

CATALOG v1.0

On-line Battery Monitoring System Solution



Established in April 2013, DFUN Technology as a holding subsidiary of Zhuhai Pilot Technology Co., Ltd., which inherits the concept of quality oriented and service prioritized, we provide comprehensive hardware & software solutions for Battery Monitoring System, DCIM, Energy Storage to our esteemed customers all over the world.



ENTERPRISE DFUN TECH ▶▶

With an international professional sales network, DFUN products have been widely used in international market, such as Germany, Turkey, Russia, Thailand, Malaysia, Vietnam, India, Indonesia, Israel, Saudi Arabia, Mexico, Canada, Chile, Peru, Colombia, Brazil, Morocco, Africa...

To ensure the quality of products, services and environmental protection requirements, DFUN Technology implements the criteria of ISO9000, ISO14001, etc.

DFUN Technology will keep follow with the new solutions and offer the best solutions for our customers. We listen carefully to our partners and strive to offer a diverse, comprehensive and effective BMS solution.

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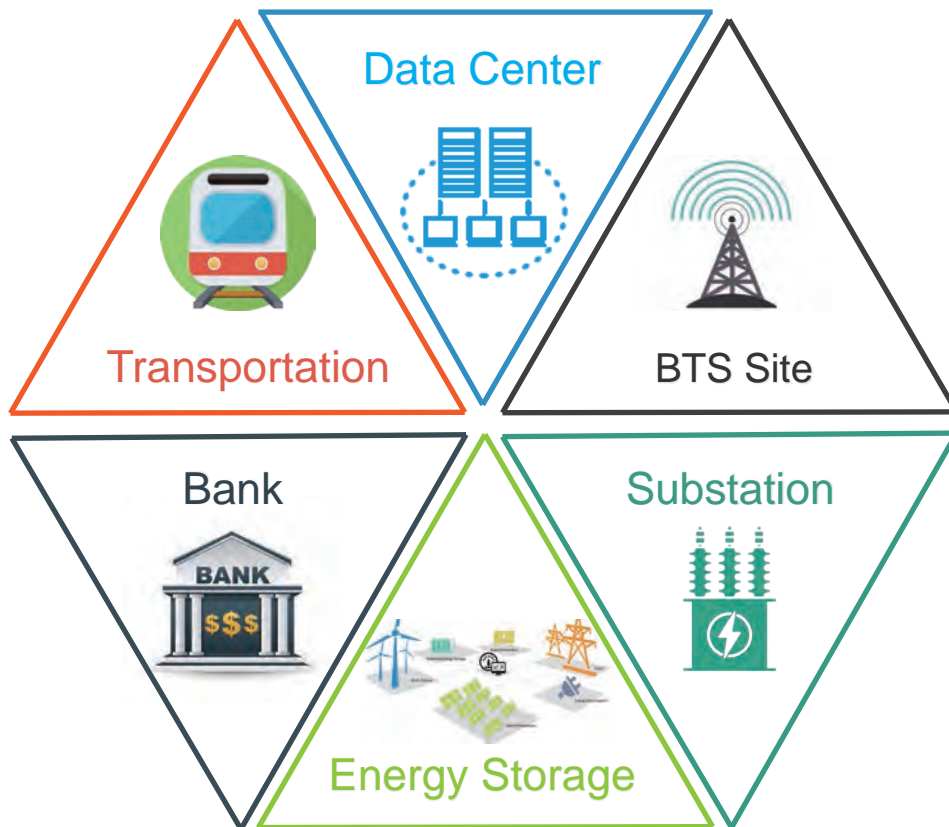
HMI Local Display (Optional Module)

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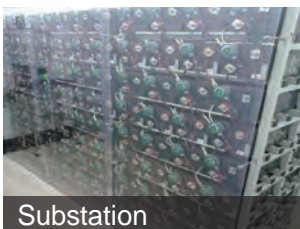
Case Study

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Application



Application



Our Feature



On-line Monitoring

24/7 on-line monitoring battery Voltage, Charge and Discharge Current, Impedance and Internal Temperature, SOC, SOH etc. Accurate data report and real-time alarm, allowing to respond quickly to potential battery accidents. Reduce cost on human maintenance.



Data Inquiry

Provides historical data storage, data access and data management for large number of batteries and multiple sites project, support to export .CSV format data reports.



On-line Balancing

Real-time on-line balancing for battery. The system will analyse the uploaded data and auto-judge. When the battery voltage is unbalancing, system will send command to balance the battery string voltage.



SOC

Support to calculate individual battery SOC and battery string SOC. The SOC is mainly calculated based on the characteristic parameters of the battery.



On-line Alarming

Customer can set the alarm threshold for different project. When the battery real-time data is abnormal, the system will send out real-time alarm to maintenance through SMS or Email. What's more, we also provide mobile APP for customer to better maintain the battery at site.



Breathing LED

With unique LED breathing light design of the hardware, the system indicates battery health by different color. When the battery is running normal, the LED light will keep on green. When the battery is in abnormal status, the LED light turn to red.



Data Analysis

Built-in storage function. Automatically store the real-time data of batteries. Helping users to know the battery status and health condition at any time.



Auto-Searching S/N

Support auto-searching for battery sensor's ID address. It can read the individual battery address at one time. Customer don't need to set one-by-one manually, which helps to save a lot of time for site engineering and labor costs.



System Management Layer

Battery SCADA3000 Centralized Battery Monitoring System

Battery SCADA3000 Centralized BMS System



Mobile APP
SMS/Email Alarm

ONE IS ALL
ONE IS ALL

Application

- Data Center
- UPS Cabinets
- Telecom / Communications
- Energy Storage System
- Substation & Power Utility
- Oil, Gas & Fuel, Generator
- Railway Station & Metro
- Financial Institutions, like Bank
- Hospital
- Government back up power supply
- ...



24/7 Hours Online Monitoring / Balancing Real-time Alarm for VRLA Battery

- Online Monitoring: Voltage, internal temperature, impedance, charge and discharge current, SOC, SOH
- Charge & Discharge Curve Records



All In One Real-time Monitoring 1UPS with Max.480 Batteries System + Mobile APP + SMS & Email Alerts

- System with mobile APP to remote manage the system
- Multiple contact for SMS / Email alerts



Centralized Monitoring

- Multi-site and large quantity battery centralized management
- Max. monitor up to 10,000 batteries



