CONTROL TECHNIQUES

DESIGN AWARD 2022

COMMANDER S

MAKING SIMPLE APPLICATIONS, SIMPLE.

AC DRIVES, GENERAL PURPOSE

DRIVE OBSESSED

COMMANDER S

0.18 to 4 kW (0.25 to 5 hp)
1Φ 100 & 200 V, 3Φ 200 & 400 V
Linear V to F, Square V to F, Resistance Compensation

Take charge of motor control and energy savings with the latest addition to the Control Techniques portfolio. With a feature set optimised for simple applications, Commander S provides a cost-effective solution for installations that require plug and play convenience straight from the box.

Commander S is the first drive to come with an app interface as a standard feature. The Marshal app is our revolutionary way to interface with the drive covering commissioning, monitoring, diagnostics and support.

Easy to install

The sleek curved design of Commander S optimises component layout for a small footprint and easy access to terminals. The click-on/click-off DIN rail mount makes installation remarkably easy.

5 YEAR FREE WARRANTY

Free 5 year warranty*

Our Commander S series is built and verified to be robust. In fact, it is so reliable we are confident enough to supply it with a free five-year warranty.

***Warranty terms and conditions apply.**

Easy to use

Using our new Marshal app (Android/iOS) your drive can be configured in under 60 seconds.

Reliable

Durability is at the core of Commander S design, guaranteeing performance throughout its whole lifetime.

Cost effective

Equipped with unique features designed to save you time, energy and money.

GENERAL PURPOSE

MAKING SIMPLE APPLICATIONS, SIMPLE.

Fan, Pump, Compressor Applications

- Improved energy efficiency during periods of low demand
- PID functionality makes advanced control easy and efficient without the need of an external controller
- Easily avoid equipment resonant frequencies and reduce high vibration levels using the skip frequency
- Catch an already spinning motor to reduce start-up time and increase productivity
- Motor thermal protection prevents overheating of the motor during operation
- Fire mode maximize availability of a building's smoke extraction system in the event of a fire. Once activated the drive will run until failure

Moving Applications

conveyors, treadmills, automatic doors & barriers

- Reliable speed control with onboard communications
- S-ramp acceleration / deceleration profiling provides smooth speed transitions minimising machine jerk
- Linear V to F with a controllable boost to get the machine running
- Drive overload capacity up to 150% for rapid acceleration or load changes
- DC braking with stop indication used to stop the motor quickly

Processing Applications

mixers, crushers, agitators, centrifuges, kneaders, spinning & braiding machines for textile

- Ease of integration to external PLC or other management systems with on board communications
- Stability optimiser for improved motor control
- Resistance compensation for excellent torque performance
- Built-in EMC filter effectively reduces electromagnetic interference

MARSHAL

REVOLUTIONISE THE WAY YOU INTERFACE WITH YOUR DRIVE

Control Techniques has a long tradition of challenging the status-quo with innovative ideas and making a profound impact in the drives industry. And we've done it again with Marshal: Control Techniques is the 1st drive supplier to implement NFC technology as standard on a drive and offer the Marshal app interface at no extra cost.

Marshal is your drive expert in the field. This rich content interface means you can commission, clone, diagnose system issues and monitor the drive in just a few screen taps.

TAP: JUST BRING YOUR PHONE NEAR THE NFC LOGO TO CONNECT TO THE DRIVE

Download on the App Store

GET IT ON Google Play

Powered by NFC* technology, data transfer between the drive and mobile device takes less than 0.5s.

** NFC - Near Field Communication*

MARSHAL
YOUR DRIVE EXPERT IN THE FIELD

Commissioning

- Power off or on commissioning (even in the box)
- FastStart – assisted commissioning. Only 4 simple steps to get you up and running
- Advanced features available in parameter setting
- Pre-set application configurations

Cloning

- Parameters can be easily transferred from one drive to another - just tap to write as many drives as you want
- Back-up and restore drive configuration via the app

Share

- Share configuration via Outlook, OneDrive, WhatsApp etc.
- Shared configurations are compatible with Marshal & Connect (our PC commissioning tool)
- Export customised wiring diagram and drive configuration to PDF format

Offline capabilities

- Create new configurations in the app
- Open existing projects to review/change parameters

Diagnostics

- Guided diagnostics for the system even without drive alarms or errors
- Diagnostics available with power off or on
- Get support for drive alarms within the app
- Error log & active error diagnostics – view active and historic error info
- Differences from default – compare configuration against factory defaults

