PowerHub

BRILLIANCE BM2000
BATTERY MONITORING SYSTEM

Get 24/7 remote access to the battery performance information you need to proactively maintain your stationary power systems and avoid costly downtime

The BMS Solution For Telecommunication Systems

The Brilliance BM2000 Battery Monitoring System (BMS) provides an accurate and reliable indication of battery state-of-health through constant monitoring and analysis of battery voltage, temperature and impedance. It provides immediate warning of battery deterioration and imminent failures. It identifies any individual battery that exhibits problem(s), thus providing a proactive approach to ensuring system reliability. The concepts behind Brilliance BM2000 system are flexibility and scalability, with ease of installation, usage and operation. It is specifically designed to monitor backup batteries at telecommunication sites and base stations which use 24VDC or 48VDC backup power system.

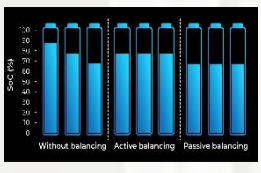
FEATURES OF BRILLIANCE BM2000 BMS

Real-time Monitoring

24/7 real-time monitoring of individual Battery Voltage, Charge and Discharge Current, Internal Impedance and Internal Temperature, State Of Charge (SOC) and State Of Heath (SOH).

Battery State Of Health

Monitor the state of health for individual battery and battery string that allows predictive maintenance to take place. Eliminate unplanned outage due to failing battery.



Auto Battery Cell Balancing

Detect unbalanced batteries voltages and auto balance voltages between batteries.

Real-time LED Battery Health Indicator

Real-time LED battery health indicator shows battery status by emitting 2 different colours. When the battery is healthy, the LED will light up in green. When the battery is failing, the LED will light up in red.

Alarm notifications

Send out alarm notifications in the event when a failing battery is detected.

As mission critical systems rely on UPS and battery bank, battery monitoring is critically essential to keep operations running smoothly. In recent years, battery monitoring has become an integral part of system continuity strategy for all organizations with medium to large UPS systems. Having a battery monitoring system that constantly monitors the batteries (State Of Health) brings a lot of advantages.

BENEFITS OF BRILLIANCE BM2000 BMS

Prevents Unplanned Outages – by monitoring every battery every day, failing batteries are identified to be removed from the battery string. This prevents healthy ones from further deterioration and outages due to a battery failure.

Saves money – by extending useful battery life through constant monitoring and balancing between each battery; by predicting battery's health, deferring premature replacements and reducing manual corrective maintenance costs.

Complies with regulatory requirements – Brilliance BM2000 BMS complies with IEEE 1188-2005.

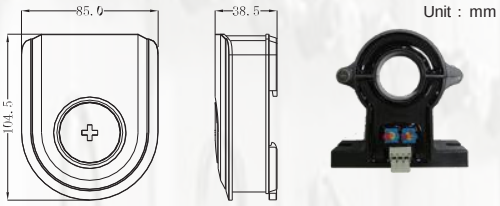
SYSTEM COMPONENTS

1. BRILLIANCE BM2000 Battery Monitoring Gateway

Normal Status　　Abnormal Status

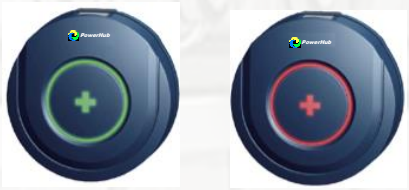
Functions:

- Management layer for configuration
- Monitor Battery String Voltage, Charge and Discharge Current Calculate Battery String SOC
- Auto-Balancing
- Auto-sensing for the Battery Sensor's ID Address Setpoint Alarming (Upper Limit / Lower Limit) Data Collecting
- Data Uploading Function via Build-in RS485 (Modbus-RTU) & Ethernet (Modbus-TCP or SNMP)
- Check Battery String Status: Equalizing, Discharging, Floating Charge, Stand by and Abnormal Status



