GENERAL PURPOSE DRIVES

COMMANDER C200 | C300

COMMANDER C

SIMPLE, RELIABLE MOTOR CONTROL

0.25kW - 132kW (0.33 hp to 200hp) 100V | 200V | 400V | 575V | 690V

The new Commander C series has been designed to be a simple and reliable AC motor speed controller that meets advanced requirements in a wide range of applications and provides optimum user experience.

Applications:

Pumping, Ventilating & Compressing

Conveying

Lifting, Hoisting & Winching

Access Control

Processing
(Mixers, Crushers, Agitators, Centrifuges, Extruders)

Free 5 year warranty

The Commander C series has a highly robust design to cope with harsh environments. It has proven exceptionally reliable and we feel so assured about this that we have given it a free 5 year warranty.

Now you can buy with the same confidence.

Warranty terms and conditions apply.

KEY GENERAL PURPOSE FUNCTIONS

Function		Function	
Jog	✓	Supply loss detection	✓
Bi-polar reference	✓	Low DC link operation	✓
Pre-set speeds	8	Analogue input control	✓
Preset timer	✓	Analogue output control	✓
Skip frequencies	3	Temperature monitoring	✓
Skip frequency dead bans	✓	Digital input control	✓
Local/Remote	✓	Digital output control	✓
S-Ramp	✓	Relay control	✓
Acceleration Rates	✓	Mechanical Brake Controller	✓
Deceleration Rates	8	Keypad button assignment	✓
Pulse train frequency reference	0 - 100kHz	Motorised pot	✓
Torque reference	✓	Logic function control	✓
Control mode: Linear V/f	✓	Timer function control	✓
Control mode: Quadratic V/f	✓	Limit switch control	✓
Control mode: Dynamic V/f	✓	Variable selector	✓
Control mode: Set Point V/f	✓	PID Control	✓
Stator resistance compensation	✓	Energy meter	✓
Slip compensation	✓	Trip time stamping	✓
Auto-tune static	✓	Trip logging	8
Auto-tune rotating	✓	Run time log	✓
Catch a spinning motor	✓	Control word control	✓
Stop mode: Ramp	✓	Auto reset	✓
Stop mode: Coast	✓	Cloning	✓
Stop mode: Fast Ramp	✓	On-board PLC	30kb
DC injection braking	✓	Additional Application parameters	64
Programmable braking	✓	Second motor set-up	✓
Motor Pre-heat control	✓	Speed feedback via options	✓

SPECIFICATION

Environment	
Ambient Operating Temperature	Size 1 - 4: -20°C to 40°C (-4°F to 104°F) @ 3 kHz switching freq. | Operation to 60°C (140°F) with de-rating Size 5 - 9: -20°C to 40°C (-4°F to 104°F) @ 3 kHz switching freq. | Operation to 55°C (131°F) with de-rating
Cooling method	Forced convection
Humidity	95 % non-condensing at 40 °C (104 °F)
Storage Temperature	Size 1 - 4: -40°C to 60°C (-40°F to 140°F) — 24 months Max. Size 5 - 9: -40°C to 55°C (-40°F to 131°F) — 24 months Max.
Altitude	De-rate the continuous output current by 1% for every 100 m (328 ft) above 1000 m (3,280 ft) to a maximum of 3000 m (9,840 ft)
Vibration	Tested in accordance with IEC 60068-2-64 and IEC 60068-2-6
Mechanical Shock	Tested in accordance with IEC 60068-2-27 and IEC 60068-2-29
Enclosure Rating	IP20, NEMA 1 conduit kits available
Electromagnetic Capability	IEC/ EN 61800-3 Immunity and Emissions EN 61000-6-2: Immunity for industrial environments EN 61000-6-4: Emissions for industrial environments EN 61000-3-2: Harmonic current emissions An EMC data sheet is available on request
RoHS	Complies with the Restriction of Hazardous Substances Directive (2011/65/EU)

