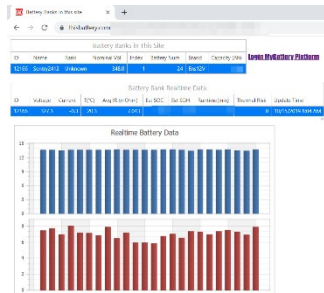
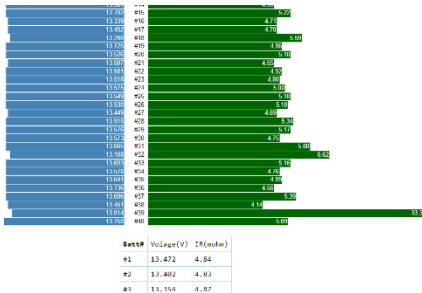


Sentry-1012

Advanced Battery Health Monitor
 For Industrial Critical Backup Power Systems
UPS, Switch Gear, Emergency Lighting
10 x 12V, 1 or 2 strings in parallel



Embedded web

Centralized Data Management

Remote data access



Key Features

- **Precise IR** - Internal Resistance measurement is performed on each 12V battery with *advanced DC method*, user selectable internal resistance or conductance data display.
- **High Noise Immunity** - Provides for accurate/repeatable measurements on high ripple UPS/EPS systems.
- **Compact Design** – All-in-one solid design. Permits convenient installation on top, inside of the battery cabinet, or inside of an additional enclosure.
- **Easy to Install** - Simplified wiring: one wire per battery, plus three IR wires for one string.
- **Reliable Solid-State Scanning** - (rather than mechanical relay) provides the highest reliability for industrial applications.
- **HMI Panel** - The plug and play touch panel (optional, handheld or panel mounting) displays battery data and alarms. Allows the technician to configure and calibrate without the need of a PC.
- **Access Data/Alarms from Anywhere** - Firewall friendly communication, plug and play, simplified management over large number of sites from anywhere via internet or private network. Alarming through email or SMS.
- **Cellular IoT Option** – Low-cost cellular connectivity enabling battery service providers to monitor data and alarms across hundreds of sites. Plug-and-play deployment with no IT configuration required.
- **Supports Site/Building Management Systems** - Fully compatible with third-party SCADA and site management platforms via Modbus RTU, Modbus TCP, API, and direct hyperlink access to real-time data. *Optional DNP3 support available with additional DTU-800.*

Introduction

The **Sentry-1012** is an industrial-grade battery health monitoring system designed for **110/120 VDC** UPS systems and utility switchgear applications. This compact unit delivers high-quality data with a flexible, streamlined installation, making it ideal for deployment in **power plants, substations, refineries, railroads**, and other demanding industrial environments.

Functions

Sentry-1012 is designed to automate recommended measurements in IEEE standards for VRLA and NiCad batteries to ensure safe operation, efficient battery maintenance, and optimal battery service life.

- 1) Continuously monitors Voltage, Current, Ambient and Pilot Temperatures to ensure batteries are in the correct float charging condition.
- 2) Detects thermal risk at early stage and generates alarm to prevent battery thermal runaway.
- 3) Online Internal Ohmic monitoring to detect battery premature or normal deterioration such as **Dryout / Loss of Compression / Swelling and Expansion / Grid or Strap Corrosion / Loss of Active Material / Negative Plate Discharge / and Other Capacity Losing Mechanisms**.
- 4) Provides actionable data and graph via Web and/or PC software for weak battery identification, alarm handling, preventative battery service and battery replacement.
- 5) Enables user to efficiently manage large number of battery banks and sites nationwide or worldwide.

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 1491-2012 IEEE Guide for Selection and Use of Battery Monitoring Equipment in Stationary Applications

NERC PRC-005-6 Compliance

Automatically performs the battery measurements required for VRLA maintenance under NERC PRC-005-6. Measurement data is archived for reporting, maintenance review, and audit support.



