

120W, Opto-less, Long Life, AC-DC Power Supply with Universal PFC 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 of up to 30 years. The design eliminates the conventional optocoupler feedback loop, and reduces component count, thereby increasing the MTBF of the unit over conventional designs. The unit generates feedback voltage from the primary side of the transformer by considering the parameters of the transformer and the output rectifier diode. Eliminating the optocoupler allows for operation in high temperature environments. 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

95-264Vac, 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 EN62368-1 and corresponding UL and CSA standards

EMI

EN55032 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: 113 x 51 x 198 mm (4.45" x 2" x 7.8")
 includes flanges, excludes terminal block
 Mounting holes are clear

Weight

0.8 kg (1.8 lb)

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

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

ABSOPULSE power supplies are designed and built to customer requirements. The specifications on this data sheet are generic guidelines only and are subject to change.

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



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