used to set the backup frequency of the AC drive upon fault. If a fault occurs during the running of the AC drive and the fault protection action is set to "Run at the backup frequency" (F9-54 = 4), the AC drive displays A** and continues to run at the backup frequency.

4.6.11 Short-circuit to Ground Detection

Parameter No.	Parameter Name	Default Value	Setting Range	Parameter Description
F9-07	Detection of short-circuit to ground	1	0: No detection 1: Detection upon power-on	Used to enable or disable the short-circuit to ground detection function.

4.7 STO Safety Function

4.7.1 Standards Compliance

- European directives
  - Low Voltage Directive 2014/35/EU, EN 61800-5-1 standard
  - EMC Directive 2014/30/EU, EN 61800-3 standard

- Machinery Directive 2006/42/EC (functional safety)

- Safety standards

Table 4–36 Safety standards

Item	Standards Compliance
Mechanical and electrical safety	ISO 13849-1: 2015 IEC 60204-1: 2016
Functional safety	IEC 61508: 2010, parts 1–7 IEC 62061: 2015 IEC 61800-5-2: 2016
Electromagnetic compatibility (EMC)	IEC 61326-3-1

- Safety performance

Table 4–37 Safety performance

Item	Standard	Performance Indicator
Safety integrity level (SIL)	IEC 61508 IEC 62061	SIL3 SILCL3
Probability of failure per hour (PFH)	IEC 62061 IEC 61508	PFH = 1.94 x 10^{-9}[1/h] PFH = 1.10 x 10^{-9}[1/h]
Performance level (PL)	ISO 13849-1	PL e (Cat 3)
Mean time to dangerous failure (MTTFd)	ISO 13849-1	MTTFd: High
Diagnostic coverage (DC)	ISO 13849-1	DCave: Medium
Stop category	IEC 60204-1	Stop category 0
Service time	IEC 61508	5 years
Hardware fault tolerance	IEC 61508	1
Systematic capability	IEC 61508	3
Application mode	IEC 61508	High requirements mode
Response time	-	20 ms

4.7.2 Specifications

- The product complies with the overvoltage category II requirements set in IEC 61800-5-1:2016 in terms of electrical safety.
- The environmental test requirements comply with IEC 61800-5-1:2016.
- The AC drive complies with the following EMC standards: IEC 61800-3:2017, IEC 61326-3-1, and IEC 61800-5-2.

Table 4–38 Environment and operation requirements

Item	Description
Ambient/Storage temperature	0 to 55°C/–20°C to +70°C
Ambient/Storage humidity	20% to 95% RH (non-condensing)
Vibration	*"Table 4–39 Vibration" on page 587*
IP rating/Pollution degree (PD)	IP 20;

Item	Description
	PD 2: No corrosive or explosive gases; no contact with water, oil, or chemicals; no dust, salt, or iron filings
Altitude	Not higher than 3000 m
Cooling mode	Clean air (natural convection)
Others	No static electricity, no strong electromagnetic field, no magnetic field, and no radioactivity

Table 4–39 Vibration

Item	Test Condition
Test reference	See IEC 60068-2-6 4.6.
Condition	EUT is powered on and works properly.
Motion mode	Sinusoidal
Amplitude/Acceleration rate	-
10 Hz ⩽ f ⩽ 57 Hz	0.075 mm amplitude
57 Hz < f ⩽ 150 Hz	1 g
Vibration duration	10 times on each of the three mutually perpendicular axes
Axis	X, Y, Z
Installation	According to the manufacturer's specifications

4.7.3 Installation

Before use, configure the two independent inputs STO1/STO2 as two-channel inputs for the STO function.

For devices with the STO function, if the STO function is not required, STO1/STO2 can be connected to 24V at the same time to ensure normal operation of the devices.

4.7.4 Terminals and Connection

Terminal Arrangement and Definitions

The STO function is integrated in the drive unit, and its terminal arrangement and definitions are as follows.

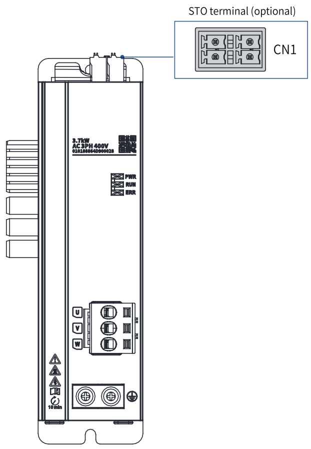
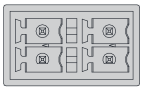


Figure 4-67 STO terminal arrangement of the drive unit (single-axis)

Table 4–40 STO terminal (optional) description of the drive unit (single-axis)

Appearance	Terminal Code	Terminal Name	Specifications
STO2 2GND  STO1 1GND	STO1	STO channel 1 power supply+	24 V input
	1GND	STO channel 1 power supply-	
	STO2	STO channel 2 power supply+	
	2GND	STO channel 2 power supply-	

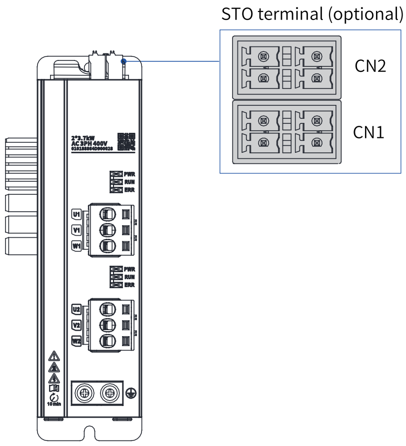
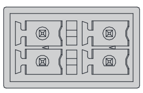


Figure 4-68 STO terminal arrangement of the drive unit (dual-axis)

Table 4–41 STO terminal (optional) description of the drive unit (dual-axis)

Appearance	Terminal Code	Terminal Name	Specifications
STO2 2GND  STO1 1GND	STO1	STO channel 1 power supply+	24 V voltage input, voltage fluctuation range ± 10%
	1GND	STO channel 1 power supply-	
	STO2	STO channel 2 power supply+	
	2GND	STO channel 2 power supply-	

Electrical Specifications and Connection of the Input Circuit

- Specifications

Table 4–42 Specifications

Signal	Input state	Description
STO1	"1" or "H"	The AC drive works normally.
	"0" or "L"	The STO function is enabled.
STO2	"1" or "H"	The AC drive works normally.
	"0" or "L"	The STO function is enabled.

- Electrical characteristics

Table 4–43 Electrical characteristics of safety input signals

Item	Feature	Description
Voltage range	24 VDC (±15%)	-
Input current	4 mA (Typ.)	Value of each channel
Logic level standard	"0" < 3 V, "1" > 15 V	-
Digital input impedance	5.78 kΩ	-

- Connection example

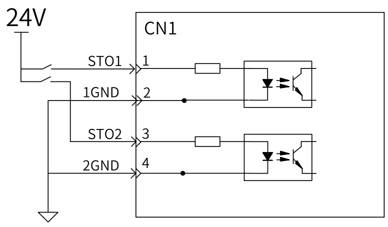


Figure 4-69 Connection example

EMC Requirements

1. To avoid short circuits between two adjacent conductors, shielded cables can be used with shielded layers connected to the connection protection ground, or flat wires can be used with a ground wire inserted between each signal conductor.
2. SFTP or STP is recommended.
3. Secure and ground the cable shroud with conductive metal sheets.

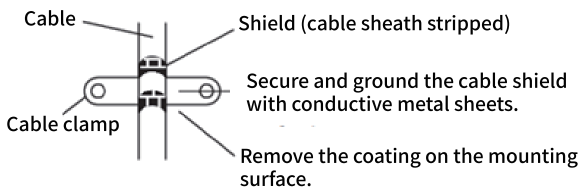


Figure 4-70 Cable clamp

4. The maximum cable length allowed between the AC drive and safety switch is 30 m.

4.7.5 Commissioning, Running, and Maintenance Requirements

Basic Requirements

- Technicians must be trained to understand the requirements and principles for the design and operation of safety-related systems.
- Execution and maintenance personnel must be trained on the requirements and principles for the design and operation of safety-related systems.
- Operation personnel must be trained to understand the requirements and principles for the design and operation of safety-related systems.
- If any safety-related circuit on the control board does not work, which is irreparable, the control board must be replaced.

