



Installation Guidance

B-BOX 2.5~10.0

Version : 1.1

Update : 20160611

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Statement:

As the product version update or other reasons, this document will be subject to change with notice. Unless otherwise agreed, the document used as guidance only, all statements in this document, information and suggestions do not constitute any express or implied.

Please kindly contact us for more information.

1 Preface

Thank you for choosing BYD products. We will provide you good quality as well as reliable after service.

To protect using staffs and product, please kindly read this manual carefully which provide detailed information for products' features, structures, operate standard, maintenance and troubleshooting.

Special announcement:

This manual can't be taken as basis of requirement for BYD.

BYD hold the final explanation right of this manual.

2 Information in this Guidance

2.1 About this guidance

This is the installation guidance for the BYD battery box products- B-Box 2.5~B-Box 10.0. User of this device or installer must refer to the installation guidance to installation and using correctly.

2.2 Target Group

This installation guidance applies only to the BYD battery box products-B-Box2.5 ~B-Box10.0.

2.3 Additional Information

Specification of the product can be changed without any notice to customers for the system improvement.

2.4 Symbols Used

Symbols meanings:



CAUTION:

CAUTION represents hazardous situations which can cause light injuries if not avoided.



NOTICE:

NOTICE represents the situations which can cause damage to property if not avoided.

**INFORMATION:**

INFORMATION provides tips that are valuable for optimum installation and operation of the product.

3 Safety

3.1 Warnings and Notification

Installation environment requirements: BYD B-Box 2.5~10.0 is designed for household purposes. For installation, it must be installed in a location complying with IP20. If the Installation location does not comply with IP20 may cause failure and the product will not be guaranteed for any related accident or damage.

3.2 Safety Guidelines

**CAUTION:**

Li-Ion battery (energy storage unit) inside. When assembling the system, do not intentionally make a short condition between the positive (+) and negative (-) terminals of the battery box with a metallic object. All work on the B-Box and electrical connections must be carried out by qualified personnel only. B-Box provides a safe source of electrical energy when operated as intended and as designed. Potentially hazardous circumstances such as excessive heat or electrolyte mist may occur under improper operating conditions, damage, misuse and/or abuse. The following safety precautions and the warning messages described in this section must be observed. If any of the following precautions are not fully understood, or if you have any questions, contact Customer Support for guidance. The Safety Section may not include all regulations for your locale; personnel working with B-Box must review applicable federal, state and local regulations as well as the industry standards regarding this product. Installation personnel can not wear watches, etc., to avoid short circuit and human damage.

**CAUTION:**

Due to high weight of BYD B-Box 2.5~10.0, please use hard package and do safety protection when transport, please also pay attention to the safety to avoid human damage.

4 Product Overview

4.1 Product Introduction

BYD battery box products B-Box2.5~B-Box10.0 as the energy storage parts can be used in off-grid & on-grid energy storage system.

It is recommended not to use this device for other than the purpose described in this guidance. The substitute use of this product, random change, and use of components other than sold or recommended by BYD will nullify the product guarantee. It also support parallel connection between B-Box with maximum number 8, the total capacity can reaches to 80Kwh.

The system is easy for installation and maintenance.



4.2 Identifying The Product

The Type Label describe the product identity and attached on the product. For safe usage, the user must be well-informed of the contents in the Type Label. The Type Label includes:

Product Name:

Product Type:

Rated output voltage:

Rated current:

Operation temperature range:

Serial Number (P/N No.):

Caution:

Certification marks:

5 System Installation

5.1 Installation notice

- a) Before installation, check the battery open circuit voltage.
- b) Battery installation location should be away from heat and avoid produce spark. The safety distance should be above than 0.5m.
- c) Battery installing connecting cables should be as short as possible, to prevent excessive line pressure drop.
- d) Batteries with different capacity, different P/N or different manufactures are not allowed for connection.
- e) Before conducting the battery, the battery positive and negative poles need to be carefully checked as well to ensure correct installation.
- f) The mounting floor should be horizontal.

