SUPER HIGH EFFICIENCY TELECOM RECTIFIER

BC-3000/48-R1

48 VDC

3000 Watt

FEATURES

- *High efficiency, 98.0%*
- *Wide operating voltage range (85-264VAC)*
- *Wide output voltage range (48-58VDC)*
- *High output power: 56A / 3000W*
- *Compact dimensions, 33.8 Watt/inch^3 energy density*
- *Microprocessor controlled*
- *CANBUS communications*
- *Support for external voltage and current setting*
- *Accurate mains measurements: V-A-W*
- *Hot plug-in*
- *Soft start*
- *Parallel operation and automatic load sharing*
- *Low/high mains voltage protections*
- *Overload and short-circuit protections*
- *High temperature protection*
- *Wide operating temperature range*
- *Low output noise*
- *Low sensitivity against line and load changes*
- *ROHS compliant*

DESCRIPTION

BC-3000/48-R1 series are state of the art telecom rectifiers featuring very high efficiency and low cost in a compact brick type 1U package.

The peak efficiency of rectifiers exceeds 98.0%, resulting in lower long-term operational costs. As an example, compared to a rectifier of 97.0% efficiency, with 1000W average load and 20 years of operational life, the BC-3000/48-R1 will consume 1844 kWh less electrical energy. This leads approximately to 200 USD less energy expense per rectifier.

Rectifiers have universal input voltage range, enabling the use in all countries with nominal voltages ranging from 110VAC to 240VAC. The nominal output is fully available at 207-264VAC range without derating. The input current of the rectifier is limited to 15Amps and it will provide limited output power between 85-207VAC.

The rectifier offers “hot plug-in” and “soft start” features. It can be paralleled up to 16 units and the system output may be increased to 48kW. Rectifiers perform load sharing automatically without the need for an external unit.

The rectifier provides high power in a limited volume. The power density reaches 33.8 Watt/inch^3.

The rectifier is protected against abnormal operating conditions including low/high supply voltage, overload, short circuit and high temperature. In case of overheating, the charger will automatically reduce its output current and continue normal operation.

The cooling is performed with internal fan. Thanks to the high efficiency, the need for fan is minimised.

Rectifiers support modern energy management systems. The output voltage may be controlled by external controller, comprehensive measurement values may be uploaded and sent to a data centre in real time.

The charger holds last 200 event records in its non-erasable memory. The event record contains a detailed snapshot of measurements at the time of the event.

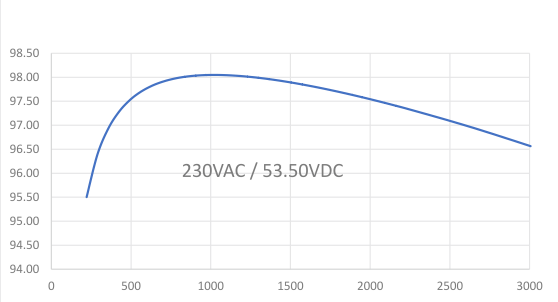
The unit records also all operating parameters in its memory every 10 minutes. Last 1 year’s records can be read.

