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## VERSION RECORD


Version	Modify the content	Date	Issuer/Modifier
1.0	First Edition (with case)	2022.6.22	

## 一. APPLICATION

- ⊙ Home storage
- ⊙ Island off-grid energy storage (**Recommended**)
- ⊙ Micro-grid applications
- ⊙ UPS power supply
- ⊙ Power System 220V DC power supply

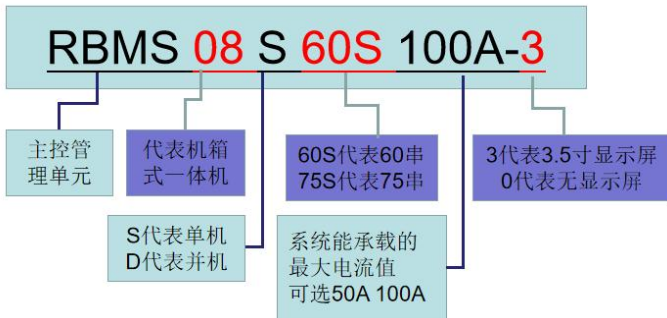
## 二. OVERVIEW

- The case-type all-in-one integrated BMS is composed of BMS main control board, BMU sampling board, high voltage board, switching power supply, Hall sensor, DC contactor, micro-break switch, power connection terminal, structural box, and wiring harness. The most striking characteristic of the BMS is combining the main control board, sampling board, and other power devices integrated into one, keeping the system as a secondary structure. **It has the characteristics of compact structure, flexible installation and low cost. It is suitable for use with larger capacity batteries, such as 50-100ah batteries, and the battery module and BMS are installed separately.**

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- Especially suitable for off-grid solar PV energy storage applications where there is no communication protocol in BMS and inverter;
- Each 15S is a battery collection unit, that is total of 4 collection units in a 60S batteries; total 5 collection units in a 75S batteries;
- Each 15S coming with 3 temperature acquisition probe, so 60S total 12 temperature acquisition probe; 75S total 15 temperature acquisition probe;
- Hall sensor is used for current acquisition, which is safe and reliable, no heating;
- SOC estimation error  $\leq 5\%$ ;
- 3-digit address dial to set BMS address;
- 2-channel relay dry contact output;
- 4-channel contactor expansion and auxiliary contact detection;
- Provide host computer software, which is convenient for customers to debug the battery system, and can also modify system parameters through the host computer;
- Support parallel use (maximum 7 set in parallel);

### 三. NAMING RULES, REFER PICTURE



For example: RBMS08-S60S-50A-0, which means the case-type all-in-one is a single machine, suitable for 60S lithium iron phosphate batteries, supports a maximum current of 50A, no LCD display.

### 四. BMS COMPONENT SPECIFICATIONS

#### 4.1 TECHNICAL DATA SHEET

Project		Specification and datas
System operating voltage range		120 - 370 VDC
Start method		DC start
Balance	Balance type	Passive resistance equalization
	Balanced current	100mA ± 10mA ( when the monomer is 3.50V)
	Sampling accuracy	± 2°C
Voltage sampling	Sampling accuracy	Single cell ±20mV
Communication method		CAN: 1 channel (communication with PCS/UPS)



