

3000W, Opto-less, High Reliability, Industrial Quality DC/DC Converter BHR 3K-3U3 Series



- No optocouplers, low component count
- Rugged construction
- Conformal coating
- High input/output isolation
- Fan cooling
- Full electronic protection
- Customized versions available

This rugged, industrial quality DC/DC converter is designed for a long operating life. By eliminating optocouplers in the feedback loop, the MTBF of the unit is greatly improved over conventional designs. The converter is built with three BHR 65 internal modules which are connected in parallel via redundancy diodes. 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 fan draws air into the unit, which exhausts at the terminal side of the unit. All heat generating components are installed on aluminum heatsink blocks which are thermally connected to the internal heatsink plate. This also ensures exceptional mechanical ruggedness. Conformal coating provides protection against humidity and airborne contaminants. Full electronic protection, large design headrooms and the use of components with established reliability also contribute to the long operating life of the unit. Customized versions are available. The unit is manufactured at our plant under strict quality control.

SPECIFICATIONS

Input Voltage

48Vdc (42-60V)
125Vdc (105-145V)
For other input voltages, please consult factory.

Input Protection

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

Isolation

2250VDC input to chassis
4300VDC input to output
8mm spacing
700VDC output to chassis
(or according to output voltage)

Standards

Designed to meet EN 60950-1 and corresponding UL and CSA standards

EMI

EN55022 Class A with margins

Switching Frequency

55kHz \pm 3kHz

Output Voltages

24Vdc/120A, 48Vdc/60A,
125Vdc/25A
3000W continuous
Output is floating; either terminal can be grounded
Consult factory for other voltages

Redundancy diode

Installed

Line/Load Regulation

\pm 2% combined from no 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

Better than 1% of output voltage peak to peak or 0.2% Vrms (20MHz BW)

Output Overload Protection

Rectangular current limiting with hiccup type short-circuit protection
Thermal shutdown in case of insufficient cooling (self -resetting)

Output Overvoltage Protection

Second regulation loop completely stable and independent of the main regulator loop

Efficiency

Typically 85% at full load depending on input/output combination

Operating Temperature Range

0 °C to 50 °C for full specification
Extended temperature ranges available on request

Temperature Drift

0.03% per °C, over operating temperature range

Cooling

Forced air by high quality fans with a specified operating life

Environmental Protection

Ruggedizing
Conformal coating

Shock/Vibration

IEC 61373 Cat 1 A&B

Humidity

5 - 95% non-condensing

MTBF

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

Indicators

None

Control Input

Optional

Alarm Output

None on standard version
Output fail alarm Form C contacts installed on request

Package/Dimensions (H x W x D)

3U3: 132 x 187 x 407 mm
5.2 x 7.4 x 16" including terminal block and mounting flanges
Mounting holes are clear

Weight

Approx 7 kg (15 lb)

Connections

Input: Terminal block
Output: Threaded studs, M6

RoHS Compliance

Compliant

Warranty

Two years subject to application within good engineering practice
Contamination related failures not covered.



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