Enerbatt 3G
Wireless Battery Monitoring System
User Manual

192321832007001

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Foreword

This manual provides functional descriptions of the hardware and software of the ***Enerbatt 3G*** Wireless Battery Monitoring System (BMS) and provides the instructions to correctly operate the system.

The installation, operation, and maintenance of the system must be carried out only by trained personnel. If not, any injury sustained is not responsible.

Safety Information

This Safety Information section contains important instructions that should be followed strictly during installation and operation of the ***Enerbatt 3G*** Wireless Battery Monitoring System (BMS).

(1) Installation, operation, and maintenance of the BMS must be carried out only by qualified, trained personnel.
(2) Avoid installing the BMS in a hazardous environment.
(3) Safety instructions and precautions provided by storage battery and DC equipment manufacturers should be followed strictly when this equipment is used together with the BMS.
(4) Do not attempt to service or modify the BMS. Doing so could present the risk of electric shock or other hazard.

This device complies with the IEC/EN61010-1 standard in accordance with the Low Voltage Directive (2006/95/EC) and is authorized to use the CE marking.

CE

This device complies with NCC Rules and is authorized to use the NCC marking.

CCAB10LP0520T3

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions.
(1) This device must not cause harmful interference.
(2) This device must accept any interference received, including interference that may cause undesired operation.

FCC ID:**X5PRFAN4**

Replacement parts must meet the original equipment specifications. Follow replacement instructions to ensure safe electrical isolation.

1. *Enerbatt 3G* System Description

An *Enerbatt 3G* Wireless Battery Monitoring System consists of the following:

- One Data Collector (DC-LCD II)
  - Communicate with one or several RF Receivers for collect the batteries' data from Battery Measure Kits and String Measure Kits. Continuously monitors, analyzes, and stores battery measurements.
  - Equipped with a touch-screen LCD color display for access to all batteries' measurements and BMS settings.
  - Provides RS-485 and Ethernet communication for remote monitoring.
- One/Multiple RF Receivers (RFRs)
  - Designed to receive transmitted signals from Battery Measure Kits and String Measure Kits.
- Multiple Battery Measure Kits (BMKs)
  - Measures battery block voltage and impedance, and transmits the measurement to the Data Collector for analysis and storage.
  - Can be coupled with an optional Temperature Sensor (TES) to measure battery terminal temperature.
- Optional String Measure Kits (SMKs)
  - Measures one battery string voltage, and transmits the measurement to the Data Collector for analysis and storage.
  - Can be coupled with an optional Hall Current Transformer kit (HCT) of various ratios to measure one battery string current.
  - Can be coupled with an optional Temperature Sensor (TES) to measure environmental temperature.

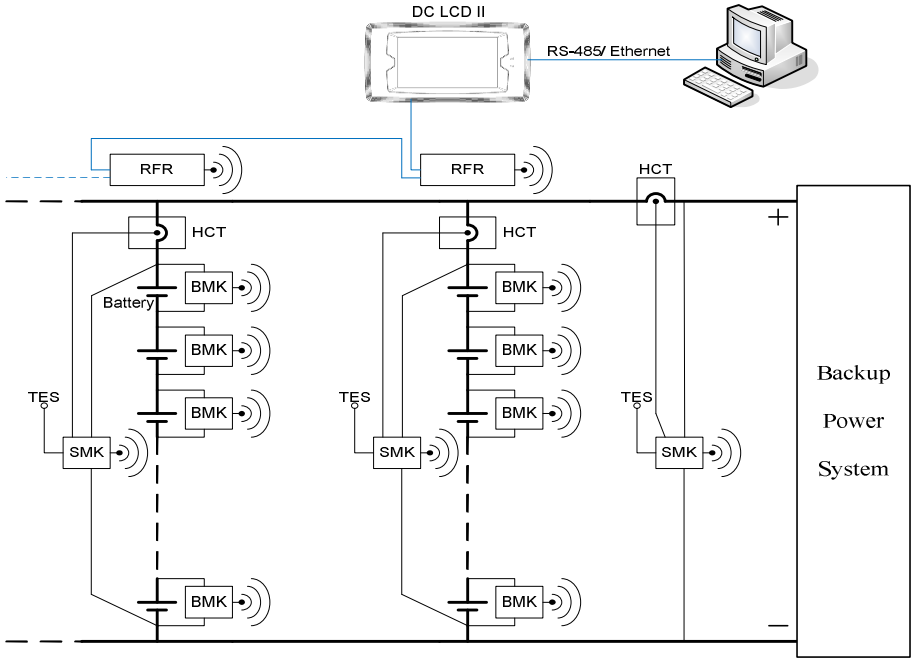


Figure 1-1. *Enerbatt 3G* Wireless Battery Monitoring System Configuration

2. Data Collector (DC-LCD II)

The DC-LCD II receives the measurement data from the RFR and displays data graphically on the color LCD touch-screen panel. The data is compressed and stored in a SD card. ***Enerbatt 3G*** system configuration and control are also performed using the DC-LCD II.

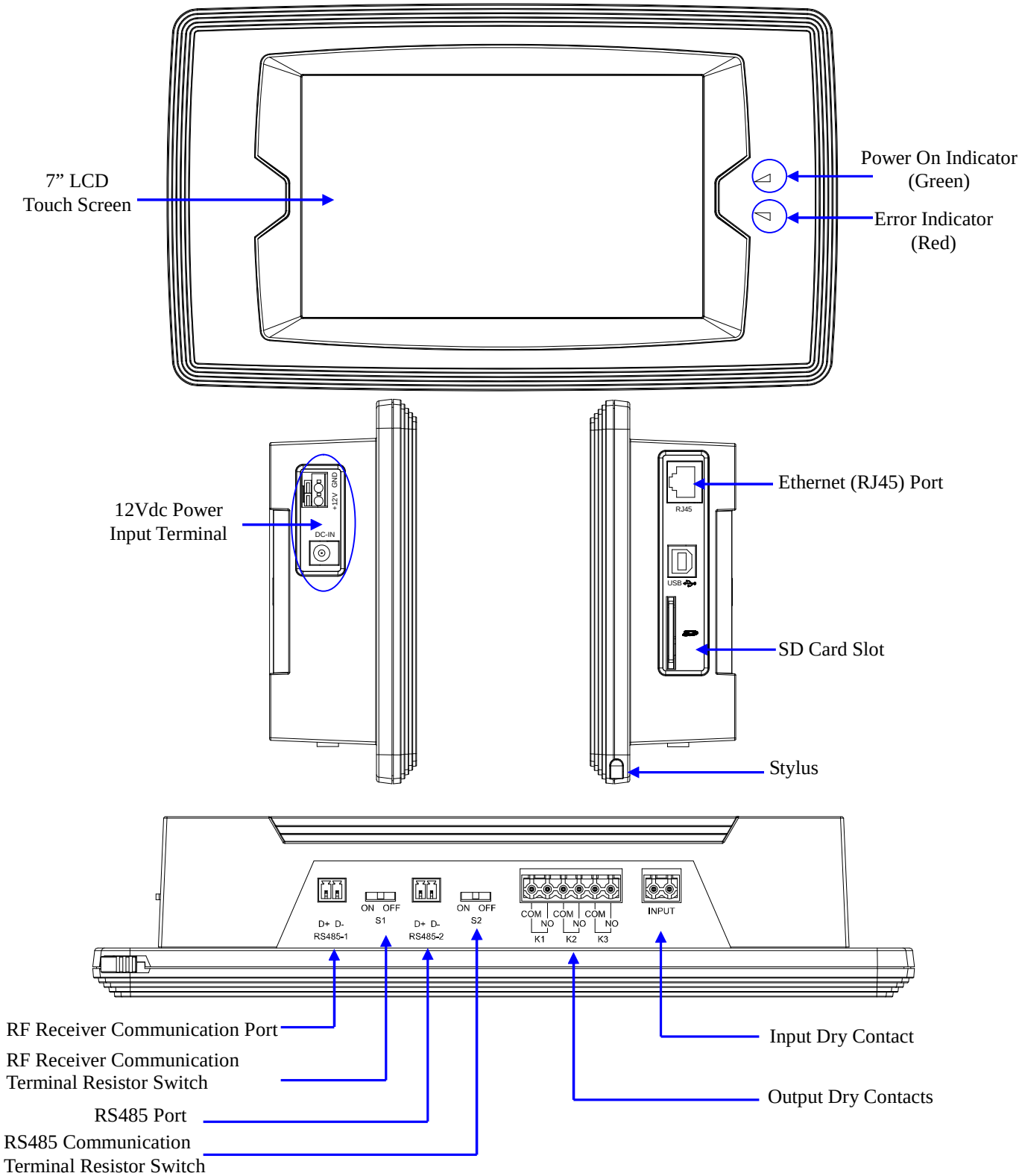


Figure 2-1. Data Collector (DC-LCD II) External Features

Table 2-1. Data Collector (DC-LCD II) Specifications

Model	BMS-DC-LCD Ⅱ
Operating Temperature	0~50 °C / 32~122°F
Relative Humidity	≦ 95%
Input Power Supply	$12V_{DC}$
Power Consumption	9 Watts
Communication Ports	Ethernet (RJ45) RS 485 Output Dry Contact x3 (250 VAC/2 A, 30 VDC/2 A) Input Dry Contact x1
Manage Nodes(1)	Maximum 750 nodes
Monitoring RF Receiver	Maximum 63 RF Receivers
Display Type	LCD 7” Graphic Touch Screen
Storage Media(2)	Up to 16 Gigabyte SD/MMC Flash Memory Card
Dimensions (WxHxD)	260mm x 150mm x 57mm 10.2” x 5.9” x 2.2”
Weight	0.85kgs / 1.9lbs

(1) One BMK or SMK is one node.

(2) 2 GB SD card is provided as standard and the storage time can be calculated by below formula.
Available storage time (Hours) = 12000 × SD card capacity (GB) × Recording Interval (Second) / Nodes
2 GB SD card can storage up to 13 months at a 5 minutes recording interval for 750 nodes, for example.

Table 2-2. Data Collector (DC-LCD Ⅱ) LED Indicator Description

Indicator	Status	Description
Power On (Green)	On	DC-LCD II has working power.
	Off	DC-LCD II no working power.
Error (Red)	On	One or some batteries out of normal range.
	Off	All batteries are normal.

The Input Dry Contact Port enables the user to connect an external switch with which to change the recording interval time. Please refer to section 7-2-5-8-1 for more detail.

The Input Dry Contact will be active when the external switch is closed.

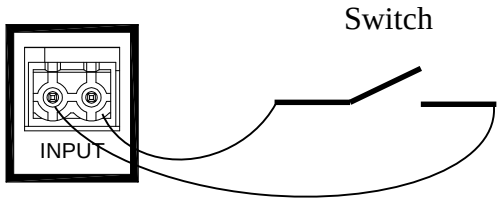
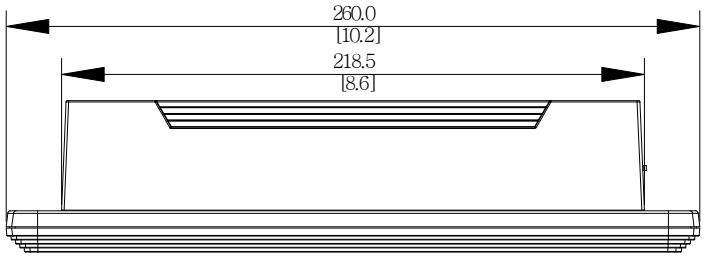
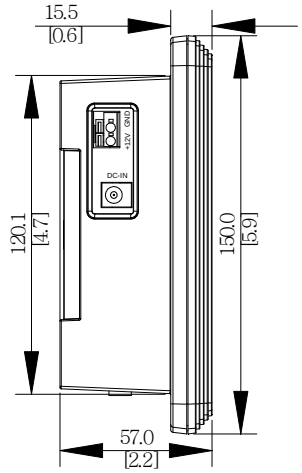


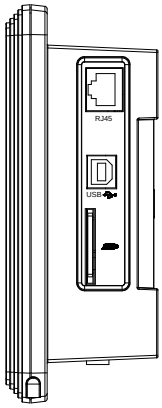
Figure 2-2. Input Dry Contact Connections



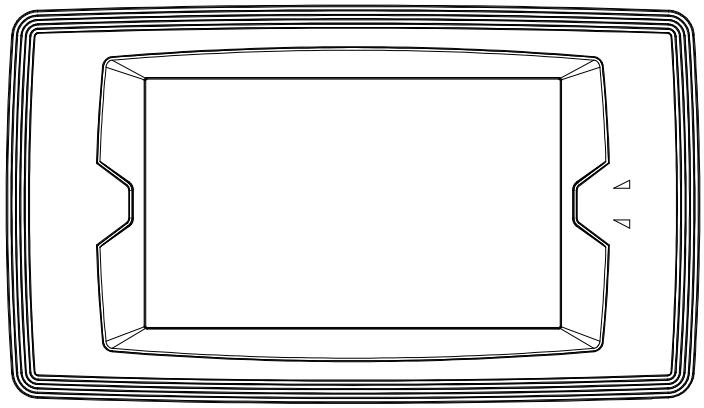
Unit: mm [inch]

Top View

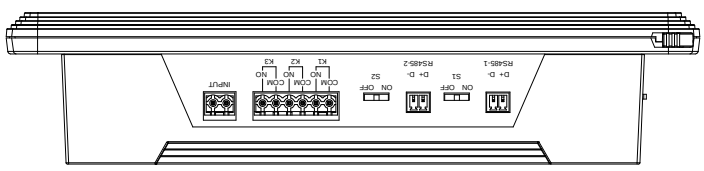




Left View Right View

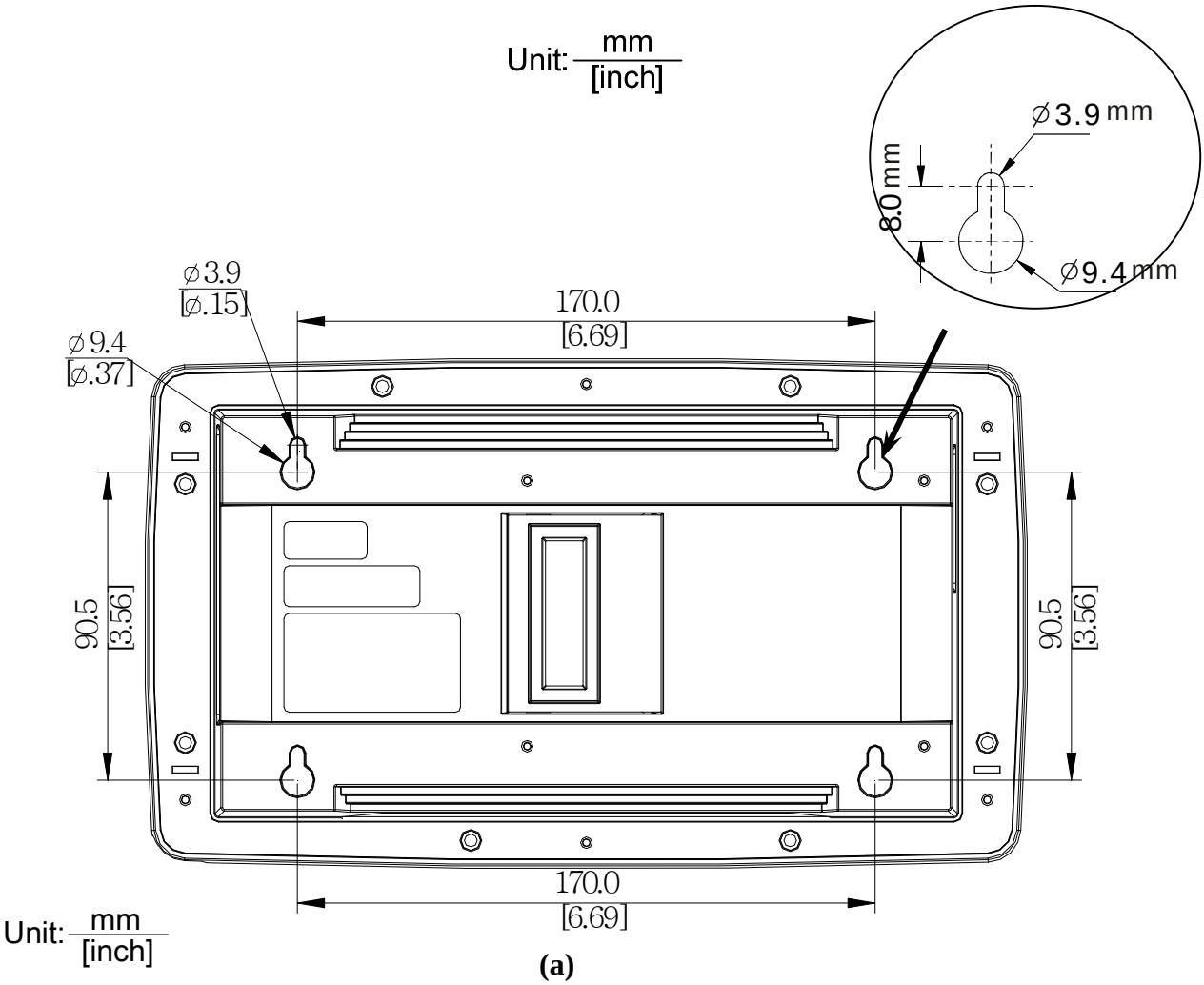


Front View

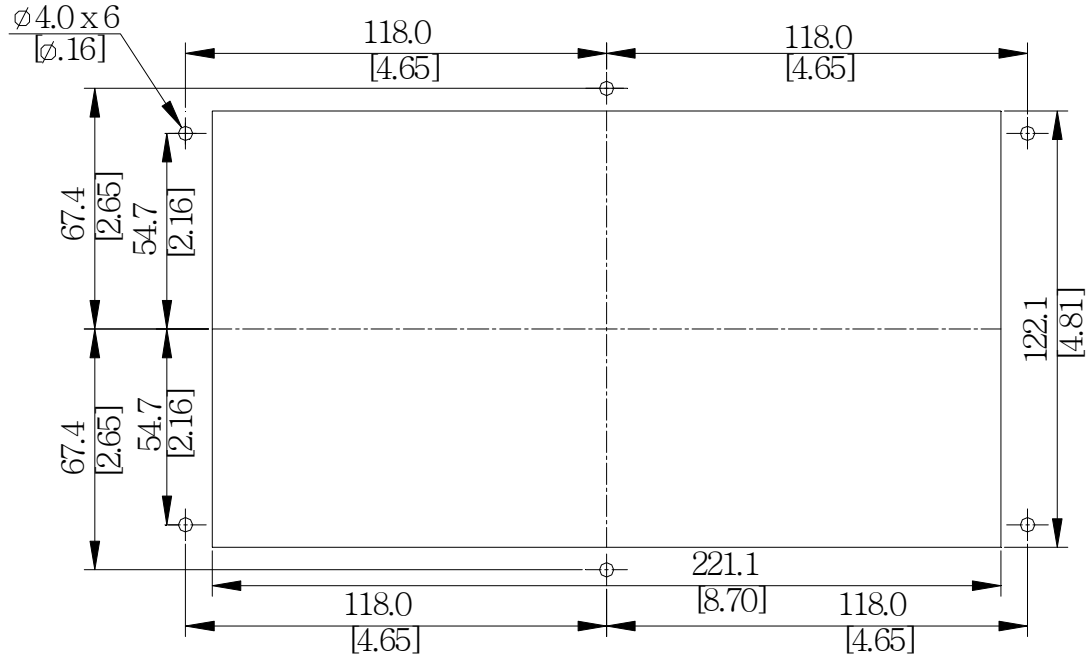


Bottom View

Figure 2-3. Data Collector (DC-LCD II) Dimension Drawings



(a)



(b)

Figure 2-4. Data Collector (DC-LCD II) Fixation Holes

3. RF Receiver (RFR)

The RFR receives the measurement signals from the BMKs and SMKs wirelessly and then transfer to Data Collector for stores and displays the battery data.