AC Supply Requirements		
Voltage	100 V models: 100 to 120 Vac ±10% 200 V models: 200 to 240 Vac ±10% 400 V models: 380 to 480 Vac ±10%	575 V models: 500 to 575 V+/-10% 690 V models: 500 to 690 V=/-10%
Phases	1Ø and 3Ø (Model dependent)	
Maximum Supply Imbalance	2% negative phase sequence, 3% voltage imbalance between phases	
Input Frequency	45 to 66 Hz	
Input Displacement Power Factor	0.97	
Switching Frequency	Size 1 - 4: 0.667, 1, 2, 3, 4, 6, 8 12 & 16 kHz Size 5 - 9: 2, 3, 4, 6, 8 12 & 16 kHz	
Output Frequency Range	0 to 550 Hz	
Frequency Accuracy	±0.02% of full scale	
Frequency Resolution	0.01 Hz	
Analog Input Resolution	Voltage mode: 11 bits (unipolar) Current mode: 11 bits	
Braking	Dynamic braking transistor included, requires external resistor	

Protection			
DC Bus Undervoltage Trip	100 V models: 175 Vdc 200 V models: 175 Vdc	400 V models: 330 Vdc 575 V models: 435 Vdc	690 V models: 435 Vdc
DC Bus Overvoltage Trip	**Frame sizes 1 - 4:** 100 V models: 510 Vdc	200 V models: 510 Vdc	400V models: 870 Vdc
	Frame size 5 - 9: 200V models: 415 Vdc 400 V models: 830 Vdc	575 V models: 990 Vdc 690 V models: 1190 Vdc	
Drive Overload Trip	Programmable: Default settings: 180% for 3s, 150% for 60s		
Instantaneous Overcurrent Trip	220% of rated motor current		
Phase Loss Trip	DC bus ripple threshold exceeded		
Over-temperature Trip	Drive heatsink temperature exceeds 95°C (203°F)		
Short Circuit Trip	Protects against output phase-to-phase fault		
Ground Fault Trip	Protects against output phase-to-ground fault		
Motor Thermal Trip	Electronically protects the motor from overheating due to loading conditions		

Approval & Listings	
UL, cUL	UL file NMMS/8: E171230
CE	CE approval
EU	These products comply with the Restriction of Hazardous Substances Directive (2011/65/EU), the Low Voltage Directive (2014/35/EU) and the Electromagnetic Compatibility Directive, (2014/30/EU).
RCM	RCM Registered supplier No. 12003815281
ISO	Manufacturing facilities comply with ISO 9001:2015 and ISO 14001
TÜV	C300 models only: The Safe Torque Off (STO) function may be used as a safety component of a machine. Type examination certificates by TÜV Rheinland: Frame sizes 1 - 4: No. 01/205/5383.03/18 Frame sizes 5 - 9: No. 01/205/5387.02/18 Functional safety parameters: EN ISO 13849-1 - Cat 4, PLe EN61800-5-2/EN62061/IEC 61508 - SIL 3 UL functional safety approval: FSPC E171230
EAC	RU C-GB.HA10.B.01062

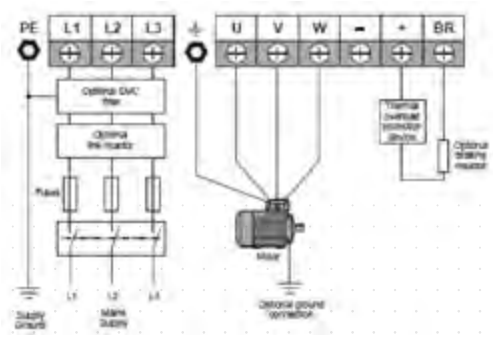
Documentation & Downloads

Product documentation and PC tools available for download from:
www.controltechniques.com/support

