

CONTROL TECHNIQUES



COMMANDER C300 PM

FLEXIBLE, EFFICIENT AND COST-EFFECTIVE
SENSORLESS PERMANENT MAGNET MOTOR CONTROL

DRIVE OBSESSED

YOUR GATEWAY TO HIGHER EFFICIENCY

COMMANDER C300 PM

0.25 kW - 132 kW (0.33 hp to 200 hp)

100 V | 200 V | 400 V | 575 V | 690 V

In today's world, energy efficiency and optimising resources are key concerns on everyone's minds. At Control Techniques we've been committed to empowering businesses with energy-efficient solutions for over 50 years. Commander C300 PM has been designed to augment the inherent high efficiency of sensorless permanent magnet (PM) motors, reducing running costs, while optimising the overall system performance.

Enhance System Performance and Longevity

While PM motors are already very efficient, their performance can be further elevated when paired with the Commander C300 PM. This synergy is significant in variable speed and load scenarios. The drive also provides precise control of motor speeds, adjusts to varying operating conditions, and reduces wear and tear to extend the lifespan of your equipment.

Stay Informed About Your Energy Savings

Experience the convenience of monitoring energy savings effortlessly with our built-in energy meter. Get detailed insights into energy usage in kilowatt hours and running costs, enabling informed decisions for efficient resource management. Stay in control and optimise your energy consumption with ease.

PUMPS

Sustainable and Highly Efficient Water Management

Commander C300 PM includes pump specific features such as built-in PID controller that adjusts the drive's performance in response to changes in pressure and flow. Its on-board PLC makes advanced control easy and practical, eliminating the need of an external controller.

The downloadable Solar Pump Solution provides eco-friendly, cost-effective control of water pumps in challenging environments and includes pump specific features for single and parallel configurations such as: dry run prevention, pump cleaning, no flow detection, pipe fill, tank full/well dry control and customisable units.

HVAC

Powering Efficiency, Savings, and Comfort

In HVAC installations Commander C300 PM can deliver energy reductions of up to 96% by matching the system's output to the actual demand. This ensures the HVAC system operates at optimal conditions, reducing energy waste, while air flow is closely monitored for enhanced environmental comfort.

The built-in Fire Mode feature maximises the availability of a building's smoke extraction in the event of a fire. Once activated the drive will run until failure.

KEY FEATURES



Adaptable to Your Application

- Extended functionalities available on-board to suit any application requirements
- 9 frame sizes up to 132kW / 200hp



All Essential Features Built-In

- Wide I/O selection
- Built-in PID Controller
- On-board PLC - 30KB user memory space
- Integrated functional safety



Compact Design

- One of the most compact drives within its category



Flexible Connectivity

- The plug-in communication modules enable integration with the most common industrial fieldbuses



Reliable

- Free 5 year warranty*
- Fire Mode

Technical Specifications

Power & Control	
Voltage	1Φ 100 V to 120 V ±10%
	1 & 3Φ 200 V to 240 V ±10%
	3Φ 380 V to 480 V ±10%
	3Φ 500 V to 575 V ±10%
	3Φ 500 V to 690 V ±10%
Power range	0.25 to 132 kW / 0.33 to 200 hp
Duty rating	Normal & Heavy Duty
Input frequency	45 to 66 Hz
Output frequency	0 to 550 Hz
Switching frequency	2, 3, 4, 6, 8 & 12 kHz
Motor control	Sensorless permanent magnet motor
Stopping modes	Coast, Ramp, No Ramp, Distance Stop
	Built-in braking transistor, external resistor required
Communication	
Communications	MODBUS RTU, EtherCAT, PROFIBUS, Ethernet, DeviceNet, CANopen, PROFINET, POWERLINK, BACnet IP, INTERBUS
PC Tools	Connect (PC commissioning & cloning tool)
	Machine Control Studio for on-board PLC programming
Programmable Inputs & Outputs	
Analogue	2 x Analogue inputs
	Analogue input 1 possible settings: 0-10 V, 0-20 mA, 4-20 mA (Hold), 4-20 mA (Low), 4-20 mA (Stop), 4-20 mA (Error)
	Analogue input 2 possible settings: 0-10 V, Digital
	1 x Analogue Voltage Output
	Possible settings: 0-10 V
Digital	4 x Digital inputs (1 x frequency input or thermistor input)
	1 x Digital input / output (can be used as a frequency or PWM output to represent analogue value)
Relay	1 x Relay (single pole, single throw)
Functional safety	Dual Safe Torque Off (STO), certified to SIL3/PLe and compliant to EN/IEC 61800-5-2
Extra I/O with SI-I/O Option Module (Available as an accessory)	3 x Analogue inputs (default) / Digital inputs programmable
	4 x Digital input / output programmable
	1 x Digital input 2 x Relays
Degree of Protection & Environment	
IP rating	IP20
	Conduit Box UL Type 1 ingress protection (available as an accessory)
Operating temperature	Without de-rate: -20 °C to 40 °C (-4 °F to 104 °F)
	With de-rate: -20 °C to 60 °C (-4 °F to 140 °F) Frames 1 to 4; -20 °C to 55 °C (-4 °F to 131 °F) Frames 5 to 9
EMC	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
	C3 class built-in EMC filter C1 & C2 class with external EMC filter
Compliance	
Standards	CE (European Union), cUL Listed (USA and Canada), DNV (marine applications), KC (Korea), RCM (Australia/ New Zealand),
	UKCA (United Kingdom), C-Tick (Australia), TÜV certification for functional safety
	RoHS Restriction of Hazardous Substances Directive (2011/65/EU)
	Manufacturing facilities comply with ISO 9001:2015 and ISO 14001



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