5.2 Package information and system configuration list

The cabinet and battery are packaged separately with cartons, the components are taken along with the cabinet or battery package , before installation, installer should read the system configuration list.



B-BOX Cabinet



B-Plus2.5 (U3A1-50P-A)

5.2.1 Configuration list of B-BOX

Please install B-BOX2.5~B-BOX 10 according to table1.

Table 1 Basic configuration list

Type	B-BOX 2.5	B-BOX 5.0	B-BOX 7.5	B-BOX 10.0
B-BOX cabinet	1	1	1	1
B-Plus2.5	1	2	3	4
User manual	1	1	1	1
Positive cable	1	2	3	4
Negative cable	1	2	3	4
Communicate cable	1	2	3	4
Grounded cable	1	2	3	4

If install more than 1 cabinets, please install according to table2.

Notice:

When check configuration list, please pay attention to the cabinet label, system cabinet is different from battery cabinet, the table is only used for extend battery.

Table 2 Extend configuration list

No.	System Capacity	System cabinet quantity	Battery cabinet quantity	B-Plus2.5 quantity
1	12.5Kwh	1	1	5
2	15.0Kwh	1	1	6
3	17.5Kwh	1	1	7
4	20.0Kwh	1	1	8
5	22.5Kwh	1	2	9
6	25.0Kwh	1	2	10
7	27.5Kwh	1	2	11
8	30.0Kwh	1	2	12
9	32.5Kwh	1	3	13
10	35.0Kwh	1	3	14
11	37.5Kwh	1	3	15
12	40.0Kwh	1	3	16
13	42.5Kwh	1	4	17
14	45.0Kwh	1	4	18
15	47.5Kwh	1	4	19
16	50.0Kwh	1	4	20
17	52.5Kwh	1	5	21
18	55.0Kwh	1	5	22
19	57.5Kwh	1	5	23
20	60.0Kwh	1	5	24

21	62.5Kwh	1	6	25
22	65.0Kwh	1	6	26
23	67.5Kwh	1	6	27
24	70.0Kwh	1	6	28
25	72.5Kwh	1	7	29
26	75.0Kwh	1	7	30
27	77.5Kwh	1	7	31
28	80.0Kwh	1	7	32

5.2.2 Configuration list of B-BOX with different inverter

5.2.2.1 B-BOX configuration list with SMA sunny island

1 Phase on Grid		
Inverter Type	B-Plus 2.5	Cabinet
SI 3.0M	≥1	≥1
SI 4.4M	≥1	≥1
SI 6.0H	≥1	≥1
SI 8.0H	≥1	≥1
Remark: Maximum B-Plus quantity is 32,Cabinet quantity is 8.		
3 Phase on Grid		
Inverter Type	B-Plus 2.5	Cabinet
SI 3.0M	≥3	≥1
SI 4.4M	≥4	≥1
SI 6.0H	≥4	≥1
SI 8.0H	≥4	≥1
1 Phase off Grid		
Inverter Type	B-Plus 2.5	Cabinet
SI 3.0M	≥3	≥1
SI 4.4M	≥3	≥1
SI 6.0H	≥5	≥2
SI 8.0H	≥5	≥2
3 Phase off Grid		
Inverter Type	B-Plus 2.5	Cabinet
SI 3.0M	≥8	≥2
SI 4.4M	≥8	≥2

SI 6.0H	≥12	≥3
SI 8.0H	≥12	≥3

Remark: Maximum B-Plus quantity is 32,Cabinet quantity is 8.

5.2.2.2 B-BOX mini configuration list with GOODWE ES inverter

1 Phase on Grid		
Inverter Type	B-Plus 2.5	Cabinet
4.6kW	≥1 ¹	≥1
1 Phase off Grid		
Inverter Type	B-Plus 2.5	Cabinet
4.6kW	≥2	≥1

Remark: Maximum B-Plus quantity is 32,Cabinet quantity is 8.