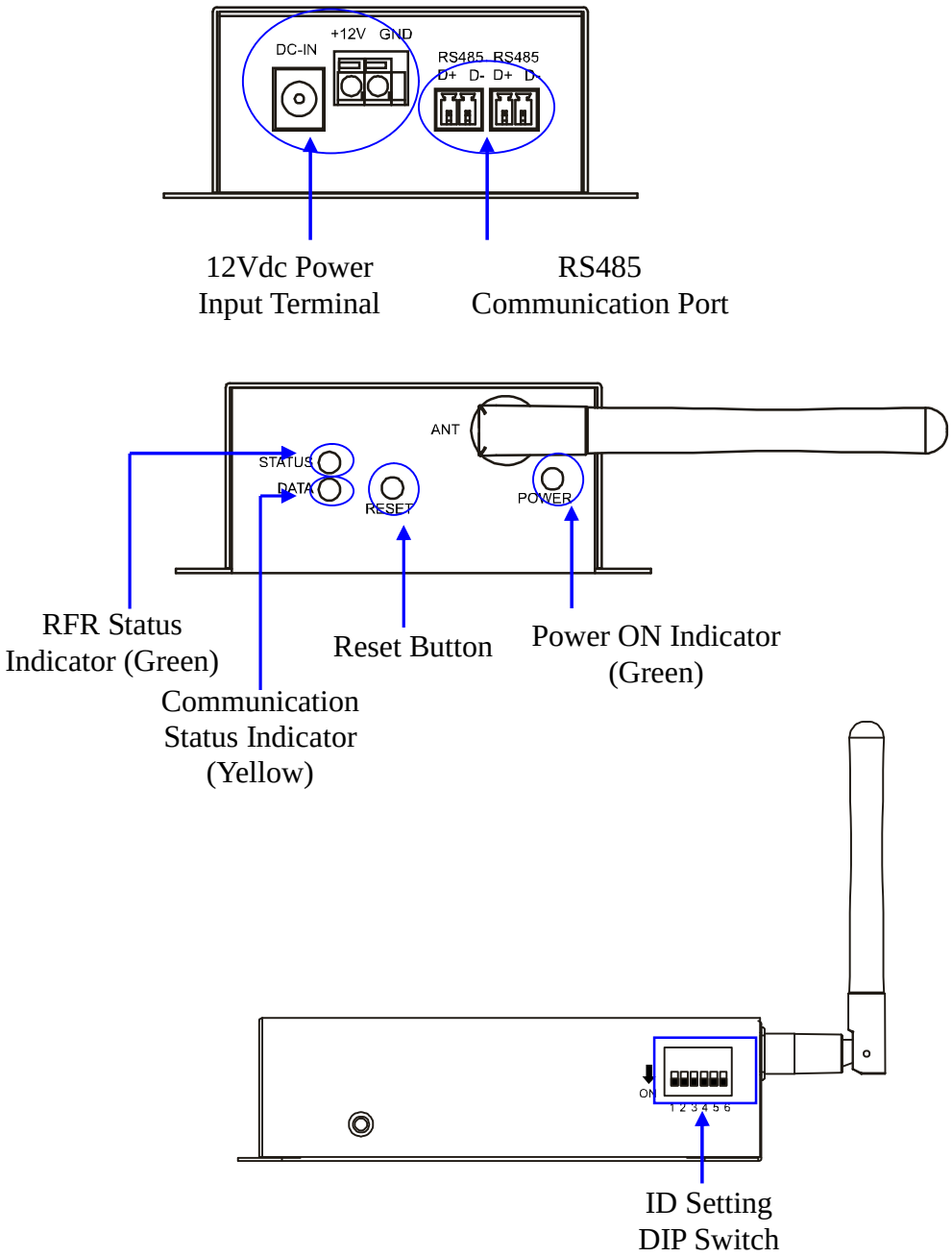


Figure 3-1. RF Receiver (RFR) External Features

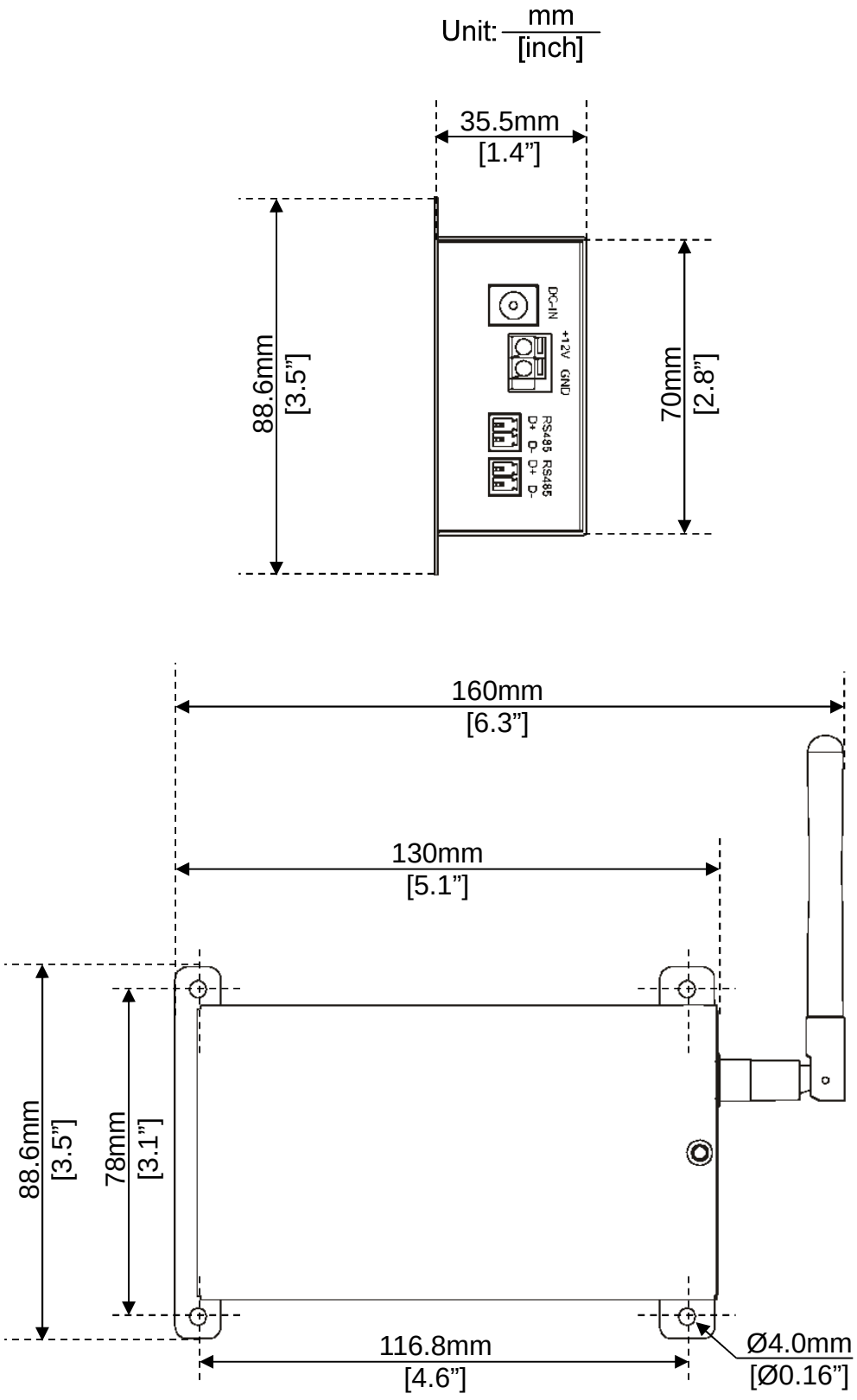


Figure 3-2. RF Receiver (RFR) Dimension Drawings

Table 3-1. RF Receiver (RFR) Specifications

Model	BMS-RFR
Operating Temperature	0~50 °C / 32~122°F
Relative Humidity	≦ 95%
Input Power Supply	$12V_{DC}$
Power Consumption	Maximum 3 W
Communication Interface(1)	RS-485
Receiving Interface (2)	RF 2.4 GHz for wireless
Monitoring Nodes(3)	Maximum 256 nodes
Dimensions (WxHxD)	130mm x 70mm x 35.5mm 5.1" x 2.7" x 1.4"
Weight	0.5kgs / 1.1lbs

(1) This communication port connects to DC-LCD II. A shielded twisted-pair cable is recommended and the maximum cable length from DC-LCD II to the farthest RFR is 150 meters for ensures have good communication quality.

(2)Maximum receiving distance is rated at 50 m in a non-concealed room or cabinet. Recommended distance is 10 m for optimal performance. The layout of the installation environment, shelter and other factors can weaken transmitting signal and shorten the transmitting distance, thereby affecting the quality of wireless communications.

(3) One BMK or SMK is one node.

Table 3-2. RF Receiver (RFR) Button Function Description

Button	Function Description
RESET	Press this button for 1second to reset the RFR when it is not working properly.

Table 3-3. RF Receiver (RFR) LED Indicator Description

Indicator	Status	Description
POWER	On	RFR has working power.
	Off	RFR no working power.
DATA (Yellow)	On	RFR has not yet communicated with DC-LCD II.
	Flashing	RFR is communicating with DC-LCD II and transmitting data.
STATUS (Green)	No Flashing (Off/On)	RFR is abnormal; please press the RESET for reset RFR.
	Flashing	RFR is working properly.

One DC-LCD II can connect up to 63 RFRs and each RFR must have dedicated ID number. Please refer to below table to setup the ID Setting DIP Switch.

Table 3-4. RF Receiver ID Setting Table

ID	1	2	3	4	5	6		ID	1	2	3	4	5	6
1	ON	OFF	OFF	OFF	OFF	OFF		33	ON	OFF	OFF	OFF	OFF	ON
2	OFF	ON	OFF	OFF	OFF	OFF		34	OFF	ON	OFF	OFF	OFF	ON
3	ON	ON	OFF	OFF	OFF	OFF		35	ON	ON	OFF	OFF	OFF	ON
4	OFF	OFF	ON	OFF	OFF	OFF		36	OFF	OFF	ON	OFF	OFF	ON
5	ON	OFF	ON	OFF	OFF	OFF		37	ON	OFF	ON	OFF	OFF	ON
6	OFF	ON	ON	OFF	OFF	OFF		38	OFF	ON	ON	OFF	OFF	ON
7	ON	ON	ON	OFF	OFF	OFF		39	ON	ON	ON	OFF	OFF	ON
8	OFF	OFF	OFF	ON	OFF	OFF		40	OFF	OFF	OFF	ON	OFF	ON
9	ON	OFF	OFF	ON	OFF	OFF		41	ON	OFF	OFF	ON	OFF	ON
10	OFF	ON	OFF	ON	OFF	OFF		42	OFF	ON	OFF	ON	OFF	ON
11	ON	ON	OFF	ON	OFF	OFF		43	ON	ON	OFF	ON	OFF	ON
12	OFF	OFF	ON	ON	OFF	OFF		44	OFF	OFF	ON	ON	OFF	ON
13	ON	OFF	ON	ON	OFF	OFF		45	ON	OFF	ON	ON	OFF	ON
14	OFF	ON	ON	ON	OFF	OFF		46	OFF	ON	ON	ON	OFF	ON
15	ON	ON	ON	ON	OFF	OFF		47	ON	ON	ON	ON	OFF	ON
16	OFF	OFF	OFF	OFF	ON	OFF		48	OFF	OFF	OFF	OFF	ON	ON
17	ON	OFF	OFF	OFF	ON	OFF		49	ON	OFF	OFF	OFF	ON	ON
18	OFF	ON	OFF	OFF	ON	OFF		50	OFF	ON	OFF	OFF	ON	ON
19	ON	ON	OFF	OFF	ON	OFF		51	ON	ON	OFF	OFF	ON	ON
20	OFF	OFF	ON	OFF	ON	OFF		52	OFF	OFF	ON	OFF	ON	ON
21	ON	OFF	ON	OFF	ON	OFF		53	ON	OFF	ON	OFF	ON	ON
22	OFF	ON	ON	OFF	ON	OFF		54	OFF	ON	ON	OFF	ON	ON
23	ON	ON	ON	OFF	ON	OFF		55	ON	ON	ON	OFF	ON	ON
24	OFF	OFF	OFF	ON	ON	OFF		56	OFF	OFF	OFF	ON	ON	ON
25	ON	OFF	OFF	ON	ON	OFF		57	ON	OFF	OFF	ON	ON	ON
26	OFF	ON	OFF	ON	ON	OFF		58	OFF	ON	OFF	ON	ON	ON
27	ON	ON	OFF	ON	ON	OFF		59	ON	ON	OFF	ON	ON	ON
28	OFF	OFF	ON	ON	ON	OFF		60	OFF	OFF	ON	ON	ON	ON
29	ON	OFF	ON	ON	ON	OFF		61	ON	OFF	ON	ON	ON	ON
30	OFF	ON	ON	ON	ON	OFF		62	OFF	ON	ON	ON	ON	ON
31	ON	ON	ON	ON	ON	OFF		63	ON	ON	ON	ON	ON	ON
32	OFF	OFF	OFF	OFF	OFF	ON								

4. Battery Measure Kit (BMK)

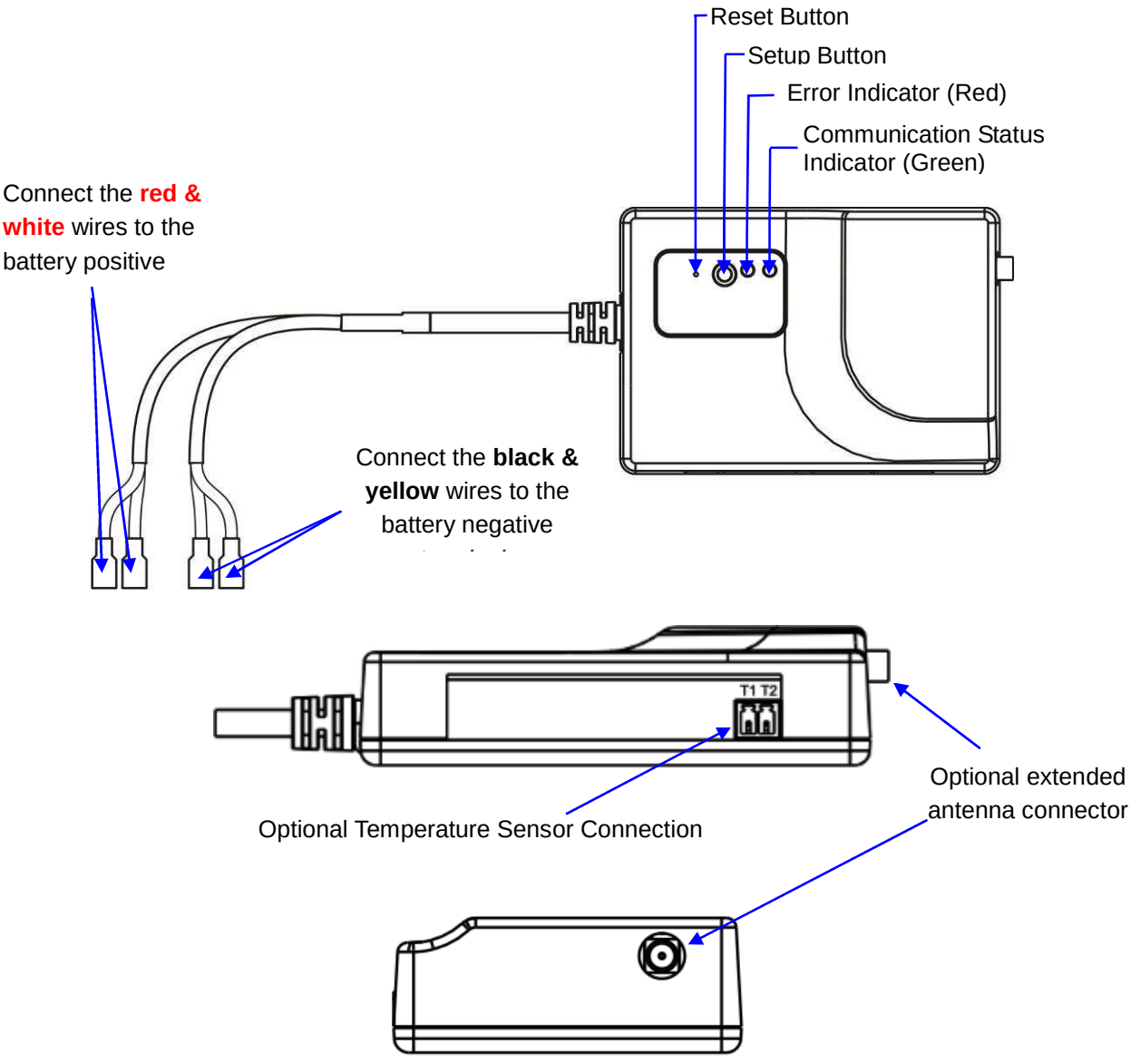


Figure 4-1. Battery Measure Kit (BMK) External Features

Table 4-1. Battery Measure Kit (BMK) Specifications

Model	BMS-BMK-002A	BMS-BMK-006A	BMS-BMK-012A	BMS-BMK-012B
Block Voltage	2 V	6 V	12 V	
Block Voltage Measurement Range	1.48-4.00 V	4.20~8.00 V	8.50-16.00 V	
Accuracy	±10 mV			
Battery Impedance Resolution	0.01 mΩ	0.03 mΩ	> 65 Ah	< 65 Ah
			0.03 mΩ	0.10 mΩ
Cutoff Voltage[1]	1.48-1.55 V (Default 1.5 V)	4.2-4.5 V (Default 4.5 V)	8.5-9.3 V (Default 9.0 V)	
Start Up Voltage[2]	1.65 V	4.8 V	9.6 V	
Temperature Measurement Range[3]	0-100°C / 32-212°F			
Accuracy	±1°C / 1.8°F			
Operating Temperature	0-50°C / 32-122°F			
Humidity	≤ 95%			
Power Consumption	≤ 0.5 W			
Input Impedance	≧ 1 MΩ			
Transmitting Interface[4]	RF 2.4 GHz Wireless			
Sampling Rate	1 second sampling interval			
Dimensions (WxHxD)	100 mm x 27 mm x 70 mm 3.9″ x 1.1″ x 2.8″			
Weight	0.1 kg / 3.4 ozs			

[1]When the battery voltage is too low the BMK will automatically stop working to avoid draining the battery during a charger failure or power outage. The cutoff voltage can be configured. Refer to the *Enerbatt 3G Wireless Battery Monitoring System Installation Manual*.

[2]The BMK cannot start up when the battery voltage is too low.

[3]An optional Temperature Sensor (TES) is required to measure battery terminal temperature.

[4]Maximum transmitting distance is rated at 50 m in a non-concealed room or cabinet. Recommended distance is 10 m for optimal performance. The layout of the installation environment, shelter and other factors can weaken transmitting signal and shorten the transmitting distance, thereby affecting the quality of wireless communications at this time an external antenna is recommended (see section 6-4 of this manual).

Table 4-2. Battery Measure Kit (BMK) Button Function Description

Button	Function Description
Reset	Press this button for 1 second to reset the BMK when it is not working properly.
Setup	This button sets and clears the wireless communication settings. Set Communication Settings: After you press this button the Communication Status Indicator will flash to indicate that the BMK is communicating with the RFR. The indicator will turn off when the RFR settings are completely configured. Clear Communication Settings: Press this button for 4 seconds to clear the communication settings. The Communication Status Indicator will shine once the settings are cleared.

Table 4-3. Battery Measure Kit (BMK) LED Indicators Description

Indicator	Status	Description
Error (Red)	On	This BMK is abnormal.
Communication Status (Green)	On	This BMK has not yet configured its communication settings.
	Flashing	This BMK is transmitting data or communication settings.
	Off	This BMK's communication settings have been configured, and now there is no data transfer.

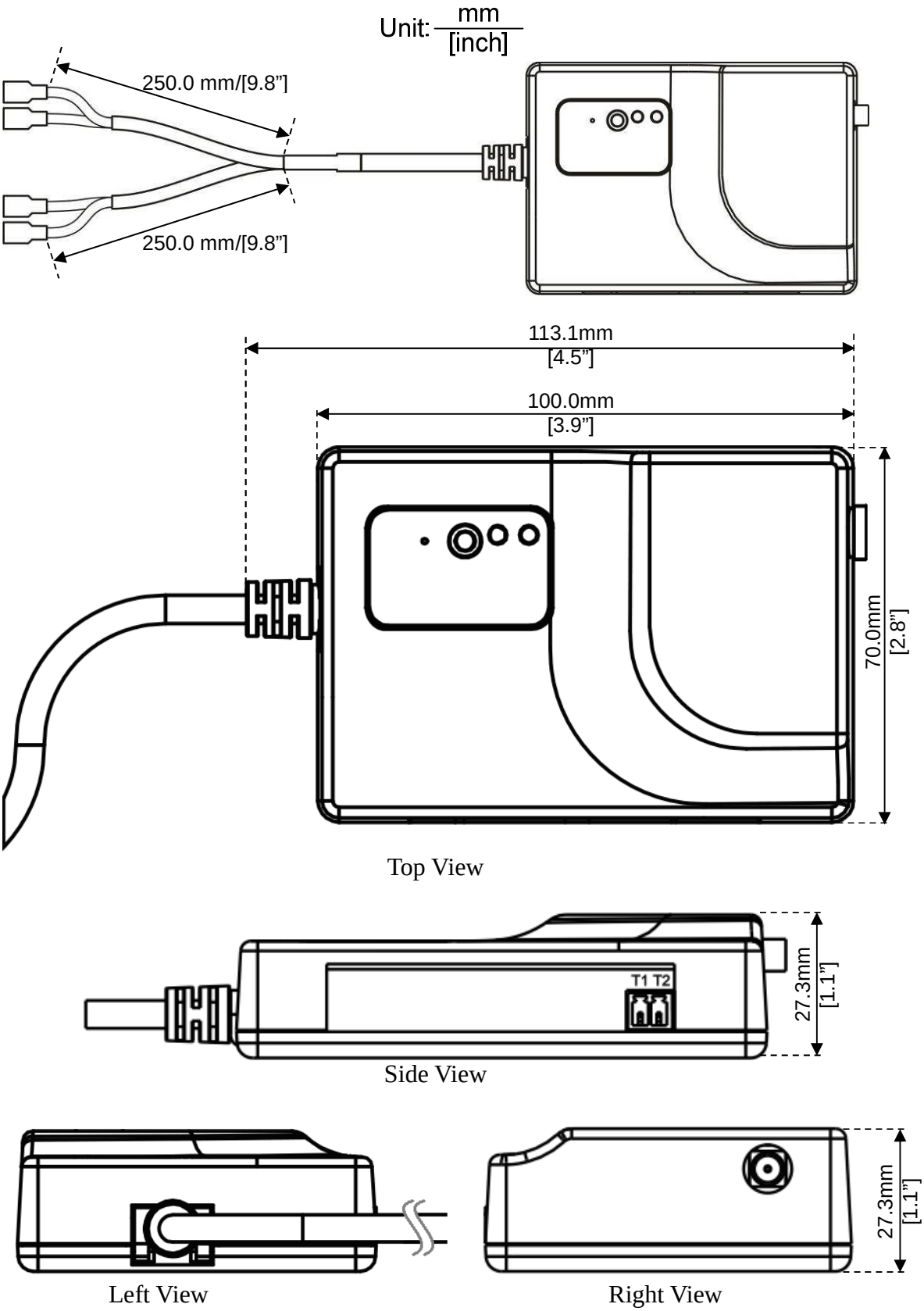


Figure 4-2. Battery Measure Kit (BMK) Dimension Drawings

5. String Measure Kit (SMK)

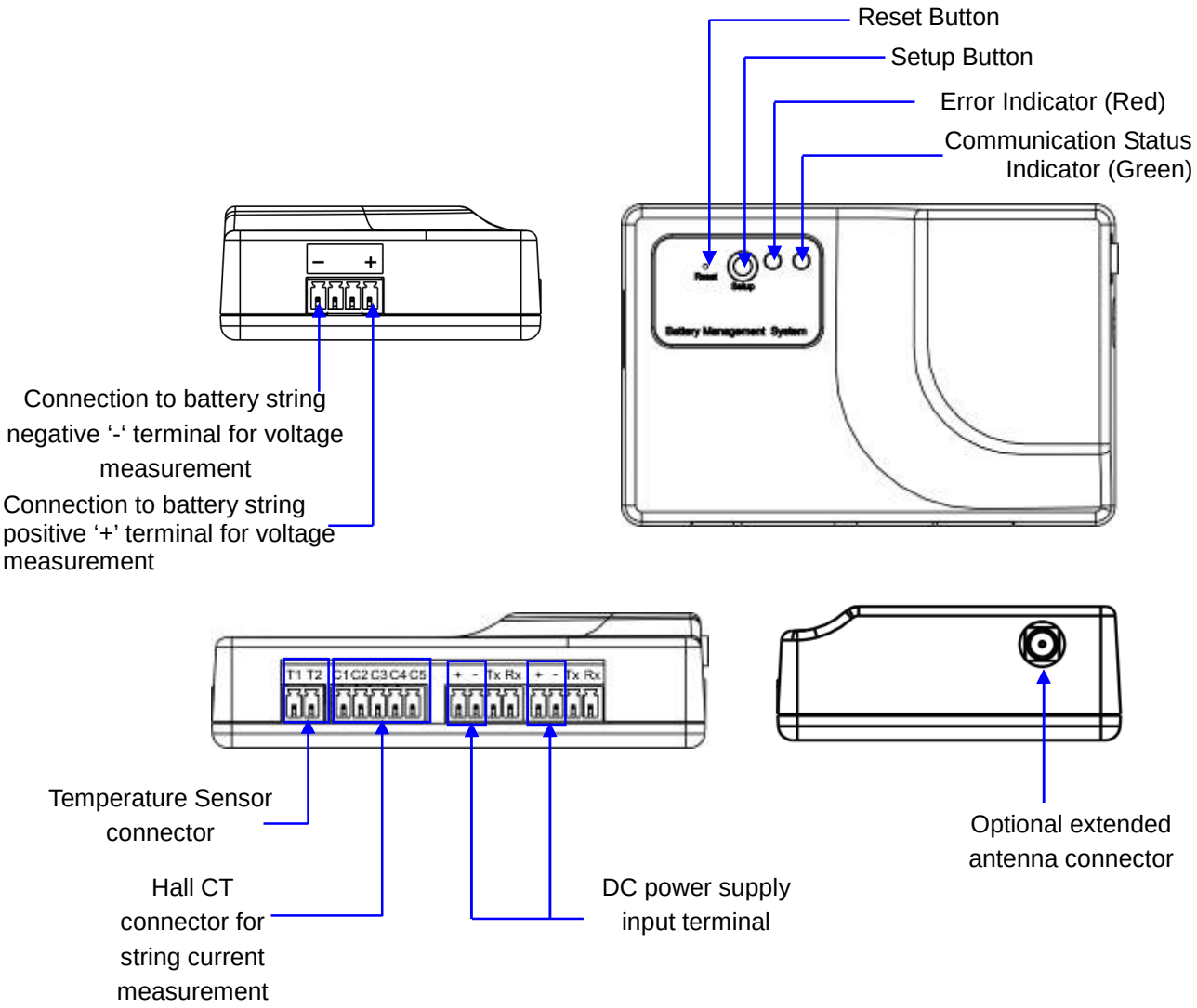


Figure 5-1. String Measure Kit (SMK) External Features

Table 5-1. String Measure Kit (SMK) Specifications

Model	BMS-SMK-0120	BMS-SMK-0750
Voltage Measurement Range	0-120 VDC	0-750 VDC
Normal Voltage Range	40-120 VDC	260-750 VDC
Accuracy	±0.2% of normal voltage	
Current Measurement Range[1]	0-3000 A	
Accuracy	±3%	
Temperature Measurement Range[2]	0~100°C / 32~212°F	
Accuracy	±1°C / 1.8°F	
Operating Temperature	0~50°C / 32~122°F	
Humidity	≤ 95%	
Input Power Supply Range	35-60 VDC	
Power Consumption	Maximum 3 W	
Input Impedance	≧ 1 MΩ	
Transmitting Interface[3]	RF 2.4 GHz Wireless	
Sample Rate	1 second sampling interval	
Dimensions (WxHxD)	100 mm x 27.3 mm x 70 mm 3.9″ x 1.1″ x 2.8″	
Weight	0.09 kg / 3.1 ozs	

[1]An optional Hall CT Kit (HCT) is required to measure battery string current.
[2]An optional Temperature Sensor (TES) is required to measure environmental temperature.
[3]Maximum transmitting distance is rated at 50 m in a non-concealed room or cabinet. Recommended distance is 10 m for optimal performance. The layout of the installation environment, shelter and other factors can weaken transmitting signal and shorten the transmitting distance, thereby affecting the quality of wireless communications at this time an external antenna (ANT) is recommended (see section 6-4 of this manual).