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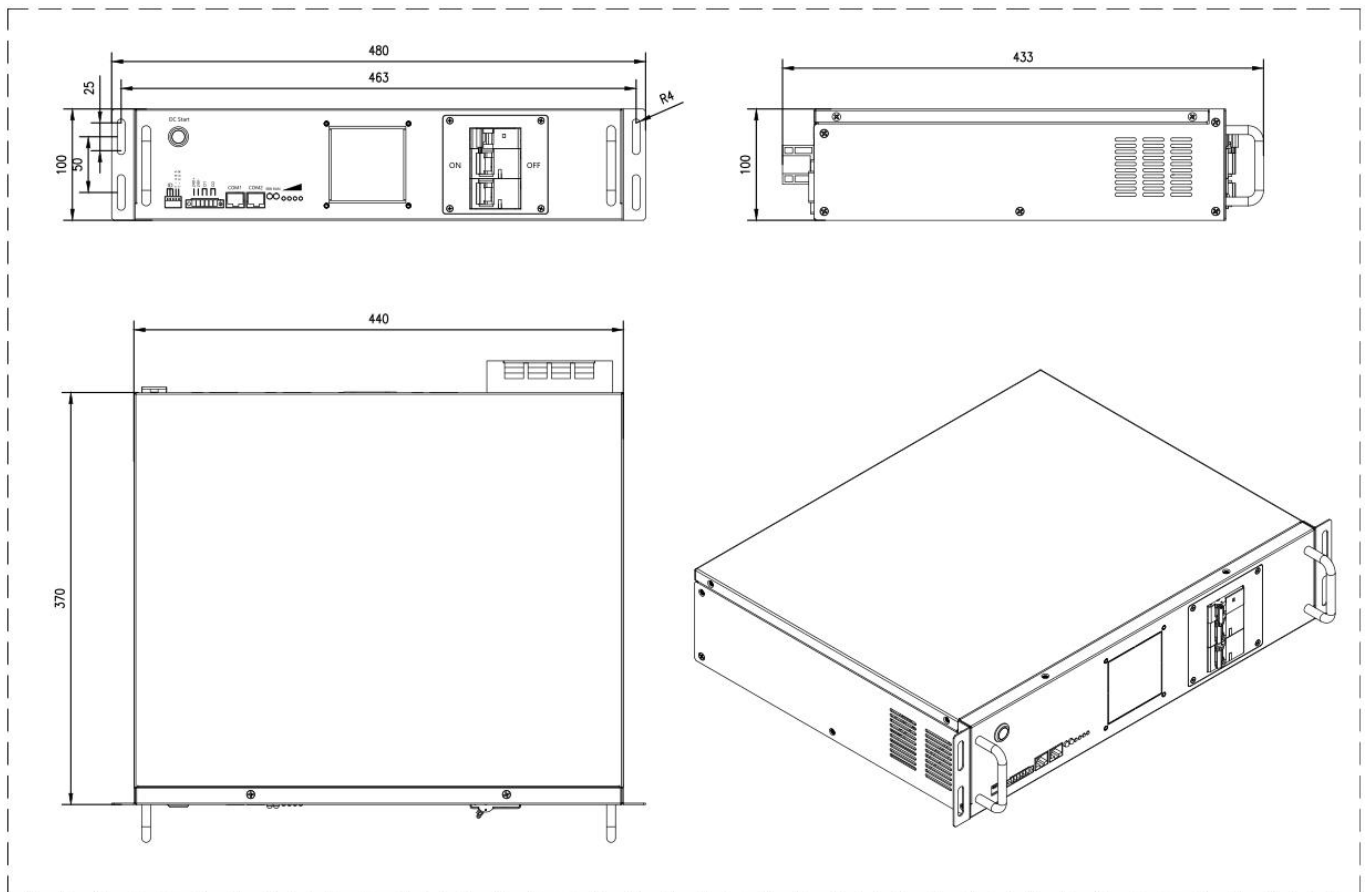
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	RS485: 1 channel (communication with the host computer/PCS/UPS)
Display mode	6-digit LED indicators, including 1-digit fault indication, 1-digit running indication, 4-digit SOC power indication HMI display: optional 3.5 inches
Rated current	50A/100A (can be selected according to customer needs)
Short circuit protection	Support 6KA 20ms
Maximum overload capacity	50A system transient: 70A/10S 100A system transient: 150A/10S
Alarm level	Level 1
Protection level	Level 2: Level 1 Cut off charge/discharge Level 2 Turn off the micro-break switch and power off the system
Power consumption	≤10W
Weight	7kg
Pressure rating	1800VDC 1mA 1min
Safety certification	Compliant with CE certification standards
operating temperature	- 20 ~ 60°C
Operating Humidity Range	<90 RH(40°C±2°C)



