

Commander SL

Simplicity with Economy

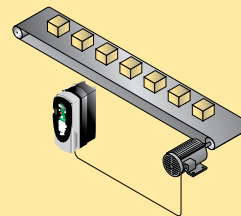
The economical Commander SL is ideal for simple applications where cost is critical and only basic operation is required. The Commander SL operates in V/Hz and open loop vector modes. It has an easy to use LED display keypad for quick setup. The Commander SL also comes with the reliability and performance users have come to expect from more powerful and flexible drives from Control Techniques.



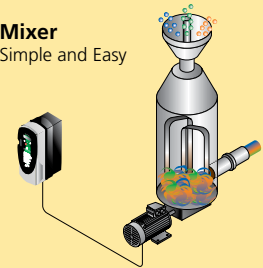
TYPICAL APPLICATIONS

- 0.3 to 3 hp (.25 to 2.2 kW), 1Ø 200-240 VAC
- 0.5 to 5 hp (0.37 to 3.72 kW), 1Ø, 3Ø 380-480 VAC
- Easy to set-up – all the parameters you need (90% of typical applications) are printed on the front
- Easy installation – choose between simple panel mounting and DIN-rail mounting (up to 2 hp)
- Simple connections – easy access terminals with clear marking
- Simple start-up – easy push button set-up - no need for complex programming
- Performance – V/Hz or high performance open loop vector
- Output frequency 0 to 1,500 Hz
- Acceleration and deceleration ramps
- Switching frequency 3 (default), 6, 12, and 18 kHz
- Positive logic control
- Catch a spinning motor
- Power loss ride through
- Easy commissioning pack allows OEMs fast commissioning of multiple drives

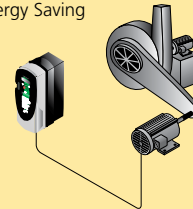
Conveyor
Smooth Acceleration



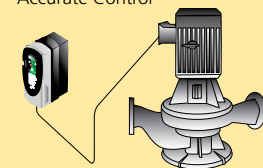
Mixer
Simple and Easy



Fan
Energy Saving



Pump
Accurate Control



FEATURE

Performance Advantage

Powers up in Simple V/Hz Mode

Easy to use. Ready to run out of the box.

5 Operator Buttons; Mode, Up, Down, Stop/Reset and Start. Bright LED Display

Easy to program and use.

Top Ten Level 1 Parameters Listed on the Drive's Front Cover

On-the-spot easy reference for drive set-up and maintenance. Parameters can be locked for read only access.

Access to Additional Parameter Level

Customizes the drive to meet each user's needs: simple (level 1) or flexible (level 2). 30 set-up parameters and 17 diagnostic parameters.

Configurable Analog and Digital I/O

Customizes drive to the specific application. 3 digital input terminals (not stop, run, jog). 1 configurable (speed, load, current or power) analog output terminal and 1 analog input (analog input 0-10V or 4-20 mA).

Comprehensive Diagnostics

3 display alarm codes, 11 trip codes and 4 trip history.

Capable Control Features

4 preset speeds, 5 stopping modes including DC injection braking. Catch a spinning motor algorithm.

Quadratic Motor Flux V/Hz

Optimizes fan and pump operation.

Dynamic Motor Flux V/Hz

Optimizes energy savings.

Open Loop Vector Control with True Space Vector Modulation

Precise control algorithm provides full torque down to 1 Hz for exceptional performance.

Static Auto-tune (open loop vector)

Allows motor / drive optimization without motor shaft rotation.

COMMANDER SL RATINGS

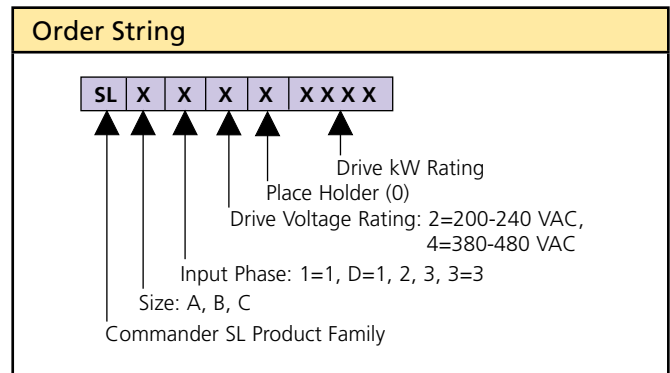
200 / 240 VAC ±10%, 48-62 Hz					
Motor HP ① kW	Input Phase	Contin. Output Current (A)	Overload Current ② (A)	Size	Order Code
0.33 / 0.25	1	1.7	2.6	A	SLA1200025
0.50 / 0.37	1	2.2	3.3	A	SLA1200037
0.75 / 0.55	1	3.0	4.5	A	SLA1200055
1.0 / 0.75	1	4.0	6.0	A	SLA1200075
1.5 / 1.1	1 or 3	5.2	7.8	B	SLBD200110
2.0 / 1.5	1 or 3	7.0	10.5	B	SLBD200150
3.0 / 2.2	1 or 3	9.6	14.4	C	SLCD200220

