600Vdc Input, 5kW Rugged, Industrial Quality DC-DC Converters
HVI 5K-3U7

- Rugged industrial quality
- Wide DC-input voltage range
- Field-proven design
- Full electronic protection
- Cooling by high quality built-in fans
- N+1 redundancy option

This rugged, industrial quality, high input voltage DC-DC power converter uses field proven technology to generate the required output power. The design is based on topology with a track record in numerous applications. The unit is built with two FID2000 and four KHI 1200 internal modules. A built-in redundancy diode allows for a number of 5kW converter 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 input and output are filtered for low noise. High quality built-in fans provide sufficient airflow for operation within the specified temperature range without de-rating. The fans draw air into the unit, and exhaust at the terminal side of the unit. All heat generating components are installed on aluminum heatsink blocks which are thermally connected to the base plate. This also ensures exceptional mechanical ruggedness. Conformal coating provides protection against humidity and airborne contaminants. 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 is manufactured at our plant under strict quality control.

SPECIFICATIONS

Input Voltage
600Vdc nominal
400V-800Vdc operating range
Other input range on request

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-chassis
4300Vdc input-output
5600Vdc type test
1500Vdc output-chassis

Standards
Designed to meet EN 60950-1 and related standards

EMI
EN55032 Class A with margins

Switching Frequency
55kHz ±3kHz

Output Voltage
24V, 48V, 110V or 125dc
Other outputs on request
Output is floating; either terminal can be grounded

Output Separation Diode
Installed internally

Line/Load Regulation
±1% combined from zero load to full load including output separation diode

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 in case of insufficient airflow (self-resetting)

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

Efficiency
Min 85% at full load depending on input/output configuration

Operating Temperature Range
0°C to 50°C for full specification
Wider range available as option

Temperature Drift
0.03% per °C over operating temperature range

Cooling
Forced air by high quality built-in fans and conduction to customer heat sink or chassis.
Fans draw air into the unit.

Environmental Protection
Basic ruggedizing
Conformal coating
Heavy ruggedizing available as an option

Shock/Vibration
IEC 61373 Cat 1 A&B

Humidity
5 – 95% non-condensing

MTBF
85,000 hours @45°C
(fans excluded)
Demonstrated MTBF is significantly higher.

Indicators
Green OUTPUT ON LED on each internal module visible through the rear perforation

Control Input
None on standard version
Available as option

Alarm Outputs
None
Available as option

Package/Dimensions (H x W x D)
3U7: 132 x 432 x 407 mm
5.2" x 17" x 16" including terminal block and mounting flanges
Mounting holes are clearz
19" rack-mounted version also available

Weight
14 kg, 31 lb

Connections
Input: Terminal block HV assembly
Output: Threaded studs, M6

RoHS Compliance
Compliant

Warranty
Two years subject to application within good engineering practice
Contamination related failures and shipping costs excluded

The specifications on this data sheet are generic and are subject to change. Enhancements to these specifications can be provided upon request.

OEM of industrial and railway AC/DC power supplies and battery chargers, DC/DC converters, DC-AC sine-wave inverters, phase & frequency converters, DC-output UPS systems and complete power systems in 19" and 23" racks since 1982. Custom & standard.