Commissioning List

IEC 61508, EN IEC 62061 and EN ISO 13849 require the equipment to pass acceptance tests to verify the operation of safety functions. Acceptance testing must be performed at the following stages:

- Initial startup of the safety function
- After any changes related to safety functions (wiring, assembly, settings, or other related operations)
- After any maintenance work related to safety functions is completed

Acceptance testing of safety functions must be performed by personnel with safety function expertise and must be documented and signed by the testers. Technicians and operation/maintenance/repair personnel must be trained to understand the requirements and principles for the design and operation of safety-related systems.

The signed acceptance test report must be kept in the log of the equipment. The report shall include documentation of start-up activities and test results, fault reports, and troubleshooting records. Any new acceptance tests due to changes or maintenance shall be recorded in the log.

Table 4–44 Acceptance test checklist

Step	Test	Result
1	Ensure that the AC drive can run and stop freely during commissioning.	
2	Stop the AC drive (if running), turn off the input power, and isolate the AC drive from the power cable through a disconnecter.	
3	Check the STO circuit connection according to the circuit diagram.	
4	Check that the shield of the STO input cable is grounded to the drive frame.	
5	Turn off the disconnecter and connect the power supply.	
	When the motor stops, test the STO 1 channel signal: Set STO1 and STO2 to H. Issue an AC drive stop command (if running) and wait for the motor shaft to stop. Enable the STO function by disconnecting (low state or open circuit) the STO 1 channel input signal and issue a start command for the AC drive. Make sure the motor stays still and the AC drive display shows "STO".	
	The STO1 channel signal is restored and the fault is cleared. Use the ON/RUN command of the AC drive, and check that the motor works normally.	

Step	Test	Result
	When the motor stops, test the STO 2 channel signal: Set STO1 and STO2 to H. Issue an AC drive stop command (if running) and wait for the motor shaft to stop. Enable the STO function by disconnecting (low state or open circuit) the STO 2 channel input signal and issue a start command for the AC drive. Make sure the motor stays still and the AC drive display shows "E47.02".	
	The STO2 channel signal is restored and the fault is cleared. Use the ON/RUN command of the AC drive, and check that the motor works normally.	
6	When the motor is running, test the STO 1 channel signal: Set STO1 and STO2 to H. Start the AC drive and check that the motor runs normally. Enable the STO function by disconnecting (low state or open circuit) the STO 1 channel input signal. Make sure the motor stops, reset the fault and try to start the AC drive. Make sure the motor stays still and the AC drive display shows "E47.02".	
	The STO1 channel signal is restored and the fault is cleared. Use the ON/RUN command of the AC drive, and check that the motor works normally.	
	When the motor is running, test the STO 2 channel signal: Set STO1 and STO2 to H. Start the AC drive and check that the motor runs normally. Enable the STO function by disconnecting (low state or open circuit) the STO 2 channel input signal. Make sure the motor stops and the drive trips. Reset the fault and try to start the AC drive. Make sure the motor stays still and the AC drive display shows "E47.02".	
	The STO2 channel signal is restored and the fault is cleared. Use the ON/RUN command of the AC drive, and check that the motor works normally.	
7	Record and sign the acceptance test report to prove that the safety function is safe and the equipment can be put into operation.	

Special Requirements

To achieve SIL 3 performance level E (Cat3), the AC drive must be powered off every 3 months and powered on again for startup diagnosis.

4.7.6 Safety Function and Monitoring

Description of Safety Function

Safety torque off (STO) is a safety function that complies with IEC 61800-5-2:2016. This product is integrated with the STO function. The STO function disables the power semiconductor control signal at the drive output end to prevent the AC drive from generating torque at the motor shaft end. The STO function blocks the output of PWM signals to the power layer of the AC drive through external redundant hardware terminals STO1 and STO2, thus preventing the movement of the motor. These two + 24VDC signals must be active to enable normal operation of the AC drive. If either or both of them are at low level simultaneously, the PWM signal will be blocked in the next 20 ms.

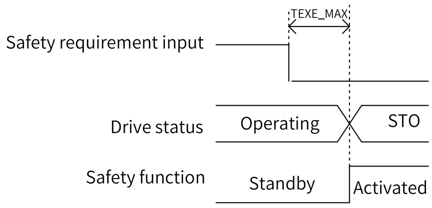


Figure 4-71 Safety function

Table 4–45 STO function

STO1 input	STO2 input	PWM signal
H	H	Normal
L	H	Disabled
H	L	Disabled
L	L	Disabled

Table 4–46 STO description

Item	Description
Definition	Used to cut off the power of the engine.
Description	The STO function enables the equipment to safely enter a torque-free state and prevents accidental start-up. If the STO function is activated when the motor is running, the motor gradually stops.
Safety state	Used to disable the PWM gating signal of the AC drive.
Operation mode	High requirements or continuous mode

Example of Safety Function

Direct stop with stop category 0 and STO

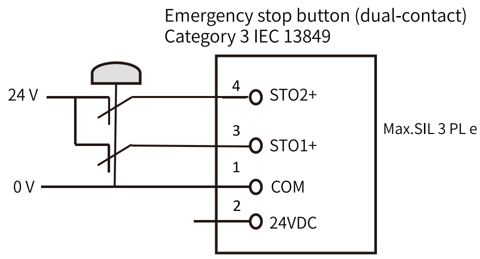


Figure 4-72 Example of safety function

Safety Function Monitoring

The LED display displays the selected mode, status, and fault code of the AC drive, as listed in the table below.

Table 4–47 Fault codes related to the STO function

Fault Code	State	Description
ST0	External request to activate the STO function	STO1/STO2 are all in the "Low" state.
E47.02	STO1/STO2 state inconsistent	Only one of STO1 and STO2 is in 'Low' state. The states of STO1 and STO2 are inconsistent.
E47.03	Activated STO diagnostic	OV/UV of 5 V power supply is detected.
E47.04	Activated STO diagnostic	The STO input circuit is abnormal.
E47.05	Activated STO diagnostic	The STO blocking output chip is abnormal.

Exiting the STO State

F9-13 can be set to select the safe state exiting mode when the AC drive enters the safety state through the STO function.

- When F9-13 is set to 0, the manual reset mode is used (default state).
  When all the following conditions are met at the same time, the safety state can be cleared and the AC drive resumes normal operation.

  1. The input state of STO must be "high" for both channels.
  2. The AC drive is manually reset to clear the STO state.

- When F9-13 is set to 1, the automatic reset mode is used.
  When the following condition is met, the safety state can be cleared and the AC drive resumes normal operation.

  The input state of STO must be "high" for both channels.

4.7.7 Troubleshooting

See the following table for the causes and solutions of failures. If the problem cannot be solved through the solutions in the following table, contact the agent or Inovance for technical support.

Table 4–48 Fault causes and solutions

Fault Code	Possible Cause	Solution
ST0	STO1/STO2 is not connected to 24 V input voltage.	Connect STO1 and STO2 to 24 V input voltage signals.
E47.02	The input states of STO1 and STO2 are inconsistent.	1 Ensure that STO1 and STO2 voltage disconnection requests are triggered at the same time. 2 The input circuit is abnormal. After disconnecting the 24 V signal, an STO input signal is still in "High" state. In this case, contact the agent or Inovance for technical support.
E47.03	OV/UV of 5 V power supply is detected.	Recover the 5 V power supply to normal state. Contact the agent or Inovance for technical support.
E47.04	The STO input circuit is abnormal.	Contact the agent or Inovance for technical Support.
E47.05	The STO pre-charge circuit is faulty.	Contact the agent or Inovance for technical support.

4.7.8 Preventive Measures

This section describes the information required before starting operation. Before operation, read the following safety precautions, risk assessment information, and restriction information, and use the safety features only after you have properly understood all the information.

Safety Measures

Carefully read and observe the following important precautions when using safety features:

- The STO function is not a substitute for the emergency stop (E-stop) function. If no other measures are taken and the power supply cannot be cut off in case of emergency, the high voltage parts of motors and AC drives are still live, which brings the risk of electric shock or other risks caused by electricity. Therefore, the maintenance of electrical parts of the AC drives or motors can be implemented only after the AC drive system is isolated from the main power supply.
- STO may be used as an integral part of an E-stop system, depending on the standards and requirements for a particular application. However, it is mainly used for a dedicated safety control layout to prevent hazards, not as the E-stop function.
- An E-stop is often provided in a machine to enable the operators to take action to prevent accidents when they see a hazard in an unexpected situation.
- The design requirement for an E-stop differs from that of a safety interlock. Generally, the E-stop is required to be independent from any complex or intelligent control. It may use purely electromechanical devices to either disconnect the power or initiate a controlled rapid stop using other means such as dynamic or regenerative braking.

