MITSUBISHI ELECTRIC

Mitsubishi Electric AC Servo System

MITSUBISHI ELECTRIC SERVO SYSTEM
MELSERVO-JET

# MR-JET
# User's Manual
# (Troubleshooting)

-MR-JET-_G_
-MR-JET-_G_-_N1

# SAFETY INSTRUCTIONS

Please read the instructions carefully before using the equipment.

To use the equipment correctly, do not attempt to install, operate, maintain, or inspect the equipment until you have read through this manual, installation guide, and appended documents carefully. Do not use the equipment until you have a full knowledge of the equipment, safety information and instructions.

In this manual, the safety instruction levels are classified into "WARNING" and "CAUTION".

| | |
|---|---|
| ⚠ **WARNING** | Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury. |
| ⚠ **CAUTION** | Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight injury. |

Note that the CAUTION level may lead to a serious consequence depending on conditions.

Please follow the instructions of both levels because they are important to personnel safety.

Forbidden actions and required actions are indicated by the following diagrammatic symbols.

| | |
|---|---|
|  | Indicates a forbidden action. For example, "No Fire" is indicated by  . |
|  | Indicates a required action. For example, grounding is indicated by  . |

In this manual, precautions for hazards that can lead to property damage, instructions for other functions, and other information are shown separately in the "Point" area.

After reading this manual, keep it accessible to the operator.

## [Installation/wiring]

### ⚠WARNING

- To prevent an electric shock, turn off the power and wait for 15 minutes or more before starting wiring and/or inspection.
- To prevent an electric shock, ground the servo amplifier.
- To prevent an electric shock, any person who is involved in wiring should be fully competent to do the work.
- To prevent an electric shock, mount the servo amplifier before wiring.
- To prevent an electric shock, connect the protective earth (PE) terminal of the servo amplifier to the protective earth (PE) of the cabinet, then connect the grounding lead wire to the ground.
- To prevent an electric shock, do not touch the conductive parts.

## [Setting/adjustment]

### ⚠WARNING

- To prevent an electric shock, do not operate the switches with wet hands.

## [Operation]

### ⚠WARNING

- To prevent an electric shock, do not operate the switches with wet hands.

## [Maintenance]

### ⚠WARNING

- To prevent an electric shock, any person who is involved in inspection should be fully competent to do the work.
- To prevent an electric shock, do not operate the switches with wet hands.

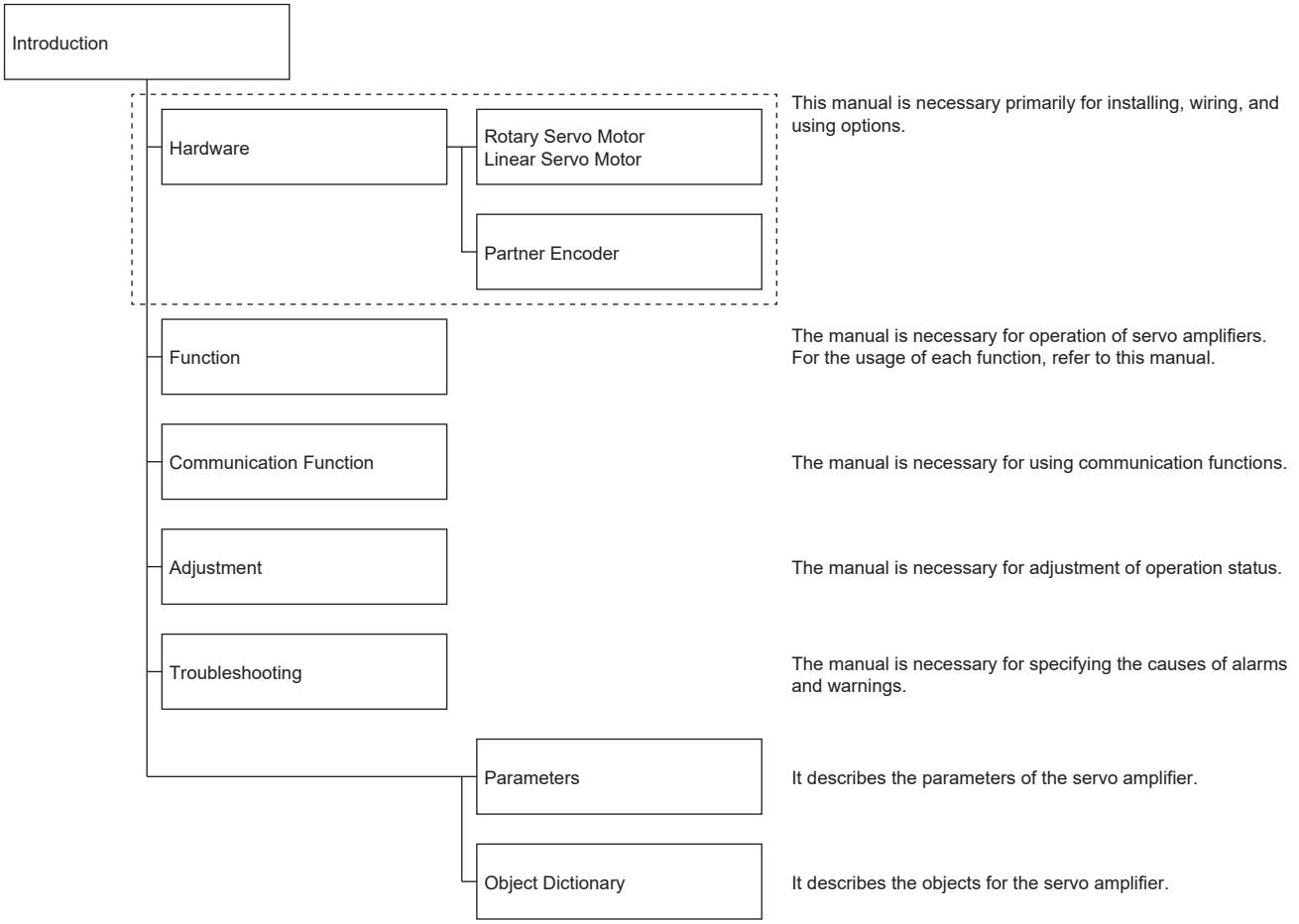
# ABOUT THE MANUAL

**Point**

e-Manuals are Mitsubishi Electric FA electronic book manuals that can be browsed with a dedicated tool.
e-Manuals enable the following:

- Searching for desired information in multiple manuals at the same time (manual cross searching)
- Jumping from a link in a manual to another manual for reference
- Browsing for hardware specifications by scrolling over the components shown in product illustrations
- Bookmarking frequently referenced information
- Copying sample programs to engineering software

If using the servo for the first time, prepare and use the following related manuals to ensure that the servo is used safely. For the related manuals, refer to the User's Manual (Introduction).




This manual covers the following servo amplifiers.

- MR-JET-_G_/MR-JET-_G_-_N1

In this manual, the servo amplifier names are abbreviated as shown below.

| Abbreviation | Servo amplifier |
|---|---|
| [G] | MR-JET-_G_/MR-JET-_G_-_N1 |

## Global standards and regulations

Compliance with the indicated global standards and regulations is current as of the release date of this manual. Some standards and regulations may have been modified or withdrawn.

# U.S. CUSTOMARY UNITS

U.S. customary units are not shown in this manual. Convert the values if necessary according to the following table.

| Quantity | SI (metric) unit | U.S. customary unit |
|---|---|---|
| Mass | 1 [kg] | 2.2046 [lb] |
| Length | 1 [mm] | 0.03937 [inch] |
| Torque | 1 [N•m] | 141.6 [oz•inch] |
| Moment of inertia | 1 [(× $10^{-4}$ kg•$m^2$)] | 5.4675 [oz•$inch^2$] |
| Load (thrust load/axial load) | 1 [N] | 0.2248 [lbf] |
| Temperature | N [°C] × 9/5 + 32 | N [°F] |

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CONTENTS

# 1 SERVO AMPLIFIER TROUBLESHOOTING



## 1.1 Outline

If an error occurs in the servo system, the corresponding alarm or warning is displayed. When an alarm occurs, ALM (Malfunction) turns off.

If an alarm or warning is displayed, take appropriate measures according to the following:

☞ Page 25 Handling methods for alarms/warnings

### Restrictions

- The following alarms are not recorded in the alarm history.

[AL. 010.1 Voltage drop in the control circuit power]

[AL. 037 Parameter error]

[AL. 537 Parameter setting range error (safety sub-function)]

[AL. 53A Parameter verification error (safety sub-function)]

- With the exception of [AL. 0F0 Tough drive warning], warnings are not recorded in the alarm history.
- Alarms marked with "△" in the "Alarm deactivation" column have the deactivation conditions shown in the following table.

| Detail No. | Alarm deactivation condition |
|---|---|
| 030.1 | Approximately 30 minutes of cooling time have passed since the cause of the alarm occurrence was removed. |
| 042.1 | Set the servo parameters as follows.<br>When in fully closed loop control: Set [Pr. PE03.3 Fully closed loop control error - Reset selection] to "1".<br>When a linear servo motor or a direct drive motor is used: Set [Pr. PL04.3 [AL. 042 Servo control error] detection controller reset condition selection] to "1". |
| 042.2 | |
| 042.3 | |
| 042.8 | |
| 042.9 | |
| 042.A | |
| 046.1 | Approximately 30 minutes of cooling time have passed since the cause of the alarm occurrence was removed. |
| 046.2 | |
| 046.3 | |
| 046.4 | |
| 046.5 | |
| 046.6 | |
| 050.1 | |
| 050.2 | |
| 050.3 | |
| 050.4 | |
| 050.5 | |
| 050.6 | |
| 051.1 | |
| 051.2 | |
| 130.1 | |

## Precautions

- As soon as an alarm occurs, switch to servo-off status and shut off the power supply (main circuit power supply for the MR-JET-_G_-HS(N1)).
- If an abnormality related to overheating occurs, remove the cause of the abnormality and allow a cooling time of approximately 30 minutes.
- The alarm canceling method in [AL. 042 Servo control error] can be changed with [Pr. PL04.3 [AL. 042 Servo control error] detection controller reset condition selection] or [Pr. PE03.3 Fully closed loop control error - Reset selection].
- If an alarm which is related to the communication with the controller occurs, resetting the communication may not cancel the alarm.
- In the alarm list, alarms marked with "○" in any of the safety reset-related columns must be canceled while all the safety sub-functions have stopped. These alarms cannot be canceled unless all the safety sub-functions have stopped.
- After performing the check/action, cycle the power of the servo amplifier.
- If the alarm remains active even after the check/action of each alarm, the servo amplifier may have malfunctioned. Replace the servo amplifier, then check the repeatability.
- If the same problem continues even after replacing the servo amplifier, there may be a problem with the surrounding environment or with other devices.
- When [AL. 025 Absolute position erased] occurs, perform homing again to prevent an unexpected operation.
- To prevent malfunctions of the servo amplifier and servo motor, do not deactivate the alarm repeatedly to resume if any of the following alarms occur. Remove the cause of occurrence and allow 30 minutes or more for cooling, then resume the operation.

[AL. 030 Regenerative error]
[AL. 045 Main circuit device overheat]
[AL. 046 Servo motor overheat]
[AL. 050 Overload 1]
[AL. 051 Overload 2]

- To prevent malfunctions of the servo amplifier and servo motor, do not cycle the power of the servo amplifier repeatedly to resume if any of the following warnings occur. If the power of the servo amplifier is switched off/on during the warnings, allow more than 30 minutes for cooling before resuming operation.

[AL. 091 Servo amplifier overheat warning]
[AL. 0E0 Excessive regeneration warning]
[AL. 0E1 Overload warning 1]

- When [AL. 0E6 Servo forced stop warning], [AL. 0E9 Main circuit off warning], or [AL. 0EA ABS servo-on warning] occurs, the servo amplifier is changed to servo-off status. If any other warning occurs, the operation can still be continued, but an alarm may occur.

# 1.2 List of alarm No./warning No.

## Explanation of the list

### Motor stop method

Alarms and warnings which have "SD" in the "Motor stop method" column stop the servo motor with the dynamic brake after forced stop deceleration. Alarms and warnings which have "DB" or "EDB" in the "Motor stop method" column stop the servo motor with the dynamic brake.

#### ■Stop method at occurrence of alarms/warnings

The servo amplifier has the following stop methods:

| Motor stop method | Description |
|---|---|
| DB | Dynamic brake stop (for a servo amplifier without the dynamic brake, the servo motor coasts) |
| SD | Forced stop deceleration<br>This stop method is applicable when [Pr. PA04 Function selection A-1] is set to the initial value. The stop method can be changed from SD to DB with [Pr. PA04]. |
| EDB | Stop with an electronic dynamic brake (enabled only for specific servo motors)<br>Refer to "Stop method at occurrence of alarms/warnings" in the following manual for the specific servo motors.<br>📖MR-JET User's Manual (Function) |
| STO/DB | Dynamic brake stop by the STO function (for a servo amplifier without the dynamic brake, the servo motor coasts) |
| SS1/SD | Forced stop deceleration by the SS1 function<br>The stop method is applicable when [Pr. PA04] is set to the initial value. The stop method can be changed from SS1/SD to SS1/DB with [Pr. PA04]. |
| SS1/EDB | Stop with an electronic dynamic brake (enabled only for specific servo motors)<br>Refer to "Stop method at occurrence of alarms/warnings" in the following manual for the specific servo motors.<br>📖MR-JET User's Manual (Function)<br>The stop method of SS1/DB is applicable to servo motors other than the specific servo motors. |

### Alarm deactivation

After the cause of the alarm has been removed, the alarm can be deactivated by using the methods marked with "○" in the "Alarm deactivation" column. Alarms marked with "△" in the "Alarm deactivation" column have the deactivation conditions.

☞ Page 9 Restrictions

Alarms are deactivated by alarm reset, communication reset, or power cycling. Alarms can also be deactivated by software reset instead of power cycling.

Refer to "Alarm function" in the following manual.

📖MR-JET User's Manual (Function)

### Motor stop warning

Warnings that have "○" in the "Motor stop warning" column stop the servo motor when the warning occurs. If a warning that stops the servo motor occurs, WNGSTOP (Motor stop warning) will turn on.

### Safety sub-function stopped

Indicates that the safety sub-function stops when the alarm or warning occurs, disabling input to the safety sub-function and maintaining the shut-off state of the power supply. "SFTY" on the servo amplifier display turns off when the safety sub-function stops.

○: The safety sub-function stops and "SFTY" turns off.

×: The safety sub-function does not stop.

# List

| No. | Detail No. | Alarm/ Warning | Motor stop method | Alarm deactivation | | | | Motor stop warning | Safety sub-function stopped |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Safety reset | Alarm reset | Communication reset | Power cycling | | |
| 010 | 010.1 | Alarm | EDB | × | ○ | ○ | ○ | — | × |
| | 010.2 | Alarm | SD | × | ○ | ○ | ○ | — | × |
| 011 | 011.1 | Alarm | DB | × | × | × | ○ | — | × |
| 012 | 012.1 | Alarm | DB | × | × | × | ○ | — | × |
| | 012.2 | Alarm | DB | × | × | × | ○ | — | × |
| | 012.4 | Alarm | DB | × | × | × | ○ | — | × |
| | 012.5 | Alarm | DB | × | × | × | ○ | — | × |
| | 012.6 | Alarm | DB | × | × | × | ○ | — | × |
| | 012.7 | Alarm | DB | × | × | × | ○ | — | × |
| | 012.8 | Alarm | DB | × | × | × | ○ | — | × |
| 013 | 013.1 | Alarm | DB | × | × | × | ○ | — | × |
| | 013.2 | Alarm | DB | × | × | × | ○ | — | × |
| | 013.4 | Alarm | DB | × | × | × | ○ | — | × |
| | 013.5 | Alarm | DB | × | × | × | ○ | — | × |
| 014 | 014.1 | Alarm | DB | × | × | × | ○ | — | × |
| | 014.2 | Alarm | DB | × | × | × | ○ | — | × |
| | 014.3 | Alarm | DB | × | × | × | ○ | — | × |
| | 014.4 | Alarm | DB | × | × | × | ○ | — | × |
| | 014.5 | Alarm | DB | × | × | × | ○ | — | × |
| | 014.8 | Alarm | DB | × | × | × | ○ | — | × |
| | 014.9 | Alarm | DB | × | × | × | ○ | — | × |
| | 014.C | Alarm | DB | × | × | × | ○ | — | × |
| 016 | 016.1 | Alarm | DB | × | × | × | ○ | — | × |
| | 016.2 | Alarm | DB | × | × | × | ○ | — | × |
| | 016.3 | Alarm | DB | × | × | × | ○ | — | × |
| | 016.5 | Alarm | DB | × | × | × | ○ | — | × |
| | 016.6 | Alarm | DB | × | × | × | ○ | — | × |
| | 016.7 | Alarm | DB | × | × | × | ○ | — | × |
| | 016.A | Alarm | DB | × | × | × | ○ | — | × |
| | 016.B | Alarm | DB | × | × | × | ○ | — | × |
| | 016.C | Alarm | DB | × | × | × | ○ | — | × |
| | 016.D | Alarm | DB | × | × | × | ○ | — | × |
| | 016.E | Alarm | DB | × | × | × | ○ | — | × |
| | 016.F | Alarm | DB | × | × | × | ○ | — | × |
| 017 | 017.1 | Alarm | DB | × | × | × | ○ | — | × |
| | 017.3 | Alarm | DB | × | × | × | ○ | — | × |
| | 017.4 | Alarm | DB | × | × | × | ○ | — | × |
| | 017.5 | Alarm | DB | × | × | × | ○ | — | × |
| | 017.7 | Alarm | DB | × | × | × | ○ | — | × |
| | 017.9 | Alarm | DB | × | × | × | ○ | — | × |
| 019 | 019.1 | Alarm | DB | × | × | × | ○ | — | × |
| | 019.2 | Alarm | DB | × | × | × | ○ | — | × |
| | 019.3 | Alarm | DB | × | × | × | ○ | — | × |
| | 019.6 | Alarm | DB | × | × | × | ○ | — | × |
| 01A | 01A.1 | Alarm | DB | × | × | × | ○ | — | × |
| | 01A.2 | Alarm | DB | × | × | × | ○ | — | × |
| | 01A.3 | Alarm | DB | × | × | × | ○ | — | × |
| | 01A.4 | Alarm | DB | × | × | × | ○ | — | × |
| | 01A.5 | Alarm | DB | × | × | × | ○ | — | × |

| No. | Detail No. | Alarm/ Warning | Motor stop method | Alarm deactivation | | | | Motor stop warning | Safety sub-function stopped |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Safety reset | Alarm reset | Communication reset | Power cycling | | |
| 01E | 01E.1 | Alarm | DB | × | × | × | ○ | — | × |
| | 01E.2 | Alarm | DB | × | × | × | ○ | — | × |
| 01F | 01F.1 | Alarm | DB | × | × | × | ○ | — | × |
| | 01F.2 | Alarm | DB | × | × | × | ○ | — | × |
| 020 | 020.1 | Alarm | EDB | × | × | × | ○ | — | × |
| | 020.2 | Alarm | EDB | × | × | × | ○ | — | × |
| | 020.3 | Alarm | EDB | × | × | × | ○ | — | × |
| | 020.5 | Alarm | EDB | × | × | × | ○ | — | × |
| | 020.6 | Alarm | EDB | × | × | × | ○ | — | × |
| | 020.7 | Alarm | EDB | × | × | × | ○ | — | × |
| 021 | 021.1 | Alarm | EDB | × | × | × | ○ | — | × |
| | 021.2 | Alarm | EDB | × | × | × | ○ | — | × |
| | 021.3 | Alarm | EDB | × | × | × | ○ | — | × |
| | 021.4 | Alarm | EDB | × | × | × | ○ | — | × |
| | 021.5 | Alarm | EDB | × | × | × | ○ | — | × |
| | 021.6 | Alarm | EDB | × | × | × | ○ | — | × |
| 024 | 024.1 | Alarm | DB | × | × | × | ○ | — | × |
| | 024.2 | Alarm | DB | × | ○ | ○ | ○ | — | × |
| 025 | 025.1 | Alarm | DB | × | × | × | ○ | — | × |
| 027 | 027.1 | Alarm | DB | × | ○ | ○ | ○ | — | × |
| | 027.2 | Alarm | DB | × | ○ | ○ | ○ | — | × |
| | 027.3 | Alarm | DB | × | ○ | ○ | ○ | — | × |
| | 027.4 | Alarm | DB | × | ○ | ○ | ○ | — | × |
| | 027.5 | Alarm | DB | × | ○ | ○ | ○ | — | × |
| | 027.6 | Alarm | DB | × | ○ | ○ | ○ | — | × |
| | 027.7 | Alarm | DB | × | ○ | ○ | ○ | — | × |
| 028 | 028.1 | Alarm | EDB | × | × | × | ○ | — | × |
| | 028.2 | Alarm | EDB | × | × | × | ○ | — | × |
| 02A | 02A.1 | Alarm | EDB | × | × | × | ○ | — | × |
| | 02A.2 | Alarm | EDB | × | × | × | ○ | — | × |
| | 02A.3 | Alarm | EDB | × | × | × | ○ | — | × |
| | 02A.4 | Alarm | EDB | × | × | × | ○ | — | × |
| | 02A.5 | Alarm | EDB | × | × | × | ○ | — | × |
| | 02A.6 | Alarm | EDB | × | × | × | ○ | — | × |
| | 02A.7 | Alarm | EDB | × | × | × | ○ | — | × |
| | 02A.8 | Alarm | EDB | × | × | × | ○ | — | × |
| 030 | 030.1 | Alarm | DB | × | △ | △ | ○ | — | × |
| | 030.2 | Alarm | DB | × | × | × | ○ | — | × |
| | 030.3 | Alarm | DB | × | △ | △ | ○ | — | × |
| 031 | 031.1 | Alarm | SD | × | ○ | ○ | ○ | — | × |
| 032 | 032.1 | Alarm | DB | × | × | × | ○ | — | × |
| | 032.2 | Alarm | DB | × | ○ | ○ | ○ | — | × |
| | 032.3 | Alarm | DB | × | × | × | ○ | — | × |
| | 032.4 | Alarm | DB | × | ○ | ○ | ○ | — | × |
| 033 | 033.1 | Alarm | EDB | × | ○ | ○ | ○ | — | × |
| 035 | 035.1 | Alarm | SD | × | ○ | ○ | ○ | — | × |
| 037 | 037.1 | Alarm | DB | × | × | ○ | ○ | — | × |
| | 037.2 | Alarm | DB | × | × | ○ | ○ | — | × |
| | 037.3 | Alarm | DB | × | × | ○ | ○ | — | × |
| | 037.6 | Alarm | DB | × | × | ○ | ○ | — | × |
| | 037.7 | Alarm | DB | × | × | ○ | ○ | — | × |

| No. | Detail No. | Alarm/ Warning | Motor stop method | Alarm deactivation | | | | Motor stop warning | Safety sub-function stopped |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Safety reset | Alarm reset | Communication reset | Power cycling | | |
| 03A | 03A.1 | Alarm | EDB | × | × | × | ○ | — | × |
| 042 | 042.1 | Alarm | EDB | × | △ | △ | ○ | — | × |
| | 042.2 | Alarm | EDB | × | △ | △ | ○ | — | × |
| | 042.3 | Alarm | EDB | × | △ | △ | ○ | — | × |
| | 042.8 | Alarm | EDB | × | △ | △ | ○ | — | × |
| | 042.9 | Alarm | EDB | × | △ | △ | ○ | — | × |
| | 042.A | Alarm | EDB | × | △ | △ | ○ | — | × |
| 045 | 045.1 | Alarm | EDB | × | ○ | ○ | ○ | — | × |
| | 045.2 | Alarm | EDB | × | ○ | ○ | ○ | — | × |
| 046 | 046.1 | Alarm | SD | × | △ | △ | ○ | — | × |
| | 046.2 | Alarm | SD | × | △ | △ | ○ | — | × |
| | 046.3 | Alarm | SD | × | △ | △ | ○ | — | × |
| | 046.4 | Alarm | SD | × | △ | △ | ○ | — | × |
| | 046.5 | Alarm | DB | × | △ | △ | ○ | — | × |
| | 046.6 | Alarm | DB | × | △ | △ | ○ | — | × |
| | 046.7 | Alarm | DB | × | △ | △ | ○ | — | × |
| 047 | 047.1 | Alarm | SD | × | × | × | ○ | — | × |
| | 047.2 | Alarm | SD | × | × | × | ○ | — | × |
| 050 | 050.1 | Alarm | SD | × | △ | △ | ○ | — | × |
| | 050.2 | Alarm | SD | × | △ | △ | ○ | — | × |
| | 050.3 | Alarm | SD | × | △ | △ | ○ | — | × |
| | 050.4 | Alarm | SD | × | △ | △ | ○ | — | × |
| | 050.5 | Alarm | SD | × | △ | △ | ○ | — | × |
| | 050.6 | Alarm | SD | × | △ | △ | ○ | — | × |
| 051 | 051.1 | Alarm | DB | × | △ | △ | ○ | — | × |
| | 051.2 | Alarm | DB | × | △ | △ | ○ | — | × |
| 052 | 052.1 | Alarm | SD | × | ○ | ○ | ○ | — | × |
| | 052.3 | Alarm | SD | × | ○ | ○ | ○ | — | × |
| | 052.4 | Alarm | SD | × | ○ | ○ | ○ | — | × |
| | 052.5 | Alarm | EDB | × | ○ | ○ | ○ | — | × |
| | 052.6 | Alarm | SD | × | ○ | ○ | ○ | — | × |
| 054 | 054.1 | Alarm | EDB | × | ○ | ○ | ○ | — | × |
| 056 | 056.2 | Alarm | EDB | × | ○ | ○ | ○ | — | × |
| | 056.3 | Alarm | EDB | × | ○ | ○ | ○ | — | × |
| | 056.5 | Alarm | EDB | × | ○ | ○ | ○ | — | × |
| 061 | 061.1 | Alarm | DB | × | ○ | ○ | ○ | — | × |
| 063 | 063.1 | Alarm | DB | × | ○ | ○ | ○ | — | × |
| | 063.2 | Alarm | DB | × | ○ | ○ | ○ | — | × |
| 068 | 068.1 | Alarm | DB | × | × | × | ○ | — | × |
| 069 | 069.1 | Alarm | SD | × | ○ | ○ | ○ | — | × |
| | 069.2 | Alarm | SD | × | ○ | ○ | ○ | — | × |
| | 069.3 | Alarm | SD | × | ○ | ○ | ○ | — | × |
| | 069.4 | Alarm | SD | × | ○ | ○ | ○ | — | × |
| | 069.5 | Alarm | SD | × | ○ | ○ | ○ | — | × |
| | 069.6 | Alarm | SD | × | ○ | ○ | ○ | — | × |

| No. | Detail No. | Alarm/ Warning | Motor stop method | Alarm deactivation | | | | Motor stop warning | Safety sub-function stopped |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Safety reset | Alarm reset | Communication reset | Power cycling | | |
| 070 | 070.1 | Alarm | DB | × | × | × | ○ | — | × |
| | 070.2 | Alarm | DB | × | × | × | ○ | — | × |
| | 070.3 | Alarm | DB | × | × | × | ○ | — | × |
| | 070.5 | Alarm | DB | × | × | × | ○ | — | × |
| | 070.6 | Alarm | DB | × | × | × | ○ | — | × |
| | 070.7 | Alarm | DB | × | × | × | ○ | — | × |
| | 070.A | Alarm | DB | × | × | × | ○ | — | × |
| | 070.B | Alarm | DB | × | × | × | ○ | — | × |
| | 070.C | Alarm | DB | × | × | × | ○ | — | × |
| | 070.D | Alarm | DB | × | × | × | ○ | — | × |
| | 070.E | Alarm | DB | × | × | × | ○ | — | × |
| | 070.F | Alarm | DB | × | × | × | ○ | — | × |
| 071 | 071.1 | Alarm | EDB | × | × | × | ○ | — | × |
| | 071.2 | Alarm | EDB | × | × | × | ○ | — | × |
| | 071.3 | Alarm | EDB | × | × | × | ○ | — | × |
| | 071.4 | Alarm | EDB | × | × | × | ○ | — | × |
| | 071.5 | Alarm | EDB | × | × | × | ○ | — | × |
| | 071.6 | Alarm | EDB | × | × | × | ○ | — | × |
| | 071.7 | Alarm | EDB | × | × | × | ○ | — | × |
| 072 | 072.1 | Alarm | EDB | × | × | × | ○ | — | × |
| | 072.2 | Alarm | EDB | × | × | × | ○ | — | × |
| | 072.3 | Alarm | EDB | × | × | × | ○ | — | × |
| | 072.4 | Alarm | EDB | × | × | × | ○ | — | × |
| | 072.5 | Alarm | EDB | × | × | × | ○ | — | × |
| | 072.6 | Alarm | EDB | × | × | × | ○ | — | × |
| 076 | 076.2 | Alarm | DB | × | × | × | ○ | — | × |
| | 076.3 | Alarm | DB | × | × | × | ○ | — | × |
| 086 | 086.1 | Alarm | SD | × | ○ | × | ○ | — | × |
| | 086.2 | Alarm | SD | × | ○ | × | ○ | — | × |
| | 086.3 | Alarm | SD | × | ○ | × | ○ | — | × |
| | 086.4 | Alarm | SD | × | ○ | × | ○ | — | × |
| | 086.5 | Alarm | SD | × | ○ | × | ○ | — | × |
| | 086.6 | Alarm | SD | × | ○ | × | ○ | — | × |
| 088/888/ 88888 | 088.1/088/ 888/88888 | Alarm | DB | × | × | × | ○ | — | × |
| | 088.2 | Alarm | DB | × | × | × | ○ | — | × |
| | 088.4 | Alarm | DB | × | × | × | ○ | — | × |
| | 088.8 | Alarm | DB | × | × | × | ○ | — | × |
| 08E | 08E.1 | Alarm | SD | × | ○ | ○ | ○ | — | × |
| | 08E.2 | Alarm | SD | × | ○ | ○ | ○ | — | × |
| | 08E.3 | Alarm | SD | × | ○ | ○ | ○ | — | × |
| | 08E.4 | Alarm | SD | × | ○ | ○ | ○ | — | × |
| | 08E.5 | Alarm | SD | × | ○ | ○ | ○ | — | × |

| No. | Detail No. | Alarm/ Warning | Motor stop method | Alarm deactivation | | | | Motor stop warning | Safety sub-function stopped |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Safety reset | Alarm reset | Communication reset | Power cycling | | |
| 08F | 08F.1 | Alarm | Refer to the alarm columns with alarm No. in 100s ([AL. 1_ _]). | | | | | | |
| | 08F.2 | Alarm | Refer to the alarm columns with alarm No. in 200s ([AL. 2_ _]). | | | | | | |
| | 08F.3 | Alarm | For manufacturer setting | | | | | | |
| | 08F.4 | Alarm | For manufacturer setting | | | | | | |
| | 08F.5 | Alarm | For manufacturer setting | | | | | | |
| | 08F.6 | Alarm | For manufacturer setting | | | | | | |
| | 08F.7 | Alarm | For manufacturer setting | | | | | | |
| | 08F.8 | Alarm | For manufacturer setting | | | | | | |
| | 08F.9 | Alarm | For manufacturer setting | | | | | | |
| | 08F.A | Alarm | For manufacturer setting | | | | | | |
| | 08F.B | Alarm | For manufacturer setting | | | | | | |
| | 08F.C | Alarm | For manufacturer setting | | | | | | |
| | 08F.D | Alarm | For manufacturer setting | | | | | | |
| | 08F.E | Alarm | For manufacturer setting | | | | | | |
| | 08F.F | Alarm | For manufacturer setting | | | | | | |
| 090 | 090.1 | Warning | — | — | — | — | — | ○ | × |
| | 090.2 | Warning | — | — | — | — | — | ○ | × |
| | 090.5 | Warning | — | — | — | — | — | ○ | × |
| 091 | 091.1 | Warning | — | — | — | — | — | × | × |
| 092 | 092.1 | Warning | — | — | — | — | — | × | × |
| | 092.3 | Warning | — | — | — | — | — | × | × |
| 095 | 095.1 | Warning | DB | — | — | — | — | ○ | × |
| | 095.2 | Warning | DB | — | — | — | — | ○ | × |
| 096 | 096.1 | Warning | — *1 | — | — | — | — | ○ | × |
| | 096.2 | Warning | — *1 | — | — | — | — | ○ | × |
| 098 | 098.1 | Warning | DB | — | — | — | — | ○ | × |
| | 098.2 | Warning | DB | — | — | — | — | ○ | × |
| 099 | 099.1 | Warning | — *2 | — | — | — | — | ○ | × |
| | 099.2 | Warning | — *2 | — | — | — | — | ○ | × |
| | 099.4 | Warning | — *2 | — | — | — | — | ○ | × |
| | 099.5 | Warning | — *2 | — | — | — | — | ○ | × |
| | 099.6 | Warning | — *2 | — | — | — | — | ○ | × |
| | 099.7 | Warning | — *2 | — | — | — | — | ○ | × |
| | 099.8 | Warning | — *2 | — | — | — | — | ○ | × |
| | 099.9 | Warning | — *2 | — | — | — | — | ○ | × |
| 09B | 09B.1 | Warning | — | — | — | — | — | × | × |
| | 09B.3 | Warning | — | — | — | — | — | × | × |
| | 09B.4 | Warning | — | — | — | — | — | × | × |
| 09E | 09E.2 | Warning | DB | — | — | — | — | ○ | × |
| | 09E.3 | Warning | DB | — | — | — | — | ○ | × |
| | 09E.4 | Warning | DB | — | — | — | — | ○ | × |
| | 09E.5 | Warning | DB | — | — | — | — | ○ | × |
| | 09E.6 | Warning | DB | — | — | — | — | ○ | × |
| | 09E.7 | Warning | DB | — | — | — | ○ | ○ | × |
| | 09E.8 | Warning | DB | — | — | — | ○ | ○ | × |
| | 09E.9 | Warning | DB | — | — | — | — | ○ | × |
| | 09E.A | Warning | DB | — | — | — | — | ○ | × |
| | 09E.B | Warning | DB | — | — | — | — | ○ | × |
| 09F | 09F.1 | Warning | — | — | — | — | — | × | × |
| 0E0 | 0E0.1 | Warning | — | — | — | — | — | × | × |

