

## 200W, Rugged DC/DC Converter for Redundant Operation in Railway and other Heavy Duty Environments RWD 200-P200L, RWD 200-P200X Series

- Rugged, field-proven design
- Built-in redundancy diode
- Complete encapsulation
- Wide temperature range
- Full electronic protection
- EN50155 input ranges



P200L (side flanges)



P200X (flanges at each end)

This fully encapsulated, railway quality power converter utilizes field-proven technology to generate the required output power. A built-in output separation diode allows for redundant operation. 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. The unit meets the requirements of EN50155 for electronic equipment used on railway rolling stock. It is manufactured at our plant under strict quality control. Customized versions are also available.

### SPECIFICATIONS

#### Standard Input Voltages

24Vdc (14.4 – 34V)  
36Vdc (22 – 51V)  
48Vdc (29 – 67V)  
72Vdc (43 – 101V)  
96Vdc (58 – 135V)  
110Vdc (66 - 154V)  
Consult factory for other voltages and ranges

#### Input Protection

Inrush current limiting  
Varistor  
Reverse polarity protection  
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 EN60950-1, EN50155

#### Immunity

Meets criteria of EN50155 and EN50121-3-2 according to the following standards:  
EN 61000-4-2 (ESD)  
EN61000-4-3 (RF Immunity)  
EN61000-4-4 (Fast Transients)  
EN50155 (Surge)  
EN61000-4-6 (Conducted Imm.)  
EN50155 (Voltage Variations)

#### EMI

EN 50121-3-2

#### Switching Frequency

80kHz ±5kHz

#### Output Voltage/Current

12Vdc/16A or 24Vdc/8A  
Output is floating, either terminal can be grounded  
Consult factory for other voltages

#### Redundancy Diode

Built-in redundancy diode

#### Line/Load Regulation

±1.5% combined from zero load to full load including redundancy diode

#### 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 hiccup type short-circuit protection  
Thermal shutdown with automatic recovery in case of insufficient cooling

#### Output Overvoltage Protection

Second regulator loop completely stable and independent of main regulator loop  
Transzorb clamp

#### 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 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

150,000 hours @ 45°C  
Demonstrated MTBF is significantly higher

#### Indicators

None

#### Control Input

None

#### Alarm Output

Output Fail Alarm  
Fail Open  
Referenced to output return

#### Package/Dimensions (W x H x L)

P200L (side flanges):

94 x 60 x 230 mm  
3.7" x 2.4" x 9.1"

P200X (flanges at each end):

70 x 57 x 253 mm  
2.7" x 2.2" x 9.9"

Dimensions include terminal block and flanges  
Mounting holes are clear

#### Weight

1.3kg (2.8 lb)

#### Connections

5-pole barrier-type terminal block with 3/8" spacing  
Terminal block cover can be provided upon request

#### RoHS Compliance

Compliant

#### Warranty

Two years subject to application within good engineering practice

#### Terminal Block Pin-Out

OUTPUT		ALARM	INPUT	
+	-	F/O	+	-
		ALARM RTN		
1	2	3	4	5



European Stocking Distributor

Phone: +41 44 730 33 53

Email: sales@hvps-condatas.com / www.hvps-condatas.com

Rietbachstrasse 7, 8952 Schlieren (ZH), Switzerland