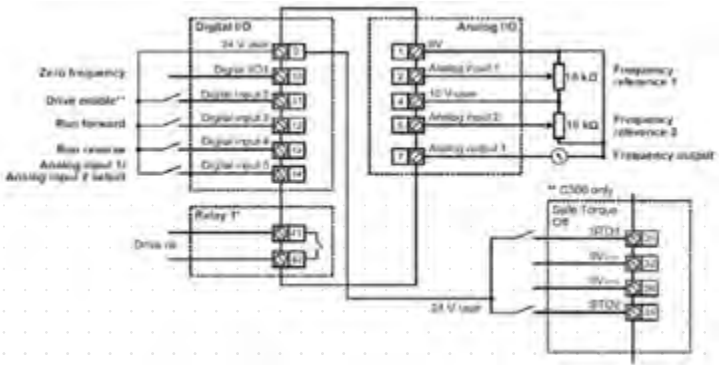
DIMENSIONS

Frame Size	Overall Dimensions						Mounting Dimensions				Mounting Hole Diameter		Weight	
	mm			in			mm		in		mm	in	kg	lb
	H	W	D	H	W	D	H	W	H	W				
1	160	75	130	6.3	2.95	5.1	143	53	5.7	2.08	5	0.2	0.75	1.65
2	205	75	150	8.07	2.95	5.9	194	55	7.63	2.17	5	0.2	1.3	3
3	226	90	160	8.9	3.54	6.3	215	70.7	8.46	2.8	5	0.2	1.5	3.3
4	277	115	175	10.9	4.5	6.9	265	86	10.43	3.4	6	0.23	3.13	6.9
5	391	143	200	15.39	5.63	7.87	375	106	14.76	4.17	6.5	0.26	7.4	16.3
6	291	210	227	15.39	8.27	8.94	378	196	14.88	7.72	7	0.28	14	30.9
7	557	270	280	21.93	10.63	11.02	538	220	21.18	8.66	9	0.35	28	61.7
8	804	310	290	31.65	12.21	11.42	884	259	30.87	10.2	9	0.35	52	114.6
9E	1069	310	290	42.09	12.21	11.42	1051	259	41.38	10.2	9	0.35	46	101.4
9A	1108	310	290	43.62	12.21	11.42	1090	259	42.91	10.2	9	0.35	66.5	146.6

CONNECTIONS



Typical Power Connections



Default Control Connections

PART NUMBERS

C200	03	4	0073	A	10 1	00	AB 100
Drive Range C200 - The lead product for the Commander range C300 - As C200 + Dual STO	**Frame Size**	**Voltage Rating** 1 = 100 V 2 = 200 V 4 = 400 V 5 = 575 V 6 = 690 V	**Heavy Duty Current Rating x 10**	**A -** Internal Line Choke **E -** External Line Choke Required	**CT Reserved**	**Default Setting** 00 - CT Default 01 - US Default	**Product Variant** AB 100 - Standard

Note: For the STO variants just replace the C200 digits at the start of the part number with C300.

ORDERING GUIDE

How to select a drive

Electrical Considerations

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

Drive Mechanical Mounting

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

MODEL NUMBER AND RATINGS

100/200 VAC +/-10%

Product Code	Size	Input Phases	Heavy Duty			Normal Duty		
			Max Cont. Current (A)	Motor Power (kW)	Motor Power (HP)	Max Cont. Current (A)	Motor Power (kW)	Motor Power (HP)
C200-01100017A10100AB100	01	1	1.7	0.25	0.33	For Normal Duty applications, use Heavy Duty ratings.		
C200-01100024A10100AB100	01	1	2.4	0.25	0.5			
C200-02100042A10100AB100	02	1	4.2	0.75	1			
C200-02100056A10100AB100	02	1	5.6	1.1	1.5			

