

750Vdc Input, Rugged 300W DC/DC Converter for Railway and other Heavy-duty Applications HVI 300R Series

- 1270V peak input for 20msec
- Rugged construction
- Regulated and adjustable output
- Full electronic protection
- Conduction/convection cooled (no fans)
- Field-proven design
- N+1 redundancy available



The HVI 300R Series DC/DC converter uses field proven KHR 300 design topology to generate up to 300W output power. Higher output power is possible by using forced air-cooling. The unit accepts an input voltage of 750Vdc (525V-975Vdc range), with a peak input voltage of 1270V. It meets the requirements of EN 50155 for electronic equipment used on railway rolling stock. To ensure high reliability and long operating life, all critical components on the primary side are designed and tested for corona inception levels that are significantly higher than the operating voltages. An optional built-in redundancy diode allows for a number of units to be connected in parallel to achieve higher output power or N+1 redundancy. The output separation diode also makes the unit suitable for battery charging applications. The unit has full electronic protection. It is cooled by natural air convection and requires no fans. Low component count, large design headroom, and the use of components with established reliability result in a high MTBF. The unit is manufactured at our plant under strict quality control.

SPECIFICATIONS

Input Voltage

750Vdc nominal
525V – 975Vdc operating range
1270V peak
Input current: 0.7A max.

Input Protection

Inrush current limiting
Varistors
Reverse polarity protection
Internal safety fuse
Lower voltage than the specified minimum input will not damage the unit

Isolation

3000Vdc input to chassis
3000Vdc input to output
5600Vdc type test
1500Vdc output to chassis

Standards

Designed to meet EN 60950 and EN 50155

Immunity

Meets criteria as requested in EN50155 according to the following standards:
EN61000-4-2 (ESD)
EN61000-4-3 (RF Immunity)
EN61000-4-4 (Fast Transients)
EN 50155 (Surge)
EN 61000-4-6 (Conduction Imm)
EN50155 (Voltage Variations)

EMI

EN55022 Class B and EN50121-3-2 conducted and radiated

Switching Frequency

55kHz +/- 3kHz

Output Voltage/Current

12V/20A, 24V/12A, 48V/6A,
110V/2.5A continuous
Output is floating; either terminal can be grounded

Redundancy Diode

Not installed
Available as option

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% rms or 1% pp (@ 20MHz BW)

Output Overload Protection

Rectangular current limiting with short-circuit protection (no hiccup)
Thermal shutdown in case of insufficient airflow (self-resetting)

Output Overvoltage Protection

Second regulator loop, completely stable and independent of main regulator loop

Efficiency

Typically 80% at full load

Operating Temperature Range

-25°C to 55°C for full specification when installed on heat-sinking surface with good air flow

Temperature Drift

0.03% per °C over operating temperature range

Cooling

Convection and conduction via base plate.

Environmental Protection

Ruggedizing
Conformal coating

Shock/Vibration

IEC 61373 Cat 1 A&B

Humidity

5 – 95%, non condensing

MTBF

130,000 hours at 45 °C
Demonstrated MTBF is significantly higher.

Indicators

None

Control Input

None

Alarm Outputs

None.
Available as option

Dimensions (WxHxD)

F3: 132 x 64 x 300 mm (5.2" x 2.5" x 11.8") including mounting flanges and terminals
Mounting holes are clear.

Weight

2 kg (4.4 lbs)

Connections

12-pole barrier type terminal block with 3/8" spacing

RoHS Compliance

Fully compliant

Warranty

Two years subject to application within good engineering practice

Terminal Block Pin Out

DC OUTPUT				DC INPUT							
+	+	0V	0V	NOT USED	NOT USED	GND	NOT USED	RTN	NOT USED	+	NOT USED
1	2	3	4	5	6	7	8	9	10	11	12

Enhancements to these general specifications can be accommodated upon request. Designed to meet common approval requirements

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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