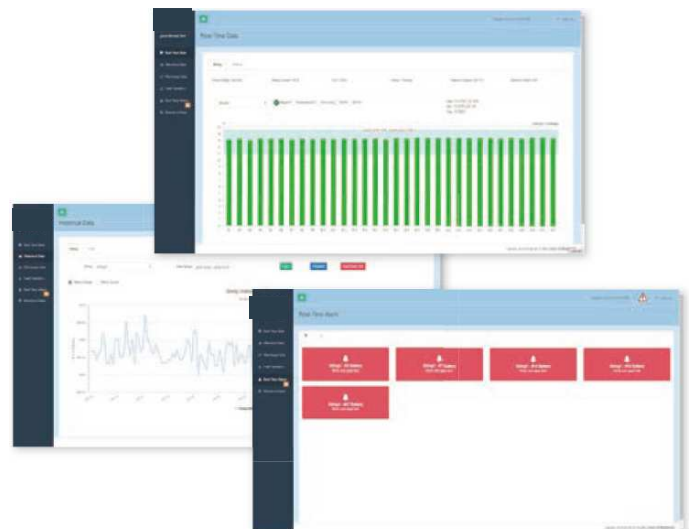




-  **Build-in Web Server**
-  **Monitoring & Balancing**
-  **Data Analysis & Logging**

