ENERTECT-VRI

Battery Monitoring System

Enertect is an online battery monitoring and data management system with test analysis and remote monitoring control capabilities. It is capable of automatic monitoring, displaying and recording of different battery parameters. Data recorded can be transferred to remote central computer via various protocols such as RS-232, Wi-Fi, GPRS or TCP/IP.

Enertect monitoring software can also be integrated with Network Operating system of data centers or with building management systems.

Features

Voltage:
Measures voltage of individual batteries which helps users determine the health and performance of the batteries.

Current:
Measures the amount of current which flows through each battery bank during the float, charge and discharge mode.

Ambient Temperature:
Measures the ambient temperature at any given two points per system.

Internal Resistance:
Measures the internal resistance of individual batteries which helps in predicting the battery health.

Inter-connector Resistance:
Monitors the resistance of both the inter-cell and inter-tier connectors which helps the user verify the integrity of the battery installation.

Charge/Discharge Cycles (Optional):
Measures the number of charge-discharge cycles of each battery string to help the user monitor the service life of the battery.

Power Outages (Optional):
Records every power failure and its duration.

Alarms & Alerts

✓ Ambient Temperature Alarm

✓ Cell Voltage Alarm

✓ String Voltage Alarm

✓ SMS Alarm: Sending an SMS directly from the hardware through GSM/GPRS/Internet

✓ Communication Alarm

✓ General Alarm through Dry/Potential/Volt Free Contacts

✓ General status and alarms of all the batteries on string level basis is provided as per user set threshold on the dashboard software

✓ Detailed alarm summary of all the batteries on string level basis is provided as per user set threshold on the dashboard software

Reports

✓ Alarm condition reporting: Tabular

✓ Cell/jar out-of-limits summary report: Tabular

✓ Individual cell voltages over time: Graph/Tabular

✓ Total battery voltage over time: Graph/Tabular

✓ Room temperature over time: Graph/Tabular

✓ Discharge report - Total battery voltage decay vs. time: Graph/Tabular

✓ Discharge report - Cell voltage decay vs. time: Graph/Tabular

✓ Discharge hit summary report: Tabular

✓ Discharge hit interval summary report: Tabular

✓ General summary report of batteries and monitoring status of all systems to the batteries or string level based on user set thresholds

✓ Detailed summary reports of batteries and monitoring status of all systems with a line graph trend of any parameter that violated a threshold

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Software & Technology

The Enertect web based interface and reports are powered by ASP.net and AJAX with the optional functionality of export to excel, email and SMS

Enertect Supports:

▶ Building Management Systems
▶ Scada Systems
▶ UPS
▶ Third Party Hardware & Software

Communication Protocols:

▶ MODBUS RTU/TCP
▶ SNMP (Optional)
▶ TCP/IP (Optional)

Communication Ports:

▶ Ethernet
▶ RS 485
▶ RS 232 (Optional)

Standard Specifications

Environmental

Operating temperature	-5℃~50℃, 5%~90%RH
Storage temperature	-10℃~70℃, 5%~90%RH
Power Requirements:	
1) Battery Sensor	Powered from battery
2) String Sensor	DC8~13V,2W
3) Converter	DC8~13V,3W
4) Main Module	85~260VAC, 100~370VDC,15W
Protection	Test load and power paths are fused

Measurement Range & Accuracy

String (Bank) voltage	20~800V ± (0.5% + 0.2V)
Cell voltage	1.5~2.5V ± (0.1% + 0.1mV)
	9~15V ± (0.1% + 10mV)
Internal Resistance	1000~65535uΩ
Ambient Temperature	-10℃~70℃, ± 0.5℃
Battery Temperature	5℃~50℃, ± 1.5℃
String current	0~500A (Optional)
Communication Interfaces	RS232, RS485 ports
	Ethernet 10/100 Mbps
	MODBUS protocol
Insulation	2000V AC
Digital Signal	1 Potential free contact, 220V DC/1A

Weight (kg)

Main Module	1.8
Battery Sensor	0.12
String Sensor	0.16

Dimensions (mm)

Main Module	483 x 44.5 x 116 (W x H x D)
Battery Sensor	80 x 28 x 83 (W x H x D)
String Sensor	103.5 x 28 x 95 (W x H x D)

Compliance Standards

IEEE Std 1188™-2005
IEEE Std 1491™
ANSI/TIA-942-2005
GB50174-2008

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