

## 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

Enhancements to these general specifications can be accommodated upon request. Specifications are 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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For more information, please see:

[http://www.absopulse.com/Absopulse\\_DC\\_DC\\_Converters.php](http://www.absopulse.com/Absopulse_DC_DC_Converters.php)

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Made in Canada