

## 400Vac Input, Rugged, Industrial Quality 3kW Power Supply with PFC-Input PHI 3K Series

- Electronic power factor correction (PFC)
- Wide AC-input voltage range
- Rugged, industrial quality
- Field-proven design
- Adjustable single output
- Full electronic protection
- N+1 redundancy



This rugged, industrial quality ac/dc power supply with PFC input delivers up to 3kW output power. It utilizes a field proven modular design concept with a track record in numerous heavy-duty applications. The unit is built with internal power modules, a PHI 3000 and two KHH 1502. A built-in redundancy diode separates the internal modules and also allows for a number of units to be connected in parallel to achieve higher output power, N+1 redundancy or to create a 3-phase high power system. The output redundancy diode also makes the unit suitable for battery charging applications. Built-in fans provide sufficient airflow for operation to the specified temperature without de-rating. Full electronic protection, low component count, large design headroom and the use of components with established reliability result in a high MTBF. The unit is manufactured at our plant under strict quality control.

### SPECIFICATIONS

#### Input Voltage

400Vac nominal  
340 - 480Vac operating range  
47-63Hz  
Input current: 11Arms max  
Power Factor is min.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  
4300Vdc input to output  
5600V type test  
8mm spacing  
2250Vdc output to chassis

#### Standards

Designed to meet EN60950 and related standards

#### EMI

EN55022 Class A

#### Switching Frequency

50kHz  $\pm$  150kHz PFC stage  
55kHz  $\pm$  5kHz Output stage

#### Output Voltage/Current

200Vdc/15A or 400Vdc/7A continuous  
Output is floating; either terminal can be grounded  
Consult factory for other voltages

#### Redundancy Diode

Installed internally

#### Line/Load Regulation

$\pm$ 1% combined from zero load to full load including redundancy diode

#### Dynamic Response

Max 5% voltage deviation for 10% to 50% load step, with better than 1msec recovery time

#### Output Ripple / Noise

Less than 1% peak-to-peak or 0.2% RMS of the output voltage (20MHz BW)

#### Output Overload Protection

Rectangular current limiting with short-circuit protection (no hiccup)  
Thermal shutdown in case of insufficient cooling (self resetting)

#### Output Over-voltage Protection

Second regulator loop completely stable and independent of the main regulator loop.

#### Efficiency

Better than 80% at full load, depending on output voltage

#### Operating Temperature Range

0 to +50 °C for full specification with proper cooling  
Extended temp. range available

#### Temperature Drift

0.03% per °C over operating temperature range

#### Cooling

By two built-in high quality fans

#### Environmental Protection

Basic ruggedizing and conformal coating  
Heavy ruggedizing available as option

#### Shock/Vibration

IEC 61373 Cat 1 A&B

#### Humidity

5 - 95% non-condensing

#### MTBF

90,000 hours @ 45 °C (fans excluded)  
Demonstrated MTBF is significantly higher.

#### Indicators

None

#### Control Input

None  
Available as option

#### Alarm Output

Not installed  
Available as option

#### Package / Dimensions

3U3: 187 x 132 x 407mm (7.4" x 5.2" x 16") including terminal blocks and fans, excluding mounting brackets

#### Weight

Approx. 7kg (15 lbs)

#### Connections

Input: Terminal block  
Output: Terminal block

#### RoHS Compliance

Fully compliant

#### Warranty

Two years subject to application within good engineering practice



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