

# CONTROL TECHNIQUES



# COMMANDER

GENERAL PURPOSE, LOW VOLTAGE AC DRIVES

## C300

**DRIVE OBSESSED**

# COMMANDER C300

# ENHANCED THROUGHPUT WITH MACHINE SAFETY

Control Techniques has set the standards in motor control since 1973.

The Commander C300 provides flexible integration with safety and communications. Commander C300 is ideal for applications that require cost-effective integration into safety systems. With two Safe Torque Off (STO) inputs, onboard PLC and an SI interface for industry standard fieldbuses, Ethernet or extended I/O options, this feature set ensures Commander C300's flexible integration with any system.

## Other Commander C300 benefits include:

### Enhance up-time and system flexibility

- Flexible system integration and remote diagnostics through optional industrial Ethernet and fieldbus communication
- Flexible I/O that is expandable with SI-I/O option module
- Enhanced functionality and onboard PLC programming provides a low-cost system solution, minimizing the need for additional equipment such as PLCs

### High performance open loop motor control

- RFC-A (Rotor Flux Control) algorithm for exceptional induction motor control of demanding applications
- Closed loop current control without a position feedback device
- Speed control for conveyors, fans, pumps, and mixers, where their function is controlled remotely with fieldbus or Ethernet communications

### Communications

- Snap-in SI-Modules for industry standard fieldbus, Ethernet or extended I/O options

### Two Safe Torque Off (STO) Inputs

### Built-in PLC



## Diagnostic Software

Our **Drive Diagnostics APP** allows users to quickly diagnose faults. In the unlikely event that you get a drive error, download our complimentary Diagnostic Tool APP and input the error code from your drive and you'll be given a solution.

Download our APP at: [www.ctdrives.com/diagnostics](http://www.ctdrives.com/diagnostics)



\*Warranty terms and conditions apply.

[WWW.CONTROLTECHNIQUES.COM](http://WWW.CONTROLTECHNIQUES.COM)



# COMMANDER C300

# ORDERING INFORMATION

115 VAC, Single Phase 50/60 Hz Input, 230 VAC 3-Phase Output					
Commander C300 Order Code*	Input Phase	Normal Duty		Heavy Duty	
		HP	Amps	HP	Amps
C300-01100017A	1	0.33	1.7	0.33	1.7
C300-01100024A	1	0.5	2.4	0.5	2.4
C300-02100042A	1	1	4.2	1	4.2
C300-02100056A	1	1.5	5.6	1.5	5.6
230 VAC, Single & 3-Phase Input, 3-Phase Output, 50/60 Hz Input					
C300-01200017A	1	0.33	1.7	0.33	1.7
C300-01200024A	1	0.5	2.4	0.5	2.4
C300-01200033A	1	0.75	3.3	0.75	3.3
C300-01200042A	1	1	4.2	1	4.2
C300-02200024A	1,3	0.5	2.4	0.5	2.4
C300-02200033A	1,3	0.75	3.3	0.75	3.3
C300-02200042A	1,3	1	4.2	1	4.2
C300-02200056A	1,3	1.5	5.6	1.5	5.6
C300-02200075A	1,3	2	7.5	2	7.5
C300-03200100A	1,3	3	10	3	10
C300-04200133A	1,3	3	13.3	3	13.3
C300-04200176A	3	5	17.6	5	17.6
C300-05200250A	3	10	30	7.5	25
C300-06200330A	3	15	50	10	33
C300-06200440A	3	20	58	15	44
C300-07200610A	3	25	75	20	61
C300-07200750A	3	30	94	25	75
C300-07200830A	3	40	117	30	83
C300-08201160A	3	50	149	40	116
C300-08201320A	3	60	180	50	132
C300-09201760x**	3	75	216	60	176
C300-09202190x**	3	100	266	75	219
460 VAC, Three Phase Input, 3-Phase Output, 50/60 Hz Input					
C300-02400013A	3	0.5	1.3	0.5	1.3
C300-02400018A	3	0.75	1.8	0.75	1.8
C300-02400023A	3	1	2.3	1	2.3
C300-02400032A	3	1.5	3.2	1.5	3.2
C300-02400041A	3	2	4.1	2	4.1
C300-03400056A	3	3	5.6	3	5.6
C300-03400073A	3	3	7.3	3	7.3
C300-03400094A	3	5	9.4	5	9.4
C300-04400135A	3	7.5	13.5	7.5	13.5
C300-04400170A	3	10	17	10	17
C300-05400270A	3	20	30	20	27
C300-05400300A	3	20	30	20	30
C300-06400350A	3	25	38	25	35
C300-06400420A	3	30	48	30	42
C300-06400470A	3	50	63	30	47
C300-07400660A	3	60	79	50	66
C300-07400770A	3	75	94	60	77
C300-07401000A	3	75	112	75	100
C300-08401340A	3	125	155	100	134
C300-08401570A	3	150	184	125	157
C300-09402000x**	3	150	221	150	180
C300-09402240x**	3	200	255	150	211

\*Add 10101AB100 to the base order code when ordering standard US (60Hz) default products  
 \*\*x= A or E (9E frame requires an external AC Line Reactor)

Note: Ratings are shown for 3 kHz switching frequency.