B/S Structure

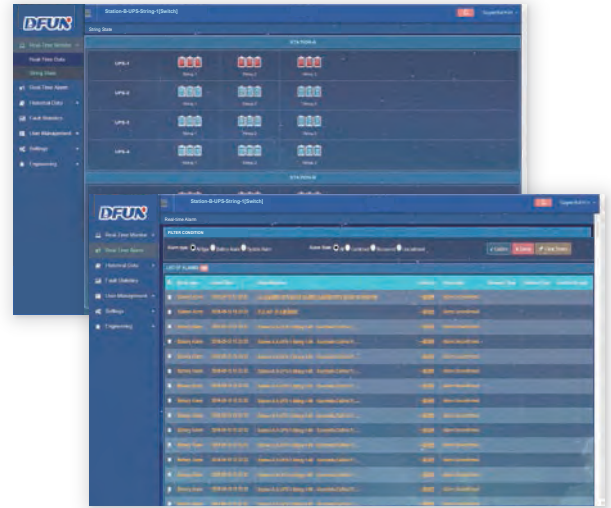
Easy Set-up, Easy Operation

- B/S structure, no more messy set-up
- Friendly User Interface Design

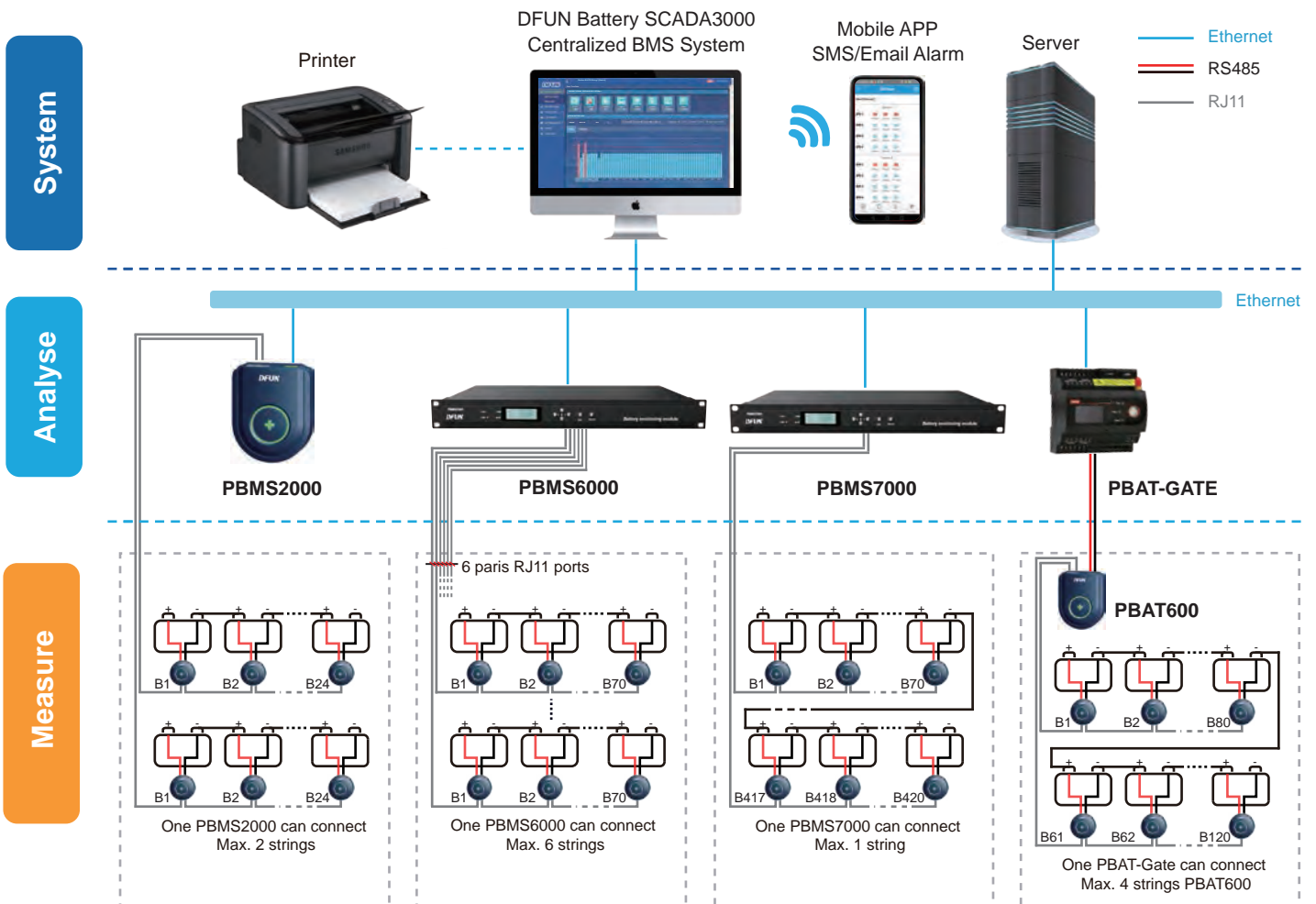
Battery SCADA3000 Centralized BMS System

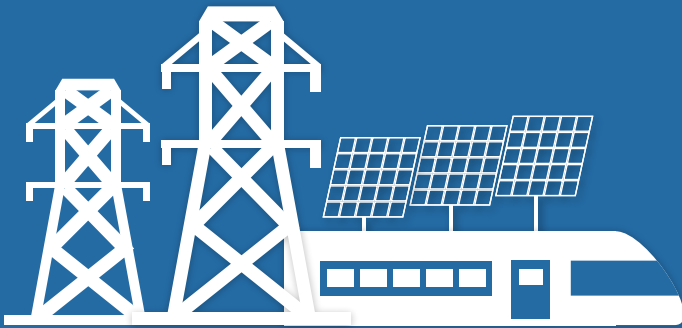
System Feature

- 24/7/365 Real-time Monitoring \cong 10,000pcs batteries
- B/S structure with simple and UI set-up
- Realize all Data Display at One Location. Suitable for Project by Large Number of Batteries or Batteries Locate in Different Site
- Sent Out Timely Alarm Notifications for Abnormal Battery via SMS & Email Alerts (Support Multiple Contact)
- Setpoint Multi-level Alarm
- Graphical and visual display of battery trends and faults
- Provides Centralized Data Storage, Data Access and Data Management, export .csv Format Reports for Data Analysis
- Monitor Ambient Temperature & Humidity
- Support to connect with all DFUN Battery Monitoring Device
- Support to connect with 3rd party system (EMS, EPC, SCADA, DCIM...)



System Structure





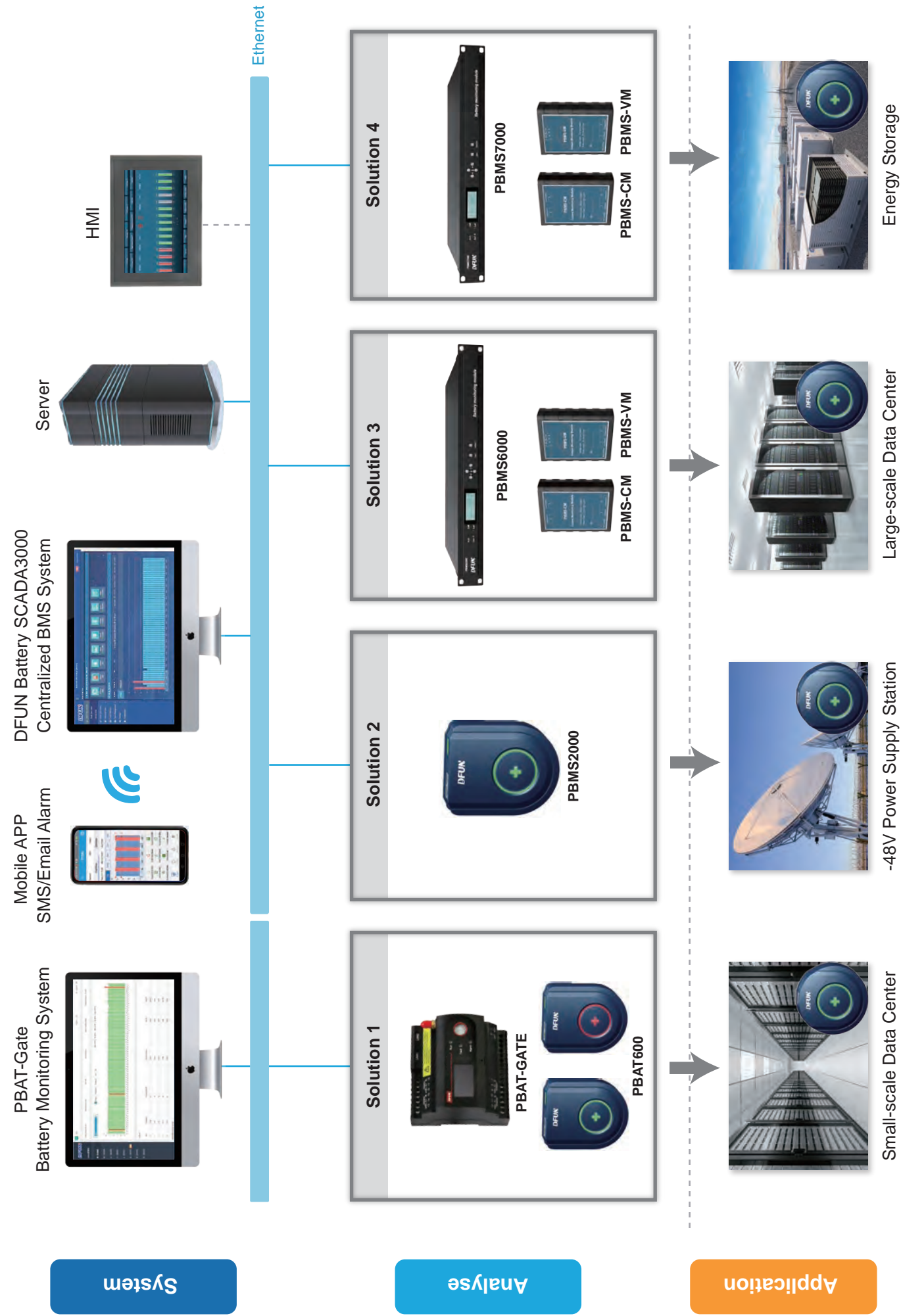
Battery Monitoring System for Different Application

