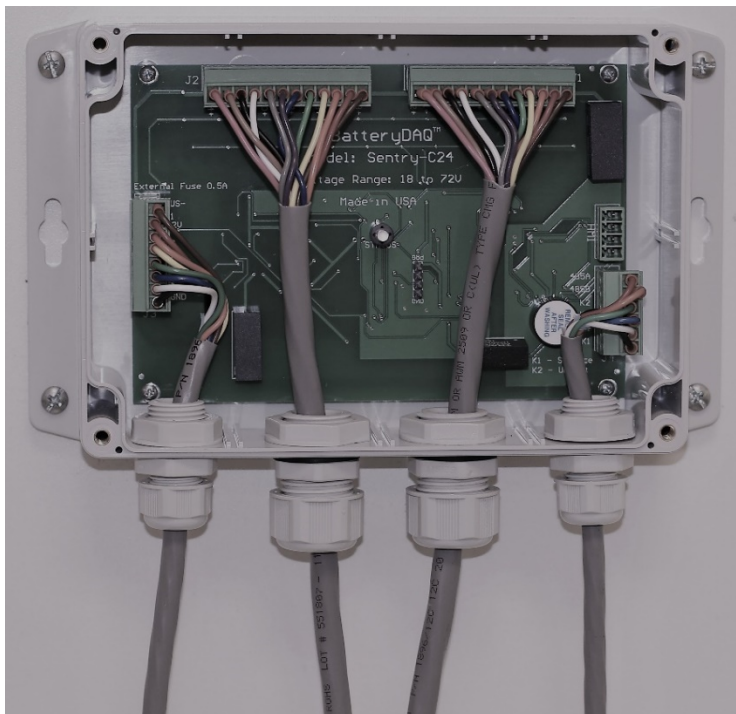


Sentry-2402C Battery Monitor is designed for solar, hybrid or other cycling applications to ensure safety, improve power system performance and extend battery service life. Based on our 20+ years of battery monitoring experience, the accurate measurement and intelligent charging/discharging cycle analysis ensures real-time awareness of your battery health and system safety, during every stage of green energy operation.

	BatteryDAQ Sentry™ Deep Cycle Battery Monitor
Confirm the Correct Monitoring for Solar/Hybrid System	Consulting with BatteryDAQ specialist, at the earliest stage of research and design, will ensure success. While there are a plenty of battery monitors on the market, few will work properly, for industrial and telecom solar applications.
Prove of Concept	Data , choose a system that performs reliable and seamless data acquisition to record cycling performance for evaluation of solar panel size/installation and battery type/capacity (and generator selection.)
Implement Trial Sites	Remote real-time data from sites worldwide, with Ethernet or 3G/4G coverage. Receiving alerts by email/SMS.
Full Scale Implementation	IP65 water proof casing for nonstop connection to wet batteries or VRLA. Easy to install and manage a large number of sites.
Long Term Maintenance	Reliably identify deteriorated battery with “Deterioration Index” for each cell. Issue timely maintenance to get the most out of battery service life, while maintaining power system safety, efficiency and reliability.



- ▣ + **Battery cell voltage monitoring**
- ▣ + **String current monitoring**
- ▣ + **Intelligent algorithm detects thermal runaway risk at its earliest stage.**
- ▣ + **Risk alarms sent to inverter for counter adjustments**
- ▣ + **Alarm signal sent to site management input**
- ▣ + **Proprietary modeling of battery SOH**
- ▣ + **Real-time battery SOC calculation**
- ▣ + **Plug and play HMI for technician visits**
- ▣ + **Modbus-RTU or Modbus-TCP for integration**



Specifications

Power Supply	
Power Input	Powered by battery bank, 18-60V input; Maximum Consumption: 3W
Current/Temperature Measurement	
Current Sensing	Current measurement for a battery bank. Default D35mm window size. Other size available.
Current resolution	0.1A
Current Range	Default +/-400A, other range available.
Temperature Sensing	1 ambient, 1 pilot sensors per unit. Intelligent thermal runaway detection algorithm
Temperature Range	Measurement range: -40 to 85°C Operating range: -40°C to 65°C (-40°F to 149°F)
Accuracy	1 °C
Voltage Measurement	
Battery Configuration	24V (12x2V) or 48V (24x2V) compatible
Cell Voltage	0 – 3V, accuracy: 0.1%
Bus Voltage	Range: 18 – 60V; Accuracy: 0.1%
Communication	
Serial Port-1	RS-232C, also used for HMI service tool. RS-232 to wireless adapter available.
Serial Port-2	RS-485, for integration, Modbus-RTU, 9600-N-8-1
Ethernet (optional)	Secured Ethernet DTU with HTTPS and FTPS. Embedded web pages for real-time data and history file access Modbus-TCP for integration with 3 rd party central management software Connect to 8 units via RS485 or wireless.
Indication and Output	
LED indication	Dual-color LEDs for status and alarm
Beep alarm	Beeping when there is alarm
Control Output	ALARM-1: Normal Close, to control charger/inverter ON/OFF for thermal runaway protection. ALARM-2: Normal Close, can be defined as generator start/stop signal with SOC threshold.
Dimensions	
Unit Dimensions	171 mm (H) x 121 mm (D) x 39 mm (W), 6.73 x 4.76 x 1.54 inch, plus mounting flange.