Registration

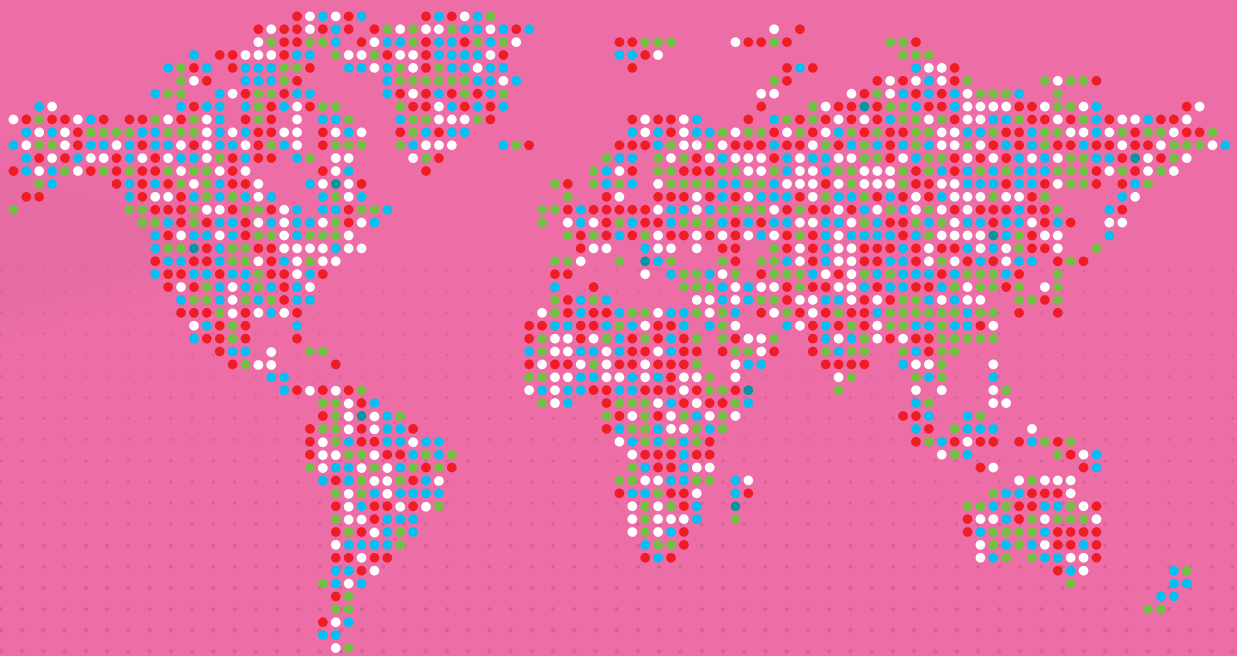
- Activate the 5 Year Warranty via the app
- Access & download support materials via your CT account

Monitoring and security

- Quick view of parameter settings & drive status
- Restrict access to drive configuration via PIN
- Quick visualisation of I/O, motor, and speed settings

Contact us

Access to worldwide distribution network and local drive centres for sales and technical support



COMMANDER S

Cost effective

- Intelligent fan control reduces energy usage
- Easy integration to automation via the onboard ModbusRTU
- Integrated C1 EMC filter variants can operate in EMC-sensitive environments such as residential areas, without requiring additional external filters
- Environmentally friendly – meets ECO design regulations

Easy to install

- Simple to fit with click on/click off DIN rail mounting
- Angled and offset screw terminal connectors for easy access and fast installation
- The small footprint and side-by-side installation saves cabinet space

Easy to use

- Marshal App interface enables drive set-up in only 60s
- Simple setup routines tailored to your application
- FastStart commissioning menu – only 4 simple steps to get your motor running
- Full flexibility in choosing your preferred interface; Marshal App, drive keypad, Connect PC Tool
- A PIN can be set on the drive or Marshal to restrict unwanted access

Reliable

- 100% conformal coating ensures moisture, corrosion and dust protection
- Free 5 Year Warranty gives peace of mind
- Latest generation of components from trusted suppliers, for robust performance and long term reliability
- Keep running by default allows for continuous run during unusual loadings or operating conditions

KEY USABILITY FEATURES

QR code to download Marshal app

Accessible NFC location for communicating with mobile app MARSHAL

Fixed display with 4 control buttons for quick and easy commissioning and monitoring drive performance