PBAT-Gate for Small-scale Data Center

PBMS2000 for Base Transceiver Station

PBMS6000 for Large-scale Data Center

PBMS7000 for Energy Storage System

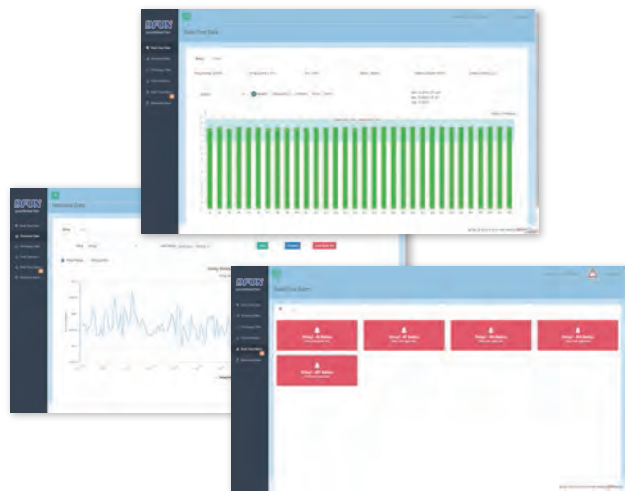


PBAT-Gate For Both Lead Acid & Lead Carbon Battery Data Center and UPS Application

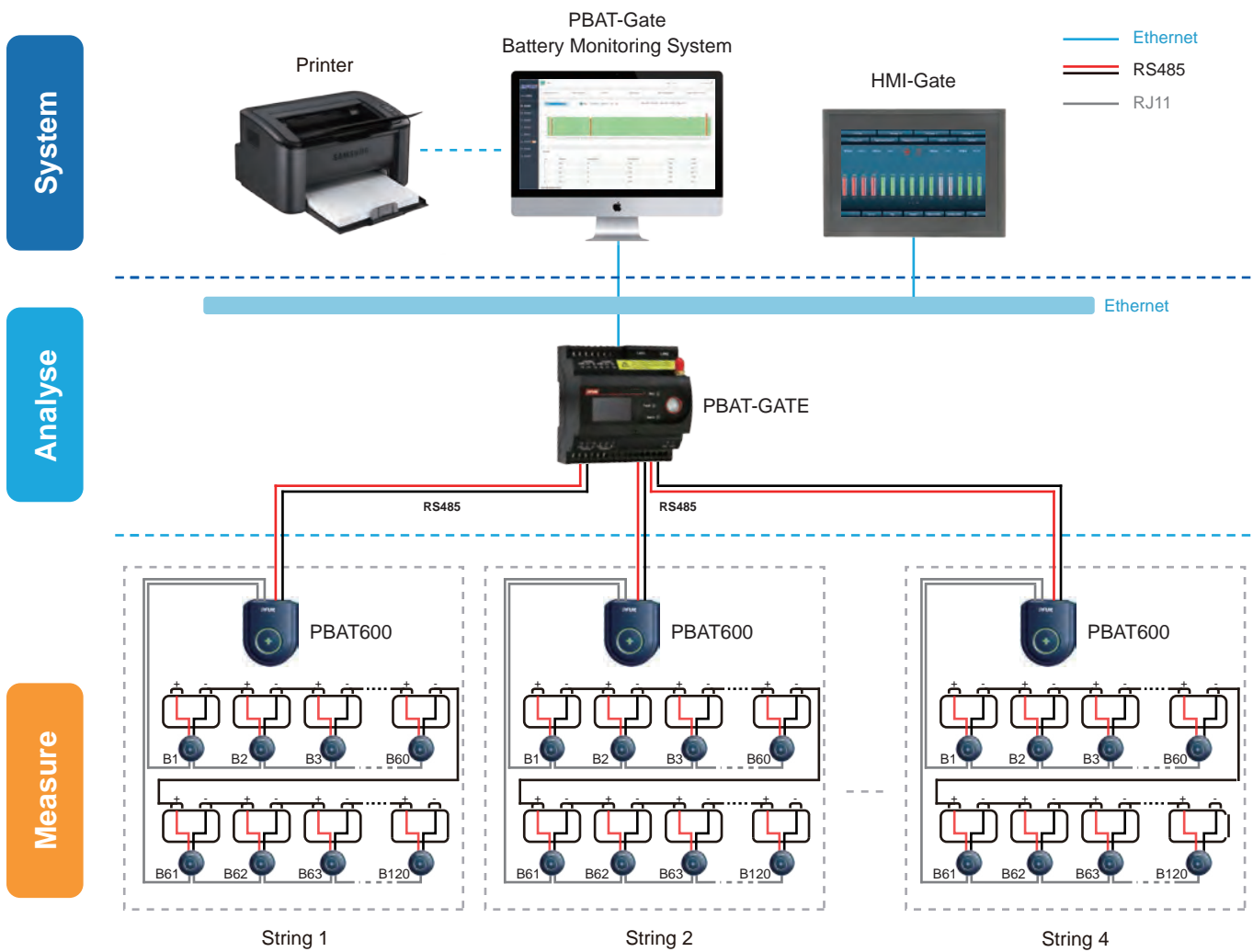
-  **Real-time Alarming**
-  **Monitoring & Balancing**
-  **Data Analysis & Logging**

Feature

- 24/7 Hours On-line Monitoring & Remote Alarms Notification
- Suitable for UPS and Data Center Application
- Anti-interference Design, Support to Connect with High-frequency UPS
- Build-in Web Server with Visual Display
- Auto-Sensing for the Battery Sensor's ID Address
- Multi-Communication Protocol (MODBUS-TCP, SNMP)
- Support 4G sending SMS alarm or wireless upload to cloud
- Comply with IEEE 1188-2005



System Structure



Management Layer

PBAT-Gate Intelligent Gateway

- Real-time monitoring 1 set UPS with Max. 480 batteries
- Data logging for all measuring data for 12 months
- Build-in web server with bar chart and trend curve analysis for Voltage, Charge and Discharge Current, Internal Temperature, Impedance
- Report for battery string voltage & current, individual battery voltage, temperature, impedance, support export PDF, CSV etc. document
- Setpoint Alarm for Cell Voltage, Internal Temperature, Impedance, SOC, SOH (upper limit / lower limit)
- Setpoint Alarm for String Voltage, Current, SOC (upper limit / lower limit)
- 2 AI Ports for Ambient Temperature & Humidity Sensor (Optional)
- 1 DO Port for Sound and Light Alarm (Optional)
- 4DI Ports for Digital Input Connecting (Optional)
- Support SNMP, Modbus TCP protocol
- Support 4G sending SMS alarm



PBAT-GATE

All-in-One

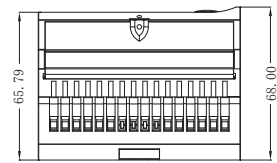
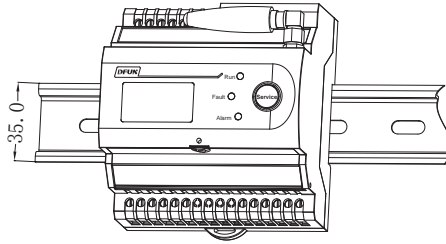
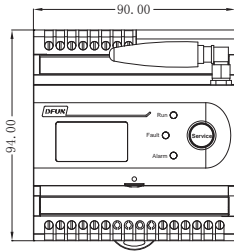


PBAT-Gate Battery Monitoring Solution

Technical Specification

CPU	ARM Cortex-A8 800MHz	Operating System	Embedded Linux	
Memory	512MB flash, 8G TF memory card	Communication	4CL	4 RS485 Serial ports, 2 Ethernet ports
Display	OLED		2ZL	2 RS485 Serial ports, 2 Ethernet ports
Weight	650g	Power Consumption	< 5W	
Baudrate	1200bps ~ 115200bps	Optional Function	4 DI, 2 AI, 1 DO (Only for PBAT-GATE-2ZL)	
Power Supply	18V ~ 36VDC	Operation Temperature	-15°C ~ + 55°C	
Dimension	90mm x 94mm x 68mm	Operation Humidity	10% ~ 95% Non-condensing	