Application		**DC Power System (Telecom)**
Rated Input Voltage		24VDC or 48VDC Range: 20V ~ 60VDC
Measuring	**Voltage**	0V ~ 800V (Accuracy: ±0.5%)
	Current	-1000A ~ +1000A (by Hall Sensor, Accuracy: ±2.0%)
Power Comsumption		< 2W
Up-link Communication		1 Ethernet port (10/100M), Modbus-TCP / SNMP Protocol
		1 RS485 port，Modbus-RTU protocol，Baudrate: 9600bps, 19200bps, 38400bps
Down-link Communication		2 RJ11 ports, each port connect Max. 60pcs batteries, total Max. 120pcs batteries

2. BRILLIANCE BM2000 Battery Cell Sensor



Normal Status　　Abnormal Status

Functions:

- Brilliance 602 for 2V Battery, Brilliance 612 for 12V Battery
- Monitor Individual Battery Voltage, Internal Temperature (Negative pole), Impedance (Ohmic Value)
- Auto-Balancing

Item	**Rated Input Voltage**	**Measuring Range**			
		Voltage	**Internal Temperature**	**Impedance**	**Power Consumption**
BRILLIANCE 602	2V	1.6V~2.6V (±0.2%)	-20°C~85°C (±0.5%)	0.1mΩ~100mΩ	Running: <110mW Sleeping: <12mW
BRILLIANCE 612	12V	7.5V~15.6V (±0.2%)		Conformity Error: 1.5%±25uΩ	Running: <90mW Sleeping: <10mW

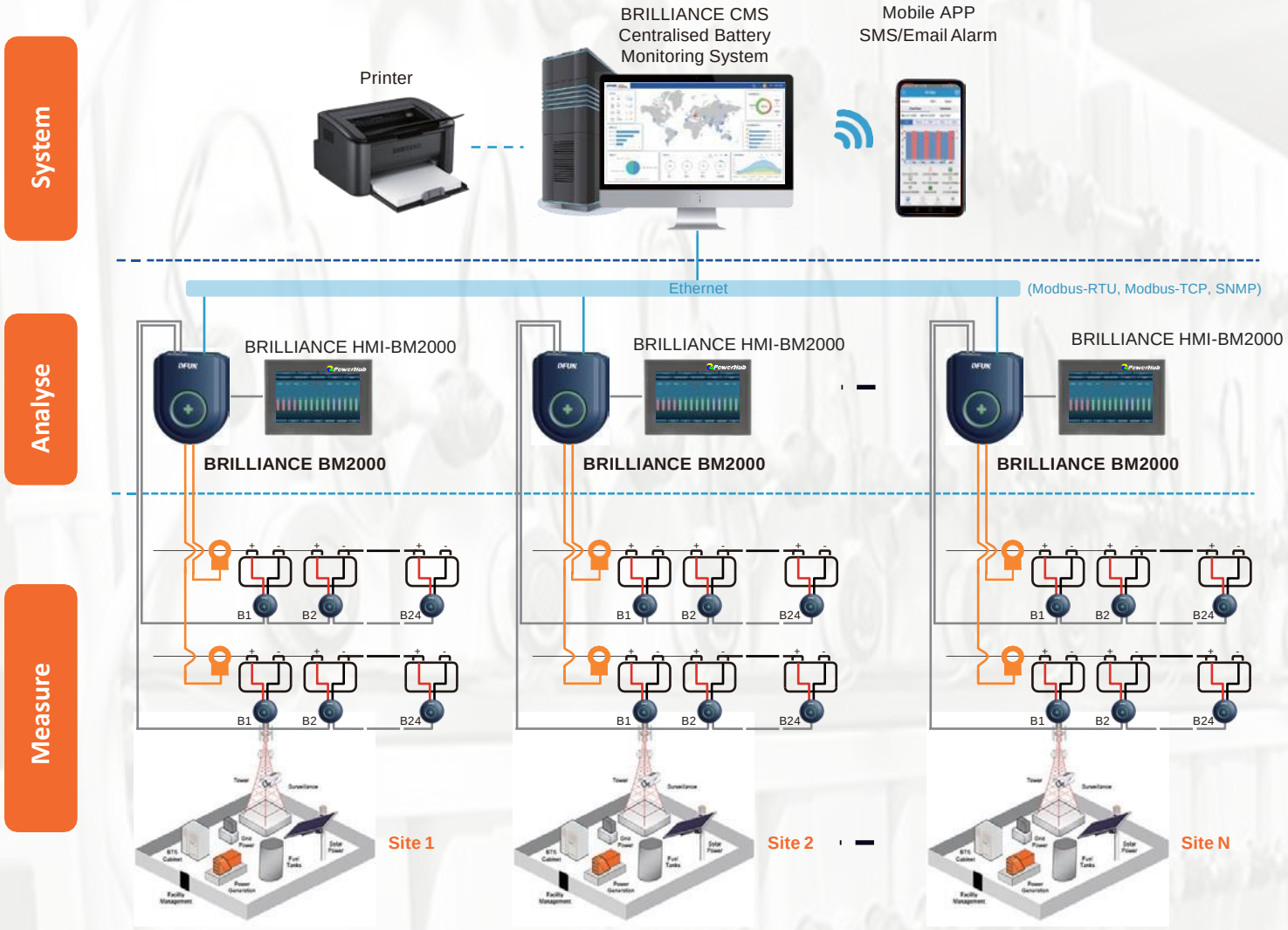
3. BRILLIANCE HMI-BM2000 (Optional)