5.2.3 Installation Tools


Table 3 Installation tools list

 <p>Cross screwdriver M3~M10</p>	 <p>Flat tip screwdriver M3~M6</p>	 <p>Sockets spanner</p>
 <p>Diagonal cutters</p>	 <p>Adjustable wrench</p>	 <p>Knife</p>

¹ This configuration is only for self consumption application.





5.2.4 Part list

5.2.4.1 Part list of cabinet

No.	Item Description	Qty	Purpose	Picture
1	Anchor bolt	4	Make a distance from cabinet to ground.	
2	User Manual	1	System information and using method and Warranty items.	\
3	Installation Manual	1	System installation guidance	\

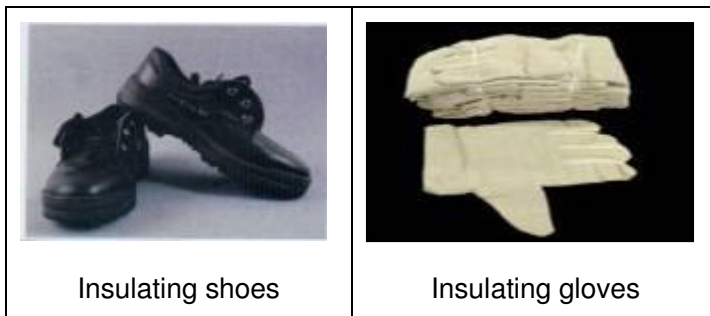
Remark: This part list is only for one system cabinet.

5.2.4.2 Part list of B-Plus 2.5

No.	Item Description	Qty	Purpose	Picture
1	Positive cable	1	Battery P+ connection	
2	Negative cable	1	Battery P- connection	
3	GND	1	Connect Battery grounded terminal	
4	Communication cable	1	Battery RS485 port connection	

Remark: This part list is only for one B-Plus 2.5..

5.2.5 Personal protective equipment



5.3 Installation

5.3.1 Open the package

Tools: Knife



5.3.2 Disassemble the pallet

- Lay down the cabinet, in order to prevent scratches cabinets, please do protection on the ground.
- Take away the four screws which installed on the root of the pallet.
- Take away the pallet.

Tools : Adjustable Spanner

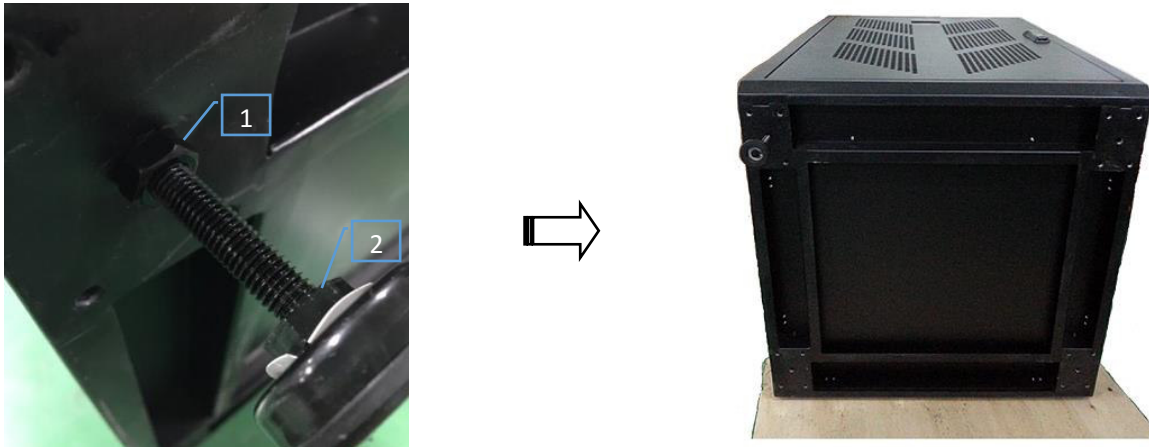


5.3.3 Anchor bolt installation

Install the 4pcs anchor bolt into the four hole in bottom of cabinet.

