PBMS2000

Battery Monitoring Solution

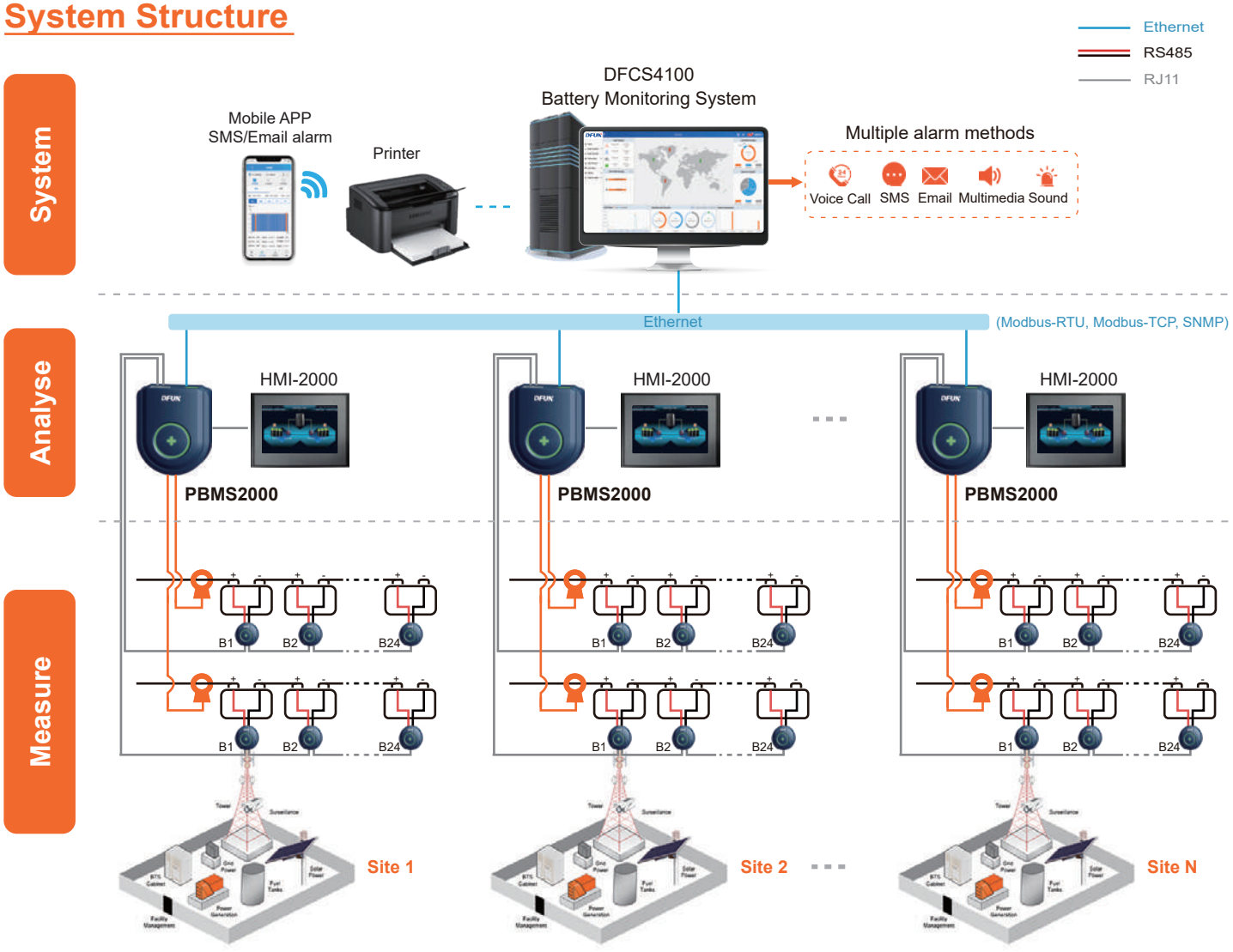


Feature

- Dedicated design for telecommunication 24V or -48V system
- 24/7 hours on-line monitoring & remote alarm
- Cost competitive solution, support Max. 1 string, total 120pcs batteries, or Max. 2 strings, Max. 60pcs batteries each string
- Measure Lead-Acid battery
- Multi communication protocol (Modbus-RTU, MODBUS-TCP, SNMP)
- Comply with IEEE 1188-2005

