

2500W, Rectifier/Battery Charger for 120V Batteries BCH 2K5 – 120NP-EQ Series



- Rugged industrial quality
- Field-proven design
- Convection cooling – no fans
- Full electronic protection

The BCH 2K5-120NP-EQ rugged, industrial quality battery charger uses field-proven high-frequency conversion technology to deliver up to 2500W continuous output power. In float-mode it provides 135Vdc/16A for charging a 120V (60 cell) battery. The equalize function, activated by a push-button “EQ/ON”, elevates the output voltage to 141Vdc for the battery. The equalize time is controlled by a built in timer, adjustable in the 1-9 hour range. The equalize mode can be de-activated at any time by pushing the “EQ/OFF” button. This charger is constructed with internal modules, connected in parallel, which also provide inherent redundancy: the failure of one module would only cause a minor loss in output power. The unit is rated for heavy-duty applications with -40°C to +70°C temperature rating for full specification. Cooling is by convection via louvers on the cabinet. The absence of fans, low component count and the use of components with established reliability result in a high MTBF. The charger output is equipped with a built-in crossbar diode and output breaker as a safety feature against accidental reverse battery connection. Other protection includes input inrush current limiting, over-voltage protection, short circuit protection, and a self-resetting thermostat for thermal protection. An optional Charger Fail Alarm (Form C) indicates loss of AC input power. The unit is manufactured at our plant under strict quality control.

SPECIFICATIONS

Input Voltage

240Vac, 47-63Hz
190-264Vac operating range
Input Current: 23Arms max
PFC-input versions are also available

Input Protection

Inrush current limiting
Varistors
Internal safety fuses
Input breaker also for AC ON/OFF
Lower input voltages than the specified minimum will not damage the unit

Input Isolation

2250VDC input to chassis
4300VDC input to output
8mm spacing
1000VDC output to chassis

Standards

Designed to meet EN 60950 and corresponding UL/CSA standards.

EMI

Meets EN 55022 Class A as minimum

Switching Frequency

55kHz ± 3kHz

Charging Current and Voltage

135Vdc ± 0.5V/16A float voltage
2500W continuous
Equalize timer with push button activation for 141Vdc
Other voltages on request
The output is floating, either terminal can be grounded

Output Separation Diode

Installed internally on each power module

Line Regulation Regulation

± 1% combined from zero load to full load including output 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 1% of output voltage peak to peak or 0.2% RMS of the output voltage (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: 17A ± 0.8A
Charger output is protected against reverse battery connection by built-in crossbar diode and output breaker
Warning: Battery must be fused externally, directly at the battery

Output Overvoltage Protection

Double regulator loop. Second regulator loop, completely stable and independent of main regulator loop.
OVP setting: 155V ±5V

Efficiency

Min. 80% at full load

Operating Temperature

-40°C to +70°C for full specification

Temperature Drift

0.03% per °C over operating temperature range

Cooling

By convection via louvers on the cabinet

Environmental Protection

Basic ruggedizing
Conformal coating

Shock/Vibration

IEC61371 Cat 1 A&B

Humidity

5 - 95% non-condensing

MTBF

150,000 hours at 45°C per module, which are in redundant configuration.
Demonstrated MTBF significantly higher

Indicators

Internal green ‘OUTPUT ON’ indicator for each module (five LEDs) for verification of operation

Output Control

Equalize timer (141Vdc) with 1-9 hour timing
Push buttons for ON/OFF control

Alarm Outputs

None
Available as option

Package/Dimensions (W x H x L)

610 x 203 x 610 mm
(24" x 8" x 24")
Wall-mounted case with louvers

Weight

15kg. (33 lbs).

Connections

Input/output terminals:
Phoenix 6-10/2 terminals
Cable entries via two feed through bushings at the bottom of the enclosure

RoHS Compliance

Fully compliant

Warranty

Two years subject to application within good engineering practice



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