| No. | Detail No. | Alarm/ Warning | Motor stop method | Alarm deactivation | | | | Motor stop warning | Safety sub-function stopped |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Safety reset | Alarm reset | Communication reset | Power cycling | | |
| 0E1 | 0E1.1 | Warning | — | — | — | — | — | × | × |
| | 0E1.2 | Warning | — | — | — | — | — | × | × |
| | 0E1.3 | Warning | — | — | — | — | — | × | × |
| | 0E1.4 | Warning | — | — | — | — | — | × | × |
| | 0E1.5 | Warning | — | — | — | — | — | × | × |
| | 0E1.6 | Warning | — | — | — | — | — | × | × |
| | 0E1.7 | Warning | — | — | — | — | — | × | × |
| | 0E1.8 | Warning | — | — | — | — | — | × | × |
| 0E2 | 0E2.1 | Warning | — | — | — | — | — | × | × |
| | 0E2.2 | Warning | — | — | — | — | — | × | × |
| 0E3 | 0E3.1 | Warning | — | — | — | — | — | × | × |
| | 0E3.2 | Warning | — | — | — | — | — | × | × |
| | 0E3.5 | Warning | — | — | — | — | — | × | × |
| 0E6 | 0E6.1 | Warning | SD | — | — | — | — | ○ | × |
| 0E8 | 0E8.1 | Warning | — | — | — | — | — | × | × |
| | 0E8.2 | Warning | — | — | — | — | — | × | × |
| 0E9 | 0E9.1 | Warning | DB | — | — | — | — | ○ | × |
| | 0E9.2 | Warning | DB | — | — | — | — | ○ | × |
| | 0E9.3 | Warning | DB | — | — | — | — | ○ | × |
| 0EC | 0EC.1 | Warning | — | — | — | — | — | × | × |
| 0ED | 0ED.1 | Warning | — | — | — | — | — | × | × |
| 0F0 | 0F0.1 | Warning | — | — | — | — | — | × | × |
| | 0F0.3 | Warning | — | — | — | — | — | × | × |
| 0F2 | 0F2.1 | Warning | — | — | — | — | ○ | × | × |
| | 0F2.2 | Warning | — | — | — | — | ○ | × | × |
| | 0F2.3 | Warning | — | — | — | — | ○ | × | × |
| | 0F2.4 | Warning | — | — | — | — | ○ | × | × |
| | 0F2.5 | Warning | — | — | — | — | ○ | × | × |
| | 0F2.6 | Warning | — | — | — | — | ○ | × | × |
| 0F3 | 0F3.1 | Warning | — | — | — | — | — | × | × |
| 0F4 | 0F4.4 | Warning | — | — | — | — | — | ○ | × |
| | 0F4.6 | Warning | — | — | — | — | — | ○ | × |
| | 0F4.7 | Warning | — | — | — | — | — | ○ | × |
| | 0F4.8 | Warning | — | — | — | — | — | ○ | × |
| | 0F4.A | Warning | — | — | — | — | — | ○ | × |
| 0FE | 0FE.1 | Warning | Refer to the warning columns with warning No. in 100s ([AL. 1_ _]). | | | | | | |
| | 0FE.2 | Warning | Refer to the warning columns with warning No. in 200s ([AL. 2_ _]). | | | | | | |
| | 0FE.3 | Warning | For manufacturer setting | | | | | | |
| | 0FE.4 | Warning | For manufacturer setting | | | | | | |
| | 0FE.5 | Warning | For manufacturer setting | | | | | | |
| | 0FE.6 | Warning | For manufacturer setting | | | | | | |
| | 0FE.7 | Warning | For manufacturer setting | | | | | | |
| | 0FE.8 | Warning | For manufacturer setting | | | | | | |
| | 0FE.9 | Warning | For manufacturer setting | | | | | | |
| | 0FE.A | Warning | For manufacturer setting | | | | | | |
| | 0FE.B | Warning | For manufacturer setting | | | | | | |
| | 0FE.C | Warning | For manufacturer setting | | | | | | |
| | 0FE.D | Warning | For manufacturer setting | | | | | | |
| | 0FE.E | Warning | For manufacturer setting | | | | | | |
| | 0FE.F | Warning | For manufacturer setting | | | | | | |
| 118 | 118.1 | Alarm | DB | × | × | × | ○ | — | × |

| No. | Detail No. | Alarm/ Warning | Motor stop method | Alarm deactivation | | | | Motor stop warning | Safety sub-function stopped |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Safety reset | Alarm reset | Communication reset | Power cycling | | |
| 119 | 119.1 | Alarm | DB | × | × | × | ○ | — | × |
| | 119.2 | Alarm | DB | × | × | × | ○ | — | × |
| | 119.3 | Alarm | DB | × | × | × | ○ | — | × |
| | 119.4 | Alarm | DB | × | × | × | ○ | — | × |
| | 119.5 | Alarm | DB | × | × | × | ○ | — | × |
| | 119.6 | Alarm | DB | × | × | × | ○ | — | × |
| | 119.7 | Alarm | DB | × | × | × | ○ | — | × |
| | 119.8 | Alarm | DB | × | × | × | ○ | — | × |
| 11A | 11A.1 | Alarm | — | × | — | — | ○ | — | × |
| | 11A.2 | Alarm | — | × | — | — | ○ | — | × |
| | 11A.3 | Alarm | — | × | — | — | ○ | — | × |
| 130 | 130.1 | Alarm | DB | × | ○ | ○ | ○ | × | × |
| 139 | 139.2 | Alarm | DB | × | × | × | ○ | — | × |
| 17A | 17A.1 | Alarm | EDB | × | × | × | ○ | — | × |
| | 17A.2 | Alarm | EDB | × | × | × | ○ | — | × |
| | 17A.3 | Alarm | EDB | × | × | × | ○ | — | × |
| | 17A.4 | Alarm | EDB | × | × | × | ○ | — | × |
| | 17A.5 | Alarm | EDB | × | × | × | ○ | — | × |
| | 17A.6 | Alarm | EDB | × | × | × | ○ | — | × |
| | 17A.7 | Alarm | EDB | × | × | × | ○ | — | × |
| | 17A.8 | Alarm | EDB | × | × | × | ○ | — | × |
| 188 | 188.1 | Alarm | DB | × | × | × | ○ | — | × |
| 19D | 19D.1 | Warning | — | — | — | — | — | × | × |
| | 19D.2 | Warning | — | — | — | — | — | × | × |
| 19E | 19E.1 | Warning | — | — | — | — | — | — | × |
| | 19E.2 | Warning | — | — | — | — | — | — | × |
| | 19E.3 | Warning | — | — | — | — | — | — | × |
| 1E9 | 1E9.1 | Warning | — | — | — | — | — | × | × |
| 1F6 | 1F6.1 | Warning | — | — | — | — | — | × | × |
| | 1F6.2 | Warning | — | — | — | — | — | × | × |
| | 1F6.3 | Warning | — | — | — | — | — | × | × |
| | 1F6.4 | Warning | — | — | — | — | — | × | × |
| | 1F6.5 | Warning | — | — | — | — | — | × | × |
| | 1F6.6 | Warning | — | — | — | — | — | × | × |
| 1F8 | 1F8.1 | Warning | — | — | — | — | — | × | × |
| | 1F8.2 | Warning | — | — | — | — | — | × | × |
| 201 - 28F | — | Alarm | For manufacturer setting | | | | | | |
| 290 - 2FF | — | Warning | For manufacturer setting | | | | | | |
| 510 | 510.1 | Alarm | STO/DB | ○ | × | × | ○ | — | ○ |
| | 510.2 | Alarm | STO/DB | ○ | × | × | ○ | — | ○ |
| | 510.7 | Alarm | STO/DB | ○ | × | × | ○ | — | ○ |
| | 510.9 | Alarm | STO/DB | ○ | × | × | ○ | — | ○ |
| | 510.A | Alarm | STO/DB | ○ | × | × | ○ | — | ○ |
| | 510.B | Alarm | STO/DB | ○ | × | × | ○ | — | ○ |
| | 510.C | Alarm | STO/DB | ○ | × | × | ○ | — | ○ |
| | 510.D | Alarm | STO/DB | ○ | × | × | ○ | — | ○ |
| | 510.E | Alarm | STO/DB | ○ | × | × | ○ | — | ○ |
| | 510.F | Alarm | STO/DB | ○ | × | × | ○ | — | ○ |

| No. | Detail No. | Alarm/ Warning | Motor stop method | Alarm deactivation | | | | Motor stop warning | Safety sub-function stopped |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Safety reset | Alarm reset | Communication reset | Power cycling | | |
| 512 | 512.2 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 512.3 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 512.A | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 512.B | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 514 | 514.9 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 514.A | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 515 | 515.9 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 515.A | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 517 | 517.2 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 517.9 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 518 | 518.2 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 518.A | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 519 | 519.2 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 519.A | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 52A | 52A.1 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 52A.9 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 537 | 537.1 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 537.2 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 537.3 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 537.9 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 537.A | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 53A | 53A.2 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 53A.A | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 540 | 540.1 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 540.2 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 540.3 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 540.4 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 540.9 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 540.A | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 541 | 541.1 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 541.2 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 541.3 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 541.4 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 541.5 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 541.9 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 541.A | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 541.B | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 541.C | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 541.D | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 542 | 542.1 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 542.9 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 543 | 543.1 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 543.2 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 543.3 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 543.9 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 543.A | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 543.B | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 543.C | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 543.D | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 543.E | Alarm | STO/DB | × | × | × | ○ | — | ○ |

| No. | Detail No. | Alarm/ Warning | Motor stop method | Alarm deactivation | | | | Motor stop warning | Safety sub-function stopped |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Safety reset | Alarm reset | Communication reset | Power cycling | | |
| 544 | 544.1 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 544.2 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 544.9 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 544.A | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| 545 | 545.2 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 546 | 546.1 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 546.2 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 546.9 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 546.A | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 547 | 547.1 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 547.2 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 547.9 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 547.A | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 549 | 549.1 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 549.9 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 54A | 54A.1 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 54A.2 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 54A.3 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 54A.9 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 54A.A | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 54A.B | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 54D | 54D.1 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 54D.2 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 54D.3 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 54D.4 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 54D.9 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 54F | 54F.1 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 550 | 550.1 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 550.2 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 550.3 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 550.4 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 550.9 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 550.A | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 550.B | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 550.C | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 551 | 551.1 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 551.2 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 551.3 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 551.4 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 551.9 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 551.A | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 551.B | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 551.C | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 552 | 552.1 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| | 552.9 | Alarm | STO/DB | × | × | × | ○ | — | ○ |
| 554 | 554.1 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 554.2 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 554.3 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 554.9 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 554.A | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 554.B | Alarm | SS1/SD | × | × | × | ○ | — | ○ |

| No. | Detail No. | Alarm/ Warning | Motor stop method | Alarm deactivation | | | | Motor stop warning | Safety sub-function stopped |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Safety reset | Alarm reset | Communication reset | Power cycling | | |
| 555 | 555.1 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 555.2 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 555.3 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 555.9 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 555.A | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 555.B | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| 556 | 556.1 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 556.2 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 556.3 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 556.9 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 556.A | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 556.B | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| 557 | 557.1 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 557.2 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 557.3 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 557.9 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 557.A | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 557.B | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| 561 | 561.1 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 561.2 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 561.3 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 561.4 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 561.9 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 561.A | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 561.B | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 561.C | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| 562 | 562.1 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 562.2 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 562.3 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 562.4 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 562.9 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 562.A | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 562.B | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 562.C | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| 563 | 563.1 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 563.2 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 563.9 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 563.A | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| 565 | 565.1 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 565.2 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 565.3 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 565.4 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 565.9 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 565.A | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 565.B | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 565.C | Alarm | STO/DB | ○ | × | × | ○ | — | × |

| No. | Detail No. | Alarm/ Warning | Motor stop method | Alarm deactivation | | | | Motor stop warning | Safety sub-function stopped |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Safety reset | Alarm reset | Communication reset | Power cycling | | |
| 568 | 568.1 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 568.2 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 568.3 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 568.4 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 568.9 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 568.A | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 568.B | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 568.C | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| 569 | 569.1 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 569.2 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 569.3 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 569.4 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 569.9 | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 569.A | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 569.B | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| | 569.C | Alarm | STO/DB | ○ | × | × | ○ | — | × |
| 580 | 580.3 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 580.B | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| 581 | 581.1 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 581.2 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 581.3 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 581.4 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 581.5 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 581.6 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 581.7 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 581.9 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 581.A | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 581.B | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 581.C | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 581.D | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 581.E | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 581.F | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| 582 | 582.1 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 582.2 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 582.3 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 582.4 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 582.5 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 582.6 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 582.7 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 582.9 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 582.A | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 582.B | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 582.C | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 582.D | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 582.E | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 582.F | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |

| No. | Detail No. | Alarm/ Warning | Motor stop method | Alarm deactivation | | | | Motor stop warning | Safety sub-function stopped |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Safety reset | Alarm reset | Communication reset | Power cycling | | |
| 583 | 583.2 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 583.3 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 583.4 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 583.5 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 583.6 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 583.A | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 583.B | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 583.C | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 583.D | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 583.E | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| 584 | 584.1 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 584.2 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 584.3 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 584.4 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 584.5 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 584.9 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 584.A | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 584.B | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 584.C | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 584.D | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| 585 | 585.1 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 585.2 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 585.3 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 585.4 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 585.9 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 585.A | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 585.B | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 585.C | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| 586 | 586.1 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 586.2 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 586.3 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 586.4 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 586.5 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 586.9 | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 586.A | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 586.B | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 586.C | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |
| | 586.D | Alarm | SS1/SD | ○ | × | × | ○ | — | ○ |

| No. | Detail No. | Alarm/ Warning | Motor stop method | Alarm deactivation | | | | Motor stop warning | Safety sub-function stopped |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Safety reset | Alarm reset | Communication reset | Power cycling | | |
| 587 | 587.1 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 587.2 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 587.3 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 587.4 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 587.5 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 587.6 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 587.7 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 587.9 | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 587.A | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 587.B | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 587.C | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 587.D | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 587.E | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| | 587.F | Alarm | SS1/SD | × | × | × | ○ | — | ○ |
| 595 | 595.1 | Warning | STO/DB | — | — | — | — | ○ | × |
| | 595.9 | Warning | STO/DB | — | — | — | — | ○ | × |
| 596 | 596.1 | Warning | STO/DB | — | — | — | — | ○ | × |
| | 596.9 | Warning | STO/DB | — | — | — | — | ○ | × |
| 59D | 59D.1 | Warning | STO/DB | × | — | — | — | ○ | ○ |
| | 59D.3 | Warning | STO/DB | × | — | — | — | ○ | ○ |
| | 59D.6 | Warning | STO/DB | × | — | — | — | ○ | ○ |
| | 59D.9 | Warning | STO/DB | × | — | — | — | ○ | ○ |
| | 59D.B | Warning | STO/DB | × | — | — | — | ○ | ○ |
| | 59D.E | Warning | STO/DB | × | — | — | — | ○ | ○ |
| 5E0 | 5E0.1 | Warning | STO/DB | — | — | — | — | ○ | ○ |
| | 5E0.2 | Warning | STO/DB | — | — | — | — | ○ | ○ |
| | 5E0.3 | Warning | STO/DB | — | — | — | — | ○ | ○ |
| | 5E0.7 | Warning | STO/DB | — | — | — | — | ○ | ○ |
| | 5E0.9 | Warning | STO/DB | — | — | — | — | ○ | ○ |
| | 5E0.A | Warning | STO/DB | — | — | — | — | ○ | ○ |
| | 5E0.B | Warning | STO/DB | — | — | — | — | ○ | ○ |
| | 5E0.F | Warning | STO/DB | — | — | — | — | ○ | ○ |
| 5E1 | 5E1.1 | Warning | STO/DB | — | — | — | — | ○ | × |
| | 5E1.9 | Warning | STO/DB | — | — | — | — | ○ | × |
| 5E2 | 5E2.1 | Warning | SS1/SD | — | — | — | — | ○ | ○ |
| | 5E2.2 | Warning | SS1/SD | — | — | — | — | ○ | ○ |
| | 5E2.9 | Warning | SS1/SD | — | — | — | — | ○ | ○ |
| | 5E2.A | Warning | SS1/SD | — | — | — | — | ○ | × |
| 5E6 | 5E6.1 | Warning | SS1/SD | — | — | — | — | ○ | × |
| | 5E6.9 | Warning | SS1/SD | — | — | — | — | ○ | × |

*1 Because the servo motor is stopped when this warning is detected, there is no "Motor stop method".

*2 For details of "Motor stop method", refer to "Stop method at stroke limit detection" in the following manual.
MR-JET User's Manual (Function)

# 1.3 Handling methods for alarms/warnings

Remove the cause of the alarm and warning in accordance with this section. MR Configurator2 can be referenced to find the causes of alarms and warnings.

## [AL. 010_Undervoltage]

- The power supply voltage has dropped.

### [AL. 010.1_Voltage drop in the control circuit power]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The power connector (control circuit power connector for the MR-JET-_G_-HS(N1)) is not properly connected or wired. | Check the connection and wiring condition of the power connector (control circuit power connector for the MR-JET-_G_-HS(N1)) such as screw tightening state on the power supply route, disconnected cables, and loose connection of the servo amplifier connector.<br>Refer to "Example power circuit connections" in the following manual.<br>📖MR-JET User's Manual (Hardware) | [G] |
| **2.** The voltage of the power supply (control circuit power supply for the MR-JET-_G_-HS(N1)) is too low. | Check if the voltage of the power supply (voltage of the control circuit power supply for the MR-JET-_G_-HS(N1)) is equal to or lower than the specified value.<br>200 V class: 160 V AC<br>400 V class: 280 V AC | |
| **3.** The power was cycled before the internal power supply (control circuit power supply for the MR-JET-_G_-HS(N1)) stopped. | After shutting off the servo amplifier power supply, make sure that the seven-segment LED of the servo amplifier is turned off, then cycle the power. | |
| **4.** An instantaneous power failure lasted for longer than the specified time.<br>• When [Pr. PA20.2 Instantaneous power failure tough drive selection] is set to "0" (disabled), the specified time is 60 ms.<br>• When [Pr. PA20.2] is set to "1" (enabled), the value set in [Pr. PF25 Instantaneous power failure tough drive detection time] is the specified time. | Check if the power supply has a problem.<br>After checking, cycle the power of the servo amplifier. | |
| **5.** When using a 1-phase power supply, the power supply wiring is incorrect. | Refer to "Example power circuit connections" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 010.2_Voltage drop in the main circuit power]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The power connector (main circuit power connector for the MR-JET-_G_-HS(N1)) is not properly connected or wired. | Check the connection and wiring condition of the power connector (main circuit power supply for the MR-JET-_G_-HS(N1)) such as screw tightening state on the power supply route, disconnected cables, and loose connection of the servo amplifier connector.<br>Refer to "Example power circuit connections" in the following manual.<br>MR-JET User's Manual (Hardware) | [G] |
| **2.** The voltage of the power supply (main circuit power supply for the MR-JET-_G_-HS(N1)) is too low. The voltage of the power supply (voltage of the main circuit power supply for the MR-JET-_G_-HS(N1)) has dropped due to an instantaneous power failure or other reasons. | Check if the voltage of the power supply (voltage of the main circuit power supply for the MR-JET-_G_-HS(N1)) is equal to or lower than the specified value. When the voltage is equal to or lower than the specified value, increase the voltage of the power supply (voltage of the main circuit power supply for the MR-JET-_G_-HS(N1)).<br>200 V class: 160 V AC<br>400 V class: 280 V AC<br>If an instantaneous power failure is occurring, review the power supply environment. | |
| **3.** When this alarm occurs, the bus voltage is too low at acceleration. | Check if the bus voltage during acceleration is lower than the specified value. If the bus voltage is lower than the specified value, increase the acceleration time constant or the power supply capacity.<br>200 V class: 200 V DC<br>400 V class: 380 V DC | |
| **4.** The power supply capacity is insufficient. | Check if the specified power supply capacity is satisfied. | |
| **5.** Main circuit capacitor has deteriorated. | After checking the operation time and ambient temperature, replace the servo amplifier if the main circuit capacitor has reached the end of its service life. Refer to "Parts with a service life" in the User's Manual (Introduction). | |
| **6.** The servo amplifier has malfunctioned. | Check the value of the bus voltage. If the bus voltage is lower than the specified value even though the voltage of the power supply (voltage of the main circuit power supply for the MR-JET-_G_-HS(N1)) is within specifications, replace the servo amplifier.<br>200 V class: 200 V DC<br>400 V class: 380 V DC | |

# [AL. 011_Switch setting error]

- The settings of the DIP switch are incorrect.
- The settings of the rotary switch are incorrect.

## [AL. 011.1_Rotary switch setting error]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* Each selected network has its settable range, and the values set with the rotary switches (SW1/SW2) were set out of the range. | Check the settings of the rotary switches (SW1/SW2).<br>If the value set with the rotary switch does not match the actual value, the servo amplifier may have malfunctioned. Replace the servo amplifier.<br>Specifications on the setting of the rotary switches vary depending on each network.<br>Refer to "Switch setting and display of the servo amplifier" in the User's Manual (Introduction). | [G] |

# [AL. 012_Memory error 1 (RAM)]

• The internal part of the servo amplifier (RAM) has malfunctioned.

## [AL. 012.1_RAM error 1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** An internal part of the servo amplifier has malfunctioned. | Disconnect all cables except for those for the power supply (control circuit power supply for the MR-JET-_G_-HS(N1)), then check the repeatability. If the failure continues, the servo amplifier may have malfunctioned. Replace the servo amplifier. | [G] |
| **2.** There is a problem with the surrounding environment. | Check the power supply for noise. If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 012.2_RAM error 2]

☞ Page 28 [AL. 012.1_RAM error 1]

## [AL. 012.4_RAM error 4]

☞ Page 28 [AL. 012.1_RAM error 1]

## [AL. 012.5_RAM error 5]

☞ Page 28 [AL. 012.1_RAM error 1]

## [AL. 012.6_RAM error 6]

☞ Page 28 [AL. 012.1_RAM error 1]

## [AL. 012.7_RAM error 7]

☞ Page 28 [AL. 012.1_RAM error 1]

## [AL. 012.8_RAM error 8]

☞ Page 28 [AL. 012.1_RAM error 1]

## [AL. 012.9_For manufacturer setting]

This is for manufacturer setting.

# [AL. 013_CPU error]



- An internal part of the servo amplifier has malfunctioned.
- A clock transmitted from the controller has an error.

## [AL. 013.1_CPU error 1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** An internal part of the servo amplifier has malfunctioned. | Noise from the power supply may have caused the failure. Disconnect all cables except for those for the power supply (control circuit power supply for the MR-JET-_G_-HS(N1)), then check the repeatability. If the failure continues, replace the servo amplifier. | [G] |
| **2.** A clock transmitted from the controller has an error. | Check if this alarm occurs when the servo amplifier is connected to the controller. If the alarm occurs, replace the controller. | |
| **3.** The servo amplifier of the next axis has malfunctioned. | Replace the servo amplifier of the next axis, then check the repeatability. | |
| **4.** There is a problem with the surrounding environment. | Check the power supply for noise. If there is noise, take countermeasures to reduce the noise.<br>Check if the connector has shorted.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 013.2_CPU error 2]

☞ Page 29 [AL. 013.1_CPU error 1]

## [AL. 013.4_CPU error 4]

☞ Page 29 [AL. 013.1_CPU error 1]

## [AL. 013.5_CPU error 5]

☞ Page 29 [AL. 013.1_CPU error 1]

# [AL. 014_Control process error]

- The process did not complete within the specified time.
- The internal part of the servo amplifier (communication IC) has malfunctioned.

## [AL. 014.1_Control process error 1]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The servo parameter settings are incorrect. | Return the servo parameter to the value it had before the alarm occurrence, then check if the problem occurs again. | [G] |
| 2. There is a problem with the surrounding environment. | Check the power supply for noise. If there is noise, take countermeasures to reduce the noise.<br>Check if the connector has shorted.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| 3. The servo amplifier has malfunctioned. | Replace the servo amplifier. | |

## [AL. 014.2_Control process error 2]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A synchronous signal transmitted from the controller has an error. | Replace the controller, then check the repeatability. | [G] |
| 2. The servo parameter settings are incorrect. | Return the servo parameter to the value it had before the alarm occurrence, then check if the problem occurs again. | |
| 3. There is a problem with the surrounding environment. | Check the power supply for noise. If there is noise, take countermeasures to reduce the noise.<br>Check if the connector has shorted.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| 4. The servo amplifier has malfunctioned. | Replace the servo amplifier. | |

## [AL. 014.3_Control process error 3]

☞ Page 30 [AL. 014.1_Control process error 1]

## [AL. 014.4_Control process error 4]

☞ Page 30 [AL. 014.1_Control process error 1]

## [AL. 014.5_Control process error 5]

☞ Page 30 [AL. 014.1_Control process error 1]

## [AL. 014.8_Control process error 8]

☞ Page 30 [AL. 014.1_Control process error 1]

## [AL. 014.9_Control process error 9]

☞ Page 30 [AL. 014.1_Control process error 1]

## [AL. 014.C_Control process error 12]

☞ Page 30 [AL. 014.1_Control process error 1]

# [AL. 016_Encoder initial communication error 1]



• There is a communication error between the encoder and servo amplifier.

## [AL. 016.1_Encoder initial communication - Receive data error 1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** There is a problem with the encoder cable. | Check if the encoder cable has been disconnected, incorrectly wired, or has shorted.<br>If there is a problem with the encoder cable, replace or repair the cable.<br>Refer to "A/B/Z-phase differential output type encoder" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | [G] |
| **2.** If an A/B/Z-phase differential output type encoder is being used on the servo motor side, the servo amplifier is not compatible with the A/B/Z-phase differential output type encoder. | Check if the servo amplifier is compatible with the A/B/Z-phase differential output type encoder.<br>Refer to "Compatible linear encoder list" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | |
| **3.** If an A/B/Z-phase differential output type encoder is being used on the servo motor side, the connection with the encoder is incorrect. | Check if the wiring of the A/B/Z-phase differential output type encoder is correct.<br>Refer to "A/B/Z-phase differential output type encoder" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | |
| **4.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **5.** The encoder has malfunctioned. | Replace the servo motor. | |
| **6.** There is a problem with the surrounding environment. | Check the power supply for noise. If there is noise, take countermeasures to reduce the noise.<br>Check if the connector has shorted.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 016.2_Encoder initial communication - Receive data error 2]

☞ Page 31 [AL. 016.1_Encoder initial communication - Receive data error 1]

## [AL. 016.3_Encoder initial communication - Receive data error 3]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The encoder cable is disconnected. | Check if the encoder cable is connected correctly. | [G] |
| **2.** The servo parameter settings for the communication method are incorrect. | Set the servo parameter correctly according to the encoder cable communication method (two-wire type/four-wire type).<br>[G]: [Pr. PC04.3 Encoder cable communication method selection] | |
| **3.** There is a problem with the encoder cable. | Check if the encoder cable has been disconnected or has shorted. If there is a problem with the encoder cable, replace or repair the cable. | |
| **4.** If an A/B/Z-phase differential output type encoder is being used on the servo motor side, the connection with the encoder is incorrect. | Check if the wiring of the A/B/Z-phase differential output type encoder is correct.<br>Refer to "A/B/Z-phase differential output type encoder" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | |
| **5.** The voltage of the power supply (control circuit power supply for the MR-JET-_G_-HS(N1)) has become unstable. | Check the voltage of the power supply (voltage of the control circuit power supply for the MR-JET-_G_-HS(N1)).<br>If an instantaneous power failure is occurring in the power supply (control circuit power supply for the MR-JET-_G_-HS(N1)), review the power supply environment. | |
| **6.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **7.** The encoder has malfunctioned. | Replace the servo motor. | |
| **8.** There is a problem with the surrounding environment. | Check the power supply for noise. If there is noise, take countermeasures to reduce the noise.<br>Check if the connector has shorted.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 016.5_Encoder initial communication - Transmission data error 1]

☞ Page 31 [AL. 016.1_Encoder initial communication - Receive data error 1]

## [AL. 016.6_Encoder initial communication - Transmission data error 2]

☞ Page 31 [AL. 016.1_Encoder initial communication - Receive data error 1]

## [AL. 016.7_Encoder initial communication - Transmission data error 3]

☞ Page 31 [AL. 016.1_Encoder initial communication - Receive data error 1]

## [AL. 016.A_Encoder initial communication - Process error 1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | [G] |
| **2.** The encoder has malfunctioned. | Replace the servo motor. | |
| **3.** There is a problem with the surrounding environment. | Check the power supply for noise. If there is noise, take countermeasures to reduce the noise.<br>Check if the connector has shorted.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 016.B_Encoder initial communication - Process error 2]

☞ Page 32 [AL. 016.A_Encoder initial communication - Process error 1]

## [AL. 016.C_Encoder initial communication - Process error 3]

☞ Page 32 [AL. 016.A_Encoder initial communication - Process error 1]

## [AL. 016.D_Encoder initial communication - Process error 4]

☞ Page 32 [AL. 016.A_Encoder initial communication - Process error 1]

## [AL. 016.E_Encoder initial communication - Process error 5]

☞ Page 32 [AL. 016.A_Encoder initial communication - Process error 1]

## [AL. 016.F_Encoder initial communication - Process error 6]

☞ Page 32 [AL. 016.A_Encoder initial communication - Process error 1]

# [AL. 017_Board error]



• There is a problem with an internal part of the servo amplifier.

## [AL. 017.1_Board error 1]

| Cause | Check/action method | Model |
|---|---|---|
| 1. There is a problem with the current detection circuit. | Check that this alarm occurs in the servo-on status. If the alarm occurs, the servo amplifier may have malfunctioned. Replace the servo amplifier. | [G] |
| 2. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 017.3_Board error 2]

☞ Page 33 [AL. 017.1_Board error 1]

## [AL. 017.4_Board error 3]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The firmware version of the servo amplifier is not supported. | The firmware version is not supported.<br>Perform a firmware update to revert to the firmware version prior to the update. | [G] |
| 2. The recognition signal of the servo amplifier was not read properly. | Disconnect all cables except for those for the power supply (control circuit power supply for the MR-JET-_G_-HS(N1)), then check the repeatability. If the failure continues, the servo amplifier may have malfunctioned. Replace the servo amplifier. | |
| 3. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 017.5_Board error 4]

| Cause | Check/action method | Model |
|---|---|---|
| 1. There is a problem with rotary switches (SW1/SW2). | After checking the conditions of the rotary switches, cycle the power, then check the repeatability. If the failure continues, the servo amplifier may have malfunctioned. Replace the servo amplifier. | [G] |
| 2. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 017.7_Board error 7]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The firmware version of the servo amplifier is not supported. | The firmware version is not supported.<br>Perform a firmware update to revert to the firmware version prior to the update. | [G] |
| 2. The recognition signal of the servo amplifier was not read properly. | Disconnect all cables except for those for the power supply (control circuit power supply for the MR-JET-_G_-HS(N1)), then check the repeatability. If the failure continues, the servo amplifier may have malfunctioned. Replace the servo amplifier. | |
| 3. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause. If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manuals.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 017.9_Board error 8]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | [G] |
| *2.* The servo amplifier has malfunctioned. | Replace the servo amplifier. | |

# [AL. 019_Memory error 3]



• The internal part of the servo amplifier (Flash-ROM) has malfunctioned.

## [AL. 019.1_Flash-ROM error 1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The Flash-ROM has malfunctioned. | Noise from the power supply may have caused the failure. Disconnect all cables except for those for the power supply (control circuit power supply for the MR-JET-_G_-HS(N1)), then check the repeatability. If the failure continues, replace the servo amplifier. | [G] |
| **2.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **3.** A firmware installation failed. | Install the firmware again. | |

## [AL. 019.2_Flash-ROM error 2]

☞ Page 35 [AL. 019.1_Flash-ROM error 1]

## [AL. 019.3_Flash-ROM error 3]

☞ Page 35 [AL. 019.1_Flash-ROM error 1]

## [AL. 019.6_Flash-ROM error 6]

☞ Page 35 [AL. 019.1_Flash-ROM error 1]

# [AL. 01A_Servo motor combination error]

- The combination of the servo amplifier and servo motor is incorrect.
- The combination of the servo amplifier and servo motor constant file is incorrect.

## [AL. 01A.1_Servo motor combination error 1]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The servo amplifier and the servo motor have been connected incorrectly. | Refer to "Servo amplifier/motor combinations" in the following manual.<br>MR-JET User's Manual (Hardware) | [G] |
| 2. A rotary servo motor that does not support the firmware version of the servo amplifier is connected to the servo amplifier. | Referring to "Servo amplifier/motor combinations" in the following manual, check if there are any restrictions on the firmware version.<br>MR-JET User's Manual (Hardware) | |
| 3. A servo motor whose manufacture date is old has been connected. | Refer to "Servo amplifier/motor combinations" in the following manual.<br>MR-JET User's Manual (Hardware) | |
| 4. [Pr. PA17 Servo motor series setting] and [Pr. PA18 Servo motor type setting] were not set based on the servo motor to be used. | Check if [Pr. PA17] and [Pr. PA18] have been set correctly. | |
| 5. The encoder has malfunctioned. | Replace the servo motor. | |

## [AL. 01A.2_Servo motor control mode combination error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The combination of the servo motor being used and the setting of [Pr. PA01.1 Operation mode selection] is not appropriate. | Check the [Pr. PA01.1] setting. | [G] |
| 2. In the fully closed loop control mode, the servo motor-side encoder and the load-side encoder are incorrectly connected to the servo amplifier. | Refer to "USING A FULLY CLOSED LOOP SYSTEM" in the following manuals.<br>MR-JET User's Manual (Hardware) | |
| 3. In the scale measurement mode, the servo motor-side encoder and the load-side encoder are incorrectly connected to the servo amplifier. | Refer to "Scale measurement function" in the following manual.<br>MR-JET User's Manual (Function) | |

## [AL. 01A.3_Control mode/load-side encoder combination error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. In the fully closed loop control mode, the servo motor-side encoder and the load-side encoder are incorrectly connected to the servo amplifier. | Refer to "USING A FULLY CLOSED LOOP SYSTEM" in the following manual.<br>MR-JET User's Manual (Hardware) | [G] |
| 2. In the scale measurement mode, the servo motor-side encoder and the load-side encoder are incorrectly connected to the servo amplifier. | Refer to "Scale measurement function" in the following manual.<br>MR-JET User's Manual (Function) | |

## [AL. 01A.4_Servo motor combination error 2]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The servo amplifier has malfunctioned. | Replace the servo amplifier. | [G] |

## [AL. 01A.5_Servo motor combination error 3]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The servo motor that was connected at the startup of the absolute position detection system was changed to a different servo motor. | Check if a servo motor that is different from the one connected at the startup of the absolute position detection system is connected. If connected, reconnect to the servo motor that was connected at the startup of the absolute position detection system. | [G] |
| **2.** At occurrence of [AL. 025 Absolute position erased], the power was cycled without leaving the servo motor for 5 s. | After changing the setting value of [Pr. PA03.1 Servo motor replacement preparation] to "1" (enabled), cycle the power and then deactivate [AL. 01A Servo motor combination error]. Perform homing again. | |
| **3.** The servo motor was replaced. | | |
| **4.** After a servo amplifier with the factory settings has been connected to a controller for the first time, the fully closed loop control mode and an absolute position detection system were set with the controller, then the servo amplifier was turned on again. | | |
| **5.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **6.** The encoder has malfunctioned. | Replace the servo motor. | |
| **7.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

# [AL. 01E_Encoder initial communication error 2]

• The encoder has malfunctioned.