Note

When using a permanent-magnet motor, reluctance motor, or non-salient induction motor, there is a small possibility that a fault in the drive power stage could result in a momentary alignment torque in the motor, even if the STO function has been correctly activated. The drive system can produce an alignment torque which maximally rotates the motor shaft by up to 180° electrical, for a permanent magnet motor, or 90° electrical, for a non-salient pole induction motor or reluctance motor. This possible failure mode must be allowed for in the machine design.

The motor could rotate by a maximum of 360°/p (where p is the number of pole pairs).

Caution

The design of safety-related systems requires specialist knowledge. To ensure that a complete control system is safe， it is necessary for the whole system to be designed according to recognized safety principles. The use of individual sub-systems such as drives with Safe Torque Off functions, which are intended for safety-related applications, does not in itself ensure that the complete system is safe.

- In case of emergency stop, the STO function can be used to stop the AC drive. In normal operating mode, the STO function is not recommended to stop the AC drive. If the STO function is used to stop a running AC drive, the AC drive will stop gradually. If this is unacceptable, the system should use a correct mode to stop the AC drive rather than stopping the STO function.

The above safety precautions are the application guidance for the STO function, and also the design guidance for safety systems of mechanical control.

Note

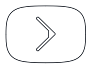
It is the responsibility of the designer of the end product or application to ensure safety and compliance with relevant regulations.

Risk Assessment

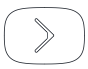
- When the STO function is used, a risk assessment of the drive system must be carried out in advance to ensure compliance with the standard safety integrity level.
- Even when the STO function is in use, there may be some residual risks. Therefore, safety must always be considered when conducting risk assessment.
- The motor will rotate when external forces (such as gravity on the vertical axis) are applied during use of the STO function. A separate mechanical brake must be used to secure the motor.
- If the drive fails, the motor can work within 180°, ensuring safety even in dangerous situations.
- The number of revolutions and movement distance for each type of motor are listed as follows.
  - Maximum revolution of the rotating motor: 1/6 (rotation angle of motor shaft)
  - Maximum revolution of the traction motor: 1/20 (rotation angle of motor shaft)
  - Maximum distance of the linear servo motor: 30 mm

4.8 Monitoring

The monitoring function enables you to view the AC drive state in the LED display area on the operating panel. You can monitor AC drive status in the following two ways:

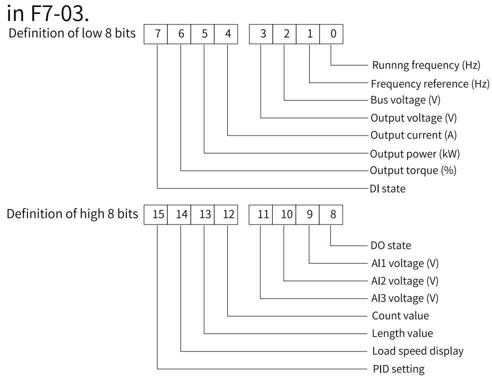
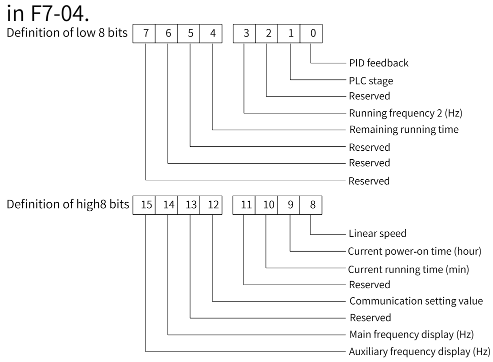
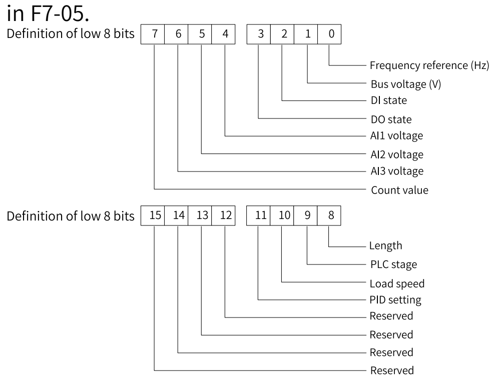
1. In the stop or running state, you can view multiple state parameters by pressing  on the operating panel to switch between bytes of F7-03, F7-04, and F7-05.
   In the running state, 32 running state parameters are available. You can select whether to display a parameter by setting the corresponding binary bit of F7-03 (LED display 1 in running state) and F7-04 (LED display 2 in running state). In the stop state, 13 stop state parameters are available. You can select whether to display a parameter by setting the corresponding binary bit of F7-05 (LED display in stop state).

   For example, to view the running frequency, bus voltage, output voltage, output current, output power, and PID reference on the panel, perform the following operations:

   Set corresponding bits to 1 according to the mapping between each byte of F7-03 (LED display in running state) and the preceding parameters. Convert the binary number to a hexadecimal equivalent, and set the hexadecimal number in F7-03. For details about the conversion, see the following table. Then you can press  on the operating panel and switch between bytes of F7-03 to view the related parameter values.

   You can view other monitoring parameters in the same way. The following table describes the mapping between the monitoring parameters and bytes of F7-03, F7-04, and F7-05.

Table 4–49 Mapping between monitoring parameters and bytes of F7-03, F7-04, and F7-05

<table>
<tr><th>Para. No.</th><th>Name</th><th>Default</th><th>Value Range</th><th>Description</th></tr>
<tr><td>F7-03</td><td>LED display 1 in running state</td><td>1F</td><td>0000 to FFFF</td><td>To display a parameter during running, set the corresponding bit to 1, convert the binary number to a hexadecimal equivalent, and set it in F7-03.

</td></tr>
<tr><td>F7-04</td><td>LED display 2 in running state</td><td>0</td><td>0000 to FFFF</td><td>To display a parameter during running, set the corresponding bit to 1, convert the binary number to a hexadecimal equivalent, and set it in F7-04.

</td></tr>
<tr><td>F7-05</td><td>LED display in stop state</td><td>33</td><td>0000 to FFFF</td><td>To display a parameter upon stop, set the corresponding bit to 1, convert the binary number to a hexadecimal equivalent, and set it in F7-05.

</td></tr>
</table>

Note

When the AC drive is powered on again after power-off, the parameters selected before power-off are displayed.

The monitoring parameters corresponding to each bit in F7-03, F7-04, and F7-05 do not completely correspond to all the monitoring parameters in group U0. If parameters to be monitored cannot be found in F7-03, F7-04 and F7-05, view them in group U0.

The following describes how to convert a binary number into a hexadecimal equivalent.

Divide the binary number into groups of 4 digits from right to left. Each digit group corresponds to a hexadecimal number. If the MSB is not the fourth bit, add 0s. Then, convert the divided binary bits into the decimal equivalent. 0000 to 1111 correspond to 0 to 15 in decimal and 0 to F in hexadecimal. Convert the decimal number into the hexadecimal equivalent according to the mapping between decimal and hexadecimal. (See the following table.)

For example, the binary number 011 1101 1111 1001 can be divided into 0011 1101 1111 1001. According to the following table, its hexadecimal equivalent is 3DF9.

Table 4–50 Converting a binary number into the hexadecimal equivalent

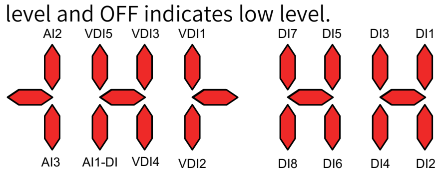
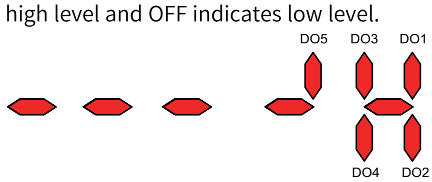
Binary	Decimal	Hexadecimal
1111	15	F
1110	14	E
1101	13	D
1100	12	C
1011	11	B
1010	10	A
1001	9	9
1000	8	8
111	7	7
110	6	6
101	5	5
100	4	4
11	3	3
10	2	2
1	1	1
0	0	0

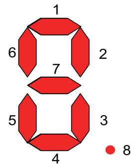
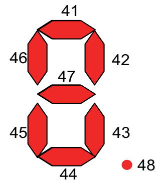
2. To view monitoring parameters, select group U0 on the operating panel. *"Table 4–51 Monitoring parameters in group U0" on page 597*The displayed monitoring parameters are read-only.

