

Understanding real-time battery state-of-health and battery environmental conditions is paramount to data centers and critical backup power system integrity.

BI-Smart-601-12V-NC

The BatteryInformer Smart 600 Series onboard discrete battery monitoring device provides a new level of cost effective battery management whereby indicating a battery's true end-of-life.



The Smart 600 provides continuous measurement of battery state-of-health (SOH) for in-service, float charge, lead acid batteries used in a standby backup power application. The Smart 600 establishes a unique baseline Ohmic value for each battery that is hard coded into the device. This measured baseline value eliminates the inaccuracies associated with generic averages and theoretical baseline values that can vary from battery to battery by as much as $\pm 10\%$. As a result, the Smart 600 is one of the most accurate Ohmic battery predictive devices available.

Thermal runaway although uncommon can occur unexpectedly when batteries are not continuously monitored or routinely maintained. Even with routine maintenance there is no guarantee that Thermal runaway can be identified in time. Thermal runaway is typically identified through battery float voltage, battery temperature and the resultant float current rise due to the preceding factors.

The Smart 600, in addition to Ohmic value trend analysis measures **individual battery temperature**, and **battery voltage**. Utilizing temperature, Ohmic (SOH) change and voltage, the Smart 600 provides battery end-of-life and operational warning notification through the device visual display, LED illumination, and a dry contact alarm. These indications provide the necessary notification to access and replace batteries at the appropriate time or address environmental issues that will adversely affect battery life or UPS system integrity without the need for periodic review of data.

NFPA 1 Article 52 compliance is based on the ability to preclude, detect and control Thermal Runaway. The Smart 600 can identify and alarm on Low or High Voltage, High Temperature and Low State-of-Health. With this level of notification, the Smart 600, when responded to alarm notification in a prompt manner provides the necessary warning to control Thermal Runaway before it occurs.

DISPLAY INFORMATION

Scroll - 2 seconds between values

% SOH	Baseline Ohmic	Current Ohmic	Voltage	dy	Cd	Temp °C
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%SOH – Percent State of Health (100% - 0%)

dy – Calendar days of operation

Cd – Adjusted days based on temperature exposure above 77°F/25°C

ALARM TABLE



Event	Alarm	Contac	LED	Displa	Display Action
SOH	=<20%	✓	Blink Red	☒	Icon On
Low SOH	0%	✓	Blink Red		Flash Icon
High Voltage	>13.9V	✓	Blink Red	☒	Icon On
Low Voltage	<12.0V	✓	Blink Red		Icon On
High Nominal Temperature	>77°F/ 25°C			🌡	Icon On
High Temperature	>90°F/ 32°C	✓	Blink Red		Flash Icon

If sensor shows High Temperature and High Voltage immediately remove battery from string.

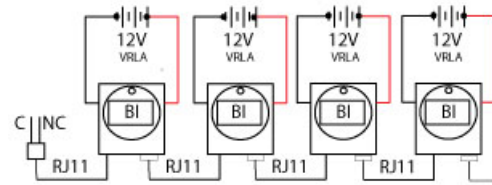
Detailed procedure and actions for alarms provided in separate documentation.

SPECIFICATIONS

Nominal voltage	12V DC
Voltage range	9 - 16V DC
Power consumption	<4mAh (sensor)
Operating temp	-15°C to 60°C
Battery size / type	20 to 200 Ah / VRLA
Battery connection	8mm Ring Terminal
Communication connection	601 - RJ11, 2 conductor, 20cm 603 - RJ11, 4 conductor, 20cm
Alarming	Voltage Free, Contact Closure / switch Normally Closed: 12V-24V 100 mA continuous Opto-isolated relay capable of voltage biases from 4- 60VDC up to 60mA 601-Series - Single Combined Alarm 603-Series - Individual Alarms, Voltage, Temperature, SOH
Display	LED Red-Light and LCD - Digital, graphical, icons
Test frequency	Every minute
Test time	~0.03 sec.
Reverse wiring protection	Yes

Dimensions	55mm x 70mm x 28mm (sensor)
Case material	ABS Plastic (IEC 68-2-32) UL94-V0
Water resistance	IPX-5
Mounting	Surface mount (adhesive/mechanical)

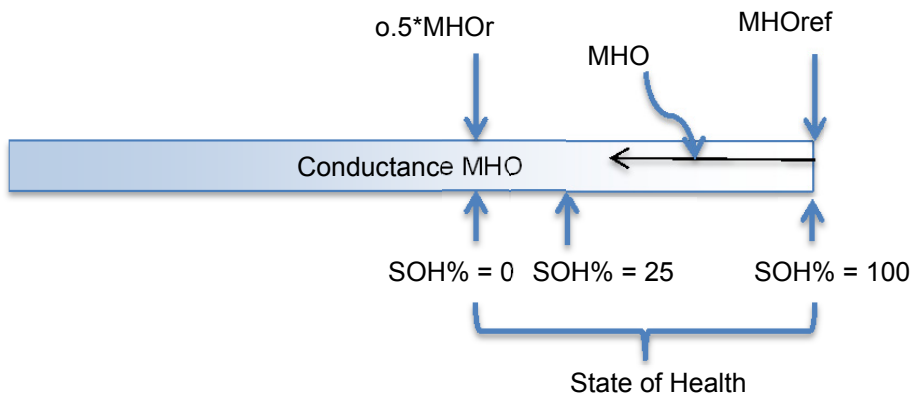
CONNECTION DIAGRAM



Simply connect to the battery (+) and (-) terminal, daisy chain the alarm leads to each unit and connect to a (NC) alarm contact

METHOD OF OPERATION: (“How it works”)

The BatteryInformer measures battery conductance ($1/r$, Mho) every 60 seconds using a single DC pulse method. The largest consistent conductance value (maximum Mho) value is stored as the reference value to which subsequent measurements are compared. In addition to current Voltage and Mho value, the BatteryInformer displays calculated State of Health (SOH%) after each test interval. The current battery Voltage, Mho and SOH% scroll on the display continuously. When the measured conductance value drops to 50% of the reference value, the BatteryInformer will indicate end of life (SOH = 0%).



Also Available for 2V Flooded and VRLA cell

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