## [AL. 01E.1_Encoder malfunction]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The encoder has malfunctioned. | Replace the servo motor. | [G] |
| 2. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 01E.2_Load-side encoder malfunction]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The load-side encoder has malfunctioned. | Replace the load-side encoder. | [G] |
| 2. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manuals.<br>📖MR-JET User's Manual (Hardware) | |

# [AL. 01F_Encoder initial communication error 3]



• The connected encoder is not compatible with the servo amplifier.

## [AL. 01F.1_Incompatible encoder]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** An incompatible servo motor or an incompatible linear encoder was connected to the servo amplifier. | Refer to "Servo amplifier/motor combinations" in the following manual.<br>📖MR-JET User's Manual (Hardware)<br>Refer to "Compatible encoder list" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | [G] |
| **2.** The firmware version of the servo amplifier does not support the servo motor or linear encoder. | Refer to "Servo amplifier/motor combinations" in the following manual.<br>📖MR-JET User's Manual (Hardware)<br>Refer to "Compatible encoder list" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | |
| **3.** The encoder or linear encoder has malfunctioned. | Replace the servo motor or linear encoder. | |

## [AL. 01F.2_Incompatible load-side encoder]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** A load-side encoder incompatible with the servo amplifier was connected. | Check the model name of the load-side encoder. | [G] |
| **2.** The firmware version of the servo amplifier does not support the load-side encoder. | Refer to "Compatible encoder list" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | |
| **3.** The load-side encoder has malfunctioned. | Replace the load-side encoder, then check the repeatability.<br>If the error does not repeat, replace the load-side encoder. | |

# [AL. 020_Encoder normal communication error 1]

• There is a communication error between the encoder and servo amplifier.

## [AL. 020.1_Encoder normal communication - Receive data error 1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** There is a problem with the encoder cable. | Check if the encoder cable has been disconnected or has shorted.<br>If there is a problem with the cable, repair or replace the cable.<br>If an A/B/Z-phase differential output type encoder is being used, check if the encoder is wired correctly.<br>Refer to "A/B/Z-phase differential output type encoder" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | [G] |
| **2.** The external conductor of the encoder cable is not connected to the ground plate of the connector. | Check if the external conductor of the encoder cable is connected to the ground plate of the connector.<br>Refer to "Shielding CN2 side connectors" in the following manual.<br>📖Rotary Servo Motor User's Manual (For MR-JET) | |
| **3.** The servo parameter settings for the communication method are incorrect. | Set the servo parameter correctly according to the encoder cable communication method (two-wire type/four-wire type).<br>[G]: [Pr. PC04.3 Encoder cable communication method selection] | |
| **4.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **5.** The encoder has malfunctioned. | Replace the servo motor. | |
| **6.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, vibration, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware)<br>If vibration is the cause, check for any loose connection of connectors due to abnormal vibration through components such as an encoder connector of the servo amplifier or servo motor. | |

## [AL. 020.2_Encoder normal communication - Receive data error 2]

☞ Page 40 [AL. 020.1_Encoder normal communication - Receive data error 1]

## [AL. 020.3_Encoder normal communication - Receive data error 3]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The Z-phase signal cannot be detected despite being on. | Check if the Z-phase pulse signals (PZ and PZR) of the encoder cable have been disconnected or have shorted.<br>Refer to the specifications provided by the encoder manufacturer or "A/B/Z-phase differential output type encoder" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | [G] |
| **2.** There is a problem with the encoder cable. | ☞ Page 40 [AL. 020.1_Encoder normal communication - Receive data error 1] | |
| **3.** The external conductor of the encoder cable is not connected to the ground plate of the connector. | | |
| **4.** The servo parameter settings for the communication method are incorrect. | | |
| **5.** The servo amplifier has malfunctioned. | | |
| **6.** The encoder has malfunctioned. | | |
| **7.** There is a problem with the surrounding environment. | | |

## [AL. 020.5_Encoder normal communication - Transmission data error 1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** If an A/B/Z-phase differential output type encoder is being used, the wiring of the encoder is incorrect. | Check if the A/B-phase pulse signals (PA, PAR, PB, and PBR) of the encoder cable have been disconnected or have shorted.<br>Refer to the specifications provided by the encoder manufacturer or "A/B/Z-phase differential output type encoder" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | [G] |
| **2.** There is a problem with the encoder cable. | ☞ Page 40 [AL. 020.1_Encoder normal communication - Receive data error 1] | |
| **3.** The external conductor of the encoder cable is not connected to the ground plate of the connector. | | |
| **4.** If an A/B/Z-phase differential output type encoder is being used, the servo parameter settings are incorrect. | | |
| **5.** The servo amplifier has malfunctioned. | | |
| **6.** The encoder has malfunctioned. | | |
| **7.** There is a problem with the surrounding environment. | | |

## [AL. 020.6_Encoder normal communication - Transmission data error 2]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** If an A/B/Z-phase differential output type encoder is being used, the wiring of the encoder is incorrect. | Check if the Z-phase pulse signals (PZ and PZR) of the encoder cable have been disconnected or have shorted.<br>Refer to the specifications provided by the encoder manufacturer or "A/B/Z-phase differential output type encoder" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | [G] |
| **2.** There is a problem with the encoder cable. | ☞ Page 40 [AL. 020.1_Encoder normal communication - Receive data error 1] | |
| **3.** The external conductor of the encoder cable is not connected to the ground plate of the connector. | | |
| **4.** If an A/B/Z-phase differential output type encoder is being used, the servo parameter settings are incorrect. | | |
| **5.** The servo amplifier has malfunctioned. | | |
| **6.** The encoder has malfunctioned. | | |
| **7.** There is a problem with the surrounding environment. | | |

## [AL. 020.7_Encoder normal communication - Transmission data error 3]

☞ Page 40 [AL. 020.1_Encoder normal communication - Receive data error 1]

# [AL. 021_Encoder normal communication error 2]

• The encoder detected an error signal.

## [AL. 021.1_Encoder data error 1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** An excessive speed or acceleration was detected due to an oscillation or other factors. | Decrease the control gain, then check the repeatability. If the error does not repeat, use the encoder with a lower gain. | [G] |
| **2.** The external conductor of the encoder cable is not connected to the ground plate of the connector. | Check if the external conductor of the encoder cable is connected to the ground plate of the connector.<br>Refer to "Shielding CN2 side connectors" in the following manual.<br>📖Rotary Servo Motor User's Manual (For MR-JET) | |
| **3.** The encoder power supply voltage dropped considerably in the encoder cable wiring. | When cables are fabricated by the customer, check if wires with specifications equivalent to the recommended wires are used for the encoder cable.<br>Use the wires with specifications equivalent to the recommended wires if they are not used.<br>Refer to "Wires for option cables" in the following manual.<br>📖Rotary Servo Motor User's Manual (For MR-JET) | |
| **4.** There is a problem with the encoder cable. | Check if the encoder cable has been disconnected or has shorted.<br>If there is a problem with the cable, repair or replace the cable. | |
| **5.** The encoder has malfunctioned. | Replace the servo motor. | |
| **6.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, external magnetic field, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 021.2_Encoder data update error]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The encoder has malfunctioned. | Replace the servo motor. | [G] |
| **2.** The external conductor of the encoder cable is not connected to the ground plate of the connector. | Check if the external conductor of the encoder cable is connected to the ground plate of the connector.<br>Refer to "Shielding CN2 side connectors" in the following manual.<br>📖Rotary Servo Motor User's Manual (For MR-JET) | |
| **3.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 021.3_Encoder data waveform error]

☞ Page 42 [AL. 021.2_Encoder data update error]

## [AL. 021.4_No encoder signal]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** A signal of the encoder has not been input. | Check if the encoder cable is wired correctly. | [G] |
| **2.** The external conductor of the encoder cable is not connected to the ground plate of the connector. | Check if the external conductor of the encoder cable is connected to the ground plate of the connector.<br>Refer to "Shielding CN2 side connectors" in the following manual.<br>📖Rotary Servo Motor User's Manual (For MR-JET) | |
| **3.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 021.5_Encoder hardware error 1]

☞ Page 42 [AL. 021.2_Encoder data update error]

## [AL. 021.6_Encoder hardware error 2]

☞ Page 42 [AL. 021.2_Encoder data update error]

# [AL. 024_Main circuit error]

- The servo motor power cable has a ground fault.
- The servo motor has a ground fault.

## [AL. 024.1_Ground fault detected via hardware detection circuit]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The servo motor power cable has a ground fault or has shorted. | Check if the servo motor power cable has a ground fault. If the servo motor power cable has a ground fault, correct the wiring.<br>Incorrect wiring of the U/V/W cables and grounding wires between the servo amplifier and servo motor may cause a ground fault. Check the wiring.<br>Check if the servo motor power cable has shorted. If the servo motor power cable has shorted, replace the servo motor power cable. | [G] |
| **2.** The servo motor has a ground fault. | After disconnecting the servo motor power cables on the servo motor side, check the insulation between phases (U/V/W/⏚). If the servo motor has a ground fault or has shorted, replace the servo motor. | |
| **3.** The servo amplifier power input cable (main circuit power cable for the MR-JET-_G_-HS(N1)) and servo motor power cable have shorted. | After shutting off the power supply, make sure that the servo amplifier power input cable (main circuit power cable for the MR-JET-_G_-HS(N1)) and servo motor power cable are not in contact with each other. If the cables are contacting, correct the wiring. | |
| **4.** The servo amplifier has malfunctioned. | Check that this alarm occurs as the servo motor power cables (U/V/W) are disconnected. If the alarm occurs, replace the servo amplifier. | |
| **5.** The wiring of the regenerative resistor (regenerative option) is incorrect. | Check if the regenerative resistor (regenerative option) is wired correctly. If the regenerative resistor (regenerative option) is wired incorrectly, correct the wiring. | |
| **6.** The regenerative resistor (regenerative option) and the servo amplifier are connected in a wrong combination. | Check if the combination of the regenerative resistor (regenerative option) and the servo amplifier is correct as specified.<br>Refer to "Regenerative option" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **7.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause. If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 024.2_Ground fault detected via software detection processing]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The servo motor power cable has a ground fault or has shorted. | Check if the servo motor power cable has a ground fault. If the servo motor power cable has a ground fault, correct the wiring.<br>Incorrect wiring of the U/V/W cables and grounding wires between the servo amplifier and servo motor may cause a ground fault. Check the wiring.<br>Check if the servo motor power cable has shorted. If the servo motor power cable has shorted, replace the servo motor power cable. | [G] |
| **2.** The servo motor has a ground fault. | After disconnecting the servo motor power cables on the servo motor side, check the insulation between phases (U/V/W/⏚). If the servo motor has a ground fault or has shorted, replace the servo motor. | |
| **3.** The servo amplifier power input cable (main circuit power cable for the MR-JET-_G_-HS(N1)) and servo motor power cable have shorted. | After shutting off the power supply, make sure that the servo amplifier power input cable (main circuit power cable for the MR-JET-_G_-HS(N1)) and servo motor power cable are not in contact with each other. If the cables are contacting, correct the wiring. | |
| **4.** The servo amplifier has malfunctioned. | Check that this alarm occurs as the servo motor power cables (U/V/W) are disconnected. If the alarm occurs, replace the servo amplifier. | |
| **5.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause. If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

# [AL. 025_Absolute position erased]

- The absolute position data has an error.
- Power was switched on for the first time in the absolute position detection system.
- The servo amplifier was switched on when the battery was degraded or disconnected.

## [AL. 025.1_Servo motor encoder absolute position erased]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** Power was switched on for the first time in the absolute position detection system. | If the power was switched on for the first time after the absolute position detection system is set, check that the battery is mounted correctly before homing.<br>When using a Mitsubishi Electric servo motor equipped with a batteryless absolute position encoder, allow the alarm to occur for 5 s, then cycle the power. Perform homing. | [G] |
| **2.** The Mitsubishi Electric servo motor equipped with a batteryless absolute position encoder that was connected to the absolute position detection system at startup was changed to another servo motor. | Connect the servo motor that was connected at the startup of the absolute position detection system. Start up the absolute position detection system again. | |
| **3.** After the power supply was shut off, the battery was removed in a situation such as the following:<br>• The battery was disconnected from the servo amplifier while the power supply was off. | If the battery was disconnected as described in the left column, check that the battery is mounted correctly before homing. | |
| **4.** The power was shut off in either of the following situations:<br>• The power was shut off while the battery was not connected to the servo amplifier. | If the power supply was shut off as described in the left column, check that the battery is mounted correctly before homing. | |
| **5.** The battery voltage is too low. The battery is exhausted. | Check the battery voltage with a tester. If the voltage is lower than 3 V DC, replace the battery, then execute homing. | |
| **6.** The voltage dropped considerably in the encoder cable wired to the battery. | Check if the recommended wires are being used for the encoder cable.<br>If the recommended wires are not being used, use the recommended wires, then execute homing.<br>Refer to "Wires for option cables" in the following manual.<br>📖Rotary Servo Motor User's Manual (For MR-JET) | |
| **7.** There is a problem with the battery cable. | Check for a loose connection with a tester.<br>If there is a loose connection, use a recommended cable, then execute homing. | |
| **8.** There is a loose connection of the encoder cable on the servo motor side. | Check for a loose connection with a tester. Measure the voltage on the servo motor side.<br>If there is a loose connection, repair or replace the encoder cable, then execute homing. | |
| **9.** There is a problem with the encoder cable. | If there is a problem with the encoder cable, replace or repair the cable, then execute homing. | |
| **10.** When the Mitsubishi Electric servo motor equipped with a batteryless absolute position encoder was used, an external force rotated the servo motor shaft at a high speed at power failure. | Make sure that the servo motor shaft will not be rotated by an external force at a high speed. After removing the cause, execute homing, then turn the servo motor shaft at least 180 degrees. | |
| **11.** There is a problem with the surrounding environment when using the Mitsubishi Electric servo motor equipped with a batteryless absolute position encoder. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause. If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manuals.<br>📖MR-JET User's Manual (Hardware)<br>After removing the cause, execute homing, then turn the servo motor shaft at least 180 degrees. | |
| **12.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **13.** The encoder has malfunctioned. | Replace the servo motor. | |

# [AL. 027_Initial magnetic pole detection error]

• The initial magnetic pole detection cannot be performed properly.

## [AL. 027.1_Initial magnetic pole detection - Abnormal termination]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A moving part collided against the machine. | If the moving part collides, move the start position of the magnetic pole detection. | [G] |
| 2. The wiring of the servo motor power cable is incorrect. | Check the motor power cable for abnormality.<br>Refer to "Power supply cable wiring diagrams" in the Linear Servo Motor User's Manual. | |
| 3. The linear encoder resolution setting differs from the setting value. | Check the settings of [Pr. PL02 Linear encoder resolution setting - Numerator] and [Pr. PL03 Linear encoder resolution setting - Denominator]. | |
| 4. The mounting direction of the linear encoder is incorrect. | Check the polarities of the linear encoder and the linear servo motor.<br>If the mounting direction is incorrect, mount the encoder correctly. Change the setting of "Encoder pulse count polarity selection" as required.<br>[G]: [Pr. PC27.0 Encoder pulse count polarity selection]<br>Refer to "Setting of linear encoder direction and linear servo motor direction" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| 5. The direct current exciting voltage level is too low. | • When in position detection method<br>Check if the travel distance in the magnetic pole detection is small. If the travel distance is small, set a larger value in [Pr. PL09 Magnetic pole detection voltage level].<br>• When in minute position detection method<br>Check if the travel distance in the magnetic pole detection is too large, or if a vibration is occurring. If the travel distance is too large or a vibration is occurring, review the settings of [Pr. PL17.0 Response selection] and [Pr. PL17.1 Load to motor mass ratio/load to motor inertia ratio selection].<br>Refer to "Magnetic pole detection" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 027.2_Initial magnetic pole detection - Time out error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. Servo-on was turned on while the primary side of the linear servo motor was not stopped. | Stop the linear servo motor, then turn on the servo-on again. | [G] |
| 2. Only one of the limit switches is on during magnetic pole detection. | Check the limit switches and remove the cause.<br>Move the start position of the magnetic pole detection. | |
| 3. The direct current exciting voltage level is too low at the time of the initial magnetic pole detection. | • When in position detection method<br>Check if the travel distance in the magnetic pole detection is small. If the travel distance is small, set a larger value in [Pr. PL09 Magnetic pole detection voltage level]. | |

## [AL. 027.3_Initial magnetic pole detection - Limit switch error]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* In the magnetic pole detection, both limit switches are turned off. | Check the limit switch status.<br>If both of the limit switches are turned off, turn on the limit switches. | [G] |
| *2.* The settings of the magnetic pole detection are incorrect. | Check the settings of the servo parameter and other relevant areas.<br>Refer to "Magnetic pole detection" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 027.4_Initial magnetic pole detection - Estimation error]

☞ Page 46 [AL. 027.1_Initial magnetic pole detection - Abnormal termination]

## [AL. 027.5_Initial magnetic pole detection - Speed deviation error]

☞ Page 46 [AL. 027.1_Initial magnetic pole detection - Abnormal termination]

## [AL. 027.6_Initial magnetic pole detection - Position deviation error]

☞ Page 46 [AL. 027.1_Initial magnetic pole detection - Abnormal termination]

## [AL. 027.7_Initial magnetic pole detection - Current error]

☞ Page 46 [AL. 027.1_Initial magnetic pole detection - Abnormal termination]

# [AL. 028_Linear encoder error 2]

• There is a problem with the operating environment of the linear encoder.

## [AL. 028.1_Linear encoder environmental error]

| Cause | Check/action method | Model |
|---|---|---|
| ***1.*** The ambient temperature of the linear encoder is outside of specifications. | Check the ambient temperature and the specifications of the linear encoder. | [G] |
| ***2.*** The signal level of the linear encoder dropped. | Check the mounting condition of the linear encoder. | |
| ***3.*** A linear encoder alarm was detected. | Refer to "DETAILED EXPLANATION OF [AL. 028 LINEAR ENCODER ERROR 2]" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | |

## [AL. 028.2_Load-side linear encoder environmental error]

☞ Page 48 [AL. 028.1_Linear encoder environmental error]

# [AL. 02A_Linear encoder error 1]



• An error of the linear encoder was detected. The content of the errors varies depending on each encoder manufacturer.

## [AL. 02A.1_Linear encoder error 1-1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** There is a problem with the way that the linear encoder and the head are mounted. | Adjust the positions of the linear encoder and the head. | [G] |
| **2.** The external conductor of the encoder cable is not connected to the ground plate of the connector. | Check if the external conductor of the encoder cable is connected to the ground plate of the connector.<br>Refer to "Shielding CN2 side connectors" in the following manual.<br>📖Rotary Servo Motor User's Manual (For MR-JET) | |
| **3.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **4.** A linear encoder alarm was detected. | Refer to "DETAILED EXPLANATION OF [AL. 02A LINEAR ENCODER ERROR 1]" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | |

## [AL. 02A.2_Linear encoder error 1-2]

☞ Page 49 [AL. 02A.1_Linear encoder error 1-1]

## [AL. 02A.3_Linear encoder error 1-3]

☞ Page 49 [AL. 02A.1_Linear encoder error 1-1]

## [AL. 02A.4_Linear encoder error 1-4]

☞ Page 49 [AL. 02A.1_Linear encoder error 1-1]

## [AL. 02A.5_Linear encoder error 1-5]

☞ Page 49 [AL. 02A.1_Linear encoder error 1-1]

## [AL. 02A.6_Linear encoder error 1-6]

☞ Page 49 [AL. 02A.1_Linear encoder error 1-1]

## [AL. 02A.7_Linear encoder error 1-7]

☞ Page 49 [AL. 02A.1_Linear encoder error 1-1]

## [AL. 02A.8_Linear encoder error 1-8]

☞ Page 49 [AL. 02A.1_Linear encoder error 1-1]

# [AL. 030_Regenerative error]

- The permissible regenerative power of the built-in regenerative resistor or regenerative option was exceeded.
- The regenerative transistor in the servo amplifier has malfunctioned.

## [AL. 030.1_Regenerative heat error]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The settings of the regenerative resistor (regenerative option) are incorrect. | Check the regenerative resistor (regenerative option) in use and the setting value of [Pr. PA02 Regenerative option].<br>Refer to "Regenerative option" in the following manual.<br>📖MR-JET User's Manual (Hardware) | [G] |
| **2.** The regenerative resistor (regenerative option) is not connected. | When a regenerative resistor (regenerative option) is not used<br>MR-JET-_G(-N1): Check if the connection between P+ and C is correct.<br>MR-JET-_G_-HS(N1): Check if the connection between P+ and D is correct. | |
| | When a regenerative resistor (regenerative option) is used<br>MR-JET-_G(-N1): Remove the wire of the built-in regenerative resistor connected to P+ and C, then check if a regenerative resistor (regenerative option) is installed between P+ and C.<br>MR-JET-_G_-HS(N1): Remove the wire between P+ and D, then check if a regenerative resistor (regenerative option) is installed between P+ and C.<br>Refer to "Regenerative option" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **3.** The regenerative resistor (regenerative option) and the servo amplifier are connected in a wrong combination. | Check if the combination of the regenerative resistor (regenerative option) and the servo amplifier is correct as specified.<br>Refer to "Regenerative option" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **4.** The power supply voltage is too high. | Check if the voltage of the input power supply exceeds the upper limit of the permissible voltage. If the power supply voltage exceeds the upper limit, reduce the power supply voltage.<br>200 V class: 264 V AC | |
| **5.** The regenerative power is too large. | Check whether the regenerative load ratio exceeds the upper limit value when the alarm occurs.<br>If the alarm is not cleared even after taking the following corrective actions, replace the servo amplifier.<br>• Reduce the frequency of positioning.<br>• Set a longer deceleration time constant.<br>• Reduce the load.<br>• Use a regenerative option if it is not being used. | |
| **6.** The motor power cable (U/V/W cables) has a ground fault. (Increase in the bus voltage due to a sneak current caused by the ground fault.) | Check if the servo motor power cable has a ground fault. If the servo motor power cable has a ground fault, correct the wiring. | |

## [AL. 030.2_Regenerative signal error]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The servo amplifier has malfunctioned. | Check if the regenerative resistor (regenerative option) is overheating. If the regenerative resistor is overheating, replace the servo amplifier.<br>Check for any of the following wiring problems when connecting the regenerative resistor (regenerative option).<br>• The connection between P+ and C has shorted.<br>• The combination of the servo amplifier and regenerative resistor (regenerative option) is incorrect. (Resistance of the regenerative option is low, etc.)<br>• For the MR-JET-_G_-HS(N1), a regenerative resistor (regenerative option) is connected between P+ and C while the connection between P+ and D has shorted. | [G] |

## [AL. 030.3_Regenerative feedback signal error]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The servo amplifier has malfunctioned. | Remove the wire of the regenerative option or built-in regenerative resistor, then check if the alarm occurs at power on. If the alarm occurs, replace the servo amplifier. | [G] |
| *2.* There is a problem with the surrounding environment. | Check the noise, ground fault, ambient temperature, and other conditions, then take countermeasures against its cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

# [AL. 031_Overspeed]

• The servo motor speed exceeded the maximum speed.

## [AL. 031.1_Servo motor speed error]

| Cause | Check/action method | Model |
|---|---|---|
| ***1.*** The settings of the electronic gear are incorrect. | Check the setting value of the electronic gear.<br>Refer to "Electronic gear function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| ***2.*** The command from the controller is excessive. | Check if the command from the controller exceeds the maximum speed.<br>To change the judgment value used to the permissible speed, change the setting of [Pr. PA28.4 Speed range limit selection]. | |
| ***3.*** The backlash compensation set in the controller is excessive. | Refer to the manual for the controller being used to check if the setting value is correct. | |
| ***4.*** A speed command exceeding the overspeed alarm trigger level was input. | Check that the actual servo motor speed is higher than the overspeed alarm trigger level. | |
| ***5.*** The servo motor reaches the maximum torque (maximum thrust) at acceleration. | Check if the torque (thrust) is the maximum torque (maximum thrust) at the acceleration. If the torque (thrust) is the maximum torque (maximum thrust), increase the acceleration/deceleration time constants or reduce the load. | |
| ***6.*** The servo system is unstable and oscillating. | Check if the servo motor is oscillating. If the servo motor is oscillating, adjust the servo gain or reduce the load. | |
| ***7.*** The velocity waveform overshot. | Check if the velocity waveform has overshot because of the short acceleration/deceleration time constant. If the velocity waveform has overshot, increase the acceleration/deceleration time constant. | |
| ***8.*** The servo motor operation is suddenly interrupted by load interference (such as mechanical interference) and then resumed. | Check the equipment for load interference. If there is load interference, remove the cause of the interference.<br>When an external brake is used, check the brake open timing. | |
| ***9.*** The connection destination of the servo motor power cable or the encoder cable is incorrect. | Check for any incorrect connection destination of the motor power cable or encoder cable.<br>Refer to "Example power circuit connections" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| ***10.*** The connection of the servo motor is incorrect. | Check the U/V/W wiring.<br>Refer to "Example power circuit connections" in the following manual.<br>📖MR-JET User's Manual (Hardware)<br>Refer to "Turning on servo amplifier for the first time" in the User's Manual (Introduction). | |
| ***11.*** The encoder or linear encoder has malfunctioned. | Check if this alarm occurs when the servo motor rotates at the lower speed than the maximum speed. If the alarm occurs, replace the servo motor or the linear encoder.<br>To change the judgment value used to the permissible speed, change the setting of [Pr. PA28.4]. | |

# [AL. 032_Overcurrent]



• A current higher than the permissible current flowed in the servo amplifier.

## [AL. 032.1_Overcurrent detected via hardware detection circuit (during operation)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The servo amplifier has malfunctioned. | Check if the servo motor power cable has a ground fault. If the servo motor power cable has a ground fault, correct the wiring.<br>Check that this alarm occurs as the servo motor power cables (U/V/W) are disconnected.<br>If the alarm occurs, replace the servo amplifier. | [G] |
| **2.** The servo motor power cable has a ground fault or has shorted. | Check if the servo motor power cable has shorted.<br>If the servo motor power cable has shorted, replace the servo motor power cable. | |
| **3.** The servo motor has malfunctioned. | After disconnecting the servo motor power cables on the servo motor side, check the insulation between phases (U/V/W/⏚ or ⏚).<br>If the servo motor has a ground fault or has shorted, replace the servo motor. | |
| **4.** The dynamic brake has malfunctioned. | After confirming that the Cause 1, 2, and 3 did not apply, check if this alarm occurs when turning on the servo-on command.<br>If the alarm occurs, replace the servo amplifier.<br>If the alarm does not occur, check 5. | |
| **5.** The wiring of the regenerative resistor (regenerative option) is incorrect. | Check if the regenerative resistor (regenerative option) is wired correctly. If the regenerative resistor (regenerative option) is wired incorrectly, correct the wiring. | |
| **6.** The regenerative resistor (regenerative option) and the servo amplifier are connected in a wrong combination. | Check if the combination of the regenerative resistor (regenerative option) and the servo amplifier is correct as specified.<br>Refer to "Regenerative option" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **7.** The connection destination of the servo motor power cable or the encoder cable is incorrect. | Check the connection destination of the motor power cable or encoder cable.<br>Refer to "Example power circuit connections" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **8.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If a problem is not found with the surrounding environment, perform the following check/action methods.<br>☞ Page 62 [AL. 045.1_Main circuit device overheat error 1]<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 032.2_Overcurrent detected via software detection processing (during operation)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The servo gain is too high. | Check if there is vibration.<br>If there is vibration, reduce the value in [Pr. PB09 Speed control gain]. | [G] |
| **2.** The servo amplifier has malfunctioned. | Check that this alarm occurs as the servo motor power cables (U/V/W) are disconnected.<br>If the alarm occurs, replace the servo amplifier. | |
| **3.** The servo motor power cable has a ground fault or has shorted. | Check if the servo motor power cable has a ground fault. If the servo motor power cable has a ground fault, correct the wiring.<br>Check if the servo motor power cable has shorted.<br>If the servo motor power cable has shorted, replace the servo motor power cable. | |
| **4.** The servo motor has malfunctioned. | After disconnecting the servo motor power cables on the servo motor side, check the insulation between phases (U/V/W/⏚ or ⏚). If the servo motor has a ground fault or has shorted, replace the servo motor. | |
| **5.** The connection destination of the servo motor power cable or the encoder cable is incorrect. | Check the connection destination of the motor power cable or encoder cable.<br>Refer to "Example power circuit connections" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **6.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 032.3_Overcurrent detected via hardware detection circuit (during a stop)]

☞ Page 53 [AL. 032.1_Overcurrent detected via hardware detection circuit (during operation)]

## [AL. 032.4_Overcurrent detected via software detection processing (during a stop)]

☞ Page 53 [AL. 032.2_Overcurrent detected via software detection processing (during operation)]

# [AL. 033_Overvoltage]

• The value of the bus voltage exceeded the specified value.
200 V class: 400 V DC
400 V class: 800 V DC

## [AL. 033.1_Main circuit voltage error]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The settings of the regenerative resistor (regenerative option) are incorrect. | Check the regenerative resistor (regenerative option) in use and the setting value of [Pr. PA02.0-1 Regenerative option selection].<br>Refer to "Regenerative option" in the following manual.<br>📖MR-JET User's Manual (Hardware) | [G] |
| **2.** The regenerative resistor (regenerative option) is not connected. | When a regenerative resistor (regenerative option) is not used<br>MR-JET-_G(-N1): Check if the connection between P+ and C is correct.<br>MR-JET-_G_-HS(N1): Check if the connection between P+ and D is correct. | |
| | When a regenerative resistor (regenerative option) is used<br>MR-JET-_G(-N1): Remove the wire of the built-in regenerative resistor connected to P+ and C, then check if a regenerative resistor (regenerative option) is installed between P+ and C.<br>MR-JET-_G_-HS(N1): Remove the wire between P+ and D, then check if a regenerative resistor (regenerative option) is installed between P+ and C.<br>Refer to "Regenerative option" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **3.** The built-in regenerative resistor or regenerative option is disconnected. | Measure the resistance value of the built-in regenerative resistor or regenerative option.<br>If the resistance value is abnormal, take corrective actions as follows:<br>• When using a built-in regenerative resistor, replace the servo amplifier.<br>• When using a regenerative option, replace the regenerative option.<br>Refer to "Regenerative option" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **4.** The regeneration capacity is insufficient. | Set a longer deceleration time constant, then check the repeatability.<br>If the error does not repeat, take corrective actions as follows:<br>• When using a built-in regenerative resistor, use a regenerative option.<br>• When using a regenerative option, use one with a larger capacity. | |
| **5.** The power supply voltage is too high. | Check if the voltage of the input power supply exceeds the upper limit of the permissible voltage. If the power supply voltage exceeds the upper limit, reduce the power supply voltage.<br>200 V class: 264 V AC<br>400 V class: 528 V AC | |
| **6.** The motor power cable (U/V/W cables) has a ground fault. (Increase in the bus voltage due to a sneak current caused by the ground fault.) | Check if the servo motor power cable has a ground fault. If the servo motor power cable has a ground fault, correct the wiring.<br>If the motor power cable is wired over a long distance or a shielded wire is used, a charging phenomenon may occur due to the stray capacitance in the wiring.<br>Review and correct the wiring condition by means such as using a shorter cable and removing the shielded wire. | |
| **7.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **8.** The servo amplifier has malfunctioned. | Check the value of the bus voltage. If the bus voltage exceeds the specified value even though the voltage of the power supply (voltage of the main circuit power supply for the MR-JET-_G_-HS(N1)) is within specifications, replace the servo amplifier. | |

# [AL. 035_Command frequency error]

• The input command pulse frequency is too high.

## [AL. 035.1_Command frequency error]

| Cause | Check/action method | Model |
|---|---|---|
| ***1.*** The command from the controller is excessive. | Check if the command from the controller exceeds the maximum speed.<br>If the command exceeds the maximum speed, review the operation pattern.<br>To change the judgment value used to the permissible speed, change the setting of [Pr. PA28.4 Speed range limit selection]. | [G] |
| ***2.*** The backlash compensation set in the controller is excessive. | Refer to the manual for the controller being used to check if the setting value is correct. | |
| ***3.*** The controller has malfunctioned. | Replace the controller. | |
| ***4.*** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

# [AL. 037_Parameter error]

- Servo parameter setting values are incorrect.
- Point table setting values are incorrect.

## [AL. 037.1_Parameter setting range error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A parameter was set outside of the setting range. | [G]: Check the parameter error No. on the alarm display screen of MR Configurator2 or with another method, then review the setting value of the parameter. | [G] |
| 2. An inconsistent combination of parameters has been set. | [G]: Check the parameter error No. on the alarm display screen of MR Configurator2 or with another method, then review the setting value of the parameter. | |
| 3. The setting value of the parameter has changed due to the servo amplifier malfunction. | Replace the servo amplifier. | |

## [AL. 037.2_Parameter combination error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An inconsistent combination of parameters has been set. | [G]: Check the parameter error No. on the alarm display screen of MR Configurator2 or with another method, then review the setting value of the parameter. | [G] |

## [AL. 037.3_Point table setting error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. Point table setting values are incorrect. | Check if the setting value of the point table is within the setting range. Check the error number of the point table with [Point table error No.(Obj. 2A43h:01h)]. Or check the setting value in the point table screen of MR Configurator2. | [G] |
| 2. The setting value of the point table has changed due to the servo amplifier malfunction. | Replace the servo amplifier. | |

## [AL. 037.6_Parameter mismatch error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. Mismatching with the saved parameters occurred because of the error in writing parameters. | [G]: Check the servo parameter error No. on the alarm display screen of MR Configurator2 or with another method. Rewrite the setting value because the value before or after writing has been displayed. | [G] |
| 2. The setting value of the parameter changed as the servo amplifier malfunctioned. | Replace the servo amplifier. | |

## [AL. 037.7_Network parameter setting error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. There is a problem with the network parameter settings. | Check if the setting value of the network parameter is within the setting range. [G]: Check the servo parameter error No. on the alarm display screen of MR Configurator2 or with another method. Rewrite the setting value because the value before or after writing has been displayed. | [G] |
| 2. The setting value of the network parameter changed as the servo amplifier malfunctioned. | Replace the servo amplifier. | |

# [AL. 03A_Inrush current suppression circuit error]

• The inrush current suppression circuit error was detected.