Table 4–51 Monitoring parameters in group U0

Para. No.	Name	Basic Unit	Value Range	Description
U0-00	Running frequency (Hz)	0.01 Hz	0.00 Hz to target frequency	Absolute value of the running frequency of the AC drive
U0-01	Frequency reference (Hz)	0.01 Hz	0.00 Hz to target frequency	Absolute value of the frequency reference of the AC drive
U0-02	Bus voltage (V)	0.1 V	0.0 V to 3000.0 V	Bus voltage of the AC drive
U0-03	Output voltage (V)	1 V	0 V to 1140 V	Output voltage of the AC drive during running
U0-04	Output current (A)	0.01 A	0.00 A to 655.35 A	Output current of the AC drive during running
U0-05	Output power (kW)	0.1 kW	0.0 kW to 3276.7 kW	Output power of the AC drive during running
U0-06	Output torque (%)	0.10%	–200.0% to +200.0%	Output torque of the AC drive during running. The percentage base is the rated motor torque.
U0-07	DI state	1	-	Input state of the DI terminal of the AC drive Bit0: DI1 Bit1: DI2

Para. No.	Name	Basic Unit	Value Range	Description
				Bit2: DI3 Bit3: DI4 Bit4: DI5 Bit5: DI6 Bit6: DI7 Bit7: DI8 Bit8: VDI1 Bit9: VDI2 Bit10: VDI3 Bit11: VDI4 Bit12: VDI5 Bit13: AI1-DI Bit14: AI2-DI Bit15: AI3-DI
U0-08	DO/RO state	1	-	Output state of the DO/RO terminal of the AC drive Bit0: DO1/RO1 Bit1: DO2/RO2 Bit2: DO3/RO3 Bit3: DO4/RO4 Bit4: DO5/RO5
U0-09	AI1 voltage (V)	0.01 V	–10.00 V to 10.00 V	Voltage (V) of the current AI1
U0-10	AI2 voltage (V)	0.01 V	–10.00 V to 10.00 V	Voltage (V) of the current AI2
U0-11	AI3 voltage (V)	0.01 V	–10.00 V to 10.00 V	Voltage (V) of the current AI3
U0-12	Count value	1	1 to 65535	Count value in the count function
U0-13	Length value	1	1 to 65535	Length value in the fixed length function
U0-14	Load speed display	Defined by F8-63	0 to rated motor speed	Load speed
U0-15	PID reference	1	0 to 65535	PID reference = PID reference (percentage) x FA-04 (PID reference feedback range)
U0-16	PID feedback	1	0 to 65535	PID feedback = PID feedback (percentage) x FA-04 (PID reference feedback range)
U0-17	PLC stage	1	0 to 15	16 speeds in total
U0-19	Feedback speed (Hz)	0.01 Hz	0.00 Hz to maximum frequency	-
U0-20	Remaining runtime	0.1 min	0.0 min to 6500.0 min	Remaining runtime during timed running
U0-21	AI1 voltage after gain and offset	0.01 V	–10.00 V to 10.00 V	Voltage (V) of AI1 after gain and offset
U0-22	AI2 voltage after gain and offset	0.01 V	–10.00 V to 10.00 V	Voltage (V) of AI2 after gain and offset
U0-23	AI3 voltage after gain and offset	0.01 V	–10.00 V to 10.00 V	Voltage (V) of AI3 after gain and offset

Para. No.	Name	Basic Unit	Value Range	Description
U0-24	Linear speed	1 m/min	0 m/min to 65535 m/ min	
U0-25	Current power-on time	1 min	0 min to 65000 min	Duration (min) from power-on to the current time
U0-26	Current running time	0.1 min	0.0 min to 6500.0 min	Duration (min) from power-on to the current time
U0-28	Communica-tion	0.01%	–100.00% to 100.00%	Data written through the communication address 0x1000. The percentage base is determined by the value set in address 0x1000.
U0-30	Main frequency X display	0.01 Hz	0.00 Hz to 500.00 Hz	Main frequency (Hz) of the AC drive
U0-31	Auxiliary frequency Y display	0.01 Hz	0.00 Hz to 500.00 Hz	Auxiliary frequency (Hz) of the AC drive
U0-33	Synchronous motor rotor position	0.19°	0.0° to 359.9°	-
U0-35	Target torque	0.10%	–200.0% to +200.0%	Current torque upper limit. The percentage base is the rated motor torque.
U0-37	Power factor angle	0.1°	0.0° to 6553.5°	Current power factor angle
U0-39	Target voltage upon V/f separation	1 V	0 V to target voltage	Target output voltage in V/f separation mode
U0-40	Output voltage upon V/f separation	1 V	0 V to output voltage	Current actual output voltage in V/f separation mode
U0-41	DI state display	1	0 to 65535	State of the DI terminal: ON indicates high level and OFF indicates low level. 
U0-42	DO/RO state display	1	0 to 65535	State of the DO/RO terminal: ON indicates high level and OFF indicates low level. 
U0-43	DI function state display 1	1	0 to 65535	Validity of terminal functions 1 to 40. The operating panel has five LEDs, which indicate functions 1–8, 9–16, 17–24, 25–32, and 33–40 respectively from right to left. Each LED displays selection of eight functions, as shown in the following figure. ON indicates high level and OFF indicates low level.

Para. No.	Name	Basic Unit	Value Range	Description
				
U0-44	DI function state display 2	1	0 to 65535	Validity of terminal functions 41 to 59. The operating panel has five LEDs, which indicate functions 41–48, 49–56, and 57–59 respectively from right to left. Each LED displays selection of eight functions, as shown in the following figure. ON indicates high level and OFF indicates low level. 
U0-45	Fault code	1	0 to 51	Fault code of the AC drive
U0-46	Fault subcode	1	0 to 51	Fault subcode of the AC drive
U0-47	Drive unit temperature	1°C	-20°C to 120°C	Heatsink temperature of the IGBT
U0-48	Voltage received through PTC channel 1	0.001 V	-	Voltage (V) received from the power supply unit when AI1 is used for temperature sensor input
U0-49	Voltage received through PTC channel 2	0.001 V	-	Voltage (V) received from the power supply unit when AI2 is used for temperature sensor input
U0-50	Voltage received through PTC channel 3	0.001 V	-	Voltage (V) received from the power supply unit when AI3 is used for temperature sensor input
U0-51	PTC1 temperature	1°C	-	Temperature (°C) calculated when AI1 is used for temperature sensor input
U0-52	PTC2 temperature	1°C	-	Temperature (°C) calculated when AI2 is used for temperature sensor input
U0-53	PTC3 temperature	1°C	-	Temperature (°C) calculated when AI3 is used for temperature sensor input
U0-54	Motor speed	1 RPM	-	Current motor speed (RPM)
U0-55	Station number auto allocated	1	-	Station number that is automatically assigned
U0-56	Identified axis type	1	1 to 3	Axis type identified by the AC drive 1: Single axis 2: Dual-axis 1 3: Dual-axis 2
U0-57	Reserved	-	-	-