Table 5-2. String Measure Kit (SMK) Button Function Description

Button	Function Description
Reset	Press this button to reset the SMK when it is not working properly.
Setup	This button sets and clears the wireless communication settings. Set Communication Settings: After you press this button the Communication Status Indicator will flash to indicate that the SMK is communicating with the RFR. The indicator will turn off when the RFR settings are completely configured. Clear Communication Settings: Press this button for 4 seconds to clear the communication settings. The Communication Status Indicator will shine after the settings are cleared.

Table 5-3. String Measure Kit (SMK) LED Indicators Description

Indicator	Status	Description
Error (Red)	On	This SMK is abnormal.
Communication Status (Green)	On	This SMK has not yet configured its communication settings.
	Flashing	This SMK is transmitting data or communication settings.
	Off	This SMK's communication settings have been configured, and now there is no data transfer.

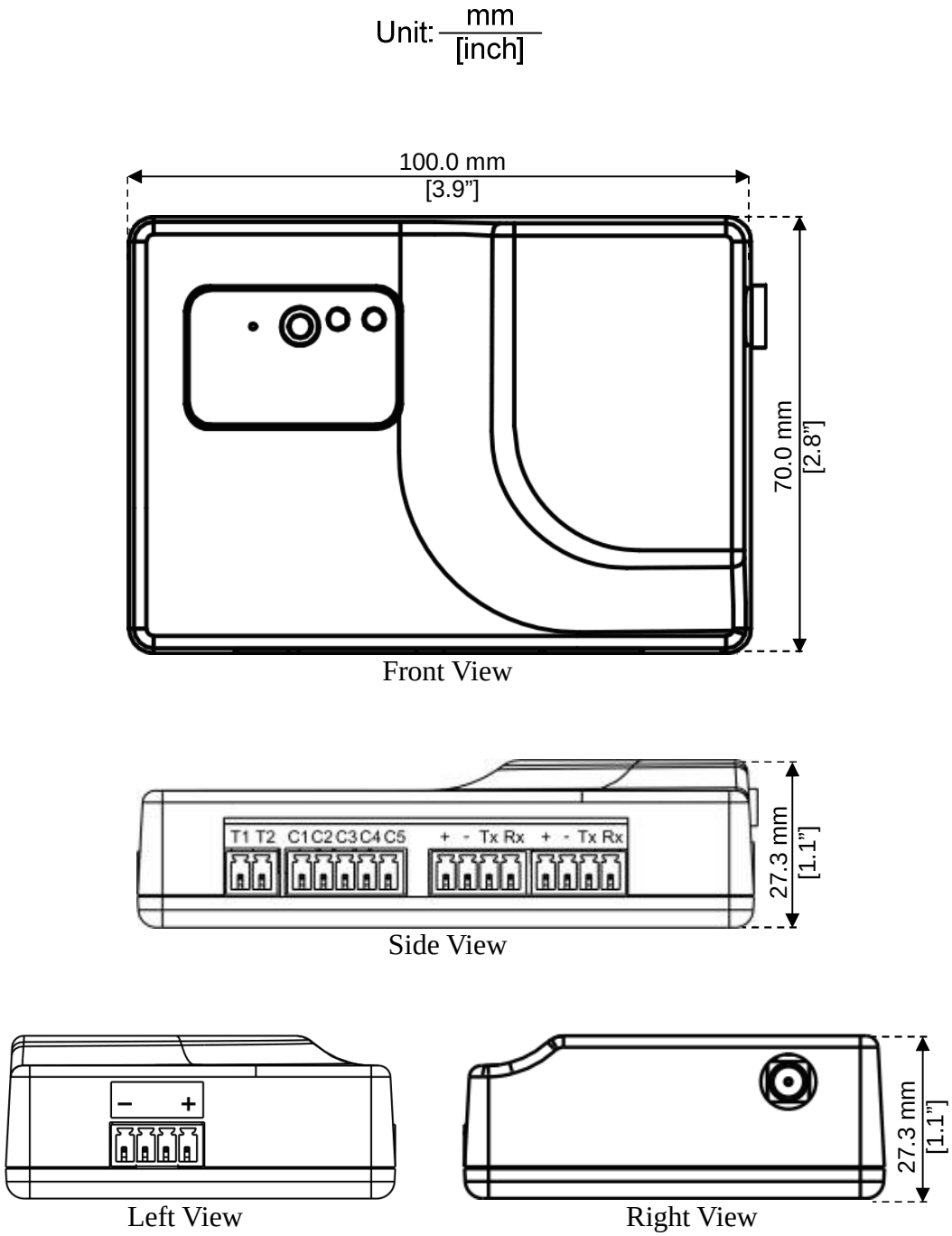
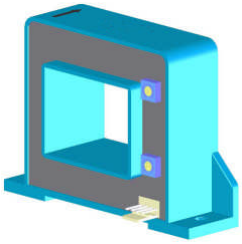


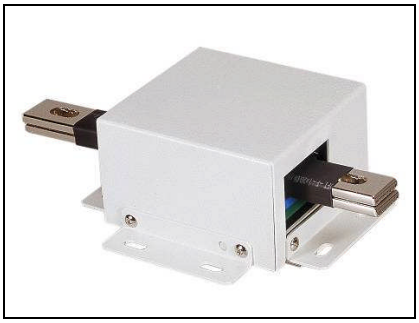
Figure 5-2. String Measure Kit (SMK) Dimension Drawings

6. Other Accessories

6-1. Hall CT Kit (HCT)



BMS-HCT A Type
200 ~ 1500A



BMS-HCT 50 ~ 600A

BMS-HCT 2000A

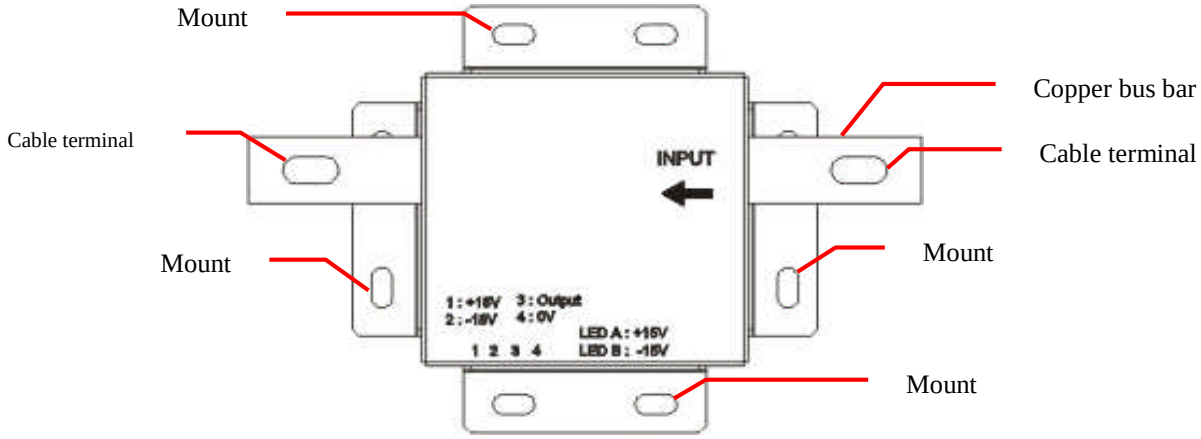


Figure 6-1. Hall CT Kit (HCT) 50 ~ 600A External Features

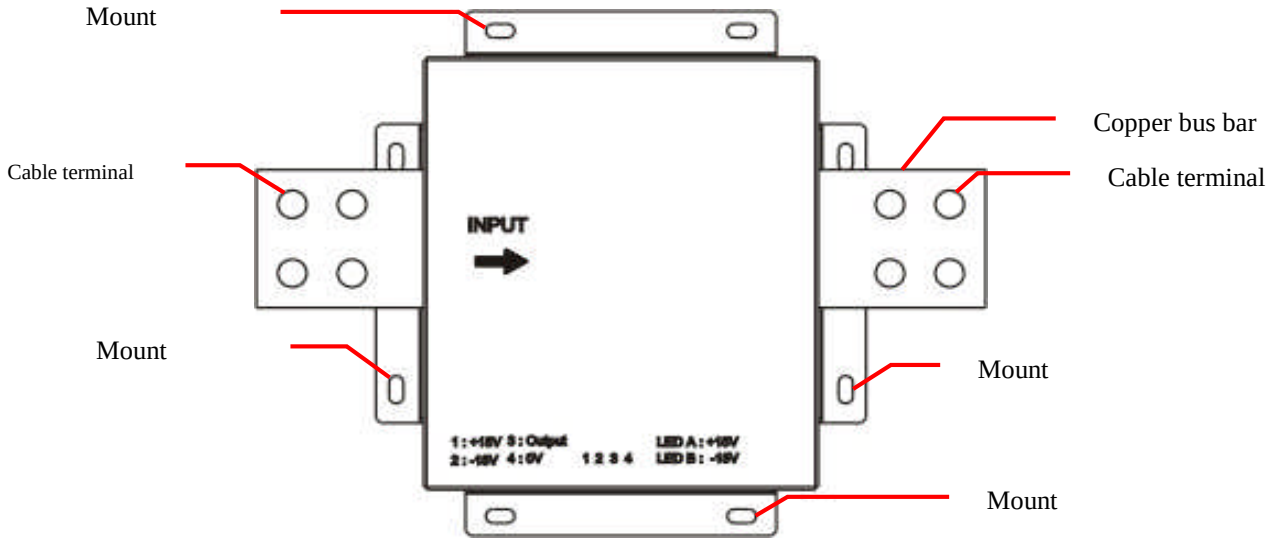
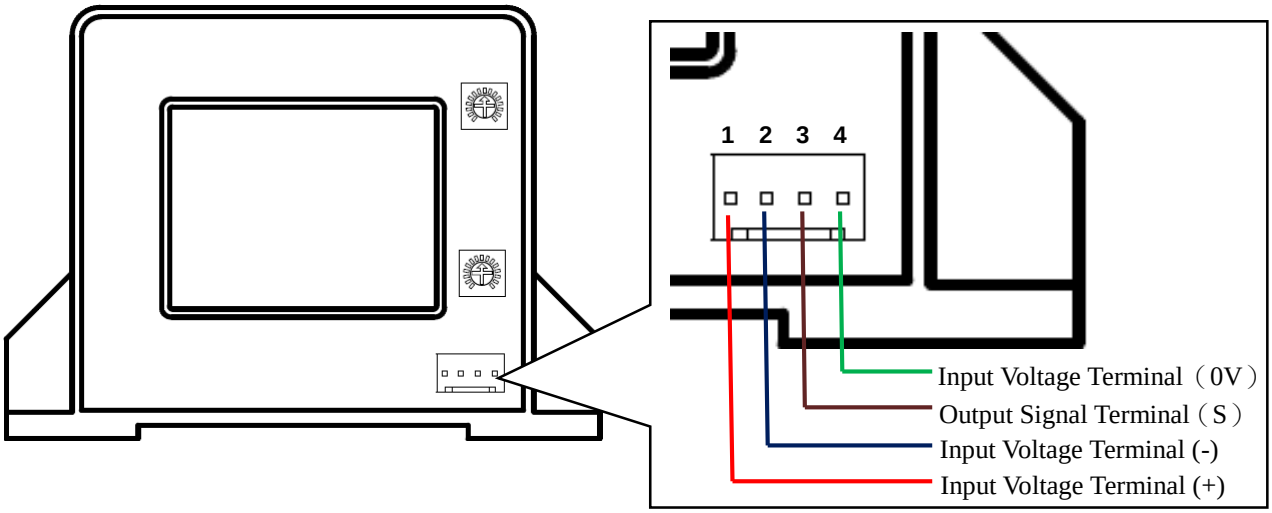
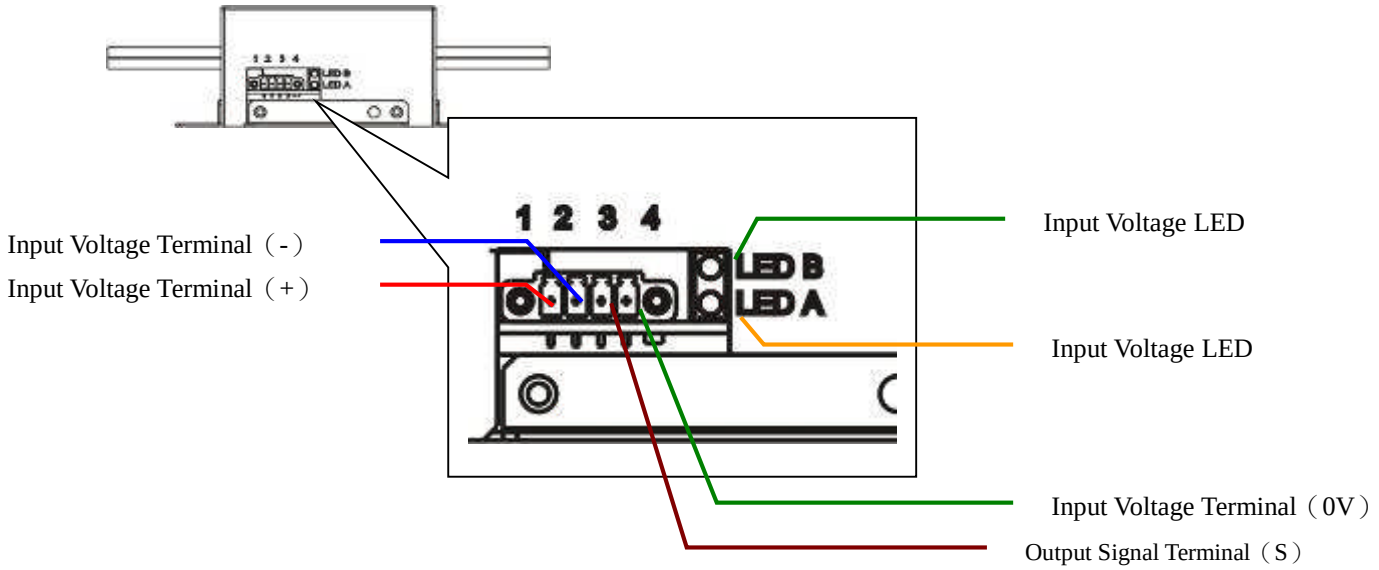


Figure 6-2. Hall CT Kit (HCT) 2000A External Features



(a) A Type



(b)

Figure 6-3. Hall CT Kit (HCT) Signal Pin Assignment

Table 6-1. Hall CT Kit (HCT) Specifications

Model	BMS-HCT-020A	BMS-HCT-040A	BMS-HCT-060A	BMS-HCT-080A	BMS-HCT-150A
Current Rating	200A	400A	600A	800A	1500A
Dimensions (WxHxD)	90.0mm x 65.0mm x 43.0mm 3.5” x 2.6” x 1.7”				
Weight	0.25kg / 8.8ozs				

Model	BMS-HCT-005	BMS-HCT-010	BMS-HCT-030	BMS-HCT-060	BMS-HCT-200
Current Rating	50A	100A	300A	600A	2000A
Dimensions (WxHxD)	194.0mm x 55.0mm x 128.0mm 7.6” x 2.2” x 5.0”				194.0mm x 85.0mm x 228.0mm /7.6” x 3.3” x 9.0”
Weight	0.65kg / 1.4lbs		0.80kg / 1.8lbs		5.00kgs / 11.0lbs

[1]To be used with an SMK.

Unit:mm

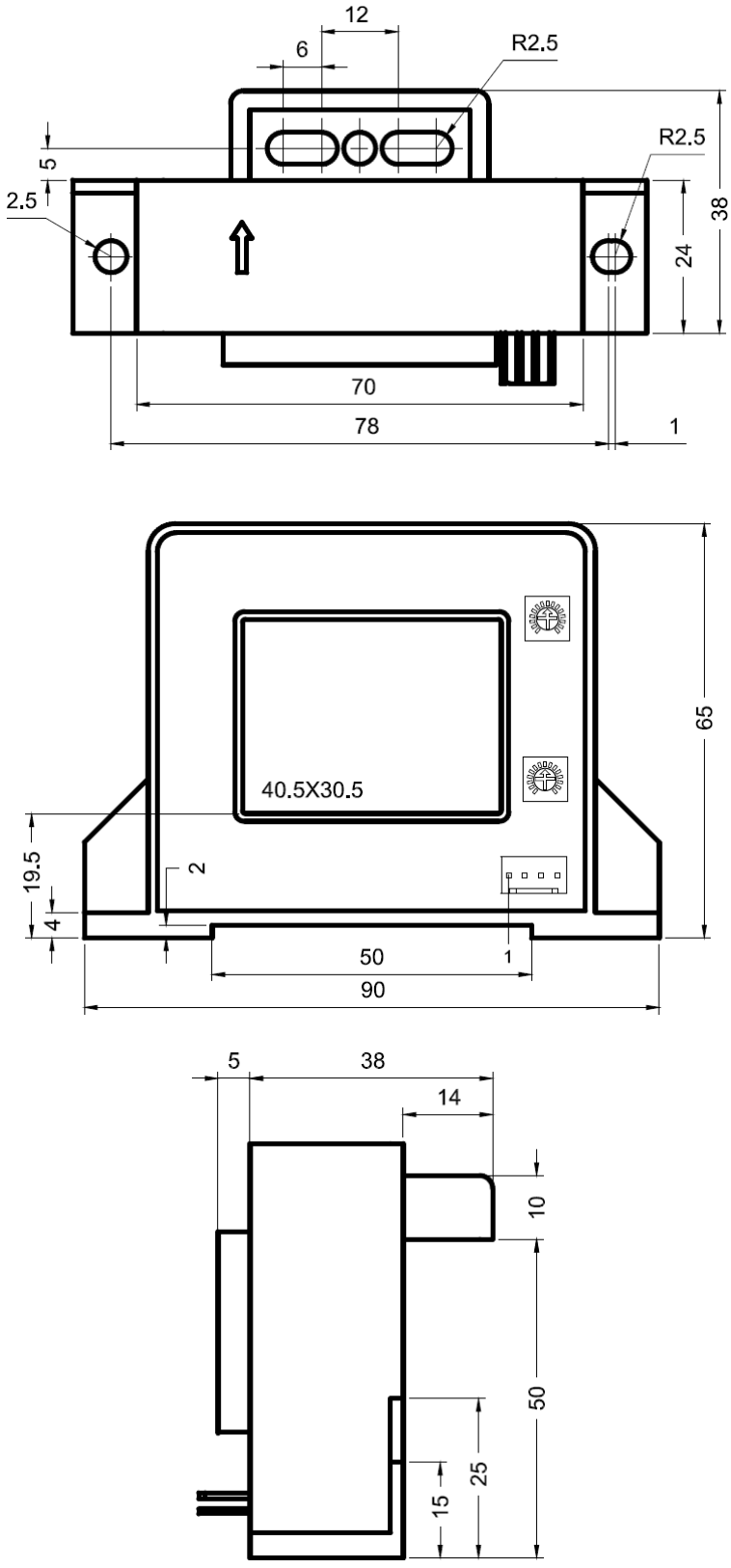
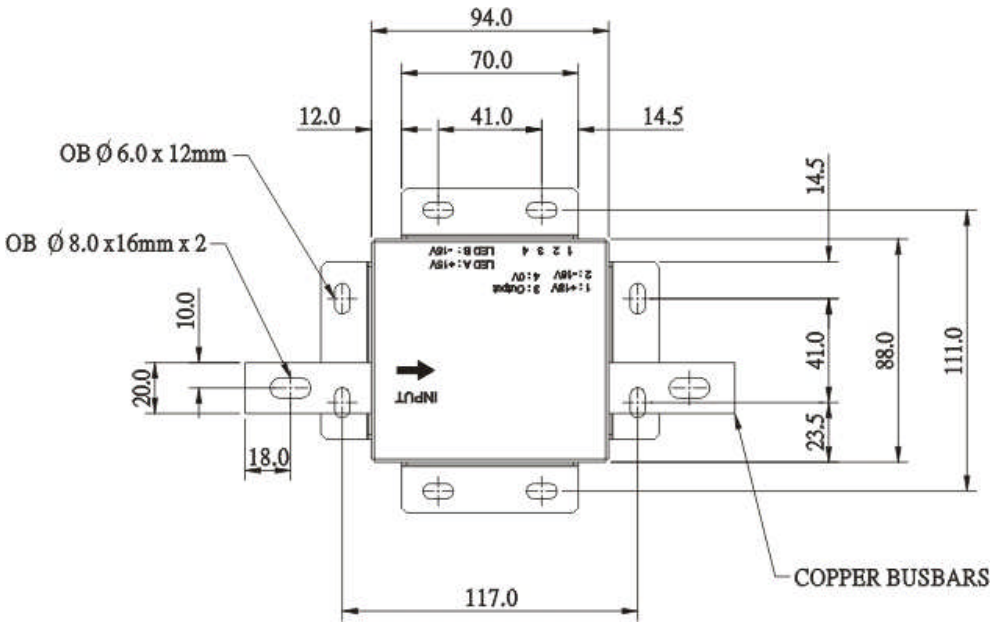
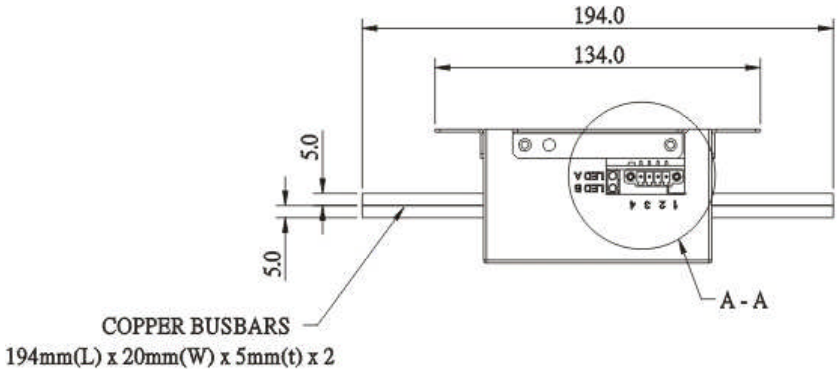


