

300W, Opto-less, Long Life, Industrial Quality DC/DC Converter BHR 65-F3 Series

- No optocouplers, low component count
- Rugged industrial quality construction
- Conformal coating
- Excellent EMI performance
- High input/output isolation
- Conduction/convection cooled
- Operation up to 70 °C
- Full electronic protection
- Customized versions available



This rugged, industrial quality DC/DC converter is designed for an operating life of a minimum of 30 years. By eliminating optocouplers in the feedback loop the MTBF of the unit is greatly improved over conventional designs. All heat generating components are installed on aluminum heat-sink blocks which are cooled via baseplate to a heat-sinking surface and by natural convection. Conformal coating provides additional environmental 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

24Vdc (21-30V)
48Vdc (42-60V)
125Vd (105-145V)
For 12Vdc input voltage, 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

Corresponding to input/output voltage, minimum:
2250VDC input to chassis
5000VDC input to output
12mm spacing
500VDC output to chassis

Standards

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

EMI

Min. EN55022 Class A with margins

Switching Frequency

55kHz ±3kHz

Output Voltages

12V, 24V, 48V or 125Vdc
300W continuous
Output is floating; either terminal can be grounded
Consult factory for other voltages

Redundancy diode

Not installed
Available as option

Line/Load Regulation

± 2% combined from 10% load to full load

Dynamic Response

Max 5% voltage deviation for 10% to 50% load step, with better than 2msec 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 control loop and transorb across the output

Efficiency

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

Operating Temperature Range

0 °C to 70 °C for full specification
Extended temperature ranges available on request

Temperature Drift

0.03% per °C, over operating temperature range

Cooling

Conduction to customer heat-sink or chassis and natural convection

Environmental Protection

Ruggedizing
Conformal coating

Shock/Vibration

IEC 61373 Cat 1 A&B

Humidity

5 - 95% non-condensing

MTBF

160,000 hours at 45 °C
Demonstrated MTBF is significantly higher

Indicators

Green 'Output ON LED' visible through cooling slots

Control Input

Optional

Alarm Output

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

Package/Dimensions (W x H x L)

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

Weight

2 kg (4.4 lb)

Connections

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

RoHS Compliance

Compliant

Warranty

Two years subject to application within good engineering practice

Terminal Block Pin-outs

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



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