Dimension and Installation



Unit: mm

Battery String Sensor

PBAT600 Battery String Sensor

- Monitor Battery String Voltage, Charge and Discharge Current
- Calculate Battery Status of Charge (SOC)
- Auto-Balancing
- Data Acquisition
- Auto-sensing for Whole Battery String Sensor's ID Address



Running Status



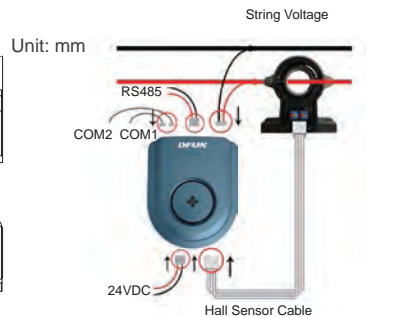
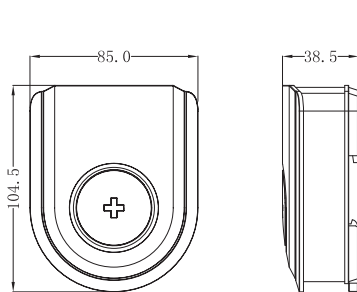
Alarming Status



Hall Sensor

Item	Measuring Range		External Power Supply	Power Consumption
	Voltage	String Current		
PBAT600	20V ~ 800VDC (±0.5%)	-1000A ~ +1000A by Hall sensor (±2.0%)	12V ~ 36VDC	1W

Dimension and Installation



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



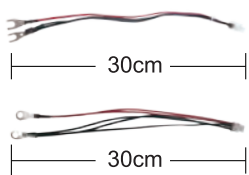
Running Status



Alarming Status

Item	Rated Input Voltage	Measuring Range			
		Voltage	Internal Temperature	Impedance	Power Consumption
PBAT61-02	2V	1.6V~2.6V (±0.2%)	-20°C~85°C (±0.5%)	0.1mΩ~100mΩ	Running: <110mW Sleeping: <12mW
PBAT61-06	6V	4.8V~10V (±0.2%)		Repeatability Error: 1.0%±25uΩ	Running: <90mW Sleeping: <10mW
PBAT61-12	12V	7.5V~15.6V (±0.2%)		Conformity Error: 1.5%±25uΩ	Running: <90mW Sleeping: <10mW

Dimension and Installation

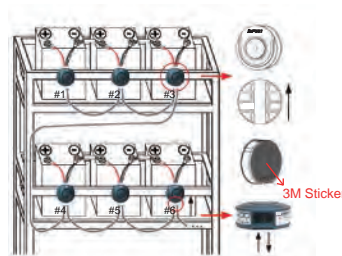
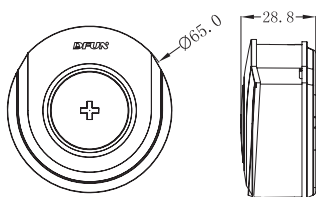


Item	Description
	Length
Terminal & Size	U Type, Hole Diameter: 8mm
	O Type, Hole Diameter: 8mm

Φ8mm



Φ8mm

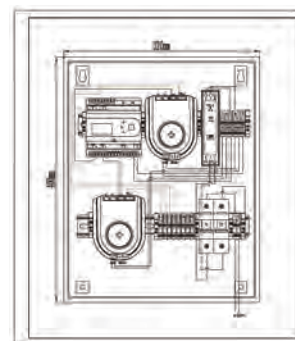


Cabinet for Pre-wiring in Factory

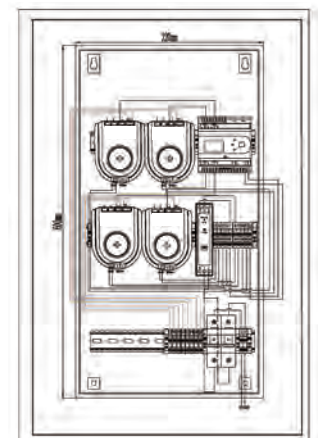
PBAT-BOX

- Pre-install & Pre-wiring for PBAT-Gate, PBAT600 and Power Supply Converter Inside
- Pre-mount HMI-Gate if selected
- Provide Wiring Drawing

Hardware		
Dimension	For 1~2 Battery Strings	PBAT-BOX-400: 400*320*138.5mm (H*W*D)
	For 3~4 Battery Strings	PBAT-BOX-600: 600*320*138.5mm (H*W*D)
Installation	Wall-Mount, Hang on the Battery Rack	
Material	Steel Plate, With Rock	





PBAT-BOX-400



PBAT-BOX-600

PBAT-Gate Battery Monitoring Solution

Order Information

System Structure		Model	Description	Remark
Management Layer		PBAT-GATE-4CL	PBAT-Gate Intelligent Gateway with 4 RS485 Ports, Support 4G Sending SMS Alarm	One Per UPS Max. 4 Strings x 120 Batteries = 480 Batteries
		PBAT-GATE-2ZL	PBAT-Gate Intelligent Gateway with 2 RS485 Ports, 4DI, 2AI, 1DO, Support 4G Sending SMS Alarm	One Per UPS Max. 2 Strings x 120 Batteries = 240 Batteries
Battery String Sensor		PBAT600	Battery String Sensor	One Per String 1 RS485 Port, One PBAT600 Can Connect Max. 120pcs PBAT61 Series Battery Sensor Hall Sensor & 2m Cable, Range from 0 ~ ±1000A 5m Communication Cable with RJ11 Port
Battery Cell Sensor		PBAT61-02	2 Volt Battery Cell Sensor	One Per Battery Cell
		PBAT61-06	6 Volt Battery Cell Sensor	One Per Battery Cell
		PBAT61-12	12 Volt Battery Cell Sensor	One Per Battery Cell
Accessory	Cell Sensor Communication Cable	PBAT-COM-40	Cable Terminal: RJ11 Port, Length: 40cm	
		PBAT-COM-70	Cable Terminal: RJ11 Port, Length: 70cm (Standard)	
	Battery Measuring Cable	PBAT-CI-U-M8-30	Cable Terminal: U Type  , Hole Diameter, 8mm, Length: 30cm (Standard)	
		PBAT-CI-O-M8-30	Cable Terminal: O Type  , Hole Diameter, 8mm, Length: 30cm	
	Hall Sensor for PBAT600	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
		CS400EK1T5	Rated Input: 400A	Measure Range: 0 ~ ± 800A, Φ40mm
CS500EK2T5		Rated Input: 500A	Measure Range: 0 ~ ± 1000A, Φ40mm	
Power Supply	MDR-20-24	24VDC Power Source, 220VAC to 24VDC		
Optional Module	Local Display & Operation	HMI-Gate	7" inch Touch Screen HMI	One Per PBAT-Gate Communication With PBAT-Gate via Ethernet
	Cabinet for Pre-Wiring in Factory	PBAT-BOX-400	Dimension: 400*320*138.5mm (H*W*D)	Pre-install & Pre-wiring for PBAT-GATE, PBAT600 and Power Supply Converter Pre-mount HMI-Gate if Customer Selected
		PBAT-BOX-600	Dimension: 600*320*138.5mm (H*W*D)	

PBMS2000 For Both Lead Acid & Lead Carbon Battery 24V/-48V Power Supplier Station Application

