

Residential ESS Lithium-ion Battery

CFE-BCU User Manual



This brochure introduces the BCU from CFE, a communication collector for lithium-ion battery storage systems, suitable for both low-voltage systems and high-voltage systems, with a voltage range of 46~58.4V for low-voltage systems and 80~450V for high-voltage systems.

Applicable battery types: CFE-5100; CFE-5100S; ESP-5100

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CF ENERGY CO., LTD. mentioned later is abbreviated as CFE.

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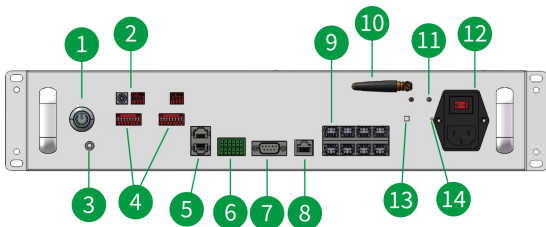
1 Product introduction

The CFE-BCU is suitable for CAN communication collectors with multiple 48V battery packs connected in parallel or in series.

1.1 Key parameters

Communication Interface	CAN / RS485 / 232 / Internet
IP Rating	IP 20
Dimension (W/D/H)	442*300*89
Weight	6 kg
Working Temperature	-20 ~ 65 °C
Storage Temperature	-30 ~ 70 °C
Warranty	5 years
Design Life	> 10 years
Power Supply	~ 220 / 230 / 240V or backup battery

1.2 Indicator and port



NO.	Name	Function
1	Power main switch	Switch on/off
2	Dip Switch Address	Adjustment Address
3	Grounding	Grounding screw location
4	Dip Switch	CANH/CANL address
5	PCS/EMS communication port	Connecting inverter communication
6	Dry contact	Features in development
7	RS232	RS232 communication
8	Ethernet	Connect network

9	Battery communication port	Battery communication
10	WIFI antenna	Transmitting WIFI signal
11	Running light	Normal/abnormal function
12	AC Switch	External AC Switch
13	WIFI Reset	WIFI reset button
14	Reset button	BCU reset button

2. Communication Pin Definitions

Normally: 4-CANH, 5-CANL; 4-485A, 5-485B.

Special case: CAN communication high and low bits are determined by the high and low bits of the BMS communication port of the inverter, which can be flexibly set dip switch.

3. Communication protocols can be supported

High Voltage Protocol: 4200 High Voltage Protocol

Low Voltage Protocol: DEYE Low Voltage CAN Communication Protocol

4. Operating instructions

4.1 Operating Instructions:

(1) Adjust the BCU dip switch to SW1-Address to 0 according to Figure 1.

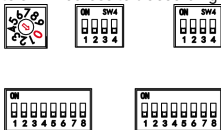


Figure 1

(2) Set the battery pack according to the position shown in Figure 2

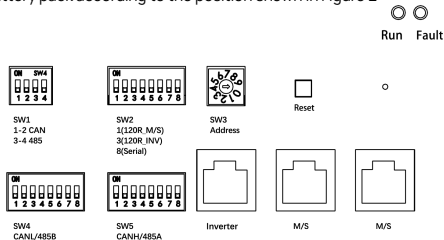

















Figure 2








































SW1	DIP switch selection for CAN or RS485
SW2	Resistance for communication and DIP switch for parallel/series connection
SW3	Switch for battery's address selection
SW4 & SW5	Communication for battery or master battery with inverter
Reset	Reset the WIFI configuration








































Low voltage system: SW4,SW5 use detailed dip switch information can be referred to Table 3 for parallel connection, Address set(sw3) is set according to the actual number of batteries actually connected in parallel per cluster.

High-voltage system: SW4,SW5 use detailed dip switch information can refer to Table 3 for series connection, Address set(sw3) is set according to the actual number of batteries actually connected in series per cluster.

Table 3 Battery dip switch setting information table

Connected battery number	Group	Set of SW2		Address Set (SW3)
		Series connection	Parallel connection	
1	—	 13	 13	 1
2	Master	 138	 13	 2
	Slave	 18	 1	 1
3	Master	 138	 13	 3
	Slave 1	 8	 0	 1

	Slave 2	 18	 1	 2
4	Master	 138	 13	 4
	Slave 1	 8	 0	 1
	Slave 2	 8	 0	 2
	Slave 3	 18	 1	 3
5	Master	 138	 13	 5
	Slave 1	 8	 0	 1
	Slave 2	 8	 0	 2
	Slave 3	 8	 0	 3
	Slave 4	 18	 1	 4
6	Master	 138	 13	 6
	Slave 1	 8	 0	 1
	Slave 2	 8	 0	 2

	Slave 3			
	Slave 4			
	Slave 5			
7	Master			
	Slave 1			
	Slave 2			
	Slave 3			
	Slave 4			
	Slave 5			
	Slave 6			
8	Master			
	Slave 1			
	Slave 2			