Para. No.	Name	Basic Unit	Value Range	Description
U0-61	AC drive operation status word 1	1	-	AC drive operation status word 1 1: Forward running 2: Reverse running 3: Stop 4: Auto-tuning 5: Faulty
U0-64	Special protocol status word	1	-	AC drive operation status word 2 Bit1 to Bit0: Running status Bit2: Jog enabled or not Bit4 to Bit3: Running direction state Bit3 to Bit7: Reserved Bit8: Main frequency set by communication Bit9: Main frequency set by AI Bit10: Command source from communication Bit11 to Bit15: Reserved
U0-68	AC drive operation status word 2	1	-	AC drive operation status word 2 Bit0: Running status Bit1: Forward/Reverse state Bit2: Whether a fault occurs Bit3: Whether the output frequency reaches the frequency reference Bit4: Communication normal flag Bit5 to Bit7: Reserved Bit8 to Bit15: Fault code
U0-78	AC drive rated current	0.1 A	0.0 A to AC drive rated current	Rated current (A) of the AC drive
U0-79	AC drive power	0.1 kW	0.0 kW to rated AC drive power	Rated power (kW) of the AC drive
U0-81	Local LED status	1	-	LED status of the drive unit Bit0: RUN indicator Bit1: Fault indicator
U0-88	Alarm code	1	-	Alarm code of the AC drive
U0-89	Alarm subcode	1	-	Alarm subcode of the AC drive
U0-90	Fan speed percentage reference	1%	-	Current speed reference of the fan
U0-91	PTC1 mode	1	-	AI1 input type 0: Voltage input 1: Current input 2: PT100 input 3: PT1000 input 4: KTY84 input 5: PT130 input
U0-92	PTC2 mode	1	-	AI2 input type

Para. No.	Name	Basic Unit	Value Range	Description
				0: Voltage input 1: Current input 2: PT100 input 3: PT1000 input 4: KTY84 input 5: PT130 input
U0-93	PTC3 mode	1	-	AI3 input type 0: Voltage input 1: Current input 2: PT100 input 3: PT1000 input 4: KTY84 input 5: PT130 input
U0-95	STO initialization flag	1	-	STO initialization flag 0: Initialization failed 1: Initialization succeeded
U0-96	STO status word monitoring	1	-	STO internal status word monitoring
U0-97	STO model	1	-	Flag used for identifying STO models 0: Non-STO model 1: STO model
U0-98	STO AD sampling value	1	-	AD value of the supply voltage of the STO circuit
U0-99	STO internal execution flag	1	-	Execution flag of the STO internal detection program

4.9 User Configuration

4.9.1 Local Parameter Backup

The local parameter backup function is set in FP-06 and FP-07 of the power supply unit. The operating panel displays "-CPY-" during parameter backup. When the set AC drive axis number does not exist or the power supply unit has a communication exception during backup, the AC drive reports E32.00.

Related Parameters

Para. No.	Name	Default	Value Range	Description
FP-06	Local parameter backup mode	1	0: Back up all parameters 1: Back up non-motor parameters	Parameters to be backed up
FP-07	Local parameter backup operation	0	Ones: Axis number 1 to 8 Tens: Backup operation 1: Read 2: Write	Axis (1 to 8) to be backed up and backup type

4.9.2 User-defined Parameters

Group FE consists of user-defined parameters (FE-00 to FE-29). Users can define commonly used parameters for easier check and modification. Up to 30 user-defined parameters are supported.

If F0.00 is displayed, the corresponding user-defined parameter is empty. In the user-defined parameter mode, the displayed parameters are defined by FE-00 to FE-31, and the sequence is consistent with that in group FE. The parameters are skipped if the displayed value is F0.00.

Related Parameters

Para. No.	Name	Default	Value Range	Description
FP-03	Display of user parameters	11	Ones: Display of user-defined parameter group 0: Hide 1: Display Tens: Display of user-modified parameter group 0: Hide 1: Display	-
FE-00	User-defined parameter 0	F0-01	F0-00 to FP-xx A0-00 to Ax-xx U0-xx to U0-xx U3-00 to U3-xx	-
FE-01	User-defined parameter 1	F0-02		-
FE-02	User-defined parameter 2	F0-03		-
FE-03	User-defined parameter 3	F0-07		-
FE-04	User-defined parameter 4	F0-08		-
FE-05	User-defined parameter 5	F0-17		-
FE-06	User-defined parameter 6	F0-18		-
FE-07	User-defined parameter 7	F3-00		-
FE-08	User-defined parameter 8	F3-01		-

Para. No.	Name	Default	Value Range	Description
FE-09	User-defined parameter 9	F4-00		-
FE-10	User-defined parameter 10	F4-01		-
FE-11	User-defined parameter 11	F4-02		-
FE-12	User-defined parameter 12	F5-04		-
FE-13	User-defined parameter 13	F5-07		-
FE-14	User-defined parameter 14	F6-00		-
FE-15	User-defined parameter 15	F6-10		-
FE-16	User-defined parameter 16	F0-00		-
FE-17	User-defined parameter 17	F0-00		-
FE-18	User-defined parameter 18	F0-00		-
FE-19	User-defined parameter 19	F0-00		-
FE-20	User-defined parameter 20	F0-00		-
FE-21	User-defined parameter 21	F0-00		-
FE-22	User-defined parameter 22	F0-00		-
FE-23	User-defined parameter 23	F0-00		-
FE-24	User-defined parameter 24	F0-00		-
FE-25	User-defined parameter 25	F0-00		-
FE-26	User-defined parameter 26	F0-00		-
FE-27	User-defined parameter 27	F0-00		-
FE-28	User-defined parameter 28	F0-00		-
FE-29	User-defined parameter 29	F0-00		-
FE-30	User-defined parameter 30	F0-00		-
FE-31	User-defined parameter 31	F0-00		-

4.9.3 Hibernation and Wakeup

The hibernation function is also known as the sleep function. When the frequency reference is lower than or equal to the hibernation frequency (F8-56) during running, the AC drive enters the hibernation state and coasts to stop after the hibernation delay (F8-57) elapses.

Parameters related to the hibernation and wakeup function include the wakeup frequency, hibernation frequency, and hibernation time. Generally, the wakeup frequency (F8-54) should be higher than or equal to the hibernation frequency (F8-56). The hibernation and wakeup function is disabled if both the wakeup frequency and hibernation frequency are set to 0.00 Hz.

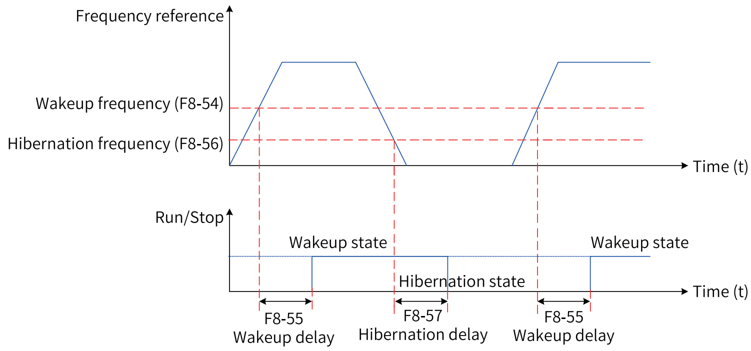


Figure 4-73 Hibernation and wakeup

Related Parameters

Para. No.	Name	Default	Value Range	Description
F8-54	Wakeup frequency	0.00 Hz	Hibernation frequency (F8-56) to maximum frequency (F0-10)	In hibernation state, when the frequency reference is equal to or higher than F8-54 (wakeup frequency) and the current running command is valid, the AC drive starts directly after the delay set by F8-55 (wakeup delay) elapses.
F8-55	Wakeup delay	0.0s	0.0s to 6500.0s	
F8-56	Hibernation frequency	0.00 Hz	0.00 Hz to wakeup frequency (F8-54)	When the frequency reference is lower than or equal to F8-56 (hibernation frequency) during running, the AC drive enters the hibernation state and coasts to stop after the time defined by F8-57 (hibernation delay) elapses.
F8-57	Hibernation delay	0.0s	0.0s to 6500.0s	

4.9.4 Current Running Time Threshold

Para. No.	Name	Default	Value Range	Description
F8-58	Current running time threshold	0.0 min	0.0 min to 6500.0 min	When the current running duration reaches the value of F8-58, the DO terminal outputs an active signal. Only the current running duration counts. The previous running duration is not included.
F8-60	Deceleration time for emergency stop	Model dependent	0.0s to 6500.0s	F8-60 is added to define the emergency stop deceleration time. The AC drive decelerates according to the set deceleration time when the terminal emergency stop function is triggered. When the deceleration time is 0s in V/f mode, the AC drive decelerates according to the minimum unit time.

List of Fault Codes

The following faults may occur during the use of the AC drive. Troubleshoot the faults according to the solutions described in the following table.

