ЭНЕРГОМЕТРИКА
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BMS 900
Battery Monitoring Module

- **Dual source**
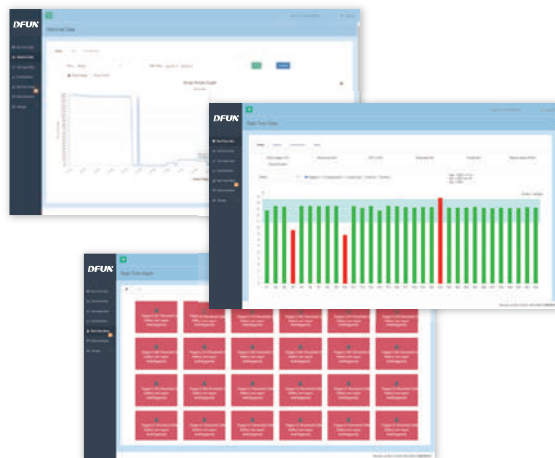- **4G wireless upload to the third party**
- **Build-in web server with visual display**
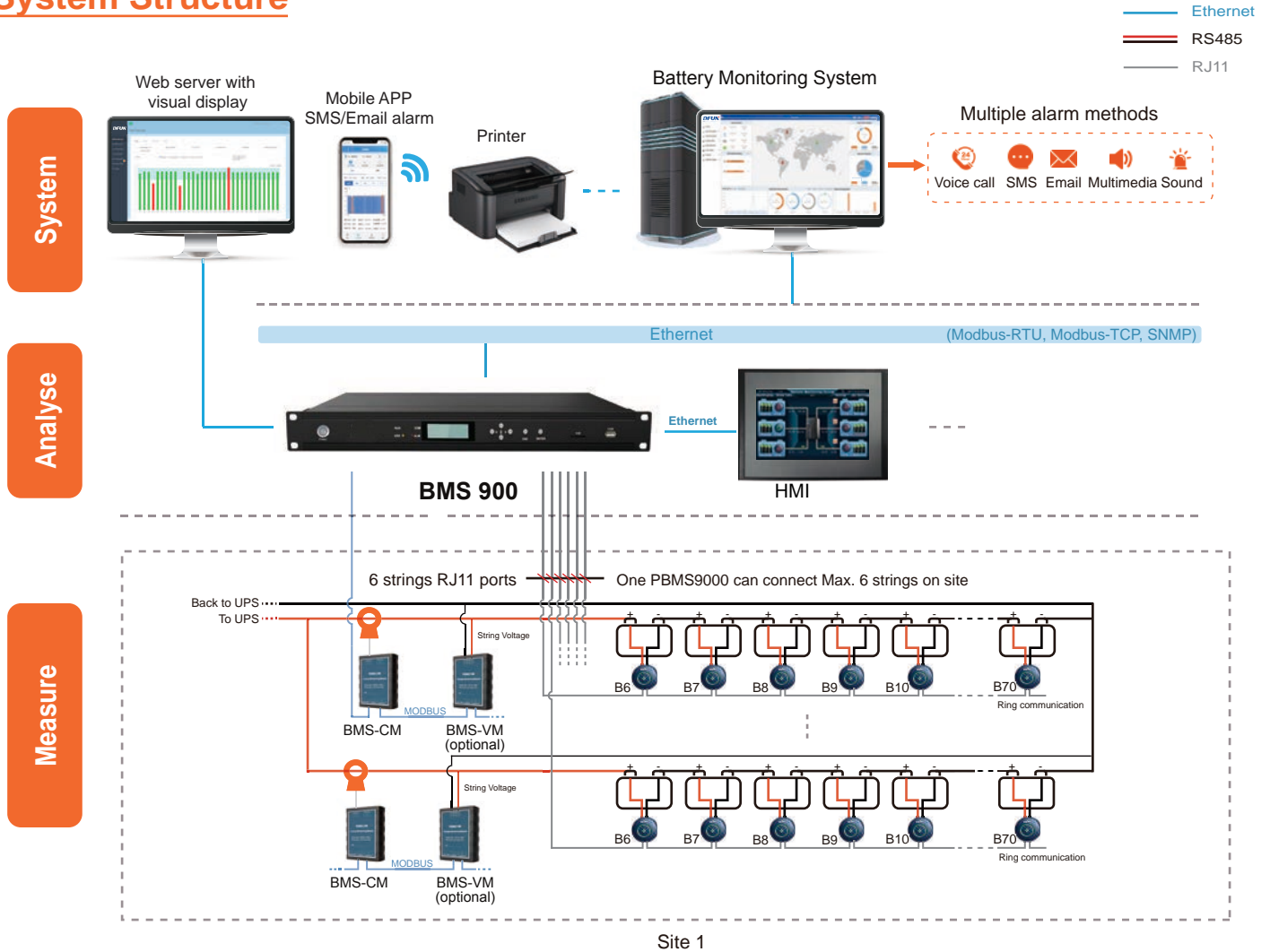- **Data storage**

