



**Introduction**

The **Sentry-1012** is an industrial grade **battery health** monitoring system designed for medium size UPS systems and utility 120V DC with 20x6V or 10x12V batteries. This compact unit combines superior data quality with flexible and streamlined installation, which makes it suitable for server rooms, data centers, substations as well as numerous other industrial applications.



IEEE standard reference:

- IEEE-1188, IEEE Recommended Practice for Maintenance, Testing, and Replacement of Valve-Regulated Lead-Acid (VRLA) Batteries for Stationary Applications
- IEEE-1184, IEEE Guide for Batteries for Uninterruptible Power Supply Systems
- IEEE-446, IEEE Recommended Practice for Emergency and Standby Power Systems
- IEEE 1491, IEEE Guide for Selection and Use of Battery Monitoring Equipment in Stationary Applications

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*Main Features*

- **Digital Wavelet Technology.** Precise IR (Internal Resistance/Conductance) online measurement is performed on each battery, user selectable internal resistance or conductance data display
- **Over Voltage Protection.** Designed with over voltage input for each sampling channel
- **High Resolution.** 16 bit high resolution provides for clear and precise data acquisition
- **Solid State Scanning.** (rather than mechanical relay) provides the highest reliability for industrial applications
- **Noise Immunity.** Provides for accurate measurement on high ripple ups systems
- **Modbus/RTU Communication.** Provides high reliability and ease of integration
- **Compact Design.** Permits convenient installation on top, or inside of the battery cabinet
- **Access Data/Alarm from Anywhere.** Firewall friendly Battery Analyzer software, plug and play, easy to manage large number of sites from anywhere via internet. Alarming through email, SMS and SNMP trap
- **HMI Panel.** The plug and play touch panel (optional) allows the technician to configure and calibrate without the need of a PC
- **Supports Site/Building Management Systems.** The system fully supports 3<sup>rd</sup> party network battery management systems with SNMP, Modbus TCP and hyperlink to real-time data.

*Main measurements*

- Cell Voltage Monitoring
- Cell Internal Resistance (IR) Monitoring
- String Voltage Monitoring
- String Charge & Discharge Current Monitoring
- Ambient Temperature Monitoring
- Pilot Battery Temperature Monitoring

**Validated with:**  
**VRLAB (Valve Regulated Lead Acid Batteries)**  
**Wet/Flooded Lead Acid Batteries**  
**Ni-Cad Batteries**



Standard Installation on battery rack



NEMA Enclosure Option



HMI Display Panel Option



**Specifications**

<b>Power Supply</b>	
<b>Power Input</b>	Powered by battery bank (85 to 150VDC) Maximum Consumption: 10W
<b>Isolation</b>	500VDC@1min to battery string
<b>Current/Temperature Measurement</b>	
<b>Current Sensor</b>	Support LEM current sensor with internal +/-12V power supply (Default range +/- 400A, window size 20mmx15mm.)
<b>Accuracy</b>	0.1% + sensor accuracy
<b>Temperature Sensors</b>	1 ambient temperature sensor, 1 pilot temperature sensor
<b>Range</b>	Measurement range: -20 to 60°C, operating range: 5°C to 40°C (41°F to 104°F)
<b>Accuracy</b>	1 °C
<b>Voltage Measurement</b>	
<b>Channel</b>	Max 20 channels per string (configurable for less than 10 channels) 1 string of 20x6V or 10x12V or 2 strings in parallel
<b>Bus Voltage</b>	Range: 0 – 150V; Accuracy: 0.1%
<b>Input Range to Each Channel</b>	+/- 16V for 12V batteries, Or +/- 20V for 16V batteries ( <b>special order</b> )
<b>Protected input</b>	+/- 150V at any voltage input terminal
<b>Accuracy</b>	0.1%
<b>Internal Resistance /Conductance</b>	
<b>Range and Resolution</b>	0 to 30mΩ, 0.01 mΩ resolution
<b>Wiring mode</b>	1 wire mode: total value of Internal Resistance + Connection Resistance. 2 wire mode: separate connection cable resistance from internal resistance (Recommended for Ni-Cad to monitor at tier level, for example 4 tiers for 92-cell.)
<b>Communication</b>	
<b>Serial Port</b>	Isolated RS-232C and RS-485 interface
<b>Protocol and Serial Settings</b>	MODBUS RTU, 9600-8-1-None (optional Modbus-TCP on board)
<b>Modbus address</b>	1 to 28, configurable with HMI
<b>Ethernet</b>	Onboard Ethernet LAN connection to Battery Analyzer or MyBattery Platform™ SNMP, Modbus TCP, email/SMS message, hyperlink to real-time data
<b>Indication and Alarm</b>	
<b>LED indication</b>	<ul style="list-style-type: none"> <li>▪ Dual-color LEDs for status</li> <li>▪ Orange LED for service alarm</li> <li>▪ Red LED for urgent alarm</li> </ul>
<b>Alarm Outputs</b>	Service Alarm (Normal Close, Voltage-free, 60V 0.1A capacity) Urgent Alarm (Normal Close, Voltage-free, 60V 0.1A capacity)

**\*Specifications subject to change without notice**