Figure 6-4. Hall CT Kit (HCT A Type) 200 ~ 1500A Dimension Drawings

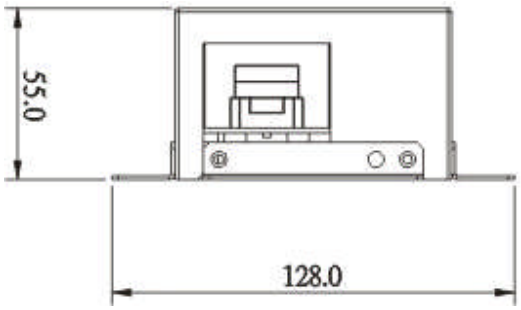
Unit:mm



Top View



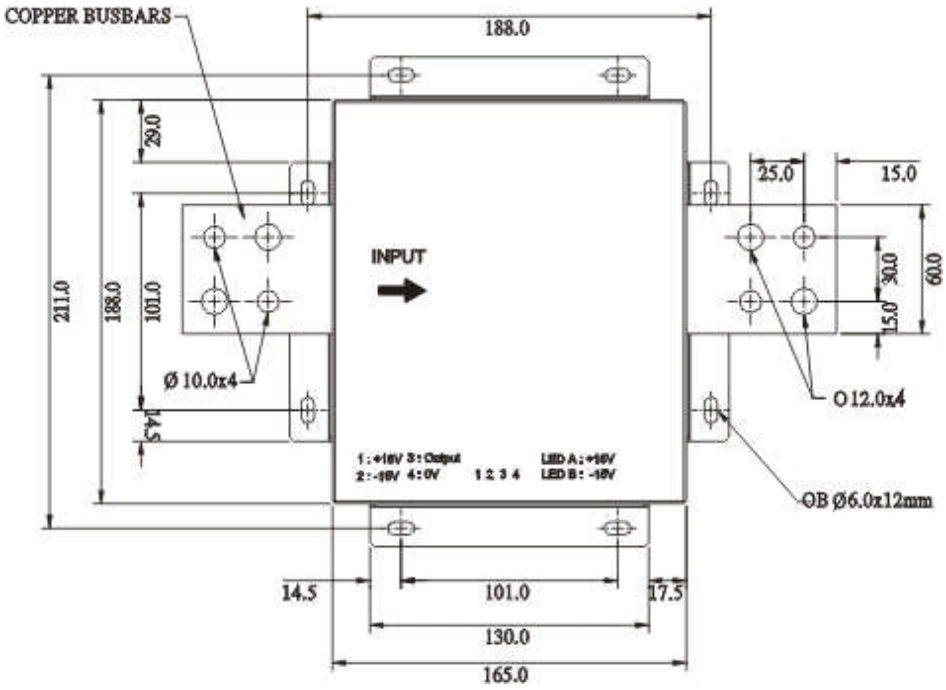
Side View1



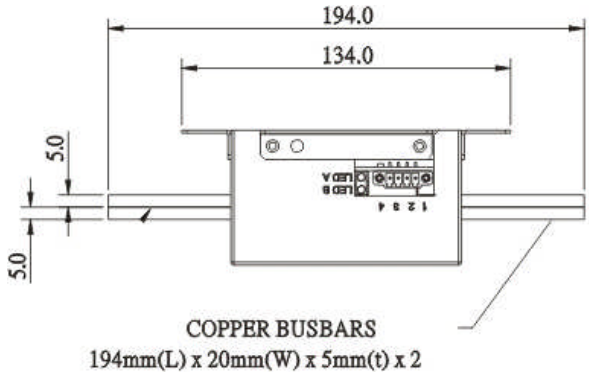
Side View2

Figure 6-5. Hall CT Kit (HCT) 50 ~ 600A Dimension Drawings

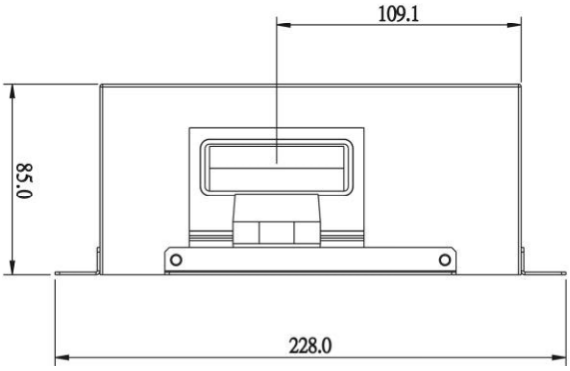
Unit:mm



Top View



Side View1



Side View2

Figure 6-6. Hall CT Kit (HCT) 2000A Dimension Drawings

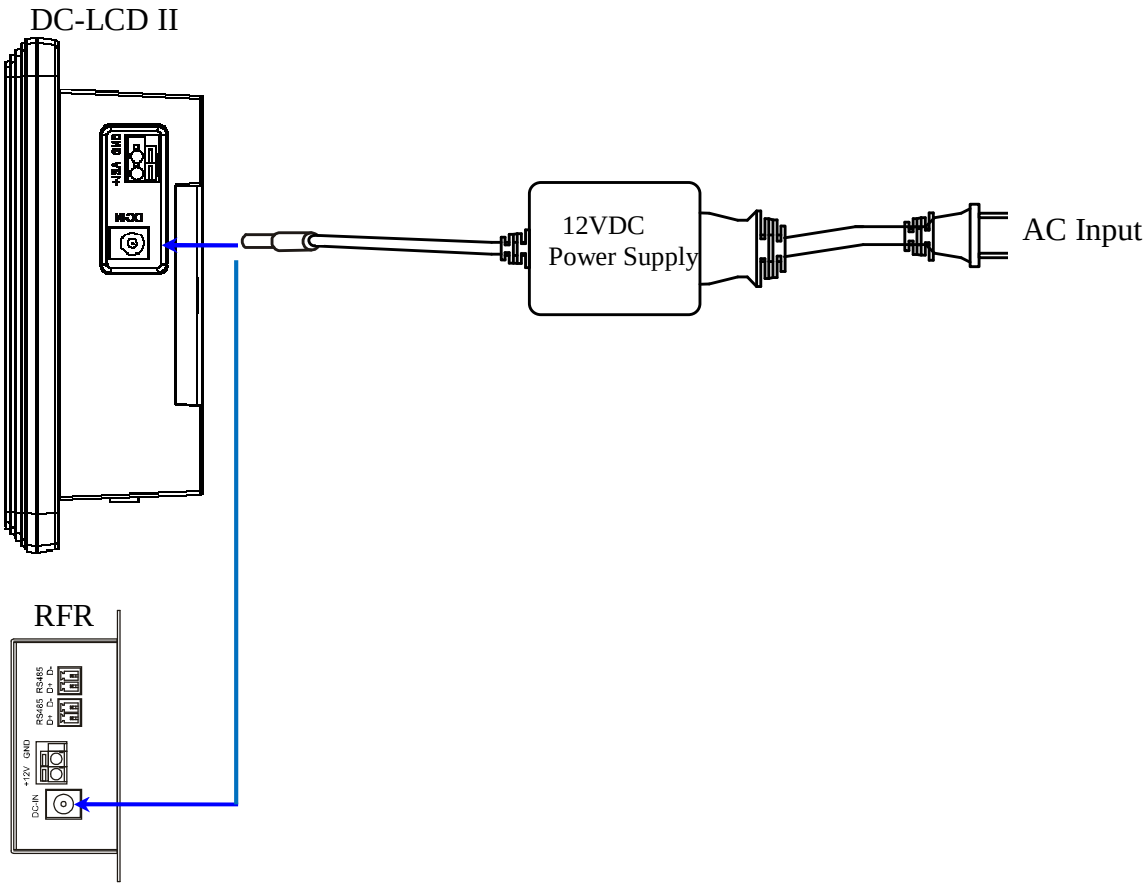
6-2. DC Power Supply (DPS)

6-2-1. 12V DC Power Supply (DPS-012A/B/C/D)

This DC Power Supply can provide the working power for below equipments,

- One DC-LCD II and up to three RFRs.
- Or supply for maximum six RFRs.

Input Power: 100Vac~240Vac 50/60Hz



There are four power plug types available.

.

Model	BMS-DPS-012A	BMS-DPS-012B	BMS-DPS-012C	BMS-DPS-012D
Power Plug	USA 	UK 	Australia 	Europe 

6-2-2. 48V DC Power Supply (DPS-048A)

This DC Power Supply can supply up to five SMKs.

Table 6-2. DC Power Supply DPS-048A Specifications

Model	BMS-DPS-048A
Input Power	90-260 VAC 50/60 Hz
Output Power	48 VDC, 15 watts
Dimensions (WxHxD)	100 mm x 27.3 mm x 70 mm 3.9″ x 1.1″ x 2.8″
Weight	0.15kg / 5.3 ozs

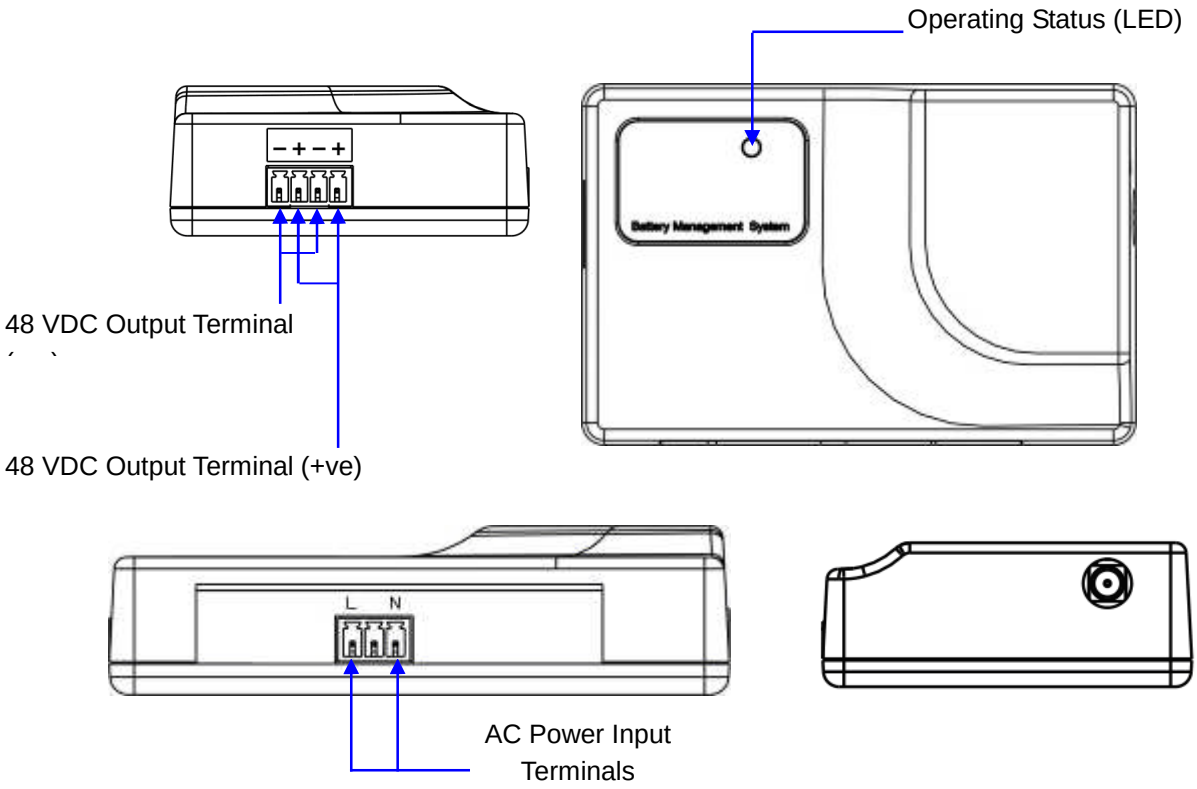


Figure 6-7. DC Power Supply DPS-048A External Features

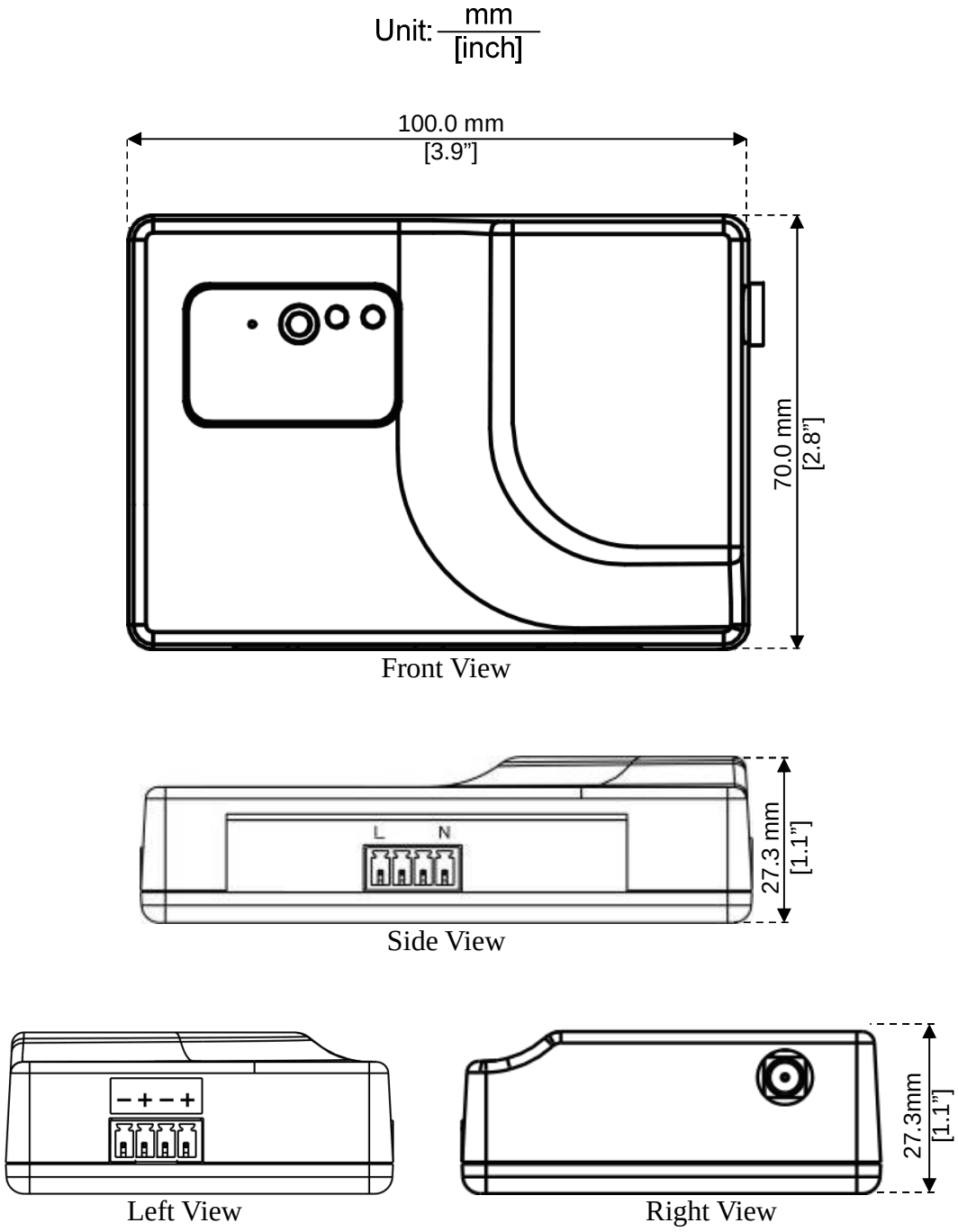


Figure 6-8. DC Power Supply DPS-048A Dimension Drawings

6-3. Temperature Sensor (TES)

The temperature sensor can be coupled with a BMK to measure individual battery block terminal temperature or coupled with a SMK to measure environmental temperature.

Table 6-3. Temperature Sensor Specifications

Model	BMS-TES
Measurement Range	0~100°C / 32~212℉
Length	3000 mm/118”

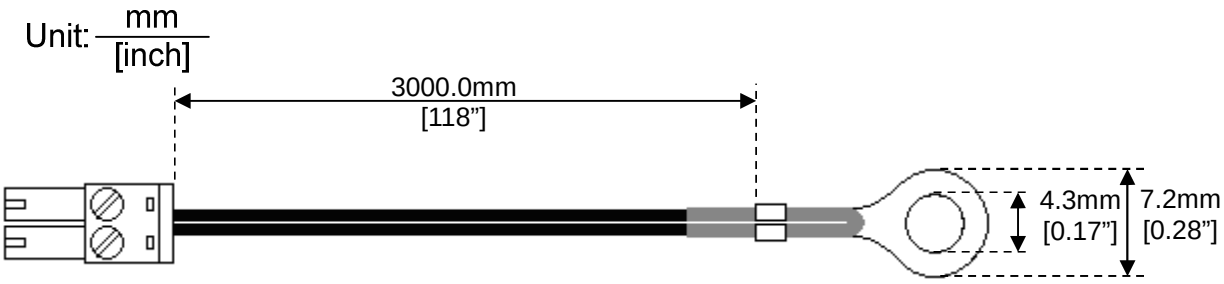


Figure 6-9. Temperature Sensor (TES) Dimension Drawing

6-4. Extension Antenna (ANT)

The optional extension antenna can be attached to a BMK or SMK to increase the wireless signal strength and enhance performance. However, the addition of this extension antenna DOES NOT increase the transmitting-receiving distance between the BMK, SMK, and RFR.

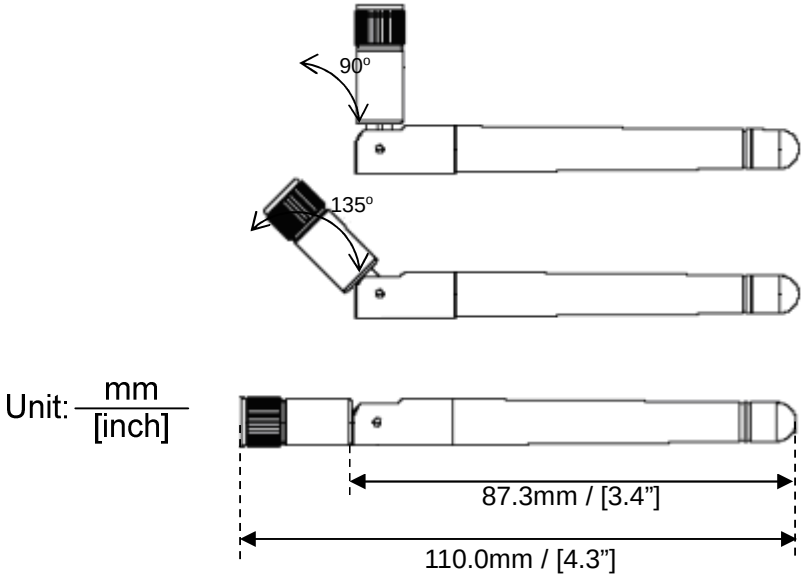


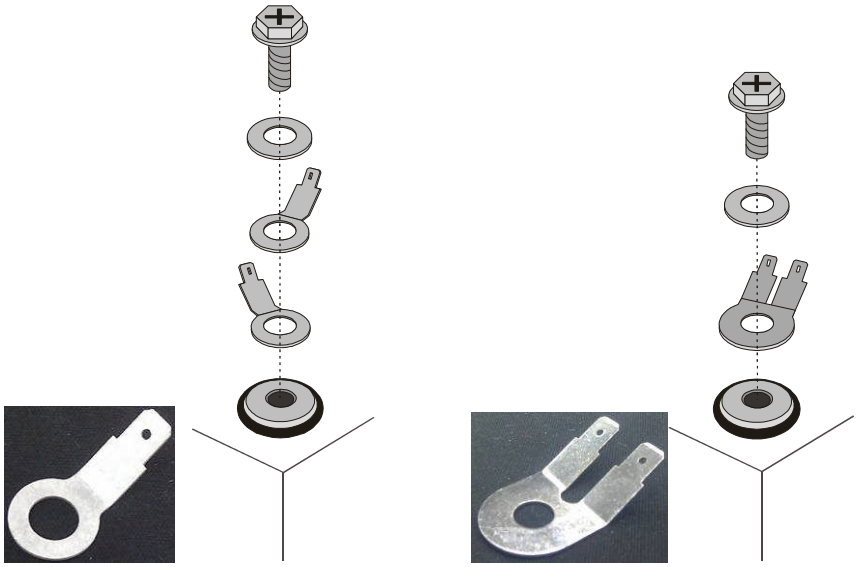
Figure 6-10. Antenna Dimension Drawing

6-5. Battery Terminal Auxiliary Connector Kits (BTA)

There are several Battery Terminal Auxiliary Connector Kits (BTA) are provided for install the BMK. The BTA kits come in three different diameter sizes: 6ϕ (6 mm), 8ϕ (8 mm), and 10ϕ (10 mm). Be sure to verify the battery terminal size before purchasing BTA kits from your authorized dealer.