Feature

- 24/7 hours on-line monitoring & remote alarms notification

- Suitable for UPS and data center application

- Measure lead-acid or multi-pole battery

- Anti-interference design, support to connect with high-frequency UPS

- Ring communication, any communication failure will not affect other sensors communication

- Full data measurement, such as voltage, current, impedance, insulation resistance, ripple current, ripple voltage, SOC, SOH, etc.

- Auto-sensing for the battery sensor's ID address

- Dual-source to avoid power shut down

- Comply with IEEE 1188-2005
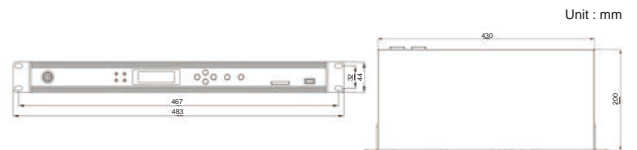
BMS 900 Battery Monitoring Module

System Structure

Web server with visual display

Mobile APP SMS/Email alarm

Printer

Battery Monitoring System

System

Multiple alarm methods

Voice call   SMS   Email   Multimedia   Sound

Analyse

Ethernet   (Modbus-RTU, Modbus-TCP, SNMP)

BMS 900

Ethernet

HMI

Measure

6 strings RJ11 ports   One PBMS9000 can connect Max. 6 strings on site

Back to UPS
To UPS

String Voltage

B6   B7   B8   B9   B10   B70

Ring communication

MODBUS

BMS-CM   BMS-VM
(optional)

String Voltage

B6   B7   B8   B9   B10   B70

Ring communication

MODBUS

BMS-CM   BMS-VM
(optional)

Site 1

Management Layer
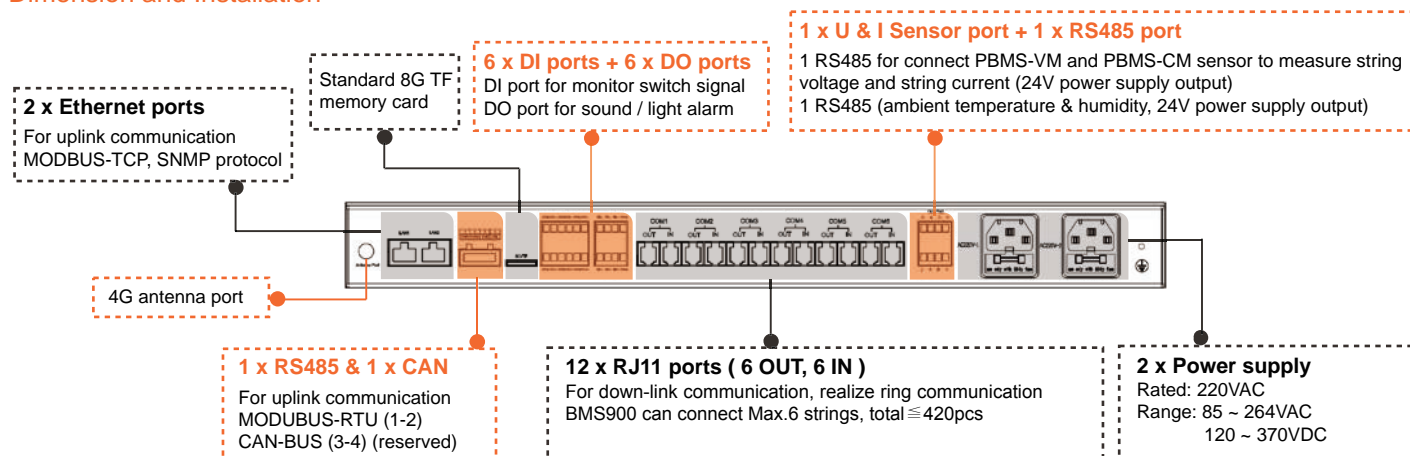
BMS 900 Battery Monitoring Gateway