200/240 VAC +/-10%

Product Code	Size	Input Phases	Heavy Duty			Normal Duty		
			Max Cont. Current (A)	Motor Power (kW)	Motor Power (HP)	Max Cont. Current (A)	Motor Power (kW)	Motor Power (HP)
C200-01200024A10100AB100	1	1	2.4	0.37	0.5	For Normal Duty applications, use Heavy Duty ratings.		
C200-01200033A10100AB100	1	1	3.3	0.55	0.75			
C200-01200042A10100AB100	1	1	4.2	0.75	1			
C200-02200024A10100AB100	2	1 | 3	2.4	0.37	0.5			
C200-02200033A10100AB100	2	1 | 3	3.3	0.55	0.75			
C200-02200042A10100AB100	2	1 | 3	4.2	0.75	1			
C200-02200056A10100AB100	2	1 | 3	5.6	1.1	1.5			
C200-02200075A10100AB100	2	1 | 3	7.5	1.5	2			
C200-03200100A10100AB100	3	1 | 3	10	2.2	3			
C200-04200133A10100AB100	4	1 | 3	13.3	3	3			
C200-04200176A10100AB100	4	3	17.6	4	5			
C200-05200250A10100AB100	5	3	25	5.5	7.5	30	7.5	10
C200-06200330A10100AB100	6	3	33	7.5	10	50	11	15
C200-06200440A10100AB100	6	3	44	11	15	58	15	20
C200-07200610A10100AB100	7	3	61	15	20	75	18.5	25
C200-07200750A10100AB100	7	3	75	18.5	25	94	22	30
C200-07200830A10100AB100	7	3	83	22	30	117	30	40

C200-08201160A10100AB100	8	3	116	30	40	149	37	50
C200-08201320A10100AB100	8	3	132	37	50	180	45	60
C200-09201760A10100AB100	9	3	176	45	60	216	55	75
C200-09202190A10100AB100	9	3	219	55	75	266	75	100
C200-09201760E10100AB100	9	3	176	45	60	216	55	75
C200-09202190E10100AB100	9	3	219	55	75	266	75	100
C200-02200056A10100AB100	2	1 | 3	5.6	1.1	1.5	For Normal Duty applications, use Heavy Duty ratings.		
C200-02200075A10100AB100	2	1 | 3	7.5	1.5	2			
C200-03200100A10100AB100	3	1 | 3	10	2.2	3			
C200-04200133A10100AB100	4	1 | 3	13.3	3	3			
C200-04200176A10100AB100	4	3	17.6	4	5			
C200-05200250A10100AB100	5	3	25	5.5	7.5	30	7.5	10
C200-06200330A10100AB100	6	3	33	7.5	10	50	11	15
C200-06200440A10100AB100	6	3	44	11	15	58	15	20
C200-07200610A10100AB100	7	3	61	15	20	75	18.5	25
C200-07200750A10100AB100	7	3	75	18.5	25	94	22	30
C200-07200830A10100AB100	7	3	83	22	30	117	30	40
C200-08201160A10100AB100	8	3	116	30	40	149	37	50
C200-08201320A10100AB100	8	3	132	37	50	180	45	60
C200-09201760A10100AB100	9	3	176	45	60	216	55	75
C200-09202190A10100AB100	9	3	219	55	75	266	75	100
C200-09201760E10100AB100	9	3	176	45	60	216	55	75
C200-09202190E10100AB100	9	3	219	55	75	266	75	100

