

# SmartGen

MAKING CONTROL SMARTER

## HBMU200 BATTERY MANAGEMENT MODULE USER MANUAL



郑州众智科技股份有限公司  
SMARTGEN(ZHENGZHOU)TECHNOLOGY CO.,LTD.

# Contents

- 1 OVERVIEW ..... 5
- 2 PERFORMANCE AND CHARACTERISTICS ..... 6
- 3 SPECIFICATION ..... 7
- 4 MODULE PANELS ..... 8
- 5 CASE DIMENSIONS AND PANEL CUTOUT ..... 11
- 6 TYPICAL APPLICATION DIAGRAM ..... 11
- 7 COMMISSIONING ..... 11
- 8 FAUT FINDING ..... 12
- 9 OPTIONAL ACCESSORIES ..... 12

SmartGen

**SmartGen**众智 Chinese trademark

**SmartGen** English trademark

SmartGen – make your generator *smart*

SmartGen Technology Co., Ltd.

No.28 Xuemei Street, Zhengzhou, Henan, China

Tel: +86-371-67988888/67981888/67992951

+86-371-67981000(overseas)

Fax: +86-371-67992952

Email: [sales@smartgen.cn](mailto:sales@smartgen.cn)

Web: [www.smartgen.com.cn](http://www.smartgen.com.cn)

[www.smartgen.cn](http://www.smartgen.cn)

All rights reserved. No part of this publication may be reproduced in any material form (including photocopying or storing in any medium by electronic means or other) without the written permission of the copyright holder.

Applications for the copyright holder's written permission to reproduce any part of this publication should be addressed to Smartgen Technology at the address above.




Any reference to trademarked product names used within this publication is owned by their respective companies.

SmartGen Technology reserves the right to change the contents of this document without prior notice.

**Table 1 Software Version**

Date	Version	Content
2022-08-20	1.0	Original release.

**Table 2 Notation Clarification**

Sign	Instruction
 <b>NOTE</b>	Highlights an essential element of a procedure to ensure correctness.
 <b>CAUTION!</b>	Indicates a procedure or practice, which, if not strictly observed, could result in damage or destruction of equipment.
 <b>WARNING!</b>	Indicates a procedure or practice, which could result in injury to personnel or loss of life if not followed correctly.

**Glossary and List of Abbreviations**

BMS: Battery Management System

BCU: Battery Control Unit

BMU: Battery Management Unit



## 1 OVERVIEW

HBMU200 Battery Management Module is a vital part of BMS. When charging and discharging, the BMS will monitor the working status of the battery (voltage, temperature and etc.), perform the real-time detection and give feedback to BCU, so as to alarm for the under/over voltage, under/over temperature. This module is suitable for independent energy storage, wind-solar energy storage and hybrid energy systems, as well as for the test platform of lithium iron phosphate battery pack, ternary lithium battery pack, lithium manganese battery pack and lithium titanate battery pack.

SmartGen

## 2 PERFORMANCE AND CHARACTERISTICS

- With status indicator;
- Adopt the mature AFE chip in the industry to realize the voltage detection of single battery, supporting the voltage detection of 5~16 clusters of single battery;
- With single battery disconnect detection;
- Up to 18 channels for temperature detection, the temperature sensor type is NTC 10K;
- One relay output to control the fan and other devices;
- One non-isolated CAN interface to communicate with BCU module. The firmware can also be upgraded through CAN interface;
- The 120Ω terminal matching resistor of CANBUS is accessed through a dip switch;
- The CAN ID of the module can be selected by dip switch and the setting range is 1~63;
- With passive balance function, the max. balance current is 100mA;
- With wire harness protection function. When HBMU200 is used externally, the shell equipped with wire harness protection cover can be selected to avoid damaging to the wire harness;
- Modular design, screw installation, flame retardant ABC/PC shell, compact structure and easy installation.