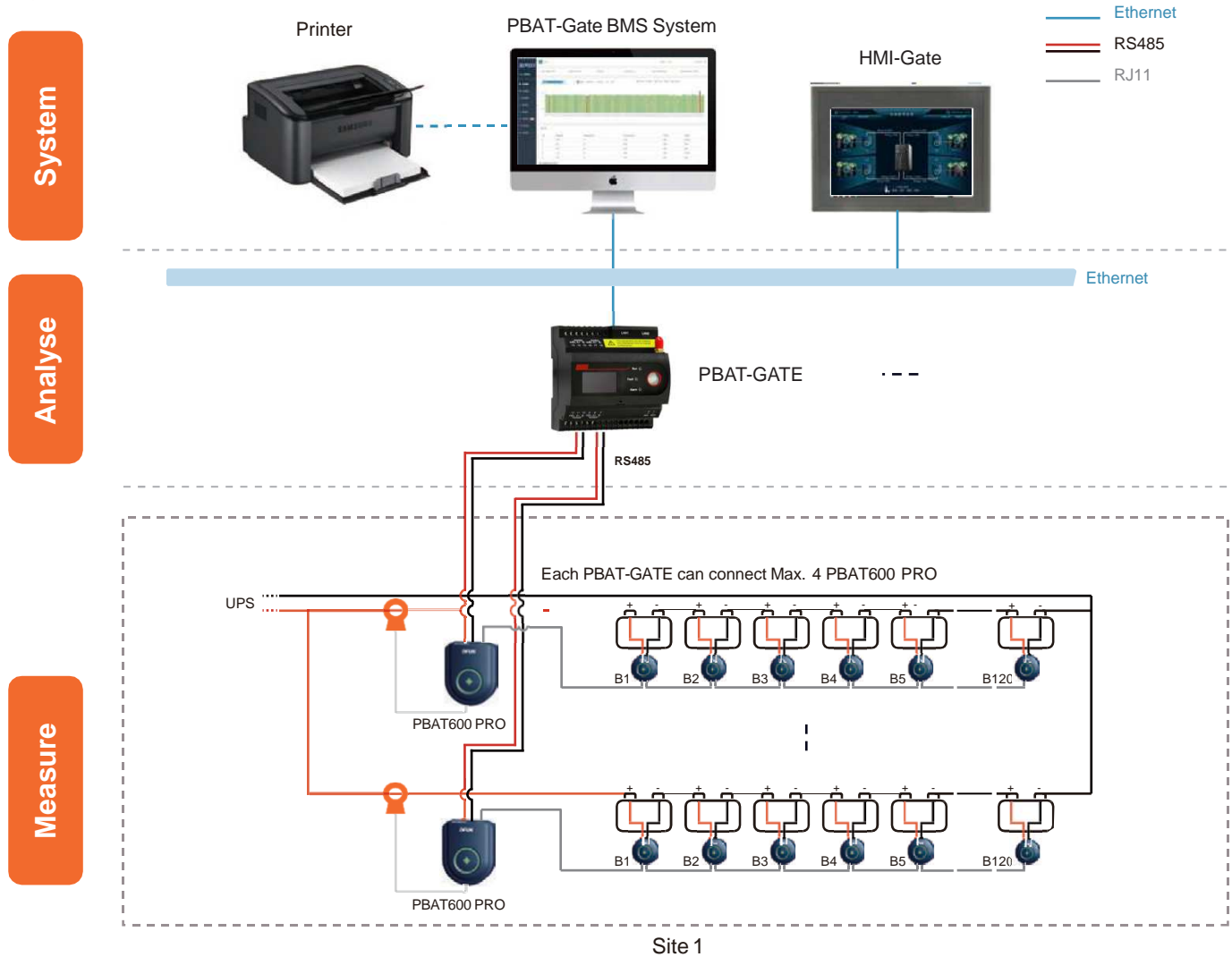
Feature

- 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



PBAT-Gate Battery Monitoring Module

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) and 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 RESTful API, JSON format
- Support SMS/Email alarm
- Support 4G data upload to the 3rd party



PBAT-GATE

All-in-One

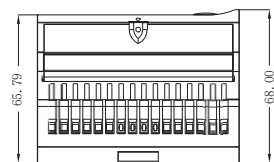
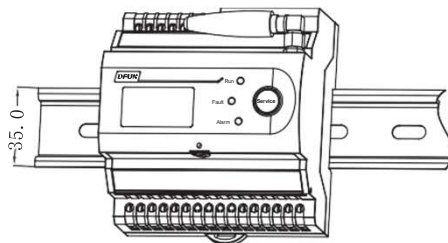
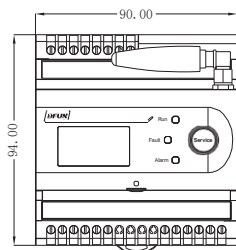


PBAT-Gate Battery Monitoring Module

Technical Specification

CPU	ARM Cortex-A8 800MHz	Dimension	90mm x 94mm x 68mm	
Memory	512MB flash, 8G TF memory card	Operating System	Embedded Linux	
Flash	Nand flash 512MB	Communication	4CL	4 RS485 Serial ports, 2 Ethernet ports
MTBF	≥50,000 hours		2ZL	2 RS485 Serial ports, 2 Ethernet ports
Display	OLED	Power Consumption	< 5W	
Weight	650g	Optional Function	4 DI, 2 AI, 1 DO (Only for PBAT-GATE-2ZL)	
Baudrate	1200bps ~ 115200bps	Operation Temperature	-15°C ~ + 55°C	
Power Supply	18V ~ 36VDC	Operation Humidity	10% ~ 95% Non-condensing	

Dimension and Installation



Unit: mm

Battery String Sensor

PBAT600 PRO 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



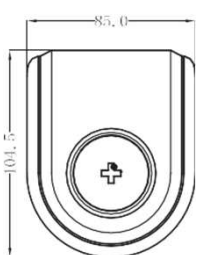
Alarming Status



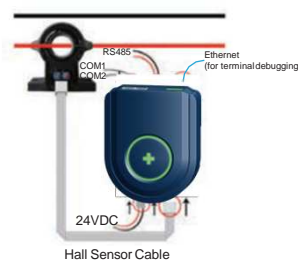
Hall Sensor

Item	Measuring Range		External Power Supply	Power Consumption
	Voltage	String Current		
PBAT600 PRO	0V ~ 800VDC (±0.5%)	-1000A ~ +1000A by Hall sensor (±2.0%)	12V ~ 36VDC	1W