380 / 480 VAC ±10%, 48-62 Hz					
Motor HP ③ kW	Input Phase	Contin. Output Current (A)	Overload Current ② (A)	Size	Order Code
0.5 / 0.37	3	1.3	2.0	B	SLB3400037
0.75 / 0.55	3	1.7	2.6	B	SLB3400055
1.0 / 0.75	3	2.1	3.2	B	SLB3400075
1.5 / 1.1	3	2.8	4.2	B	SLB3400110
2.0 / 1.5	3	3.8	5.7	B	SLB3400150
3.0 / 2.2	3	5.1	7.7	C	SLC3400220
5.0 / 4.0	3	9.0	13.5	C	SLC3400400

① Motor horsepower based on typical 200 / 240 VAC four-pole motor ratings. Select model based on actual motor current rating.

② Overload: 150% for one minute

③ Motor horsepower based on typical 380 / 480 VAC four-pole motor ratings. Select model based on actual motor current rating.



COMMANDER SL SPECIFICATIONS

Environment

Ambient Operating Temperature	-10°C to 40°C (14°F to 104°F) @ 3 kHz carrier freq. Operation to 55°C (131°F) with de-rating
Cooling method	Convection and forced convection, model dependent
Humidity	95% maximum non-condensing at 40°C (104°F)
Storage Temperature	-40°C to 60°C (-40°F to 140°F) — 12 months Max.
Altitude	Derate the continuous output current by 1% for every 100 m (328 ft) above 1000 m (3280 ft) to a maximum of 4000 m (13,000 ft).
Vibration	Tested in accordance with IEC 68-2-64 and IEC 68-2-36
Mechanical Shock	Tested in accordance with IEC 68-2-29
Enclosure	IP20, NEMA 1 kits available
Electromagnetic Immunity	In compliance with EN61800-3 and EN50082-2

AC Supply Requirements

Voltage	200V models: 200 to 240 VAC ±10% 400V models: 380 to 480 VAC ±10%
Phase	1Ø and 3Ø (Model dependent)
Maximum Supply Imbalance	2% negative phase sequence 3% voltage imbalance between phases
Frequency	48 to 62 Hz
Input Displacement	0.97
Power Factor	

Control

Carrier Frequency	3, 6 12 & 18 kHz (Default value model dependent)
Output Frequency	Up to 1500 Hz
Frequency Accuracy	±0.01% of full scale
Frequency Resolution	0.1 Hz
Analog Input Resolution	10 Bit + sign
PC Connections	Modbus RTU via RJ45 connection (option)
Braking	DC injection braking standard. Dynamic braking not available

Protection

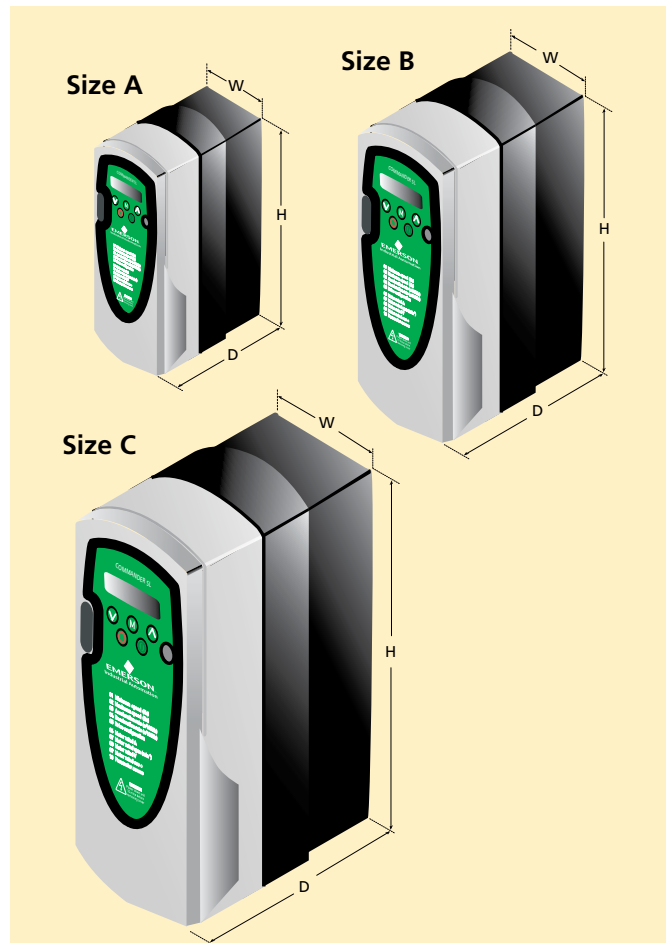
DC Bus Undervoltage Trip	200V model: 175 VDC (approximately 123 VAC line voltage) 400V model: 330 VDC (approximately 233 VAC line voltage)
DC Bus Overvoltage Trip	200V model: 415 VDC (approximately 253 VAC line voltage) 400V model: 830 VDC (approximately 587 VAC line voltage)
MOV Voltage Transient Protection	160 Joules, 1400 VDC clamping (Line to line and line to ground)
Drive Overload Trip	Current overload value is exceeded. Programmable to allow up to 150% of drive current for one minute.
Instantaneous Overcurrent Trip	215% of drive rated current