The BTA kit is designed to ease the installation of a BMK onto a battery block. You need 2 two pins BTA or 4 signal pin BTA for each battery block—one/two for the positive "+" terminal and the other for the negative "-" terminal.

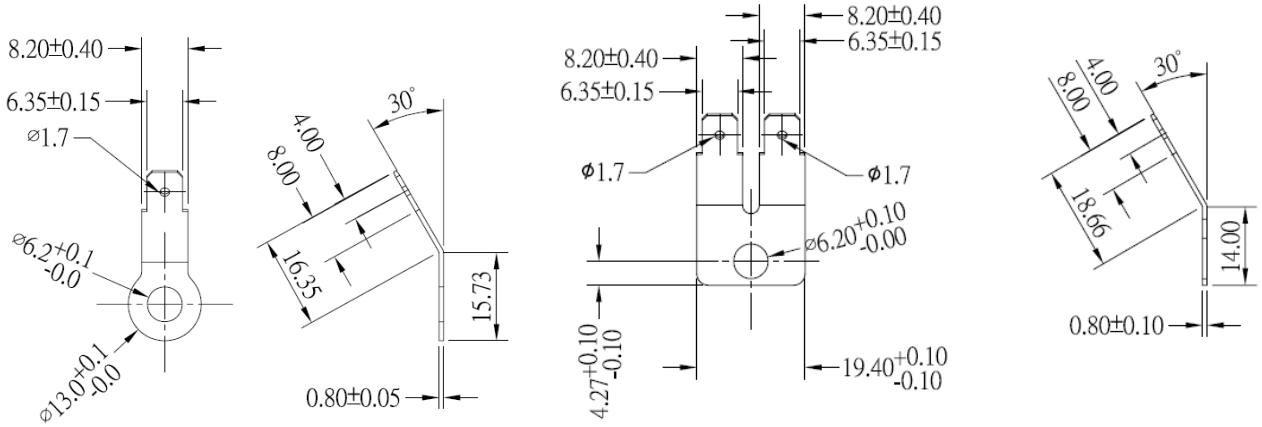
For each battery block, first install either a BTA terminal on the "+" and "-" battery terminals, and fasten the bolts. Connect the black "-" cable and red "+" cable of the BMK onto the snap-on terminals of the BTAs.



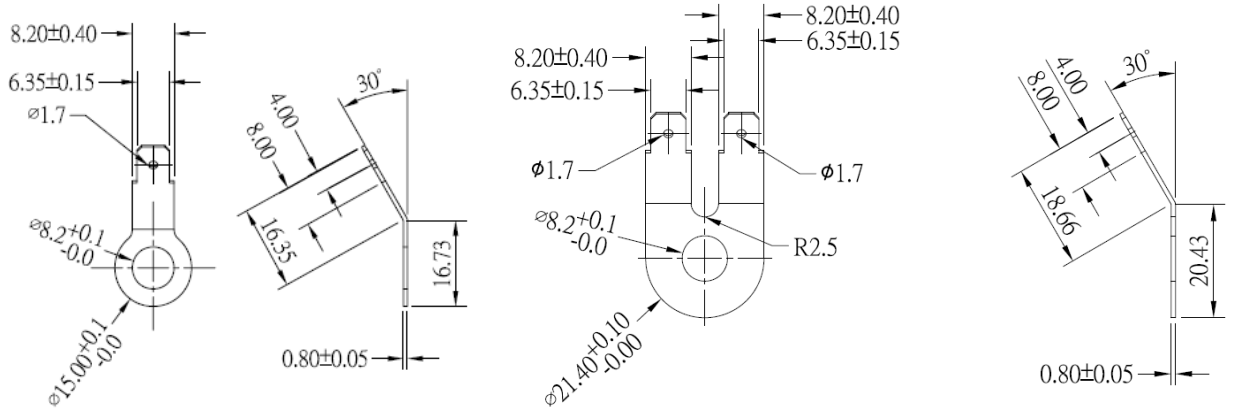
(a) BTA Signal Pin Terminal **(b) BTA Two Pins Terminal**

Figure 6-11. Battery Terminal Auxiliary Connector Terminal (BTA)

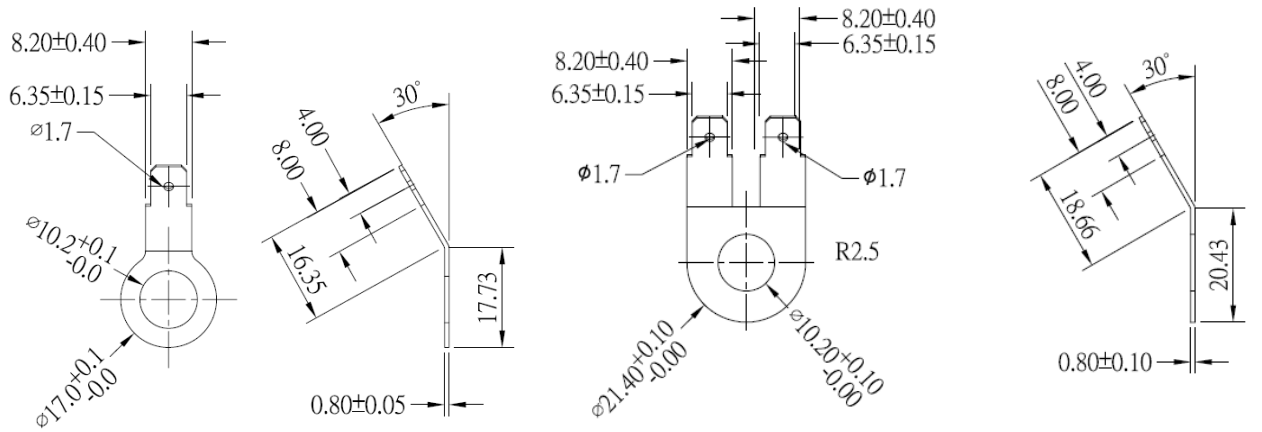
Unit: mm



(a) BMS-BTA-06A **(d) BMS-BTA-06B**



(b) BMS-BTA-08A **(e) BMS-BTA-08B**



(c) BMS-BTA-10 **(f) BMS-BTA-10B**

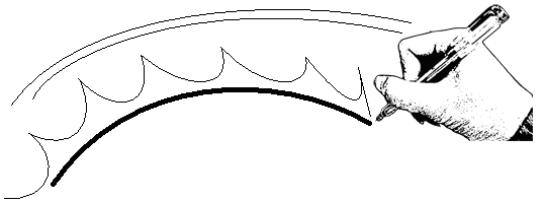
Figure 6-12. Battery Terminal Auxiliary Connector Terminal (BTA) Dimension Drawings

7. Data Collector (DC-LCD II) Operating Guide

The Data Collector LCD panel is a touch-screen device. To operate the touch-screen panel please use the stylus provided.

Use the stylus by dragging or tapping on the screen.

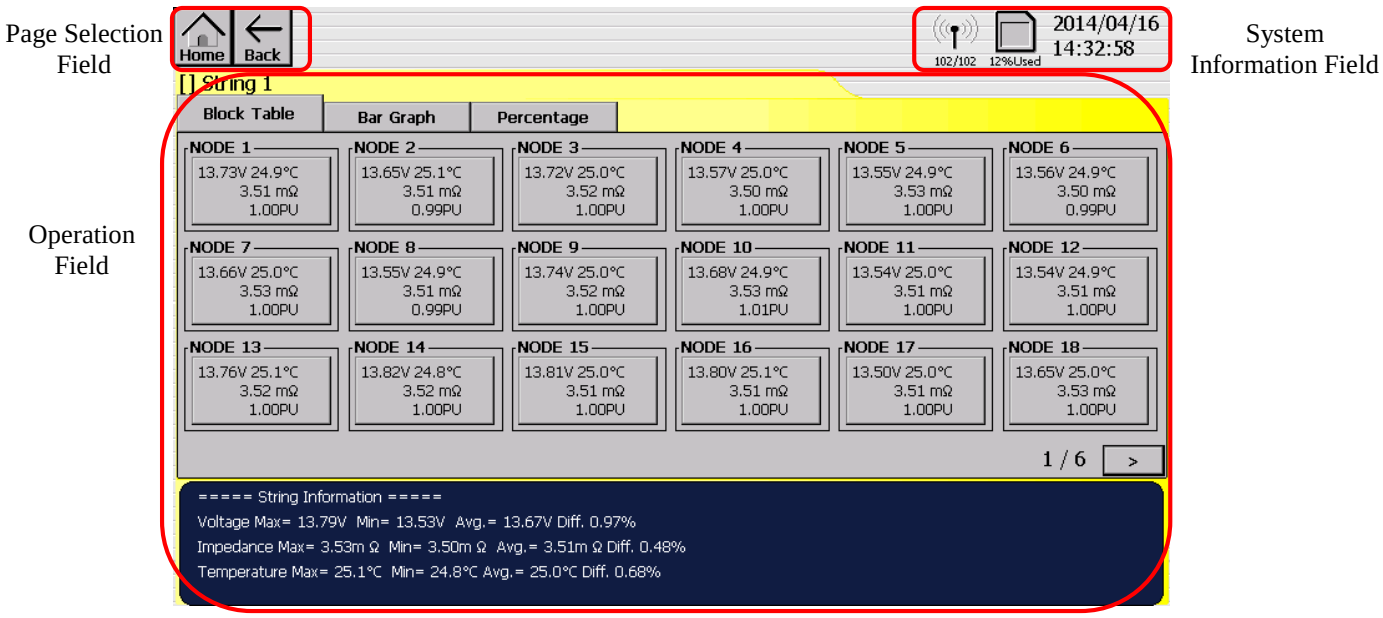
Drag across the screen to navigate.



Tap on the screen to enter information.

7-1. Screen Panel Introduction

The Data Collector screen panel is divided into three fields: “Page Selection”, “System Information” and “Operation” as illustrated below.



Page Selection Icons:

Return to System Status

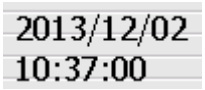
Return to Previous Page

System Information Icons:

Total Nodes

Total Connected Nodes

Used capacity of the SD card

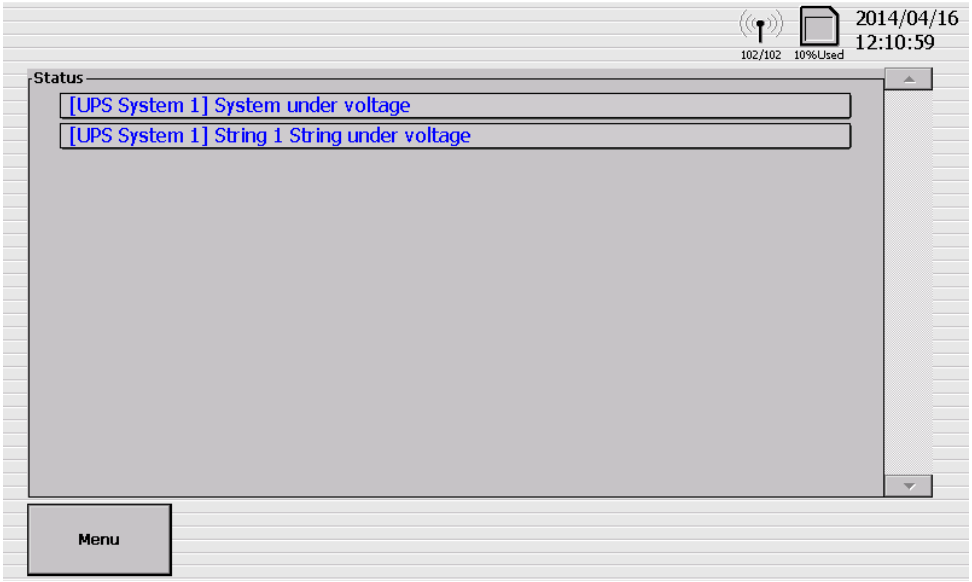


Year/Month/Day
Hours : Minutes : Seconds

7-2. Data Collector Functions

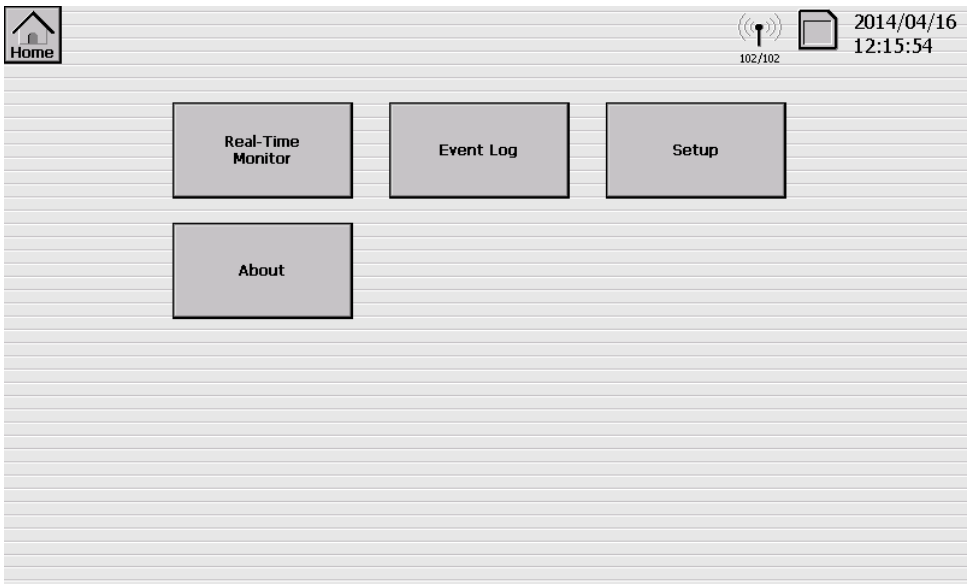
7-2-1. System Status Overview

- Displays occurring events.
- Click on a displayed event to view real-time battery measurement charts.
- Provides a system status overview.



7-2-2. Menu

- For selecting functions

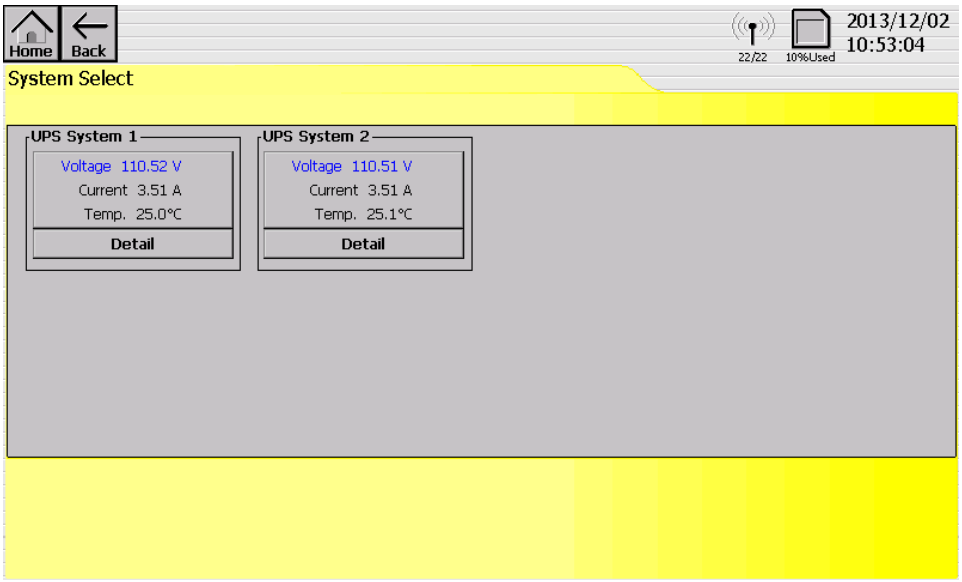


7-2-3. Real-Time Monitor

Click 「Real-Time Monitor」 to display the batteries information.

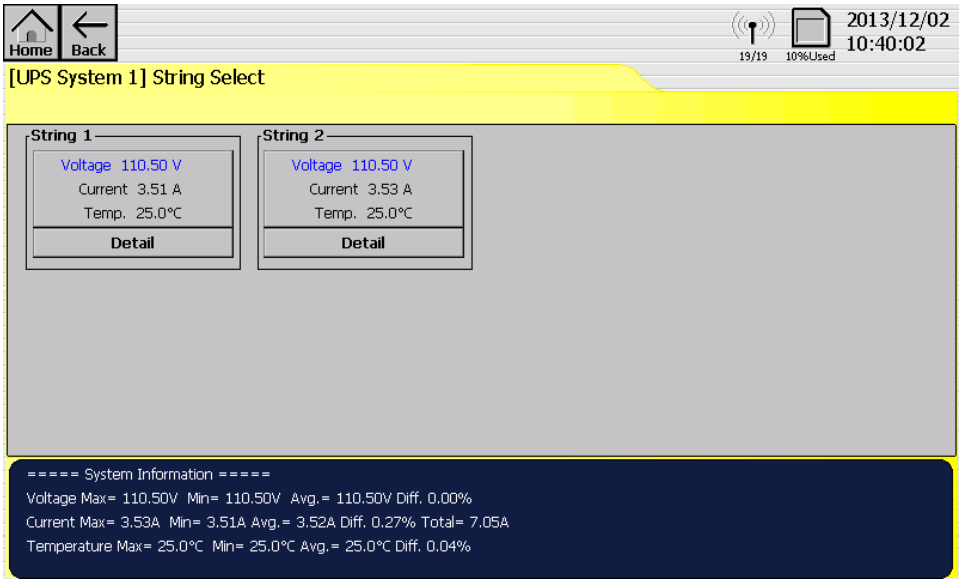
7-2-3-1. System Select Page

- Displays the voltage and current (and ambient temperature if a TES is installed) of each connected system.



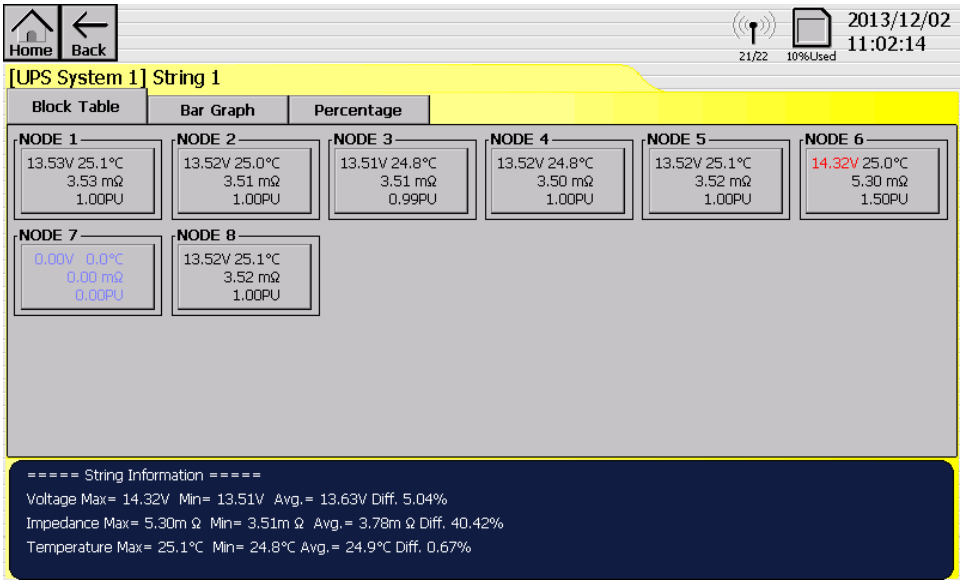
7-2-3-2. String Select Page

- Displays the voltage and current (and ambient temperature if a TES is installed) of each connected battery string.



7-2-3-3. Block Table

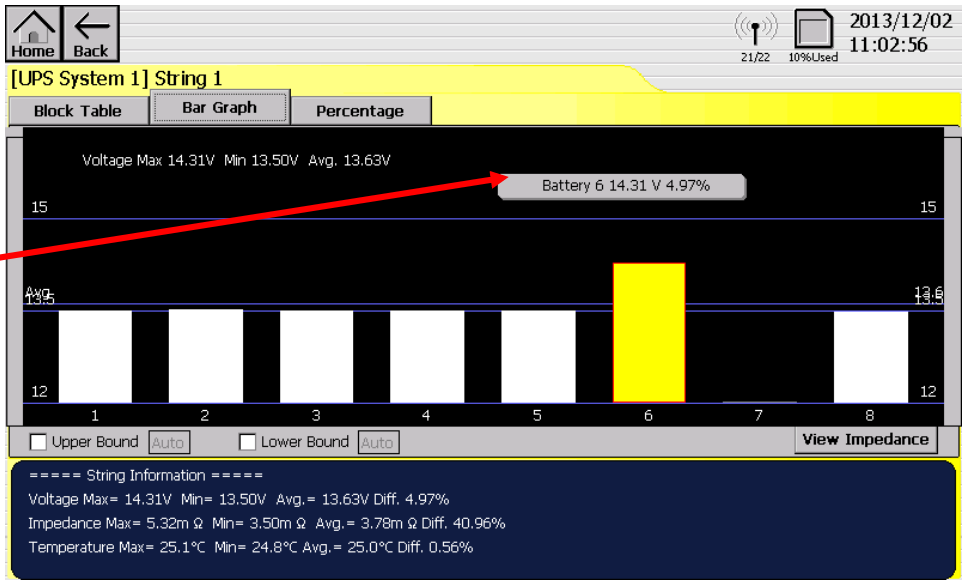
- ☐ Click [Detail] on the [String] icon to display the battery block table of that particular string.
- ☐ Displays the voltage and impedance (and battery block temperature if a TES is installed) of individual connected battery blocks.
- ☐ Click on an individual [NODE] icon to view its real-time curve.
- ☐ Values will appear in different colors depending on the status of the battery block. Black is normal, red is too high, blue is too low, and gray indicates that the measure kit link has failed.



7-2-3-4. Bar Chart

- ☐ Displays a bar chart of either the voltage or the impedance of all of the connected batteries in that particular battery string.
- ☐ Click on an individual bar to display the information box of that particular battery block. Click this information box to display the real-time curve of that particular battery block.

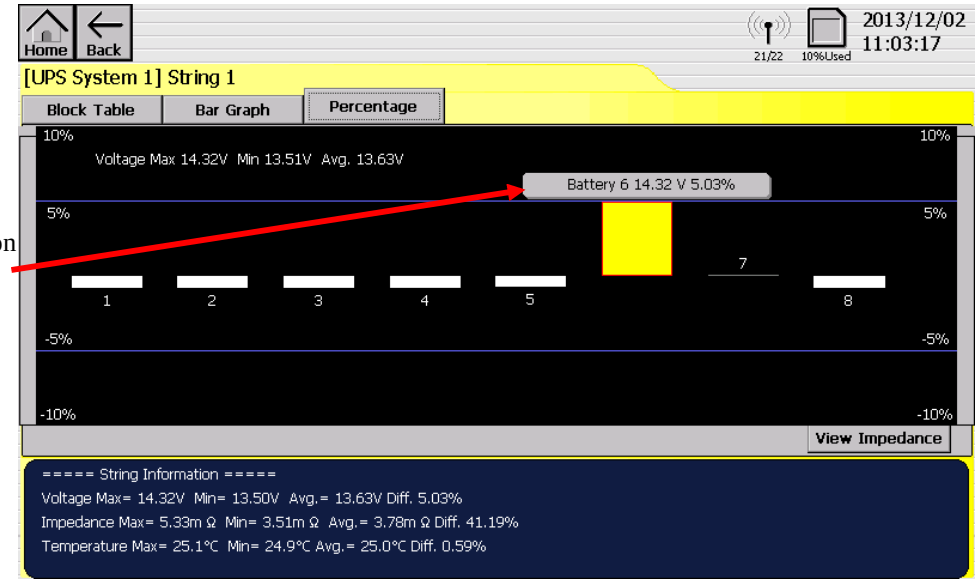
Click this information box to display the real-time curve.



