

## 250W, Opto-less, Long Life, AC-DC Power Supply with PFC Universal Input PHR 250-F3

- No optocouplers, low component count
- Electronic power factor correction
- Rugged industrial quality construction
- Conformal coating
- Excellent EMI performance
- High input/output isolation
- No derating at +70 °C
- Conduction/convection cooled
- Full electronic protection
- Customized versions available



This rugged, industrial quality AC-DC power supply with PFC input 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. Cooling is by conduction via baseplate. Additional cooling is achieved by natural convection through the cooling slots. All heat generating components are installed on aluminum heatsink blocks which are thermally connected to the base plate. This also provides exceptional mechanical ruggedness. Conformal coating provides additional environmental protection. Large design headroom and the use of components with established reliability also contribute to the long operating life of the unit. The unit is manufactured at our plant under strict quality control.

### SPECIFICATIONS

#### Input Voltage

90-264Vac, 47... 63Hz  
Input current 3.3A max at 90V  
Power Factor is better than 0.97 at full load for the entire input range.  
Meets EN61000-3-2

#### 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 A with margins

#### Switching Frequency

40-150kHz, load and input voltage dependent

#### Hold Up Time

Minimum 5ms at full load for 5% drop of output voltage for the entire input voltage range

#### Output Voltages

24V, 48V or 125Vdc  
250W 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 2% from 5% to full load

#### Dynamic Response

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

#### Output Ripple/Noise

Line frequency ripple is less than 200mVrms  
Switching frequency ripple is 0.4%Vrms, 1.5% mVpp (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

-20 °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)

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

#### Weight

2 kg (4.4 lbs)

#### 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-out

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



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