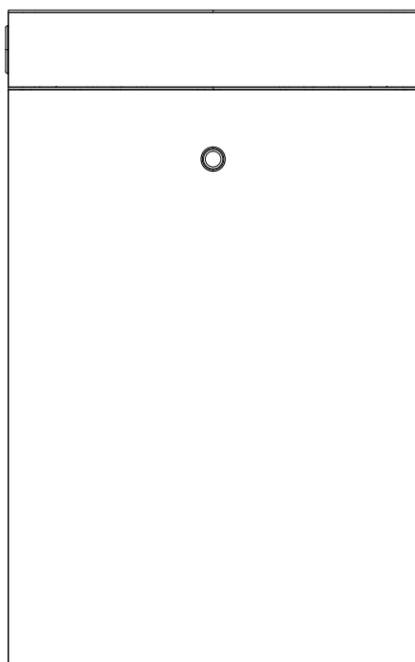




Operating Manual

BLF51 Series



Version: BLF51-EU-1.00

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1. About This Manual

1.1 Products Covered by This Manual

BLF51 Series li-ion battery:
BLF51-5.3 and BLF51-10.7.

1.2 Target Group

This document is intended for qualified electrician. Any electrical installation and maintenance on this inverter must be performed by qualified electricians in compliance with standards, wiring rules or requirements of local grid authorities or bodies.

1.3 Symbols Used

The following types of safety precautions and general information symbols are used in this manual. These important instructions must be followed during installation, operation and maintenance of the battery.

 DANGER	Indicates a hazard with a high level of risk that will result in death or serious injury.
 WARNING	Indicates a hazard with a medium level of risk that can result in death or serious injury.
 CAUTION	Indicates a hazard with a low level of risk that can result in minor or moderate injury.
NOTICE	Indicates a situation which, if not avoided, can results in property damage.

1.4 Storage of the Manual

The manual should be stored with other documents belonging to the inverter and must be available to people authorized to work on the installation.

This manual will be updated if necessary. Please check www.soltaro.com for more information.

2. Safety

2.1 Intended Use

The **BLF51 Series** is lithium battery for energy storage system. It must only be connected with a Soltaro hybrid inverter/battery inverter.

To prevent personal injury and property damage and to ensure long-term operation of the product, please read and follow all the instructions and cautions on the battery and this user manual during installation, operation or maintenance at all times.

2.2 Important Safety Instructions

DANGER

Danger to life from electric shock.

- Before performing any work on the battery, make sure the battery is power off and the DC isolator is disconnected.
 - Do not short connect the DC connectors of the battery, which may cause electric shock to personnel and damage to the product.
 - Do not touch DC connectors of the battery.
 - If an error occurs, contact your local distributor or qualified electricians.
-

WARNING

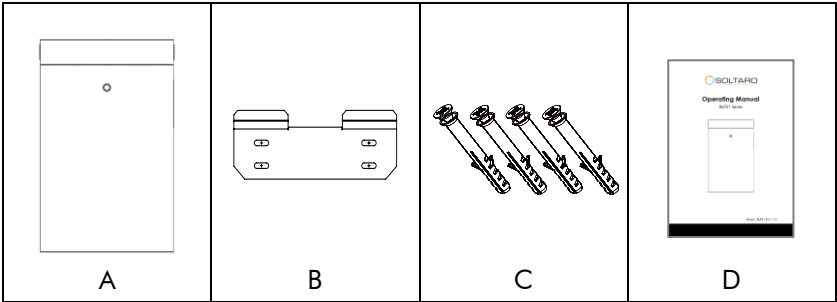
- Only authorized service personnel are allowed to install the battery or perform servicing and maintenance
 - The power should be disconnected before attempting any maintenance or cleaning or working to the battery.
-

NOTICE

- Do not open the battery cover or change any components without authorization, otherwise the warranty commitment for the battery will be invalid.
-

-
- Appropriate methods must be adopted to protect battery from electrostatic discharge; any damage caused by ESD is not warranted by the manufacturer.
-

3. Scope of Delivery



Item	QTY	Designation
A	1	Battery
B	1	Wall Mounting Bracket
C	4	Screws for Fixing Mounting Bracket
D	1	Manual

NOTICE

Accessories for different applications may be different.

4. Product Description

Thank you for choosing a Soltaro battery. Features of the Soltaro battery are ahead of the field and understood prior to install.