 ***24/7 Hours On-Line***

 ***Monitoring & Balancing***

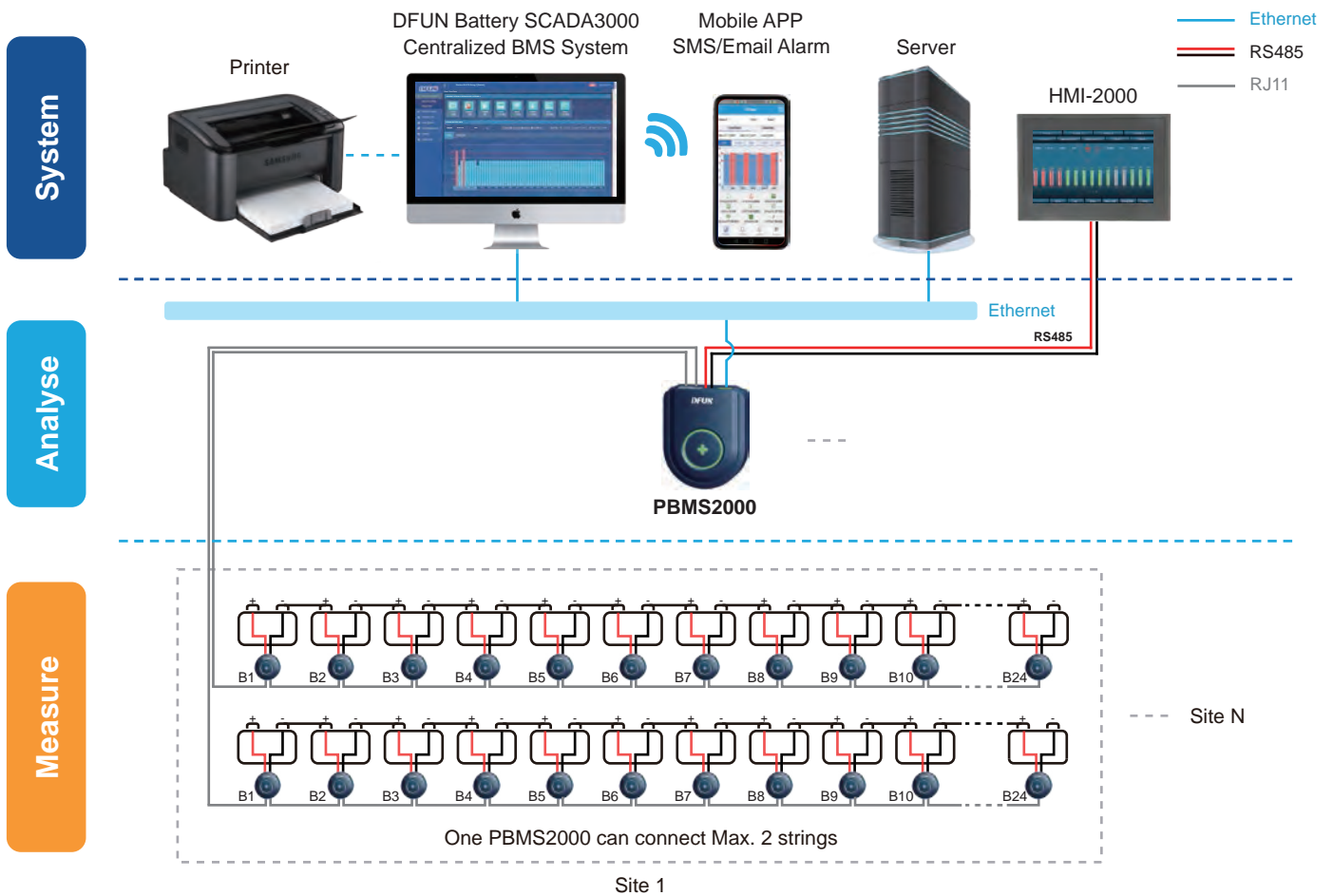
 ***Real-time Alarming***

Solution Description

- Dedicated Design for Telecommunication 24V or -48V System
- 24/7 Hours On-line Monitoring & Remote Alarms Notification
- Cost Competitive Solution, Support Max. 2 Battery Strings, Each String Support Max. 60pcs Batteries
- Multi Communication Protocol (Modbus-RTU, MODBUS-TCP, SNMP)
- Comply with IEEE 1188-2005

PBMS2000 Battery Monitoring Solution

System Structure



Management Layer

PBMS2000 Battery Monitoring Module

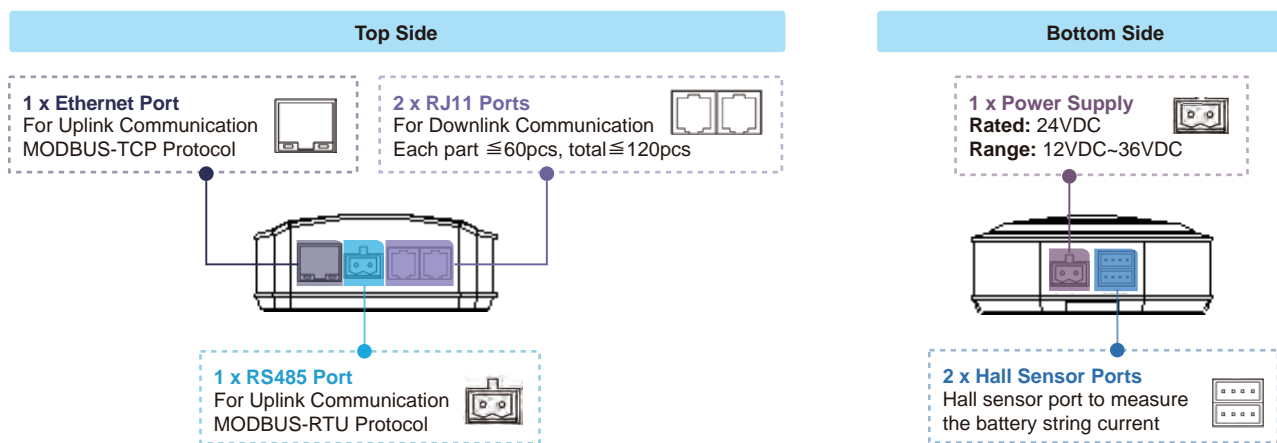
- Monitor Battery String Voltage, Charge and Discharge Current
- Calculate Battery String SOC
- Auto-Balancing
- Auto-sensing for the Battery Sensor's ID Address
- Setpoint Alarming (Upper Limit / Lower Limit)
- Data Collecting
- Data Uploading Function via Build-in RS485 (Modbus-RTU) & Ethernet (Modbus-TCP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





PBMS2000 Battery Monitoring Solution

Application		Telecom		Other DC Power System
		24VDC System	-48VDC System	1 UPS with 2 Strings, each string Max. 60pcs batteries
Rated Input Voltage		24VDC Range: 12V~ 36VDC		
External Power Supply		Unnecessary	Need external 24VDC	
Measuring	Voltage	0V ~ 800V (Accuracy: $\pm 0.5\%$)		
	Current	-1000A ~ +1000AV (by Hall Sensor, Accuracy: $\pm 2.0\%$)		
Power Consumption		< 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		

Terminal Introduction



Order Information

System Structure		Model	Description	Remark
Management Layer		PBMS2000	Battery Monitoring Module	One PBMS2000 Can Monitor Max. 2 Strings, Each String Max. 60pcs Batteries Battery measuring cable: 30cm Communication Cable : 40cm & 70cm with RJ11 (optional)
Battery Cell Sensor		PBAT 61-02	2 Volt Battery Cell Sensor	
		PBAT 61-06	6 Volt Battery Cell Sensor	
		PBAT 61-12	12 Volt Battery Cell Sensor	
Accessory	Cell Sensor Communication Cable	PBAT-COM-40	Cable Terminal: RJ11 Port, Length: 40cm	
		PBAT-COM-70	Cable Terminal: RJ11 Port, Length: 70cm (Standard)	
	Battery Measuring Cable	PBAT-C1-U-M8	Cable Terminal: U Type  , Hole Diameter: 8mm, Length: 30cm (Standard)	
		PBAT-C1-O-M8	Cable Terminal: O Type  , Hole Diameter: 8mm, Length: 30cm	
	Hall Sensor for PBMS2000	CS050EK1T5	Rated Input: 50A	Measure Range: 0~ $\pm 100A$, $\Phi 20mm$
		CS100EK2T5	Rated Input: 100A	Measure Range: 0~ $\pm 200A$, $\Phi 40mm$
		CS200EK2T5	Rated Input: 200A	Measure Range: 0~ $\pm 400A$, $\Phi 40mm$
		CS400EK2T5	Rated Input: 400A	Measure Range: 0~ $\pm 800A$, $\Phi 40mm$
		CS500EK2T5	Rated Input: 500A	Measure Range: 0~ $\pm 1000A$, $\Phi 40mm$
	External Power Supply	24VDC System	—	PBMS2000 Rated Voltage Input: 24VDC, Range: 12V~36VDC
-48VDC System		DDR-15L-24	24VDC Power Supply, 48VDC to 24VDC, Range: 18V~75 VDC	
Other DC Power System		MDR-20-24	24VDC Power Supply, 220VAC to 24VDC, Range: 120V~370VDC or 85V~264VAC	
Optional Module	Local Display & Operation	HMI-2000	7" inch Touch Screen HMI	One Per PBMS2000 Communication With PBMS2000 via RS485