380/480 VAC +/-10%

Product Code	Size	Input Phases	Heavy Duty			Normal Duty		
			Max Cont. Current (A)	Motor Power (kW)	Motor Power (HP)	Max Cont. Current (A)	Motor Power (kW)	Motor Power (HP)
C200-02400018A10100AB100	2	3	1.8	0.55	0.75	For Normal Duty applications, use Heavy Duty ratings.		
C200-02400023A10100AB100	2	3	2.3	0.75	1			
C200-02400032A10100AB100	2	3	3.2	1.1	1.5			
C200-02400041A10100AB100	2	3	4.1	1.5	2			
C200-03400056A10100AB100	3	3	5.6	2.2	3			
C200-03400073A10100AB100	3	3	7.3	3	3			
C200-03400094A10100AB100	3	3	9.4	4	5			
C200-04400135A10100AB100	4	3	13.5	5.5	7.5			
C200-04400170A10100AB100	4	3	17	7.5	10			
C200-05400270A10100AB100	5	3	27	11	20	30	15	20
C200-05400300A10100AB100	5	3	30	15	20	30	15	20
C200-06400350A10100AB100	6	3	35	15	25	38	18.5	25
C200-06400420A10100AB100	6	3	42	18.5	30	48	22	30
C200-06400470A10100AB100	6	3	47	22	30	63	30	40
C200-07400660A10100AB100	7	3	66	30	50	79	37	50
C200-07400770A10100AB100	7	3	77	37	60	94	45	60
C200-07401000A10100AB100	7	3	100	45	75	112	55	75
C200-08401340A10100AB100	8	3	134	55	100	155	75	100
C200-08401570A10100AB100	8	3	157	75	125	184	90	125
C200-09402000A10100AB100	9	3	200	90	150	221	110	150
C200-09402240A10100AB100	9	3	224	110	150	266	132	200
C200-09402000E10100AB100	9	3	200	90	150	221	110	150
C200-09402240E10100AB100	9	3	224	110	150	266	132	200

500/575 VAC +/-10%

Product Code	Size	Input Phases	Heavy Duty			Normal Duty		
			Max Cont. Current (A)	Motor Power (kW)	Motor Power (HP)	Max Cont. Current (A)	Motor Power (kW)	Motor Power (HP)
C200-05500040A10100AB100	5	3	4	2.2	3	6.1	4	5
C200-05500069A10100AB100	5	3	6.9	4	5	10	5.5	7.5
C200-06500100A10100AB100	6	3	10	5.5	7.5	12	7.5	10
C200-06500150A10100AB100	6	3	15	7.5	10	17	11	15
C200-06500190A10100AB100	6	3	19	11	15	22	15	20
C200-06500230A10100AB100	6	3	23	15	20	27	18.5	25
C200-06500290A10100AB100	6	3	29	18.5	25	34	22	30
C200-06500350A10100AB100	6	3	35	22	30	43	30	40
C200-07500440A10100AB100	7	3	44	30	40	53	37	50
C200-07500550A10100AB100	7	3	55	37	50	73	45	60
C200-08500630A10100AB100	8	3	63	45	60	86	55	75
C200-08500860A10100AB100	8	3	86	55	75	108	75	100
C200-09501040A10100AB100	9	3	104	75	100	125	90	125
C200-09501310A10100AB100	9	3	131	90	125	150	110	150
C200-09501040E10100AB100	9	3	104	75	100	125	90	125
C200-09501310E10100AB100	9	3	131	90	125	150	110	150

500/690 VAC +/-10%

Product Code	Size	Input Phases	Heavy Duty			Normal Duty		
			Max Cont. Current (A)	Motor Power (kW)	Motor Power (HP)	Max Cont. Current (A)	Motor Power (kW)	Motor Power (HP)
C200-07600240A10100AB100	7	3	24	18.5	25	30	22	30
C200-07600290A10100AB100	7	3	29	22	30	36	30	40
C200-07600380A10100AB100	7	3	38	30	40	46	37	50
C200-07600440A10100AB100	7	3	44	37	50	52	45	60
C200-07600540A10100AB100	7	3	54	45	60	73	55	75
C200-08600630A10100AB100	8	3	63	55	75	86	75	100
C200-08600860A10100AB100	8	3	86	75	100	108	90	125
C200-09601040A10100AB100	9	3	104	90	125	125	110	150
C200-09601310A10100AB100	9	3	131	110	150	150	132	175
C200-09601040E10100AB100	9	3	104	90	125	125	110	150
C200-09601310E10100AB100	9	3	131	110	150	150	132	175