> Dimension and Installation



Unit: mm



PBAT-Gate Battery Monitoring Module

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



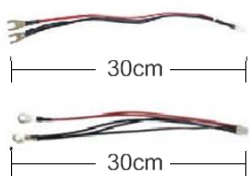
Running Status



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%)	Range: 0.1mΩ~50mΩ Repeatability Error: 1.0%±25uΩ Conformity Error: 1.5%±25uΩ	Running: <110mW Sleeping: <12mW
PBAT61-06	6V	4.8V~10V (±0.2%)			Running: <90mW Sleeping: <10mW
PBAT61-12	12V	7.5V~15.6V (±0.2%)			Running: <90mW Sleeping: <10mW

> Dimension and Installation

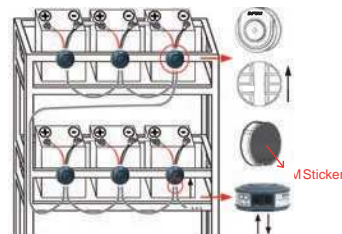
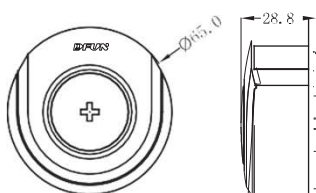


Battery Measuring Cable	Item	Description
	Length	30cm
Terminal & Size	U Type, Hole Diameter: 8mm	
	O Type, Hole Diameter: 8mm	

Φ8mm



Φ8mm

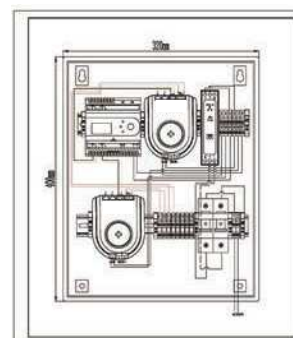


Cabinet for Pre-wiring in Factory

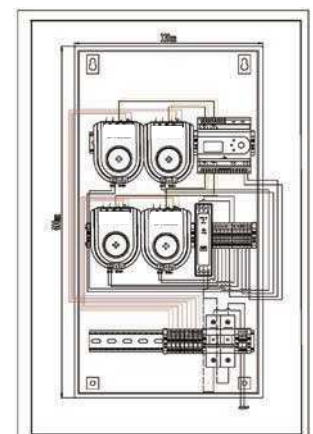
PBAT-BOX

- Pre-install & Pre-wiring for PBAT-Gate, PBAT600 PRO 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 Module

System Structure		Model	Description	Remark
Management Layer		PBAT-GATE-4CL	PBAT-Gate Intelligent Gateway with 4 RS485 Ports, SMS/Email Alarm, 4G Data Upload	One Per UPS Max. 4 Strings × 120 Batteries = 480 Batteries
		PBAT-GATE-2ZL	PBAT-Gate Intelligent Gateway with 2 RS485 Ports, 4DI, 2AI, 1DO, SMS/Email Alarm, Support 4G Data Upload	One Per UPS Max. 2 Strings × 120 Batteries = 240 Batteries
Battery String Sensor		PBAT600 PRO	Battery String Sensor	One Per String 1 RS485 Port, One PBAT600 PRO can connect Max. 120pcs PBAT61 series battery sensor, Max. 2 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 (Standard)	
		PBAT-COM-70	Cable Terminal: RJ11 Port, Length: 70cm	
	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 PRO	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	HDR-30-24	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 PRO and Power Supply Converter Pre-mount HMI-Gate if Customer Selected
		PBAT-BOX-600	Dimension: 600*320*138.5mm (H*W*D)	

LIVELINE ELECTRONICS

Factory & Office:

North Ramchnadrapur, Narendar, Sonarpur,
South 24 Parganas, Kolkata-700103,
West Bengal, India

Email: info@livelineindia.com

www.livelineindia.com

