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

The specifications on this data sheet are generic and are subject to change. Enhancements to these specifications can be provided upon request.

OEM of industrial and railway AC/DC power supplies and battery chargers, DC/DC converters, DC-AC sine-wave inverters, phase & frequency converters, DC-output UPS systems and complete power systems in 19" and 23" racks since 1982. Custom & standard. ABSOPULSE is a BABT-approved facility

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