7-2-3-5. Percentage

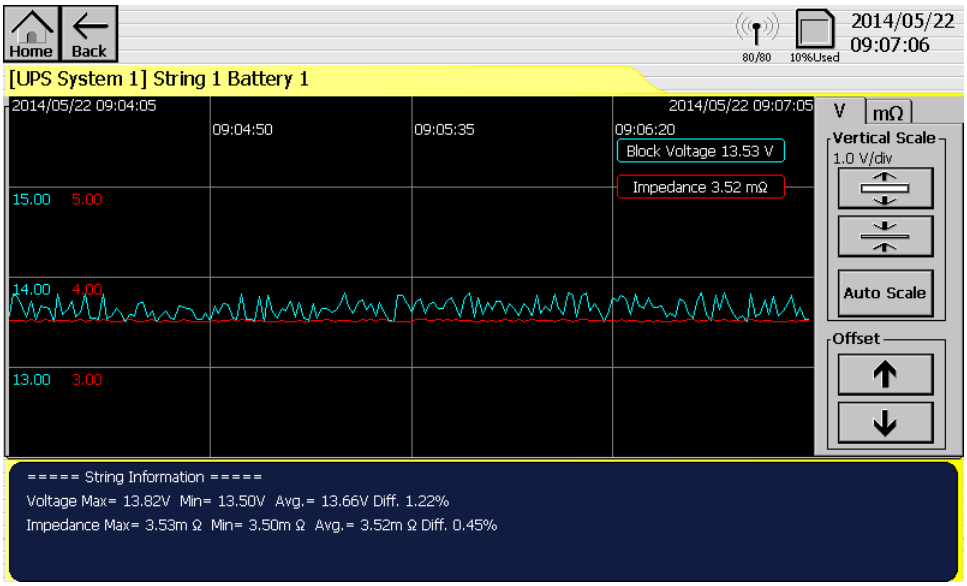
- ☐ Displays a bar chart of the average percentage readings of either voltage or impedance of all the connected batteries in that particular battery string.
- ☐ Click on an individual bar to display the information box of that particular battery block. Click this information box to display the real-time curve of that particular battery block.

Click this information box to display the real time curve



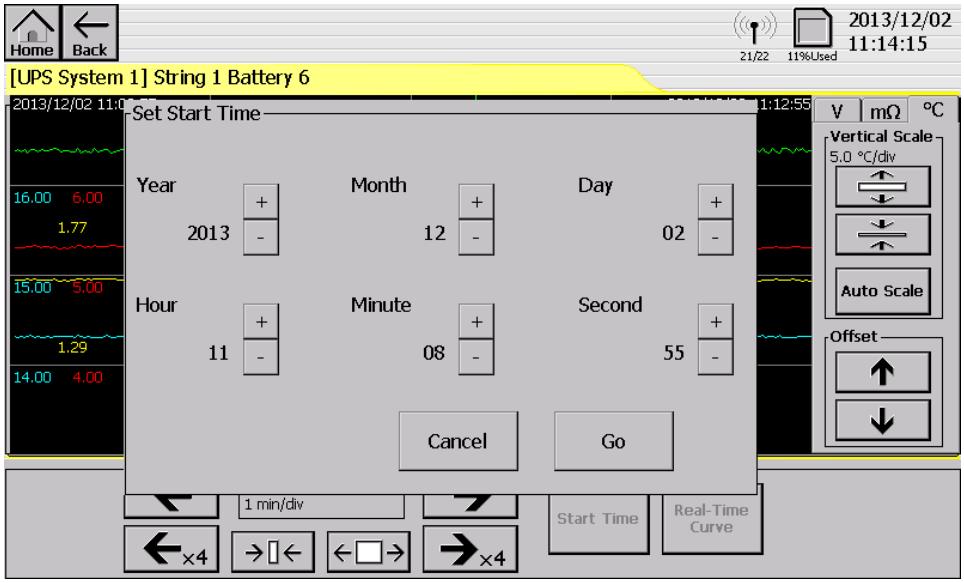
7-2-3-6. Real-time Curve)

- ☐ Displays a line chart of the voltage and impedance (and optionally temperature) of a particular battery block for the most recent 180 seconds.
- ☐ Click on any part of the curve to display the historical curve for that particular battery block.



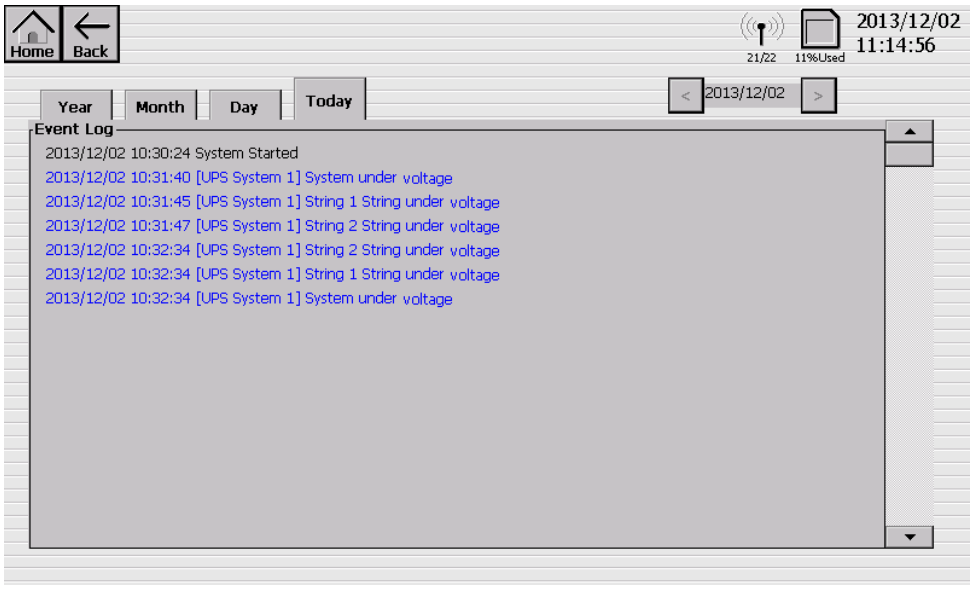
7-2-3-7. Historical Curve

- ☐ Provides individual battery block historical measurement data.
- ☐ Click [Real-Time Curve] to return to the real-time measurement chart.
- ☐ Click [Start Time] to set the start time of the history chart.
- ☐ Drag the data line to change the starting time of the measurement.



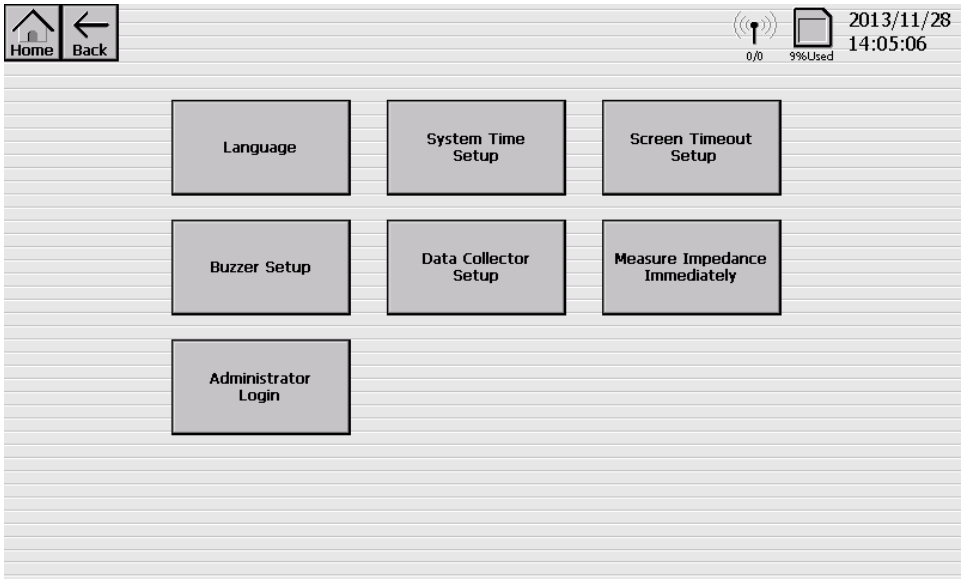
7-2-4. Event Log

- The event log can be viewed by year, month, or day.
- It can storage the newest 2,000 logs.
- Select [Year] and use the arrow keys < > to select the desired year.
- Select [Month] and use the arrow keys < > to select the desired month.
- Select [Day] and use the arrow keys < > to select the desired day.



7-2-5. Setup

The Setup functions as shown below.

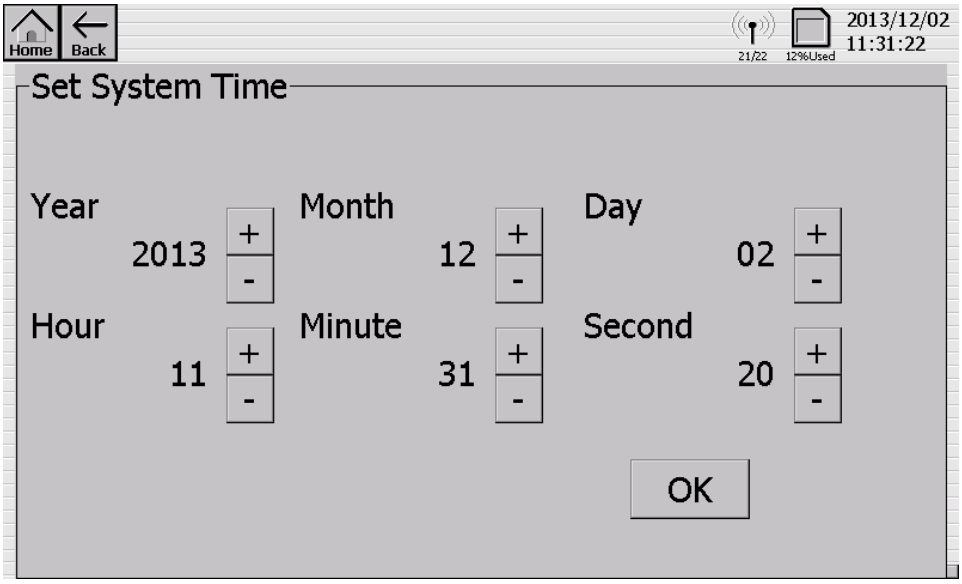


7-2-5-1. Language

Select the language used on the LCD display of the Data Collector.

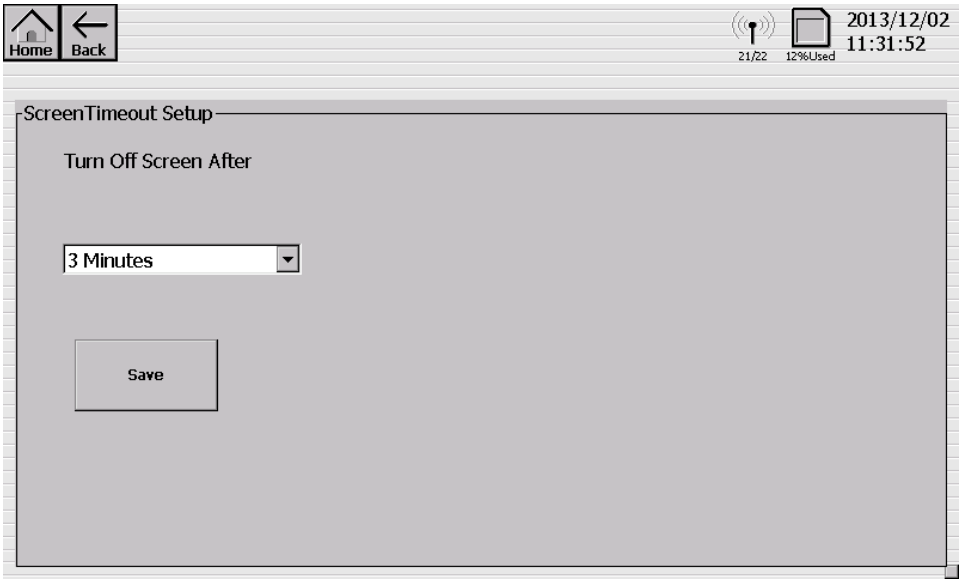
7-2-5-2. System Time Setup

Enables the user to set the current time of the Data Collector.



7-2-5-3. Screen Timeout Setup

After a period of inactivity, the screen turns off to conserve power. You can set the idle time before the screen turns off.

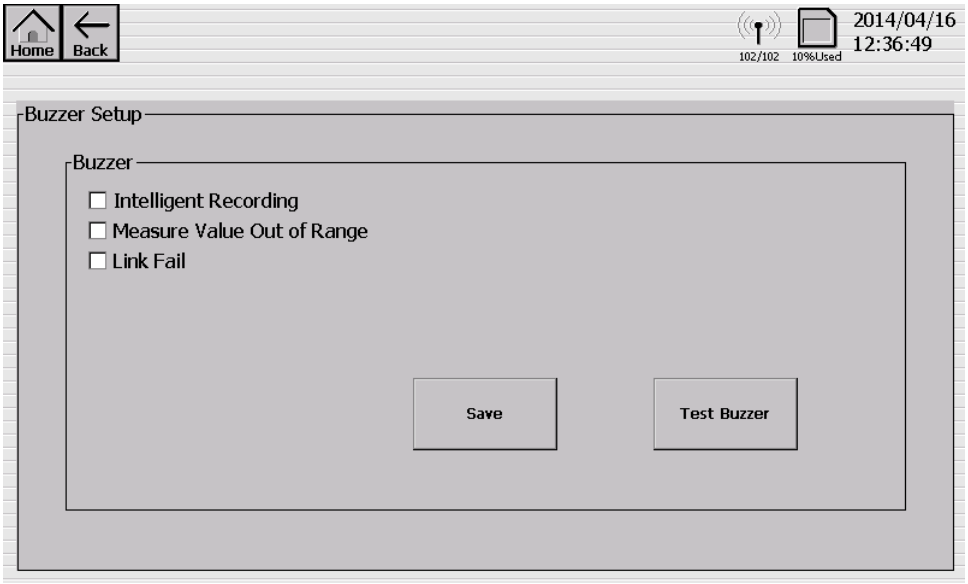


7-2-5-4. Buzzer Setup

This page enables the user to set when the Buzzer is active.

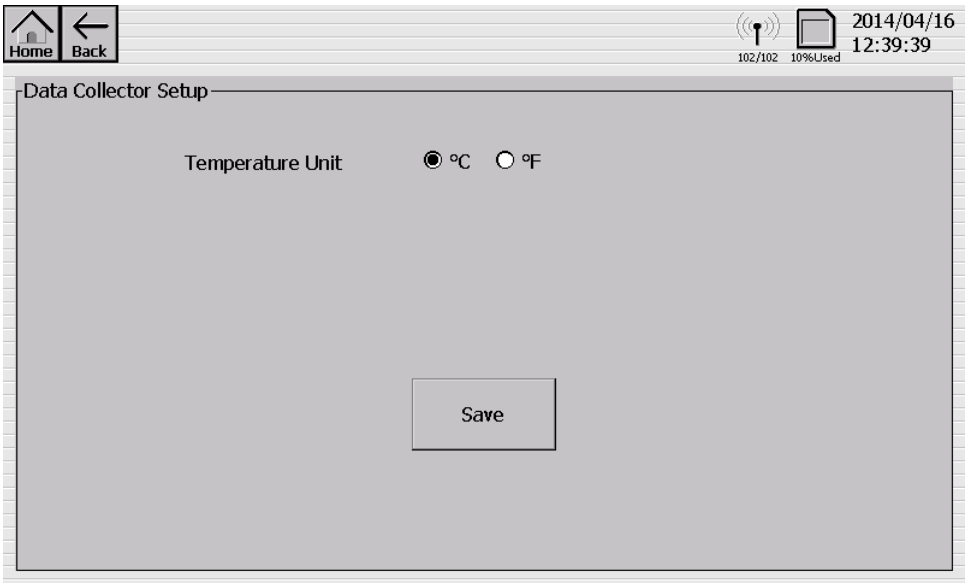
There have below conditions can be selected.

- ■ Intelligent Recording：When Intelligent Recording is active.
- ■ Measure Value Out of Range：When Battery's Voltage/Impedance/Temperature/current reach the alarm conditions.
- ■ Link Fail : When the communication between BMS/SMK and RFR is fail.



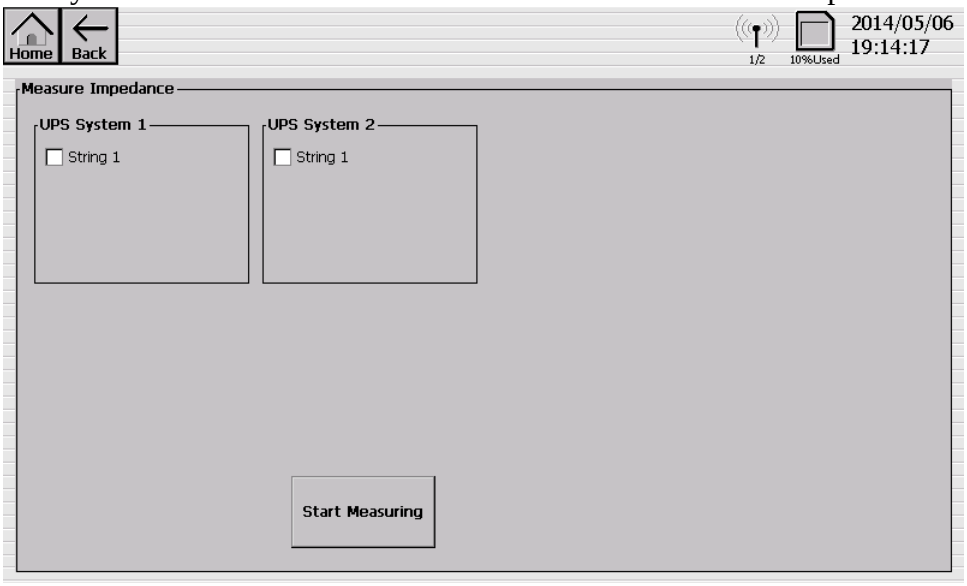
7-2-5-5. Data Collector Setup

☐ Temperature Unit : Select whether to display temperature in degrees Celsius or degrees Fahrenheit.



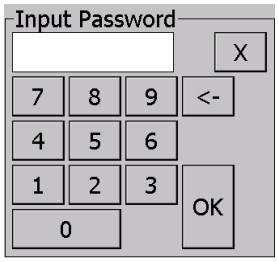
7-2-5-6. Measure Impedance Immediately

This page enables the user to battery impedance right now.
Select the desire battery string and then Click「Start Measuring」.
It may take several minutes to measure the selected batteries' impedance.

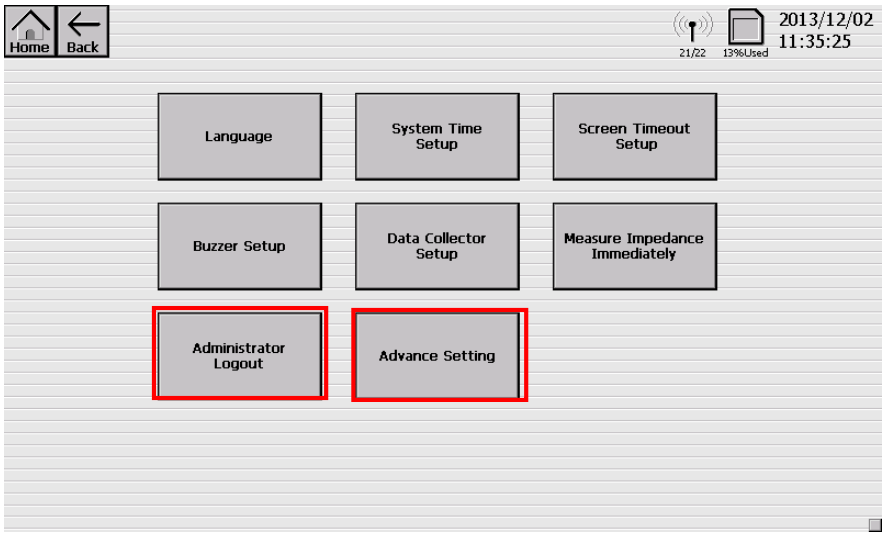


7-2-5-7. Administrator Login

■ Initially log in by clicking [Administrator Login] and entering the default password "1234".

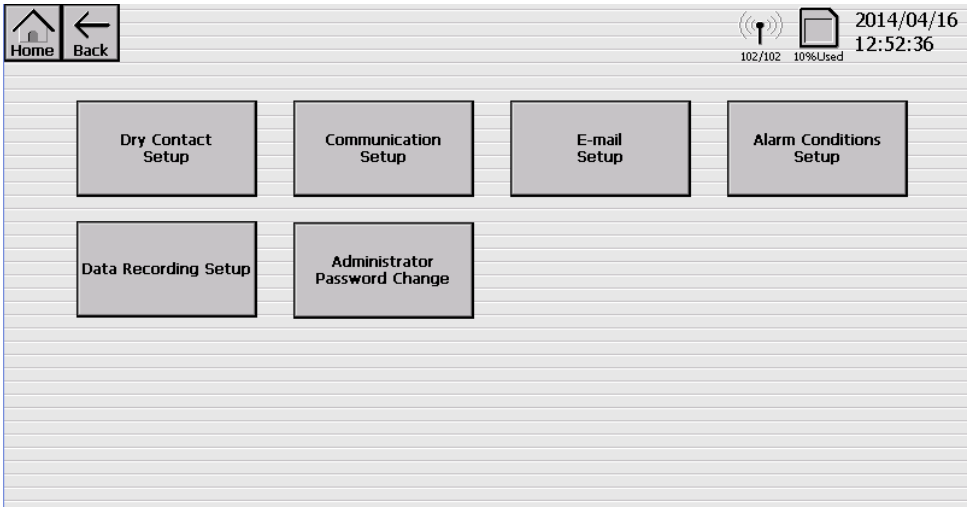


■ Upon successful log in the [Administrator Logout] and [Advance Setting] icons will appear on the "Menu" page as shown below.
■ Click [Administrator Logout] to log out.



7-2-5-8. Advance Setting

The Advance Setting functions as shown below. Please see the following section for more detail.