## [AL. 03A.1_Inrush current suppression circuit error]

| Cause | Check/action method | Model |
|---|---|---|
| ***1.*** The inrush current limit resistor is overheated due to frequent power ON/OFF. | Review the usage. | [G] |
| ***2.*** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |

# [AL. 042_Servo control error]



• A servo control error occurred. (When a linear servo motor is used or in a fully closed loop control)

## [AL. 042.1_Servo control error based on position deviation]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** [Pr. PA17 Servo motor series setting] and [Pr. PA18 Servo motor type setting] were not set based on the servo motor to be used. | Check if [Pr. PA17] and [Pr. PA18] have been set correctly. | [G] |
| **2.** The settings of the encoder resolution differ from the actual value. | Check the settings of [Pr. PL02 Linear encoder resolution setting - Numerator] and [Pr. PL03 Linear encoder resolution setting - Denominator].<br>Refer to "Linear encoder resolution setting" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **3.** The mounting direction of the encoder is incorrect. | Check the polarities of the linear encoder and the linear servo motor.<br>If the mounting direction is incorrect, mount the encoder correctly.<br>Change the setting of "Encoder pulse count polarity selection" as required.<br>[G]: [Pr. PC27.0 Encoder pulse count polarity selection]<br>Refer to "Setting of linear encoder direction and linear servo motor direction" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **4.** The connection of the servo motor is incorrect. | Check the wiring.<br>Refer to "SIGNALS AND WIRING" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **5.** The initial magnetic pole detection was not executed. | Execute the magnetic pole detection, then check the repeatability.<br>Refer to "Magnetic pole detection" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **6.** The setting value of the position deviation error detection level is too low. | Check the value of the droop pulses.<br>If the deviation is too large, review the operation status. Review the setting of [Pr. PL05 Position deviation error detection level] as required. | |

## [AL. 042.2_Servo control error based on speed deviation]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** [Pr. PA17 Servo motor series setting] and [Pr. PA18 Servo motor type setting] were not set based on the servo motor to be used. | Check if [Pr. PA17] and [Pr. PA18] have been set correctly. | [G] |
| **2.** The settings of the encoder resolution differ from the actual value. | Check the settings of [Pr. PL02 Linear encoder resolution setting - Numerator] and [Pr. PL03 Linear encoder resolution setting - Denominator].<br>Refer to "Linear encoder resolution setting" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **3.** The mounting direction of the encoder is incorrect. | Check the polarities of the linear encoder and the linear servo motor.<br>Change the setting of "Encoder pulse count polarity selection" as required.<br>[G]: [Pr. PC27.0 Encoder pulse count polarity selection]<br>Refer to "Setting of linear encoder direction and linear servo motor direction" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **4.** The connection of the servo motor is incorrect. | Check the wiring.<br>Refer to "SIGNALS AND WIRING" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **5.** The initial magnetic pole detection was not executed. | Execute the magnetic pole detection, then check the repeatability.<br>Refer to "Magnetic pole detection" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **6.** The setting value of the speed deviation error detection level is too low. | Calculate the deviation between the speed command and actual speed. If the deviation is too large, review the operation status. Review the setting of [Pr. PL06 Speed deviation error detection level] as required. | |

## [AL. 042.3_Servo control error based on torque/thrust deviation]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** [Pr. PA17 Servo motor series setting] and [Pr. PA18 Servo motor type setting] were not set based on the servo motor to be used. | Check if [Pr. PA17] and [Pr. PA18] have been set correctly. | [G] |
| **2.** The settings of the encoder resolution differ from the actual value. | Check the settings of [Pr. PL02 Linear encoder resolution setting - Numerator] and [Pr. PL03 Linear encoder resolution setting - Denominator].<br>Refer to "Linear encoder resolution setting" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **3.** The mounting direction of the encoder is incorrect. | Check the polarities of the linear encoder and the linear servo motor.<br>Change the setting of "Encoder pulse count polarity selection" as required.<br>[G]: [Pr. PC27.0 Encoder pulse count polarity selection]<br>Refer to "Setting of linear encoder direction and linear servo motor direction" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **4.** The connection of the servo motor is incorrect. | Check the wiring.<br>Refer to "SIGNALS AND WIRING" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **5.** The initial magnetic pole detection was not executed. | Check the repeatability.<br>Refer to "Magnetic pole detection" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **6.** The setting value in the torque/thrust deviation error detection level is too low. | Calculate the deviation between the current command and torque/thrust. If the deviation is too large, review the power-supply environment or the operation status. Review the setting of [Pr. PL07 Torque deviation error detection level] as required. | |

## [AL. 042.8_Fully closed loop control error based on position deviation]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The settings of the load-side encoder resolution differ from the actual value. | Check the settings of [Pr. PE04 Fully closed loop control - Feedback pulse electronic gear 1 - Numerator] and [Pr. PE05 Fully closed loop control - Feedback pulse electronic gear 1 - Denominator]. | [G] |
| **2.** The mounting direction of the load-side encoder is incorrect. | Check the mounting direction of the load-side encoder.<br>Change the setting of "Encoder pulse count polarity selection" as required.<br>[G]: [Pr. PC27.0 Encoder pulse count polarity selection]<br>Refer to "Checking position data of the load-side encoder" in the following manuals.<br>📖MR-JET User's Manual (Hardware) | |
| **3.** The setting value of the position deviation error detection level is too low. | Check the value of the motor-side/load-side position deviation.<br>If the deviation is too large, review the mechanism of the equipment or the operation status. Review the setting of [Pr. PE03 Fully closed loop control error - Detection function selection] or [Pr. PE07 Fully closed loop control - Position deviation error detection level] as required. | |

## [AL. 042.9_Fully closed loop control error based on speed deviation]

| Cause | Check/action method | Model |
|---|---|---|
| ***1.*** The settings of the load-side encoder resolution differ from the setting value. | Check the settings of [Pr. PE04 Fully closed loop control - Feedback pulse electronic gear 1 - Numerator] and [Pr. PE05 Fully closed loop control - Feedback pulse electronic gear 1 - Denominator]. | [G] |
| ***2.*** The mounting direction of the load-side encoder is incorrect. | Check the mounting direction of the load-side encoder.<br>Change the setting of "Encoder pulse count polarity selection" as required.<br>[G]: [Pr. PC27.0 Encoder pulse count polarity selection]<br>Refer to "Checking position data of the load-side encoder" in the following manuals.<br>📖MR-JET User's Manual (Hardware) | |
| ***3.*** The setting value of the speed deviation error detection level is too low. | Calculate the motor-side/load-side speed deviation.<br>If the deviation is too large, review the mechanism of the equipment or the operation status. Review the setting of [Pr. PE03 Fully closed loop control error - Detection function selection] or [Pr. PE06 Fully closed loop control - Speed deviation error detection level] as required. | |

## [AL. 042.A_Fully closed loop control error based on position deviation during command stop]

☞ Page 60 [AL. 042.8_Fully closed loop control error based on position deviation]

# [AL. 045_Main circuit device overheat]

• The inside of the servo amplifier overheated.

## [AL. 045.1_Main circuit device overheat error 1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The ambient temperature exceeded the specified value (55 °C). | Check the ambient temperature, and if the temperature exceeds the specified value, lower the ambient temperature. | [G] |
| **2.** The servo amplifier does not meet the specifications of close mounting. | Check the specifications of close mounting.<br>Refer to "Mounting direction and clearances" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **3.** The power was turned on and off repeatedly under the overload status. | Check if the overload status occurred frequently.<br>If the overload status occurred frequently, review the operation pattern. | |
| **4.** A cooling fan, heat sink, or opening is clogged. | Clean the cooling fan, heat sink, or openings. | |
| **5.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |

## [AL. 045.2_Main circuit device overheat error 2]

☞ Page 62 [AL. 045.1_Main circuit device overheat error 1]

# [AL. 046_Servo motor overheat]



• The servo motor overheated.

## [AL. 046.1_Servo motor temperature error 1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The ambient temperature of the servo motor has exceeded the specified value. | Check the ambient temperature of the servo motor, and if the temperature exceeds the specified value, lower the ambient temperature.<br>Refer to "Environment" in the following manual.<br>📖Rotary Servo Motor User's Manual (For MR-JET)<br>Refer to "Environment" in the Linear Servo Motor User's Manual. | [G] |
| **2.** The servo motor is overloaded. | Check the effective load ratio.<br>If the effective load ratio exceeds 100 %, reduce the load or review the operation pattern. | |
| **3.** The thermal sensor in the encoder has malfunctioned. | Check the servo motor temperature when the alarm occurs. If the servo motor temperature is too low, the thermal sensor in the encoder is faulty. Replace the servo motor. | |

## [AL. 046.2_Servo motor temperature error 2]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The ambient temperature of the linear servo motor or servo motor with thermistors has exceeded the specified value. | Check the ambient temperature of the linear servo motor or servo motor with thermistors. If the ambient temperature exceeds the specified value, lower the ambient temperature.<br>Refer to "Environment" in the following manual.<br>📖Rotary Servo Motor User's Manual (For MR-JET)<br>Refer to "Environment" in the Linear Servo Motor User's Manual. | [G] |
| **2.** The servo motor is overloaded. | Check the effective load ratio.<br>If the effective load ratio exceeds 100 %, reduce the load or review the operation pattern. | |
| **3.** There is a problem with the thermistor wire. | Check if the thermistor wire has shorted.<br>If the thermistor wire has shorted, replace or repair the cable.<br>If the thermistor wire has not shorted, replace the servo motor. | |

## [AL. 046.3_Thermistor disconnected error]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** A servo motor thermistor wire is not connected. | Check if the servo motor thermistor wire is connected. | [G] |
| **2.** A servo motor thermistor wire is disconnected. | Check for disconnection in the servo motor thermistor wire. If the servo motor thermistor wire is disconnected, repair the wire. | |

## [AL. 046.4_Thermistor circuit error]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The thermistor circuit of the servo amplifier has malfunctioned. | Replace the servo amplifier. | [G] |

## [AL. 046.5_Servo motor temperature error 3]

☞ Page 63 [AL. 046.1_Servo motor temperature error 1]

## [AL. 046.6_Servo motor temperature error 4]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** A current larger than the continuous output current of the servo motor flowed. | Check the effective load ratio.<br>If the effective load ratio is too high, reduce the load or review the operation pattern. Alternatively, replace the servo motor with a larger-capacity servo motor. | [G] |

## [AL. 046.7_Servo motor temperature error 5]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* Values of the servo parameters for manufacturer setting have been changed. | Set the servo parameters for manufacturer setting to the initial values. | [G] |

# [AL. 047_Cooling fan error]



- The speed of the servo amplifier cooling fan decreased.
- The fan speed decreased to 30 % or less of the rated speed of the alarm occurrence level.

## [AL. 047.1_Cooling fan stop error]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** A foreign object was caught in the cooling fan. | Check if a foreign object is caught in the cooling fan. If a foreign object is found, remove it. | [G] |
| **2.** The cooling fan has contaminated and damaged. (Contamination and damage due to oil or other liquid ingress) | Check the condition of the cooling fan. If it is contaminated and damaged, replace the fan unit.<br>Review the usage environment as needed. | |
| **3.** The cooling fan has reached the end of its service life. | Replace the fan unit. | |
| **4.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |

## [AL. 047.2_Decreased cooling fan speed error]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** A foreign object was caught in the cooling fan. | Check if a foreign object is caught in the cooling fan. If a foreign object is found, remove it. | [G] |
| **2.** The cooling fan has contaminated and damaged. (Contamination and damage due to oil or other liquid ingress) | Check the condition of the cooling fan. If it is contaminated and damaged, replace the fan unit.<br>Review the usage environment as needed. | |
| **3.** The cooling fan has reached the end of its service life. | Replace the fan unit. | |

# [AL. 050_Overload 1]

• The load exceeded the overload protection characteristics of the servo amplifier.

## [AL. 050.1_Thermal overload error 1 during operation]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The servo motor power cable was disconnected. | Check the servo motor power cable, then repair or replace the cable. | [G] |
| **2.** The connection of the servo motor is incorrect. | Check the U/V/W wiring.<br>Refer to "Example power circuit connections" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **3.** The electromagnetic brake has not been released. (The electromagnetic brake has been activated.) | Check if the electromagnetic brake has been released during operation. | |
| **4.** A current larger than the continuous output current of the servo motor flowed. | Check the effective load ratio and operation pattern.<br>If the effective load ratio is too high, reduce the load or replace the servo motor with a larger-capacity servo motor.<br>Alternatively, review the operation pattern. | |
| **5.** The servo system is unstable and resonating. | Adjust the gain so that the system does not resonate.<br>Refer to the following manual.<br>📖MR-JET User's Manual (Adjustment) | |
| **6.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **7.** The encoder (servo motor) or linear encoder has malfunctioned. | Replace the servo motor or linear encoder. | |
| **8.** There is a problem with the mounting environment of the servo motor. | Check the servo motor shaft for any eccentric load due to a center deviation. If there is a problem, review the mounting environment. | |

## [AL. 050.2_Thermal overload error 2 during operation]

☞ Page 66 [AL. 050.1_Thermal overload error 1 during operation]

## [AL. 050.3_Thermal overload error 4 during operation]

☞ Page 66 [AL. 050.1_Thermal overload error 1 during operation]

## [AL. 050.4_Thermal overload error 1 during a stop]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** A moving part collided against the machine. | Review the operation pattern to avoid collision.<br>Check that there is no interference with the machine. | [G] |
| **2.** The servo motor power cable was disconnected. | Check the servo motor power cable, then repair or replace the cable. | |
| **3.** Hunting occurs during servo-lock. | Adjust the gain so that hunting does not occur.<br>Refer to the following manual.<br>📖MR-JET User's Manual (Adjustment) | |
| **4.** The electromagnetic brake has not been released. (The electromagnetic brake has been activated.) | Check if the electromagnetic brake has been released during operation. | |
| **5.** A current larger than the continuous output current of the servo motor flowed. | Check the effective load ratio and operation pattern.<br>If the effective load ratio is too high, reduce the load or replace the servo motor with a larger-capacity servo motor.<br>Alternatively, review the operation pattern. | |
| **6.** The servo system is unstable and resonating. | Adjust the gain so that the system does not resonate.<br>Refer to the following manual.<br>📖MR-JET User's Manual (Adjustment) | |
| **7.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **8.** The encoder (servo motor) or linear encoder has malfunctioned. | Replace the servo motor or linear encoder. | |

## [AL. 050.5_Thermal overload error 2 during a stop]

☞ Page 67 [AL. 050.4_Thermal overload error 1 during a stop]

## [AL. 050.6_Thermal overload error 4 during a stop]

☞ Page 67 [AL. 050.4_Thermal overload error 1 during a stop]

# [AL. 051_Overload 2]

• Maximum output current continuously flowed due to machine collision or other causes.

## [AL. 051.1_Thermal overload error 3 during operation]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The servo motor power cable was disconnected. | Repair or replace the servo motor power cable. | [G] |
| **2.** The connection of the servo motor is incorrect. | Check the U/V/W wiring.<br>Refer to "Example power circuit connections" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **3.** The connection of the encoder cable is incorrect. | Check if the encoder cable is connected correctly. | |
| **4.** The torque is insufficient. | Check the peak load ratio. If the torque is saturated, reduce the load or review the operation pattern.<br>Alternatively, replace the servo motor with a larger-capacity servo motor. | |
| **5.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **6.** The encoder (servo motor) or linear encoder has malfunctioned. | Replace the servo motor or linear encoder. | |

## [AL. 051.2_Thermal overload error 3 during a stop]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** A moving part collided against the machine. | Review the operation pattern to avoid collision.<br>Check if the machine is not interfering with the servo motor. | [G] |
| **2.** The servo motor power cable was disconnected. | ☞ Page 68 [AL. 051.1_Thermal overload error 3 during operation] | |
| **3.** The connection of the servo motor is incorrect. | | |
| **4.** The connection of the encoder cable is incorrect. | | |
| **5.** The torque is saturated. | | |
| **6.** The servo amplifier has malfunctioned. | | |
| **7.** The encoder or linear encoder has malfunctioned. | | |

# [AL. 052_Excessive error]



• Droop pulses exceeded the alarm occurrence level.

## [AL. 052.1_Excessive droop pulse 1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The servo motor power cable was disconnected. | Repair or replace the servo motor power cable. | [G] |
| **2.** The connection of the servo motor is incorrect. | Check the U/V/W wiring for forgotten screws, loose screws, and incorrect wiring.<br>Refer to "Example power circuit connections" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **3.** The connection of the encoder cable is incorrect. | Check if the encoder cable is connected correctly. | |
| **4.** The torque limit has been enabled. | If the torque has been limited, increase the torque limit value. | |
| **5.** A moving part collided against the machine. | Review the operation pattern to avoid collision. | |
| **6.** The electromagnetic brake has not been released. (The electromagnetic brake has been activated.) | Check if the electromagnetic brake has been released during operation. | |
| **7.** The torque is insufficient. | Check the peak load ratio. If the torque is saturated, reduce the load or review the operation pattern. Alternatively, replace the servo motor with a larger-capacity servo motor. | |
| **8.** The power supply voltage has dropped. | If the bus voltage is too low, review the power supply voltage and power supply capacity. | |
| **9.** Acceleration time constant is too short. | Set a longer acceleration/deceleration time constant, then check the repeatability. If the error does not repeat, increase the acceleration/deceleration time constant. | |
| **10.** The position control gain is too small. | Increase the position control gain, then check the repeatability. If the error does not repeat, increase the value in [Pr. PB08 position control gain]. | |
| **11.** The excessive error alarm trigger level was not set correctly. | Check the setting of the excessive error alarm trigger level.<br>[G]: [Pr. PC01], [Pr. PC06.3] | |
| **12.** The servo motor shaft was rotated by an external force or the moving part of the linear servo motor was moved by an external force. | Measure the actual position under the servo-lock status.<br>When an external force rotates the servo motor or moves the linear servo motor, review the machine. | |
| **13.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **14.** The encoder or linear encoder has malfunctioned. | Replace the servo motor or linear encoder. | |

## [AL. 052.3_Excessive droop pulse 2]

☞ Page 69 [AL. 052.1_Excessive droop pulse 1]

## [AL. 052.4_Excessive error during 0 torque limit]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The torque limit value is 0. | Do not input a command when the torque limit value is 0. | [G] |

## [AL. 052.5_Excessive droop pulse 3]

☞ Page 69 [AL. 052.1_Excessive droop pulse 1]

## [AL. 052.6_Excessive droop pulse at servo-off]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The servo motor shaft was rotated by an external force or the moving part of the linear servo motor was moved by an external force. | Make sure that the servo motor is not rotated (moved) by an external force. | [G] |
| *2.* When the servo motor was rotating or when the linear servo motor was moving, servo-on was executed. | Turn servo-on when the servo motor stops. | |
| *3.* The controller has malfunctioned. | Replace the controller, then check the repeatability. | |
| *4.* The encoder or the servo motor has malfunctioned. | Replace the servo motor or linear encoder, then check the repeatability. | |
| *5.* The servo amplifier has malfunctioned. | Replace the servo amplifier, then check the repeatability. | |

# [AL. 054_Oscillation detection]



• The oscillation of the servo motor was detected.

## [AL. 054.1_Oscillation detection error]

| Cause | Check/action method | Model |
|---|---|---|
| ***1.*** The servo system is unstable and oscillating. | Check the torque ripple with MR Configurator2.<br>If the torque ripple is vibrating, adjust the servo gain with the auto tuning. Set the machine resonance suppression filter. | [G] |
| ***2.*** The resonance frequency has changed due to aging. | Measure the resonance frequency of the equipment and compare the value with the setting value of the machine resonance suppression filter. If the resonance frequency of the equipment and the value of the filter differs, change the setting of the machine resonance suppression filter. | |
| ***3.*** The encoder or linear encoder has malfunctioned. | Replace the servo motor or linear encoder. | |

# [AL. 056_Forced stop error]

• The servo motor failed to decelerate normally during a forced stop deceleration.

## [AL. 056.2_Speed exceeded during forced stop]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The forced stop deceleration time constant is short. | Set a larger value in "Deceleration time constant at forced stop", then check the repeatability. If the error does not repeat, adjust the deceleration time constant.<br>[G]: [Pr. PC24 Deceleration time constant at forced stop] | [G] |
| 2. The torque limit has been enabled. | If the torque has been limited, review the torque limit value. | |
| 3. The servo system is unstable and oscillating. | Check the torque ripple with MR Configurator2.<br>If the torque ripple is vibrating, adjust the servo gain with the auto tuning. Set the machine resonance suppression filter. | |
| 4. The encoder or linear encoder has malfunctioned. | Replace the servo motor or linear encoder. | |

## [AL. 056.3_Estimated excess distance during forced stop]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The forced stop deceleration time constant is short. | Set a larger value in "Deceleration time constant at forced stop", then check the repeatability. If the error does not repeat, adjust the deceleration time constant.<br>[G]: [Pr. PC24 Deceleration time constant at forced stop] | [G] |
| 2. The torque limit has been enabled. | If the torque has been limited, review the torque limit value. | |
| 3. The encoder or linear encoder has malfunctioned. | Replace the servo motor or linear encoder. | |

## [AL. 056.5_Travel distance exceeded during forced stop 2]

☞ Page 72 [AL. 056.2_Speed exceeded during forced stop]

# [AL. 061_Operation error]



• The operation of positioning function is incorrect.

## [AL. 061.1_Point table setting range error]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* "1" or "3" is set for the auxiliary function of the last point table. | Review the settings of the auxiliary function. | [G] |

# [AL. 063_STO timing error]

• The STO input signal turned off when the servo motor was rotating.

## [AL. 063.1_STO1 off]

| Cause | Check/action method | Model |
|---|---|---|
| 1. While detection by [AL. 063 STO timing error] has been enabled, STO1 was turned off (enabled) under the following speed conditions.<br>• Rotary servo motor speed: 50 r/min or higher<br>• Linear servo motor speed: 50 mm/s or higher | After the servo motor stops, turn off (enable) STO1.<br>Review the settings of "STO timing error selection" with the following parameter.<br>[G]: [Pr. PF06.1 STO timing error selection] | [G] |

## [AL. 063.2_STO2 off]

| Cause | Check/action method | Model |
|---|---|---|
| 1. While detection by [AL. 063 STO timing error] has been enabled, STO2 was turned off (enabled) under the following speed conditions.<br>• Rotary servo motor speed: 50 r/min or higher<br>• Linear servo motor speed: 50 mm/s or higher | After the servo motor stops, turn off (enable) STO2.<br>Review the settings of "STO timing error selection" with the following parameter.<br>[G]: [Pr. PF06.1 STO timing error selection] | [G] |

# [AL. 068_STO diagnosis error]



• An error was detected in the STO input signal.

## [AL. 068.1_STO signal mismatch error]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** STO1 or STO2 is input incorrectly. | Check that STO1 and STO2 of the CN8 connector are wired correctly.<br>Refer to "USING STO FUNCTION" in the following manuals.<br>📖MR-JET User's Manual (Hardware) | [G] |
| **2.** The input status of STO1 and STO2 are different. | If the on/off status of STO1 and STO2 are different, set the same input status for STO1 and STO2. | |
| **3.** The setting of [Pr. PF18 STO diagnosis error detection time] is incorrect. | Set the longer time in the servo parameter setting, then check the repeatability.<br>If the error does not repeat, review the value of the servo parameter. | |
| **4.** The STO circuit has malfunctioned. | Replace the servo amplifier. | |
| **5.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

# [AL. 069_Command error]

- When the software limit was activated, the command position exceeded 32 bits (-2147483648 to 2147483647).
- When the software limit was activated, the command position exceeded 30 bits (-536870912 to 536870911) from the value that was set.
- The command position exceeded 30 bits (-536870912 to 536870911) from the position which was detected after detecting LSP (Forward rotation stroke end) or LSN (Reverse rotation stroke end).
- The command position exceeded 30 bits (-536870912 to 536870911) from the position that was detected after detecting FLS (Upper stroke limit) or RLS (Lower stroke limit).

## [AL. 069.1_Forward rotation-side software limit detection - Command excess error]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The command position exceeded 32 bits when the software limit was activated. | Check if the command is set for a position which exceeds 32 bits. Set the command position correctly. | [G] |
| **2.** The command position has exceeded 30 bits from the software limit setting value. | Check the software limit.<br>[Pr. PT15 Software position limit +]<br>[Pr. PT17 Software position limit -] | |
| **3.** The controller has malfunctioned. | Replace the controller. | |
| **4.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 069.2_Reverse rotation-side software limit detection - Command excess error]

☞ Page 76 [AL. 069.1_Forward rotation-side software limit detection - Command excess error]

## [AL. 069.3_Forward rotation stroke end detection - Command excess error]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The command position exceeded 30 bits from the position that was detected after detecting LSP (Forward rotation stroke end). | Review the operation pattern so that the command does not exceed 30 bits. | [G] |
| **2.** The forward rotation stroke limit switch is not connected to LSP (Forward rotation stroke end). | Check if the limit switch is connected correctly. | |
| **3.** The controller has malfunctioned. | Replace the controller. | |
| **4.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 069.4_Reverse rotation stroke end detection - Command excess error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The command position exceeded 30 bits from the position which was detected after detecting LSN (Reverse rotation stroke end). | Review the operation pattern so that the command does not exceed 30 bits. | [G] |
| 2. The reverse rotation stroke limit switch is not connected to LSN (Reverse rotation stroke end). | Check if the limit switch is connected correctly. | |
| 3. The controller has malfunctioned. | Replace the controller. | |
| 4. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 069.5_Upper stroke limit detection - Command excess error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The command position exceeded 30 bits from the position which was detected after detecting FLS (Upper stroke limit). | Review the operation pattern so that the command does not exceed 30 bits. | [G] |
| 2. The upper stroke limit switch is not wired or the switch is positioned incorrectly. | Check if the limit switch is connected correctly or if the switch is positioned incorrectly. | |
| 3. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| 4. The controller has malfunctioned. | Replace the controller. | |

## [AL. 069.6_Lower stroke limit detection - Command excess error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The command position exceeded 30 bits from the position which was detected after detecting RLS (Lower stroke limit). | Review the operation pattern so that the command does not exceed 30 bits. | [G] |
| 2. The lower stroke limit switch is not wired or the switch is positioned incorrectly. | Check if the limit switch is connected correctly or if the switch is positioned incorrectly. | |
| 3. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| 4. The controller has malfunctioned. | Replace the controller. | |

# [AL. 070_Load-side encoder initial communication error 1]

• There is a communication error between the load-side encoder and servo amplifier.

## [AL. 070.1_Load-side encoder initial communication - Receive data error 1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** There is a problem with the load-side encoder cable. | Check if the load-side encoder cable has been disconnected, incorrectly wired, or has shorted.<br>If there is a problem with the cable, replace or repair the cable. | [G] |
| **2.** If an A/B/Z-phase differential output type encoder is being used, the connection with the encoder is incorrect. | Check if the wiring of the A/B/Z-phase differential output type encoder is correct.<br>Refer to "A/B/Z-phase differential output type encoder" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | |
| **3.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **4.** The load-side encoder has malfunctioned. | Replace the load-side encoder. | |
| **5.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manuals.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 070.2_Load-side encoder initial communication - Receive data error 2]

☞ Page 78 [AL. 070.1_Load-side encoder initial communication - Receive data error 1]

## [AL. 070.3_Load-side encoder initial communication - Receive data error 3]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The load-side encoder cable is disconnected. | Check if the load-side encoder cable is connected correctly. | [G] |
| **2.** There is a problem with the load-side encoder cable. | Check if the load-side encoder cable has been disconnected or has shorted.<br>If there is a problem with the load-side encoder cable, replace or repair the cable. | |
| **3.** When an external power supply was used for the load-side encoder, the voltage of the external power supply became unstable. | Review the power supply capacity and the voltage of the external power supply. | |
| **4.** If an A/B/Z-phase differential output type encoder is being used, the connection with the encoder is incorrect. | Check if the wiring of the A/B/Z-phase differential output type encoder is correct.<br>Refer to "A/B/Z-phase differential output type encoder" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | |
| **5.** When using a four-wire type linear encoder, the servo amplifier is not compatible with the four-wire type linear encoder. | Check if the servo amplifier is compatible with the four-wire type linear encoder.<br>Refer to "Parts identification" in the User's Manual (Introduction). | |
| **6.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **7.** The load-side encoder has malfunctioned. | Replace the load-side encoder. | |
| **8.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manuals.<br>📖MR-JET User's Manual (Hardware) | |
| **9.** Values of the servo parameters for manufacturer setting have been changed. | Set the servo parameters for manufacturer setting to the initial values. | |

## [AL. 070.5_Load-side encoder initial communication - Transmission data error 1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** If an A/B/Z-phase differential output type encoder is being used, the wiring of the encoder is incorrect. | Check if the A/B-phase pulse signals (PA, PAR, PB, and PBR) of the encoder cable have been disconnected or have shorted.<br>Refer to "A/B/Z-phase differential output type encoder" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | [G] |
| **2.** There is a problem with the load-side encoder cable. | ☞ Page 78 [AL. 070.1_Load-side encoder initial communication - Receive data error 1] | |
| **3.** The servo amplifier has malfunctioned. | | |
| **4.** The load-side encoder has malfunctioned. | | |
| **5.** There is a problem with the surrounding environment. | | |

## [AL. 070.6_Load-side encoder initial communication - Transmission data error 2]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** If an A/B/Z-phase differential output type encoder is being used, the wiring of the encoder is incorrect. | Check if the Z-phase pulse signals (PZ and PZR) of the encoder cable have been disconnected or have shorted.<br>Refer to "A/B/Z-phase differential output type encoder" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | [G] |
| **2.** There is a problem with the load-side encoder cable. | ☞ Page 78 [AL. 070.1_Load-side encoder initial communication - Receive data error 1] | |
| **3.** The servo amplifier has malfunctioned. | | |
| **4.** The load-side encoder has malfunctioned. | | |
| **5.** There is a problem with the surrounding environment. | | |

## [AL. 070.7_Load-side encoder initial communication - Transmission data error 3]

☞ Page 78 [AL. 070.1_Load-side encoder initial communication - Receive data error 1]

## [AL. 070.A_Load-side encoder initial communication - Process error 1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | [G] |
| **2.** The load-side encoder has malfunctioned. | Replace the load-side encoder. | |
| **3.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manuals.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 070.B_Load-side encoder initial communication - Process error 2]

☞ Page 78 [AL. 070_Load-side encoder initial communication error 1]

## [AL. 070.C_Load-side encoder initial communication - Process error 3]

☞ Page 78 [AL. 070_Load-side encoder initial communication error 1]

## [AL. 070.D_Load-side encoder initial communication - Process error 4]

☞ Page 78 [AL. 070_Load-side encoder initial communication error 1]

## [AL. 070.E_Load-side encoder initial communication - Process error 5]

☞ Page 78 [AL. 070_Load-side encoder initial communication error 1]

## [AL. 070.F_Load-side encoder initial communication - Process error 6]

☞ Page 78 [AL. 070_Load-side encoder initial communication error 1]

# [AL. 071_Load-side encoder normal communication error 1]



• There is a communication error between the load-side encoder and servo amplifier.

## [AL. 071.1_Load-side encoder normal communication - Receive data error 1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** There is a problem with the load-side encoder cable. | Check if the encoder cable has been disconnected, incorrectly wired, or has shorted.<br>If there is a problem with the encoder cable, replace or repair the cable. | [G] |
| **2.** The external conductor of the encoder cable is not connected to the ground plate of the connector. | Check if the external conductor of the encoder cable is connected to the ground plate of the connector.<br>Refer to "Shield procedure of CN2 side connectors" in the following manual.<br>📖Rotary Servo Motor User's Manual (For MR-JET) | |
| **3.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **4.** The load-side encoder has malfunctioned. | Replace the load-side encoder. | |
| **5.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manuals.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 071.2_Load-side encoder normal communication - Receive data error 2]

☞ Page 81 [AL. 071.1_Load-side encoder normal communication - Receive data error 1]

## [AL. 071.3_Load-side encoder normal communication - Receive data error 3]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The Z-phase signal cannot be detected despite being on. | Check if the Z-phase pulse signals (PZ and PZR) of the encoder cable have been disconnected or have shorted.<br>Refer to the specifications provided by the encoder manufacturer or "A/B/Z-phase differential output type encoder" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | [G] |
| **2.** Take actions in accordance with the items shown below.<br>☞ Page 81 [AL. 071.1_Load-side encoder normal communication - Receive data error 1] | | |

## [AL. 071.4_Erroneous number of load-side Z-phase interval pulses]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The number of Z-phase signal interval pulses is different from the encoder resolution setting value. | Check if [Pr. PE51 Load-side encoder resolution setting] has been set correctly. | [G] |

## [AL. 071.5_Load-side encoder normal communication - Transmission data error 1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** If an A/B/Z-phase differential output type encoder is being used, the wiring of the encoder is incorrect. | Check if the A/B-phase pulse signals (PA, PAR, PB, and PBR) of the encoder cable have been disconnected or have shorted.<br>Refer to the specifications provided by the encoder manufacturer or "A/B/Z-phase differential output type encoder" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | [G] |
| **2.** Take actions in accordance with the items shown below.<br>☞ Page 81 [AL. 071.1_Load-side encoder normal communication - Receive data error 1] | | |

## [AL. 071.6_Load-side encoder normal communication - Transmission data error 2]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* If an A/B/Z-phase differential output type encoder is being used, the wiring of the encoder is incorrect. | Check if the A/B-phase pulse signals (PZ and PZR) of the encoder cable have been disconnected or have shorted.<br>Refer to the specifications provided by the encoder manufacturer or "A/B/Z-phase differential output type encoder" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | [G] |
| *2.* Take actions in accordance with the items shown below.<br>☞ Page 81 [AL. 071.1_Load-side encoder normal communication - Receive data error 1] | | |

## [AL. 071.7_Load-side encoder normal communication - Transmission data error 3]

☞ Page 81 [AL. 071.1_Load-side encoder normal communication - Receive data error 1]

# [AL. 072_Load-side encoder normal communication error 2]



• The load-side encoder detected an error signal.

## [AL. 072.1_Load-side encoder data error 1]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An excessive speed or acceleration was detected due to an oscillation or other factors. | Decrease the control gain, then check the repeatability. If the error does not repeat, use the encoder with a lower gain. | [G] |
| 2. The load-side encoder has malfunctioned. | Replace the load-side encoder. | |
| 3. There is a problem with the surrounding environment. | Check the noise, ambient temperature, external magnetic field, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manuals.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 072.2_Load-side encoder data update error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The load-side encoder has malfunctioned. | Replace the load-side encoder. | [G] |
| 2. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manuals.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 072.3_Load-side encoder data waveform error]

☞ Page 83 [AL. 072.2_Load-side encoder data update error]

## [AL. 072.4_No load-side encoder signal]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A signal of the load-side encoder has not been input. | Check if the encoder cable is wired correctly. | [G] |
| 2. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manuals.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 072.5_Load-side encoder hardware error 1]

☞ Page 83 [AL. 072.2_Load-side encoder data update error]

## [AL. 072.6_Load-side encoder hardware error 2]

☞ Page 83 [AL. 072.2_Load-side encoder data update error]

# [AL. 076_Load-side encoder error]

• There is an error in a parameter.

## [AL. 076.2_Load-side encoder error 2]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* Values of the servo parameters for manufacturer setting have been changed. | Set the servo parameters for manufacturer setting to the initial values. | [G] |

## [AL. 076.3_Load-side encoder error 3]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* Values of the servo parameters for manufacturer setting have been changed. | Set the servo parameters for manufacturer setting to the initial values. | [G] |

# [AL. 086_Network communication error]



• An error occurred in the network communication.

