

# 500W, Industrial Quality UPS/Battery Charger

## BCH 502-F5 Series



- Rugged, industrial quality
- Field-proven design topology
- Cooling by conduction/convection
- Full electronic protection

This rugged, compact industrial quality DC output UPS system with external battery utilizes field-proven technology to generate the required output power. 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. Cooling is by conduction via baseplate. Additional cooling is achieved by natural convection through the cooling slots. All heat generating components are installed on aluminum heatsink blocks which are thermally connected to the base plate. This also provides exceptional mechanical ruggedness. Conformal coating provides protection against humidity and airborne contaminants. Full electronic protection, low component count, large design headroom and the exclusive use of components with established reliability contribute to a high MTBF. The unit is manufactured at our plant under strict quality control.

### SPECIFICATIONS

#### Input Voltage

**Mains input:**  
115/230Vac  $\pm 15\%$  (47 - 420Hz)  
factory selected  
**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 EN60950-1 and corresponding UL and CSA standards

#### EMI

EN55032 Class A with margins

#### Switching Frequency

55kHz  $\pm 3$ kHz

#### Output Voltages/Currents

13.5V float voltage (12V battery) 30A  
27V float voltage (24V battery)/18A  
54V float voltage (48V battery)/9A  
135V float voltage (120V battery)/3.6A  
Output is floating  
Other outputs available on request

#### Output Separation Diode

Installed internally

#### Line/Load Regulation

$\pm 1.5\%$  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 432mm (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

Compliant

#### Warranty

Two years subject to application within good engineering practice

#### Terminal Block Pin-out

OUTPUT		BATTERY		ALARM			BTC		AC INPUT		
+	-	-	+	COM	LBA F/C	CFA F/C	TS	TS	GND	N	PH
1	2	3	4	5	6	7	8	9	10	11	12

**The specifications on this data sheet are generic and are subject to change. Enhancements to these specifications can be provided upon request.**

*OEM of professional quality AC/DC power supplies and battery chargers, DC/DC converters, DC-AC sine-wave inverters, phase and frequency converters, DC-output UPS systems and complete power systems in 19" and 23" racks since 1982. Custom or standard.*



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