7-2-5-8-1. Dry Contact Setup

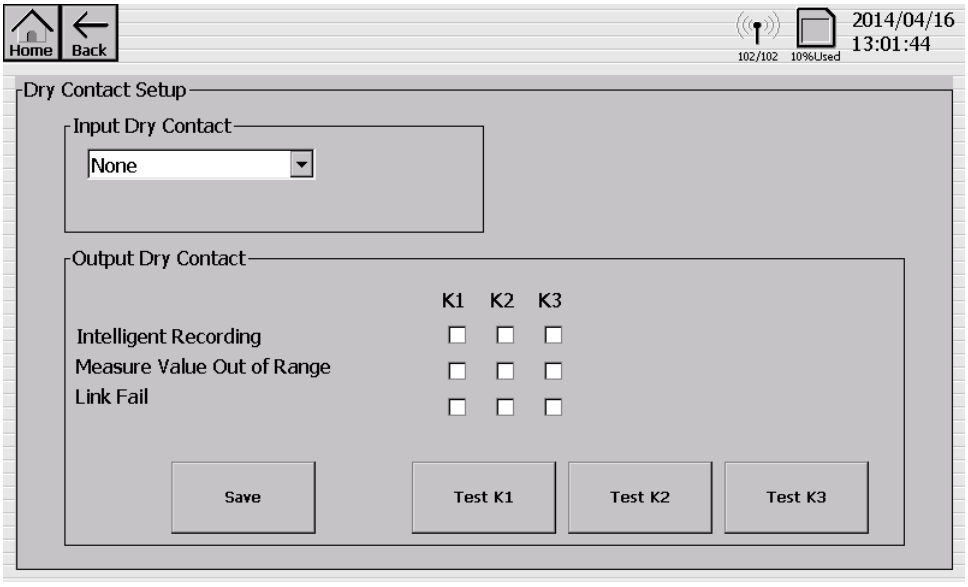
This page enables the user to set the Input and Output Dry Contacts.

☐ Input Dry Contact: There are two settings.

- ■ None: No action regardless of whether the input dry contact switch is in the open or closed position.
- ■ Intelligent Recording: Intelligent Recording is enabled when the input dry contact switch is in the closed position and disabled when the switch is in the open position.

☐ Output Dry Contact: There are three settings.

- ■ Intelligent Recording：When Intelligent Recording is active.
- ■ Measure Value Out of Range：When Battery’ s Voltage/Impedance/Temperature/current reach the alarm conditions.
- ■ Link Fail : When the communication between BMK/SMK and RFR is fail.



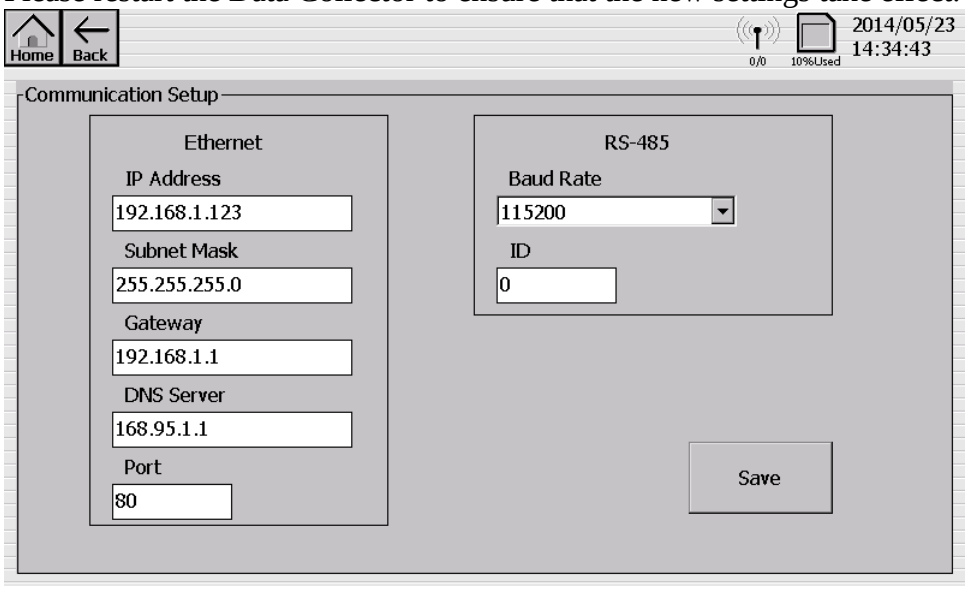
7-2-5-8-2. Communication Setup

This page enables the user to setup the Ethernet and RS-485 communication ports.

☐ Ethernet
Please contact with your network administrator to set up the network.

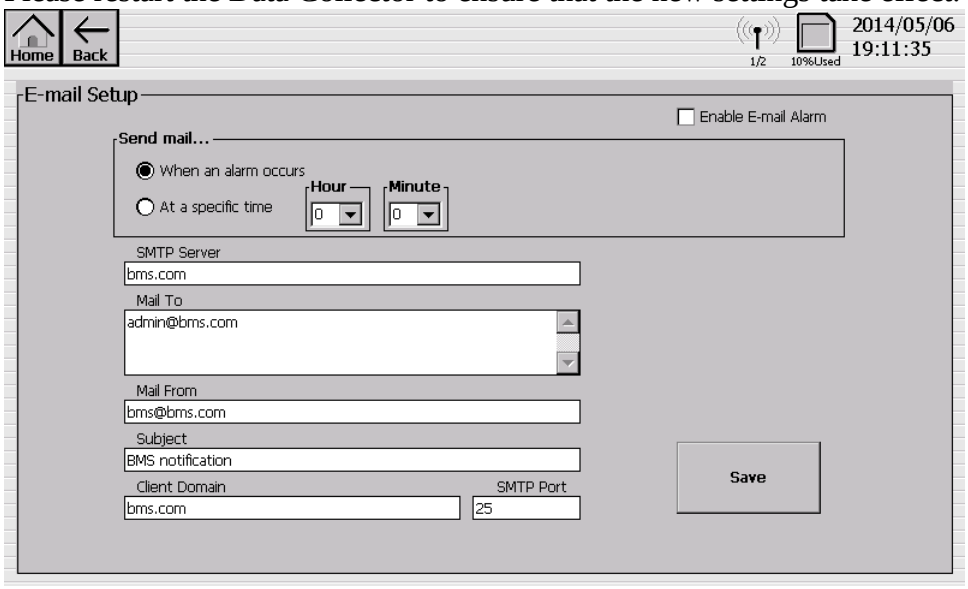
☐ RS-485
- ■ Baud Rate : 2400 ~ 115200
- ■ ID : 0~255

Please restart the Data Collector to ensure that the new settings take effect.



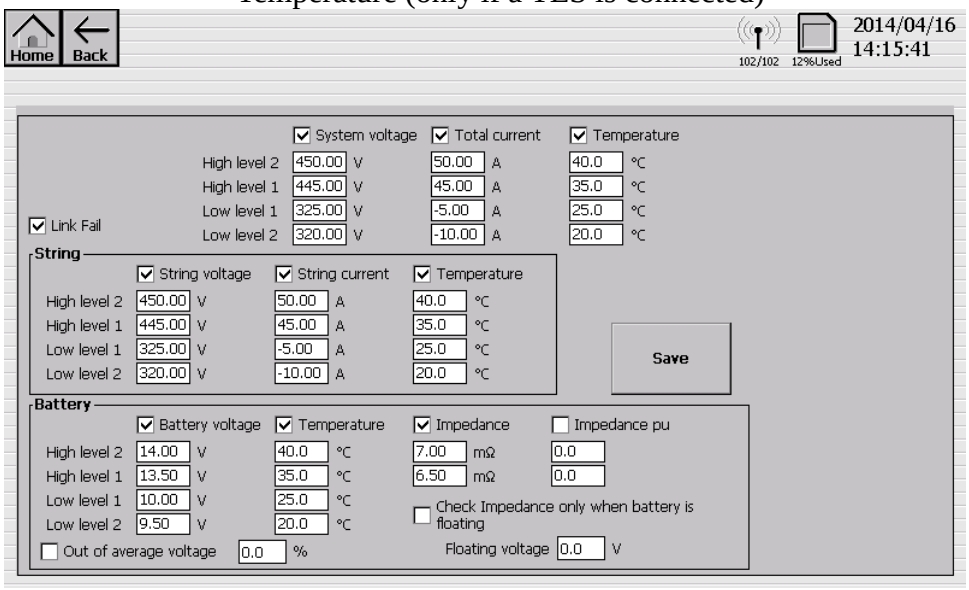
7-2-5-8-3. E-mail Setup

This page allows the user to set up the E-mail account and enable alarm alerts via E-mail.
Please restart the Data Collector to ensure that the new settings take effect.

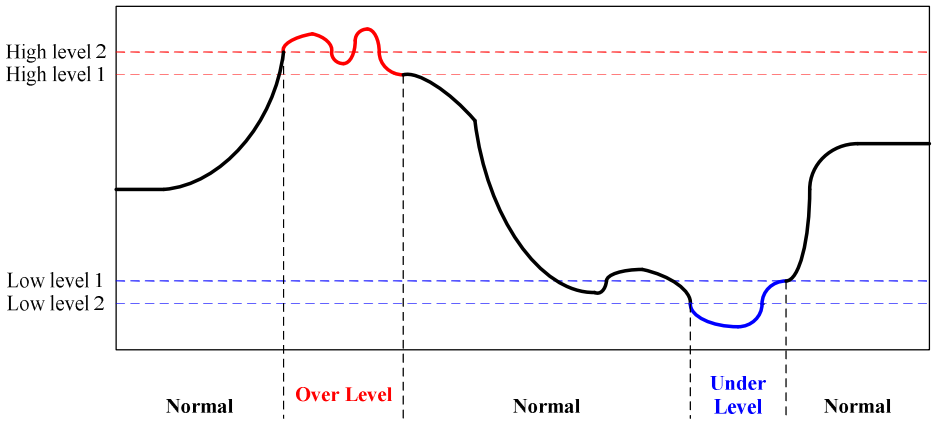


7-2-5-8-4. Alarm Conditions Setup

- Enables the user to set the conditions which trigger ☑ or turn off ☐ alarms in the system.
- The settable parameters are:
  - System
    - System voltage
    - Total current (+/- indicates direction of current)
    - Temperature (only if a TES is connected)
  - Battery String
    - String voltage
    - String current (+/- indicates direction of current)
    - Temperature (only if a TES is connected)
  - Battery (block)
    - Battery Voltage
    - Impedance
    - Temperature (only if a TES is connected)

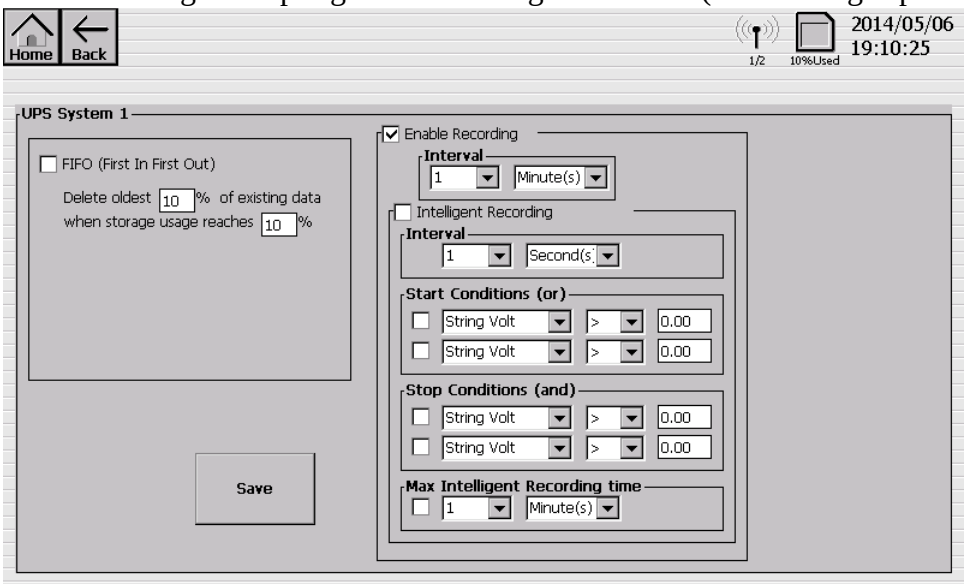


- Refer to the chart below. All “High” and “Low” **level 2** values trigger the alarms.
- All “High” and “Low” **level 1** values turn off the alarms.



7-2-5-8-5. Data Recording Setup

- Enables the user to select the type of recording and set the recording periods and conditions.
- FIFO: The Data Collector will discard old data to make room for new data in first-in-first-out order if this function is selected. Otherwise new data will be recorded until the storage space is full, and after that recording will stop.
- Enable Recording: The Data Collector will record all batteries' data continuously if this function is selected.
  - The sampling interval can be set from 1 second to 60 minutes.
- Intelligent Recording mode
  - The Intelligent Recording sampling interval can be set from 1 second to 60 minutes.
  - Start/Stop recording only upon the following conditions.
    - System voltage/current exceeds/drops below the set value.
    - String voltage/current exceeds/drops below the set value.
  - The Maximum Intelligent Recording Time can be set from1 minute to 60 hours.
    - After performing Intelligent Recording for more than this maximum time the Data Collector will stop the Intelligent Recording mode automatically.
  - In order to conserve data storage capacity and collect just the necessary battery measurements, the user can use this function to set a shorter sampling interval during charge and discharge periods and a longer sampling interval during normal use ("float charge" periods).



7-2-5-8-6. Administrator Password Change

- To change the password enter the default password "1234", and you will be prompted to enter a new password. The password should comprise 4 to 12 numeric digits.

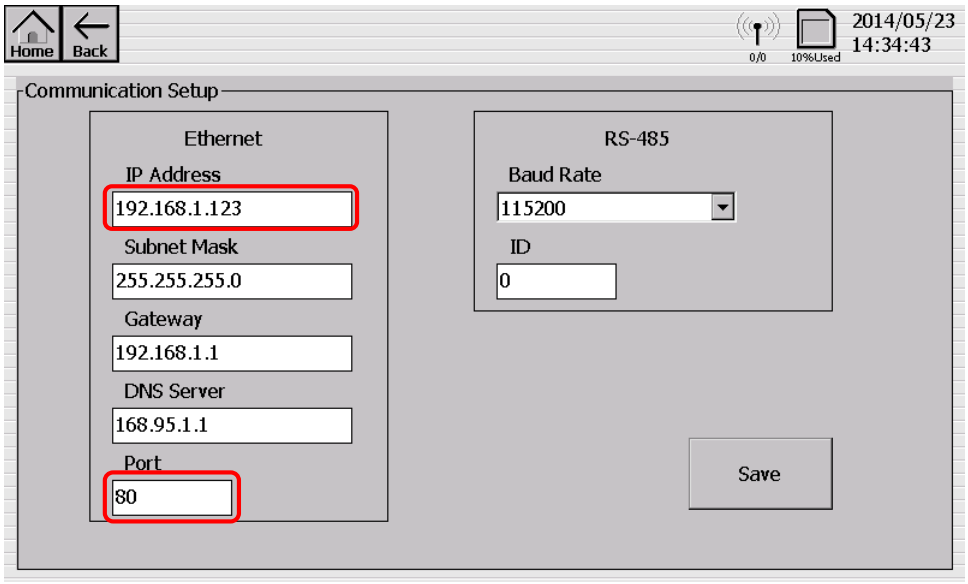
8. Enerbatt 3G BMS Web Monitoring Guide

The ***Enerbatt 3G*** Data Collector comes with a built-in web server. Through various network devices (e.g. a computer) connected to the same Ethernet network as the Data collector via its RJ45 port, this function allows the user to monitor real-time information and download reports from the Data Collector using a web browser. Note that this works only on the same local area network as the Data Collector. To access the Data Collector from a remote location consult your network administrator.

8-1. Access the Data Collector using a web browser

The procedure to access the Data Collector web server using a computer web browser (e.g. Internet Explorer) is as follows:

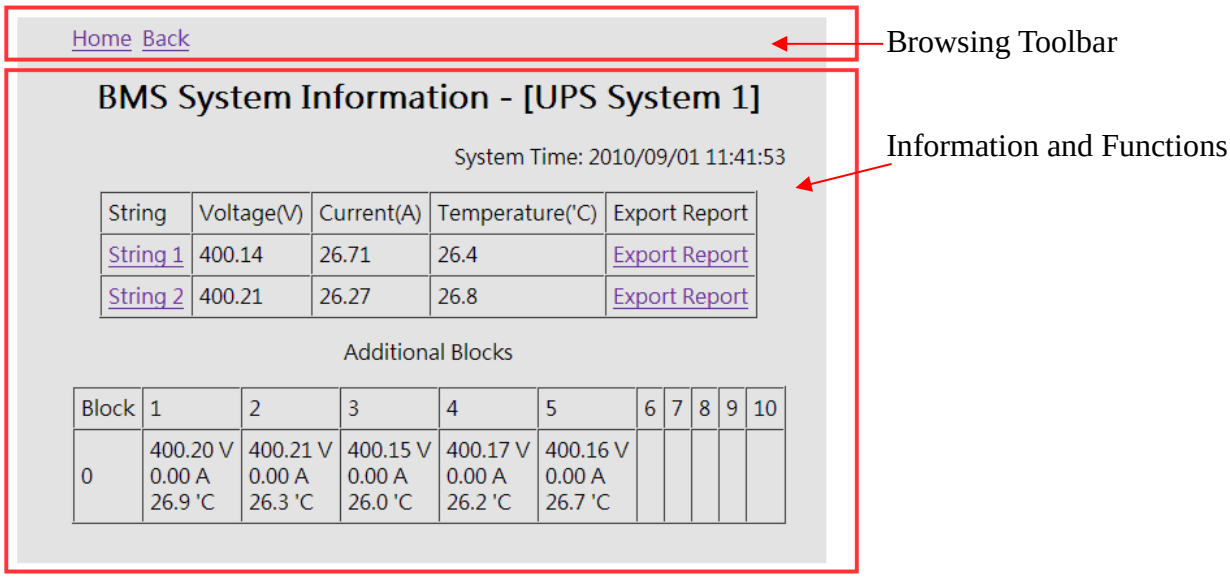
1. On the [Communication Setup] page as shown below, verify the IP Address and Port. The URL to enter in the computer web browser shall be as such: http://192.168.1.123:80.



2. You can now access the Data Collector from the web browser after entering the URL.

8-2 Web Monitoring Page Overview

Once the Data Collector has been successfully accessed using the web browser, the web monitoring page of the Data Collector appears as shown below. The page is divided into two areas: "Browsing Toolbar" and "Information and Functions" as shown:

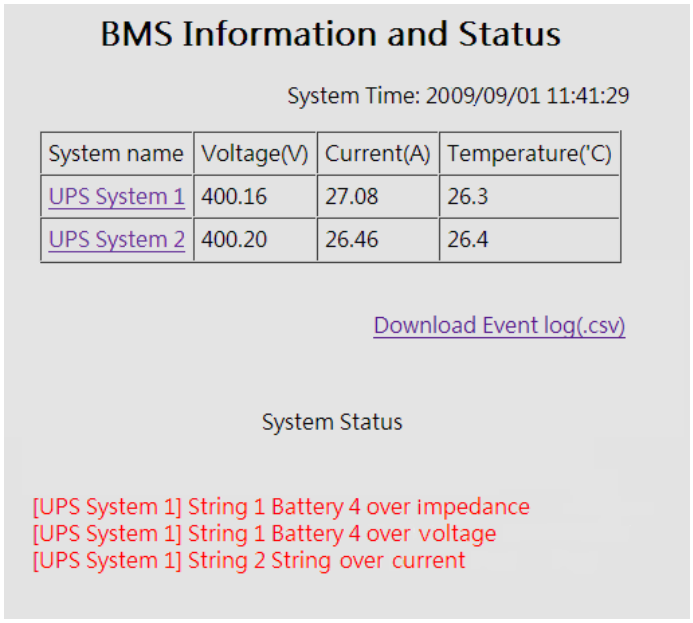


Click [Home] to return to the main menu. Click [Back] to return to the previous page.

8-3. Web Monitoring Functions

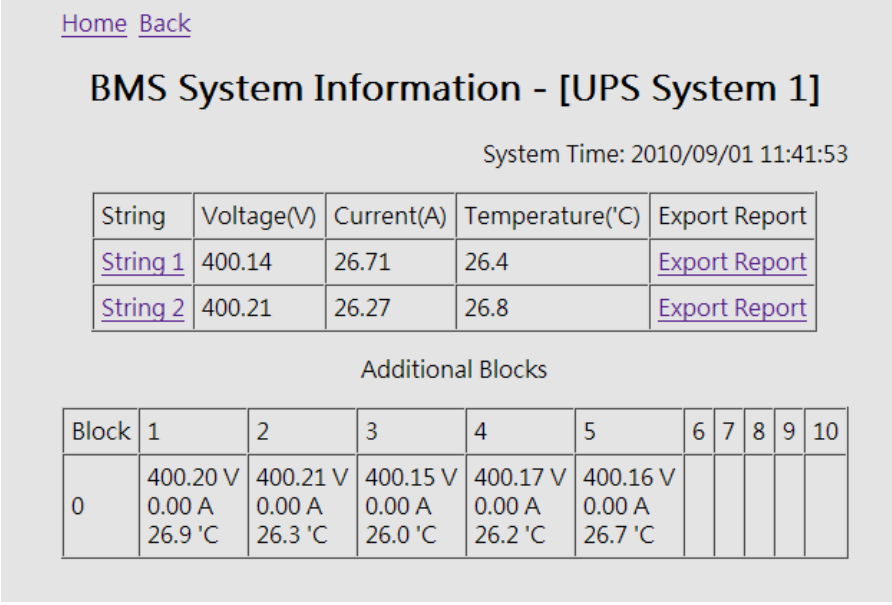
8-3-1. Information and Status

This page displays the list of systems connected to the Data Collector, a summary of the recorded events, and the real-time display of system parameters: system voltage, system current, and ambient temperature.
In the “System name” column, click a system to see its connected battery string information.
Click **Download Event log(.cvs)** to download the event log list.



