

## 400W, Rugged, Encapsulated DC-DC Converter for Heavy Duty Applications PDC 400-P400 Series



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

This fully encapsulated, rugged, 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 via baseplate by conduction. The unit is designed for continuous operation at 70°C with installation on an 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, oil rigs, 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 (42-60V)  
72Vdc (42-110V)  
125Vdc (95-140V)  
Consult factory for other voltages and ranges, including 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 62368-1 and corresponding safety standards.

#### EMI

EN 55032 Class A with margins

#### Switching Frequency

55kHz ±3kHz

#### Output Voltages

12Vdc/33A, 24Vdc/16A,  
48Vdc/8A or 125Vdc/3.2A  
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

Rectangular current limiting with short circuit protection (no hiccup)  
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  
Output 'ON' LED available as option

#### Control Input

None

#### Alarm Output

None  
Available on custom versions

#### Dimensions

P400: 131 x 66 x 232 mm  
5.2" x 2.6" x 9.13"  
Includes baseplate and terminal on top surface of unit  
Mounting holes are clear

#### Weight

2.2 kg (4.8 lbs)

#### Connections

9-pole barrier type terminal block, 3/8" spacing

#### RoHS Compliance

Compliant

#### Warranty

Two years subject to application within good engineering practice

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

Terminal block Pin-out

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.



#### ABSOPULSE ELECTRONICS LTD

110 Walgreen Road, Ottawa, Ontario. K0A 1L0. CANADA

Tel: +1-613-836-3511 | Fax: +1-613-836-7488

<https://absopulse.com/contact> | <https://www.absopulse.com>