- **-** Standard 1 U design for distribution cabinet
- - Monitor Max. 6 strings battery, in a total of 420 batteries
- - Built-in web server with visual display
- - Measure battery string current and voltage, ripple voltage, ripple current, charge and discharge current, internal temperature, impedance, SOC and SOH
- - Setpoint alarm for cell voltage, internal temperature, impedance, SOC, SOH (upper limit / lower limit) and string voltage, current, SOC (upper limit / lower limit)
- - Alarm message by SMS or Email
- - Support SNMP, Modbus-TCP, Modbus-RTU, CAN-BUS protocols
- - Support MQTT, JSON format to upload data
- - 2 Ethernet port for data upload
- - 1 RS485 port (support 1~6 strings ambient temperature & humidity acquisition)
- - 6 DI ports (digital Input connecting)
- - 6 DO ports (sound and light alarm)

Unit : mm

430

467
483

**Pre-install & pre-wiring   for
B M S   9 0 0   a n d   H M I
(optional)**

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BMS 900 Battery Monitoring Module

Dimension and Installation

2 x Ethernet ports
For uplink communication
MODBUS-TCP, SNMP protocol

Standard 8G TF memory card

6 x DI ports + 6 x DO ports
DI port for monitor switch signal
DO port for sound / light alarm

1 x U & I Sensor port + 1 x RS485 port
1 RS485 for connect PBMS-VM and PBMS-CM sensor to measure string voltage and string current (24V power supply output)
1 RS485 (ambient temperature & humidity, 24V power supply output)

4G antenna port

1 x RS485 & 1 x CAN
For uplink communication
MODUBUS-RTU (1-2)
CAN-BUS (3-4) (reserved)

12 x RJ11 ports (6 OUT, 6 IN)
For down-link communication, realize ring communication
BMS900 can connect Max.6 strings, total ≦420pcs

2 x Power supply
Rated: 220VAC
Range: 85 ~ 264VAC
       120 ~ 370VDC

Technical Specification

CPU	ARM cortex M4 180MHz	**Up-link communication**	2 Ethernet ports (10/100M), MODBUS-TCP, SNMP, 1 RS485 port, MODBUS-RTU, baudrate: 9600bps, 19200bps, 38400bps (optional) , 1 CAN port, CAN-BUS
Memory	512MB flash, EMMC 4G + 8G TF memory card		
Display	2-inch LCD with backlight	**Down-link communication**	6 Channels RJ11 ports, each port Max. connect ≤ 70pcs batteries, total Max. 420pcs
MTBF	≥ 100,000 hours		

Power supply	Rated: 220VAC Range: 85 ~ 264VAC 120 ~ 370VDC	**Measure range**	**Voltage**: 1~6 strings, range: 8 ~ 1000VDC (±0.5%), resolution: 0.01V
			Ripple voltage: 1~6 strings, range: 2 ~ 100V (peak), resolution: 0.01V
Dimension	Standard 19-inch 1 U device 482.6mm × 204.5mm × 44mm Open hole: 438mm×318mm		**Current**: 1~6 strings, range: -2000 ~ 2000ADC (±2.0%, under 15°C ~ 35°C), resolution: 0.01A
Power consumption	< 15W (only master)		**Ripple current**: 1~6 strings, according to the rated current of the hall sensor, range: DC 0 ~ 0.4*I (peak), resolution: 0.01A
Additional port	1 x RS485 (ambient temperature & humidity) 6 x DI dry contact 6 x DO relay output, 250VAC/5A or 30VDC/5A	**Ambient temperature & humidity**	1 ~ 6 in series. Temperature: -20° C ~ 80° C (±0.5° C), resolution: 0.1° C. Humidity: 0 ~ 100%RH (±3%RH), resolution: 0.1%RH
		Operation environment	Working temperature: -15°C ~ 55°C Storage temperature: -40°C ~ 70°C Humidity: 5% ~ 95% non-condensing