Technical Data

Power Supply	
Power Input	Powered by battery bank, 100-350VDC input; Maximum Consumption: 5W
Isolation	1,500VDC@1min to battery string
Current/Temperature Measurement	
Current Sensor	Support LEM or BatteryDAQ certified current sensor with internal +/-12V power supply (Default range +/- 450A, window size D-35mm) Same sensor is used for ripple current measurement
Accuracy	0.1% + sensor accuracy
Temperature Sensors	1 ambient temperature sensor 1 or 2 pilot temperature sensors
Range	Measurement range: -40 to 85°C, Operating range: 5°C to 40°C (41°F to 104°F)
Accuracy	1 °C
Voltage Measurement	
Battery	10 x 12V or 9x12V 1 string or 2 strings in parallel.
Bus Voltage	90 to 150V
Input Range to Each Channel	+/- 16V
Accuracy	0.1%
Input Wiring	1-wire from (+) positive of each battery plus the (-) negative of last battery. 0.5A inline fuses.
Internal Resistance /Conductance	
Range and Resolution	0 to 30mΩ, 0.01 mΩ resolution
1-wire mode	Total value of Internal Resistance + Connection Resistance.

	3A fuses for BUS+, MID, BUS-.
Communication	
Serial Port	Isolated RS-232C and RS-485 interface
Protocol and Serial Settings	Modbus-RTU, 9600-8-1-None
Modbus address	1 to 28, configurable with HMI
Ethernet	Onboard Ethernet LAN connection to Battery Analyzer or Master-800. Embedded web page displays battery data/graph
Integration Options	Dry contact alarm outputs Serial port, Modbus-RTU Ethernet, Modbus-TCP Master-800, API
Indication and Alarm	
LED indication	<ul style="list-style-type: none"> ▪ Dual-color LEDs for status ▪ Orange LED for service alarm ▪ Red LED for urgent alarm
Alarm Settings	Bank/Charger Voltage High/Low Ambient/Pilot Temperature High Battery Voltage High/Low Internal Resistance High/Low
Alarm Outputs	Service Alarm (Normal Close, Voltage-free, 60V 0.1A capacity) Urgent Alarm (Normal Close, Voltage-free, 60V 0.1A capacity)
Dimensions	165W x 31H x 165L (mm) plus mounting and terminals
Mounting	Magnetic cup (default). DIN rail or customized bracket.

*Specifications subject to change without notice



Software and Alarm Delivery

Option	Description	Note
Embedded Web Page	Immediate access to battery data/graph with web browser	Included
Battery Analyzer	PC software to manage multiple systems. Email/SMS alarm. Powered by Microsoft® SQL Server® Express database.	FREE Installed on Local PC.
Master-800 Dashboard Data/Alarm Concentrator	Effectively manage multiple remote systems nationwide in your private network, without PC software and IT security concerns.	Requires one Master-800 hosted at a central office or service center.
MyBattery Platform https://thisbattery.com	Secured cloud/public platform for unlimited sites/ batteries. Access data worldwide with smart phone and/or laptop.	FREE Subscription Secured public cloud
SCADA	Modbus-TCP, Modbus-RTU, API integration DNP3 optional with external DTU-800.	FREE Technical Support

Ordering Information

Part Number	Description	Notes
ST-1012	Sentry-1012 unit, includes temperature probes.	For 1 string of 10x12V, or 2 strings of 10x12V in parallel. Compatible with 9x12V.
IoT-M5	Cellular IoT Module	Pre-installed inside unit. As low as \$1 per month SIM/Data plan.
SCK12T-300A	Current Transducer, D-35mm, +/-450A	Default has a closed core. Split core available.
HS-ST1012-6	Harness for one string, default 6FT	Order 2 pcs for 2 strings. Specify length if needed >6FT.
TWL-OT-xx	Sampling leads, 0.5A inline fused.	specify the O-ring size 6mm (1/4" default), 8mm/10mm available
HMI-GT-02	Touch Screen Display	Service tool, can be used as local display.
Master-800	Centralized Web Dashboard	Aggregates data/alarms from multiple remote BMS units.



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