ISO 9001 Registered

CE EAC RoHS

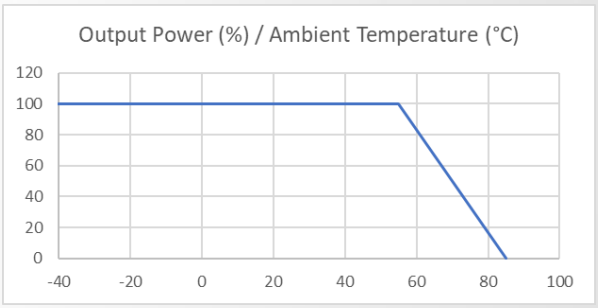
DATAKOM

EFFICIENCY GRAPH

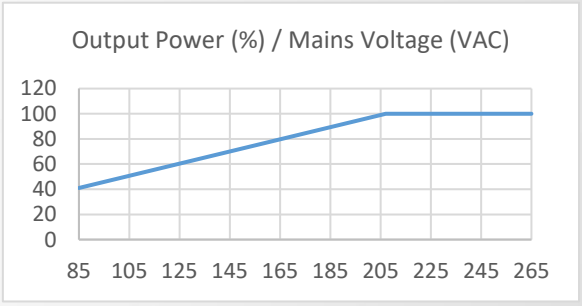


AUTOMATIC POWER DERATING

The unit delivers continuously full power between -40°C and +55°C (-40 and +131°F). Above +55°C the output power will be limited as shown in the below graph. If the outside temperature is above +55°C or if the ventilation openings are clogged, then the unit will limit its output power and continue normal operation, avoiding any failure.

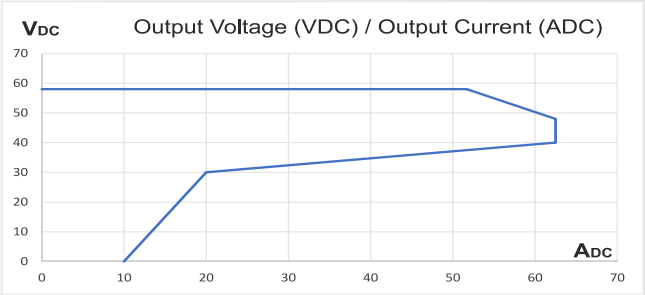


INFLUENCE OF MAINS VOLTAGE



If the supply voltage goes below 207VAC, then the unit will limit its input current to 15.0Amps.

VOLTAGE-CURRENT GRAPH



If the output power is below the nominal value, the unit will provide its nominal voltage.When the nominal power is attained the unit enters into power limiting mode and with an increasing current, the output voltage will decrease. When the maximum output current is reached, the unit will not provide more current and the voltage will drop. When the ouput voltage falls to 40V the unit starts reducing quickly its output current. The short circuit current is limited to 10Amps.

TECHNICAL SPECIFICATIONS

Technology: Totem Pole PFC, LLC DC-DC converter
Control and supervision: DATAKOM DKP-610 control module
Mains voltage range: 85-264 VAC (110-240V nominal)
Current consumption: 15.0 ARMS max.
Mains frequency range: 45-68 Hz
Operating altitude: 0-2000m.
Output voltage: 48.00 – 58.00 VDC (standard 53.50V)
Output power: 3000 Watt max. continuous
Output current: 56 ADC max. (continuous at 53.5V)
Max. input power: 3150 Watt
Peak efficiency: ≥ 98.0% (230VAC, 53.50VDC)
Cooling: forced cooling with internal fan
Output ripple: < 50mV (peak-to-peak)
Output noise: < 10mV RMS
Total harmonic distortion: < %8
Power factor: ≥ 99% at 50% power
Load sharing: < 5%
Inrush current: < 10A peak
Acoustic noise: < 50dB (at 1m)
LED indicators:
Green: Operating (flashes during soft start)
Yellow: Flashes with communication
Red: Turns on in alarm and fault conditions
High temperature protection: Limits the internal temperature to 85°C (185°F)
High voltage protection: > 300VAC
Low voltage protection: < 85VAC
Output short circuit protection: withstands continuous short circuit
MTBF: >300.000 hours (Telcordia SR-332 Issue I, method III(a) (Ambient temp:25 °C)
İsolation: Input-output: 2150 VAC
Input-ground: 1650 VAC
Output-ground: 500 VAC
Operating temperature range: -40ºC to +55ºC (-40°F to +131°F) at full power
Storage temp. range: -40ºC to +80ºC (-40°F to 176°F)
Max. relative humidity: 95% (non-condensing)
Dimensions: 109mm(W) x 40.6mm(H) x 327.6mm(D)
Weight: 2450 grams (approximative)
Protection degree (EN60529): IP20
Lightning protection: EN61000-4 (Chapter_5, level_4)
Safety: EN60950, UL60950. CAN-CSA C22.2
EMC: EN55022, EN55024, EN61000-3-2, 61000-3-3

- All values subject to change without prior notice

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