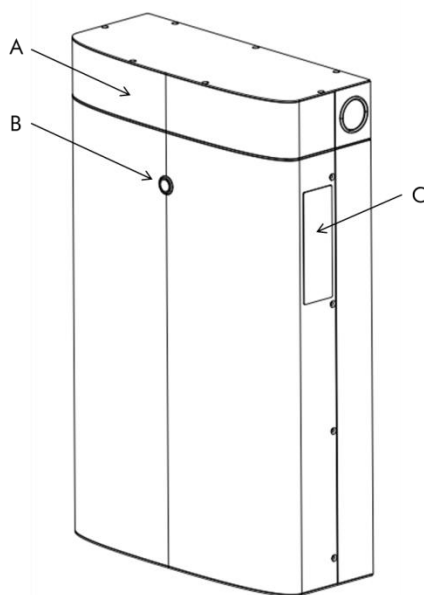


Figure 1. View of the BLF51 Series Lithium Battery

Position	Designation
A	Connection Area Cover For All-in-one application with hybrid inverter, the cover is not included.
B	Reset button with LED indicator
C	Label

Symbols on the Type Label

Symbol	Explanation
	Caution, Risk of Danger
	Caution, Risk of Electric Shock
	Refer to the Operating Manual
	WEEE Mark. This inverter should not be disposed as ordinary waste.

5. Mounting

5.1 Requirements for Mounting

NOTICE

Check to make sure the installation site does not fall into any of the following conditions: If any do, then a risk assessment will be required.

- This product is designed only for indoor use.
- Unsafe due to assessment of occupational health safety risks.
- The ambient temperature is outside the range of tolerable ambient temperature (-20°C to +50°C, -4°F to +122°F).
- Close to flammable materials or areas where flammable materials are stored.
- Prone to be damaged by sea water.
- Prone to be flooded or high levels of snow falls.
- Close to corrosive gas or liquid (for example, locations where chemicals are processed or stored).
- Exposed to direct sunlight or in an enclosure exposed to direct sunlight.
- Little or no air flow
- Mounted on a surface without suitable fire/heat rating.
- Mounted on a wall without suitable load holding capacity.
- High humidity.
- Sites considered unsafe because of local regulations.
- Confined space without adequate airflow.
- Area subject to sand or dust storms.
- Exposed to steam, vapor, or water.

5.2 Mounting the Battery

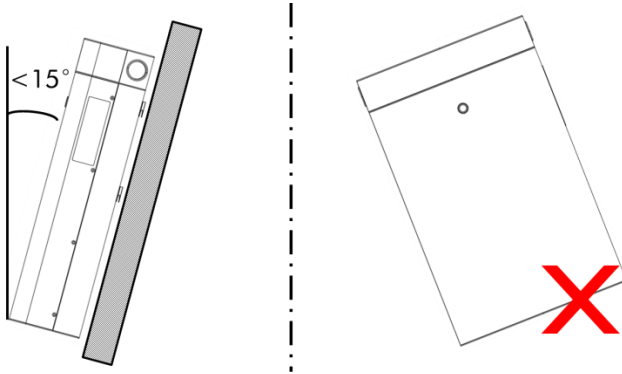
5.2.1 General Application

Procedure:

CAUTION

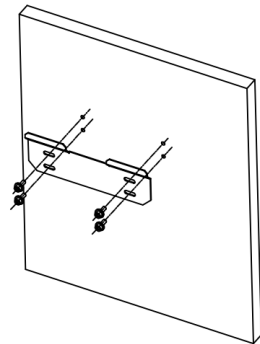
The converter must be mounted in upright position with a maximal tilt angle of 15 degree.

Minimum clearances around inverter should be applied, as the following figure shown.



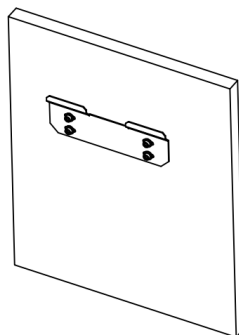
STEP 1:

- Please use the wall mounting bracket as template to drill 4 holes on walls.



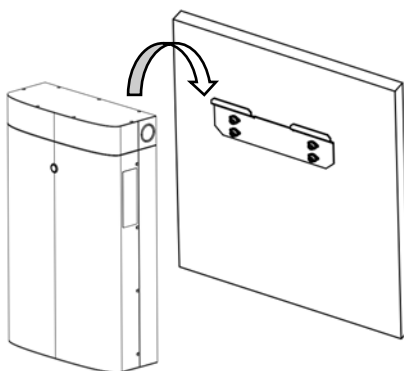
STEP 2:

- Use expansion bolts or correct wall fixings to attach the mounting bracket on the wall tightly.



STEP 3:

- Lift and hang the battery on the bracket.



