

300 Watt, 12-Volt Proactive Battery Support System --SmartBattery - Model #9160-04-0007--

The **SmartBattery** is a sophisticated charging and diagnostic battery management system specifically designed to protect and enhance the operation conditions of batteries used in mobility type applications. It has been designed to be compatible with multiple battery chemistries such as Lead Acid, Nickel Metal Hydride and Li-Ion. The system charges 12 volts batteries under a strict monitoring of environmental and electrical charging conditions in order to prevent premature failure of the batteries. It accomplishes this objective by monitoring the following conditions:

- Ambient Temperature
- Battery Temperature
- State of Charge

The system relies on computer based architecture and advanced algorithms to maximize the life of the battery by preventing overcharging or over-discharging. In addition by using a small computer program loaded on a PC the user has the ability to monitor the overall battery condition by way of a simple graphic interface. There is also an additional custom designed overlay with a basic bargraph to display remaining charge and basic operational conditions (AC on / Charging / Over Temperature).



Premature failure of batteries is caused either by charging under an over-temperature condition or by charging at rated capacity when the battery has been over discharged. The charging algorithms used on this system prevent both conditions by controlling the charge applied based on actual temperature readings and state of charge condition of the batteries. The system in addition prevents all detrimental effects of over discharging a battery; it accomplishes this by disconnecting the load from the battery once a certain level of discharge is detected. This approach is basically a three prong approach to enhancing the battery life: monitor temperature, monitor state of charge during charge cycle, and prevent the battery from ever being over discharged.

The **SmartBattery** incorporates a feature that would protect the battery in the event of a charger malfunction. This feature is an override that will shut down the charger if the temperature of the battery reaches a preset temperature setting, this same feature disconnects the battery if an overdischarge condition is detected.



300 Watt Proactive Battery Support System --System Specifications--

AC Input

Voltage: 88-132 / 176-264 by switch
Frequency: 47-63 Hz.
Current: 2.5 A.

DC Output

Power: 300W
Voltage: 10-14.8 V
Current: 100mA-20 A

Environmental Parameters

Operating Temperature: 60-100°F
Non-Operating Temperature: 32-160°F
Humidity: 85%

Standards

Designed to meet UL60601

Signals Input/Output

Serial Interface to optional overlay
USB 2.0
Beeper
Fan enable
Battery temperature
Ambient temperature
1 output Positive or Negative
USB programmable interface

Features

- Highly customizable
- Programmable Battery profiles
 - Lead Acid
 - 26 AH, 35 AH, 40 AH, 55 AH
 - Li-Ion (optional)
 - Nickel Metal Hydride (optional)
 - RS485 for Valence Li-Ion
- Adjustable power sharing
- Battery temperature monitoring to enhance battery life
- Fan controlled by compartment temperature
- Three stage charging
 - Constant Current
 - Constant Voltage
 - Float or Standby
- Load disconnect – prevents battery over discharge
- LED based overlay interface
- On board memory
 - Logging of events
 - Battery type

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