

## 500W, Industrial Quality UPS/Battery Charger BCH 502 Series



- Rugged, industrial quality
- Field-proven design
- Conduction/convection cooled - no fan
- Fully protected
- Made in North America

The BCH 502 is a compact, industrial quality DC output UPS system with external battery. The built-in battery charger provides 500W total power for the output and for float charging the battery. The unit has a low battery disconnect circuit to prevent damage to the battery by low discharge during prolonged AC failure. A Low Battery Alarm provides warning before the disconnect circuit disengages the output. A built-in charger fail alarm indicates either failure of the charger circuit or loss of AC input power. The battery input is protected against accidental reverse battery connection by a crossbar diode and internal safety fuse. The battery must be fused externally, directly at the battery. Low component count, large design headroom, and the use of components with established reliability result in a high MTBF. The unit is manufactured at our plant under strict quality control.

### SPECIFICATIONS

#### Input Voltage

Mains input:  
115/230Vac +/- 15% (47 - 420Hz)  
jumper selectable  
Battery input:  
12V, 24V, 48V or 125V  
Other inputs available on request

#### Input Protection

AC Input  
Inrush current limiting  
Varistor  
Internal safety fuse  
Lower voltage than the specified minimum input will not damage the unit  
Battery Input:  
Internal safety fuse and crossbar diode  
Low Battery Disconnect circuit disengages battery  
**Warning: Battery must be fused externally, directly at the battery**

#### Input Isolation

2250VDC input to chassis  
4300VDC input to output,  
8mm spacing  
500VDC output to chassis

#### Standards

Meets EN60950 and corresponding UL and CSA standards

#### EMI

EN55022 Class A with margins

#### Switching Frequency

55kHz +/- 3kHz

#### Output Voltages/Currents

13.8V float voltage (12V battery) or  
27.6V float voltage (24V battery) or  
55.2V float voltage (48V battery) or  
138V float voltage (125V battery)  
Output is floating, either terminal  
can be grounded Other outputs  
available on request

#### Output Separation Diode

Installed internally

#### Line/Load Regulation

±1.5% combined from no load to full  
load including built in separation  
diode

#### Output Ripple/Noise

Better than 1% of output voltage  
peak to peak or 0.2% RMS of the  
output voltage (20MHz BW)

#### Overload Protection (without battery)

Rectangular current limiting with  
hiccup type short-circuit protection  
Internal safety fuse on battery input  
In the case of an accidental shorting  
of the output, the external battery  
fuse will blow.

#### Output Overvoltage Protection

Double regulator loop, stable  
and independent of the  
main feedback loop

#### Efficiency

Min 80% at full load

#### Operating Temperature

0°C to +50°C for full specification  
with natural convection cooling  
Wider temperature ranges  
available on request

#### Battery Temp. Compensation

Not on this design  
Available as an option

#### Temperature Drift

0.03% per °C over operating  
temperature range (without BTC)

#### Cooling

Conduction to customer heatsink  
or chassis and natural convection

#### Environmental Protection

Basic ruggedizing  
Additional ruggedizing and  
conformal coating available

#### Shock/Vibration

IEC 61373 Cat 1 A&B

#### Humidity

5 - 95% non-condensing

#### MTBF

130,000h at 45°C  
Demonstrated MTBF is  
significantly higher

#### Indicators

Charger ON LED visible through the  
cooling slots

#### Alarm Outputs

Charger/AC fail alarm, Fail Close  
Low Battery Alarm, Fail Close  
with common return

#### Package/Dimensions (W x H x L)

F5: 130 x 64 x 432 mm  
(5.1" x 2.5" x 17") including terminal  
block and flanges.  
Mounting holes are clear

#### Weight

2.6 kg (5.7 lb) approx.

#### Connections

12-pole terminal block with 7.62mm  
spacing for all connections, including  
alarm

#### RoHS Compliance

Fully compliant

#### Warranty

Two years subject to application  
within good engineering practice



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