SmartGen

**3 SPECIFICATION**

**Table 3 Specification Parameters**

Item	Content
Operating Voltage Range	DC8V ~ DC35V, DC reverse connection protection
Overall Consumption	<0.5W
Cell Voltage Sampling	Range: (0~5)VDC Resolution: 1mV Accuracy: ±5mV
Temp Sampling Input	Range: -40°C~+200°C Resolution: 1°C Accuracy:±1°C Temp sensor type: NTC 10K
CAN Interface	250kbps, non-isolated, maximum communication distance 250m, using Belden 9841cale or equivalent.
EMC	GB/T 34131-2017
Vibration	5Hz~8Hz: ±7.5mm 8Hz~500Hz: ±2g IEC 60068-2-6
Shock	50g, 11ms, half-sine, three consecutive shocks are applied in each of the three mutually perpendicular directions, i.e. a total of 18 times. IEC 60068-2-27
Bump Test	25g, 16ms, half-sine IEC 60255-21-2
Overall Dimensions	125mmx106mmx21mm
Installation Dimensions	112.5mmx93.5mm
Working Temperature	(-40~+70)°C
Working Humidity	(20~93)%RH
Storage Temperature	(-40~+80)°C
Protection Level	IP20
Weight	0.16kg

4 MODULE PANELS

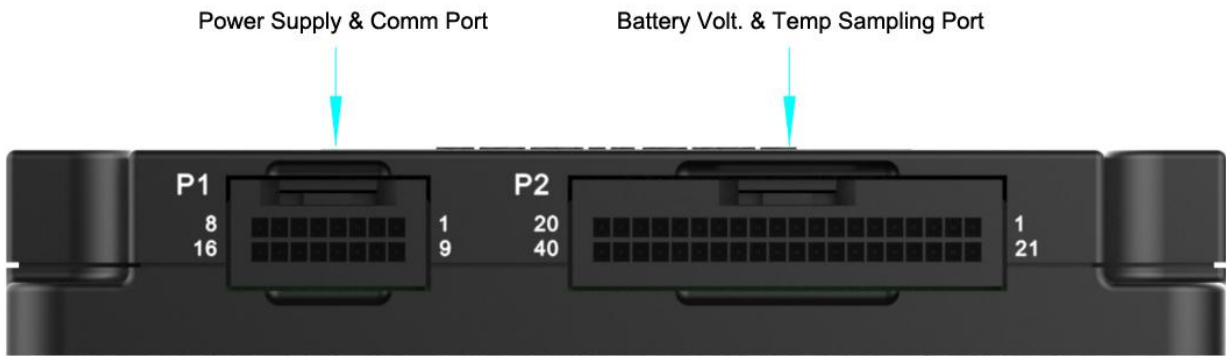


Fig.1 – Connector Panel



Fig.2 – Dip Switch Panel

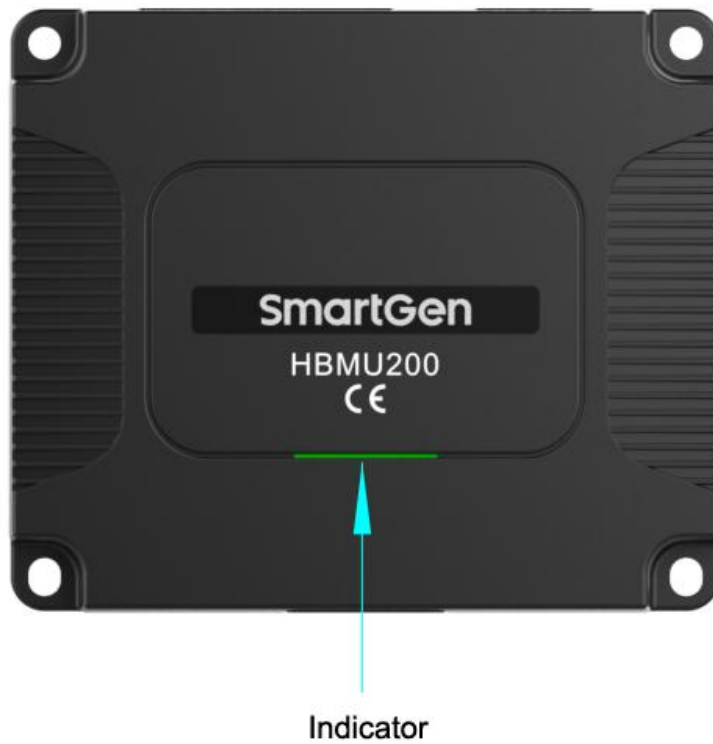




Fig.3 – Indicator Panel



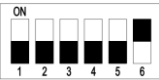
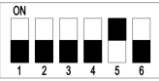

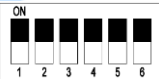
**Table 4 Indicator Description**

Indicator	Description
Status	The yellow indicator breathes when discharging, green indicator breathes when charging. The green indicator always illuminates when static, red indicator quick flashes when voltage fault, red indicator slow flashes when temperature fault while always illuminates when communication fault.

**Table 5 120Ω Dip Switch Description**

No.	Position	Description
1		The 120Ω terminal impedance matching resistor is not connected to the CANBUS.
2		The 120Ω terminal impedance matching resistor is connected to the CANBUS.