## [AL. 086.1_Network communication error 1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** A network cable is disconnected. | Check if the network cable is connected correctly.<br>Turn off the power supply of the servo amplifier (control circuit power supply for the MR-JET-_G_-HS(N1)), then connect the network cable correctly. | [G] |
| **2.** The wiring of the network cable was incorrect. | Check if the connection of network cable is correct. | |
| **3.** A network cable is disconnected. | Check for disconnection in the network cable. | |
| **4.** Devices on the network (including repeaters such as hubs) are turned off. | Check that the devices on the network are turned on. | |
| **5.** The network was disconnected by an incorrect procedure. | Check if the network was disconnected by a correct procedure for each type of network.<br>Refer to "Disconnecting the communication" or "Network disconnection procedure" in the User's Manual (Communication function). | |
| **6.** Data transmission from the controller was interrupted for a certain time. | Check if data transmission from the controller has not been interrupted. If the data transmission has been interrupted, review the controller communication setting. | |
| **7.** The settings of the controller were incorrect. | Check the controller settings.<br>When using CC-Link IE TSN, review communication settings such as those for increasing the transient transmission time of the controller. Alternatively, reduce the number of servo amplifiers that enter the network midway. | |
| **8.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **9.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **10.** The controller has malfunctioned. | Replace the controller. | |
| **11.** Devices on the network (including repeaters such as hubs) have malfunctioned. | Replace the devices on the network. | |

## [AL. 086.2_Network communication error 2]

☞ Page 85 [AL. 086.1_Network communication error 1]

## [AL. 086.3_Network communication error 3]

☞ Page 85 [AL. 086.1_Network communication error 1]

## [AL. 086.4_Network communication error 4]

☞ Page 85 [AL. 086.1_Network communication error 1]

## [AL. 086.5_Network communication error 5]

☞ Page 85 [AL. 086.1_Network communication error 1]

## [AL. 086.6_Network communication error 6]

☞ Page 85 [AL. 086.1_Network communication error 1]

# [AL. 088_Watchdog 1]/[AL. 888_Watchdog 1]/[AL. 88888_Watchdog 1]

• The CPU or other component parts have malfunctioned.

## [AL. 088.1_Watchdog 1-1]/[AL. 088_Watchdog 1-1]/[AL. 888_Watchdog 1-1]/[AL. 88888_Watchdog 1-1]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | [G] |
| *2.* An internal part of the servo amplifier has malfunctioned. | Replace the servo amplifier. | |

## [AL. 088.2_Watchdog 1-2]

☞ Page 86 [AL. 088.1_Watchdog 1-1]/[AL. 088_Watchdog 1-1]/[AL. 888_Watchdog 1-1]/[AL. 88888_Watchdog 1-1]

## [AL. 088.4_Watchdog 1-4]

☞ Page 86 [AL. 088.1_Watchdog 1-1]/[AL. 088_Watchdog 1-1]/[AL. 888_Watchdog 1-1]/[AL. 88888_Watchdog 1-1]

## [AL. 088.8_Watchdog 1-8]

☞ Page 86 [AL. 088.1_Watchdog 1-1]/[AL. 088_Watchdog 1-1]/[AL. 888_Watchdog 1-1]/[AL. 88888_Watchdog 1-1]

# [AL. 08E_Serial communication error]



- A communication error occurred between the servo amplifier and the personal computer or the controller.
- An error occurred in Mitsubishi Electric serial communication (USB communication).

## [AL. 08E.1_Serial communication receive error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The settings of the personal computer or other equipment are incorrect. | Check the settings of the personal computer and other equipment. | [G] |
| 2. There is a problem with the communication cable. | Check the communication cable, then check the repeatability. | |
| 3. The servo amplifier has malfunctioned. | Replace the servo amplifier, then check the repeatability. | |
| 4. There is a problem with the surrounding environment. | Check the power supply for noise. If there is noise, take countermeasures to reduce the noise.<br>Check if the connector has shorted.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 08E.2_Serial communication checksum error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The settings of the personal computer or other equipment are incorrect. | Check the settings of the personal computer and other equipment. | [G] |

## [AL. 08E.3_Serial communication character error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An unsupported character was transmitted. | Check the character code at the time of transmission. If an unsupported character was transmitted, correct the transmission data. | [G] |
| 2. The communication protocol has a problem. | Check if the transmission data complies with the communication protocol. | |
| 3. The settings of the personal computer or other equipment are incorrect. | Check the settings of the personal computer and other equipment. | |

## [AL. 08E.4_Serial communication command error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An unsupported command was transmitted. | Check the command at the time of transmission. If an unsupported command was transmitted, correct the transmission data. | [G] |
| 2. The communication protocol has a problem. | Check if the transmission data complies with the communication protocol. | |
| 3. The settings of the personal computer or other equipment are incorrect. | Check the settings of the personal computer and other equipment. | |

## [AL. 08E.5_Serial communication data number error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An unsupported data number was transmitted. | Check the data number at the time of transmission. If an unsupported data number was transmitted, correct the transmission data. | [G] |
| 2. The communication protocol has a problem. | Check if the transmission data complies with the communication protocol. | |
| 3. The settings of the personal computer or other equipment are incorrect. | Check the settings of the personal computer and other equipment. | |

# [AL. 08F_Two-digit alarm No. display alarm]

• A three-digit alarm is occurring.

## [AL. 08F.1_Two-digit alarm No. display alarm for AL. 100 to AL. 1FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An alarm with alarm No. in 100s ([AL. 1_ _]) is occurring. | Check the alarm number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 08F.2_Two-digit alarm No. display alarm for AL. 200 to AL. 2FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An alarm with alarm No. in 200s ([AL. 2_ _]) is occurring. | Check the alarm number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 08F.3_Two-digit alarm No. display alarm for AL. 300 to AL. 3FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An alarm with alarm No. in 300s ([AL. 3_ _]) is occurring. | Check the alarm number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 08F.4_Two-digit alarm No. display alarm for AL. 400 to AL. 4FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An alarm with alarm No. in 400s ([AL. 4_ _]) is occurring. | Check the alarm number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 08F.5_Two-digit alarm No. display alarm for AL. 500 to AL. 5FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An alarm with alarm No. in 500s ([AL. 5_ _]) is occurring. | Check the alarm number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 08F.6_Two-digit alarm No. display alarm for AL. 600 to AL. 6FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An alarm with alarm No. in 600s ([AL. 6_ _]) is occurring. | Check the alarm number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 08F.7_Two-digit alarm No. display alarm for AL. 700 to AL. 7FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An alarm with alarm No. in 700s ([AL. 7_ _]) is occurring. | Check the alarm number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 08F.8_Two-digit alarm No. display alarm for AL. 800 to AL. 8FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An alarm with alarm No. in 800s ([AL. 8_ _]) is occurring. | Check the alarm number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 08F.9_Two-digit alarm No. display alarm for AL. 900 to AL. 9FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An alarm with alarm No. in 900s ([AL. 9_ _]) is occurring. | Check the alarm number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 08F.A_Two-digit alarm No. display alarm for AL. A00 to AL. AFF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An alarm with alarm No. in A00s ([AL. A_ _]) is occurring. | Check the alarm number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 08F.B_Two-digit alarm No. display alarm for AL. B00 to AL. BFF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An alarm with alarm No. in B00s ([AL. B_ _]) is occurring. | Check the alarm number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 08F.C_Two-digit alarm No. display alarm for AL. C00 to AL. CFF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An alarm with alarm No. in C00s ([AL. C_ _]) is occurring. | Check the alarm number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 08F.D_Two-digit alarm No. display alarm for AL. D00 to AL. DFF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An alarm with alarm No. in D00s ([AL. D_ _]) is occurring. | Check the alarm number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 08F.E_Two-digit alarm No. display alarm for AL. E00 to AL. EFF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An alarm with alarm No. in E00s ([AL. E_ _]) is occurring. | Check the alarm number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 08F.F_Two-digit alarm No. display alarm for AL. F00 to AL. FFF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An alarm with alarm No. in F00s ([AL. F_ _]) is occurring. | Check the alarm number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

# [AL. 090_Homing incomplete warning]

- Homing has not been finished.
- Homing did not complete properly.
- Homing was executed with the Z-phase unpassed.

## [AL. 090.1_Homing incomplete]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** Homing has not been executed. | Check if homing was executed.<br>If homing was not executed, execute homing. | [G] |
| **2.** Positioning operation was executed without homing after [AL. 025 Absolute position erased] occurred in the absolute position detection system. | Execute homing after dealing with [AL. 025].<br>Refer to "Homing mode (hm)" in the following manual.<br>MR-JET User's Manual (Function) | |
| **3.** Homing completion 2 (S_ZP2) turned off after homing was executed. | Remove the causes that turned off homing completion 2 (S_ZP2), then execute homing again.<br>Refer to "Homing method list" in the following manual.<br>MR-JET User's Manual (Function) | |
| **4.** [AL. 069 Command error] occurred. | Execute homing after dealing with [AL. 069].<br>Refer to "Homing mode (hm)" in the following manual.<br>MR-JET User's Manual (Function) | |

## [AL. 090.2_Homing abnormal termination]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The proximity dog is not connected to DOG. | Check if the proximity dog is connected correctly.<br>Check the status of the input signal on the I/O monitor screen of MR Configurator2. | [G] |
| **2.** The stroke limit was detected after homing was started. | Check if the stroke limit switch is connected to the servo amplifier correctly, or check if the stroke limit has been reached. | |
| **3.** Deceleration from the homing speed to the creep speed was not possible. | There is a possibility that the proximity dog turned off before deceleration from the homing speed to the creep speed was completed.<br>Review the dog position, or review the parameter values of the homing speed, the creep speed, and the travel distance after proximity dog. | |

## [AL. 090.5_Z-phase unpassed]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** Homing was executed while the servo motor did not pass the Z-phase. | Review the homing start position and the proximity dog position so that the servo motor passes the Z-phase signal until the proximity dog turns off after homing started. | [G] |
| **2.** The Z-phase signal was not detected normally. | Check if the Z-phase signal of the servo motor or linear encoder was detected normally.<br>Replace the rotary servo motor.<br>If a linear encoder is being used, replace the linear encoder. | |

# [AL. 091_Servo amplifier overheat warning]



• The temperature inside of the servo amplifier has reached a warning level.

## [AL. 091.1_Main circuit device overheat warning]

| Cause | Check/action method | Model |
|---|---|---|
| ***1.*** The ambient temperature of the servo amplifier exceeded the specified value (55 °C). | Lower the ambient temperature. | [G] |
| ***2.*** The servo amplifier does not meet the specifications of close mounting. | Check the specifications of close mounting.<br>Refer to "Mounting direction and clearances" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| ***3.*** Cooling performance has deteriorated due to clogging of the heat sink and other factors. | Remove causes such as the clogging of the heat sink. | |

# [AL. 092_Battery cable disconnection warning]

• The battery voltage for the absolute position detection system has decreased.

## [AL. 092.1_Encoder battery cable disconnection warning]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The battery is not connected to the servo amplifier. | Check if the battery is connected correctly. | [G] |
| **2.** The battery cable is disconnected. | Check if the battery cable has malfunctioned. | |
| **3.** The battery voltage is too low. The battery is exhausted. | Check the battery voltage with a tester. If the voltage is lower than 3.1 V DC, replace the battery. | |
| **4.** There is a problem with the encoder cable. | Check if the BAT wiring of the encoder cable has been disconnected or has shorted. | |
| **5.** The servo amplifier has malfunctioned. | Replace the servo amplifier, then check the repeatability. | |
| **6.** The encoder has malfunctioned. | Replace the servo motor, then check the repeatability. | |

## [AL. 092.3_Battery degradation]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The battery voltage is too low. The battery is exhausted. | Check the battery voltage with a tester. If the voltage is lower than 3.0 V DC, replace the battery. | [G] |
| **2.** The battery has malfunctioned. | Replace the battery, then check the repeatability. | |

# [AL. 095_STO warning]



• The STO input signalturned off when the servo motor was stopped.

## [AL. 095.1_STO1 off detection]

| Cause | Check/action method | Model |
|---|---|---|
| 1. STO1 is input incorrectly. | Refer to the wiring diagram and correct the wiring.<br>Refer to "USING STO FUNCTION" in the following manual.<br>MR-JET User's Manual (Hardware) | [G] |
| 2. While detection by [AL. 063 STO timing error] has been enabled, STO1 was turned off (enabled) under the following speed conditions.<br>• Rotary servo motor speed: 50 r/min or lower<br>• Linear servo motor speed: 50 mm/s or lower | Turn on STO1 (disabled).<br>Review the settings of "STO timing error selection" with the following parameter.<br>[G]: [Pr. PF06.1 STO timing error selection] | |
| 3. The servo amplifier has malfunctioned. | Replace the servo amplifier, then check the repeatability. | |

## [AL. 095.2_STO2 off detection]

| Cause | Check/action method | Model |
|---|---|---|
| 1. STO2 is input incorrectly. | Refer to the wiring diagram and correct the wiring.<br>Refer to "USING STO FUNCTION" in the following manual.<br>MR-JET User's Manual (Hardware) | [G] |
| 2. While detection by [AL. 063 STO timing error] has been enabled, STO2 was turned off (enabled) under the following speed conditions.<br>• Rotary servo motor speed: 50 r/min or lower<br>• Linear servo motor speed: 50 mm/s or lower | Turn on STO2 (disabled).<br>Review the settings of "STO timing error selection" with the following parameter.<br>[G]: [Pr. PF06.1 STO timing error selection] | |
| 3. The servo amplifier has malfunctioned. | Replace the servo amplifier, then check the repeatability. | |

# [AL. 096_Home position setting warning]

• Homing failed.

## [AL. 096.1_In-position warning at homing]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** During homing, INP (In-position) did not turn on within the specified time. | Adjust gains so that the droop pulses are set within the In-position range.<br>Remove the cause of droop pulse occurrence, then perform homing. | [G] |

## [AL. 096.2_Command input warning at homing]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** A command was input during homing. | Ensure that a command is not input during homing. | [G] |
| **2.** Creep speed is too high. | Decelerate the creep speed, then perform homing. | |
| **3.** During homing, the servo motor shaft was rotated by an external force or the moving part of the linear servo motor was moved by an external force. | Check the actual position of the servo motor.<br>When an external force rotates the servo motor or moves the linear servo motor, perform homing after the servo motor stops. | |

# [AL. 098_Software position limit warning]



• The software position limit set by servo parameters has been reached.

## [AL. 098.1_Forward rotation-side software stroke limit reached]

| Cause | Check/action method | Model |
|---|---|---|
| ***1.*** A software position limit has been reached. | Check the operation pattern. | [G] |
| ***2.*** A software position limit has been reached in the JOG operation mode. | Operate the system in the range of the software position limit. Adjust the parameters or objects related to the JOG operation mode as necessary. | |
| ***3.*** The software position limit was set within the actual operation range. | Check if [Pr. PT15 Software position limit +] and [Pr. PT17 Software position limit -] are set correctly. | |

## [AL. 098.2_Reverse rotation-side software stroke limit reached]

☞ Page 95 [AL. 098.1_Forward rotation-side software stroke limit reached]

# [AL. 099_Stroke limit warning]

• The stroke limit signal is off.

## [AL. 099.1_Forward rotation stroke end off]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The forward rotation stroke limit switch is not connected to LSP. | Check if the limit switch is connected correctly.<br>The status of the input signal can be confirmed on the I/O monitor screen of MR Configurator2. | [G] |
| **2.** The forward rotation stroke end was exceeded during driving. | Check the operation pattern. | |
| **3.** The limit switch has malfunctioned. The sensor has not been adjusted correctly. | Check if the limit switch is functioning correctly or if the sensor has been adjusted correctly. | |

## [AL. 099.2_Reverse rotation stroke end off]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The reverse rotation stroke limit switch is not connected to LSN. | Check if the limit switch is connected correctly.<br>The status of the input signal can be confirmed on the I/O monitor screen of MR Configurator2. | [G] |
| **2.** The reverse rotation stroke end was exceeded during driving. | Check the operation pattern. | |
| **3.** The limit switch has malfunctioned. The sensor has not been adjusted correctly. | Check if the limit switch is functioning correctly or if the sensor has been adjusted correctly. | |

## [AL. 099.4_Upper stroke limit off]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The upper stroke limit switch is not connected to FLS of the controller. | Check if the limit switch is connected correctly.<br>The status of the input signal can be confirmed on the I/O monitor screen of MR Configurator2. | [G] |
| **2.** The upper stroke limit was exceeded during driving. | Check the operation pattern. | |
| **3.** The limit switch has malfunctioned. The sensor has not been adjusted correctly. | Check if the limit switch is functioning correctly or if the sensor has been adjusted correctly. | |

## [AL. 099.5_Lower stroke limit off]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The lower stroke limit switch is not connected to RLS of the controller. | Check if the limit switch is connected correctly.<br>The status of the input signal can be confirmed on the I/O monitor screen of MR Configurator2. | [G] |
| **2.** The lower stroke limit was exceeded during driving. | Check the operation pattern. | |
| **3.** The limit switch has malfunctioned. The sensor has not been adjusted correctly. | Check if the limit switch is functioning correctly or if the sensor has been adjusted correctly. | |

## [AL. 099.6_Forced stop deceleration based on forward rotation stroke end]

☞ Page 96 [AL. 099.1_Forward rotation stroke end off]

## [AL. 099.7_Forced stop deceleration based on reverse rotation stroke end]

☞ Page 96 [AL. 099.2_Reverse rotation stroke end off]

## [AL. 099.8_Upper stroke limit off 2]

☞ Page 96 [AL. 099.4_Upper stroke limit off]

## [AL. 099.9_Lower stroke limit off 2]

☞ Page 96 [AL. 099.5_Lower stroke limit off]

# [AL. 09B_Excessive error warning]

• Droop pulses exceeded the warning occurrence level.

## [AL. 09B.1_Excessive droop pulse 1 warning]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The servo motor power cable was disconnected. | Repair or replace the servo motor power cable. | [G] |
| **2.** The connection of the servo motor is incorrect. | Check the U/V/W wiring.<br>Refer to "Example power circuit connections" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **3.** The connection of the encoder cable is incorrect. | Check if the encoder cable is connected correctly. | |
| **4.** The torque limit has been enabled. | If the torque has been limited, increase the torque limit value. | |
| **5.** A moving part collided against the machine. | Review the operation pattern to avoid collision. | |
| **6.** The torque is insufficient. | Check the peak load ratio. If the torque is saturated, reduce the load or review the operation pattern. Alternatively, replace the servo motor with a larger-capacity servo motor. | |
| **7.** The power supply voltage has dropped. | If the bus voltage is too low, review the power supply voltage and power supply capacity. | |
| **8.** Acceleration/deceleration time constant is insufficient. | Set a longer acceleration/deceleration time constant, then check the repeatability. | |
| **9.** The position control gain is too small. | Increase the value of [Pr. PB08 Position control gain]. | |
| **10.** The servo motor shaft was rotated by an external force. The moving part of the linear servo motor was moved by an external force. | Measure the actual position under the servo-lock status.<br>When an external force rotates the servo motor or moves the linear servo motor, review the machine. | |
| **11.** The encoder or linear encoder has malfunctioned. | Replace the servo motor or linear encoder. | |

## [AL. 09B.3_Excessive droop pulse 2 warning]

☞ Page 98 [AL. 09B.1_Excessive droop pulse 1 warning]

## [AL. 09B.4_Excessive error warning during 0 torque limit]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The torque limit value is 0. | Do not input a command when the torque limit value is 0. | [G] |

# [AL. 09E_Network warning]



- An error exists in the network data reception.
- An error exists in the network settings.

## [AL. 09E.2_Communication cycle setting warning]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An unsupported communication cycle was set. | Review the settings on the master side. | [G] |
| 2. The communication cycle was set to 250 µs or less while the communication speed was set to 100 Mbps for CC-Link IE TSN. | Change the communication cycle to 500 µs or more, or change the communication speed of the controller and the servo amplifier to 1 Gbps. | |
| 3. The communication cycle for CC-Link IE TSN Class A has been set to a lower value than 500 µs or a higher value than 500 ms. | For CC-Link IE TSN Class A, set the communication cycle to a value between 500 µs and 500 ms inclusive. | |

## [AL. 09E.3_Number of cyclic points warning]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A value larger than the maximum size was set to the cyclic points number. | Change the communication cycle, or review the mapping.<br>For the maximum number of cyclic points, refer to "Communication specifications" in the User's Manual (Communication Function). | [G] |

## [AL. 09E.4_Parameter file warning]

| Cause | Check/action method | Model |
|---|---|---|
| 1. There is an error on the parameter file of the parameter automatic setting. | Replace the parameter automatic setting file. | [G] |
| 2. The processing of the automatic parameter setting was interrupted. | ☞ Page 85 [AL. 086.1_Network communication error 1] | |

## [AL. 09E.5_Cyclic communication setting warning]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An unsupported communication cycle was set. | Review the settings on the master side. | [G] |

## [AL. 09E.6_IP address setting warning]

| Cause | Check/action method | Model |
|---|---|---|
| 1. Duplication of an IP address has been detected. | To ensure that there is no duplication of IP addresses, review [Pr. NPA01 IP address setting], [Pr. NPA02 IP address], and the rotary switch setting. | [G] |

## [AL. 09E.7_Parameter unreflected warning]

| Cause | Check/action method | Model |
|---|---|---|
| 1. Parameter automatic setting was performed for the parameters that require power cycling. | Cycle the power. | [G] |

## [AL. 09E.8_Master station error detection warning]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An error was detected on the master side. | Check the status on the master side. | [G] |

## [AL. 09E.9_Control mode setting warning]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An unsupported control mode was selected. | Check the synchronous/asynchronous mode and the control mode.<br>Refer to "Availability of synchronous mode in control mode" in the User's Manual (Communication Function). | [G] |

## [AL. 09E.A_Communication cycle setting warning]

| Cause | Check/action method | Model |
|---|---|---|
| 1. Servo parameter settings primarily for the control mode and functions that are not supported by the network communication cycle currently in use have been selected. | Check the servo parameters and change the communication cycle to one that is compatible with the set control mode and functions.<br>For the function restrictions of the network communication cycle, refer to "Restrictions on the MR-JET-_G_" in the User's Manual (Introduction). | [G] |
| 2. Values of the servo parameters for manufacturer setting have been changed. | Set the servo parameters for manufacturer setting to the initial values. | |

## [AL. 09E.B_PDO setting warning]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The PDO setting for FSoE communication is incorrect. | Review the PDO setting for FSoE communication. | [G] |

# [AL. 09F_Battery warning]



• The battery voltage for the absolute position detection system has decreased.

## [AL. 09F.1_Low battery]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The battery is not connected to the servo amplifier. | Check if the battery is connected correctly. | [G] |
| **2.** The battery voltage is too low. The battery is exhausted. | Check the voltage of the battery with a tester, and if the voltage is lower than 4.9 V DC, replace the battery. | |
| **3.** There is a problem with the encoder cable. | Check if the BAT wiring of the encoder cable has been disconnected or has shorted. | |
| **4.** The servo amplifier has malfunctioned. | Replace the servo amplifier, then check the repeatability. | |
| **5.** The encoder has malfunctioned. | Replace the servo motor, then check the repeatability. | |

## [AL. 09F.2_For manufacturer setting]

This is for manufacturer setting.

# [AL. 0E0_Excessive regeneration warning]

• [AL. 030.1 Regenerative heat error] may occur.

## [AL. 0E0.1_Excessive regeneration warning]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The regenerative load ratio exceeded 85 %. | ☞ Page 50 [AL. 030.1_Regenerative heat error] | [G] |

# [AL. 0E1_Overload warning 1]



• [AL. 050 Overload 1] or [AL. 051 Overload 2] may occur.

## [AL. 0E1.1_Thermal overload warning 1 during operation]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The load was over 85 % of the alarm trigger level of [AL. 050.1 Thermal overload error 1 during operation]. | ☞ Page 66 [AL. 050.1_Thermal overload error 1 during operation] | [G] |

## [AL. 0E1.2_Thermal overload warning 2 during operation]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The load was over 85 % of the alarm trigger level of [AL. 050.2 Thermal overload error 2 during operation]. | ☞ Page 66 [AL. 050.2_Thermal overload error 2 during operation] | [G] |

## [AL. 0E1.3_Thermal overload warning 3 during operation]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The load was over 85 % of the alarm trigger level of [AL. 051.1 Thermal overload error 3 during operation]. | ☞ Page 68 [AL. 051.1_Thermal overload error 3 during operation] | [G] |

## [AL. 0E1.4_Thermal overload warning 4 during operation]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The load was over 85 % of the alarm trigger level of [AL. 050.3 Thermal overload error 4 during operation]. | ☞ Page 66 [AL. 050.3_Thermal overload error 4 during operation] | [G] |

## [AL. 0E1.5_Thermal overload warning 1 during a stop]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The load was over 85 % of the alarm trigger level of [AL. 050.4 Thermal overload error 1 during a stop]. | ☞ Page 67 [AL. 050.4_Thermal overload error 1 during a stop] | [G] |

## [AL. 0E1.6_Thermal overload warning 2 during a stop]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The load was over 85 % of the alarm trigger level of [AL. 050.5 Thermal overload error 2 during a stop]. | ☞ Page 67 [AL. 050.5_Thermal overload error 2 during a stop] | [G] |

## [AL. 0E1.7_Thermal overload warning 3 during a stop]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The load was over 85 % of the alarm trigger level of [AL. 051.2 Thermal overload error 3 during a stop]. | ☞ Page 68 [AL. 051.2_Thermal overload error 3 during a stop] | [G] |

## [AL. 0E1.8_Thermal overload warning 4 during a stop]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The load was over 85 % of the alarm trigger level of [AL. 050.6 Thermal overload error 4 during a stop]. | ☞ Page 67 [AL. 050.6_Thermal overload error 4 during a stop] | [G] |

# [AL. 0E2_Servo motor overheat warning]



• [AL. 046.2 Servo motor overheat] may occur.

## [AL. 0E2.1_Servo motor temperature warning]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The temperature of the servo motor reached 85 % of the occurrence level of [AL. 046.2 Servo motor overheat]. | ☞ Page 63 [AL. 046.2_Servo motor temperature error 2] | [G] |

## [AL. 0E2.2_Servo motor temperature warning 2]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The temperature inside of the servo motor has reached a warning level. | ☞ Page 63 [AL. 046.1_Servo motor temperature error 1] | [G] |

# [AL. 0E3_Absolute position counter warning]

- The multi-revolution counter of the absolute position encoder exceeded the maximum range.
- There is an error in the absolute position encoder pulses.

## [AL. 0E3.1_Multi-revolution counter travel distance exceeded warning]

| Cause | Check/action method | Model |
|---|---|---|
| 1. In the absolute position system, the travel distance from the home position became 32768 rev or more. | Review the operation range.<br>After the power is cycled, perform homing again. | [G] |
| 2. When an absolute position detection system is configured in the cyclic synchronous mode with a Motion module manufactured by Mitsubishi Electric, [Pr. PC29.5 [AL. 0E3 Absolute position counter warning] selection] is not set to "0" (disabled). | Set [Pr. PC29.5] to "0" (disabled). | |

## [AL. 0E3.2_Absolute position counter warning]

| Cause | Check/action method | Model |
|---|---|---|
| 1. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware)<br>After the power is cycled, perform homing again. | [G] |
| 2. The encoder has malfunctioned. | Replace the servo motor. | |

## [AL. 0E3.5_Encoder absolute position counter warning]

☞ Page 106 [AL. 0E3.2_Absolute position counter warning]

# [AL. 0E6_Servo forced stop warning]



• EM2 (Forced stop 2) or EM1 (Forced stop 1) was turned off.

## [AL. 0E6.1_Forced stop warning]

| Cause | Check/action method | Model |
|---|---|---|
| ***1.*** EM2/EM1 was turned off. | After ensuring safety, turn EM2/EM1 on. | [G] |
| ***2.*** An external 24 V DC power supply has not been input. | Input the external 24 V DC power supply. | |
| ***3.*** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |

# [AL. 0E8_Decreased cooling fan speed warning]

• The cooling fan speed decreased to a warning level or lower.

## [AL. 0E8.1_Decreased cooling fan speed]

| Cause | Check/action method | Model |
|---|---|---|
| ***1.*** A foreign object was caught in the cooling fan. | Remove the foreign object. | [G] |
| ***2.*** The cooling fan has reached the end of its service life. | Check the total of the power-on time of the servo amplifier. If the service life of the cooling fan is exceeded, replace the servo amplifier or the fan unit. | |

## [AL. 0E8.2_Cooling fan stop]

☞ Page 108 [AL. 0E8.1_Decreased cooling fan speed]

# [AL. 0E9_Main circuit off warning]



- The servo-on command was input with the power supply (main circuit power supply for the MR-JET-_G_-HS(N1)) turned off.
- The bus voltage dropped when the servo motor was rotating at 50 r/min or lower.

## [AL. 0E9.1_Servo-on signal on during main circuit off]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The bus voltage is less than the specified value.<br>200 V class: 215 V DC<br>400 V class: 430 V DC | Review the wiring. Check the power supply capacity. | [G] |
| **2.** For the MR-JET-_G_-HS(N1), the servo-on command was input with the main circuit power supply turned off. | For the MR-JET-_G_-HS(N1), turn on the main circuit power supply. | |
| **3.** For the MR-JET-_G_-HS(N1), the wiring of the main circuit power supply is disconnected. | For the MR-JET-_G_-HS(N1), connect the main circuit power supply. | |
| **4.** The power supply capacity is insufficient. | Check if the specified power supply capacity is satisfied. | |
| **5.** Main circuit capacitor has deteriorated. | After checking the operation time and ambient temperature, replace the servo amplifier if the main circuit capacitor has reached the end of its service life. Refer to "Parts with a service life" in the User's Manual (Introduction). | |
| **6.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |

## [AL. 0E9.2_Bus voltage drop during low speed operation]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The bus voltage dropped under the specified value when the servo motor was rotating at 50 r/min or lower.<br>200 V class: 200 V DC<br>400 V class: 380 V DC | Review the power supply capacity. Increase the acceleration time constant. | [G] |

## [AL. 0E9.3_Ready-on signal on during main circuit off]

☞ Page 109 [AL. 0E9.1_Servo-on signal on during main circuit off]

# [AL. 0EC_Overload warning 2]

- Operation was repeated with a high load ratio while the servo motor shaft was not rotating.

## [AL. 0EC.1_Overload warning 2]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The load is excessive or the capacity is insufficient. | Reduce the load. Alternatively, replace the servo motor with a larger-capacity servo motor. | [G] |

# [AL. 0ED_Output watt excess warning]



• The output wattage (speed × torque) of the servo motor exceeded the rated output, and that status continued steadily.

## [AL. 0ED.1_Output watt excess warning]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The output wattage of the servo motor (speed × torque or thrust) steadily exceeds 120 % of the rated output (continuous thrust). | Reduce the servo motor speed. Reduce the load. Alternatively, replace the servo motor with a larger-capacity servo motor. | [G] |

# [AL. 0F0_Tough drive warning]

• The tough drive function was activated.

## [AL. 0F0.1_Instantaneous power failure tough drive warning]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* For the MR-JET-_G_-HS(N1), the voltage of the control circuit power supply has dropped. | ☞ Page 25 [AL. 010.1_Voltage drop in the control circuit power] | [G] |

## [AL. 0F0.3_Vibration tough drive warning]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The setting value of the machine resonance suppression filter was changed due to a machine resonance. | Set the machine resonance suppression filter. Check the machine status for loose screws and other problems. | [G] |

# [AL. 0F2_Drive recorder warning]



• Writing/reading/clearing of the drive recorder data failed.

## [AL. 0F2.1_Drive recorder warning 1]

| Cause | Check/action method | Model |
|---|---|---|
| 1. There is an error in the drive recorder data. | Check if clearing the alarm history of the drive recorder with MR Configurator2 disables the warning. | [G] |
| 2. There is a memory error. | ☞ Page 119 [AL. 119.1_Memory error 4-1]<br>☞ Page 119 [AL. 119.7_Memory free space error 4-1]<br>☞ Page 120 [AL. 119.8_Memory free space error 4-2] | |
| 3. The Flash-ROM has malfunctioned. | Replace the servo amplifier. | |

## [AL. 0F2.2_Drive recorder warning 2]

☞ Page 113 [AL. 0F2.1_Drive recorder warning 1]

## [AL. 0F2.3_Drive recorder warning 3]

☞ Page 113 [AL. 0F2.1_Drive recorder warning 1]

## [AL. 0F2.4_Drive recorder warning 4]

☞ Page 113 [AL. 0F2.1_Drive recorder warning 1]

## [AL. 0F2.5_Drive recorder warning 5]

☞ Page 113 [AL. 0F2.1_Drive recorder warning 1]

## [AL. 0F2.6_Drive recorder warning 6]

☞ Page 113 [AL. 0F2.1_Drive recorder warning 1]

# [AL. 0F3_Oscillation detection warning]

- The oscillation of the servo motor was detected.

## [AL. 0F3.1_Oscillation detection warning]

☞ Page 71 [AL. 054.1_Oscillation detection error]

# [AL. 0F4_Positioning warning]



• The target position or the acceleration/deceleration time constant was set outside of the setting range.

## [AL. 0F4.4_Target position setting range error warning]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The target position was set outside of the setting range. | Set the target position correctly, then cancel the warning (turn on C_ORST). | [G] |

## [AL. 0F4.6_Acceleration time constant setting range error warning]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The acceleration time constant was set outside of the setting range. | Set [Pr. PT49 Speed acceleration time constant] correctly, then cancel the warning by turning on C_ORST (Operation alarm reset). | [G] |

## [AL. 0F4.7_Deceleration time constant setting range error warning]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The deceleration time constant was set outside of the setting range. | Set [Pr. PT50 Speed deceleration time constant] correctly, then cancel the warning by turning on C_ORST (Operation alarm reset). | [G] |

## [AL. 0F4.8_Control command input error warning]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The relative position command was input while the unit was set to "degree". | If Controlword bit 6 is on while [Pr. PT01.2 Unit for position data] is set to "2", turn off Controlword bit 6, then cancel the warning (turn on C_ORST). | [G] |

## [AL. 0F4.A_Fully closed loop control - Switching warning]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* Switching between the semi closed loop control and fully closed loop control was executed during the homing mode (hm) or profile position mode (pp). | Stop the operation in the homing mode (hm) or profile position mode (pp). Cancel the warning by turning on C_ORST. | [G] |

# [AL. 0FE_Two-digit warning No. display warning]

• A three-digit warning is occurring.

