

3000W, Rugged, Railway Quality AC-DC Power Supply with PFC-Input PFC 3KR-E/110-3U3



- Electronic power factor correction (PFC)
- Rugged, railway quality
- Field-proven design topology
- Full electronic protection
- Modular redundancy

This rugged, railway quality AC-DC power supply with power factor corrected input utilizes field-proven PFH65F internal modules to generate the required output power. It is based on mature design topology with a track record in numerous applications. The unit is built with three PFH65F internal modules, which are connected parallel via redundancy diodes. This modular construction also provides inherent redundancy; the failure of one internal module only causes a drop in output power while the unit remains operational. The input and output are filtered for low noise. High quality built-in fans provide sufficient airflow for operation within the specified temperature range without de-rating. The fan draws air into the unit, which exhausts at the terminal side of the unit. All heat generating components are installed on aluminum heatsink blocks which are thermally connected to the base plate. This also ensures exceptional mechanical ruggedness. Conformal coating provides protection against humidity and airborne contaminants. Full electronic protection, low component count, large design headroom, and the exclusive use of components with established reliability contribute to a high MTBF. The power supply meets the requirements of EN50155 for electronic equipment used on railway rolling stock. It is manufactured at our plant under strict quality control.

SPECIFICATIONS

Input Voltage

230Vac, 47-63Hz
195-264Vac operating range
Input current: 19Arms at 195V
Power Factor is better than 0.97 at full load for the entire input range.
Power factor meets EN61000-3-2 and EN61000-3-12

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
8mm spacing
1500Vdc output to chassis

Standards

Designed to meet EN60950-1, EN50155

Immunity

Meets criteria as requested in EN50155 : EN50121-3-2 according to the following standards:
EN61000-4-2 (ESD)
EN61000-4-3 (RF Immunity)
EN61000-4-4 (Fast Transients)
EN50155 (Surge)
EN61000-4-6 (Conducted Immunity)
EN50155 (Voltage Variations)

EMI

EN50121-3-2

Switching Frequency

Input Stage 80kHz \pm 5kHz
Output Stage: 55kHz \pm 3kHz

Output Voltage/Current

110Vdc/27A
3000W continuous
The output is floating, either terminal can be grounded
Other outputs on request

Redundancy Diode

Installed internally

Line/Load Regulation

\pm 1% combined from 10% 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

Better than 100mVrms and 500mVpp (@20MHz BW)

Output Overload Protection

Rectangular current limiting with short-circuit protection
Thermal shutdown with automatic reset in case of insufficient cooling (self-resetting)

Output Overvoltage Protection

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

Efficiency

Min. 86% at full load

Operating Temperature Range

0°C to 50°C cold plate temperature for full specification without derating
Extended temperature range available

Temperature Drift

0.03% per °C over operating temperature range

Cooling

By built-in fans and additional conduction via base plate

Environmental Protection

Basic ruggedizing
Conformal coating

Shock/Vibration

IEC 61373 Cat 1 A&B

Humidity

5 - 95% non-condensing

MTBF

150,000 hours @ 45°C
Demonstrated MTBF is significantly higher

Indicators

Green "Output ON" LED on each internal module visible through the cooling slots

Alarm Output

Output Fail alarm
Form C contacts available as option

Package/Dimensions W x H x D

3U3: 132 x 187 x 407mm
(5.2" x 7.4" x 16")
Mounting holes are clear

Weight

6.5 kg (14 lbs)

Connections

Input: terminal block
Output: terminal block

RoHS Compliance

Compliant

Warranty

Two years subject to application within good engineering practice
Contamination related failures and shipping cost excluded

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

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