Table –52 Fault codes

Fault Name	Panel Display	Possible Cause	Solution	Fault Type
STO model identification error	E01.06	The hardware is faulty.	Check the AC drive nameplate to confirm whether the AC drive has the STO function. If not, contact the technical support personnel.	Axis fault
AC drive axis type identification setting error	E01.07	The hardware is faulty.	Check the AC drive nameplate to confirm the axis type (single-axis or dual-axis) of the AC drive.	Axis fault
Overcurrent during acceleration	E02.04 E02.05 E02.06	1 A grounding fault or short circuit exists in the output circuit of the AC drive. 2 The SVC control mode is adopted, and motor auto-tuning is not performed. 3 The set acceleration time is too short. 4 The overcurrent stall suppression setting is improper. 5 The manual torque boost or V/f curve is improper. 6 The motor is started while rotating. 7 The AC drive suffers external interference.	1 Check the motor and the relay contactor and make sure that they are not short-circuited. 2 Set the motor parameters according to the motor nameplate and perform motor auto-tuning. 3 Increase the acceleration time (F0-17). 4 Ensure that overcurrent stall suppression (F3-19) is enabled.The overcurrent stall action current (F3-18) is too large. Adjust it to a value between 120% and 160%.The overcurrent stall suppression gain (F3-20) is too small. Adjust it to a value between 20 and 40. 5 Adjust the manual torque boost or V/f curve. 6 Select the flying start mode or start the AC drive after the motor stops. 7 Check whether the fault current reaches the overcurrent stall suppression current (F3-18) by viewing the fault log. If not, the fault is possibly caused by external interference. In this case, find out the external interference source and rectify the fault.If no external interference source is found, the drive board or Hall device may be damaged. In this case, contact the manufacturer for replacement.	Axis fault Axis fault Axis fault
Overcurrent during deceleration	E03.04 E03.05 E03.06	1 A grounding fault or short circuit exists in the output circuit of the AC drive. 2 The SVC control mode is adopted, and motor auto-tuning is not performed. 3 The set deceleration time is too short. 4 The overcurrent stall suppression setting is improper.	1 Check the motor and make sure that the motor is not short-circuited or open-circuited. 2 Set the motor parameters according to the motor nameplate and perform motor auto-tuning. 3 Increase the deceleration time (F0-18). 4 Ensure that overcurrent stall suppression (F3-19) is enabled.The overcurrent stall action current (F3-18) is too large. Adjust it to a value between 120% and 150%.The overcurrent stall suppression gain (F3-20) is too small. Adjust it to a value between 20 and 40.	Axis fault Axis fault Axis fault

Fault Name	Panel Display	Possible Cause	Solution	Fault Type
		5 The power supply unit is not provided with a braking unit and no braking resistor is installed. 6 The AC drive suffers external interference.	5 Replace the power supply unit with one that has a braking unit and install a braking resistor. 6 Check whether the fault current reaches the overcurrent stall suppression current (F3-18) by viewing the fault log. If not, the fault is possibly caused by external interference. In this case, find out the external interference source and rectify the fault.If no external interference source is found, the drive board or Hall device may be damaged. In this case, contact the manufacturer for replacement.	
Overcurrent at constant speed	E04.04 E04.05 E04.06	1 A grounding fault or short circuit exists in the output circuit of the AC drive. 2 The SVC control mode is adopted, and motor auto-tuning is not performed. 3 The overcurrent stall suppression setting is improper. 4 The AC drive power rating is too low. 5 The AC drive suffers external interference.	1 Check the motor and make sure that the motor is not short-circuited or open-circuited. 2 Set the motor parameters according to the motor nameplate and perform motor auto-tuning. 3 Ensure that overcurrent stall suppression (F3-19) is enabled.The overcurrent stall action current (F3-18) is too large. Adjust it to a value between 120% and 150%.The overcurrent stall suppression gain (F3-20) is too small. Adjust it to a value between 20 and 40. 4 During stable running, if the running current exceeds the rated motor current or rated output current of the AC drive, replace the AC drive with one of higher power rating. 5 Check whether the fault current reaches the overcurrent stall suppression current (F3-18) by viewing the fault log. If not, the fault is possibly caused by external interference. In this case, find out the external interference source and rectify the fault.If no external interference source is found, the drive board or Hall device may be damaged. In this case, contact the manufacturer for replacement.	Axis fault Axis fault Axis fault
Overvoltage during acceleration	E05.00	The input grid voltage is too large.	Adjust the input grid voltage to the normal range.	Axis fault
		An external force drives the motor during acceleration.	Cancel the external force or install a braking resistor. The maximum rise frequency during overvoltage stall suppression (F3-26) is too low. Adjust it to a value between 5 Hz and 15 Hz when an external force is applied.	
		The overvoltage stall suppression parameters are set improperly.	Ensure that the overvoltage stall suppression function (F3-23) is enabled. The overvoltage stall suppression voltage (F3-22) is too large. Adjust it to a value between 700 V and 770 V.	

Fault Name	Panel Display	Possible Cause	Solution	Fault Type
			The overvoltage stall suppression frequency gain (F3-24) is too small. Adjust it to a value between 30 and 50.	
		The power supply unit is not provided with a braking unit and no braking resistor is installed.	Replace the power supply unit with one that has a braking unit and install a braking resistor.	
		The acceleration time is too short.	Increase the acceleration time (F0-17).	
Overvoltage during deceleration	E06.00	The overvoltage stall suppression parameters are set improperly.	Ensure that the overvoltage stall suppression function (F3-23) is enabled. The overvoltage stall suppression voltage (F3-22) is too large. Adjust it to a value between 700 V and 770 V. The overvoltage stall suppression frequency gain (F3-24) is too small. Adjust it to a value between 30 and 50.	Axis fault
		An external force drives the motor during deceleration.	Cancel the external force or install a braking resistor. The maximum rise frequency during overvoltage stall suppression (F3-26) is too low. Adjust it to a value between 5 Hz and 15 Hz when an external force is applied.	
		The deceleration time is too short.	Increase the deceleration time (F0-18).	
		The power supply unit is not provided with a braking unit and no braking resistor is installed.	Replace the power supply unit with one that has a braking unit and install a braking resistor.	
Overvoltage at constant speed	E07.00	The overvoltage stall suppression parameters are set improperly.	Ensure that the overvoltage stall suppression function (F3-23) is enabled. The overvoltage stall suppression voltage (F3-22) is too large. Adjust it to a value between 700 V and 770 V. The overvoltage stall suppression frequency gain (F3-24) is too small. Adjust it to a value between 30 and 50.	Axis fault
		An external force drives the motor during running.	Cancel the external force or install a braking resistor. The maximum rise frequency during overvoltage stall suppression (F3-26) is too low. Adjust it to a value between 5 Hz and 15 Hz when an external force is applied.	
	E07.01	The bus voltage of the single-phase AC drive is too large.	Check whether the bus voltage of the single-phase AC drive exceeds 410.0 V.	Axis fault
Undervoltage	E09.00	An instantaneous power failure occurs.	Enable the power dip ride-through function (F9-63).	Axis fault

Fault Name	Panel Display	Possible Cause	Solution	Fault Type
		The input voltage of the AC drive is beyond the specified range.	Adjust the input voltage of the AC drive to the normal range.	
		The bus voltage is abnormal.	Contact the technical support personnel.	
		The power supply unit, the drive board of the drive unit, or the control board of the drive unit is abnormal.	Contact the technical support personnel.	
AC drive overload	E10.00	The load is too heavy or locked-rotor occurs.	Reduce the load and check the motor and mechanical conditions.	Axis fault
		The AC drive power rating is too low.	Replace the AC drive with one of higher power rating.	
		The SVC control mode is adopted, and motor auto-tuning is not performed.	Set the motor parameters according to the motor nameplate and perform motor auto-tuning.	
		The control mode is V/f control.	Reduce the torque boost (F3-01) reference in decrements of 1.0%, or set it to 0 (auto torque boost).	
Motor overload	E11.00	F9-01 (motor overload protection gain) is set improperly.	Set F9-01 correctly. Increase its value to prolong the motor overload time.	Axis fault
		The load is too heavy or locked-rotor occurs.	Reduce the load and check the motor and mechanical conditions.	
Input voltage exception	E12.01	Input voltage phase loss	Check the three-phase power supply and make sure that it is normal. Check the input cables and make sure that they are not broken. Check the input terminals and make sure that they are properly connected.	Power supply unit fault
	E12.04	The input three-phase voltage is too large.	Ensure that the input voltage does not exceed the rated value: Three-phase 380 V models: 576 V Single-phase 220 V models: 288 V	Power supply unit fault
Output phase loss	E13.00	The motor is faulty.	Check the motor for open circuit.	Axis fault
		The cable connecting the AC drive and the motor is abnormal.	Check the cable between the AC drive and the motor.	
		The three-phase outputs of the AC drive are unbalanced when the motor is running.	Check whether the motor three-phase winding is normal. If not, eliminate the fault.	
		The drive board or the IGBT is abnormal.	Contact the technical support personnel.	
IGBT overheat	E14.00	The ambient temperature is too high.	Reduce the ambient temperature.	Power supply unit fault

