120W, Opto-less, Long Life, AC-DC Power Supply with PFC Universal Input

PHR 120-F1

- No optocouplers, low component count
- Electronic power factor correction
- 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 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. Customized versions are available. The unit is manufactured at our plant under strict quality control.

**SPECIFICATIONS**

**Input Voltage**
90-264Vac, 47...63Hz
Input current 1.3A 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**
50-150kHz, 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**
12V, 24V, 48V or 125Vdc
120W 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**
Line frequency ripple is less than 60mVrms
Noise is less than 1%Vout pp (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 and 48V output models

**Operating Temperature Range**
0°C to 70°C cold plate temperature 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**
Compliant

**Warranty**
Two years subject to application within good engineering practice

**Terminal Block Pin-out**

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*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*