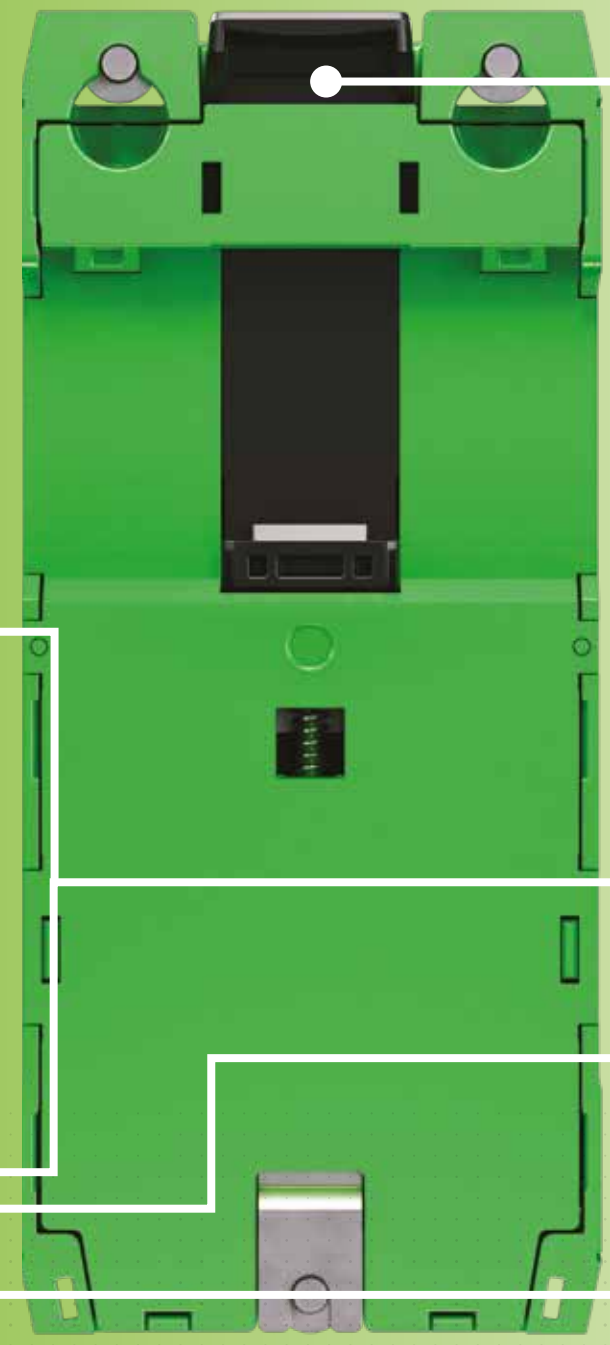
Drive identification information clearly marked

Rating information laser printed on the side of the drive

RJ45 connector for ModbusRTU communication

Angled and offset screw terminal connectors for easy access

Internal EMC filter to meet C3/C1 requirements. C3 filter can be disconnected if necessary.



Click-on/click-off DIN rail mounting

AND / OR

Installation with bolts with washer. Drive drops down into position for a secure installation

Finger proof power and relay screw terminals

Labelled power terminals

Ground / protective earth connections

FastStart

STEP BY STEP ASSISTANCE TO

Only 4 simple steps to get your motor running

1

Motor

Confirm/change motor information: voltage, current, rated speed, power factor

2

Control

Confirm/change control mode: via terminals or keypad

via your preferred interface

Full flexibility in choosing the interface: Marshal on your mobile phone, the integrated drive keypad or Connect on a PC.

Marshal
Recommended

Keypad

GET YOU UP AND RUNNING

3

Speed

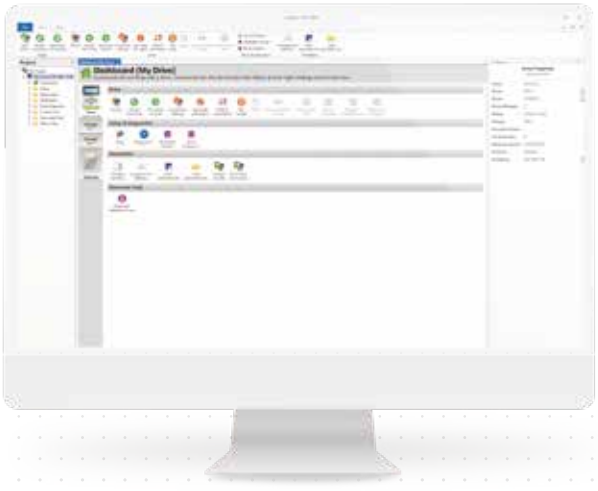
Confirm/change max & min speed and acceleration & deceleration time

4

GO!

Summary of settings.

Drive ready to run



Connect

Connect offers an easy way to commission the drive on your PC.

The dynamic drive logic diagrams allow the visualisation and control of the drive in real time. The parameter browser enables viewing, editing and saving of parameters as well as importing parameter files from other drives.

Connect is a one tool interface for all CT drives.