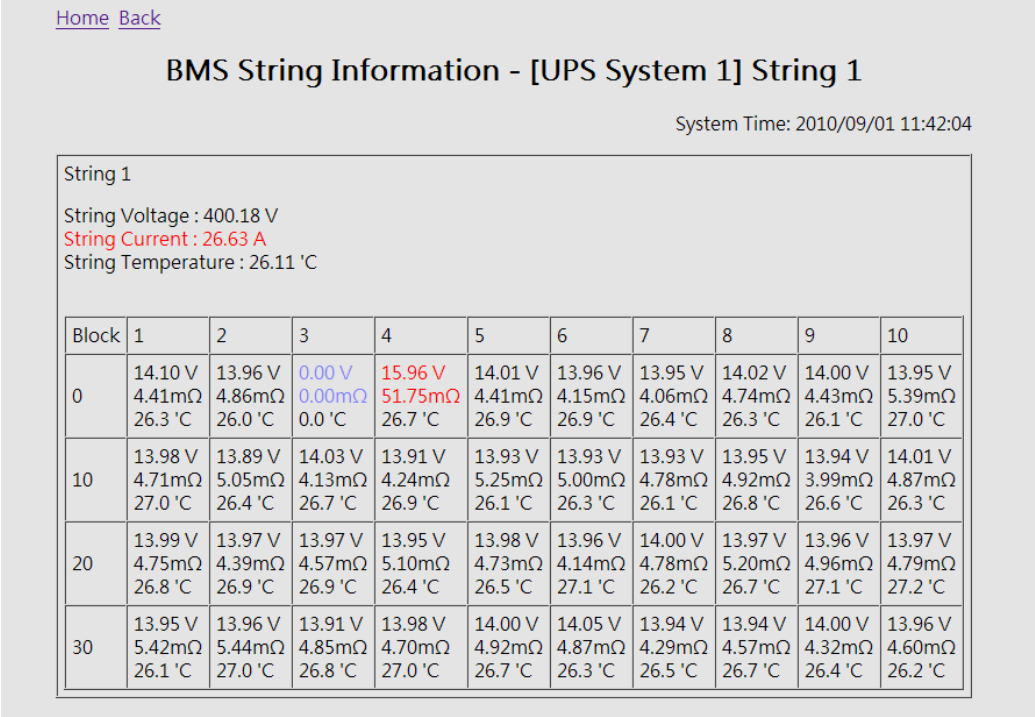
8-3-2. System Information

This page displays the list of battery strings. The display shows the real-time readings of the battery string parameters: battery string voltage, battery string current and ambient temperature. Select a string to see its connected battery blocks’ information. Click [Export Report] to view the report on the particular string. See [Export Report] on the following page for more details.



8-3-3. **String Information**

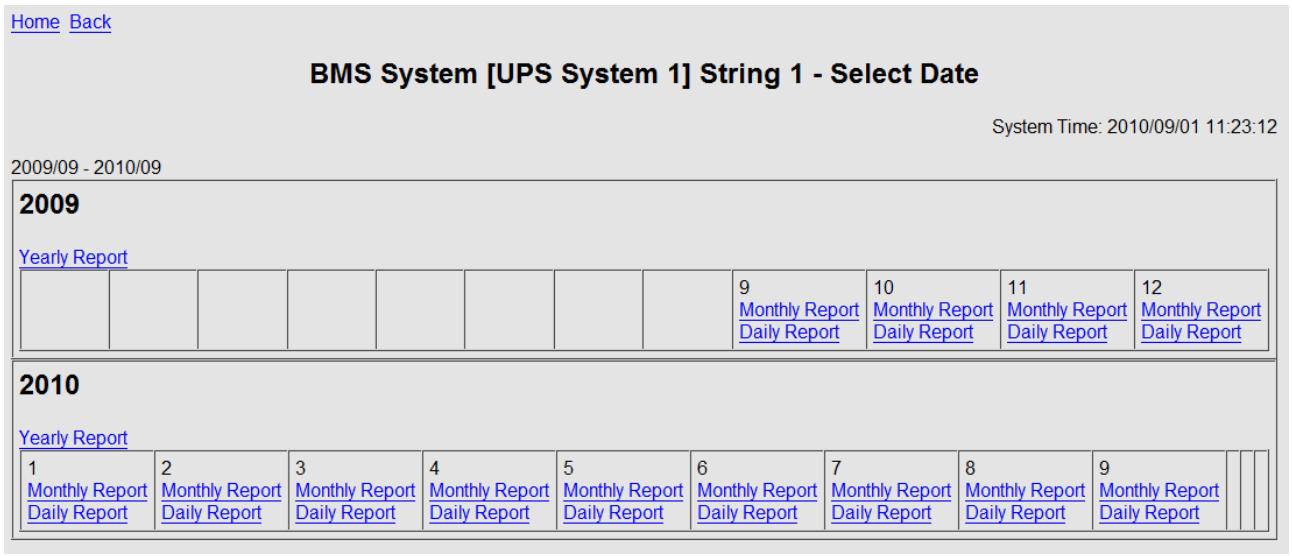
This page displays the list of battery blocks in the string and displays real-time readings of each battery block's voltage, impedance, and temperature.



Block	1	2	3	4	5	6	7	8	9	10
0	14.10 V 4.41mΩ 26.3 'C	13.96 V 4.86mΩ 26.0 'C	0.00 V 0.00mΩ 0.0 'C	15.96 V 51.75mΩ 26.7 'C	14.01 V 4.41mΩ 26.9 'C	13.96 V 4.15mΩ 26.9 'C	13.95 V 4.06mΩ 26.4 'C	14.02 V 4.74mΩ 26.3 'C	14.00 V 4.43mΩ 26.1 'C	13.95 V 5.39mΩ 27.0 'C
10	13.98 V 4.71mΩ 27.0 'C	13.89 V 5.05mΩ 26.4 'C	14.03 V 4.13mΩ 26.7 'C	13.91 V 4.24mΩ 26.9 'C	13.93 V 5.25mΩ 26.1 'C	13.93 V 5.00mΩ 26.3 'C	13.93 V 4.78mΩ 26.1 'C	13.95 V 4.92mΩ 26.8 'C	13.94 V 3.99mΩ 26.6 'C	14.01 V 4.87mΩ 26.3 'C
20	13.99 V 4.75mΩ 26.8 'C	13.97 V 4.39mΩ 26.9 'C	13.97 V 4.57mΩ 26.9 'C	13.95 V 5.10mΩ 26.4 'C	13.98 V 4.73mΩ 26.5 'C	13.96 V 4.14mΩ 27.1 'C	14.00 V 4.78mΩ 26.2 'C	13.97 V 5.20mΩ 26.7 'C	13.96 V 4.96mΩ 27.1 'C	13.97 V 4.79mΩ 27.2 'C
30	13.95 V 5.42mΩ 26.1 'C	13.96 V 5.44mΩ 27.0 'C	13.91 V 4.85mΩ 26.8 'C	13.98 V 4.70mΩ 27.0 'C	14.00 V 4.92mΩ 26.7 'C	14.05 V 4.87mΩ 26.3 'C	13.94 V 4.29mΩ 26.5 'C	13.94 V 4.57mΩ 26.7 'C	14.00 V 4.32mΩ 26.4 'C	13.96 V 4.60mΩ 26.2 'C

8-3-4. **Export Report**

When you select [Export Report] on the "System Information" page the following page will appear. You can select the type of report to export by clicking [Yearly Report], [Monthly Report], or [Daily Report].



8-3-5. **Yearly Report**

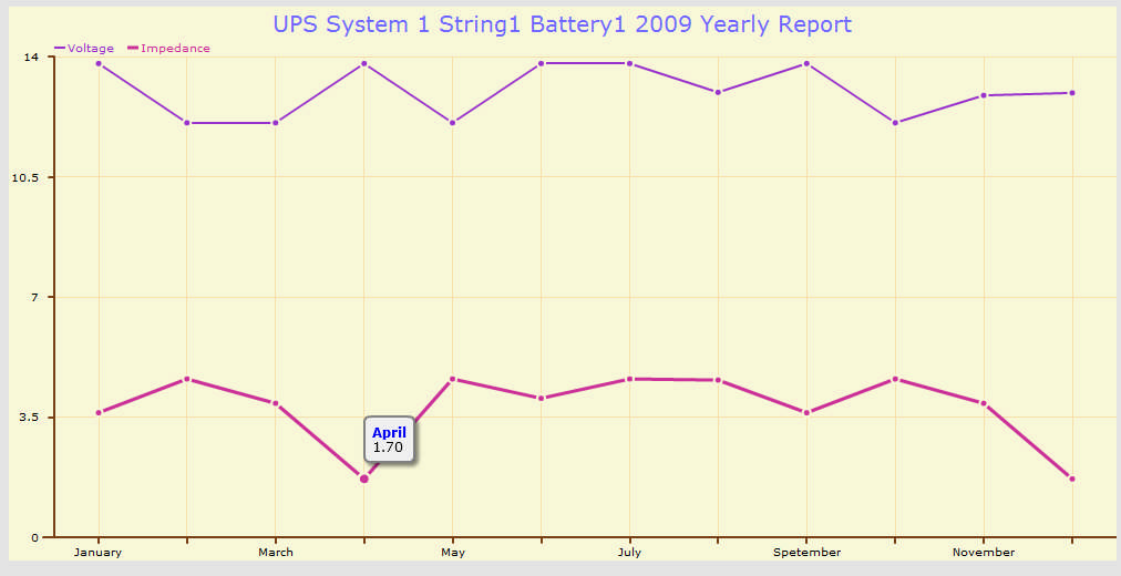
- This page displays the annual data for the selected string of the selected system.
- The report shows the **average** readings (block voltage, impedance, and temperature) of individual battery blocks over a twelve-month period of the selected year. Red text indicates that the reading exceeds the preset value, and blue text indicates that the reading is below the preset value.
- Click “Show Chart” for any block to display that battery block’s chart. Move the cursor to any point on the data line to display the recorded value at that point in time.
- At the top right-hand corner of the screen click “Export csv file” to export the data into CSV (Comma Separated Values) format for data processing.

Home Back

BMS System [UPS System 1] String 1 - 2009 Yearly Report

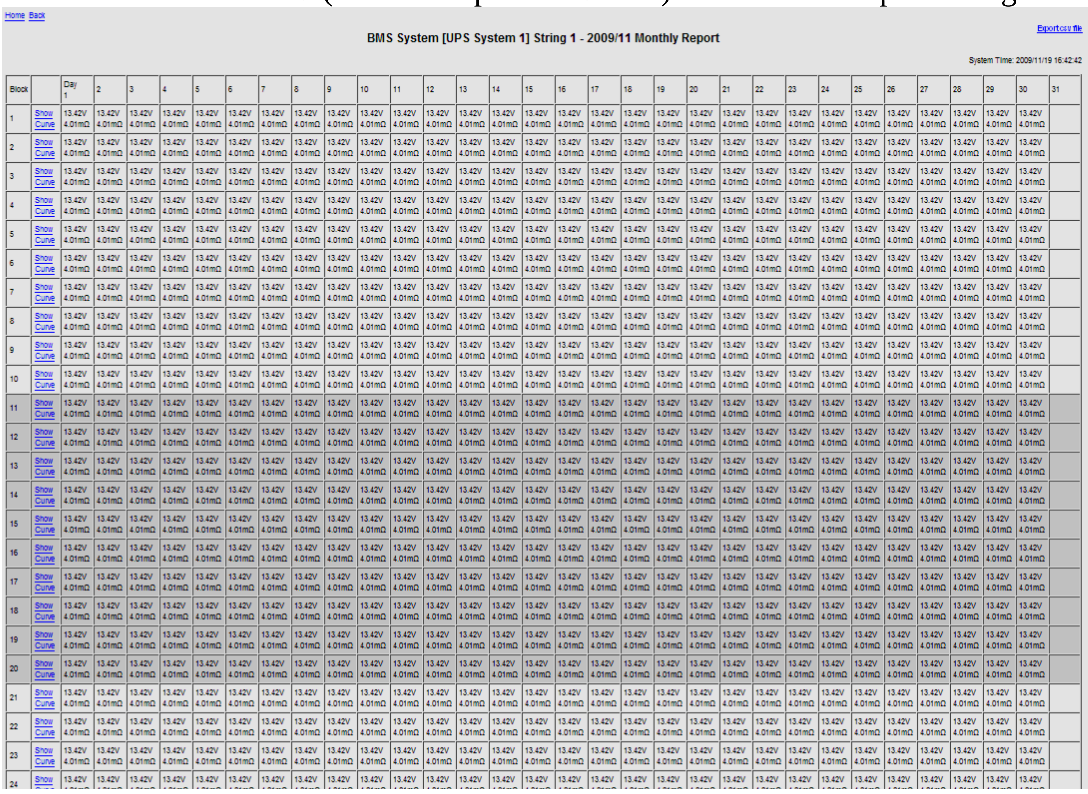
System Time: 2009/11/19 16:42:22

Block		Month 1	2	3	4	5	6	7	8	9	10	11	12
1	Show Chart	13.34V 3.72mΩ	13.44V 3.62mΩ	13.42V 3.78mΩ	13.48V 3.99mΩ	13.46V 3.17mΩ	13.30V 3.92mΩ	13.39V 4.52mΩ	13.41V 3.56mΩ	13.44V 3.99mΩ	13.38V 4.74mΩ	13.42V 4.01mΩ	13.46V 4.12mΩ
2	Show Chart	13.34V 3.72mΩ	13.44V 3.62mΩ	13.42V 3.78mΩ	13.48V 3.99mΩ	13.46V 3.17mΩ	13.30V 3.92mΩ	13.39V 4.52mΩ	13.41V 3.56mΩ	13.44V 3.99mΩ	13.38V 4.74mΩ	13.42V 4.01mΩ	13.46V 4.12mΩ
3	Show Chart	13.34V 3.72mΩ	13.44V 3.62mΩ	13.42V 3.78mΩ	13.48V 3.99mΩ	13.46V 3.17mΩ	13.30V 3.92mΩ	13.39V 4.52mΩ	13.41V 3.56mΩ	13.44V 3.99mΩ	13.38V 4.74mΩ	13.42V 4.01mΩ	13.46V 4.12mΩ
4	Show Chart	13.34V 3.72mΩ	13.44V 3.62mΩ	13.42V 3.78mΩ	13.48V 3.99mΩ	13.46V 3.17mΩ	13.30V 3.92mΩ	13.39V 4.52mΩ	13.41V 3.56mΩ	13.44V 3.99mΩ	13.38V 4.74mΩ	13.42V 4.01mΩ	13.46V 4.12mΩ
5	Show Chart	13.34V 3.72mΩ	13.44V 3.62mΩ	13.42V 3.78mΩ	13.48V 3.99mΩ	13.46V 3.17mΩ	13.30V 3.92mΩ	13.39V 4.52mΩ	13.41V 3.56mΩ	13.44V 3.99mΩ	13.38V 4.74mΩ	13.42V 4.01mΩ	13.46V 4.12mΩ
6	Show Chart	13.34V 3.72mΩ	13.44V 3.62mΩ	13.42V 3.78mΩ	13.48V 3.99mΩ	13.46V 3.17mΩ	13.30V 3.92mΩ	13.39V 4.52mΩ	13.41V 3.56mΩ	13.44V 3.99mΩ	13.38V 4.74mΩ	13.42V 4.01mΩ	13.46V 4.12mΩ
7	Show Chart	13.34V 3.72mΩ	13.44V 3.62mΩ	13.42V 3.78mΩ	13.48V 3.99mΩ	13.46V 3.17mΩ	13.30V 3.92mΩ	13.39V 4.52mΩ	13.41V 3.56mΩ	13.44V 3.99mΩ	13.38V 4.74mΩ	13.42V 4.01mΩ	13.46V 4.12mΩ
8	Show Chart	13.34V 3.72mΩ	13.44V 3.62mΩ	13.42V 3.78mΩ	13.48V 3.99mΩ	13.46V 3.17mΩ	13.30V 3.92mΩ	13.39V 4.52mΩ	13.41V 3.56mΩ	13.44V 3.99mΩ	13.38V 4.74mΩ	13.42V 4.01mΩ	13.46V 4.12mΩ
9	Show Chart	13.34V 3.72mΩ	13.44V 3.62mΩ	13.42V 3.78mΩ	13.48V 3.99mΩ	13.46V 3.17mΩ	13.30V 3.92mΩ	13.39V 4.52mΩ	13.41V 3.56mΩ	13.44V 3.99mΩ	13.38V 4.74mΩ	13.42V 4.01mΩ	13.46V 4.12mΩ
10	Show Chart	13.34V 3.72mΩ	13.44V 3.62mΩ	13.42V 3.78mΩ	13.48V 3.99mΩ	13.46V 3.17mΩ	13.30V 3.92mΩ	13.39V 4.52mΩ	13.41V 3.56mΩ	13.44V 3.99mΩ	13.38V 4.74mΩ	13.42V 4.01mΩ	13.46V 4.12mΩ
11	Show Chart	13.34V 3.72mΩ	13.44V 3.62mΩ	13.42V 3.78mΩ	13.48V 3.99mΩ	13.46V 3.17mΩ	13.30V 3.92mΩ	13.39V 4.52mΩ	13.41V 3.56mΩ	13.44V 3.99mΩ	13.38V 4.74mΩ	13.42V 4.01mΩ	13.46V 4.12mΩ
12	Show Chart	13.34V 3.72mΩ	13.44V 3.62mΩ	13.42V 3.78mΩ	13.48V 3.99mΩ	13.46V 3.17mΩ	13.30V 3.92mΩ	13.39V 4.52mΩ	13.41V 3.56mΩ	13.44V 3.99mΩ	13.38V 4.74mΩ	13.42V 4.01mΩ	13.46V 4.12mΩ



8-3-6. **Monthly Report**

- This page displays the monthly data for the selected system.
- The report shows the average readings (block voltage, impedance, and temperature) of individual battery blocks over a thirty-day period of the selected month. Red text indicates that the reading exceeds the preset value, and blue text indicates that the reading is below the preset value.
- Click “Show Chart” for any block to display that battery block’s chart. Move the cursor to any point on the data line to display the recorded value at that point in time.
- At the top right-hand corner of the screen click “Export csv file” to export the data into CSV (Comma Separated Values) format for data processing.



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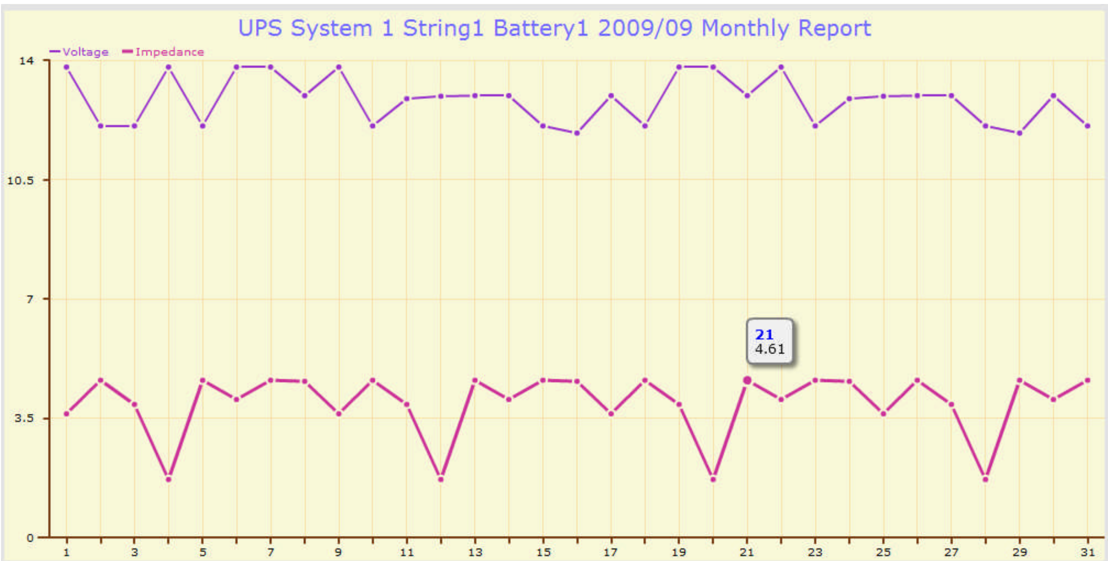
BMS System [UPS System 1] String 1 - 2009/11 Monthly Report

Export csv file

System Time: 2009/11/19 16:42:42

Block		Day 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
2	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
3	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
4	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
5	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
6	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
7	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
8	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
9	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
10	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
11	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
12	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
13	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
14	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
15	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
16	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
17	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
18	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
19	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
20	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
21	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
22	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
23	Show Curve	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	13.42V 4.01mΩ	
24	Show	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	13.42V	



8-3-7. **Daily Report**

- This page displays the daily data for the selected system.
- The report shows the **hourly** readings (block voltage, impedance, and temperature) of individual battery blocks on that particular day. Red text indicates that the reading exceeds the preset value, and blue text indicates that the reading is below the preset value.
- Click “Show Chart” for any block to display that battery block’s chart. Move the cursor to any point on the data line to display the recorded value at that point in time.
- At the top right-hand corner of the screen click “Export csv file” to export the data into CSV (Comma Separated Values) format for data processing.

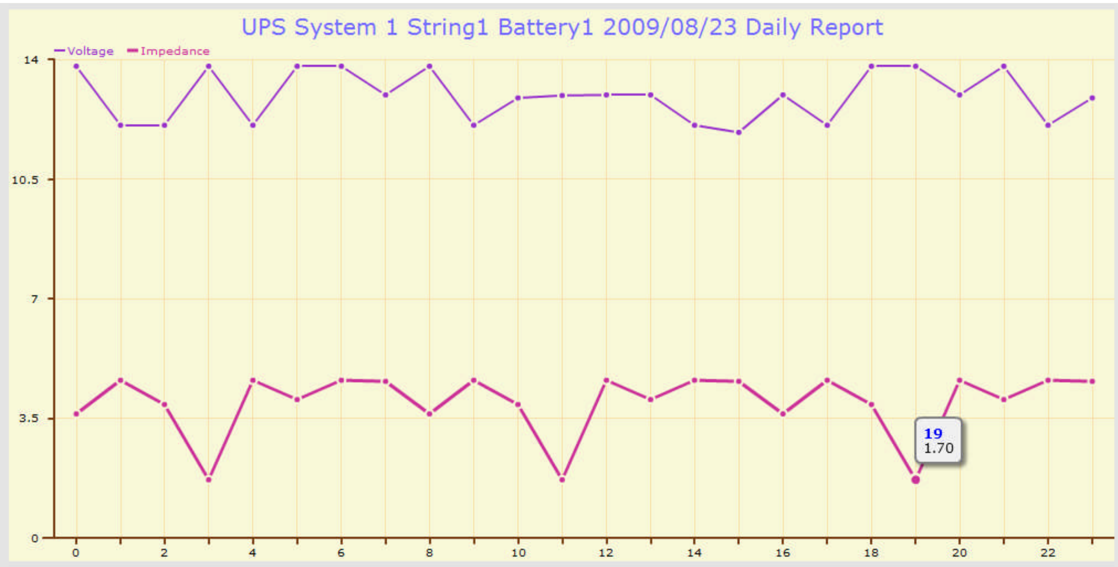
Home Back

Export csv file

BMS System [UPS System 1] String 1 - 2009/11/19 Daily Report

System Time: 2009/11/19 16:42:52

Block		Hour 0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	Show Curve	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ
2	Show Curve	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ
3	Show Curve	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ
4	Show Curve	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ
5	Show Curve	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ
6	Show Curve	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ
7	Show Curve	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ
8	Show Curve	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ
9	Show Curve	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ
10	Show Curve	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ
11	Show Curve	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ
12	Show Curve	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ
13	Show Curve	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ
14	Show Curve	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ
15	Show Curve	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ
16	Show Curve	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ	13.09V 3.98mΩ	13.59V 4.11mΩ	13.58V 3.93mΩ



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