5kW Rugged DC-DC Converter 72Vdc to 24Vdc/200A for Heavy-duty Railway Applications
BAP 5KR-72/24-3U7

- Field-proven design topology
- For train and mobile applications
- Cooling by high quality built-in fans
- Full electronic protection
- Redundant, modular

This rugged, railway quality DC-DC converter uses field-proven technology to generate the required output power. The system is built with six BAP65F internal modules. This modular construction provides inherent redundancy; the failure of one internal module would cause a minor drop in output power. Several shelves can be paralleled for higher output power. The unit has input and output filtering. Cooling is by high quality fan, which draws air into the unit and exhausts at the terminal side. Full electronic protection eliminates failure due to abnormal operational conditions, including application errors. The internal models are ruggedized and conformal coated for immunity to shock, vibration, and moisture. Low component count, large design headroom, and the use of components with established reliability result in a high MTBF. The unit meets the requirements of EN50155 for electronic equipment used on railway rolling stock.

SPECIFICATIONS

Input Voltage
72Vdc nominal
43-101Vdc operating range
Input Current: 139A max.
Other inputs on request

Input Protection
Inrush current limiting
Varistors
Reverse polarity protection
Internal safety fuse
Lower input voltages of less 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 EN62368-1 and EN50155 and corresponding standards

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

EMI
EN55032 Class A with margins

Switching Frequency
55kHz ±5kHz

Output Voltage/Current
24Vdc ± 0.3V/200A
5000W continuous
Output is floating, either terminal can be grounded.
Other outputs on request

Redundancy Diode
Installed internally for separation of the internal modules and for parallel connection.

Line/Load Regulation
±1.5% combined from zero load to full load including separation diodes.

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

Output Ripple/Noise
Better than 70mVrms and 350mVpp (20MHz BW)

Output Overload Protection
Current limiting with short circuit protection
Self-resetting thermostat for thermal protection
Current Limit: 208A ± 6A

Output Overvoltage Protection
Double regulator loop
OVP setting: 31V ±3V

Efficiency
85% at full load, nominal input

Operating Temperature Range
-25°C to +55°C for full specification without derating
Extended temperature ranges available on request

Temperature Drift
0.03% per °C over operating temperature range

Cooling
Forced air by high quality built-in fans.
Fans draw air into the unit

Environmental Protection
Ruggedizing
Conformal coating

Shock/Vibration
IEC 61373 Cat 1 A&B

Humidity
5-95% non-condensing

MTBF
160,000 hours @45°C per internal module (fans excluded)
Demonstrated MTBF is significantly higher.

Indicators
Green "Output ON" LED on each internal power module, visible through rear cooling slots

Control Input
None
Available as an option

Alarm Outputs
Not installed on basic version

Package/Dimensions (H x W x D)
3U7: 132 x 432 x 382 mm
5.2" x 17" x 15"chassis-mount (excludes terminals and mounting L-brackets). Mounting holes are clear
19" rack-mounting available

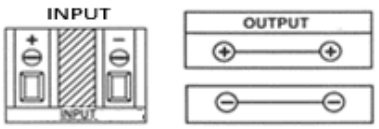
Weight
Approx. 14kg (30 lbs.)

Connections
Input: 2 Pole Terminal block
Phoenix 192A type
Output: Threaded studs dual M6 with stud boots

RoHS Compliance
Compliant

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

Input/Output Terminals



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

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Made in Canada