COMMANDER S

SPECIFICATIONS

Power & Control	
Supply Requirements	100 V drive: 100 V to 120 V ±10 % 200 V drive: 200 V to 240 V ±10 % 400 V drive: 380 V to 480 V ±10 % Maximum supply imbalance: 2 % negative phase sequence (equivalent to 3 % voltage imbalance between phases)
Power Range	0.18 to 4 kW / 0.25 to 5 hp
Supply Frequency Range	45 to 66 Hz
Output Frequency/Speed Range	0 to 300 Hz
Switching Frequency	4 kHz or 12 kHz
Heavy Duty Overload Capability	150 % for 60 s (from cold), 150 % for 8 s (from hot)
Operating Modes	Linear V to F, Square V to F, Resistance Compensation
Stopping Modes	Coast, Ramp, Ramp & DC Injection Braking, DC Injection Braking with 0 Hz detect, Timed DC Injection Braking, Distance Stop
Communication & Interfaces	
Communications	RJ45 for Modbus RTU, NFC for app interface
Keypads	Fixed LED keypad, Remote IP66 Keypad (available as an accessory) HMI (available as an accessory)
User Software Tools (Free To Download)	Marshal (Mobile App), Connect (PC commissioning tool)
Inputs & Outputs	
Analogue	2 x Analogue input Possible settings: 0-10 V, 0-20 mA, 4-20 mA (No Alarm), 4-20 mA (Alarm), 4-20 mA (Error), Digital 1 x Analogue output Possible settings: 0-10 V, 0-20 mA, 4-20 mA
Digital	4 x Digital inputs (1 frequency input) 1 x Digital input / output (can be used as a frequency or PWM output to represent analog value)
Digital Input Logic	Positive or Negative input logic (PNP or NPN sensors)
Relay	1 x Relay (single pole, double throw relay)
Resolutions	Output frequency resolution: 0.1 Hz Analogue input 1: 11 bit Analogue input 2: 11 bit Current: The resolution of the current feedback is 10 bit plus sign
Mounting & Environment	
IP Rating	IP20
Storage Temperature	-40 °C to 60 °C (-40 °F to 140 °F)
Operating Temperature Without De-Rate	-10 °C to 40 °C (14 °F to 104 °F)
Operating Temperature With De-Rate	-10 °C to 60 °C (14 °F to 140 °F)
Cooling	Natural convection (frame 1 ≤0.25 kW / 0.33 hp), Integral cooling fan (all other drives)
Altitude	≤3000 m (1000 m to 3000 m derate 1 % over 100 m)
Humidity	95 % non-condensing at 40 °C / 104 °F - EN61800-2(3k3)
Pollution	Pollution degree 2 - dry, non-conducting pollution only

Mounting & Environment continued	
Vibration	Tested to IEC 60068-2-6
Mounting Methods	Surface mount, click on/click off DIN rail mount
Mounting Clearance	0 mm either side, 45 mm above and below (100 mm above and below for frame 1 drives ≤0.25 kW / 0.33 hp)
Overvoltage Category	Category III (IEC/EN/KN/UL 61800-5-1)
Corrosive Environments	EN 60721-3-3 ISO9223 Class C3
Maximum Motor Cable Length	50 m (All variants)
Standards	
Approvals	CE, UKCA, cUL, C-Tick, EAC, KC
	
Product Safety Standards	IEC/EN/KN/UL 61800-5-1, CSA C22.2 No.274, GB12668.501-2013,
Product Emc Standards	IEC/EN/KN 61800-3 Adjustable speed electrical power drive systems, Part 3: EMC requirements and specific test methods GB12668.3-2012
Immunity Compliance	Second environment (Industrial)
Emission Compliance	Category C3 (internal filters only) Category C1 & C2 (external EMC filters) Category C1, (internal filters only, for selected 1Φ 200 V variants)
Generic Immunity Compliance	EN61000-6-1: Generic immunity standard for residential, commercial and light industrial environments EN 61000-6-2: Generic immunity standard for industrial environments
Generic Emission Compliance	EN 61000-6-4: Generic emission standard for industrial environments
Emission Compliance for Motor Cable Length up to 50 m	C2 with an external filter
Emission Compliance for Motor Cable Length up to 20 m	C1 with an external filter C3 without a filter
Emission Compliance for Motor Cable Length up to 5 m	C1 only for drive variants with internal C1 filter (S100-xxxx1)
Warranty	
Warranty	5 Years (warranty terms and conditions apply)
Accessories	
Remote Interfaces	Remote keypad IP66, HMI
Filters & Cables	EMC filter, Cable management bracket, CT comms cable
Environmental Protection	Fibre filter
Protection	
Conformal Coating	100 % Coverage nano-coating
DC Bus Undervoltage Error Level	100 V Drives= 175 V 200 V Drives = 175 V 400 V Drives = 330 V
DC Bus Overvoltage Error Level	100 V Drives = 400 V 200 V Drives = 400 V 400 V Drives = 800 V
Instantaneous Overcurrent Error/Limit	150 % Motor Rated Current (Programmable)
Phase Loss Error	DC Bus Ripple Threshold Exceeded
Overtemperature Error	Control Board Over Temperature, Inverter Model Temperature, Inverter Thermistor Temperature
Short Circuit Error	Protection against output phase-to-phase fault.
Motor Thermal Protection	Electronically protects the motor from over-heating due to loading conditions
Fire Mode	Run at a set frequency ignoring selected errors
Keep Running	Parameter defaults set to avoid errors and machine downtime.

