400W, Encapsulated AC-DC Power Supply for Railway and other Heavy Duty Environments
POL 400R-P400 Series

- Field-proven rugged design
- For train and mobile applications
- Full encapsulation
- Wide temperature range
- Full electronic protection
- N+1 redundancy by built in diode on request

This fully encapsulated, railway quality power converter utilizes field-proven technology to generate the required output power. It is a mature design with a track record in numerous applications. The unit is entirely potted with a thermally conductive MIL-grade silicon rubber compound which provides protection from moisture and other contaminants, as well as immunity to shock and vibration. Cooling is by conduction via a base plate to a heatsinking surface. Full electronic protection, low component count, large design headroom and the exclusive use of components with established reliability contribute to a high MTBF. An optional built-in redundancy diode allows for parallel and N+1 operation. The unit meets the requirements of EN 50155 for electronic equipment used on railway rolling stock. It is manufactured at our plant under strict quality control.

SPECIFICATIONS

Standard Input Voltage & Range
115Vac (97-132Vac) 47-63Hz, or
230Vac (195-264V), 47-63Hz
Consult factory for other voltages and ranges

Input Protection
Inrush current limiting
Varistor
Internal safety fuse
Lower voltage than specified minimum input will not damage unit

Isolation
1500Vdc input to chassis
3000Vdc input to output
1500Vdc output to chassis

Standards
Designed to meet EN 60950-1 and EN 50155

Immunity
Meets criteria of relevant sections of EN 50155 and EN 50121-3-2 including:
EN 61000-4-2 (ESD)
EN 61000-4-3 (RF Immunity)
EN 61000-4-4 (Fast transients)
EN 50155 (Surge)
EN 61000-4-6 (Conducted Imm.)
EN 50155 (Voltage Variations)

EMI
EN 50121-3-2

Hold Up Time
Min. 5ms at nominal input for 5% drop of the output voltage

Switching Frequency
55kHz ±3kHz

Standard Output Voltages
12Vdc/33A, 24Vdc/17A,
36Vdc/12A or 48Vdc/9A OR
110Vdc/3A
Outputs are floating; either terminal can be grounded
Consult factory for other outputs

Redundancy Diode
Not installed
Available on request

Line/Load Regulation
± 1% combined from zero load to full load on each output

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

Output Ripple/Noise
Less than 1% peak-to-peak or 0.2% RMS of the output voltage (20MHz BW)

Output Overload Protection
Rectangular current limiting with short-circuit protection (no hiccup)
Thermal shutdown with automatic recovery in case of insufficient cooling

Output Overvoltage Protection
Second regulator loop completely stable and independent of main regulator loop

Efficiency
80 to 90% depending on input/output configuration

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

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

Indicators
None
Optional 'ON' LED adapter can be installed on the terminal block.

Control Input
None
Enable or inhibit input as option

Alarm Output
None
Available on request

Package/Dimensions (W x H x L)
P400: 131 x 66 x 232mm
(5.2" x 2.6" x 9.2") including terminal block and flanges
Mounting holes are clear

Weight
2.2 kg (4.9 lb)

Connections
12-pole barrier type terminal block

RoHS Compliance
Compliant

Warranty
Two years subject to application within good engineering practice

DC OUTPUT						AC INPUT		
+	+	−	−	NOT USED	NOT USED	GND ⏚	PH ~	N ~
1	2	3	4	5	6	7	8	9

Terminal Block Pin-out

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

Designer and manufacturer of quality ac-dc power supplies and battery chargers, converters, inverters, dc-output 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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Made in Canada