## [AL. 0FE.1_Two-digit warning No. display warning for AL. 100 to AL. 1FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A warning with warning No. in 100s ([AL. 1_ _]) is occurring. | Check the warning number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 0FE.2_Two-digit warning No. display warning for AL. 200 to AL. 2FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A warning with warning No. in 200s ([AL. 2_ _]) is occurring. | Check the warning number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 0FE.3_Two-digit warning No. display warning for AL. 300 to AL. 3FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A warning with warning No. in 300s ([AL. 3_ _]) is occurring. | Check the warning number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 0FE.4_Two-digit warning No. display warning for AL. 400 to AL. 4FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A warning with warning No. in 400s ([AL. 4_ _]) is occurring. | Check the warning number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 0FE.5_Two-digit warning No. display warning for AL. 500 to AL. 5FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A warning with warning No. in 500s ([AL. 5_ _]) is occurring. | Check the warning number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 0FE.6_Two-digit warning No. display warning for AL. 600 to AL. 6FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A warning with warning No. in 600s ([AL. 6_ _]) is occurring. | Check the warning number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 0FE.7_Two-digit warning No. display warning for AL. 700 to AL. 7FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A warning with warning No. in 700s ([AL. 7_ _]) is occurring. | Check the warning number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 0FE.8_Two-digit warning No. display warning for AL. 800 to AL. 8FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A warning with warning No. in 800s ([AL. 8_ _]) is occurring. | Check the warning number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 0FE.9_Two-digit warning No. display warning for AL. 900 to AL. 9FF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A warning with warning No. in 900s ([AL. 9_ _]) is occurring. | Check the warning number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 0FE.A_Two-digit warning No. display warning for AL. A00 to AL. AFF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A warning with warning No. in A00s ([AL. A_ _]) is occurring. | Check the warning number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 0FE.B_Two-digit warning No. display warning for AL. B00 to AL. BFF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A warning with warning No. in B00s ([AL. B_ _]) is occurring. | Check the warning number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 0FE.C_Two-digit warning No. display warning for AL. C00 to AL. CFF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A warning with warning No. in C00s ([AL. C_ _]) is occurring. | Check the warning number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 0FE.D_Two-digit warning No. display warning for AL. D00 to AL. DFF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A warning with warning No. in D00s ([AL. D_ _]) is occurring. | Check the warning number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 0FE.E_Two-digit warning No. display warning for AL. E00 to AL. EFF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A warning with warning No. in E00s ([AL. E_ _]) is occurring. | Check the warning number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

## [AL. 0FE.F_Two-digit warning No. display warning for AL. F00 to AL. FFF]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A warning with warning No. in F00s ([AL. F_ _]) is occurring. | Check the warning number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2, and take corrective action. | [G] |

# [AL. 118_Encoder diagnosis]

• The servo amplifier is in the test operation mode.

## [AL. 118.1_Encoder communication circuit diagnosis in progress]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The servo amplifier is in the encoder communication circuit diagnosis mode. | Cancel the encoder communication circuit diagnosis mode.<br>Refer to "Encoder communication diagnosis function" in the following manual.<br>MR-JET User's Manual (Function) | [G] |

# [AL. 119_Memory error 4]



• There is a memory error.

## [AL. 119.1_Memory error 4-1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** There is a problem with the surrounding environment. | Check the power supply for noise. If there is noise, take countermeasures to reduce the noise.<br>Check if the connector has shorted.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖IMR-JET User's Manual (Hardware) | [G] |
| **2.** An internal part of the servo amplifier has malfunctioned. | Replace the servo amplifier. | |

## [AL. 119.2_Memory error 4-2]

☞ Page 119 [AL. 119.1_Memory error 4-1]

## [AL. 119.3_Memory error 4-3]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The firmware has been updated. | Update it to the latest firmware version, then check the repeatability. If the failure continues, the servo amplifier may have malfunctioned. Replace the servo amplifier. | [G] |
| **2.** Take actions in accordance with the items shown below.<br>☞ Page 119 [AL. 119.1_Memory error 4-1] | | |

## [AL. 119.4_Memory error 4-4]

☞ Page 119 [AL. 119.1_Memory error 4-1]

## [AL. 119.5_Memory error 4-5]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The firmware has been updated. | Cycle the power, then check the repeatability. If the failure continues, the servo amplifier may have malfunctioned. Replace the servo amplifier. | [G] |
| **2.** Take actions in accordance with the items shown below.<br>☞ Page 119 [AL. 119.1_Memory error 4-1] | | |

## [AL. 119.6_Memory error 4-6]

☞ Page 119 [AL. 119.1_Memory error 4-1]

## [AL. 119.7_Memory free space error 4-1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The free memory space is insufficient. | Delete unnecessary files to free up the memory.<br>If no files can be deleted, make a backup of necessary data such as parameters, then initialize the servo amplifier and check the repeatability. If the failure continues, replace the servo amplifier.<br>Refer to "Servo amplifier setting initialization" in the User's Manual (Introduction). | [G] |

## [AL. 119.8_Memory free space error 4-2]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* Too many files are saved in the memory. | Delete files to reduce the number of files.<br>If deleting files does not solve the problem, make a backup of necessary data such as parameters, then initialize the servo amplifier and check the repeatability. If the failure continues, replace the servo amplifier.<br>Refer to "Servo amplifier setting initialization" in the User's Manual (Introduction). | [G] |

# [AL. 11A_Servo motor constant error]



• The servo motor constant file is damaged.

## [AL. 11A.1_Servo motor constant file error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. Writing of the servo motor constant file failed. | There is a possibility that the servo motor constant file is damaged primarily due to noise entering the file while the file was written.<br>After writing the servo motor constant again, cycle the power.<br>For details of actions to be taken, contact your local sales office. | [G] |
| 2. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>MR-JET User's Manual (Hardware) | |
| 3. The Flash-ROM has malfunctioned. | Replace the servo amplifier. | |

## [AL. 11A.2_Servo motor constant file extension error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A file with an extension other than ".mmd2" was written as the servo motor constant file. | Delete the written file, then write another file with the extension ".mmd2".<br>For details of actions to be taken, contact your local sales office. | [G] |
| 2. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>MR-JET User's Manual (Hardware) | |

## [AL. 11A.3_Servo motor constant file amount error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. Two or more servo motor constant files were written in the servo motor constant folder. | Delete the written files, then write only one servo motor constant file.<br>For details of actions to be taken, contact your local sales office. | [G] |
| 2. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>MR-JET User's Manual (Hardware) | |
| 3. The Flash-ROM has malfunctioned. | Replace the servo amplifier. | |

# [AL. 130_Regenerative error 2]

- The regenerative power exceeds the permissible regenerative power of the built-in regenerative resistor or regenerative option.
- The regenerative transistor in the servo amplifier has malfunctioned.

## [AL. 130.1_Regenerative heat error]

| Cause | Check/action method | Model |
|---|---|---|
| ***1.*** The settings of the regenerative resistor (regenerative option) are incorrect. | Refer to "Regenerative option" in the following manual.<br>📖MR-JET User's Manual (Hardware) | [G] |
| ***2.*** The regenerative resistor (regenerative option) is not connected. | Refer to "Regenerative option" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| ***3.*** The regenerative resistor (regenerative option) and the servo amplifier are connected in a wrong combination. | Check the combination of the regenerative resistor (regenerative option) and the servo amplifier. Refer to "Regenerative option" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| ***4.*** The power supply voltage is too high. | Check if the voltage of the input power supply exceeds the upper limit of the permissible voltage. If it exceeds the limit, lower the power supply voltage.<br>200 V class: 264 V AC | |
| ***5.*** The regenerative power is too large. | Check whether the regenerative load ratio exceeds the upper limit value when the alarm occurs.<br>Take the corrective actions as follows.<br>• Reduce the frequency of positioning.<br>• Set a longer deceleration time constant.<br>• Reduce the load.<br>• Use a regenerative option if it is not being used. | |

# [AL. 139_Open-phase error]



- An open phase occurred in the power supply of the servo amplifier.
- An open phase occurred in the servo motor power line.

## [AL. 139.2_Output open-phase error]

| Cause | Check/action method | Model |
|---|---|---|
| ***1.*** An open phase occurred in the servo motor power line. | Check that the servo motor power line is connected with the servo amplifier. Check that the servo motor power supply is connected with the servo amplifier. Check if the servo motor power line is closed. If the servo motor power line is open, replace the servo motor power line. | [G] |
| ***2.*** The winding inside the servo motor is disconnected. | Replace the servo motor, then check the repeatability. | |

# [AL. 17A_Load-side linear encoder error 1]

- A problem with the linear encoder was detected in the fully closed loop control mode. The content of the errors varies depending on each encoder manufacturer.

## [AL. 17A.1_Load-side linear encoder error 1-1]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The linear encoder and the head have been incorrectly mounted. | Adjust the positions of the linear encoder and the head. | [G] |
| **2.** The external conductor of the encoder cable is not connected to the ground plate of the connector. | Refer to "Shield procedure of CN2 side connectors" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | |
| **3.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manuals.<br>📖MR-JET User's Manual (Hardware) | |
| **4.** A linear encoder alarm was detected. | Refer to "DETAILED EXPLANATION OF [AL. 02A LINEAR ENCODER ERROR 1]" in the following manual.<br>📖MR-JET Partner's Encoder User's Manual | |

## [AL. 17A.2_Load-side linear encoder error 1-2]

☞ Page 124 [AL. 17A.1_Load-side linear encoder error 1-1]

## [AL. 17A.3_Load-side linear encoder error 1-3]

☞ Page 124 [AL. 17A.1_Load-side linear encoder error 1-1]

## [AL. 17A.4_Load-side linear encoder error 1-4]

☞ Page 124 [AL. 17A.1_Load-side linear encoder error 1-1]

## [AL. 17A.5_Load-side linear encoder error 1-5]

☞ Page 124 [AL. 17A.1_Load-side linear encoder error 1-1]

## [AL. 17A.6_Load-side linear encoder error 1-6]

☞ Page 124 [AL. 17A.1_Load-side linear encoder error 1-1]

## [AL. 17A.7_Load-side linear encoder error 1-7]

☞ Page 124 [AL. 17A.1_Load-side linear encoder error 1-1]

## [AL. 17A.8_Load-side linear encoder error 1-8]

☞ Page 124 [AL. 17A.1_Load-side linear encoder error 1-1]

# [AL. 188_Watchdog 2]



• The CPU or other component parts have malfunctioned.

## [AL. 188.1_Watchdog 2-1]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* An internal part of the servo amplifier has malfunctioned. | Replace the servo amplifier. | [G] |

# [AL. 19D_IP address setting change warning]

• The IP address setting with engineering software was incorrect.

## [AL. 19D.1_IP address change unreflected warning]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The IP address setting with engineering software was configured after the communication with the master station was established. | Cycle the power of the servo amplifier or reset the software to apply changes to the settings.<br>For the IP address setting with engineering software, refer to "IP address setting function via the master station" in the following manual.<br>MR-JET-G User's Manual (Communication Function) | [G] |

## [AL. 19D.2_IP address change failed warning 1]

| Cause | Check/action method | Model |
|---|---|---|
| 1. When [Pr. NPA01 IP address setting] is set to "0" (the rotary switch is used.) and the rotary switch is set to a value other than "0", the IP address setting with engineering software was configured. | Set [Pr. NPA01 IP address setting] to "1" (the network parameter is used.). Alternatively, configure the IP address setting after setting the rotary switch to "0".<br>For the IP address setting with engineering software, refer to "IP address setting function via the master station" in the following manual.<br>MR-JET-G User's Manual (Communication Function) | [G] |

# [AL. 19E_Network warning 2]



• An error exists in the network settings.

## [AL. 19E.1_Parameter automatic backup setting warning]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An error was detected in the parameter automatic backup setting. | Check if the master station supports power interruption protection.<br>If power interruption protection is not supported, set [Pr. PN20 Parameter automatic backup update interval] to "0" to disable the automatic backup function. | [G] |

## [AL. 19E.2_Control mode setting warning 2]

| Cause | Check/action method | Model |
|---|---|---|
| 1. An unsupported control mode was used. | Check if the control mode corresponds to the communication cycle.<br>For the correspondence between communication cycles and control modes, refer to "Restrictions on the MR-JET-_G_" in the User's Manual (Introduction). | [G] |
| 2. A control mode that does not support CC-Link IE TSN Class A was used. | Check if the control mode supports CC-Link IE TSN Class A.<br>For the correspondence between CC-Link IE TSN Class A and control modes, refer to "Restrictions on CC-Link IE TSN Class A" in the User's Manual (Introduction). | |

## [AL. 19E.3_Safety communication setting warning]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The safety communication setting of the controller has been enabled for a servo amplifier on which the safety communication has been disabled. | If not using the safety communication, disable the safety communication setting of the controller.<br>If using the safety communication, enable the safety communication setting of the servo amplifier. | [G] |

# [AL. 1F6_Manufacturer setting error]

• A value of the servo parameters for manufacturer setting has been set incorrectly.

## [AL. 1F6.1_Manufacturer setting error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. Values of the servo parameters for manufacturer setting have been changed. | Set the servo parameters for manufacturer setting to the initial values. | [G] |

## [AL. 1F6.2_Manufacturer setting error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. Values of the servo parameters for manufacturer setting have been changed. | Set the servo parameters for manufacturer setting to the initial values. | [G] |

## [AL. 1F6.3_Manufacturer setting error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. Values of the servo parameters for manufacturer setting have been changed. | Set the servo parameters for manufacturer setting to the initial values. | [G] |

## [AL. 1F6.4_Manufacturer setting error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. Values of the servo parameters for manufacturer setting have been changed. | Set the servo parameters for manufacturer setting to the initial values. | [G] |

## [AL. 1F6.5_Manufacturer setting error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. Values of the servo parameters for manufacturer setting have been changed. | Set the servo parameters for manufacturer setting to the initial values. | [G] |

## [AL. 1F6.6_Manufacturer setting error]

| Cause | Check/action method | Model |
|---|---|---|
| 1. Values of the servo parameters for manufacturer setting have been changed. | Set the servo parameters for manufacturer setting to the initial values. | [G] |

# [AL. 1F8_Memory warning 1]



• There is a memory error.

## [AL. 1F8.1_Memory writing frequency warning]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The frequency of writing to the memory exceeded the guaranteed number. | Prepare for replacing the servo amplifier by making a backup of necessary data or by other means.<br>This warning can be disabled by [Pr. PF02.4 Memory writing frequency warning enable/disable selection]. The memory may be broken if the memory is used continuously while [Pr. PF02.4] is disabled. | [G] |

## [AL. 1F8.2_Memory free space warning]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The available free space in the memory is insufficient. | Delete unnecessary files to free up the memory.<br>If no files can be deleted, make a backup of necessary data such as parameters, then initialize the servo amplifier.<br>Refer to "Servo amplifier setting initialization" in the User's Manual (Introduction).<br>This warning can be disabled by [Pr. PF02.5 Memory free space warning enable/disable selection]. [AL. 119.7 Memory free space error 4-1] may occur if the memory is used continuously while [Pr. PF02.5] is disabled. | [G] |

# [AL. 201 - 28F_Manufacturer setting error]

• A value of the servo parameters for manufacturer setting has been set incorrectly.

| Cause | Check/action method | Model |
|---|---|---|
| *1.* Values of the servo parameters for manufacturer setting have been changed. | Set the servo parameters for manufacturer setting to the initial values. | [G] |

# [AL. 290 - 2FF_Manufacturer setting warning]



• A value of the servo parameters for manufacturer setting has been set incorrectly.

| Cause | Check/action method | Model |
|---|---|---|
| *1.* Values of the servo parameters for manufacturer setting have been changed. | Set the servo parameters for manufacturer setting to the initial values. | [G] |

# [AL. 510_Voltage diagnosis error (safety sub-function)]

• There is a problem with the control circuit power voltage.

## [AL. 510.1_Power supply voltage diagnosis error A1 (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The power supply is not properly connected. | Check the wiring.<br>Refer to "SINGNALS AND WIRING" and "Example power circuit connections" in the following manual.<br>📖MR-JET User's Manual (Hardware) | [G] |
| 2. The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| 3. There is a problem with the surrounding environment. | Check the power supply for noise. If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 510.2_Power supply voltage diagnosis error A2 (safety sub-function)]

☞ Page 132 [AL. 510.1_Power supply voltage diagnosis error A1 (safety sub-function)]

## [AL. 510.7_Power supply voltage diagnosis error A at startup (safety sub-function)]

☞ Page 132 [AL. 510.1_Power supply voltage diagnosis error A1 (safety sub-function)]

## [AL. 510.9_Power supply voltage diagnosis error B1 (safety sub-function)]

☞ Page 132 [AL. 510.1_Power supply voltage diagnosis error A1 (safety sub-function)]

## [AL. 510.A_Power supply voltage diagnosis error B2 (safety sub-function)]

☞ Page 132 [AL. 510.1_Power supply voltage diagnosis error A1 (safety sub-function)]

## [AL. 510.B_Power supply voltage diagnosis error B3 (safety sub-function)]

☞ Page 132 [AL. 510.1_Power supply voltage diagnosis error A1 (safety sub-function)]

## [AL. 510.C_Power supply voltage diagnosis error B4 (safety sub-function)]

☞ Page 132 [AL. 510.1_Power supply voltage diagnosis error A1 (safety sub-function)]

## [AL. 510.D_Power supply voltage diagnosis error B5 (safety sub-function)]

☞ Page 132 [AL. 510.1_Power supply voltage diagnosis error A1 (safety sub-function)]

## [AL. 510.E_Power supply voltage diagnosis error B6 (safety sub-function)]

☞ Page 132 [AL. 510.1_Power supply voltage diagnosis error A1 (safety sub-function)]

## [AL. 510.F_Power supply voltage diagnosis error B at startup (safety sub-function)]

☞ Page 132 [AL. 510.1_Power supply voltage diagnosis error A1 (safety sub-function)]

# [AL. 512_Memory error 1 (RAM) (safety sub-function)]



• The internal part of the servo amplifier (RAM) has malfunctioned.

## [AL. 512.2_RAM diagnosis error A2 (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** An internal part of the servo amplifier has malfunctioned. | Noise from the power supply may have caused the failure. Disconnect all cables except for those for the control circuit power supply, then check the repeatability. If the failure continues, the servo amplifier may have malfunctioned. Replace the servo amplifier. | [G] |
| **2.** There is a problem with the surrounding environment. | Check the power supply for noise. If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 512.3_RAM diagnosis error A3 (safety sub-function)]

☞ Page 133 [AL. 512.2_RAM diagnosis error A2 (safety sub-function)]

## [AL. 512.A_RAM diagnosis error B2 (safety sub-function)]

☞ Page 133 [AL. 512.2_RAM diagnosis error A2 (safety sub-function)]

## [AL. 512.B_RAM diagnosis error B3 (safety sub-function)]

☞ Page 133 [AL. 512.2_RAM diagnosis error A2 (safety sub-function)]

# [AL. 514_Control process error (safety sub-function)]

• The process did not complete within the specified time.

## [AL. 514.9_Control process error B (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The servo parameter settings are incorrect. | Return the servo parameter to the value it had before the alarm occurrence, then check if the problem occurs again. | [G] |
| *2.* An internal part of the servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| *3.* There is a problem with the surrounding environment. | Check the power supply for noise. If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 514.A_Control process error B2 (safety sub-function)]

☞ Page 134 [AL. 514.9_Control process error B (safety sub-function)]

# [AL. 515_Memory error 2 (ROM) (safety sub-function)]



• The internal part of the servo amplifier (ROM) has malfunctioned.

## [AL. 515.9_ROM error B at power-on (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** There is a problem with operation of ROM at power-on. | Noise from the power supply may have caused the failure. Disconnect all cables except for those for the control circuit power supply, then check the repeatability. If the failure continues, the servo amplifier may have malfunctioned. Replace the servo amplifier. | [G] |
| **2.** There is a problem with the surrounding environment. | Check the power supply for noise. If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **3.** The frequency of writing exceeded 100,000. | Check if excessively frequent changes have been made to parameters, then replace the servo amplifier. After replacing the servo amplifier, adjust the processing to reduce the number of parameter changes. | |

## [AL. 515.A_ROM error B during operation (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** There is a problem with operation of ROM in normal operation. | Check if this alarm occurs when changing a parameter during normal operation. If the alarm occurs, replace the controller. | [G] |
| **2.** Take actions according to the instructions of 2. to 3. in the following item.<br>☞ Page 135 [AL. 515.9_ROM error B at power-on (safety sub-function)] | | |

# [AL. 517_Board error (safety sub-function)]

• There is a problem with an internal part of the servo amplifier.

## [AL. 517.2_Board error A2 (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** An internal part of the servo amplifier has malfunctioned. | Replace the servo amplifier. | [G] |
| **2.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 517.9_Board error B1 (safety sub-function)]

☞ Page 136 [AL. 517.2_Board error A2 (safety sub-function)]

# [AL. 518_Synchronous control error (safety sub-function)]



• There is a problem with an internal part of the servo amplifier.

## [AL. 518.2_Synchronous control error A2 (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** An internal part of the servo amplifier has malfunctioned. | Replace the servo amplifier. | [G] |
| **2.** There is a problem with the surrounding environment. | Check the power supply for noise. If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 518.A_Synchronous control error B2 (safety sub-function)]

☞ Page 137 [AL. 518.2_Synchronous control error A2 (safety sub-function)]

# [AL. 519_Memory error 3 (Flash-ROM) (safety sub-function)]

• There is a problem with an internal part of the servo amplifier.

## [AL. 519.2_Flash-ROM error A2 (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The Flash-ROM has malfunctioned. | Noise from the power supply may have caused the failure. Disconnect all cables except for those for the control circuit power supply, then check the repeatability. If the failure continues, the servo amplifier may have malfunctioned. Replace the servo amplifier. | [G] |
| **2.** There is a problem with the surrounding environment. | Check the power supply for noise. If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 519.A_Flash-ROM error B2 (safety sub-function)]

☞ Page 138 [AL. 519.2_Flash-ROM error A2 (safety sub-function)]

# [AL. 52A_Position feedback error (safety sub-function)]



• There is an error in the data of the encoder.

## [AL. 52A.1_Position feedback diagnosis error A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| ***1.*** The position feedback data does not change within the time set in [Pr. PSA22 Position feedback error detection time]. | Review the setting of [Pr. PSA22]. Alternatively, operate the system within the time set in [Pr. PSA22]. | [G] |
| ***2.*** The servo motor has malfunctioned. | If the position feedback does not change even when the servo motor is driven, replace the servo motor. | |
| ***3.*** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |

## [AL. 52A.9_Position feedback diagnosis error B (safety sub-function)]

☞ Page 139 [AL. 52A.1_Position feedback diagnosis error A (safety sub-function)]

# [AL. 537_Parameter setting range error (safety sub-function)]

• There is an error in a functional safety parameter.

## [AL. 537.1_Parameter setting range error A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A functional safety parameter was set outside of the setting range. | Check the parameter error No. on the alarm display screen of MR Configurator2 or with another method, then review the setting value of the functional safety parameter. | [G] |

## [AL. 537.2_Parameter combination error A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A servo parameter or a functional safety parameter has been set incorrectly. | Check the parameter error No. on the alarm display screen of MR Configurator2 or with another method, then review the setting value of the servo parameter or the functional safety parameter.<br>Refer to "Parameter combinations that trigger [AL. 537.2 Parameter combination error A (safety sub-function)]" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |

## [AL. 537.3_Parameter setting error A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| 1. A functional safety parameter failed to be set properly. | Check the parameter error No. on the alarm display screen of MR Configurator2 or with another method, then review the setting value of the functional safety parameter. | [G] |

## [AL. 537.9_Parameter setting range error B (safety sub-function)]

☞ Page 140 [AL. 537.1_Parameter setting range error A (safety sub-function)]

## [AL. 537.A_Parameter combination error B (safety sub-function)]

☞ Page 140 [AL. 537.2_Parameter combination error A (safety sub-function)]

# [AL. 53A_Parameter verification error (safety sub-function)]



• An error occurred in the functional safety parameter.

## [AL. 53A.2_Parameter verification error A2 (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* There is a problem with the functional safety parameter settings. | Confirm which parameter has an error by using MR Configurator2, then set the parameter correctly. | [G] |
| *2.* The servo amplifier has malfunctioned. | Replace the servo amplifier. | |

## [AL. 53A.A_Parameter verification error B2 (safety sub-function)]

☞ Page 141 [AL. 53A.2_Parameter verification error A2 (safety sub-function)]

# [AL. 540_Internal diagnosis error 1 (safety sub-function)]

• There is an error in the result from the functional safety diagnosis.

## [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The servo amplifier has malfunctioned. | Replace the servo amplifier. | [G] |
| 2. There is a problem with the surrounding environment. | Check the power supply for noise. If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 540.2_Internal diagnosis error 1 - Data error A2 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 540.3_Internal diagnosis error 1 - Data error A3 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 540.4_Internal diagnosis error 1 - Data error A4 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 540.9_Internal diagnosis error 1 - Data error B1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 540.A_Internal diagnosis error 1 - Data error B2 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

# [AL. 541_Internal diagnosis error 2 (safety sub-function)]



• There is an error in the result from the functional safety diagnosis.

## [AL. 541.1_Internal diagnosis error 2 - Data error A1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 541.2_Internal diagnosis error 2 - Data error A2 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 541.3_Internal diagnosis error 2 - Data error A3 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 541.4_Internal diagnosis error 2 - Data error A4 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 541.5_Internal diagnosis error 2 - Data error A5 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 541.9_Internal diagnosis error 2 - Data error B1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 541.A_Internal diagnosis error 2 - Data error B2 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 541.B_Internal diagnosis error 2 - Data error B3 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 541.C_Internal diagnosis error 2 - Data error B4 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 541.D_Internal diagnosis error 2 - Data error B5 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

# [AL. 542_Internal diagnosis error 3 (safety sub-function)]

• There is an error in the result from the functional safety diagnosis.

## [AL. 542.1_Internal diagnosis error 3 - Data error A1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 542.9_Internal diagnosis error 3 - Data error B1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

# [AL. 543_Internal diagnosis error 4 (safety sub-function)]



• There is an error in the result from the functional safety diagnosis.

## [AL. 543.1_Internal diagnosis error 4 - Data error A1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 543.2_Internal diagnosis error 4 - Data error A2 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 543.3_Internal diagnosis error 4 - Data error A3 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 543.9_Internal diagnosis error 4 - Data error B1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 543.A_Internal diagnosis error 4 - Data error B2 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 543.B_Internal diagnosis error 4 - Data error B3 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 543.C_Internal diagnosis error 4 - Data error B4 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 543.D_Internal diagnosis error 4 - Data error B5 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 543.E_Internal diagnosis error 4 - Data error B6 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

# [AL. 544_Temperature diagnosis error (safety sub-function)]

• An error occurred in a temperature diagnosis.

## [AL. 544.1_Temperature diagnosis error A1 (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The ambient temperature exceeded the specified value (60 °C). | Check the ambient temperature, and if the temperature exceeds the specified value, lower the ambient temperature. | [G] |
| 2. The ambient temperature is 0 °C or lower. | Check the ambient temperature, and if the temperature is lower than 0 °C, raise the ambient temperature. | |
| 3. The servo amplifier does not meet the specifications of close mounting. | Check the specifications of close mounting.<br>Refer to "Mounting direction and clearances" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| 4. A cooling fan, heat sink, or opening is clogged. | Clean the cooling fan, heat sink, or openings. | |
| 5. The servo amplifier has malfunctioned. | Replace the servo amplifier. | |

## [AL. 544.2_Temperature diagnosis error A2 (safety sub-function)]

☞ Page 146 [AL. 544.1_Temperature diagnosis error A1 (safety sub-function)]

## [AL. 544.9_Temperature diagnosis error B1 (safety sub-function)]

☞ Page 146 [AL. 544.1_Temperature diagnosis error A1 (safety sub-function)]

## [AL. 544.A_Temperature diagnosis error B2 (safety sub-function)]

☞ Page 146 [AL. 544.1_Temperature diagnosis error A1 (safety sub-function)]

# [AL. 545_Internal diagnosis error 5 (safety sub-function)]



• There is an error in the result from the functional safety diagnosis.

## [AL. 545.2_Internal diagnosis error 5 - Data error A2 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

# [AL. 546_Internal diagnosis error 6 (safety sub-function)]

• There is an error in the result from the functional safety diagnosis.

## [AL. 546.1_Internal diagnosis error 6 - Data error A1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 546.2_Internal diagnosis error 6 - Data error A2 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 546.9_Internal diagnosis error 6 - Data error B1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 546.A_Internal diagnosis error 6 - Data error B2 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

# [AL. 547_Internal diagnosis error 7 (safety sub-function)]



• There is an error in the result from the functional safety diagnosis.

## [AL. 547.1_Internal diagnosis error 7 - Data error A1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 547.2_Internal diagnosis error 7 - Data error A2 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 547.9_Internal diagnosis error 7 - Data error B1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 547.A_Internal diagnosis error 7 - Data error B2 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

# [AL. 549_Internal diagnosis error 8 (safety sub-function)]

• There is an error in the result from the functional safety diagnosis.

## [AL. 549.1_Internal diagnosis error 8 - Data error A1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 549.9_Internal diagnosis error 8 - Data error B1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

# [AL. 54A_Internal diagnosis error 9 (safety sub-function)]



• There is an error in the result from the functional safety diagnosis.

## [AL. 54A.1_Internal diagnosis error 9 - Data error A1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 54A.2_Internal diagnosis error 9 - Data error A2 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 54A.3_Internal diagnosis error 9 - Data error A3 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 54A.9_Internal diagnosis error 9 - Data error B1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 54A.A_Internal diagnosis error 9 - Data error B2 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 54A.B_Internal diagnosis error 9 - Data error B3 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

# [AL. 54D_Internal diagnosis error 10 (safety sub-function)]

• There is an error in the result from the functional safety diagnosis.

## [AL. 54D.1_Internal diagnosis error 10 - Data error A1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 54D.2_Internal diagnosis error 10 - Data error A2 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 54D.3_Internal diagnosis error 10 - Data error A3 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 54D.4_Internal diagnosis error 10 - Data error A4 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 54D.9_Internal diagnosis error 10 - Data error B1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

# [AL. 54F_Safety software error (safety sub-function)]



• An error occurred in the safety software.

## [AL. 54F.1_Register setting error A1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

# [AL. 550_Internal diagnosis error 11 (safety sub-function)]

• There is an error in the result from the functional safety diagnosis.

## [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

☞ Page 142 [AL. 540.1_Internal diagnosis error 1 - Data error A1 (safety sub-function)]

## [AL. 550.2_Internal diagnosis error 11 - Internal signal error A2 (safety sub-function)]

☞ Page 154 [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

## [AL. 550.3_Internal diagnosis error 11 - Internal signal error A3 (safety sub-function)]

☞ Page 154 [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

## [AL. 550.4_Internal diagnosis error 11 - Internal signal error A4 (safety sub-function)]

☞ Page 154 [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

## [AL. 550.9_Internal diagnosis error 11 - Internal signal error B1 (safety sub-function)]

☞ Page 154 [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

## [AL. 550.A_Internal diagnosis error 11 - Internal signal error B2 (safety sub-function)]

☞ Page 154 [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

## [AL. 550.B_Internal diagnosis error 11 - Internal signal error B3 (safety sub-function)]

☞ Page 154 [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

## [AL. 550.C_Internal diagnosis error 11 - Internal signal error B4 (safety sub-function)]

☞ Page 154 [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

# [AL. 551_Internal diagnosis error 12 (safety sub-function)]



• There is an error in the result from the functional safety diagnosis.

## [AL. 551.1_Internal diagnosis error 12 - Internal signal error A1 (safety sub-function)]

☞ Page 154 [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

## [AL. 551.2_Internal diagnosis error 12 - Internal signal error A2 (safety sub-function)]

☞ Page 154 [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

## [AL. 551.3_Internal diagnosis error 12 - Internal signal error A3 (safety sub-function)]

☞ Page 154 [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

## [AL. 551.4_Internal diagnosis error 12 - Internal signal error A4 (safety sub-function)]

☞ Page 154 [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

## [AL. 551.9_Internal diagnosis error 12 - Internal signal error B1 (safety sub-function)]

☞ Page 154 [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

## [AL. 551.A_Internal diagnosis error 12 - Internal signal error B2 (safety sub-function)]

☞ Page 154 [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

## [AL. 551.B_Internal diagnosis error 12 - Internal signal error B3 (safety sub-function)]

☞ Page 154 [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

## [AL. 551.C_Internal diagnosis error 12 - Internal signal error B4 (safety sub-function)]

☞ Page 154 [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

# [AL. 552_Internal diagnosis error 13 (safety sub-function)]

• There is an error in the result from the functional safety diagnosis.

## [AL. 552.1_Internal diagnosis error 13 - Internal signal error A1 (safety sub-function)]

☞ Page 154 [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

## [AL. 552.9_Internal diagnosis error 13 - Internal signal error B1 (safety sub-function)]

☞ Page 154 [AL. 550.1_Internal diagnosis error 11 - Internal signal error A1 (safety sub-function)]

# [AL. 554_Input device internal diagnosis error (safety sub-function)]



• There is an error in the input device.

## [AL. 554.1 _SDI1A internal diagnosis error (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The servo amplifier has malfunctioned. | Replace the servo amplifier. | [G] |
| 2. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 554.2_SDI2A internal diagnosis error (safety sub-function)]

☞ Page 157 [AL. 554.1 _SDI1A internal diagnosis error (safety sub-function)]

## [AL. 554.3 _SDI3A internal diagnosis error (safety sub-function)]

☞ Page 157 [AL. 554.1 _SDI1A internal diagnosis error (safety sub-function)]

## [AL. 554.9 _SDI1B internal diagnosis error (safety sub-function)]

☞ Page 157 [AL. 554.1 _SDI1A internal diagnosis error (safety sub-function)]

## [AL. 554.A_SDI2B internal diagnosis error (safety sub-function)]

☞ Page 157 [AL. 554.1 _SDI1A internal diagnosis error (safety sub-function)]

## [AL. 554.B_SDI3B internal diagnosis error (safety sub-function)]

☞ Page 157 [AL. 554.1 _SDI1A internal diagnosis error (safety sub-function)]

# [AL. 555_Output device diagnosis error 1 (safety sub-function)]

• There is an error in the output device.

## [AL. 555.1_SDO1A output mismatch error (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** A signal of an output device has not been output correctly, or the load of the output device has exceeded the specified range. | Check if the output device cable is wired correctly, or check if the load of the output device is within specifications. | [G] |
| **2.** The output device current is too large. | Check if the current value is within the specified value. Lower the output current if the specified value is exceeded. | |
| **3.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **4.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 555.2_SDO2A output mismatch error (safety sub-function)]

☞ Page 158 [AL. 555.1_SDO1A output mismatch error (safety sub-function)]

## [AL. 555.3_SDO3A output mismatch error (safety sub-function)]

☞ Page 158 [AL. 555.1_SDO1A output mismatch error (safety sub-function)]

## [AL. 555.9_SDO1B output mismatch error (safety sub-function)]

☞ Page 158 [AL. 555.1_SDO1A output mismatch error (safety sub-function)]

## [AL. 555. A_SDO2B output mismatch error (safety sub-function)]

☞ Page 158 [AL. 555.1_SDO1A output mismatch error (safety sub-function)]

## [AL. 555. B_SDO3B output mismatch error (safety sub-function)]

☞ Page 158 [AL. 555.1_SDO1A output mismatch error (safety sub-function)]

# [AL. 556_Output device diagnosis error 2 (safety sub-function)]



• There is an error in the output device.