COMMANDER S

FUNCTIONALITY

Marshal	
Offline Programming	Program the drive while it is still in the box
Cloning	Clone parameter sets from one drive to another
Faststart	Guided commissioning and motor rotation verification test
Guided Diagnostics	Easy fault finding
Parameter File Storage	Save parameter files to the device or cloud for future use
Share Project Configuration	Share to colleagues or to Control Techniques Technical Support for diagnostics
Pdf Parameter Set	Useful for sharing parameter sets for quick review
Wiring Diagram	Automatically generate a printable pdf of a custom wiring diagram for your installation
Non-Default Parameter	Show the parameters that have been changed from their default setting
Favourite Parameters	Favourite parameters visited often
Guides And Manuals	Quick access to drive documentation
Modbus RTU Communications	**Logic function control**
Control Word Control	✓
Cloning	✓
Serial Baud Rate	600 to 115200 bps
Modbus Rtu Protocol	8.2NP, 8.1NP, 8.1EP, 8.1OP
Reference	
Selectable References	4
Jog Reference	✓
Up / Down % Reference (Motorised Pot)	✓
Bi-Polar Reference	✓
Preset Speeds	4
Skip Frequencies	1
Skip Frequencies Dead Band	✓
Local/Remote	✓
S-Ramp	✓
Acceleration Rates	2
Deceleration Rates	2
Frequency Input Reference (Pulse Train)	0 Hz to 100 kHz
Run Reverse	✓

Application Specific	
PID Controller	PI Control
PID Feedforward	✓
PID Threshold Detector	✓
PID Slew Rate	✓
Reference Configuration	✓
Run/Stop Configuration	✓
Input Scaling	4-point
Run Permit (Latching Run)	✓
Limit Switches	✓
Control	
Control Mode: Linear V to F	✓ (Definable Boost)
Control Mode: Square V to F	✓ (Definable Boost)
Control Mode: Resistance Compensation	✓
Low Energy Mode (Dynamic V to F)	✓
Motor Stability Optimiser	✓
Slip Compensation	✓
Auto-Tune: Static	✓
Switching Frequency	4 or 12 kHz
Catch An Already Spinning Motor	✓
Stop Mode: Ramp	✓
Stop Mode: Coast	✓
Stop Mode: Distance Stop	✓ when selected it stops in the same distance from any speed based on the programmed deceleration rate
Dc Injection Braking	✓
Supply Loss Detection	✓
Programmable Output Current Limit	✓
General	
Diagnostics	✓
Error History Log	4
Parameters Saved On Error	3 (Selectable)
Auto-Reset After Trip	✓
Power Loss Ride Through	✓
Security	4-digit PIN protection
Cooling Fan	Fixed Speed (No fan on S100-01x13 or S100-01x23 drives)