Phase Loss Trip	DC bus ripple threshold exceeded
Overtemperature 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

Approvals & Listings

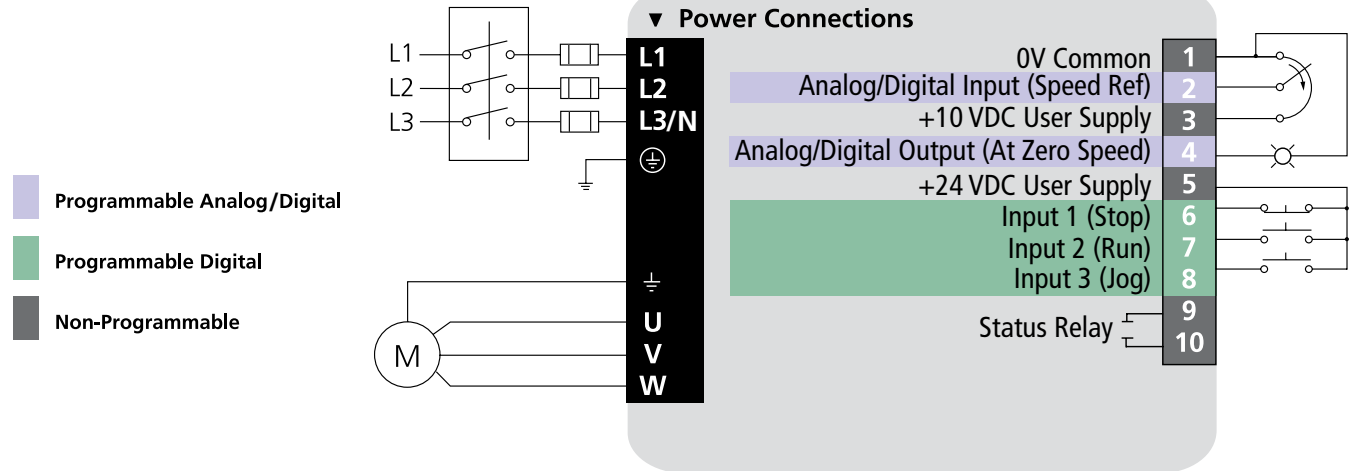
UL, cUL	UL File #E171230
CE	Designed for marking
C✓	N1652
ISO 9002	Certified Manufacturing Facility

COMMANDER SL DIMENSIONS



Drive Size	W		H		D	
	in	mm	in	mm	in	mm
A	2.95	75	5.5	140	5.71	145
B	3.35	85	7.48	190	6.14	156
C	3.93	100	9.45	240	6.81	173

COMMANDER SL TERMINAL DIAGRAM



TERMINAL DESCRIPTION

Pin#	Function ①	Type/Description	Notes
1	0V common	Common for external analog signals	
2	Analog input or digital input (speed reference)	Single ended analog input 10 bit or digital input	0 to +10 VDC or 4-20 mA or 24 VDC digital
3	+10 VDC User Supply	Reference supply	5 mA
4	Analog output or digital output (at zero speed)	Single ended analog output or digital output	0 to +10 VDC or 0 to +24 VDC
5	+24 VDC user supply	User supply	100 mA

Pin#	Function ①	Type/Description	Notes
6	Digital input (stop)	Digital input	0 to +24 VDC
7	Digital input (run)	Digital input	0 to +24 VDC
8	Digital input (jog)	Digital input	0 to +24 VDC
9	Status relay (drive healthy)	Normally open contact	240 VAC, 30 VDC
10			

① Values in parenthesis designate functions when #5=AV and #11=4. Drive default is keypad mode #5=PAD. Refer to getting started guide for details.

Commander SL

Options

Commander SL options include EMC filters that mount directly to the back of the drive or bookshelf style (on the side), conduit boxes and an Easy Commissioning Pack (order code 9500-0078).

OPTIONS AT-A-GLANCE

Option	Description	Order Code
Drive Configuration & Programming	Easy Commissioning Pack	9500-0078
	RS232/485 Cable	CT-COMMS-CABLE
	USB Cable	CT-USB-CABLE
Power Accessories	EMC Filters	See Power Accessories
Environmental Protection & Cable Management	Covers, Conduit Boxes and Nema 1 Kits	See AC Drive Options section



The Easy Commissioning pack consists of:

- 1 x EIA485 (RJ45) Comms Adaptor
- 1 x CD Rom containing Parameter tool software.

The software works with a PC Desktop or Laptop, allowing the user to commission and store parameter settings. CT-Comms-cable or CT-USB-cable are required for PC connection.

For complete product option descriptions please refer to the Options and Accessories section.