## [AL. 556.1_SDO1A test pulse diagnosis error (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** [Pr. PSD30 Output device - Test pulse off time] has been set incorrectly. | Review the setting of [Pr. PSD30]. | [G] |
| **2.** Take actions in accordance with the items shown below.<br>☞ Page 158 [AL. 555.1_SDO1A output mismatch error (safety sub-function)] | | |

## [AL. 556.2_SDO2A test pulse diagnosis error (safety sub-function)]

☞ Page 159 [AL. 556.1_SDO1A test pulse diagnosis error (safety sub-function)]

## [AL. 556.3_SDO3A test pulse diagnosis error (safety sub-function)]

☞ Page 159 [AL. 556.1_SDO1A test pulse diagnosis error (safety sub-function)]

## [AL. 556.9_SDO1B test pulse diagnosis error (safety sub-function)]

☞ Page 159 [AL. 556.1_SDO1A test pulse diagnosis error (safety sub-function)]

## [AL. 556.A_SDO2B test pulse diagnosis error (safety sub-function)]

☞ Page 159 [AL. 556.1_SDO1A test pulse diagnosis error (safety sub-function)]

## [AL. 556.B_SDO3B test pulse diagnosis error (safety sub-function)]

☞ Page 159 [AL. 556.1_SDO1A test pulse diagnosis error (safety sub-function)]

# [AL. 557_Input device mismatch detection (safety sub-function)]

• An input device mismatch was detected.

## [AL. 557.1_SDI1 input mismatch error A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The input signals of SDI1A and SDI1B remained mismatched for longer than the specified time ([Pr. PSD18 Permissible time for mismatches DI1]). | Review the wiring of SDI1A and SDI1B.<br>For the wiring, refer to "USING STO FUNCTION" and "USING FUNCTIONAL SAFETY" in the following manual.<br>MR-JET User's Manual (Hardware)<br>Set [Pr. PSD18] to a value longer than the mismatched time of SDI1. | [G] |
| 2. The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| 3. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>MR-JET User's Manual (Hardware) | |

## [AL. 557.2_SDI2 input mismatch error A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The input signals of SDI2A and SDI2B remained mismatched for longer than the specified time ([Pr. PSD19 Permissible time for mismatches DI2]). | Review the wiring of SDI2A and SDI2B.<br>For the wiring, refer to "USING STO FUNCTION" and "USING FUNCTIONAL SAFETY" in the following manual.<br>MR-JET User's Manual (Hardware)<br>Set [Pr. PSD19] to a value longer than the mismatched time of SDI2. | [G] |
| 2. The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| 3. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>MR-JET User's Manual (Hardware) | |

## [AL. 557.3 _SDI3 input mismatch error A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The input signals of SDI3A and SDI3B remained mismatched for longer than the specified time ([Pr. PSD20 Permissible time for mismatches DI3]). | Review the wiring of SDI3A and SDI3B.<br>For the wiring, refer to "USING STO FUNCTION" and "USING FUNCTIONAL SAFETY" in the following manual.<br>MR-JET User's Manual (Hardware)<br>Set [Pr. PSD20] to a value longer than the mismatched time of SDI3. | [G] |
| 2. The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| 3. There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>MR-JET User's Manual (Hardware) | |

## [AL. 557.9_SDI1 input mismatch error B (safety sub-function)]

☞ Page 160 [AL. 557.1_SDI1 input mismatch error A (safety sub-function)]

## [AL. 557.A_SDI2 input mismatch error B (safety sub-function)]

☞ Page 160 [AL. 557.2_SDI2 input mismatch error A (safety sub-function)]

## [AL. 557.B_SDI3 input mismatch error B (safety sub-function)]

☞ Page 160 [AL. 557.3 _SDI3 input mismatch error A (safety sub-function)]

# [AL. 561_Safety speed monitor error 1 (safety sub-function)]



• The safety sub-function detected an error of the servo motor speed.

## [AL. 561.1_SLS1 feedback speed exceeded A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The state where the absolute value of the servo motor speed exceeds the setting value of [Pr. PSA11 SLS speed 1] continued for the time set in [Pr. PSA15 Safety sub-function - Speed detection delay time] or longer during operation of the SLS function. | Review the parameter or the operation pattern.<br>Take actions such as setting the speed command to a value equal to or lower than the value of [Pr. PSA11] or setting the time required for deceleration in [Pr. PSA07 SLS deceleration monitor time 1].<br>Refer to "SLS function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** The settings of the electronic gear are incorrect. | Check the setting value of the electronic gear.<br>Refer to "Electronic gear function" in the following manual.<br>📖MR-JET User's Manual (Function) | |
| **3.** The servo system is unstable and oscillating. | Adjust the servo gain or reduce the load. | |
| **4.** The velocity waveform overshot. | Increase the acceleration/deceleration time constant. | |
| **5.** The connection destination of the encoder cable is incorrect. | Check the connection destination of the encoder. | |
| **6.** The encoder has malfunctioned. | Replace the servo motor. | |

## [AL. 561.2_SLS1command speed exceeded A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The state where the absolute value of the speed command exceeds the setting value of [Pr. PSA11 SLS speed 1] continued for the time set in [Pr. PSA15 Safety sub-function - Speed detection delay time] or longer during operation of the SLS function. | Review the parameter or the operation pattern.<br>Take actions such as setting the speed command to a value equal to or lower than the value of [Pr. PSA11] or setting [Pr. PSA15] to a longer value.<br>If in torque control, set the speed limit to a value equal to or lower than the value of [Pr. PSA11].<br>Refer to "SLS function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 5. to 6. in the following item.<br>☞ Page 161 [AL. 561.1_SLS1 feedback speed exceeded A] | | |

## [AL. 561.3_SLS2 feedback speed exceeded A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The state where the absolute value of the servo motor speed exceeds the setting value of [Pr. PSA12 SLS speed 2] continued for the time set in [Pr. PSA15 Safety sub-function - Speed detection delay time] or longer during operation of the SLS function. | Review the parameter or the operation pattern.<br>Take actions such as setting the speed command to a value equal to or lower than the value of [Pr. PSA12] or setting the time required for deceleration in [Pr. PSA07 SLS deceleration monitor time 1].<br>Refer to "SLS function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 2. to 6. in the following item.<br>☞ Page 161 [AL. 561.1_SLS1 feedback speed exceeded A] | | |

## [AL. 561.4_SLS2 command speed exceeded A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The state where the absolute value of the speed command exceeds the setting value of [Pr. PSA12 SLS speed 2] continued for the time set in [Pr. PSA15 Safety sub-function - Speed detection delay time] or longer during operation of the SLS function. | Review the parameter or the operation pattern.<br>Take actions such as setting the speed command to a value equal to or lower than the value of [Pr. PSA12] or setting [Pr. PSA15] to a longer value.<br>If in torque control, set the speed limit to a value equal to or lower than the value of [Pr. PSA12].<br>Refer to "SLS function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 5. to 6. in the following item.<br>☞ Page 161 [AL. 561.1_SLS1 feedback speed exceeded A] | | |

## [AL. 561.9_SLS1 feedback speed exceeded B]

☞ Page 161 [AL. 561.1_SLS1 feedback speed exceeded A]

## [AL. 561.A_SLS1 command speed exceeded B]

☞ Page 161 [AL. 561.2_SLS1command speed exceeded A]

## [AL. 561.B_SLS2 feedback speed exceeded B]

☞ Page 161 [AL. 561.3_SLS2 feedback speed exceeded A]

## [AL. 561.C_SLS2 command speed exceeded B]

☞ Page 162 [AL. 561.4_SLS2 command speed exceeded A]

# [AL. 562_Safety speed monitor error 2 (safety sub-function)]



• The safety sub-function detected an error of the servo motor speed.

## [AL. 562.1_SLS3 feedback speed exceeded A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The state where the absolute value of the servo motor speed exceeds the setting value of [Pr. PSA13 SLS speed 3] continued for the time set in [Pr. PSA15 Safety sub-function - Speed detection delay time] or longer during operation of the SLS function. | Review the parameter or the operation pattern.<br>Take actions such as setting the speed command to a value equal to or lower than the value of [Pr. PSA13] or setting the time required for deceleration in [Pr. PSA07 SLS deceleration monitor time 1].<br>Refer to "SLS function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 2. to 6. in the following item.<br>☞ Page 161 [AL. 561.1_SLS1 feedback speed exceeded A] | | |

## [AL. 562.2_SLS3 command speed exceeded A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The state where the absolute value of the speed command exceeds the setting value of [Pr. PSA13 SLS speed 3] continued for the time set in [Pr. PSA15 Safety sub-function - Speed detection delay time] or longer during operation of the SLS function. | Review the parameter or the operation pattern.<br>Take actions such as setting the speed command to a value equal to or lower than the value of [Pr. PSA13] or setting [Pr. PSA15] to a longer value.<br>If in torque control, set the speed limit to a value equal to or lower than the value of [Pr. PSA13].<br>Refer to "SLS function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 5. to 6. in the following item.<br>☞ Page 161 [AL. 561.1_SLS1 feedback speed exceeded A] | | |

## [AL. 562.3_SLS4 feedback speed exceeded A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The state where the absolute value of the servo motor speed exceeds the setting value of [Pr. PSA14 SLS speed 4] continued for the time set in [Pr. PSA15 Safety sub-function - Speed detection delay time] or longer during operation of the SLS function. | Review the parameter or the operation pattern.<br>Take actions such as setting the speed command to a value equal to or lower than the value of [Pr. PSA14] or setting the time required for deceleration in [Pr. PSA07 SLS deceleration monitor time 1].<br>Refer to "SLS function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 2. to 6. in the following item.<br>☞ Page 161 [AL. 561.1_SLS1 feedback speed exceeded A] | | |

## [AL. 562.4_SLS4 command speed exceeded A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The state where the absolute value of the speed command exceeds the setting value of [Pr. PSA14 SLS speed 4] continued for the time set in [Pr. PSA15 Safety sub-function - Speed detection delay time] or longer during operation of the SLS function. | Review the parameter or the operation pattern.<br>Take actions such as setting the speed command to a value equal to or lower than the value of [Pr. PSA14] or setting [Pr. PSA15] to a longer value.<br>If in torque control, set the speed limit to a value equal to or lower than the value of [Pr. PSA14].<br>Refer to "SLS function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 5. to 6. in the following item.<br>☞ Page 161 [AL. 561.1_SLS1 feedback speed exceeded A] | | |

## [AL. 562.9_SLS3 feedback speed exceeded B]

☞ Page 163 [AL. 562.1_SLS3 feedback speed exceeded A]

## [AL. 562.A_SLS3 command speed exceeded B]

☞ Page 163 [AL. 562.2_SLS3 command speed exceeded A]

## [AL. 562.B_SLS4 feedback speed exceeded B]

☞ Page 163 [AL. 562.3_SLS4 feedback speed exceeded A]

## [AL. 562.C_SLS4 command speed exceeded B]

☞ Page 163 [AL. 562.4_SLS4 command speed exceeded A]

# [AL. 563_Deceleration monitor error (safety sub-function)]



• There is a problem with deceleration operation in the safety sub-function.

## [AL. 563.1_SS1 feedback speed exceeded A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The servo motor exceeded the monitor speed specified by [Pr. PSA24 SS1 deceleration monitor time constant] from the monitor speed when the SS1 command was turned off during operation of the SS1 function. | Review the parameter or the operation pattern.<br>Take actions such as setting a larger value in [Pr. PSA26 SS1 deceleration monitor delay time] or adjusting the servo gains.<br>Refer to "SS1 function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** The connection destination of the encoder cable is incorrect. | Check the connection destination of the encoder. | |
| **3.** There is a problem with the servo motor or the servo motor power cable. | Replace the servo motor or the servo motor power cable. | |
| **4.** The encoder has malfunctioned. | Replace the servo motor. | |
| **5.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **6.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 563.2_SS1 command speed exceeded A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** A speed command was input exceeding the monitor speed specified by [Pr. PSA24 SS1 deceleration monitor time constant] from the monitor speed when the SS1 command was turned off during operation of the SS1 function. | Review the parameter or the operation pattern.<br>Take actions such as configuring settings so that the time set in [Pr. PC24 Deceleration time constant at forced stop] becomes shorter than in [Pr. PSA24].<br>Refer to "SS1 function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 2. to 6. in the following item.<br>☞ Page 165 [AL. 563.1_SS1 feedback speed exceeded A] | | |

## [AL. 563.9_SS1 feedback speed exceeded B]

☞ Page 165 [AL. 563.1_SS1 feedback speed exceeded A]

## [AL. 563.A_SS1 command speed exceeded B]

☞ Page 165 [AL. 563.2_SS1 command speed exceeded A]

# [AL. 565_Direction monitor error (safety sub-function)]

• There is a problem with the servo motor travel direction in the safety sub-function.

## [AL. 565.1_SDIP feedback speed exceeded A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The servo motor moved in the address increasing direction while the SDI function was operating. | Review the parameter or the operation pattern.<br>Check if a command in the address increasing direction was input.<br>Refer to "SDI function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** The velocity waveform overshot. | Check if the velocity waveform has overshot because of the short acceleration/deceleration time constant.<br>If the velocity waveform has overshot, increase the acceleration/deceleration time constant. | |
| **3.** The connection of the servo motor is incorrect. | Check the U/V/W wiring.<br>Refer to "Example power circuit connections" in the following manual.<br>📖MR-JET User's Manual (Hardware)<br>Refer to "Turning on servo amplifier for the first time" in the User's Manual (Introduction). | |
| **4.** Take actions according to the instructions of 2. to 6. in the following item.<br>☞ Page 165 [AL. 563.1_SS1 feedback speed exceeded A] | | |

## [AL. 565.2_SDIP command speed exceeded A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** A speed command was input in the address increasing direction while the SDI function was operating. | Review the parameter or the operation pattern.<br>Check if a command in the address increasing direction was input.<br>Refer to "SDI function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 2. to 6. in the following item.<br>☞ Page 165 [AL. 563.1_SS1 feedback speed exceeded A] | | |

## [AL. 565.3_SDIN feedback speed exceeded A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The servo motor moved in the address decreasing direction while the SDI function was operating. | Review the parameter or the operation pattern.<br>Check if a command in the address increasing direction was input.<br>Refer to "SDI function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** The velocity waveform overshot. | Check if the velocity waveform has overshot because of the short acceleration/deceleration time constant.<br>If the velocity waveform has overshot, increase the acceleration/deceleration time constant. | |
| **3.** The connection of the servo motor is incorrect. | Check the U/V/W wiring.<br>Refer to "Example power circuit connections" in the following manual.<br>📖MR-JET User's Manual (Hardware)<br>Refer to "Turning on servo amplifier for the first time" in the User's Manual (Introduction). | |
| **4.** Take actions according to the instructions of 2. to 6. in the following item.<br>☞ Page 165 [AL. 563.1_SS1 feedback speed exceeded A] | | |

## [AL. 565.4_SDINcommand speed exceeded A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** A speed command was input in the address decreasing direction while the SDI function was operating. | Review the parameter or the operation pattern.<br>Check if a command in the address increasing direction was input.<br>Refer to "SDI function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 2. to 6. in the following item.<br>☞ Page 165 [AL. 563.1_SS1 feedback speed exceeded A] | | |

## [AL. 565.9_SDIP feedback speed exceeded B]

☞ Page 166 [AL. 565.1_SDIP feedback speed exceeded A]

## [AL. 565.A_SDIP command speed exceeded B]

☞ Page 166 [AL. 565.2_SDIP command speed exceeded A]

## [AL. 565.B_SDINfeedback speed exceeded B]

☞ Page 166 [AL. 565.3_SDIN feedback speed exceeded A]

## [AL. 565.C_SDINcommand speed exceeded B]

☞ Page 166 [AL. 565.4_SDINcommand speed exceeded A]

# [AL. 568_Torque monitor error 1 (safety sub-function)]

• There is a problem with the torque in the safety sub-function.

## [AL. 568.1_SLT1 feedback torque exceeded error A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The torque feedback exceeded the torque set in [Pr. PSB10 SLT torque upper limit value 1] and [Pr. PSB14 SLT torque lower limit value 1] after operation of the SLT function. | Review the parameter or the operation pattern.<br>Check if the threshold for the torque monitor is too small or if the servo motor collides with the machine.<br>Refer to "SLT function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 2. to 6. in the following item.<br>☞ Page 165 [AL. 563.1_SS1 feedback speed exceeded A] | | |

## [AL. 568.2_SLT1 command torque exceeded error A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The torque command exceeded the torque set in [Pr. PSB10 SLT torque upper limit value 1] and [Pr. PSB14 SLT torque lower limit value 1] after operation of the SLT function. | Review the parameter or the operation pattern.<br>Check if the threshold for the SLT torque is too small or if the servo motor collides with the machine.<br>Refer to "SLT function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 2. to 6. in the following item.<br>☞ Page 165 [AL. 563.1_SS1 feedback speed exceeded A] | | |

## [AL. 568.3_SLT2 feedback torque exceeded error A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The torque feedback exceeded the torque set in [Pr. PSB11 SLT torque upper limit value 2] and [Pr. PSB15 SLT torque lower limit value 2] after operation of the SLT function. | Review the parameter or the operation pattern.<br>Check if the threshold for the torque monitor is too small or if the servo motor collides with the machine.<br>Refer to "SLT function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 2. to 6. in the following item.<br>☞ Page 165 [AL. 563.1_SS1 feedback speed exceeded A] | | |

## [AL. 568.4_SLT2command torque exceeded error A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The torque command exceeded the torque set in [Pr. PSB11 SLT torque upper limit value 2] and [Pr. PSB15 SLT torque lower limit value 2] after operation of the SLT function. | Review the parameter or the operation pattern.<br>Check if the threshold for the SLT torque is too small or if the servo motor collides with the machine.<br>Refer to "SLT function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 2. to 6. in the following item.<br>☞ Page 165 [AL. 563.1_SS1 feedback speed exceeded A] | | |

## [AL. 568.9_SLT1 feedback torque exceeded error B]

☞ Page 168 [AL. 568.1_SLT1 feedback torque exceeded error A]

## [AL. 568.A_SLT1 command torque exceeded error B]

☞ Page 168 [AL. 568.2_SLT1 command torque exceeded error A]

## [AL. 568.B_SLT2 feedback torque exceeded error B]

☞ Page 168 [AL. 568.3_SLT2 feedback torque exceeded error A]

## [AL. 568.C_SLT2 command torque exceeded error B]

☞ Page 168 [AL. 568.4_SLT2command torque exceeded error A]

# [AL. 569_Torque monitor error 2 (safety sub-function)]

• There is a problem with the torque in the safety sub-function.

## [AL. 569.1_SLT3 feedback torque exceeded error A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The torque feedback exceeded the torque set in [Pr. PSB12 SLT torque upper limit value 3] and [Pr. PSB16 SLT torque lower limit value 3] after operation of the SLT function. | Review the parameter or the operation pattern.<br>Check if the threshold for the torque monitor is too small or if the servo motor collides with the machine.<br>Refer to "SLT function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 2. to 6. in the following item.<br>☞ Page 165 [AL. 563.1_SS1 feedback speed exceeded A] | | |

## [AL. 569.2_SLT3 command torque exceeded error A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The torque command exceeded the torque set in [Pr. PSB12 SLT torque upper limit value 3] and [Pr. PSB16 SLT torque lower limit value 3] after operation of the SLT function. | Review the parameter or the operation pattern.<br>Check if the threshold for the SLT torque is too small or if the servo motor collides with the machine.<br>Refer to "SLT function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 2. to 6. in the following item.<br>☞ Page 165 [AL. 563.1_SS1 feedback speed exceeded A] | | |

## [AL. 569.3_SLT4 feedback torque exceeded error A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The torque feedback exceeded the torque set in [Pr. PSB13 SLT torque upper limit value 4] and [Pr. PSB17 SLT torque lower limit value 4] after operation of the SLT function. | Review the parameter or the operation pattern.<br>Check if the threshold for the torque monitor is too small or if the servo motor collides with the machine.<br>Refer to "SLT function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 2. to 6. in the following item.<br>☞ Page 165 [AL. 563.1_SS1 feedback speed exceeded A] | | |

## [AL. 569.4_SLT4 command torque exceeded error A]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The torque command exceeded the torque set in [Pr. PSB13 SLT torque upper limit value 4] and [Pr. PSB17 SLT torque lower limit value 4] after operation of the SLT function. | Review the parameter or the operation pattern.<br>Check if the threshold for the SLT torque is too small or if the servo motor collides with the machine.<br>Refer to "SLT function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| **2.** Take actions according to the instructions of 2. to 6. in the following item.<br>☞ Page 165 [AL. 563.1_SS1 feedback speed exceeded A] | | |

## [AL. 569.9_SLT3 feedback torque exceeded error B]

☞ Page 170 [AL. 569.1_SLT3 feedback torque exceeded error A]

## [AL. 569.A_SLT3 command torque exceeded error B]

☞ Page 170 [AL. 569.2_SLT3 command torque exceeded error A]

## [AL. 569.B_SLT4 feedback torque exceeded error B]

☞ Page 170 [AL. 569.3_SLT4 feedback torque exceeded error A]

## [AL. 569.C_SLT4 command torque exceeded error B]

☞ Page 170 [AL. 569.4_SLT4 command torque exceeded error A]

# [AL. 580_Safety communication setting error (safety sub-function)]

• There is a problem with the safety communication settings.

## [AL. 580.3_Safety verification code mismatch A]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The safety verification code of the controller does not match the setting of [Pr. PSC06 Safety verification code]. | The controller may have communicated with an unintended servo amplifier. Check if the IP address specified in the safety communication settings of the master station matches the IP address setting of the servo amplifier being used.<br>If the IP address is correct, the safety verification code may have been set incorrectly.<br>Set the values used to identify each servo amplifier in [Pr. PSC06] avoiding duplication between each piece of equipment, then set the same values in the safety communication settings of the controller. | [G] |

## [AL. 580.B_Safety verification code mismatch B]

☞ Page 172 [AL. 580.3_Safety verification code mismatch A]

# [AL. 581_Safety communication error 1 (safety sub-function)]



• There is a problem with the received data in the safety communication.

## [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The safety communication settings of the safety master station have been set incorrectly. | Review the safety communication settings.<br>Refer to "Safety sub-function control by network" in the following manual.<br>MR-JET User's Manual (Function) | [G] |
| **2.** There is a problem on the safety master station side. | Check if an alarm has occurred on the safety master station.<br>If an alarm has occurred, take actions in accordance with the troubleshooting of the master station. | |
| **3.** Take actions in accordance with the items shown below.<br>☞ Page 85 [AL. 086.1_Network communication error 1] | | |

## [AL. 581.2_Safety communication error 1 - Receive data error A2 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 581.3_Safety communication error 1 - Receive data error A3 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 581.4_Safety communication error 1 - Receive data error A4 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 581.5_Safety communication error 1 - Receive data error A5 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 581.6_Safety communication error 1 - Receive data error A6 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 581.7_Safety communication error 1 - Receive data error A7 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 581.9_Safety communication error 1 - Receive data error B1 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 581.A_Safety communication error 1 - Receive data error B2 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 581.B_Safety communication error 1 - Receive data error B3 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 581.C_Safety communication error 1 - Receive data error B4 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 581.D_Safety communication error 1 - Receive data error B5 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 581.E_Safety communication error 1 - Receive data error B6 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 581.F_Safety communication error 1 - Receive data error B7 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

# [AL. 582_Safety communication error 2 (safety sub-function)]



• There is a problem with the received data in the safety communication.

## [AL. 582.1_Safety communication error 2 - Receive data error A1 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 582.2_Safety communication error 2 - Receive data error A2 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 582.3_Safety communication error 2 - Receive data error A3 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 582.4_Safety communication error 2 - Receive data error A4 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 582.5_Safety communication error 2 - Receive data error A5 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 582.6_Safety communication error 2 - Receive data error A6 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 582.7_Safety communication error 2 - Receive data error A7 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 582.9_Safety communication error 2 - Receive data error B1 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 582.A_Safety communication error 2 - Receive data error B2 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 582.B_Safety communication error 2 - Receive data error B3 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 582.C_Safety communication error 2 - Receive data error B4 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 582.D_Safety communication error 2 - Receive data error B5 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 582.E_Safety communication error 2 - Receive data error B6 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 582.F_Safety communication error 2 - Receive data error B7 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

# [AL. 583_Safety communication error 3 (safety sub-function)]

• There is a problem with the received data in the safety communication.

## [AL. 583.2_Safety communication error 3 - Receive data error A2 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 583.3_Safety communication error 3 - Receive data error A3 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 583.4_Safety communication error 3 - Receive data error A4 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 583.5_Safety communication error 3 - Receive data error A5 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 583.6_Safety communication error 3 - Receive data error A6 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 583.A_Safety communication error 3 - Receive data error B2 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 583.B_Safety communication error 3 - Receive data error B3 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 583.C_Safety communication error 3 - Receive data error B4 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 583.D_Safety communication error 3 - Receive data error B5 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

## [AL. 583.E_Safety communication error 3 - Receive data error B6 (safety sub-function)]

☞ Page 173 [AL. 581.1_Safety communication error 1 - Receive data error A1 (safety sub-function)]

# [AL. 584_FSoE communication setting error (safety sub-function)]



• There is a problem with the safety communication settings.

## [AL. 584.1_FSoE Address mismatch error A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| 1. FSoE Address set in FSoE Master does not match the setting in [Pr. PSC07 FSoE Address setting]. | Review the FSoE Address setting in FSoE Master or the setting in [Pr. PSC07 FSoE Address setting]. | [G] |

## [AL. 584.2_FSoE communication parameter setting error A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The setting value of FSoE Watchdog Timer notified by FSoE Master is not supported. | Review the setting value of FSoE Watchdog Timer set in FSoE Master. | [G] |

## [AL. 584.3_FSoE communication parameter length error A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The parameter length notified by FSoE Master is incorrect. | Review the project setting in FSoE Master. | [G] |

## [AL. 584.4_FSoE SRA parameter setting error A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The SRA parameter notified by FSoE Master is incorrect. | Review the project setting in FSoE Master. If the SRA parameter is set, do not set it because it is not supported. | [G] |

## [AL. 584.5_FSoE SRA parameter length error A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| 1. The SRA parameter length notified by FSoE Master is incorrect. | Review the project setting in FSoE Master. If the SRA parameter is set, do not set it because it is not supported. | [G] |

## [AL. 584.9_FSoE Address mismatch error B (safety sub-function)]

☞ Page 177 [AL. 584.1_FSoE Address mismatch error A (safety sub-function)]

## [AL. 584.A_FSoE communication parameter setting error B (safety sub-function)]

☞ Page 177 [AL. 584.2_FSoE communication parameter setting error A (safety sub-function)]

## [AL. 584.B_FSoE communication parameter length error B (safety sub-function)]

☞ Page 177 [AL. 584.3_FSoE communication parameter length error A (safety sub-function)]

## [AL. 584.C_FSoE SRA parameter setting error B (safety sub-function)]

☞ Page 177 [AL. 584.4_FSoE SRA parameter setting error A (safety sub-function)]

## [AL. 584.D_FSoE SRA parameter length error B (safety sub-function)]

☞ Page 177 [AL. 584.5_FSoE SRA parameter length error A (safety sub-function)]

# [AL. 585_FSoE communication error 1 (safety sub-function)]

• There is a problem with the received data in the safety communication. (During initial communication)

## [AL. 585.1_FSoE communication error 1 - Receive data error (Unexpected command) A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The safety communication settings of FSoE Master are incorrect. | Review the safety communication settings.<br>Refer to "Safety sub-function control by network" in the following manual.<br>📖MR-JET-G-N1 User's Manual (Communication Function) | [G] |
| **2.** There is a problem with FSoE Master. | Check if an alarm has occurred in FSoE Master.<br>If an alarm has occurred, take actions in accordance with the troubleshooting of FSoE Master. | |
| **3.** A network cable is disconnected. | Check if the network cable is connected correctly.<br>Turn off the control circuit power supply of the servo amplifier, then connect the network cable correctly. | |
| **4.** The wiring of the network cable is incorrect. | Check if the connection of the network cable is correct. | |
| **5.** A network cable is disconnected. | Check for disconnection in the network cable. | |
| **6.** Devices on the network (including repeaters such as hubs) are turned off. | Check that the devices on the network are turned on. | |
| **7.** The network was disconnected by an incorrect procedure. | Check if the network was disconnected by a correct procedure for each type of network.<br>Refer to "Disconnecting the communication" in the User's Manual (Communication Function). | |
| **8.** Data transmission from the controller was interrupted for a certain time. | Check if data transmission from the controller has not been interrupted. If the data transmission has been interrupted, review the controller communication setting. | |
| **9.** The settings of the controller are incorrect. | Check the controller settings. | |
| **10.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **11.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **12.** The controller has malfunctioned. | Replace the controller. | |
| **13.** Devices on the network (including repeaters such as hubs) have malfunctioned. | Replace the devices on the network. | |

## [AL. 585.2_FSoE communication error 1 - Receive data error (Unknown command) A (safety sub-function)]

☞ Page 178 [AL. 585.1_FSoE communication error 1 - Receive data error (Unexpected command) A (safety sub-function)]

## [AL. 585.3_FSoE communication error 1 - Receive data error (Invalid connection ID) A (safety sub-function)]

☞ Page 178 [AL. 585.1_FSoE communication error 1 - Receive data error (Unexpected command) A (safety sub-function)]

## [AL. 585.4_FSoE communication error 1 - Receive data error (CRC error) A (safety sub-function)]

☞ Page 178 [AL. 585.1_FSoE communication error 1 - Receive data error (Unexpected command) A (safety sub-function)]

## [AL. 585.9_FSoE communication error 1 - Receive data error (Unexpected command) B (safety sub-function)]

☞ Page 178 [AL. 585.1_FSoE communication error 1 - Receive data error (Unexpected command) A (safety sub-function)]

## [AL. 585.A_FSoE communication error 1 - Receive data error (Unknown command) B (safety sub-function)]

☞ Page 178 [AL. 585.1_FSoE communication error 1 - Receive data error (Unexpected command) A (safety sub-function)]

## [AL. 585.B_FSoE communication error 1 - Receive data error (Invalid connection ID) B (safety sub-function)]

☞ Page 178 [AL. 585.1_FSoE communication error 1 - Receive data error (Unexpected command) A (safety sub-function)]

## [AL. 585.C_FSoE communication error 1 - Receive data error (CRC error) B (safety sub-function)]

☞ Page 178 [AL. 585.1_FSoE communication error 1 - Receive data error (Unexpected command) A (safety sub-function)]

# [AL. 586_FSoE communication error 2 (safety sub-function)]

• There is a problem with the received data in the safety communication. (During runtime communication)

## [AL. 586.1_FSoE communication error 2 - Receive data error (Unexpected command) A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| ***1.*** The safety communication settings of FSoE Master are incorrect. | Review the safety communication settings.<br>Refer to "Safety sub-function control by network" in the following manual.<br>📖MR-JET-G-N1 User's Manual (Communication Function) | [G] |
| ***2.*** There is a problem with FSoE Master. | Check if an alarm has occurred in FSoE Master.<br>If an alarm has occurred, take actions in accordance with the troubleshooting of FSoE Master. | |
| ***3.*** A network cable is disconnected. | Check if the network cable is connected correctly.<br>Turn off the control circuit power supply of the servo amplifier, then connect the network cable correctly. | |
| ***4.*** The wiring of the network cable is incorrect. | Check if the connection of the network cable is correct. | |
| ***5.*** A network cable is disconnected. | Check for disconnection in the network cable. | |
| ***6.*** Devices on the network (including repeaters such as hubs) are turned off. | Check that the devices on the network are turned on. | |
| ***7.*** The network was disconnected by an incorrect procedure. | Check if the network was disconnected by a correct procedure for each type of network.<br>Refer to "Disconnecting the communication" in the User's Manual (Communication Function). | |
| ***8.*** Data transmission from the controller was interrupted for a certain time. | Check if data transmission from the controller has not been interrupted. If the data transmission has been interrupted, review the controller communication setting. | |
| ***9.*** The settings of the controller are incorrect. | Check the controller settings. | |
| ***10.*** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| ***11.*** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| ***12.*** The controller has malfunctioned. | Replace the controller. | |
| ***13.*** Devices on the network (including repeaters such as hubs) have malfunctioned. | Replace the devices on the network. | |

## [AL. 586.2_FSoE communication error 2 - Receive data error (Unknown command) A (safety sub-function)]

☞ Page 180 [AL. 586.1_FSoE communication error 2 - Receive data error (Unexpected command) A (safety sub-function)]

## [AL. 586.3_FSoE communication error 2 - Receive data error (Invalid connection ID) A (safety sub-function)]

☞ Page 180 [AL. 586.1_FSoE communication error 2 - Receive data error (Unexpected command) A (safety sub-function)]

## [AL. 586.4_FSoE communication error 2 - Receive data error (CRC error) A (safety sub-function)]

☞ Page 180 [AL. 586.1_FSoE communication error 2 - Receive data error (Unexpected command) A (safety sub-function)]

## [AL. 586.5_FSoE communication error 2 - Receive time-out error A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The update time of the safety communication has exceeded the time set in FSoE Watchdog Time. | Review the setting value of FSoE Watchdog Time set in FSoE Master.<br>Review the communication cycle setting. | [G] |

## [AL. 586.9_FSoE communication error 2 - Receive data error (Unexpected command) B (safety sub-function)]

☞ Page 180 [AL. 586.1_FSoE communication error 2 - Receive data error (Unexpected command) A (safety sub-function)]

## [AL. 586.A_FSoE communication error 2 - Receive data error (Unknown command) B (safety sub-function)]

☞ Page 180 [AL. 586.1_FSoE communication error 2 - Receive data error (Unexpected command) A (safety sub-function)]

## [AL. 586.B_FSoE communication error 2 - Receive data error (Invalid connection ID) B (safety sub-function)]

☞ Page 180 [AL. 586.1_FSoE communication error 2 - Receive data error (Unexpected command) A (safety sub-function)]

## [AL. 586.C_FSoE communication error 2 - Receive data error (CRC error) B (safety sub-function)]

☞ Page 180 [AL. 586.1_FSoE communication error 2 - Receive data error (Unexpected command) A (safety sub-function)]

## [AL. 586.D_FSoE communication error 2 - Receive time-out error B (safety sub-function)]

☞ Page 181 [AL. 586.5_FSoE communication error 2 - Receive time-out error A (safety sub-function)]

# [AL. 587_FSoE communication error 3 (safety sub-function)]

• There is a problem with the safety communication.