**Table 6 ID SWITCH Description**

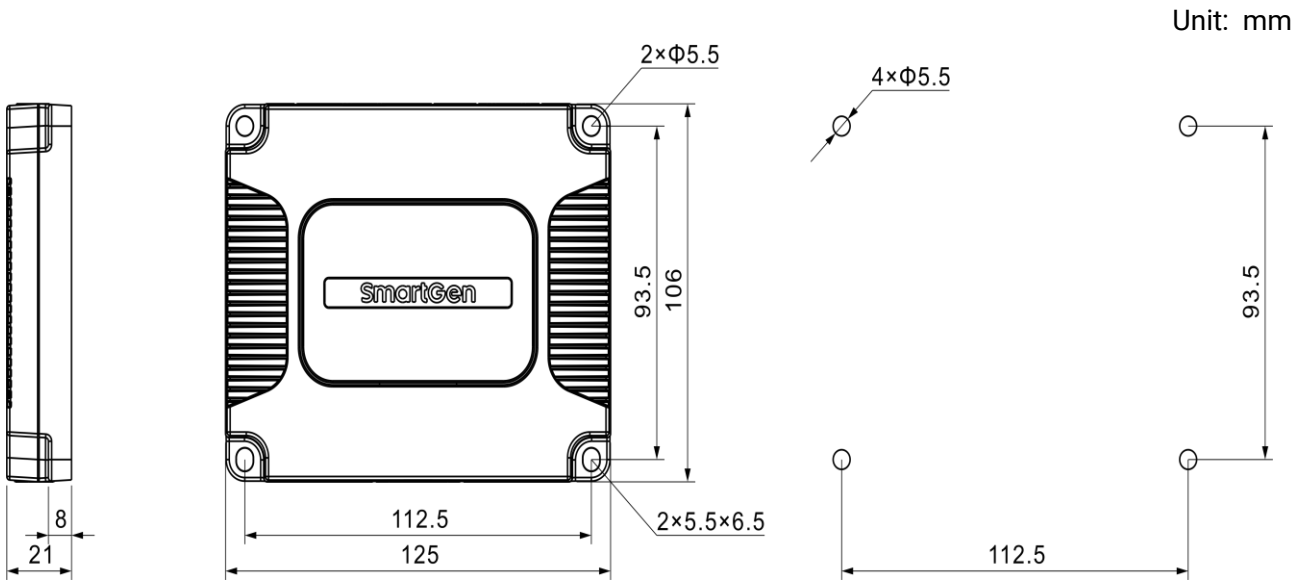
No.	Position	Module ID
1		1
2		2
n	/	According to the "8421" code rule, Dial Code 1 is the high level and Dial Code 6 is the low level.
62		62
63		63

**Table 7 Connector Definition**

Pin No.	Definition	Function Description
P1 (16PIN )		Panel Model: IMSA-13065B-2-16Y900
		Wire Model: IMSA-13065S-2-16Y500
		Terminal Model: IPS-13065T-01A-T
1	CANL	Internal CANL
9	CANH	Internal CANH
3	T1+	Temp sampling 1 positive
11	T1-	Temp sampling 1 negative
4	T2+	Temp sampling 2 positive
12	T2-	Temp sampling 2 negative
6	RLY+	Relay output control positive
14	RLY-	Relay output control negative
8	GND	24V power supply negative
16	24V	24V power supply positive