575 VAC, 3-Phase Input & Output, 50/60 Hz Input					
Unidrive C300 Order Code*	Input Phase	Normal Duty		Heavy Duty	
		HP	Amps	HP	Amps
C300-05500030A	3	3	3.9	2	3
C300-05500040A	3	5	6.1	3	4
C300-05500069A	3	7.5	10	5	6.9
C300-06500100A	3	10	12	7.5	10
C300-06500150A	3	15	17	10	15
C300-06500190A	3	20	22	15	19
C300-06500230A	3	25	27	20	23
C300-06500290A	3	30	34	25	29
C300-06500350A	3	40	43	30	34
C300-07500440A	3	50	53	40	44
C300-07500550A	3	60	73	50	55
C300-08500630A	3	75	86	60	63
C300-08500860A	3	100	108	75	86
C300-09501040x**	3	125	125	100	104
C300-09501310x**	3	150	150	125	131

### Order String - Frame Size Key

Example: C300-XX\_-----  
 XX = Frame Size (01-09 above)

690 V products are also available, for details visit: [www.controltechniques.us](http://www.controltechniques.us)

## OPTIONS AT-A-GLANCE

Option	Description	Order Code
Drive Configuration & Programming	Configuration software	CONNECT
	Drive to PC USB cable (requires a 485 adaptor)	CT-USB-CABLE
	Parameter cloning 4 GB (includes 4 GB SD card)	AI-SMART-ADAPTOR
	Parameter cloning (requires an SD card)	AI-BACKUP-ADAPTOR
Operator Interfaces	8 GB SD card	CTS08GB
	Remote LCD display	REMOTE-KEYPAD
	Remote LCD display with real-time clock	REMOTE-KEYPAD-RTC
Input / Output***	Remote display cable	UM-LCD-485-XXX****
	Extended I/O	SI-I/O
Communications***	Modbus RTU	AI-485-ADAPTOR
	Modbus RTU with 24 V	AI-485-24V-ADAPTOR
	PROFIBUS DP	SI-PROFIBUS
	DeviceNet	SI-DEVICENET
	CANopen	SI-CANOPEN
	PROFINET RT	SI-PROFINET-V2
	EtherCAT	SI-ETHERCAT
	EtherNet/IP, Modbus TCP	SI-ETHERNET
	Powerlink	SI-POWERLINK
	Interbus	SI-INTERBUS-500K, SI-INTERBUS-2M
Application Programming Software & Diagnostics	PLC programming	MACHINE-CONTROL-STUDIO
	Digital oscilloscope	CTSCOPE
Power Accessories	External EMC filter	Consult factory
	Line & load reactors	
	Dynamic braking resistors	
Environmental Protection & Cable Management	UL Type 1 conduit kits	Consult factory
	Retrofit for Commander SK	
	Fan replacement kits	

\*\*\*frame sizes 2 and up accept 1 SI option

\*\*\*\*Shielded RS485 patch cable, CAT5e, conductive metal RJ45 connectors, XXX=cable length in 5 foot increments (max 330 ft), standard lengths are (005, 010, 015, 025 and 050)

# COMMANDER C300

# RATINGS & DIMENSIONS

## Ratings

Voltage ratings	
100 V - 120 V ± 10%	✓
200 V - 240 V ± 10%	✓
380 V - 480 V ± 10%	✓
500 V - 575 V ± 10%	✓
500 V - 690 V ± 10%	✓
Control mode	
Open loop vector or V/Hz control for induction motor control	✓
Open loop Rotor Flux Control for induction motor control (RFC-A)	✓
Active Front End (AFE) power quality converter	✓

## Dimensions & Weights

Frame Size	Dimensions H x W x D (in)	Weight (lbs)
01	6.3 x 3.0 x 5.1	1.7
02	8.1 x 3.1 x 5.9	2.2
03	8.9 x 3.5 x 6.3	3.3
04	10.9 x 4.5 x 6.9	6.9
05	15.4 x 5.6 x 7.9	16.3
06	15.4 x 8.3 x 9.0	30.9
07	21.9 x 10.6 x 11.0	61.7
08	31.7 x 12.2 x 11.4	114.6
09E	39.8 x 12.2 x 11.4	101.4
09A	43.6 x 12.2 x 11.4	146.6

Additional distance should be added to the height dimension (H) when the AI options are fitted.



Heavy Duty Ratings:	0.33 HP to 150 HP (0.25 kW to 110 kW)
Normal Duty Ratings:	0.33 HP to 200 HP (0.25 kW to 132 kW)
Supply phases:	Frame size 1 and 2: 115 V drives 1Ø, 230 V drives 1Ø or 3Ø; Frame size 7 and larger 3Ø; 460, 575 and 690 V drives 3Ø
Control connections:	3x Analog I/O, 5x Digital I/O, 2x STO, 1x Relay
Drive rating:	IP21 / UL open class as standard
Keypad:	Fixed LED
Option slots:	1 (frame size 2 and above)
Parameter cloning via:	PC tools, SD card

Visit [www.Drive-Setup.com](http://www.Drive-Setup.com) for step-by-step guides, videos, software & product support documentation.

## How to select a drive

(Consult online catalog for complete drive information)

### 1. Electrical Considerations

- What is the supply voltage?
- Single or 3Ø input power?
- What is the motor rating?
  - Continuous current – FLA (Full Load Amps)
  - Select the drive based on motor Amps rather than horsepower

### 2. Load Type (choose one)

- Normal Duty: Peak current is 110% of drive rating (fans, pumps, etc.)
- Heavy Duty: Peak current is 180% (mixers, conveyors, etc.)

### 3. Drive Mechanical Mounting

- Panel mounting – as standard
- Wall mounting – UL conduit kits are available
- Through panel mounting – frames 5 and up



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