

400-500W, Rugged, Encapsulated DC-DC Converter for Heavy Duty Applications

PDC 500-P500 Series



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

This fully encapsulated, industrial quality, DC-DC converter uses field-proven technology to generate the required 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 by conduction via a baseplate to a heat-sinking surface. 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 EN50155 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 (42 – 60V)
72Vdc (42-110V)
125Vdc (95 – 140V)
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 55032 Class A with margins

Switching Frequency

55kHz ±3kHz

Output Voltages

12Vdc/35A, 24Vdc/20A,
48Vdc/10A or 125Vdc/4A
Output is floating, either terminal
can be grounded
Consult factory for other voltages

Redundancy Diode

None
Available on request

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

Continuous current limiting with
short circuit protection
Current limit typically set for 110%
of nominal output current
Thermal shutdown with automatic
reset in case of insufficient cooling

Output Overvoltage Protection

Double regulator loop
Typically set at 120% of nominal
output voltage

Efficiency

Min. 80% at full load

Operating Temperature Range

-40 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
(cold plate)

Environmental Protection

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

Shock/Vibration

IEC 61373 Cat 1 A&B

Humidity

5 - 95% non-condensing

MTBF

145,000 hours at 45 °C
Demonstrated MTBF is
significantly higher.

Indicators

None

Control Input

None

Alarm Output

None
Available on custom versions

Dimensions

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

Inputs: 2-pole barrier type terminal
block, 13 mm spaces
Output 8-pole barrier type terminal
block with 9.5 mm spacing

RoHS Compliance

Compliant

Warranty

Two years subject to application
within good engineering practice

Terminal block Pin-out

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

ABSOPULSE power supplies are designed and built to customer requirements. The specifications on this data sheet are generic guidelines only and are subject to change.

OEM of industrial and railway quality DC-DC converters, AC-DC power supplies and battery chargers, DC-AC sine-wave inverters, phase and frequency converters, DC-output UPS systems and complete power systems in 19" and 23" racks since 1982. Custom or standard. ABSOPULSE is a BABT-approved Facility.



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