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System Structure



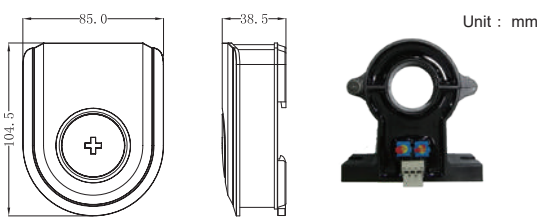
Management Layer

PBMS2000 Battery Monitoring System Main Controller

- Monitor battery string voltage, charge and discharge current
- Calculate battery string SOC
- Auto-balancing
- Auto-sensing for the battery sensor's ID address
- Setpoint alarm (upper limit / lower limit)
- Data collecting
- Data uploading function via build-in RS485 (Modbus-RTU) & Ethernet (Modbus-TCP or SNMP)
- Support 3rd party system
- Local display via HMI
- Accessories:
  1) Hall sensor and cable: range from 0 ~ ±1000A with 2m cable
  2) Communication cable : 5m with RJ11 port



Running status Alarm status

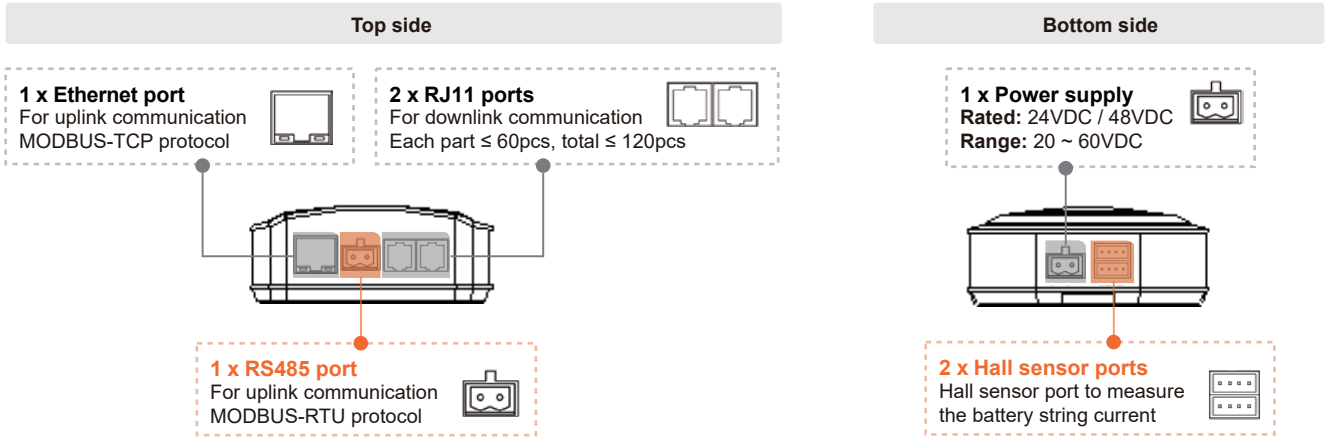


PBMS2000 Battery Monitoring Solution

Technical Specification

Application		**DC power system (telecom site)**
Rated input voltage		24VDC or 48VDC range: 20 ~ 60VDC
Measuring	**voltage**	0 ~ 800V (accuracy: ±0.5%)
	current	-1000 ~ 1000A (by hall sensor, accuracy: ±2.0%)
Power comsumption		< 2W
Up-link communication		1 Etherent port (10/100M), Modbus-TCP / SNMP protocol
		1 RS485 port， Modbus-RTU protocol, baudrate: 9600bps, 19200bps, 38400bps (optional)
Down-link communication		2 RJ11 ports, each port connect Max. 60pcs batteries, total Max. 120pcs batteries

Terminal Introduction



Battery Cell Sensor

PBAT61-02/PBAT61-06/PBAT61-12 Battery Cell Sensor

- PBAT61-02 for 2V battery, PBAT61-06 for 6V battery, PBAT61-12 for 12V battery
- Monitor individual battery voltage, internal temperature (negative pole), Impedance(ohmic value)
- Auto-balancing