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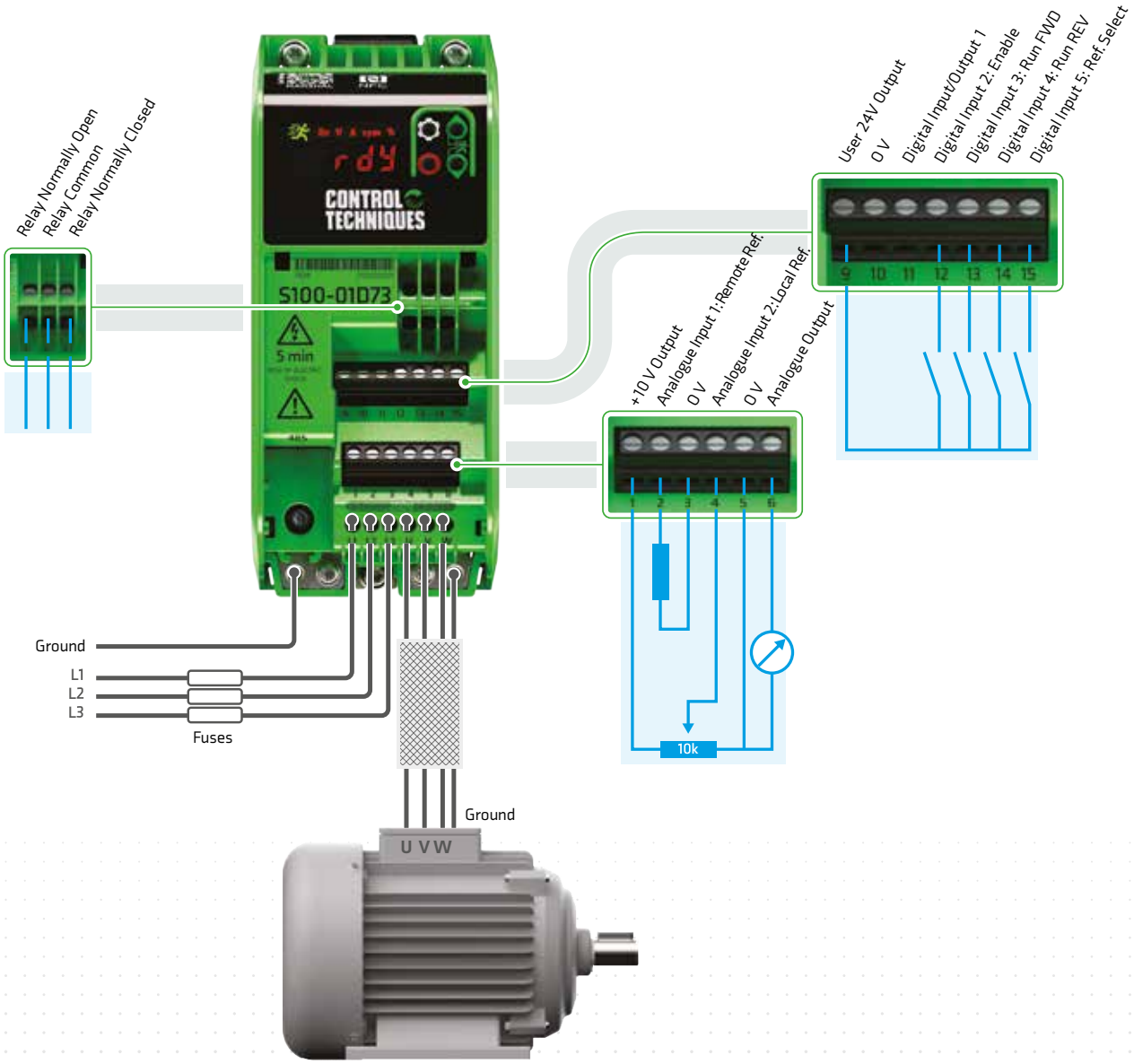
WIRING DIAGRAM



COMMANDER S

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)

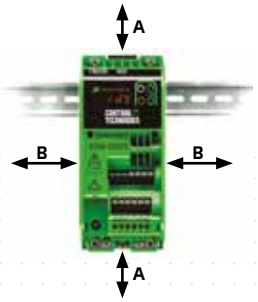
Frame 01 Frame 02 Frame 03

Dimensions

Model Number	Overall Dimensions (±0.5 mm)				Mounting Dimensions (±0.5 mm)					
	Height	Width	Depth	Weight	DIN*	M1	M2	M3	M4	Φ
S100-01	156 mm 6.14 in	68 mm 2.70 in	130 mm 5.12 in	0.7 kg 1.54 lb	46 mm 1.81 in	145 mm 5.71 in	45 mm 1.77 in	22.5 mm 0.89 in	22.5 mm 0.89 in	4.8 mm 0.19 in
S100-02	192 mm 7.56 in	68 mm 2.70 in	132 mm 5.20 in	0.8 kg 1.76 lb	46 mm 1.81 in	180 mm 7.11 in	45 mm 1.77 in	22.5 mm 0.89 in	22.5 mm 0.89 in	4.8 mm 0.19 in
S100-03	192 mm 7.56 in	90 mm 3.54 in	132 mm 5.20 in	1.0 kg 2.2 lb	46 mm 1.81 in	180 mm 7.11 in	65 mm 2.56 in	37.5 mm 1.48 in	27.5 mm 1.08 in	4.8 mm 0.19 in

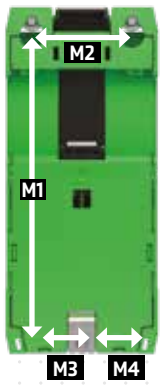
* No screws are required when mounting the drive onto a DIN rail.