PBMS6000 For Both Lead Acid & Lead Carbon Battery Middle & Large Scale Data Center Application



Max. 6 Battery Strings Per UPS



Measure Multi-pole Battery



Measure Ripple Current & Voltage

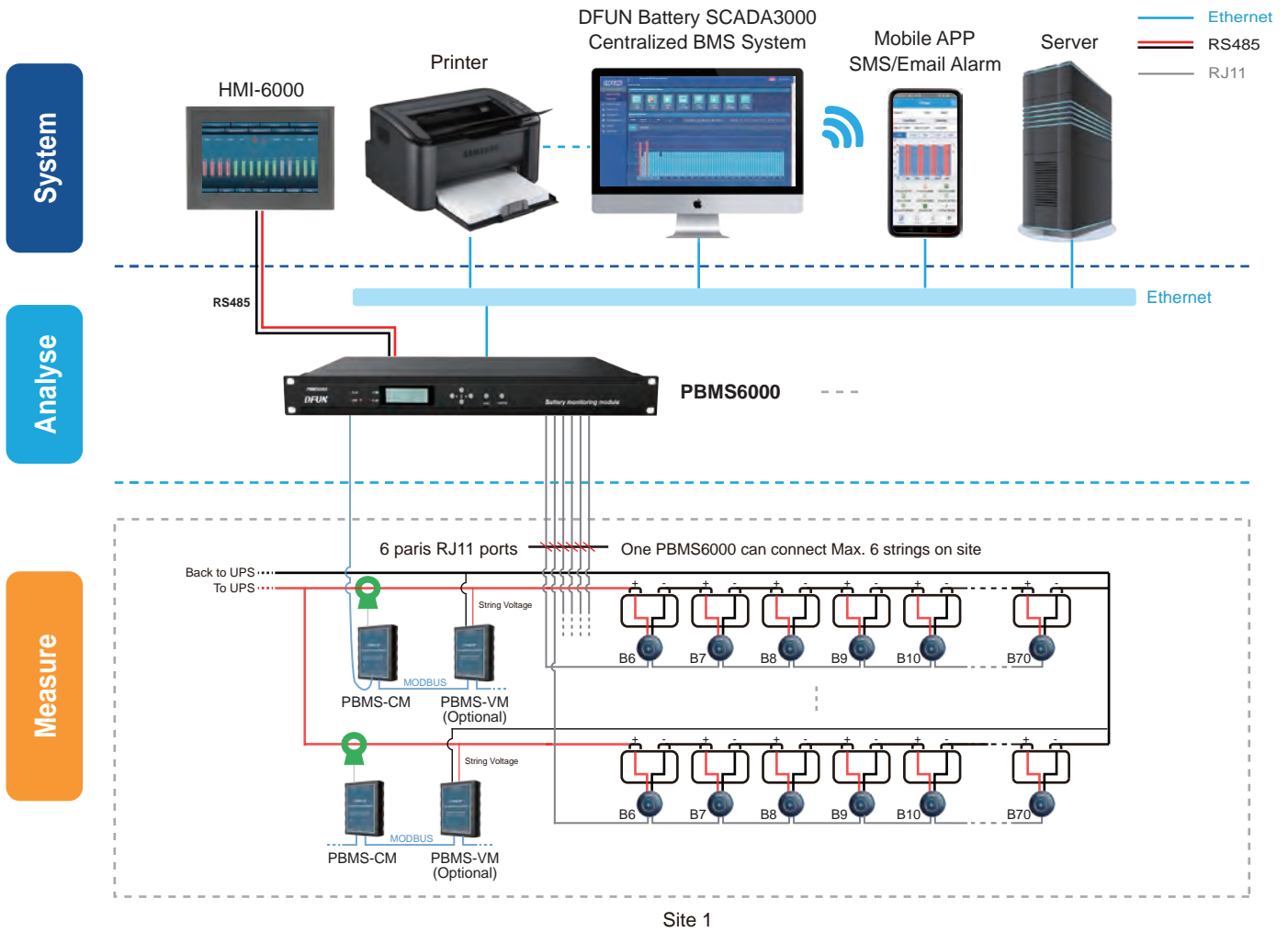
Feature

PBMS6000 Battery Monitoring Module

- Suitable for Large-scale Data Center, Multi-site and Multi-pole Battery Application
- 24/7 Hours On-line Monitoring & Remote Alarms Notification
- Flexible Application for Max. 6 Strings with Max. 420pcs batteries
- Measure Multi-pole Battery
- Separated String Voltage and String Current Measuring Module, Measure String Ripple Current and Ripple Voltage
- Current Ring Communication, any communication failure will not affect other sensors communication
- Auto-Sensing for the Battery Sensor's ID Address
- Multi Communication Protocol (MODBUS-TCP, MODBUS-RTU, SNMP)
- Comply with IEEE 1188-2005

PBMS6000 Battery Monitoring Solution

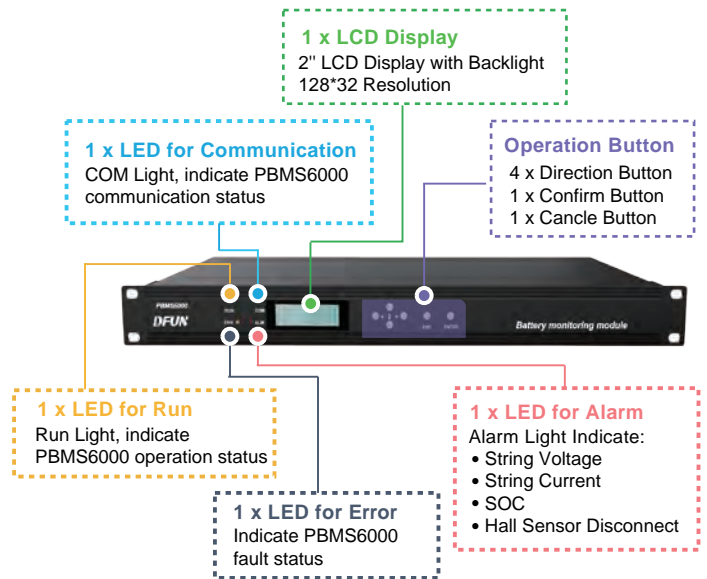
System Structure



Management Layer

PBMS6000 Battery Monitoring Module

- Standard 1 U Design for Distribution Cabinet
- String voltage up to 1000V, Battery Capacity Up to 3000AH
- Measure Battery String Status, Voltage, Ripple Voltage, Charge and Discharge Current, Ripple Current
- Calculate Battery String SOC, Individual SOC / SOH
- Setpoint Alarm (Upper Limit / Lower Limit)
- Support 3rd party system (DCIM)
- Auto-Balancing
- Local Display via HMI