Functions:

- 7" inch Touch-Screen HMI for Display and Operation
- Real-time Data Inquiry:
  - Individual Battery Voltage, Impedance, Inner Temperature, SOC, SOH
  - String Voltage, Charge and Discharge Current, SOC, Balance Degree
- Alarm Data Inquiry:
  - Real-time Alarm Status and Related Alarm Information (Faulty Battery ID, Date / Time, Alarm Reason, Communication Status etc..)
  - 3000 Alarm Records for Each String Battery

Display	7" inch TFT display	**CPU**	ARM cortex-A8，400MHz
	LED backlight	**Flash**	128M NAND
	Resolution: 800 X 480	**RAM**	64M DDR2
Communication	1 Ethernet port, (connect with PBAT-Gate)	**Dimension**	226.5mm X 163mm X 36mm
	1 RS485 port, (connect with PBMS Series)		Mounting Hole: 215mm±0.5 X 152mm±0.5
Power Supply	24VDC, 20% / 300mA max.	**Power Consumption**	< 5W

SOLUTION OVERVIEW:



SYSTEM INFORMATION

System Structure		Model	Description	Remark
Management Layer		**BRILLIANCE BM2000**	Battery Monitoring Gateway	One BM2000 Can Monitor Max. 1 String, Total 120pcs Batteries or Max. 2 Strings, Each String Max. 60pcs Batteries **Battery Measuring Cable:** 30cm **Communication Cable:** 40cm & 70cm with RJ11 (optional)
Battery Cell Sensor		**BRILLIANCE 602**	2 Volt Battery Cell Sensor	One per battery cell
		BRILLIANCE 612	12 Volt Battery Cell Sensor	One per battery cell
Hall Sensor		**BRILLIANCE CS100**	Rated Input: 50A	Measure Range: 0~±100A, Φ20mm
		BRILLIANCE CS200	Rated Input: 100A	Measure Range: 0~±200A, Φ40mm
		BRILLIANCE CS400	Rated Input: 200A	Measure Range: 0~±400A, Φ40mm
		BRILLIANCE CS800	Rated Input: 400A	Measure Range: 0~±800A, Φ40mm
		BRILLIANCE CS1K	Rated Input: 500A	Measure Range: 0~±1000A, Φ40mm
Optional Module	**Local Display & Operation**	**BRILLIANCE HMI-BM2000**	7" inch Touch Screen HMI	One Per BM2000 Communication With BM2000 via RS485

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