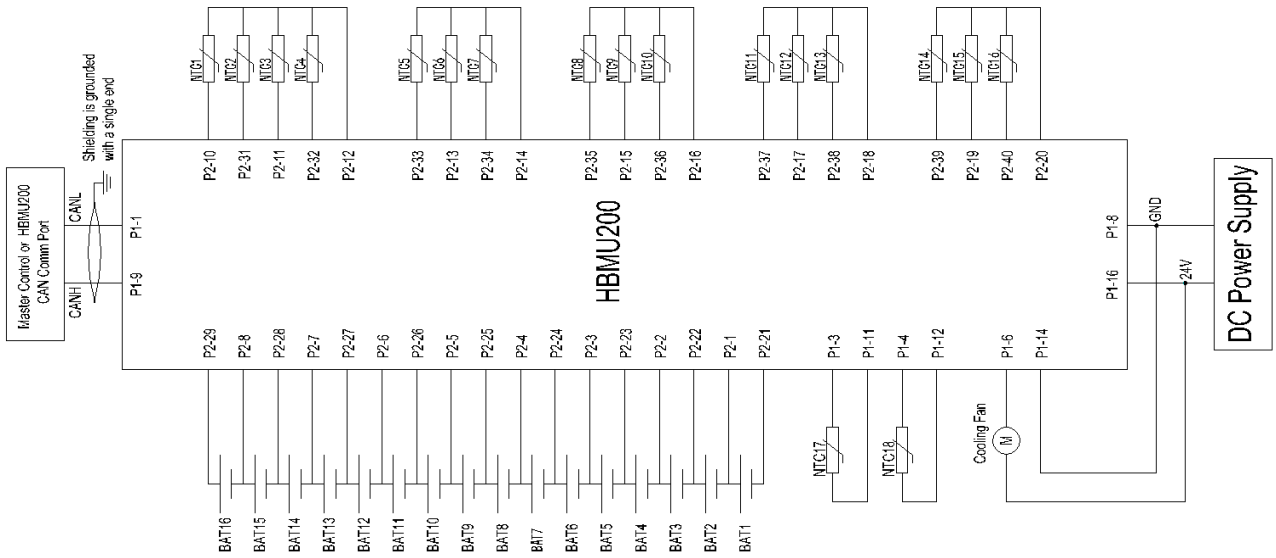
Pin No.	Definition	Function Description
P2 (40PIN)		Panel Model: IMSA-13065B-2-40Y900
		Wire Model: IMSA-13065S-2-40Y500
		Terminal Model: IPS-13065T-01A-T
21	B1N	Negative of No.1 battery
1	B1	Positive of No.1 battery
22	B2	Positive of No.2 battery
2	B3	Positive of No.3 battery
23	B4	Positive of No.4 battery
3	B5	Positive of No.5 battery
24	B6	Positive of No.6 battery
4	B7	Positive of No.7 battery
25	B8	Positive of No.8 battery
5	B9	Positive of No.9 battery
26	B10	Positive of No.10 battery
6	B11	Positive of No.11 battery
27	B12	Positive of No.12 battery
7	B13	Positive of No.13 battery
28	B14	Positive of No.14 battery
8	B15	Positive of No.15 battery
29	B16	Positive of No.16 battery
10	TA1	Group A temperature detection 1 positive
31	TA2	Group A temperature detection 2 positive
11	TA3	Group A temperature detection 3 positive
32	TA4	Group A temperature detection 4 positive
12	TAGND	Group A temperature detection negative
33	TB1	Group B temperature detection 1 positive
13	TB2	Group B temperature detection 2 positive
34	TB3	Group B temperature detection 3 positive
14	TBGND-	Group B temperature detection negative
35	TC1	Group C temperature detection 1 positive
15	TC2	Group C temperature detection 2 positive
36	TC3	Group C temperature detection 3 positive
16	TCGND-	Group C temperature detection negative
37	TD1	Group D temperature detection 1 positive
17	TD2	Group D temperature detection 2 positive
38	TD3	Group D temperature detection 3 positive
18	TDGND-	Group D temperature detection negative
39	TE1	Group E temperature detection 1 positive
19	TE2	Group E temperature detection 2 positive
40	TE3	Group E temperature detection 3 positive
20	TEGND-	Group E temperature detection negative

**5 CASE DIMENSIONS AND PANEL CUTOUT**



**Fig.4 – Case Dimensions and Panel Cutout**

**6 TYPICAL APPLICATION DIAGRAM**



**Fig.5 – Typical Application Diagram**

**7 COMMISSIONING**

It is recommended to do the following checks before the system is operating:

- Check all the wirings are correct and the diameters are suitable;
- Test a single battery module to ensure that the voltage and temperature data of the cell are within the normal range;
- After the system is power on, the status indicator is normal;

Please contact our service personnel in time if there is any question.

**8 FAUT FINDING**

**Table 8 Fault Finding**

Fault Symptom	Possible Measures
Controller no response when power on	Check controller wirings; Check if there is voltage output of power supply module;
CAN communication failure	Check the wirings; Check ID settings; Check whether CANH and CANL wires are reversely connected; A 120Ω resistor is recommended to connect between CANH and CANL.
Battery volt. & temp data abnormal	Check the wirings; Check whether the connector is tightly inserted.

**9 OPTIONAL ACCESSORIES**

Material Name	Name
Wire Connector	IMSA-13065S-2-16Y500 (One set with 1)
Wire Connector	IMSA-13065S-2-40Y500 (One set with 1)
Terminal	IPS-13065T-01A-T (One set with 48)