

500W, Rugged, Encapsulated DC/DC Converter for Heavy-duty Applications PDC 500 Series

- Rugged, field-proven design
- Fully encapsulation
- Conduction cooling
- Full electronic protection
- Wide temperature range
- Wide input ranges



This fully encapsulated, rugged, industrial quality, single output DC/DC converter uses field-proven technology to generate 500W output power. It is a mature product with a track-record in numerous applications. The converter is entirely potted with a thermally conductive MIL-grade silicon rubber compound to provide immunity to shock, vibration and humidity. Cooling is via baseplate by conduction. The unit was designed for continuous operation at 70°C with installation on appropriate size of heat-sinking surface. Full electronic protection, low component count, large design headroom, and the use of components with established reliability ensure high MTBF. The unit is suitable for transportation, mining, oilrigs, military and other harsh environments. Versions that are designed to meet EN 50155 railway specifications are also available. Optional alarms and a redundancy diode are available on custom versions. The converter is manufactured at our plant under strict quality control.

SPECIFICATIONS

Input Voltage

24Vdc (21V – 30V)
48Vdc (42V – 60V)
125Vdc (90V – 145V)
Consult factory for other voltages and ranges, including for railway

Input Protection

Inrush current limiting
Varistor
Reverse polarity protection
Internal safety fuse
Lower voltage than the specified input min. will not damage the unit

Isolation

1500Vdc input to chassis
2250Vdc input to output,
500VDC output to chassis
as a minimum

Standards

Designed to meet EN 60950-1 and corresponding UL and CSA standards.

EMI

EN 55022 Class A with margins

Switching Frequency

55kHz ±3kHz

Output Voltages

12Vdc/40A, 24Vdc/20A,
48Vdc/10A or 110Vdc/4.5A
Output is floating; either terminal can be grounded.
Consult factory for other outputs

Redundancy Diode

Not installed.
Available on custom versions

Line/Load Regulation

± 1% combined from zero load to full load

Dynamic Response

Max 5% voltage deviation for 10% to 50% load step, with better than 1msec recovery time

Output Ripple / Noise

Better than 0.2%Vrms or 1%Vpp of the output voltage (20MHz BW)

Output Overload Protection

Rectangular current limiting with short circuit protection (no hiccup)
Thermal shutdown with automatic reset in case of insufficient cooling

Output Overvoltage Protection

Double regulator loop

Efficiency

Output voltage dependent
Typically 80% at full load

Operating Temperature Range

-40°C to +70°C cold-plate temperature for full specification

Temperature Drift

0.03% per °C, over operating temperature range

Cooling

Conduction cooling via base plate to customer chassis or heat-sink

Environmental Protection

Full encapsulation with thermally conductive silicon potting compound with UL94V-0 flammability rating.
Meets environmental criteria as requested in MIL-810 C, D

Shock/Vibration

IEC 61373 Cat 1 A&B

Humidity

5 - 95% non-condensing

MTBF

140,000 hours at 45 °C
Demonstrated MTBF is significantly higher.

Indicators

None
Output 'ON' LED available as option

Control Input

None

Alarm Output

None
Available on custom versions

Package/Dimensions (W x H x L)

P 500: 138 x 65 x 257 mm (5.5" x 2.6" x 10.1") including terminal block and flanges
Mounting holes are clear

Weight

2.5 kg (5.5 lb)

Connections

10-pole barrier type terminal block

RoHS Compliance

Fully compliant

Warranty

Two years subject to application within good engineering practice.

Terminal Block Pin-out

| DC OUTPUT | | | | | | | DC INPUT | | |
|-----------|---|---|---|----------|----------|----------|----------|---|----|
| + | + | - | - | NOT USED | NOT USED | NOT USED | GND | - | + |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |



European Stocking Distributor
Phone: +41 44 730 33 53

Email: sales@hvps-condatas.com / www.hvps-condatas.com
Rietbachstrasse 7, 8952 Schlieren (ZH), Switzerland