Fault Name	Panel Display	Possible Cause	Solution	Fault Type
		The air filter is blocked.	Clean the air filter.	
		The fan is damaged.	Replace the fan.	
		The IGBT thermistor is damaged.	Contact the technical support personnel.	
		The IGBT is damaged.	Contact the technical support personnel.	
External device fault	E15.01	An external fault signal is input through the multi-functional DI (NO).	Eliminate the external fault, ensure that the mechanical condition allows restart (F8-21), and reset the operation.	Axis fault
	E15.02	An external fault signal is input through the multi-functional DI (NC).	Eliminate the external fault, ensure that the mechanical condition allows restart (F8-21), and reset the operation.	Axis fault
Communication fault	E16.01	Modbus communication timeout	Check whether the Modbus master sends data within the set timeout period. Check whether the RS485 circuit is disconnected or suffers interference.	Axis fault
	A16.02	The protective cover for the connector is not installed.	Install a protective cover on the connector of the rightmost drive unit.	Axis fault
	E16.03	Station number allocation fails.	Power on all equipment. If the fault persists, replace the AC drive.	Axis fault
	E16.04	Continuous frame loss occurs on the extension card.	Ensure that the extension card is connected properly. Check whether F9-67 is set too small.	Axis fault
	E16.11	CANopen communication timeout	EtherCAT is disconnected. Make sure that the CAN communication cable is connected properly. Check parameters Fd-15 to Fd-17 to eliminate possible interference.	Axis fault
	E16.12	The PDO mapping configured for CANopen is inconsistent with the actual communication mapping.	The EtherCAT mapping is inconsistent with the PDO mapping. Check the PDO mapping parameters in group AF to make sure that the PDO configuration is correct.	Axis fault
	E16.13	Data exchange from the power supply unit to the drive unit times out.	Check whether the power supply unit works properly. If the power supply unit is faulty, contact the technical support personnel.	Axis fault
	E16.14	Data exchange from the power supply unit to the drive unit is abnormal.	The power supply unit is faulty. Contact the technical support personnel.	Axis fault
	E16.21	CANlink heartbeat times out.	Check that the CAN communication cable is correctly connected. Check parameters Fd-15 to Fd-17 to eliminate possible interference.	Axis fault
	E16.22	A CANlink station number conflict occurs.	Change duplicate CAN station numbers in the network to different ones by using Fd-13.	Axis fault

Fault Name	Panel Display	Possible Cause	Solution	Fault Type
	E16.52	The EEPROM of the EtherCAT communication card is faulty.	1 If the programming or upgrading of the communication card fails, program the communication card again. 2 If this fault occurs during normal use, replace the communication card.	Axis fault
	E16.53	The slave control chip of the EtherCAT communication card is faulty.	1 If the programming or upgrading of the communication card fails, program the communication card again. 2 If this fault occurs during normal use, replace the communication card.	Axis fault
	E16.55	The EtherCAT system parameters are incorrect.	If the master station goes wrong, check whether it sends the sync frame (Fd-78). If not, make sure that TPDO and RPDO have been configured for the master PDO. If the master PDO is configured correctly, check the network port status (Fd-72 to Fd-77) and make sure that the communication cable is connected properly.	Axis fault
	E16.71	The master station goes offline during operation of the communication card.	Check whether the connection between the communication card and PLC is in poor contact. Make sure that they are properly connected.	Axis fault
	E16.72	The internal slave station goes offline during operation of communication card.	Check whether the connection between the communication card and power supply unit is in poor contact. Make sure that they are properly connected.	Axis fault
	E16.74	The communication card configuration is incorrect.	Check whether the configured slave station exists and ensure that startup with station lost is disabled (Fd-50 of the power supply unit is set to 0).	Axis fault
	E16.75	The drive unit mapping configured by using the communication card is incorrect.	Check the process data and the number of mapping relations configured for the drive unit, and make sure that they match.	Axis fault
	E16.76	The power supply unit mapping configured by using the communication card is incorrect.	Check the process data and the number of mapping relations configured for the power supply unit, and make sure that they match.	Axis fault
Current sampling circuit damage	E18.01	Current sampling of the AC drive is abnormal.	Check whether the main circuit is powered on. Contact the manufacturer if the Hall sensor or the current sampling current is damaged.	Axis fault
Motor auto-tuning fault	E19.02 E19.04	Auto-tuning on the magnetic pole position angle of the synchronous motor fails.	Check whether the motor is disconnected or output phase loss occurs.	Axis fault
	E19.05	Auto-tuning on the magnetic pole initial position angle of the synchronous motor fails.	Increase the initial position angle detection current (F2-29).	Axis fault
	E19.06 E19.07	Auto-tuning on the stator resistance fails.	Ensure that the motor is connected properly.	Axis fault

Fault Name	Panel Display	Possible Cause	Solution	Fault Type
	E19.08		Ensure that the rated motor current (F1-03) is set according to the motor nameplate.	
	E19.09 E19.10	Auto-tuning on the transient leakage inductance of the asynchronous motor fails.	The motor is not connected or output phase loss occurs. Ensure that the motor is connected properly or the motor is disconnected from the load.	Axis fault
	E19.12	The auto-tuning times out.	The motor is not connected or output phase loss occurs. Ensure that the motor is connected properly or the motor is disconnected from the load.	Axis fault
	E19.13			Axis fault
	E19.14			Axis fault
	E19.15			Axis fault
	E19.16			Axis fault
	E19.17			Axis fault
	E19.19			Axis fault
	E19.20	Auto-tuning on the zero position angle of the no-load synchronous motor times out.	Check the Z feedback signal.	Axis fault
	E19.22			Axis fault
	E19.23	Auto-tuning on the pole position of the synchronous motor fails.	Ensure that the rated motor current (F1-03) is set according to the motor nameplate. Decrease the initial position angle detection current (F2-29).	Axis fault
	E19.24	Auto-tuning on the transient leakage inductance of the asynchronous motor fails.	The AC drive power rating is too low. Select an AC drive of proper power rating according to the motor power.	Axis fault
EEPROM read-write fault	E21.01	EEPROM read-write is abnormal.	For parameters written to EEPROM through communication, check the RAM addresses of the parameters. For the RAM address mapping of parameters, see "Parameter Address Rules". If the EEPROM chip is damaged, contact the manufacturer to replace the main control board.	Axis fault
	E21.02			Axis fault
	E21.03			Axis fault
	E21.04			Axis fault
Motor auto-tuning error	E22.00	The stator resistance obtained through auto-tuning exceeds the allowed range.	Check whether the rated motor voltage and current are correctly set, and set F1-02 (Rated motor voltage) and F1-03 (Rated motor current) according to the motor nameplate. Perform auto-tuning after the motor stops.	Axis fault
	E22.01	The rotor resistance of the asynchronous motor obtained through auto-tuning exceeds the allowed range.		Axis fault
	E22.02	The no-load current and mutual inductance of the asynchronous motor obtained through auto-tuning exceed the allowed range. If such an alarm is	Set motor parameters in group F1 according to the motor nameplate. Before auto-tuning, ensure that the motor has no load.	Axis fault

