EAGLE EYE
POWER SOLUTIONS

Vigilant

Utilities | Distribution | Data Centers | UPS

Vigilant Monitor

Intelligent Battery Management System

The ground-breaking Vigilant Battery Management System (BMS) with Advanced Multi-Function (AMF) sensors employs several new ground-breaking battery parameters to predict battery condition. Included in these critical parameters are cell **Cell Condition, Battery State of Health, and Battery (at) Risk Factor.**

The Vigilant monitors the following key battery parameters as outlined in IEEE and NERC recommendations for battery monitoring: string voltage, cell voltage, cell resistance, terminal & connection resistance, negative post temperature, ground fault, and ambient temperature. Battery electrolyte level can be monitored with add-on sensors.

Web-Based Battery Management

- A key advantage of the Vigilant is how it processes measurement data.
- Rather than simply read and display measured parameters, the Vigilant also uses Artificial Intelligence to calculate the SoH of the battery.
- Measurement data and analysis is done via a built in web-server, which can be accessed with any browser.
- The web-based software eliminates the need for a standalone software package and is viewable on a desktop or mobile environment.

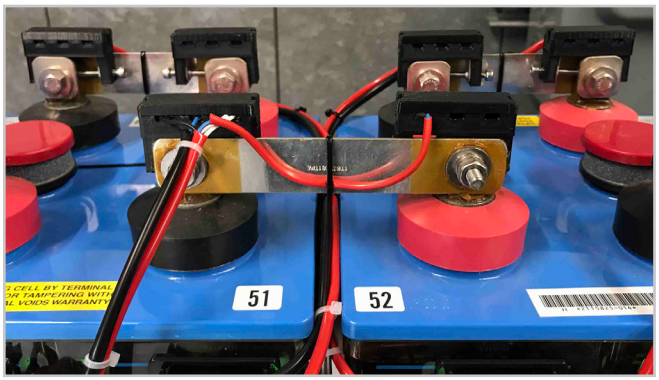
Vigilant Web-Manager Dashboard

Key Features

- **Cell Condition:** Using machine learning algorithms to accurately calculate deterioration much earlier than current Ohmic testing methods
- **Battery State of Health:** Algorithms encompassing 12 key parameters to estimate the health of the battery as a whole. It includes measured changes in internal & external factors and in all parameters that could identify a potential reduction in anticipated battery life
- **Battery Risk Factor (RF):** Employing individual cell SoH along with temperature and ripple current to better predict risk of battery failures
- **True Float Current:** Vigilant's Advanced Multi-Function (AMF) sensors measure true float current without the remanence and temperature problems of Hall-effect transducers

Advantages

- Quick, simple installation – up to 240 cells, divisible across 8 strings per Monitor
- Online installation to battery without inturruption to DC
- On-board web server and easy-to-read dashboard
- TCP/IP, Modbus, or DNP3 protocols
- Watchdog circuits for notification of hardware failure
- Optional integrated electrolyte level sensors
- Proprietary algorithms provide complete risk factor analysis with projected end of life



Battery Post Connections

Vigilant Expert Installation

Sensor Performance	
Working Voltage Range	0.05 – 18.5VDC
Voltage Resolution	± 1mV
Post Temperature Resolution	± 1°C
Cell Resistance Resolution	± 7μΩ
Strap Resistance Resolution	At 100μΩ strap r: ± 2μΩ
Float Current Resolution	At 100μΩ strap r: ± 1mA
Charge/Discharge Current	Max 800μΩ strap r: ± 0.1% Max 400μΩ strap r: ± 0.1%
Current Range	2,000A

Communication	
Onboard Storage	SSD
Memory Capacity	20 years of battery data average, expandable for larger systems
Local Data Download	Via USB port
External Protocols	Modbus TCP/IP, DNP3
Network Interface	RJ45 Ethernet

Electrical Data	
Electrical Supply (from DC supply)	36 – 72VDC 90 – 300VDC 280 – 580VDC
Other Power Options	24V mains supply
System Internal Power	via comms system
Operating Power (from charger)	@ 60 cells: 25W
Operating Temp Range	-4 – 70 °C (25 – 158°F)
Isolation I/P to O/P	1,000VDC
Test current @ 2.5V	20A

General	
Dimensions (L x W x H)	Monitor: 50 x 50 x 25 mm (2 x 2 x 1 in.) Sensor: 242 x 200 x 65 mm (9.5 x 8 x 2.6 in)
Certification	CE

Ordering Information

Model No.	Description
Vigilant	Battery Monitoring Solution