## 五、 SIZE AND INTERFACE OF CASE-TYPE ALL-IN-ONE INTEGRATED BMS

### 5.1 INSTALLATION DIMENSION DRAWING (INSTALLED SEPARATELY THE BATTERY MODULE RECOMMENDED)



5.2 DESCRIPTION OF THE INTERFACE DIAGRAM OF THE BMS REVERSE SIDE:




Code	Description	Remark
J1	1-15S voltage and temperature acquisition sockets	
J2	16-30S voltage and temperature acquisition sockets	
J3	31-45S voltage and temperature acquisition sockets	
J4	46-60S voltage and temperature acquisition sockets	
J5	61-75S voltage and temperature acquisition sockets	
B+	Connected to the the total positive of battery system	
B-	Connected to the the total negative of battery system	
P+	Connected to the the total positive of inverter	
P-	Connected to the the total negative of inverter	
AC220V	AC power sockets	For AC startup <b>(Note: that it must be connected to the UPS AC output terminal)</b>

### 5.3 FRONT INTERFACE DIAGRAM:



Code	Description	Remark	
DC start	DC start switch		
ID	DIP switch	3 bits, for address selection	
T-485 T-CAN	DIP switch	Communication terminal resistance, dial to ON for external	
24V+	Dry contact socket	24V input, emergency start BMS when the battery is under voltage and cannot be turned on	
24V-			
D1			Dry contact 1
D2			Dry contact 2
COM1	CAN、RS485 COM1 and COM2 in parallel	4: CAN_H    5: CAN_L	
COM2		7: RS485_A    8: RS485_B	
ERR	Fault indicator light	Red	
RUN	Running lights	Green	
SOC%	Battery indicator light	25: SOC in the range of 0%-25%	
		50: SOC in the range of 25%-50%	
		75: SOC in the range of 50%-75%	
		100: SOC in the range of 75%-100%	

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## 六. BMS WORKING STATUS DESCRIPTION

### 6.1 START, BOOT PROCESS:

Turn off the BMS, and complete the connection with the BMS. After the BMS is assembled, turn the micro-disconnect switch to "ON", and then press the start button (DC Start), the BMS enters the self-test, if the self-test It is normal, you can hear a sucking sound of the contactor pulling in, the green light is always on (it will flash when there is external communication), and the startup is complete.

### 6.2 SHUTDOWN/TRANSPORT STATUS:

After the system is started and the startup is completed normally, turn the micro-disconnect switch to "OFF" to make the BMS enter the shutdown/transportation state. **If the BMS is not used for a long time, the BMS must be in this state.**

### 6.3 WORKING STATUS:

After the BMS is started, it starts to work normally when the power supply of the BMS is detected. Otherwise, it will go to sleep automatically.

### 6.4 SLEEP STATE:

The system does not sleep by default.

### 6.5 FAULT STATE:

If the following three conditions are detected during the BMS self-check, it will enter the fault mode, and manual intervention is required to eliminate the fault.





Code	Malfunction	Indicate	Remark
1	Internal power failure	Steady red light	
2	Internal communication failure (communication error between MCU and AFE)	Steady red light	
3	Single cell voltage is higher than 4.1V or lower than 0.5V, or the voltage difference is greater than 2.5V	Steady red light	
4	The temperature is lower than -30 degrees or higher than 100 degrees, or the temperature difference is greater than 30 degrees	Steady red light	
5	Other	Steady red light	

## 6.6 EQUALIZATION FUNCTION

BMS adopts the method of resistance bypass to balance the cells. The cell voltage of the battery pack reaches 3.5V and the voltage of this cell is 50mV higher than the minimum single cell voltage, or the cell equalization function is turned on when the cell voltage exceeds 3.65V; it enters the protection state (except for overcharged and fully charged states), the equalization stops. Note: Equalization voltage can be set.

## 七、 DELIVERY LIST (SINGLE SET)

Code	Name	Specification	QTY
1	Master BMS	As per order model	1pcs
2	Voltage Collection Harness	Standard 1.2m voltage collection line	4pcs (60S) ; 5pcs (75S)
3	temperature collection	Standard 1.2m temperature	4pcs (60S) ; 5pcs (75S)



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	harness	acquisition line	
4	AC plug		1pcs
5	Terminals	6Pin green	1pcs

## 八. COLLECTION LINE WIRING