Fault Name	Panel Display	Possible Cause	Solution	Fault Type
		generated, the AC drive calculates no-load current and mutual inductance based on known parameters, which may be different from the optimal values.		
	E22.03	The back EMF of the synchronous motor obtained through auto-tuning exceeds the allowed range.	Ensure that the rated motor voltage (F1-02) is set according to the motor nameplate. Before auto-tuning, ensure that the motor has no load.	Axis fault
Short circuit to ground	E23.00	The motor is short circuited to the ground.	Check the motor cables and motor for short circuit to ground.	Axis fault
	E23.01	A hardware overcurrent fault occurs during short-to-ground detection upon power-on.		
	E23.02	A hardware overvoltage fault occurs during short-to-ground detection upon power-on.		
	E23.03	A great risk is detected during short-to-ground detection upon power-on.		
	E23.04	A lower bridge overcurrent fault occurs during short-to-ground detection before startup.		
	E23.05	A bus overcurrent fault occurs during short-to-ground detection before startup.		
	E23.06	A lower bridge and bus overcurrent fault occurs during short-to-ground detection before startup.		
Power supply unit fault	E25.00	The power supply unit is faulty.	Eliminate the power supply unit faults, such as input phase loss and overtemperature. Check the terminal configuration of the power supply unit. If any one of the following functions is selected, a fault is reported when there is no feedback signal: 1: Running enable 2: Incoming circuit breaker feedback 3: Auxiliary circuit breaker feedback 4: Residual current device feedback	Axis fault

Fault Name	Panel Display	Possible Cause	Solution	Fault Type
			If any one of the following functions is selected, a fault is reported when the terminal is active: 6: Operation prohibition for drive unit 7: Coast-to-stop for drive unit 8: Stop-according-to-preset-mode for drive unit	
Accumulative running duration reach	E26.00	The accumulative running duration reaches the setpoint.	Clear the record through parameter initialization.	Axis fault
User-defined fault 1	E27.00	The signal of user-defined fault 1 is input through the multi-functional DI terminal. The signal of user-defined fault 1 is input through virtual I/O.	Reset.	Axis fault
User-defined fault 2	E28.00	The signal of user-defined fault 2 is input through the multi-functional DI terminal. The signal of user-defined fault 2 is input through virtual I/O.	Reset.	Axis fault
Accumulative power-on duration reach	E29.00	The accumulative power-on duration reaches the setpoint.	Clear the record through parameter initialization.	Axis fault
Load loss	E30.00	The running current of the AC drive is lower than that set by F9-68.	Check whether the load is disconnected or the setting of F9-68 and F9-69 satisfies actual running conditions.	Axis fault
PID feedback loss during running	E31.00	The PID feedback is smaller than that set by FA-26.	Check the PID feedback signal or set FA-26 properly.	Axis fault
Local parameter backup failure	E32.00	An exception occurs during local parameter backup.	Check whether the backed-up drive unit station number exceeds the quantity of drive units installed.	Power supply unit fault
Torque limiting timeout	E36.00	The motoring torque upper limit defined by F2-10 is improper or the load is too heavy.	Set the motoring torque upper limit properly based on the working conditions, or reduce the load and use an AC drive with higher power.	Axis fault
Frequency direction fault	E37.00	The load is too heavy.	Set the frequency exception detection cycle (B7-21) properly based on the working conditions, or reduce the load and use an AC drive with higher power.	Axis fault
Frequency following error	E38.00	The load is too heavy.	Set the frequency following detection parameters (B7-22 and B7-23) properly based on the working conditions, or reduce the load and use an AC drive with higher power.	Axis fault
Excessive speed deviation	E42.00	Motor auto-tuning is not performed.	Perform motor auto-tuning.	Axis fault

Fault Name	Panel Display	Possible Cause	Solution	Fault Type
		Parameters related to detection of excessive speed deviation (F9-73 and F9-74) are set incorrectly.	Set the related parameters (F9-73 and F9-74) correctly based on actual conditions.	Axis fault
Motor overtemperature	E45.00	The temperature sensor is connected loosely.	Check the temperature sensor connection. Re-connect the temperature sensor if necessary.	Axis fault
		The motor temperature is too high.	Increase the carrier frequency or take other heat dissipation measures to cool the motor.	Axis fault
		The motor overtemperature protection thresholds (F9-57, F9-59, and F9-61) are too low.	Increase the motor overtemperature protection thresholds (90°C to 100°C for common motors).	Axis fault
STO fault	STO	STO1 and STO2 signals are disconnected simultaneously.	Check the wiring of STO1 and STO2.	Axis fault
	E47.02	STO1 and STO2 signals are disconnected separately.	Check the wiring of STO1 and STO2.	Axis fault
	E47.03	Undervoltage or overvoltage occurs on the STO circuit.	Contact the technical support personnel.	Axis fault
	E47.04	The STO circuit input subsystem is abnormal.	Contact the technical support personnel.	Axis fault
	E47.05	The STO blocking output chip is abnormal.	Contact the technical support personnel.	Axis fault
Braking unit fault	E61.01	The braking transistor is short-circuited at stop.	Check whether the resistance and power of the braking resistor are too low. Check whether the braking resistor is short-circuited.	Power supply unit fault
	E61.02	Braking transistor open circuit occurs.	Contact the technical support personnel.	Power supply unit fault
	E61.03	The braking transistor is short-circuited during running.	Check whether the resistance and power of the braking resistor are too low. Check whether the braking resistor is short-circuited.	Power supply unit fault
Fan fault	E80.00	The fan is faulty.	Ensure that the fan on the drive unit is connected properly. Ensure that the fan rotates freely.	Axis fault
Braking feedback fault	E90.00 E90.01 E90.02	The braking feedback signal is abnormal.	Ensure that the brake release signal of the AC drive is correctly transmitted to the brake device. Manually release the brake to confirm that the feedback signal is correctly transmitted to the AC drive. Replace the brake device.	Axis fault
Brake release timeout	E91.00	The running frequency does not reach the setpoint of B7-01 or B7-02.	Ensure that the motoring torque upper limit defined by F2-10 is greater than the setpoints of B7-03 and B7-04.	Axis fault

Fault Name	Panel Display	Possible Cause	Solution	Fault Type
	E91.01	The output torque or output current does not reach the setpoint of B7-03 or B7-04.	Increase the brake release timeout detection time defined by B7-18.	
	E91.02	The running frequency does not reach the setpoint of B7-01 or B7-02, and the output torque or output current does not reach the setpoint of B7-03 or B7-04.		
Command direction conflict	E93.00	Both the forward and reverse running commands of the DI terminal are active at the same time.	Ensure that only one of the forward and reverse running commands of the DI terminal is active.	Axis fault
Internal communication error	A98.01	The power supply unit detects that the consecutive frame loss of the drive unit exceeds the value of A0-01.	Check that the base terminals of the power supply unit and drive unit are properly connected, and eliminate the interference if any.	Power supply unit fault
	A98.02	The power supply unit detects that the consecutive frame loss of the I/O extension card exceeds the value of A0-02.	Check that the power supply unit and the extension card are properly connected, and eliminate the interference if any.	Power supply unit fault
	A98.03	The power supply unit detects that the consecutive frame loss of both the I/O extension card and the drive unit exceed the setpoints.	Check the wiring and eliminate the interference if any.	Power supply unit fault
Hardware I/O resource loss	A99.01	The selected DI hardware resource does not exist.	Ensure that the power supply unit and extension cards are firmly installed. Check parameters F4-00 to F4-15 of the drive unit to ensure that no non-existing DI hardware resource is selected.	Axis fault
	A99.02	The selected DO/RO hardware resource does not exist.	Ensure that the power supply unit and extension cards are firmly installed. Check the DO/RO hardware resources of the drive unit to ensure that no non-existing DO/RO hardware resource is selected.	Axis fault
	A99.03	The selected AI hardware resource does not exist.	Ensure that the power supply unit and extension cards are firmly installed. Check parameters F4-25 to F4-29 of the drive unit to ensure that no non-existing AI hardware resource is selected.	Axis fault
	A99.04	The selected DI and DO/RO hardware resources do not exist.	Ensure that the power supply unit and extension cards are firmly installed. Check the drive unit according to the solutions to A99.01 and A99.02.	Axis fault

Fault Name	Panel Display	Possible Cause	Solution	Fault Type
	A99.05	The selected DI and AI hardware resources do not exist.	Ensure that the power supply unit and extension cards are firmly installed. Check the drive unit according to the solutions to A99.01 and A99.03.	Axis fault
	A99.06	The selected DO/RO and AI hardware resources do not exist.	Ensure that the power supply unit and extension cards are firmly installed. Check the drive unit according to the solutions to A99.01 and A99.03.	Axis fault
	A99.07	The selected DI, DO/RO, and AI hardware resources do not exist.	Ensure that the power supply unit and extension cards are firmly installed. Check the drive unit according to the solutions to A99.01, A99.02, and A99.03.	Axis fault

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