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

The PDC 500 Series fully encapsulated single output DC/DC converter uses field-proven technology to generate 500W output power. It is conduction cooled via a base plate and is rated for full operation in the specified temperature range. The unit is entirely potted with a thermally conductive MIL-spec. silicon rubber compound for resistance against shock, vibration and humidity. The use of components with many years of established reliability and generous headroom results in a high MTBF. The unit is suitable for transportation, mining, oilrigs, military and other harsh environments. Versions to meet EN 50155 railway specifications are also available. Extra options including alarms and a redundancy diode are available on custom versions. A 600W version with 125Vdc input and 24Vdc or higher output is possible. The PDC 500 series 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 and related standards.

EMI
EN 55022 Class A with wide 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 voltages

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
Typically 82% at full load

Operating Temperature Range
-40 to +70°C cold-plate temperature for full specification
Extended temperature range available

Temperature Drift
0.03% per °C over operating temperature range

Cooling
Conduction cooling via base plate to customer chassis or heat-sink (cold plate)

Environmental Protection
Full encapsulation with thermally conductive silicon potting compound with UL94V-0 flammability rating.

Shock/Vibration
Meets requirements of IEC 61373 Cat 1 A&B and Cat 2 as a minimum.

Humidity
5 - 95% non-condensing

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

Indicators
None
Optional "Output ON" LED available

Control Input
None

Alarm Output
None
Available on custom versions

Package/Dimensions (W x H x L)
P 500: 140 x 76 x 257 mm
(5.5" x 3" x 10.1") including terminal block and flanges
Mounting holes are clear

Weight
3.5 kg (8 lb)

Connections
10-pole barrier type terminal block

RoHS Compliance
Fully compliant

Warranty
Two years subject to application within good engineering practice.

Enhancements to these general specifications can be accommodated upon request. Specifications subject to change.

Designer and manufacturer of quality converters, inverters, UPS systems, complete rack mount systems and DC-input fluorescent lamp inverters since 1982. Custom or standard. Absopulse is a BABT-approved Facility

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