

## 300Vdc Input, 2500W Rugged, Industrial Quality DC-DC Converter HBC 2K5-XX-3U3 Series



- Rugged industrial quality
- Single phase 300Vdc input
- Cooling by high quality built in fans
- Full electronic protection
- Field-proven design topology
- Internal redundancy

This rugged, industrial quality dc/dc power converter uses field-proven topology to generate up to 2500W output power. The unit is built with HBH65F internal power modules with a track-record in numerous heavy-duty applications. Built-in redundancy diodes separate the internal modules and provide inherent internal redundancy. The loss of one internal module reduces the input power by 33%, but the unit remains operational. The redundancy diodes also allow for parallel connection of several units to achieve higher output power. They also make the unit suitable for battery charging applications. Cooling is by high quality built-in fans, which provide sufficient airflow for operation at the specified temperature without de-rating. The fans draw air into the unit and the exhaust exits at the rear of the unit. Optional heavy ruggedizing is available for operation in severe environments. The input and output are filtered for low noise. Full electronic protection, low component count, large design headroom, and the use of components with established reliability contribute to a high MTBF. AC-input versions of this design are also available. The unit is manufactured at our plant under strict quality control.

### SPECIFICATIONS

#### Input Voltage

300Vdc (270-350Vdc)  
Other DC inputs are also available  
230Vac or 115Vac inputs upon  
request

#### Input Protection

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

#### Input Isolation

2250Vdc input to chassis  
4300Vdc input to output  
8mm spacing  
Min. 700Vdc output to chassis,  
corresponding to output voltage

#### Standards

Designed to meet EN60950-1  
and corresponding standards

#### EMI

EN 55022 Class A with margins

#### Switching Frequency

55kHz  $\pm$  5kHz

#### Hold Up Time

Minimum 5ms at full load for  
5% drop of output voltage  
at nominal input

#### Output Voltages

24V/100A, 28V/90A, 48V/52A,  
56V/45A, 110V/23A, 125V/20A or  
250V/10A  
Output is floating, either  
terminal can be grounded  
Other outputs and higher power  
versions on request

#### Redundancy Diode

Installed for separation of the  
internal modules

#### Line/Load Regulation

$\pm$  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% of  
output voltage peak to peak  
(20MHz BW)

#### Overload Protection

Rectangular current limiting with  
short circuit protection  
Thermal shutdown with automatic  
reset in case of insufficient airflow

#### Output Over-voltage Protection

Double regulator loop completely  
stable and independent of main  
loop

#### Efficiency

Min 80% at full load depending  
on input/output configuration

#### Operating Temperature

0°C to 50°C for full specification  
Wider range available on request

#### Temperature Drift

0.03% per °C over operating  
temperature range

#### Cooling

Forced air by high quality  
built-in fans

#### Environmental Protection

Basic ruggedizing  
Conformal coating  
Heavy ruggedizing on request

#### Shock/Vibration

IEC61373 Cat 1 A&B

#### MTBF

90,000 hours @45 °C  
(fan excluded)  
Demonstrated MTBF is  
significantly higher.

#### Indicators

Diagnostic Output ON LED on  
each internal module visible  
through the rear perforation.

#### Control Input

None on standard version  
Available on request

#### Alarm Output

None on standard version  
Available on request

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

3U3 chassis: 187 x 132 x 407mm  
(7.4" x 5.2" x 16")  
Dimensions include terminal  
blocks and fans and exclude  
mounting brackets

#### Weight

Approx. 7kg (15 lb)

#### Connections

Input: Terminal block  
Output: Terminal block or  
threaded studs

#### RoHS Compliance

Fully compliant

#### Warranty

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



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