	Slave 3	ON 1 2 3 4 5 6 7 8 8	ON 1 2 3 4 5 6 7 8 0	3
	Slave 4	ON 1 2 3 4 5 6 7 8 8	ON 1 2 3 4 5 6 7 8 0	4
	Slave 5	ON 1 2 3 4 5 6 7 8 8	ON 1 2 3 4 5 6 7 8 0	5
	Slave 6	ON 1 2 3 4 5 6 7 8 8	ON 1 2 3 4 5 6 7 8 0	6
	Slave 7	ON 1 2 3 4 5 6 7 8 18	ON 1 2 3 4 5 6 7 8 1	7

(3) Cable connection

The communication method is CAN communication, and the low-voltage system cables are connected according to the following Figure 3:

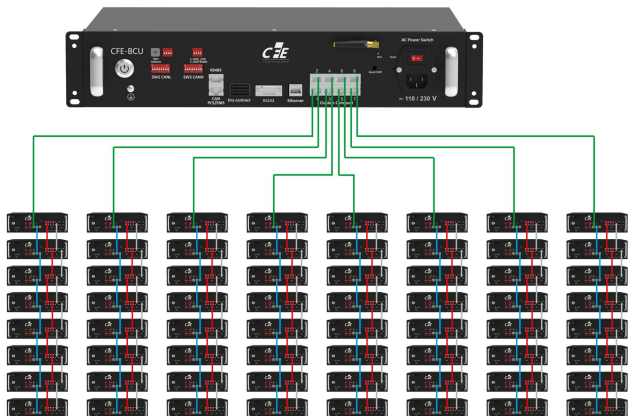


Figure 3 Low-voltage system cable connection diagram

The high voltage system cables are connected according to Figure 4 below:

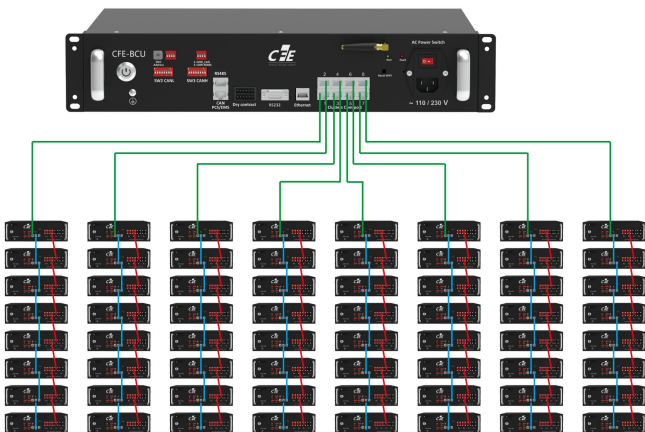


Figure 4 High voltage system cable connection diagram

①Each communication acquisition port can be configured with up to 8 CFE-5100 or CFE-5100S or 8 ESP-5100.

②CFE-BCU configuration with up to 8 sets of batteries.

(4) Check all wiring connections are correct, first open all the battery modules in each cluster, are normal start and normal communication between battery modules, and then long press the BCU power switch for about 3 seconds to power on the start (the buzzer should have a beep), the green running light is always on.

Note: If any cluster of battery modules is in the off state during use, the BCU needs to be restarted.

5. Safety instructions

This manual must be followed when installing and using this product. The product has been designed and tested to meet international safety requirements IEC 60364, but as with all electrical and electronic equipment, certain precautions must be observed when installing and/or operating the product. To reduce the risk of personal injury and to ensure safe installation and operation of the product, you must carefully read and follow all instructions, precautions and warnings in this manual.

6. Warning

A warning describes a hazard to equipment or personnel. It calls attention to a procedure or practice that, if not properly performed or followed, may result in damage or destruction of, or personal injury to, some or all of the CFE equipment and/or other equipment connected to the CFE equipment. For safety reasons, it is the responsibility of the installer to be familiar with the contents of this manual and all warnings before proceeding with the installation.

7. Responding to emergencies

The CFE-BCU communication collector is designed with multiple safety strategies to prevent hazards caused by failures. However, the CFE does not guarantee its absolute safety in the event of uncertainty.

- (1) If the battery pack leaks electrolyte, please avoid contact with the leaking liquid or gas. Electrolytes are corrosive and contact may cause skin irritation and chemical burns. In case of contact with the leaking substance, the following actions should be taken:
 - Inhalation: Evacuate contaminated area and seek immediate medical attention.
 - Eye contact: Flush eyes with running water for 15 minutes and seek immediate medical attention.
 - Skin contact: Wash affected area thoroughly with soap and water and seek immediate medical attention.
 - Ingestion: Cause vomiting as soon as possible and seek immediate medical attention.
 - If there is a fire, make sure there is an ABC or CO2 fire extinguisher nearby, do not use water to put out the fire.
- (2) If the battery is wet or submerged in water, do not attempt to approach it. Contact CFE's dedicated customer hotline or your distributor for technical assistance.
- (3) If the battery is damaged, contact the dedicated CFE customer hotline or your distributor for assistance as soon as possible, as damaged batteries are dangerous and must be handled with great care. A damaged battery is not fit for use and may pose a danger to people or property.
- (4) If the battery appears to be damaged, return it to CFE or your dealer.



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