PBMS7000 For Both Lead Acid & Lead Carbon Battery Energy Storage Application



24/7 Hours On-Line



Monitoring & Balancing



Real-time Alarming

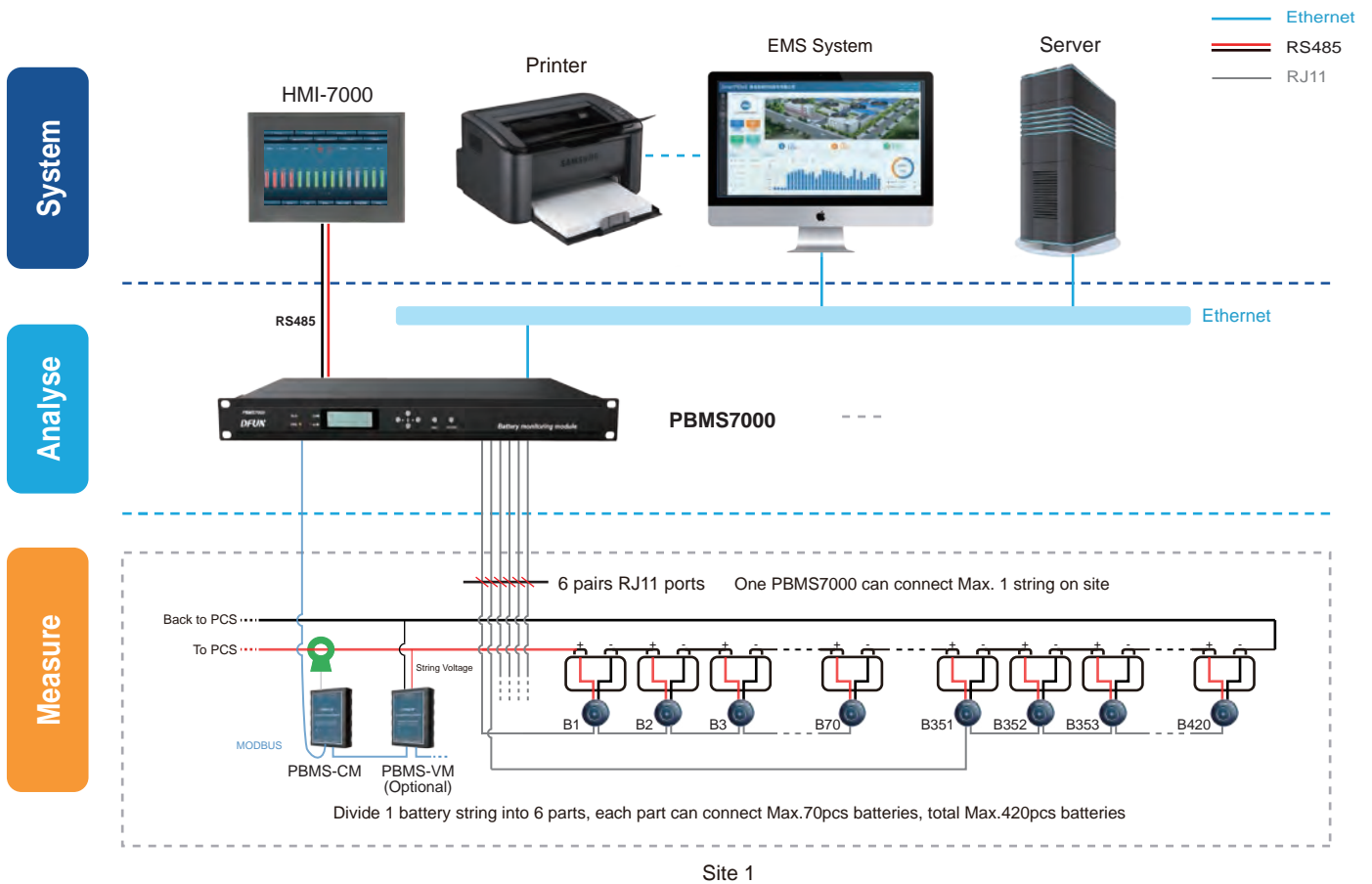
Feature

PBMS7000 Battery Monitoring Module

- Suitable Energy Storage Application
- 24/7 Hours On-line Monitoring & Remote Alarms Notification
- Flexible Application for Max. 1 string with Max. 420pcs batteries
- Measure Multi-pole Battery
- Separated String Voltage and String Current Measuring Module, Measure String Ripple Current and Ripple Voltage
- Anti-interference Design, Support to Connect with PCS
- Auto-Sensing for the Battery Sensor's ID Address
- Multi Communication Protocol (MODBUS-TCP, MODBUS-RTU, SNMP)
- Comply with IEEE 1188-2005

PBMS7000 Battery Monitoring Solution

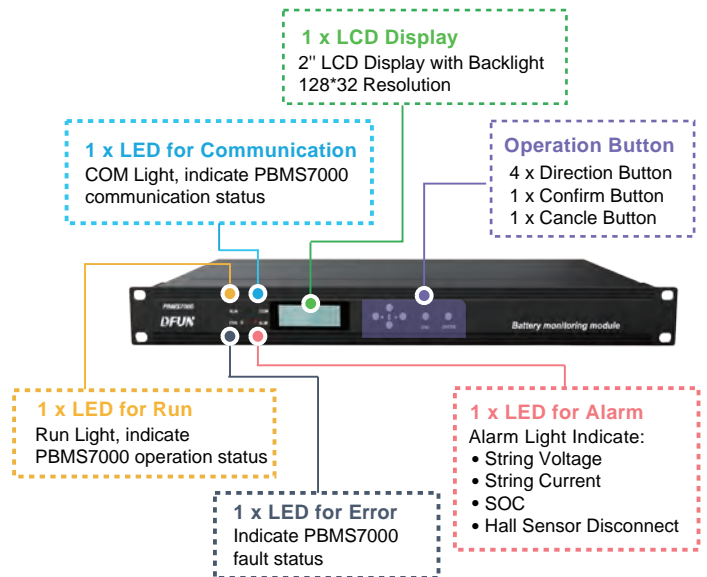
System Structure



Management Layer

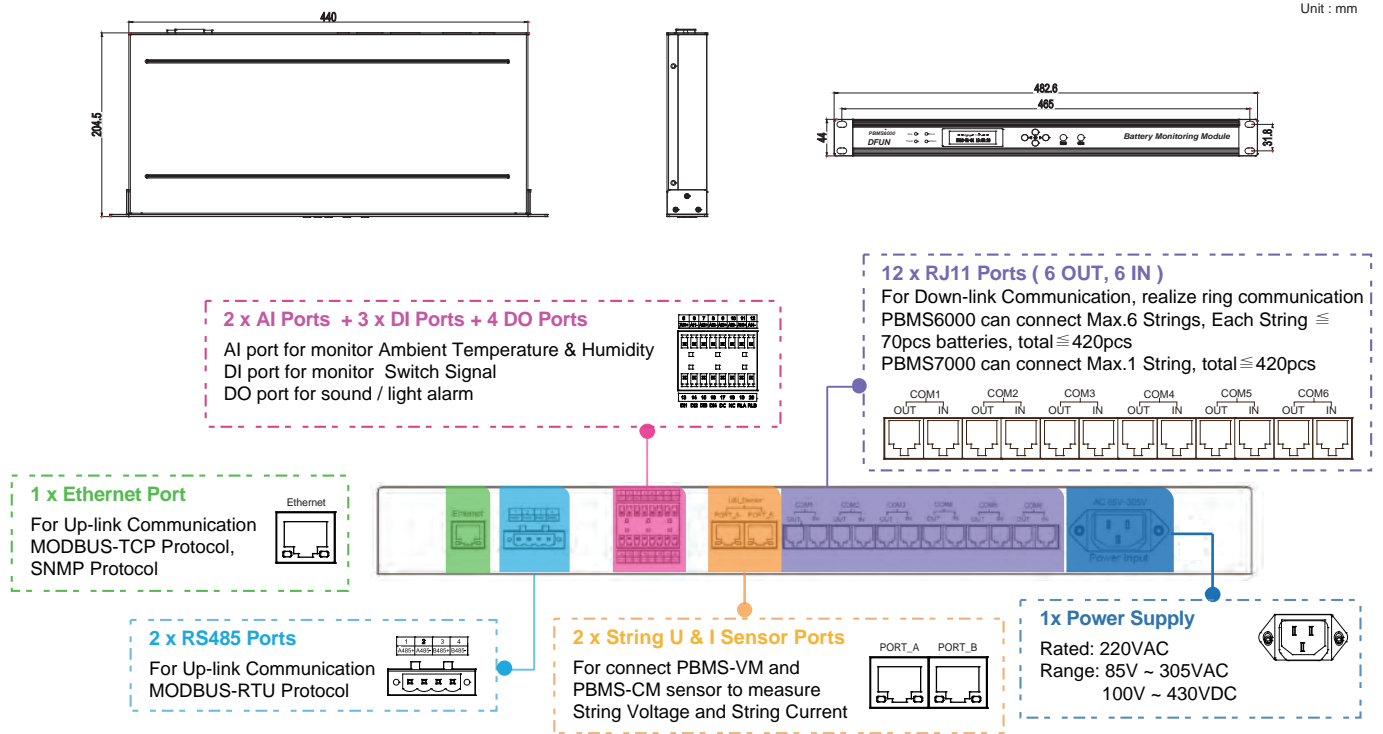
PBMS7000 Battery Monitoring Module

- Standard 1 U Design for Energy Storage Distribution Cabinet
- One PBMS7000 Can Connect Max. 1 String with Max. 420pcs Batteries
- String voltage up to 1000V, Battery Capacity Up to 3000AH
- Measure Battery String Voltage, Ripple Voltage, Charge and Discharge Current, Ripple Current
- Measure Individual Battery Voltage, Impedance (Ohmic value), Internal Temperature (Negative Pole)
- Calculate Battery String SOC, Individual SOC / SOH
- Support Data Acquisition and Data Upload
- Setpoint Alarm (Upper Limit / Lower Limit)
- Support 3rd party system (EMS)