STEP 4:

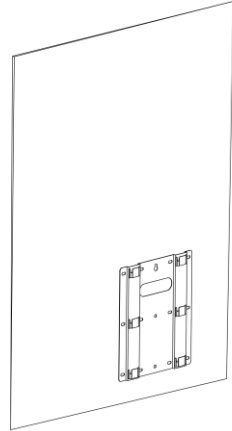
- Peel off the protective film on the front surface.
-

5.2.2 All-in-one Application

Procedure:

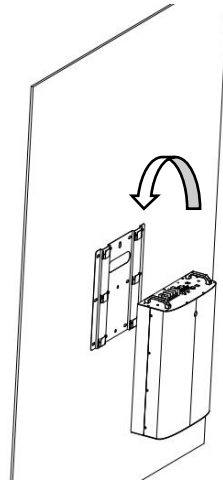
STEP 1:

- Fix the wall mounting bracket on wall.



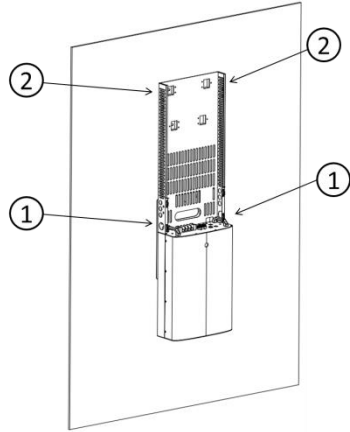
STEP 2:

- Lift and hang the battery on the bracket.



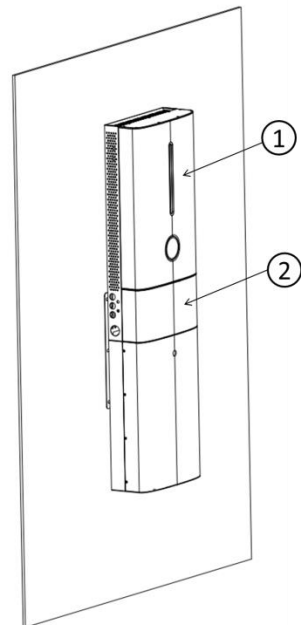
STEP 3:

- Put the inverter bracket onto the battery, and fix it on the battery;
- Use fixing structure in inverter's accessory box to fix the inverter bracket on the wall.



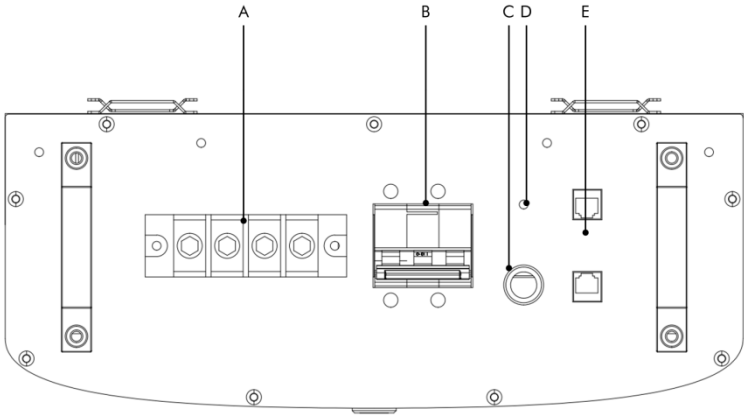
STEP 4:

- Lift and hang the inverter on its bracket;
- After the electrical connections (refer to in Chapter 6) is finished, Put on the cover of connection area.



6. Electrical Connection

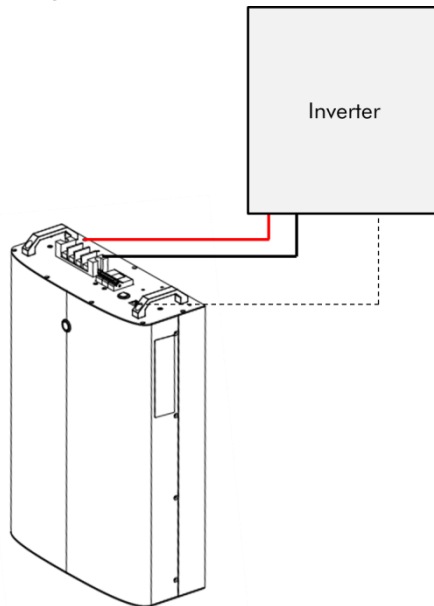
6.1 Overview of the Connection Area



Position	Designation
A	Battery Power Ports
B	DC Isolator
C	Power Switch
D	Grounding Port
E	BMS Ports

6.2 Battery Power Connection

Battery connection diagram



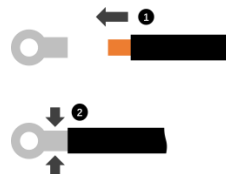
Procedure:

CAUTION

Before connecting the power cable, make sure the battery is turned off, and the DC isolator is disconnected.