Drive Clearances



Drive Clearances	S100-01x13, S100-01x23	All other drives
A	100 mm (3.94 in)	45 mm (1.77 in)
B	0 mm (0 in)	

Mounting Dimensions



Documentation and downloads

Product documentation and PC tools available for download from:

www.controltechniques.com/support

COMMANDER S

MODEL NUMBER AND RATINGS

Variants with C3 built-in EMC filter

Product Code	Input Phases	Frame Size	Internal EMC Filter Performance	Heavy Duty		
				Max Cont. Current (A)	Motor Shaft Power (kW)	Motor Shaft Power (hp)
100/120 Vac +/-10%						
S100-01113-0A0000	1	01	C3	1.2	0.18	0.25
S100-01123-0A0000	1	01	C3	1.4	0.25	0.33
S100-01133-0A0000	1	01	C3	2.2	0.37	0.5
S100-03113-0A0000	1	03	C3	3.2	0.55	0.75
S100-03123-0A0000	1	03	C3	4.2	0.75	1
S100-03133-0A0000	1	03	C3	6	1.1	1.5
200/240 Vac +/-10%						
S100-01S13-0A0000	1	01	C3	1.4	0.18	0.25
S100-01213-0A0000	3	01	C3	1.4	0.18	0.25
S100-01S23-0A0000	1	01	C3	1.6	0.25	0.33
S100-01223-0A0000	3	01	C3	1.6	0.25	0.33
S100-01S33-0A0000	1	01	C3	2.4	0.37	0.50
S100-01233-0A0000	3	01	C3	2.4	0.37	0.50
S100-01S43-0A0000	1	01	C3	3.5	0.55	0.75
S100-01243-0A0000	3	01	C3	3.5	0.55	0.75
S100-01S53-0A0000	1	01	C3	4.6	0.75	1
S100-01253-0A0000	3	01	C3	4.6	0.75	1
S100-01D63-0A0000	1	01	C3	6.6	1.1	1.5
	3	01	C3	6.6	1.1	1.5
S100-01D73-0A0000	1	01	C3	7.5	1.5	2
	3	01	C3	7.5	1.5	2
S100-03D13-0A0000	1	03	C3	10.6	2.2	3
	3	03	C3	10.6	2.2	3
380/480 Vac +/-10%						
S100-02413-0A0000	3	02	C3	1.2	0.37	0.5
S100-02423-0A0000	3	02	C3	1.7	0.55	0.75
S100-02433-0A0000	3	02	C3	2.2	0.75	1
S100-02443-0A0000	3	02	C3	3.2	1.1	1.5
S100-02453-0A0000	3	02	C3	3.7	1.5	2
S100-02463-0A0000	3	02	C3	5.3	2.2	3
S100-03413-0A0000	3	03	C3	7.2	3	3
S100-03423-0A0000	3	03	C3	8.8	4	5

*Commander S100 variants fitted with C3 EMC filter comply with IEC 61800-3 second environment. An additional external filter is required for Commander S100 variants fitted with C3 EMC filter to meet the higher requirements of IEC 61000-6-4 and IEC 61800-3 first environment.

The requirements of IEC 61000-6-4 and IEC 61800-3 first environment are met by Commander S100 variants fitted with C1 EMC filter without additional filtering.

Variants with C1 built-in EMC filter

Product Code	Input Phases	Frame Size	Internal EMC Filter Performance	Heavy Duty		
				Max Cont. Current (A)	Motor Shaft Power (kW)	Motor Shaft Power (HP)
200/240 Vac +/-10%						
S100-02S11-0A0000	1	02	C1	1.2	0.18	0.25
S100-02S21-0A0000	1	02	C1	1.4	0.25	0.33
S100-02S31-0A0000	1	02	C1	2.2	0.37	0.5
S100-02S41-0A0000	1	02	C1	3.2	0.55	0.75
S100-02S51-0A0000	1	02	C1	4.2	0.75	1
S100-02S61-0A0000	1	02	C1	6	1.1	1.5
S100-02S71-0A0000	1	02	C1	6.8	1.5	2

PRODUCT CODE STRUCTURE

S100- 01 4 2 3 - 0 A 0000

Series: S100-

Frame Size
01 – Frame 1
02 – Frame 2
03 – Frame 3

Voltage Rating & Input Phase
1 – 100V, 1Φ
2 – 200V, 3Φ
S – 200V, 1Φ
D – 200V, 1/3Φ
4 – 400V, 3Φ

Frame Size, Power Step 2

Built-in EMC Filter
1 - C1 Internal Filter
3 - C3 Internal Filter

Generation Reference
0 – 2022 Release

Regional Defaults
A – EMEA & APAC
B – America
C – LS
K – Customer Specific

Reserved 0000

Note: The listed ordering codes are for 50 Hz default setting. For 60 Hz default setting change the ending digits from 0A0000 to 0B0000.

