

150W, Opto-less, Long Life, AC/DC Power Supply with Universal Input MHR 150-F1T

- 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 AC/DC power supply is designed for an operating life extending to 30 years. By eliminating optocouplers in the feedback loop and significantly reducing the component count, the MTBF of the unit is greatly improved over conventional designs. All heat generating components are installed on aluminum heatsink 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

90-264Vac, 47... 63Hz
Input current 2.6A max at 95Vac
110...360Vdc operating range

Input Protection

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

Isolation

2250VDC input to chassis
5000VDC input to output
10mm spacing
500VDC output to chassis

Standards

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

EMI

EN55022 Class B

Switching Frequency

40-150kHz, load and input voltage dependent

Hold Up Time

Minimum 20ms at full load for 5% drop of output voltage at 115Vac

Output Voltages

12V, 24V, 48V or 125Vdc
150W continuous
The output is floating, either terminal can be grounded
Other outputs on request

Redundancy Diode

Not installed
Available as option

Line/Load Regulation

Typically 1% from 5% to full load.
Max 1.5% combined from no load to full load

Dynamic Response

Max 5% voltage deviation for 10% to 50% load step, with better than 5msec recovery time

Output Ripple/Noise

Switching frequency ripple is 60mVrms, 300mVpp (20MHz BW)

Output Overload Protection

Rectangular current limiting with short-circuit protection

Output Overvoltage Protection

Transzorb clamp on the output

Efficiency

Over 85% at full load on the 24V output model

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

170,000 hours @ 45 °C
Demonstrated MTBF is significantly higher

Indicators

Green "Output ON" LED visible through the cooling slots

Control Input

None

Alarm Output

Not installed on standard version

Package/Dimensions (W x H x L)

F1: 114 x 51 x 201 mm (4.5" x 2" x 7.9") including terminal block and flanges
Mounting holes are clear

Weight

0.8 kg (1.8 lbs)

Connections

9-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						AC INPUT		
NOT USED	-	+	NOT USED	NOT USED	NOT USED	⏏	PH	N
1	2	3	4	5	6	7	8	9



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