STEP 1:

- Please assemble the connectors if they are not pre-assembled.
- Install the connectors to battery power ports; make sure the polarities are correct.



STEP 2:

- Plug the other ends of power cables into inverter. Please contact with your inverter vendor for detailed information.

6.3 BMS Communication Connection

Please check whether the BMS communication cable in the accessory box is appropriate for the battery. If you are not sure for that, please confirm with your vendor.

Procedure:

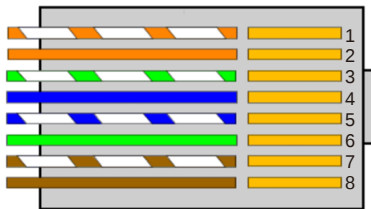
STEP 1:

- Please insert the RJ45 connector into the BMS port of battery.
-

STEP 2:

- Please insert the other end of the cable in the corresponding port of inverter.
-

BMS Connector Pin Definition:

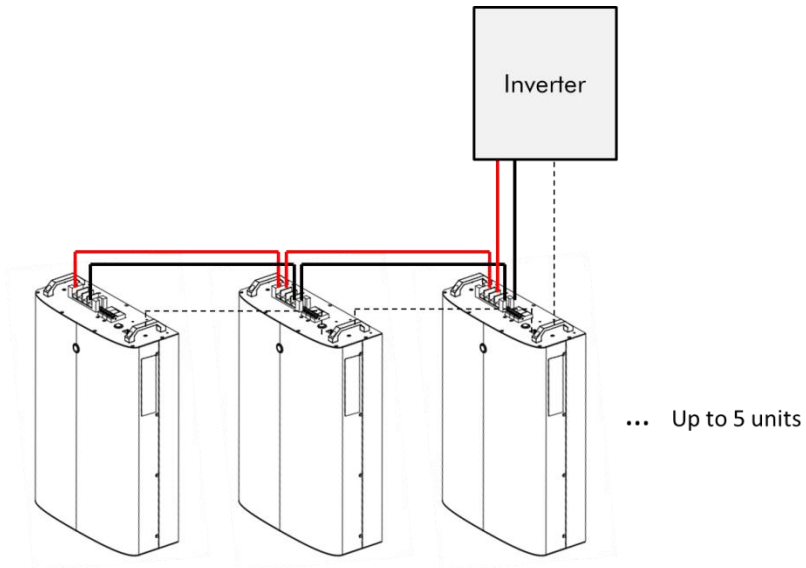


1. BMS_CAN_H
2. BMS_CAN_L
3. BMS_485_A
4. GND
5. BMS_485_B
6. GND
7. NULL
8. NULL

6.4 Parallel Connection of Multi-batteries

Up to 5 units of BLF51 Series batteries can be parallel connected in one system.

Parallel Connection Diagram



Procedure:

STEP 1:

- Connect all the positive terminals of power ports of each battery.
- Connect all the negative terminals of power ports of each battery.
- Connect the power ports to inverter.

STEP 2:

- Connect the BMS ports of each battery. The COM DOWN should be connected to the COM UP.
- Then connect the BMS port to inverter.
- Set the parallel number in the Soltaro Local APP. For example, if there are "3" batteries connected, then set the number as "3".

7. Operating of the Battery

7.1 LED Indicator

The LED indicates the operating state of battery and also battery SOC.

LED	Explanation
Blue	The battery's status is normal; SOC is higher than 25%.
Orange	The battery's status is normal; SOC is lower than 25%.
Red	There is fault.
No light	The battery is power off or the SOC is too low.

7.2 Turn On/Off the Battery

- When turn on the battery, turn on the isolator firstly, then switch on the battery;
- When turn off the battery, switch off the battery firstly, then disconnect the isolator.

8. Technical Data

Electrical Data	BLF51-5	BLF51-10
Cell Type	LFP	LFP
Total Energy	5 kWh	10 kWh
Depth of Discharge	90%	90%
Usable Energy	4.5 kWh	9 kWh
Nominal Voltage	51.2 V	51.2 V
Operating Voltage Range	40-58.4 V	40-58.4 V
Nominal Capacity	100 Ah	200 Ah
Max. Charge Current	50 A	100 A
Max. Discharge Current	100 A	100 A
Max. Parallel Number	5 units	5 units
General Data	BLF51-5	BLF51-10
Mounting information	Wall mount / Ground mount	
Communication	CAN / RS485	
Operating Temperature	0~45C charge / -20~55C discharge	
Dimension	415*665*165 mm	415*1135*165 mm
Weight	45 kg	85 kg
IP Protection Type	IP21	

Contacts:

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