

Model: BAP 2K4R-110/48-3U3-T9825
COSD: XXXX
Summary description: 2400W, Railway Quality DC/DC Converter
 110V to 48V/50A
Customer Name: Thiele KG/Germany
Customer Part No: Same as above



Product description:

This rugged, railway quality power converter utilizes field proven technology to generate the required output power. It is a mature design with a track record in numerous applications. The unit is built with three BAP65F 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 fans draw air into the unit, and exhaust 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 headrooms, and the exclusive use of components with established reliability contribute to a high MTBF. The unit meets the requirements of EN50155 for electronic equipment used on railway rolling stock. It is manufactured at our plant under strict quality control.

Special Features: Railway, Ruggedizing, Conformal coating,

SPECIFICATIONS

Input Voltage

110Vdc nominal
 77-144Vdc operating range
 Input Current: 37A max

Input Protection

Inrush current limiting
 Varistor
 Reverse polarity protection
 Internal safety fuses
 Lower input voltages than the specified minimum will not damage the unit

Isolation

1500Vdc input to chassis
 3000Vdc input to output
 1500Vdc output to chassis

Standards

Designed to meet EN60950-1, EN50155, EN45545

Immunity

Meets criteria as requested in EN50155 and EN50121-3-2 according to the following standards:
 EN61000-4-2 (ESD)
 EN61000-4-3 (RF Immunity)
 EN61000-4-4 (Fast Transients)
 EN 50155 (Surge)
 EN 61000-4-6 (Conduction Immunity)
 EN50155 (Voltage Variations)

EMI

EN50121-3-2

Switching Frequency

55kHz ±3kHz

Output Voltage/Current

48Vdc ± 0.3V/50A
 Output is floating either terminal can be grounded

Output Separation Diode

Installed internally

Line/Load Regulation

±1% combined from zero load to full load including output separation diode

Dynamic Response

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

Output Ripple / Noise

Better than 80mVrms and 400mVpp (20MHz BW)

Output Overload Protection

Rectangular current limiting with short-circuit protection
 Thermal shutdown with automatic reset in case of insufficient cooling (self-resetting)
 Current Limit set to: 55A ± 4A

Output Overvoltage Protection

Second regulator loop. Second loop completely stable and independent of main regulator loop
 OVP setting: 54V ± 3V

Efficiency

86% at full load

Operating Temperature Range

-25°C to +55°C for full specification

Temperature Drift

0.03% per °C over operating temperature range

Cooling

By built-in high quality fans

Environmental Protection

Ruggedizing
 Conformal coating

Shock/Vibration

IEC 61373 Cat 1 A&B

Humidity

5-95% non-condensing

MTBF

125,000 hours @ 45°C (Fans excluded)
 Demonstrated MTBF is significantly higher

Indicators

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

Control Input

None

Alarm Output

Not installed

Package /Dimensions (WxHxL)

3U3: 187 x 132 x 432mm
 (7.4" x 5.2" x 17") including terminals
 Chassis mount

Weight

Approx 7 kg (15 lbs)

Connections


Input: Terminal block
 Output: Terminal block Phoenix 125A type

RoHS Compliance

Compliant

Warranty

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

Originated by TS/kv	Date April 29, 2021
Updated by TS	Drawing No./ Rev. SCD T9825-2A
Approved by TS	

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