*Specifications subject to change without notice



Connection Terminals

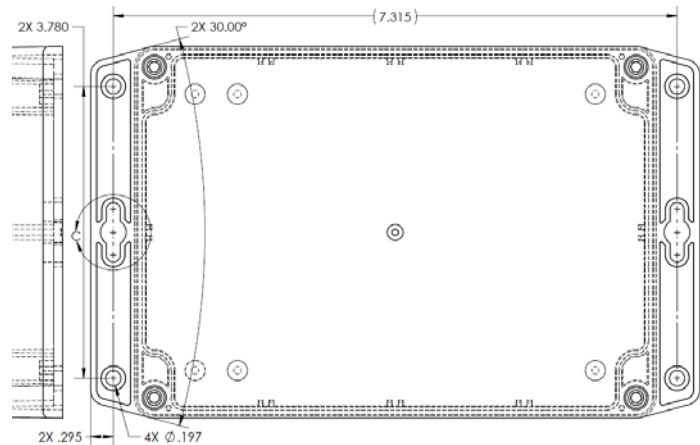
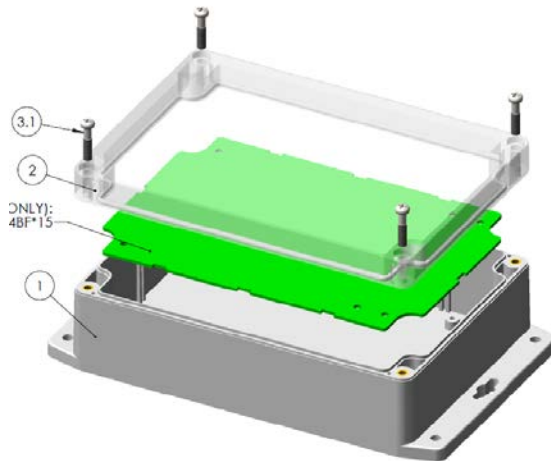
Plug-1		Plug-2		Plug-3		Plug-4		Plug-5	
Pin	Function	Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	B+1 (BUS+)	1	B+13	1	B24- (BUS-)	1	ALARM1	1	+5V
2	B+2	2	B+14	2		2	ALARM1	2	TXD
3	B+3	3	B+15	3	TS1+	3	ALARM2	3	RXD
4	B+4	4	B+16	4	TS1-	4	ALARM2	4	GND
5	B+5	5	B+17	5	TS2+	5	RS485B		
6	B+6	6	B+18	6	TS2-	6	RS485A		
7	B+7	7	B+19	7	CT +12V				
8	B+8	8	B+20	8	CT -12V				
9	B+9	9	B+21	9	CT Signal				
10	B+10	10	B+22	10	CT GND				
11	B+11	11	B+23						
12	B+12	12	B+24						

Comparison Table

	Sentry-24C	Compared Model
Claimed Purpose	Individual battery monitoring to ensure safety, improve power system performance and extend battery service life.	Battery bank monitoring with battery string health detection
Voltage	Monitor voltage at cell level to obtain accurate data for embedded analysis.	Monitor voltage at string level, without knowing each cell's status.
Current	Accurate CT, easy to install. Cover any capacity and current range.	Shunt, limited usage for high capacity battery.
Temperature	Two sensors (ambient and pilot) detect battery over-charging for wide range of operation temperature, eliminating false alarm due to high ambient temperature.	Only one temperature sensor.
Battery Health	Analyze charging/discharging curve for each cell to obtain reliable health information and present it as "Performance Percentage" for easy read, and display in color bar graph on Web page or Battery Analyzer software.	Mid-point voltage, not knowing each cell's health.
Runtime, SOC	State of Charge and Runtime estimation Signal to control generator	State of Charge and Runtime calculation Signal to control generator
Enclosure	Industrial grade, water proof IP65, NEMA 4 enclosure to ensure long term service in high humidity environment, indoor or outdoor.	IP 20, NEMA 1, indoor only.
Remote Access and Integration	Ethernet (Modbus-TCP) RS-485 (Modbus-RTU)	Xanbus RS-485 (Modbus-RTU)
Data Logging	DTU SD card, accessible with web page or ftp. Database archiving if connected to PC software.	Build-in data logger No database
Software	Battery Analyzer PC software Embedded web page to display battery data	No PC software No web page



Mounting



Ordering

Item	P/N	Qty.	Notes
Main unit	ST-24C	1	IP65 water proof enclosure with glands installed. With a set of terminal plug.
Temperature Sensors	TS2-2, TS2-5	2	1 ambient (2FT) + 1 pilot (5FT)
Current Transducer	SCK12T-300A	1	D- 35mm window size, with 6ft sensor cable assembly.
Ethernet DTU	DTU-800EX	1	DTU provides Ethernet connection to manage up to 8 Sentry units on a site, via RS485 port or wireless. DTU is powered by AC adapter or 9-24VDC.
Battery Connection Cable	CB-12-xx	Optional	12 conduct 20 AWG cable. Please provide battery rack layout and specify length.
Tab Washers	TW-xx	25 Optional	Tab washers, choose correct size 6mm/8mm/10mm for battery posts
Inline fused leads	TL-250	25 Optional	Quick connector 500mA fused leads [3A fuses for BUS+ and BUS- leads]
HMI Display	HMI-GT02	Optional	Field service tool to check battery data and set/calibrate monitor without a computer.
Battery Analyzer software	SF-ANALYZER	Included	Software for monitoring, alarm delivery, data achieving.