ACCESSORIES ORDERING GUIDE

Remote Interface			Product Code
Remote Keypad IP66		Remote mountable, intuitive plain text, multilingual LCD keypad for rapid setup and helpful diagnostics from the outside of a panel. Meets IP66 (NEMA 4)	82500000000001
HMI		The MCh panels and MChMobile Software have been designed for the easy development of HMI applications including factory and building automation.	ESMART04-MCH040 ESMART07M-MCH070

Optional Extras			Product Code
Cable Management Bracket		Use of the optional cable management bracket allows the wiring cables to be neatly secured under the drive	3470-0207
Fibre Filter		The optional fibre filter allows the drive to operate efficiently even in environments prone to airborne fibres (e.g.: textile applications). Filter cleaning can be incorporated into the preventative maintenance cycle, lowering the risk of an unplanned outage.	3880-0008
RS485 Cable		The USB communications cable allows the drive to connect to the remote keypad, HMI, PLC or PC for use with Commander S PC tools.	4500-0096

Demo Cases	
Product Code	Description
7500-0173-00	Demo case fitted with Commander S, 100 V, 60Hz default setting
7500-0174-00	Demo case fitted with Commander S, 100 V, 60Hz default setting, with case
7500-0175-00	Demo case fitted with Commander S, 200 V, 50Hz default setting
7500-0176-00	Demo case fitted with Commander S, 200 V, 50Hz default setting, with case

Optional External Filters*

Commander S Product Code	Motor Shaft Power (kW)	Motor Shaft Power (hp)	Commander S Optional External EMC Filters Product Code	Commander S Optional External Low Leakage Filter Product Code	Alternative Commander C Filter** Product Code
100/120 Vac +/-10%					
S100-01113-0A0000	0.18	0.25	4200-0026	4200-0038	
S100-01123-0A0000	0.25	0.33	4200-0026	4200-0038	
S100-01133-0A0000	0.37	0.50	4200-0026	4200-0038	
S100-03113-0A0000	0.55	0.75	4200-0028	4200-0039	
S100-03123-0A0000	0.75	1	4200-0028	4200-0039	
S100-03133-0A0000	1.10	1.50	4200-0028	4200-0039	
200/240 Vac +/-10%					
S100-01S13-0A0000	0.18	0.25	4200-0026	4200-0038	4200-1000
S100-01213-0A0000	0.18	0.25	4200-0031	4200-0040	4200-2003
S100-01S23-0A0000	0.25	0.33	4200-0026	4200-0038	4200-1000
S100-01223-0A0000	0.25	0.33	4200-0031	4200-0040	4200-2003
S100-01S33-0A0000	0.37	0.50	4200-0026	4200-0038	4200-1000
S100-01233-0A0000	0.37	0.50	4200-0031	4200-0040	4200-2003
S100-01S43-0A0000	0.55	0.75	4200-0026	4200-0038	4200-1000
S100-01243-0A0000	0.55	0.75	4200-0031	4200-0040	4200-2003
S100-01S53-0A0000	0.75	1	4200-0026	4200-0038	4200-1000
S100-01253-0A0000	0.75	1	4200-0031	4200-0040	4200-2003
S100-01D63-0A0000	1.10	1.50	4200-0026 (1 ph) 4200-0032 (3 ph)	4200-0038 (1 ph) 4200-0040 (3 ph|)	4200-2001 (1 ph) 4200-2003 (3 ph)
S100-01D73-0A0000	1.50	2	4200-0026 (1 ph) 4200-0032 (3 ph)	4200-0038 (1 ph) 4200-0040 (3 ph)	4200-2001 (1ph) 4200-2003 (3ph)
S100-03D13-0A0000	2.20	3	4200-0028 (1 ph) 4200-0033 (3 ph)	4200-0039 (1 ph) 4200-0042 (3 ph)	4200-4000 (1ph) 4200-4002 (3ph)
380/480 Vac +/-10%					
S100-02413-0A0000	0.37	0.50	4200-0034	4200-0041	4200-2005
S100-02423-0A0000	0.55	0.75	4200-0034	4200-0041	4200-2005
S100-02433-0A0000	0.75	1	4200-0034	4200-0041	4200-2005
S100-02443-0A0000	1.10	1.50	4200-0034	4200-0041	4200-2005
S100-02453-0A0000	1.50	2	4200-0034	4200-0041	4200-2005
S100-02463-0A0000	2.20	3	4200-0034	4200-0041	4200-2005
S100-03413-0A0000	3	3	4200-0033	4200-0042	4200-3008
S100-03423-0A0000	4	5	4200-0033	4200-0042	4200-3008

*Commander S100 variants fitted with C3 EMC filter comply with IEC 61800-3 second environment. An additional external filter is required for Commander S100 variants fitted with C3 EMC filter to meet the higher requirements of IEC 61000-6-4 and IEC 61800-3 first environment.
The requirements of IEC 61000-6-4 and IEC 61800-3 first environment are met by Commander S100 variants fitted with C1 EMC filter without additional filtering.

**The alternative Commander C Filter does not support footprint mounting of the Commander S but does meet the levels specified in Table 10-4 with the following exception: The S100-01243 drive does not meet C1 at 4 kHz with a 20 m cable length.

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