

# PG Drives Technology

## Combined AC / DC Motor Controller

### C3pump-CE

- All modern stacker truck functionality as standard
- 200Arms and 250Arms traction power options
- 330Adc series motor pump drive
- EN ISO 13849 Category 3 hardware architecture
- Dual microprocessors
- Dual inputs
- B+Safe high-side supply
- 5V and 12V supplies
- CANopen comms
- 35-way AMPSEAL connector
- Sealed to IPx5
- Designed to the requirements of EN ISO 13849, EN 1175-1 and UL 583
- CE marked as a safety component



The C3pump-CE from PG Drives Technology is the second in a new range of AC motor controllers designed specifically to the requirements of EN ISO 13849.

Featuring EN ISO 13849 Category 3 hardware architecture, including dual microprocessors, dual inputs and a dedicated B+Safe output, this extension to PGDT's high performing, compact and cost-effective C3-CE family will provide vehicle OEMs with one of the world's safest controllers for Class 3 trucks.

The C3pump-CE offers a combination of AC traction and DC pump drives, with all the specialist features needed for efficient and precise control of modern day stacker trucks.

The C3pump-CE features twelve dedicated digital inputs that can be individually switched to 0V, open-circuit, B+ or a combination of these options to provide the active state. Flexible, yet simple programming facilitates up to six dual paths for safety functions such as 'prevention of travel', 'tiller control' and 'speed limitation', all of which are listed in 'EN1175-1:1998+A1:2010 Safety of industrial trucks – Electrical requirements – Part 1: General requirements for battery powered trucks'. Single input, Category 2 architectures like those currently adopted by other controller suppliers, require

the safety function to be checked at 'machine start-up' and 'prior to the initiation of any hazardous situation'. For typical stacker trucks this is inconvenient and potentially dangerous. PGDT's Category 3 dual input design provides a safer and more convenient approach. The C3pump-CE also features two dual path analog inputs that accept multiple types of throttle connections, including 2- or 3-wire resistive and voltage, for maximum safety and wiring simplicity.

Four 2A outputs and one 3A output allow control of the line contactor, valves, plus an electro-magnetic brake. All outputs are protected against wiring errors and contain coil suppression circuits, meaning external diodes are not required. The C3pump-CE also incorporates an innovative B+Safe high-side coil supply that electrically isolates all of the low-side switches in the event of a hardware or safety function failure.

The innovative construction methods employed by the C3pump-CE ensure reliable and repeatable assembly of the electronic enclosure, which results in consistent protection of the electronic circuits from the environment and efficient transfer of heat to the baseplate. The design is compliant with all relevant international materials handling vehicle standards, e.g. EN1175-1 (EN ISO 13849), UL 583 etc.

## SPECIFICATIONS

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### ELECTRICAL

SUPPLY VOLTAGE	16-30Vdc
PEAK VOLTAGE	35Vdc
REVERSE BATTERY VOLTAGE	40Vdc
PWM FREQUENCY	10kHz
CONTACTOR OUTPUTS	3x 2A, protected
PROPORTIONAL VALVE OUTPUT	2A, PWM, protected
SOLENOID BRAKE OUTPUT	3A, protected
TRACTION MOTOR OUTPUT – 2 MINS	200Arms (C3pump-CE-200) 250Arms (C3pump-CE-250)
TRACTION MOTOR OUTPUT – 1 HR	80Arms min. (C3pump-CE-200) 100Arms min. (C3pump-CE-250)
PUMP MOTOR OUTPUT – 2 MINS	330Adc
PUMP MOTOR OUTPUT – 1 HR	130Adc min.

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### MECHANICAL

POWER CONNECTIONS	M6
CONTROL CONNECTOR	35-way AMPSEAL
LENGTH	192mm / 7.56"
WIDTH	188mm / 7.40"
HEIGHT	64mm / 2.52"

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### ENVIRONMENTAL

MOISTURE RESISTANCE	IPx5
OPERATING TEMPERATURE	-30°C to 55°C
STORAGE TEMPERATURE	-40°C to 70°C
EMC	Tested to EN12895

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## PRODUCT CODES

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### CONTROLLERS

C3PUMP-CE-200	200Arms traction drive + 330Adc pump drive
C3PUMP-CE-250	250Arms traction drive + 330Adc pump drive

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### DISPLAYS

iGAUGE	52mm diameter, LCD gauge
TRUCHARGE	10 segment, LED gauge

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### PROGRAMMERS

DTT	Diagnostic Test Tool, hand-held programmer
CAN PCP SERVICE	PC Programmer, service access
CAN PCP OEM	PC Programmer, OEM and manufacturing access

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