String Measuring Sensor

BMS-CM String Current Measuring Sensor & Hall Sensor

- One string need 1 BMS-CM, each BMS-CM with 2 hall sensor ports
- Measure battery string charge and discharge current, ripple current
- Measure multi-pole battery's string charge and discharge current and ripple current with flexiable module and hall sensor
- Accessories:
    1）Hall sensor and cable: range from 0~±1000A with 2m cable
    2）Communication cable : 2m with RJ45 port

BMS-CM

Hall Sensor

Item	Power supply	Measuring range		Environment
		String current	**Ripple current**	
BMS-CM	24VDC (range: 9 ~ 32VDC) Power consumption: ＜0.5W	1 Hall sensor: -1000 ~ 1000A 2 Hall sensor: -2000 ~ 2000A (±2.0%, 15°C ~ 35°C)	20% of Hall sensor Rated current (peak value) Frequency: 50Hz ~ 1KHz	Working temperature: 0°C ~ 45°C Working temperature limit: -15°C ~ 55°C Humidity: 5% ~ 95%RH, non-condensing Storage temperature: -40°C ~ 70°C

BMS 900 Battery Monitoring Module

BMS-VM String Voltage Measuring Sensor (Optional)

- One BMS-VM can measure 1 string's voltage

- Measure battery string voltage and ripple voltage

BMS-V M

Item	Power supply	Measuring range		Environment
		String voltage	**Ripple voltage**	
BMS-VM	24VDC (range: 9 ~ 32VDC) Power consumption: ＜1W	8 ~ 1000VDC (±0.5%)	2 ~ 100VDC (peak value)	Working temperature: 0°C ~ +45°C Working temp limit: -15°C ~ +55°C Humidity: 5% ~ 95%RH, non-condensing Storage temperature: -40°C ~ +70°C

H-THDRJ45 Ambient Temperature & Humidity (Optional Module)

- Dual RJ45 interface, fast wiring, support cascade use

- Convenient and fast installation mode with magnet adsorption

- LCD display design

- High measurement accuracy, wide range and good consistency

- 1 PBMS9000 can connect Max. 6 ambient temperature & humidity sensors

H-THDRJ45

Order Information

System Structure		Model	Description	Remark
Management layer		**B M S 900**	Battery monitoring gateway	One per each UPS One BMS 900 can monitor Max. 6 strings, Max. 420pcs batteries
String measuring sensor		**BMS-CM**	String current measuring sensor	One per each string, each has 2 hall sensor ports, can connect Max. 2 hall sensor. If use for multi-pole battery, then we can configure BMS-CM according to the number of pole. Hall sensor and cable: range from 0 ~ ±1000A with 2m cable⊠ Communication cable : 2m with RJ45 port
		BMS-V M	String voltage measuring sensor	One per each string (optional)
Battery cell sensor		**BAT61-02**	2 volt battery cell sensor	One per battery cell
		BAT61-06	6 volt battery cell sensor	One per battery cell
		BAT61-12	12 volt battery cell sensor	One per battery cell
Accessory	Cell sensor communication cable	**BAT-COM-4 0**	Cable terminal: RJ11 port, length: 40cm (standrad)	
		BAT-COM-7 0	Cable terminal: RJ11 port, length: 70cm	
	Battery measuring cable	**BAT-C1 -U-M8 -3 0**	Cable terminal: U type⊲, hole diameter: 8mm, length: 30cm (standrad)	
		BAT-C1 -O-M8 -3 0	Cable terminal: O type, hole diameter: 8mm, length: 30cm	
	Hall sensor for PBMS-CM	**CS050EK1T5**	Rated input: 50A	Measure range: 0～±100A, Φ20mm
		CS100EK2T5	Rated input: 100A	Measure range: 0～±200A, Φ40mm
		CS200EK2T5	Rated input: 200A	Measure range: 0～±400A, Φ40mm
		CS400EK2T5	Rated input: 400A	Measure range: 0～±800A, Φ40mm
		CS500EK2T5	Rated input: 500A	Measure range: 0～±1000A, Φ40mm
Optional module	Ambient temperature & humidity	**H-THDRJ45**	LCD display	One per each string, 1 BMS 900 can conncet Max. 6pcs
	Power supply	**HDR-30-24**	24VDC power source, 220AC to 24VDC, for HMI-9000	
	Local display & operation layer	**HMI**	7-inch touch screen HMI for local display	One per one BMS 900 Communication with PBMS9000 via Ethernet