## [AL. 587.1_FSoE communication error 3 - Safety communication error 1A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The safety communication settings of FSoE Master are incorrect. | Review the safety communication settings.<br>Refer to "Safety sub-function control by network" in the following manual.<br>📖MR-JET-G-N1 User's Manual (Communication Function) | [G] |
| **2.** There is a problem with FSoE Master. | Check if an alarm has occurred in FSoE Master.<br>If an alarm has occurred, take actions in accordance with the troubleshooting of FSoE Master. | |
| **3.** A network cable is disconnected. | Check if the network cable is connected correctly.<br>Turn off the control circuit power supply of the servo amplifier, then connect the network cable correctly. | |
| **4.** The wiring of the network cable is incorrect. | Check if the connection of the network cable is correct. | |
| **5.** A network cable is disconnected. | Check for disconnection in the network cable. | |
| **6.** Devices on the network (including repeaters such as hubs) are turned off. | Check that the devices on the network are turned on. | |
| **7.** The network was disconnected by an incorrect procedure. | Check if the network was disconnected by a correct procedure for each type of network.<br>Refer to "Disconnecting the communication" in the User's Manual (Communication Function). | |
| **8.** Data transmission from the controller was interrupted for a certain time. | Check if data transmission from the controller has not been interrupted. If the data transmission has been interrupted, review the controller communication setting. | |
| **9.** The settings of the controller are incorrect. | Check the controller settings. | |
| **10.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| **11.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **12.** The controller has malfunctioned. | Replace the controller. | |
| **13.** Devices on the network (including repeaters such as hubs) have malfunctioned. | Replace the devices on the network. | |

## [AL. 587.2_FSoE communication error 3 - Safety communication error 2A (safety sub-function)]

☞ Page 182 [AL. 587.1_FSoE communication error 3 - Safety communication error 1A (safety sub-function)]

## [AL. 587.3_FSoE communication error 3 - Safety communication error 3A (safety sub-function)]

☞ Page 182 [AL. 587.1_FSoE communication error 3 - Safety communication error 1A (safety sub-function)]

## [AL. 587.4_FSoE communication error 3 - Safety communication error 4A (safety sub-function)]

☞ Page 182 [AL. 587.1_FSoE communication error 3 - Safety communication error 1A (safety sub-function)]

## [AL. 587.5_FSoE communication error 3 - Safety communication error 5A (safety sub-function)]

☞ Page 182 [AL. 587.1_FSoE communication error 3 - Safety communication error 1A (safety sub-function)]

### [AL. 587.6_FSoE communication error 3 - Safety communication error 6A (safety sub-function)]

☞ Page 182 [AL. 587.1_FSoE communication error 3 - Safety communication error 1A (safety sub-function)]

### [AL. 587.7_FSoE communication error 3 - Safety communication error 7A (safety sub-function)]

☞ Page 182 [AL. 587.1_FSoE communication error 3 - Safety communication error 1A (safety sub-function)]

### [AL. 587.9_FSoE communication error 3 - Safety communication error 1B (safety sub-function)]

☞ Page 182 [AL. 587.1_FSoE communication error 3 - Safety communication error 1A (safety sub-function)]

### [AL. 587.A_FSoE communication error 3 - Safety communication error 2B (safety sub-function)]

☞ Page 182 [AL. 587.1_FSoE communication error 3 - Safety communication error 1A (safety sub-function)]

### [AL. 587.B_FSoE communication error 3 - Safety communication error 3B (safety sub-function)]

☞ Page 182 [AL. 587.1_FSoE communication error 3 - Safety communication error 1A (safety sub-function)]

### [AL. 587.C_FSoE communication error 3 - Safety communication error 4B (safety sub-function)]

☞ Page 182 [AL. 587.1_FSoE communication error 3 - Safety communication error 1A (safety sub-function)]

### [AL. 587.D_FSoE communication error 3 - Safety communication error 5B (safety sub-function)]

☞ Page 182 [AL. 587.1_FSoE communication error 3 - Safety communication error 1A (safety sub-function)]

### [AL. 587.E_FSoE communication error 3 - Safety communication error 6B (safety sub-function)]

☞ Page 182 [AL. 587.1_FSoE communication error 3 - Safety communication error 1A (safety sub-function)]

### [AL. 587.F_FSoE communication error 3 - Safety communication error 7B (safety sub-function)]

☞ Page 182 [AL. 587.1_FSoE communication error 3 - Safety communication error 1A (safety sub-function)]

# [AL. 595_STO command off warning (safety sub-function)]

• The STO command is turned off.

## [AL. 595.1_STO command off warning A]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The STO command of the functional safety has been turned off (enabled). | Turn on (disable) the STO command of the functional safety. | [G] |

## [AL. 595.9_STO command off warning B]

☞ Page 184 [AL. 595.1_STO command off warning A]

# [AL. 596_SS1 time-out warning (safety sub-function)]



• The deceleration monitor time has passed after the SS1 command was turned off.

## [AL. 596.1_SS1 time-out warning A]

| Cause | Check/action method | Model |
|---|---|---|
| ***1.*** The time set in [Pr. PSA03 SS1 deceleration monitor time] has passed after the SS1 command was turned off (enabled). | Turn on (disable) the SS1 command. | [G] |
| ***2.*** With [Pr. PSA02.2 Time/Deceleration monitor setting] being set to "1" (perform deceleration monitoring) and "off" (enabled) of the SS1 command being detected, the time set in [Pr. PSA15 Safety sub-function - Speed detection delay time] has passed since the servo motor speed fell below the setting value of [Pr. PSA04 Safety sub-function - Stop speed]. | | |

## [AL. 596.9_SS1 time-out warning B]

☞ Page 185 [AL. 596.1_SS1 time-out warning A]

# [AL. 59D_Internal diagnosis error (safety sub-function)]

• There is an error with the result from functional safety diagnosis.

## [AL. 59D.1_Internal diagnosis error A1 (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | [G] |
| **2.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 59D.3_Internal diagnosis error A3 (safety sub-function)]

☞ Page 186 [AL. 59D.1_Internal diagnosis error A1 (safety sub-function)]

## [AL. 59D.6_Internal diagnosis error A6 (safety sub-function)]

☞ Page 186 [AL. 59D.1_Internal diagnosis error A1 (safety sub-function)]

## [AL. 59D.9_Internal diagnosis error B1 (safety sub-function)]

☞ Page 186 [AL. 59D.1_Internal diagnosis error A1 (safety sub-function)]

## [AL. 59D.B_Internal diagnosis error B3 (safety sub-function)]

☞ Page 186 [AL. 59D.1_Internal diagnosis error A1 (safety sub-function)]

## [AL. 59D.E_Internal diagnosis error B6 (safety sub-function)]

☞ Page 186 [AL. 59D.1_Internal diagnosis error A1 (safety sub-function)]

# [AL. 5E0_Safety input device fixing diagnosis incomplete warning]



• The input device diagnosis has not been executed.

## [AL. 5E0.1_SDI1 fixing diagnosis at startup incomplete warning A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The fixing diagnosis at startup has not been executed. | Check if the fixing diagnosis at startup has been executed. | [G] |
| **2.** The fixing diagnosis at startup has been set incorrectly in the functional safety parameter. | Check if [Pr. PSD27 Input device - Fixing diagnosis at startup execution selection 1] has been set correctly. | |
| **3.** The wiring is incorrect. | Check if the wiring is correct. | |
| **4.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |
| **5.** There is a problem with the surrounding environment. | Check the noise, ambient temperature, and other conditions, and implement appropriate countermeasures for the cause.<br>If there is noise, take countermeasures to reduce the noise.<br>Refer to "Noise reduction techniques" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |

## [AL. 5E0.2_SDI2 fixing diagnosis at startup incomplete warning A (safety sub-function)]

☞ Page 187 [AL. 5E0.1_SDI1 fixing diagnosis at startup incomplete warning A (safety sub-function)]

## [AL. 5E0.3_SDI3 fixing diagnosis at startup incomplete warning A (safety sub-function)]

☞ Page 187 [AL. 5E0.1_SDI1 fixing diagnosis at startup incomplete warning A (safety sub-function)]

## [AL. 5E0.7_Fixing diagnosis at startup - No detection of all input ON A (safety sub-function)]

☞ Page 187 [AL. 5E0.1_SDI1 fixing diagnosis at startup incomplete warning A (safety sub-function)]

## [AL. 5E0.9_SDI1 fixing diagnosis at startup incomplete warning B (safety sub-function)]

☞ Page 187 [AL. 5E0.1_SDI1 fixing diagnosis at startup incomplete warning A (safety sub-function)]

## [AL. 5E0.A_SDI2 fixing diagnosis at startup incomplete warning B (safety sub-function)]

☞ Page 187 [AL. 5E0.1_SDI1 fixing diagnosis at startup incomplete warning A (safety sub-function)]

## [AL. 5E0.B_SDI3 fixing diagnosis at startup incomplete warning B (safety sub-function)]

☞ Page 187 [AL. 5E0.1_SDI1 fixing diagnosis at startup incomplete warning A (safety sub-function)]

## [AL. 5E0.F_Fixing diagnosis at startup - No detection of all input ON B (safety sub-function)]

☞ Page 187 [AL. 5E0.1_SDI1 fixing diagnosis at startup incomplete warning A (safety sub-function)]

# [AL. 5E1_Test mode setting mismatch warning (safety sub-function)]

• The settings for the test mode are inconsistent.

## [AL. 5E1.1_Test mode setting mismatch warning A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| *1.* The test operation mode has been set incorrectly. | Check if the servo amplifier and [Pr. PSA01.1 Input mode selection] are both set for test mode. If not, review the settings. | [G] |

## [AL. 5E1.9_Test mode setting mismatch warning B (safety sub-function)]

☞ Page 188 [AL. 5E1.1_Test mode setting mismatch warning A (safety sub-function)]

# [AL. 5E2_Safety communication warning (safety sub-function)]



• There is a problem with the safety communication.

## [AL. 5E2.1_Safety communication no connection warning A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** Connection with the controller has not been established. | ☞ Page 191 The display shows "A" (unconnected to the controller) | [G] |
| **2.** The safety communication settings are incorrect. | Review the safety communication settings.<br>Refer to "Safety sub-function control by network" in the following manual.<br>📖MR-JET User's Manual (Function) | |
| **3.** The IP address was changed after connecting to the controller. | If the IP address of the controller or the servo amplifier was changed after connecting the controller, cycle the power. | |

## [AL. 5E2.2_FSoE communication no connection warning A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** Connection with the controller has not been established. | ☞ Page 191 The display shows "A" (unconnected to the controller) | [G] |
| **2.** The safety communication settings are incorrect. | Review the safety communication settings.<br>Refer to "Safety sub-function control by network" in the following manual.<br>📖MR-JET-G-N1 User's Manual (Communication Function) | |

## [AL. 5E2.9_Safety communication no connection warning B (safety sub-function)]

☞ Page 189 [AL. 5E2.1_Safety communication no connection warning A (safety sub-function)]

## [AL. 5E2.A_FSoE communication no connection warning B (safety sub-function)]

☞ Page 189 [AL. 5E2.2_FSoE communication no connection warning A (safety sub-function)]

# [AL. 5E6_SS1 command off warning (safety sub-function)]

• The SS1 command is turned off.

## [AL. 5E6.1_SS1 command off warning A (safety sub-function)]

| Cause | Check/action method | Model |
|---|---|---|
| **1.** The SS1 command has been turned off (enabled). | Turn on (disable) the SS1 command. | [G] |
| **2.** An external 24 V DC power supply has not been input to the safety input signal terminal. | Input the 24 V DC power supply. | |
| **3.** The servo amplifier has malfunctioned. | Replace the servo amplifier. | |

## [AL. 5E6.9_SS1 command off warning B (safety sub-function)]

☞ Page 190 [AL. 5E6.1_SS1 command off warning A (safety sub-function)]

# 1.4 Trouble which does not trigger an alarm/warning



This section shows examples of trouble which will not trigger an alarm or warning as well as the possible causes of such trouble. Refer to this section and remove each cause of trouble.

### Precautions

- When the servo amplifier, servo motor, controller, or encoder malfunctions, the cases shown in this section may occur.
- If the servo motor does not rotate, also check the "No Motor Rotation" area in MR Configurator2.

## The display shows "A" (unconnected to the controller)

For the MR-JET-_G_-HS(N1), "A _ _" is displayed.

| Possible cause | Check/action method | Model |
|---|---|---|
| **1.** The power supply of the controller has been turned off. | Switch on the power of the controller. | [G] |
| **2.** The power supply of the device between the controller and servo amplifier has been turned off. | Turn on the power of the device between the controller and servo amplifier. | |
| **3.** The amplifier-less operation function of the controller is enabled. | Cancel the amplifier-less operation function of the controller. | |
| **4.** A network cable was disconnected. | Replace the network cable.<br>[G]: Ethernet cable<br>Check if the connector (CN1A/CN1B) is disconnected. | |
| **5.** An incompatible controller is connected. Or, the network settings of the controller and the network settings of the servo amplifiers do not match. | Connect with a compatible controller.<br>Check that the controller and servo amplifiers use the same network type.<br>Check that the current network settings displayed in "System Configuration" of MR Configurator2 and the network settings of the controller match.<br>Review the setting value of [Pr. PN13 Network protocol setting (**NPS)]. | |
| **6.** The settings of the rotary switch are incorrect. | Check if there is another servo amplifier assigned to the same axis No.<br>Check if the settings of the controller and servo amplifiers are correct. | |
| **7.** The communication cycle does not match. | Refer to the servo system controller instruction manual and check the communication cycle. | |
| | Check the communication error detection time of the servo amplifier. | |
| **8.** The communication speed (1 Gbps or 100 Mbps) does not match between the controller and servo amplifiers. | Check that the communication speeds of the controller and servo amplifiers are the same. | |

## The display shows "r"

For the MR-JET-_G_-HS(N1), "r##" is displayed.

| Possible cause | Check/action method | Model |
|---|---|---|
| **1.** The system is in servo-off or ready-off state. (## in the display indicates network addresses.) | Turn on the servo-on for all the axes. | [G] |

## The display shows "T"

| Possible cause | Check/action method | Model |
|---|---|---|
| **1.** The test operation mode is enabled. | Disable the test operation with the parameter.<br>Refer to "Test operation" in the User's Manual (Introduction). | [G] |

# The display is off

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. The external I/O terminal has shorted. | If disconnecting the encoder connector and I/O signal connector solves the trouble, the cable wiring may have shorted. Review the wiring. | [G] |
| 2. The power supply (control circuit power supply for the MR-JET-_G_-HS(N1)) has not been input. | Turn on the power supply (control circuit power supply for the MR-JET-_G_-HS(N1)). | |
| 3. The power supply (control circuit power supply for the MR-JET-_G_-HS(N1)) voltage has dropped. | Increase the voltage of the power supply (control circuit power supply for the MR-JET-_G_-HS(N1)). | |
| 4. The external fuse was disconnected. | Check if the external fuse is disconnected. | |

# The servo motor does not operate



| Possible cause | Check/action method | Model |
|---|---|---|
| **1.** The connection of the servo motor is incorrect. | Check the U/V/W wiring.<br>Refer to "Example power circuit connections" in the following manual.<br>MR-JET User's Manual (Hardware) | [G] |
| **2.** A servo motor power cable or an encoder cable is connected to an incorrect axis. | Check if the encoder cable and the servo motor power cable are connected to the same axis. | |
| **3.** An alarm or warning is occurring. | Check the contents of the alarm or warning, and remove its cause. | |
| **4.** The system is in the test operation mode.<br>Test operation selection has been enabled. | Cancel the test operation mode.<br>[G]: [Pr. PC05.1 Test operation selection] | |
| **5.** The motor-less operation has been enabled. | Disable the motor-less operation.<br>[G]: [Pr. PC05.0 Motor-less operation selection] | |
| **6.** The torque is insufficient for the large load. | Check the instantaneous torque with MR Configurator2. If the torque reaches the maximum torque or the torque limit value, reduce the load or replace the servo motor with a larger-capacity servo motor. | |
| **7.** An unintended torque limit has been enabled. | Cancel the torque limit. | |
| **8.** The setting value for the torque limit is incorrect. | Check if the torque limit value is "0".<br>Refer to "Torque limit" in the following manual.<br>MR-JET User's Manual (Function) | |
| **9.** The machine is interfering with the servo motor. | Remove the interference. | |
| **10.** For a servo motor with an electromagnetic brake, the brake has not been released. | Turn on the electromagnetic brake power. | |
| **11.** LSP (Forward rotation stroke end) and LSN (Reverse rotation stroke end) are not on. | Check if [AL. 099 Stroke limit warning] has occurred.<br>Turn on LSP and LSN. | |
| **12.** FLS (Upper stroke limit) and RLS (Lower stroke limit) are not turned on. | Check if [AL. 099 Stroke limit warning] has occurred.<br>Turn on FLS and RLS. | |
| **13.** A software position limit is reached. | Check if [AL. 098 Software position limit warning] has occurred.<br>Place the moving part in the range of the software position limit. | |
| **14.** The servo-on has not been turned on. | Turn on the servo-on. | |
| **15.** The settings of the electronic gear are incorrect. | Set appropriate values for the electronic gear. | |
| **16.** The setting value of the point table is incorrect. | Review the setting value of the point table. | |
| **17.** The setting/specification of the point table number selection is incorrect. | Check the [Target point table (Obj. 2D60h)] setting. | |
| **18.** Quick Stop has been activated. | Cancel Quick Stop. | |
| **19.** Halt has been activated. | Cancel Halt. | |
| **20.** An error is occurring on the controller side. | Remove the error of the controller. | |
| **21.** The parameter settings are incorrect on the controller side. | Review the parameter settings on the controller side. | |
| **22.** The position command has not been input correctly. | Review the settings of the controller or the servo program. | |

## The increase in the servo motor speed is insufficient or excessive

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. The settings of the speed command, speed limit, or electronic gear are incorrect. | Review the settings of the speed command, speed limit, and electronic gear. | [G] |
| 2. The connection of the servo motor is incorrect. | Check the U/V/W wiring.<br>Refer to "Example power circuit connections" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| 3. The power supply (main circuit power supply for the MR-JET-_G_-HS(N1)) voltage has dropped. | Increase the voltage of the power supply (main circuit power supply for the MR-JET-_G_-HS(N1)). | |
| 4. For a servo motor with an electromagnetic brake, the brake has not been released. | Turn on the electromagnetic brake power. | |
| 5. When the override function is enabled, the override value is set incorrectly. | Review the setting of [Speed override (Obj. 2DB0h)]. | |

## Vibration of servo motor at low frequency

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. The estimated value of the load to motor inertia ratio by auto tuning is incorrect. The value of the load to motor inertia ratio which was set manually is incorrect. | Execute the auto tuning or one-touch tuning to set the load to motor inertia ratio again. When setting manually, set the load to motor inertia ratio correctly.<br>Refer to "ADJUSTMENT METHOD" in the following manual.<br>📖MR-JET User's Manual (Adjustment) | [G] |
| 2. The command from the controller is unstable. | Review the command from the controller.<br>Check if the Ethernet cable is disconnected or has other problems. | |
| 3. When the servo motor stops, torque at acceleration/deceleration overshoots exceeding the limit of the servo motor. | If the torque at acceleration/deceleration reaches the maximum torque, reduce the generated torque by increasing the acceleration/deceleration time, reducing the load, or other measures. | |
| 4. The servo gain is too low or the response of the auto tuning is too low. | Increase the servo gain or the value of [Pr. PA09 Auto tuning response]. | |

## There is an unusual noise in the servo motor

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. The servo gain is too high or the response of the auto tuning is too high. | Increase the servo gain or the value of [Pr. PA09 Auto tuning response]. | [G] |
| 2. The bearing has reached the end of its service life. | If the servo motor can be operated safely, remove the load and check for the noise in the servo motor itself.<br>If the servo motor is removable from the machine, remove the servo motor power cable, then release the brake, and rotate the servo motor by an external force to check for a noise. If a noise occurs, the bearing is at the end of its service life. Replace the servo motor. If no noise occurs, perform maintenance on the load side. | |
| 3. For a servo motor with an electromagnetic brake, the brake has not been released. | Turn on the electromagnetic brake power. | |
| 4. When a servo motor with an electromagnetic brake is used, the brake release timing is incorrect. | Review the timing of the electromagnetic brake release.<br>Take into account that the electromagnetic brake has a release delay time. | |

## The servo motor vibrates

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. The servo gain is too high or the response of the auto tuning is too high. | Decrease the servo gain to check if the trouble is solved or decrease the value of [Pr. PA09 Auto tuning response]. | [G] |
| 2. The machine is vibrating (resonating). | Perform one-touch tuning or adaptive tuning, or set the machine resonance suppression filter. | |
| 3. The load side is vibrating. | Perform vibration suppression control tuning or set the vibration suppression control. | |
| 4. Noise entered the encoder cable, causing the miscount of the feedback pulses. | Check if numerical values of the cumulative feedback pulses are skipped with MR Configurator2. Take countermeasures against noise, such as laying the encoder cable apart from the power cables. | |
| 5. There is a backlash between the servo motor and machine (such as a gear and coupling). | If the coupling and the mechanical part are nearly broken, or there is a backlash, perform an inspection and maintenance. | |
| 6. The rigidity of the servo motor mounting part is too low. | Increase the rigidity of the mounting part by increasing the board thickness, reinforcing the part with ribs, or other means. | |
| 7. The connection of the servo motor is incorrect. | Check the U/V/W wiring.<br>Refer to "Example power circuit connections" in the following manual.<br>MR-JET User's Manual (Hardware) | |
| 8. An unbalanced torque of the machine is too large. | Check if the vibration also changes as the servo motor speed changes. Adjust the balance of the machine. | |
| 9. The eccentricity due to a core gap is too large. | Check the mounting accuracy of the servo motor and machine. | |
| 10. A load for the shaft of the servo motor is too large. | Make the load for the shaft of the servo motor equal to or less than the permissible load of the servo motor.<br>Refer to "Standard specifications list" in the following manual.<br>Rotary Servo Motor User's Manual (For MR-JET) | |
| 11. An external vibration propagated to the servo motor. | Prevent the vibration from the external vibration source. | |

## Poor speed accuracy (Unstable speed of servo motor)

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. The servo gain is too low or the response of auto tuning is too low. | Increase the servo gain or the value of [Pr. PA09 Auto tuning response]. | [G] |
| 2. The servo gain is too high or the response of the auto tuning is too high. | Decrease the servo gain to check if the trouble is solved. Alternatively, decrease the value of [Pr. PA09]. | |
| 3. The torque is insufficient for the large load. | Check the instantaneous torque with MR Configurator2. If the torque reaches the maximum torque or the torque limit value, reduce the load or replace the servo motor with a larger-capacity servo motor. | |
| 4. An unintended torque limit has been enabled. | On the status display or MR Configurator2, check if TLC (Limiting torque) is turned on. Cancel the torque limit.<br>Refer to "Torque limit" in the following manual.<br>📖MR-JET User's Manual (Function) | |
| 5. The setting value for the torque limit is incorrect. | Increase the torque limit value.<br>Refer to "Torque limit" in the following manual.<br>📖MR-JET User's Manual (Function) | |
| 6. For a servo motor with an electromagnetic brake, the brake has not been released. | Turn on the electromagnetic brake power. | |
| 7. The command from the controller is unstable. | Review the command from the controller.<br>Alternatively, check if the Ethernet cable is disconnected or has other problems. | |
| 8. The power supply voltage is lower than specifications. | Adjust the power supply voltage within the range of specifications. | |

## The machine vibrates unsteadily when it stops

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. The servo gain is too low or the response of the auto tuning is too low. | Increase the servo gain or the value of [Pr. PA09 Auto tuning response]. | [G] |

## Overshoot/undershoot occurs

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. The servo gain is too low or too high. The response of auto tuning is too low or too high. | Adjust the response of auto tuning and readjust the gain. | [G] |
| 2. The setting of [Pr. PB06 Load to motor inertia ratio/load to motor mass ratio] is incorrect. | Check if the setting value of [Pr. PB06] matches the actual load moment of inertia or load mass. If the value does not match, set the parameter correctly. | |
| 3. The maximum torque is insufficient due to the excessive load or the capacity of the servo motor is insufficient. | Check the instantaneous torque on the status display. Check if the torque reaches the torque limit value. Keep the torque outside the torque limit value by increasing the acceleration/deceleration time or by reducing the load. Alternatively, use a servo motor with a larger capacity. | |
| 4. The setting of the torque limit value is too small. | Check the instantaneous torque on the status display. Check if the torque reaches the torque limit value.<br>Increase the torque limit value so that the torque does not reach the limit value. | |
| 5. The backlash of the machine part is too large. | Perform an inspection and maintenance of the coupling and the machine. | |

## The servo motor starts moving immediately after the power-on of the servo amplifier or servo-on

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. When a servo motor with an electromagnetic brake is used, the brake release timing is incorrect. | Review the timing of the electromagnetic brake release. | [G] |
| 2. The connection of the servo motor is incorrect. | Check the U/V/W wiring.<br>Refer to "Example power circuit connections" in the following manual.<br>📖MR-JET User's Manual (Hardware) | |
| 3. The control mode was switched without performing position follow-up on the controller side. | Perform position follow-up on the controller side before switching the control mode. | |

## The home position deviates at the homing

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. When performing the dog type homing, the point where the proximity dog turns off is close to the point where a Z-phase pulse is detected (CR input position). | Check if a fixed amount (in one revolution) deviates. Adjust the position of the proximity dog. | [G] |
| 2. The in-position range is too large. | Set the value in [Pr. PA10 In-position range] for a narrower range than the current setting. | |
| 3. The proximity dog switch has malfunctioned or the proximity dog switch is improperly mounted. | Repair or replace the proximity dog switch. Adjust the mounting of the proximity dog switch. | |
| 4. The program on the controller side is incorrect. | Review the program on the controller side, such as home position address settings and sequence programs. | |
| 5. An incorrect homing method has been selected. | Review the homing method selection. | |

## The position deviates during operation after the homing

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. The electronic gear is incorrect. | Review the settings of the electronic gear.<br>Refer to "Electronic gear function" in the following manual.<br>📖MR-JET User's Manual (Function) | [G] |
| 2. The servo gain is too low or the response of auto tuning is too low. | Check if the trouble is solved by increasing the value of [Pr. PA09 Auto tuning response].<br>Adjust the servo gain. | |
| 3. The proportional control (PID control) is enabled. | Disable the proportional control (PID control). | |
| 4. The in-position range is too large. | Review the setting of [Pr. PA10 In-position range]. | |
| 5. Mechanical slippage occurred or the backlash of the mechanical part is too large. | Check for a slip or backlash in the mechanical part. | |

## A position mismatch occurs at power restoration in an absolute position detection system

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. While the servo amplifier was in power-off status, an external force rotated the servo motor at a speed exceeding the maximum permissible speed at power failure (6000 r/min). (The acceleration time was 0.2 s or less.) | Extend the acceleration time.<br>Keep the speed under the maximum permissible speed at power failure. | [G] |
| 2. When the servo motor was rotated at a speed exceeding 3000 r/min by an external force, the servo amplifier power was turned on. | Check if the servo amplifier power was turned on when the servo motor was rotated at a speed exceeding 3000 r/min by an external force. | |

## Communication with the servo amplifier fails using MR Configurator2

• For details, refer to the "HELP" window in MR Configurator2.

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. The communication settings are incorrect. | Check the communication settings, such as the baud rate and ports. | [G] |
| 2. The model being connected differs from the model set in the model selection. | Check if the model selection has been set correctly. | |
| 3. The driver has been set incorrectly. | Refer to "PRECAUTIONS FOR COMMUNICATING WITH THE SERVO AMPLIFIER" on the "HELP" window in MR Configurator2. | |
| 4. They are off-line. | Set them to on-line. | |
| 5. There is a problem with the communication cable. | Replace the communication cable. | |
| 6. The communication cable is not connected. | Connect the communication cable. | |
| 7. Power is not being supplied to the servo amplifier. | Supply the power to the servo amplifier. | |

## Electromagnetic brake went out

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. The electromagnetic brake has reached the end of its service life. | Remove the servo motor and all the wiring from the machine, and check if the servo motor shaft is rotated by an external force. If the motor rotates, the brake has a failure. Replace the servo motor.<br>Refer to "Characteristics of electromagnetic brake" in the following manual.<br>Rotary Servo Motor User's Manual (For MR-JET) | [G] |

## Electromagnetic brake cannot be released

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. The wiring is incorrect. | Check the output signals. | [G] |
| 2. A signal of an output device has not been output correctly. | Check if the output device cable is wired correctly, or check if the load of the output device is within specifications. | |

## The vertical axis falls when the SBC output is used

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. The STO function is used during servo-on, and the STO state is established. | For vertical axes, use the SS1 function, and establish the STO state. | [G] |
| 2. A signal of an output device has not been output correctly. | Check if the output device cable is wired correctly. Check if the load of the output device is within specifications. | |
| 3. The waiting time for an electromagnetic brake sequence output has not been set correctly. | Review the settings of "electromagnetic brake sequence output" and "SS1 deceleration monitor time" with the following parameters.<br>[G]: [Pr. PC02 Electromagnetic brake sequence output (MBR)] and [Pr. PSA03 SS1 deceleration monitor time (**SST)] | |

## Coasting distance of the servo motor became longer

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. The load increased and exceeded the permissible load to motor inertia. | Reduce the load. | [G] |
| 2. The electromagnetic brake malfunctioned as the brake reached the end of its service life. | Remove the servo motor and all the wiring from the machine, and check if the servo motor shaft can be rotated by the hands. If the motor rotates, the brake has a failure. Replace the servo motor.<br>Refer to "Characteristics of electromagnetic brake" in the following manual.<br>Rotary Servo Motor User's Manual (For MR-JET) | |
| 3. The electronic dynamic brake is disabled. | Enable the electronic dynamic brake with [Pr. PF06.0 Electronic dynamic brake selection]. | |

## Executed point table does not work

| Possible cause | Check/action method | Model |
|---|---|---|
| 1. Positioning to the same position are repeated. | Operation is repeatedly started by specifying the same point table number. Review the specification of the point table number or the operating procedure. Positioning to the same position address is repeated by selecting "8, 9, 10, 11" (continuous operation) in the auxiliary function of the point table. Review the setting value of the point table number or the operating procedure. | [G] |
| 2. A point table number for which no value has been set is specified. | Set the correct value to the specified point table. Or, specify the point table number for which a value has been set. | |

# 1.5 Two-digit display of alarm/warning number

For some objects, the alarm/warning number can only be read in two digits. For three-digit alarm/warning numbers, check the number using an object that can read three-digit numbers, the servo amplifier display, or MR Configurator2.

# MEMO

# REVISIONS

*The manual number is given on the bottom left of the back cover.

| Revision date | *Manual number | Description |
|---|---|---|
| November 2019 | IB(NA)-0300483ENG-A | First edition |
| July 2020 | IB(NA)-0300483ENG-B | ■Alarms and warnings related to the following functions are added:<br>Linear servo motor control mode, profile mode |
| October 2020 | IB(NA)-0300483ENG-C | ■Alarms and warnings related to the following function are added:<br>Degree function |
| March 2021 | IB(NA)-0300483ENG-D | ■Alarms and warnings related to the following function are added:<br>Positioning mode (point table method) |
| July 2021 | IB(NA)-0300483ENG-E | ■Alarms and warnings related to the following function are added:<br>CC-Link IE Field Network Basic |
| July 2022 | IB(NA)-0300483ENG-F | ■Alarms and warnings related to the following functions are added/edited:<br>Batteryless absolute position encoder, fully closed loop system, CC-Link IE TSN Class A |
| January 2023 | IB(NA)-0300483ENG-G | [AL. 1F6 Manufacturer setting error] is added. |
| January 2024 | IB(NA)-0300483ENG-H | ■Alarms and warnings related to the following function are added:<br>IP address setting function via the master station |
| October 2024 | IB(NA)-0300483ENG-J | ■Alarms and warnings related to the following functions are added/edited:<br>Functional safety, EtherCAT, scale measurement function |

# WARRANTY

## Warranty

### 1. Warranty period and coverage

We will repair any failure or defect hereinafter referred to as "failure" in our FA equipment hereinafter referred to as the "Product" arisen during warranty period at no charge due to causes for which we are responsible through the distributor from which you purchased the Product or our service provider. However, we will charge the actual cost of dispatching our engineer for an on-site repair work on request by customer in Japan or overseas countries. We are not responsible for any on-site readjustment and/or trial run that may be required after a defective unit are repaired or replaced.

[Term]

For terms of warranty, please contact your original place of purchase.

[Limitations]

(1) You are requested to conduct an initial failure diagnosis by yourself, as a general rule.
It can also be carried out by us or our service company upon your request and the actual cost will be charged. However, it will not be charged if we are responsible for the cause of the failure.

(2) This limited warranty applies only when the condition, method, environment, etc. of use are in compliance with the terms and conditions and instructions that are set forth in the instruction manual and user manual for the Product and the caution label affixed to the Product.

(3) Even during the term of warranty, the repair cost will be charged on you in the following cases;

1. a failure caused by your improper storing or handling, carelessness or negligence, etc., and a failure caused by your hardware or software problem
2. a failure caused by any alteration, etc. to the Product made on your side without our approval
3. a failure which may be regarded as avoidable, if your equipment in which the Product is incorporated is equipped with a safety device required by applicable laws and has any function or structure considered to be indispensable according to a common sense in the industry
4. a failure which may be regarded as avoidable if consumable parts designated in the instruction manual, etc. are duly maintained and replaced
5. any replacement of consumable parts (battery, fan, smoothing capacitor, etc.)
6. a failure caused by external factors such as inevitable accidents, including without limitation fire and abnormal fluctuation of voltage, and acts of God, including without limitation earthquake, lightning and natural disasters
7. a failure generated by an unforeseeable cause with a scientific technology that was not available at the time of the shipment of the Product from our company
8. any other failures which we are not responsible for or which you acknowledge we are not responsible for

### 2. Term of warranty after the stop of production

(1) We may accept the repair at charge for another seven (7) years after the production of the product is discontinued. The announcement of the stop of production for each model can be seen in our Sales and Service, etc.

(2) Please note that the Product (including its spare parts) cannot be ordered after its stop of production.

### 3. Service in overseas countries

Our regional FA Center in overseas countries will accept the repair work of the Product. However, the terms and conditions of the repair work may differ depending on each FA Center. Please ask your local FA center for details.

### 4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation to:

(1) Damages caused by any cause found not to be the responsibility of Mitsubishi.

(2) Loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products.

(3) Special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products.

(4) Replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

### 5. Change of Product specifications

Specifications listed in our catalogs, manuals or technical documents may be changed without notice.

### 6. Application and use of the Product

(1) For the use of our AC Servo, its applications should be those that may not result in a serious damage even if any failure or malfunction occurs in AC Servo, and a backup or fail-safe function should operate on an external system to AC Servo when any failure or malfunction occurs.

(2) Our AC Servo is designed and manufactured as a general purpose product for use at general industries.
Therefore, applications substantially influential on the public interest for such as atomic power plants and other power plants of electric power companies, and also which require a special quality assurance system, including applications for railway companies and government or public offices are not recommended, and we assume no responsibility for any failure caused by these applications when used.
In addition, applications which may be substantially influential to human lives or properties for such as airlines, medical treatments, railway service, incineration and fuel systems, man-operated material handling equipment, entertainment machines, safety machines, etc. are not recommended, and we assume no responsibility for any failure caused by these applications when used.
We will review the acceptability of the abovementioned applications, if you agree not to require a specific quality for a specific application. Please contact us for consultation.

(3) Mitsubishi Electric shall have no responsibility or liability for any problems involving programmable controller trouble and system trouble caused by DoS attacks, unauthorized access, computer viruses, and other cyberattacks.

# TRADEMARKS

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IB(NA)-0300483ENG-J(2410)MEE
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MODEL CODE:

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