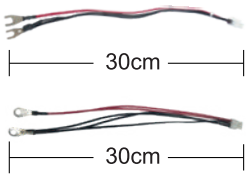
Running status



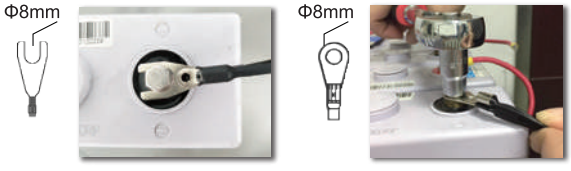
Abnormal status

Item	Rated input voltage	Measuring range			
		Voltage	Internal temperature	Impedance	Power consumption
PBAT61-02	02V	1.6 ~ 2.6V (±0.2%)	-20°C ~ 85°C (±0.5%)	Range: 0.1mΩ~50mΩ Repeatability error: 1.0%±25μΩ Conformity error: 1.5%±25μΩ	Running: <110mW Sleeping: <12mW
PBAT61-06	06V	4.8 ~ 10V (±0.2%)			Running: <90mW Sleeping: <10mW
PBAT61-12	12V	7.5 ~ 15.6V (±0.2%)			Running: <90mW Sleeping: <10mW

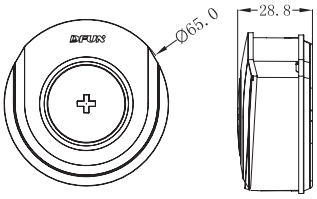
➢ Dimension and Installation

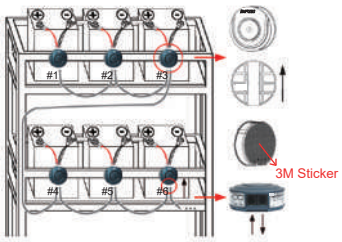


	Item	Description
Battery measuring cable	Length	30cm
	Terminal & Size	U type, hole diameter: 8mm
		O type, hole diameter: 8mm

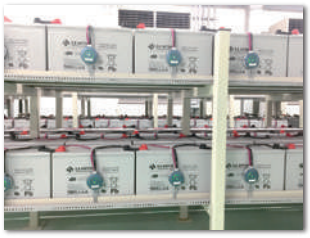


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Local Display & Operation (Optional)

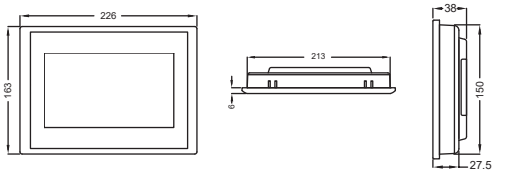
HMI-2000

- 7-inch Touch-screen HMI for display and operation
- **Real-time data inquiry:**
  1) Individual battery voltage, impedance, inner temperature, SOC, SOH
  2) String voltage, charge and discharge current, SOC, balance degree
- **Alarm data inquiry:**
  1) Real-time alarm status and related alarm information (faulty battery ID, date/time, alarm reason, communication status, etc.)
  2) 3000 alarm records for each string battery



HMI-2000

Unit : mm



Order Information

System structure		Model	Description	Remark
Management layer		PBMS2000	Battery monitoring system main controller	One PBMS2000 can monitor Max. 1 string, total 120pcs batteries or Max. 2 strings, each string Max. 60pcs batteries. Hall sensor and cable: range from 0 ~ ±1000A with 2m cable. Communication cable: 5m with RJ11 port
Battery cell sensor		PBAT 61-02	02V battery cell sensor	One per battery cell
		PBAT 61-12	12V battery cell sensor	One per battery cell
Accessory	Cell sensor communication cable	PBAT-COM-40	Cable terminal: RJ11 port, length: 40cm (standard)	
		PBAT-COM-70	Cable terminal: RJ11 port, length: 70cm	
	Battery measuring cable	PBAT-C1-U-M8-30	Cable terminal: U type , hole diameter: 8mm, length: 30cm (standard)	
		PBAT-C1-O-M8-30	Cable terminal: O type , hole diameter: 8mm, length: 30cm	
	Hall sensor for PBMS2000	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	Local display & operation	HMI-2000	7-inch HMI for local display	One per PBMS2000 Communication with PBMS2000 via RS485

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