PBMS6000 / PBMS7000 Battery Monitoring Solution

Dimension and Installation (PBMS6000 / PBMS7000)



Technical Specification (PBMS6000 / PBMS7000)

CPU	ARM Cortex M4 180MHz	Up-link Communication	1 Ethernet Port (10/100M), MODBUS-TCP, SNMP
Flash	128Mbit flash		2 RS485 serial Ports, MODBUS-RTU,
Display	2" inch LCD with backlight	Protocol	Baudrate: 9600bps, 19200bps, 38400bps (Optional)
MTBF	\cong 100000 hours		MODBUS-TCP, MODBUS-RTU, SNMP
Power Consumption	<15W	Power Supply	Rated: 220VAC, Range: 85V ~ 305VAC&100V ~ 430VDC
Dimension	Standard 19" inch 1 U Device 482.6mm x 204.5mm x 44mm Mounting Hole: 440mm x 31.8mm	Operation Environment	Work Temperature: -15°C ~ +55°C Storage Temperature: -40°C ~ +70°C Humidity: 5% ~ 95% Non-condensing

String Measuring Sensor

PBMS-CM String Current Measuring Sensor & Hall Sensor

- One String Need 1 PBMS-CM, each PBMS-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 Flexible Module and Hall Sensor



PBMS-CM



Hall Sensor

Item	Power Supply	Measuring Range		Environment
		String Current	Ripple Current	
PBMS-CM	24VDC (Range: 9 ~ 32VDC) Power Consumption: <0.5W	1 Hall Sensor: -1000A ~ +1000A 2 Hall Sensor: -2000A ~ +2000A (\pm 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

PBMS6000 / PBMS7000 Battery Monitoring Solution

PBMS-VM String Voltage Measuring Sensor (Optional)



- One PBMS-VM Can Measure 1 String's Voltage
- Measure Battery String Voltage and Ripple Voltage



PBMS-VM

Item	Power Supply	Measuring Range		Environment
		String Voltage	Ripple Voltage	
PBMS-VM	24VDC (Range: 9 ~ 32VDC) Power Consumption: < 1W	20V ~ 1000VDC (±0.5%)	2V ~ 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

Order Information

System Structure		Model	Description	Remark
Management Layer		PBMS6000	Battery Monitoring Module	One Per Each UPS One PBMS6000 can Monitor Max. 6 Strings, Max. 420pcs Batteries
		PBMS7000	Battery Monitoring Module	One Per Each UPS One PBMS7000 can Monitor Max. 1 String, Max. 420pcs Batteries
String Measuring Sensor		PBMS-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 PBMS-CM according to the number of pole Hall Sensor and Cable: Range from 0 ~ ±1000A with 2m cable Communication Cable : 2m with RJ45 port
		PBMS-VM	String Voltage Measuring Sensor	One Per Each String (Optional)
Battery Cell Sensor		PBAT 61-02	2 Volt Battery Cell Sensor	One Per Battery Cell
		PBAT 61-06	6 Volt Battery Cell Sensor	One Per Battery Cell
		PBAT 61-12	12 Volt Battery Cell Sensor	One Per Battery Cell
Accessory	Cell Sensor Communication Cable	PBAT-COM-40	Cable Terminal: RJ11 Port, Length: 40cm	
		PBAT-COM-70	Cable Terminal: RJ11 Port, Length: 70cm (Standrad)	
	Battery Measuring Cable	PBAT-C1-U-M8	Cable Terminal: U Type  , Hole Diameter: 8mm, Length: 30cm (Standrad)	
		PBAT-C1-O-M8	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	
Power Supply	MDR-20-24	24VDC Power Source, 220AC to 24VDC, for HMI-6000 / HMI-7000		
Local Display & Operation Layer (Optional Module)	HMI-6000	7" Touch-Screen HMI For Local Display	One Per One PBMS6000 Communication with PBMS6000 via RS485	
	HMI-7000	7" Touch-Screen HMI For Local Display	One Per Four PBMS7000 Communication with PBMS7000 via RS485	

HMI (Optional) Local Display & Operation

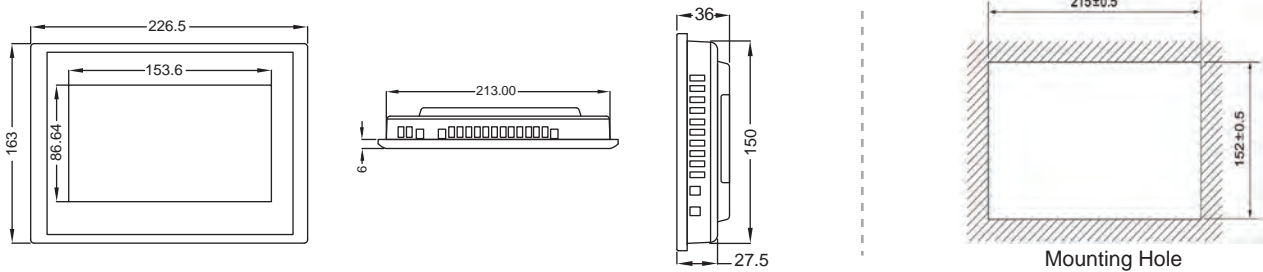


Function

- 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



Dimension and Installation



Technical Specification

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

Order Information

Model	Remark
HMI-Gate	One Per PBAT-Gate, Communication with PBAT-Gate via Ethernet
HMI-2000	One Per PBMS2000, Communication with PBMS2000 via RS485
HMI-6000	One Per PBMS6000, Communication with PBMS6000 via RS485
HMI-7000	One Per Four PBMS7000, Communication with PBMS7000 via RS485



Case Study

Data Center

Shanghai Cloud Data Center
Beijing LanTing Data Center (phase #1)
Beijing TaiHeQiao Communication Power Supply Project
Beijing Guanghuan Net IDC Battery Monitoring Project
ZTE R&D Center IDC (ShenZhen Xili)
China Mobile IDC (GuangZhou)
China Mobile IDC (HaiNan)
Hubei University of Technology Micro-grid Experimental
China Mobile IDC (HaiNan)
Chengdu Wanda Online Cloud base (phase #1)
Shen Zhen Polytechnic UPS Project
Guizhou University UPS Project
China Telecom IDC (Lanzhou City, Gansu Province)
Hui Tian Network Technology Co., Ltd R&D Center IDC
Mentnets Data Center (Anshan City, Liaoning Province)
Hubei Yunfeng Power Plant Battery Monitoring Project
Thailand True Internal Data Center (phase #1 & #2)
Thailand Data Center Project (INET Project)
Thailand Data Center Project (Muangthong 7C)
Thailand Data Center Project (UTAC Big Factory)
Thailand Suvarnabhumi Airport UPS Battery Monitoring
Holland FUJIFILM Data Center Project
Germany Lahn Dill Klinik hospital UPS Project
Kazakhstan UPS Project (Fesenkov Astrophysical Institute)
Australia Data Center Project (North Connex Project)
Australia UPS Project (North Health Lismore Hospital)
Iran Substation Battery Monitoring Project (Teheran HREC)



Transportation

Moscow Metro Station Battery Monitoring Project
XinJiang RailWay Station BMS Project (Line 1)
HeFei RailWay Station BMS Project (Line 2)
Chengdu Modern Tram BMS Project (Line 2)
Changsha Metro Station BMS Project (Line 4)
Harbin RailWay Station BMS Project (Line 3)
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Bank & Substation

CHINA CITIC BANK (30 Branches)
HARBIN BANK
Thailand KTB BANK UPS Project
Thailand GHB (Government Housing Bank)
Romania Substation Project
Iran Substation Project
Ghana Substation Project
.....





Authorized Dealer

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