Tools : Adjustable Spanner. Fixed torque: $10 \pm 1 \text{ Nm}$

- i. Install the anchor bolt, turn the anchor bolt to the certain height;
- ii. Using Spanner to turn the second screw to lock the anchor bolt(marked as 2 in below figure);
- iii. Move the first screw to the cabinet bottom closely(marked as 1 in below figure);



5.3.4 Battery installation

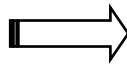
Tools : Cross screwdriver

- a) Move the cabinet to the installation place, prepare to install battery.
- b) Open the door, take away the screws of the battery stories.



Take off all crews.

c) Take off the screws of left cover and front cover.



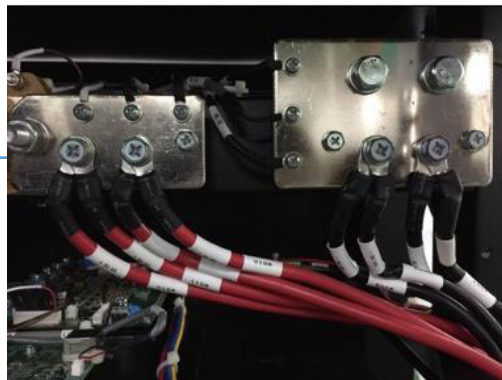
f) Open the left cover and front cover, connect the power cables on cooper bar.



Left cover

Positive pole

Negative pole



- g) After connect the cables, please put the positive and negative cables cross the cabinet hole in turn.

Remark : negative is first to install and then is positive.



Lateral view



Front view

Before shipment, all the power cables are not connect with cabinet, and they are packaged with each B-Plus2.5 battery, each package of B-Plus 2.5 have one set of cables which are listed in 5.2.3.1.

Note:

- ✧ B-BOX 2.5: Connect 1pcs positive cable to the positive pole, and 1pcs negative cable to the negative pole.
- ✧ B-BOX 5.0: Connect 2pcs positive cable to the positive pole, and 2pcs negative cable to the negative pole.
- ✧ B-BOX 7.5: Connect 3pcs positive cable to the positive pole, and 3pcs negative cable to the negative pole.
- ✧ B-BOX 10.0: Connect 4pcs positive cable to the positive pole, and 4pcs negative cable to the negative pole.

- h) Push the battery into the cabinet in correct number according configuration list.

Note: Each layer only can install one battery. Installer should install the battery from the bottom layer to the top layer.



Push into the battery

Operator should install batteries according to table 5:

Table 5: Contrast list of battery

No.	Type	Quantity of B-PLUS 2.5
1	B-BOX 2.5	1pcs
2	B-BOX 5.0	2 pcs
3	B-BOX 7.5	3 pcs
4	B-BOX 10.0	4 pcs

Below pictures show battery installation and cable tracing appearance of the B-BOX 10.0.



Battery installation



Cable tracing

i) Lock the screws again.

Tools: Cross screwdriver , Fixed torque: $18 \pm 2 \text{ kgf.cm}$



Lock the screws

5.3.5 Battery connection

Tools using: Cross screwdriver.



Attention: The battery can only in parallel connection.



Warning: Do not short connect, reverse polarity connect or connect in series

Take care of insulation.

- a) Connect the negative cable (Black cable from cabinet) to the “P-“ of battery.

Tools: Cross screwdriver, Fixed torque: $20 \pm 2 \text{ kgf.cm}$

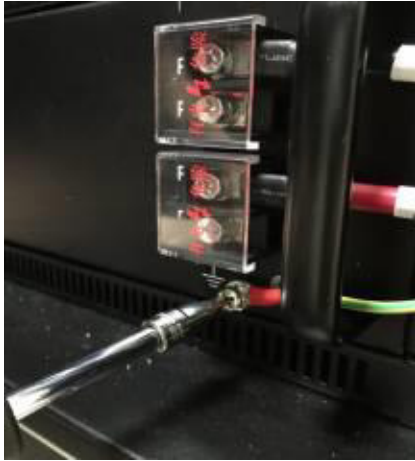


- b) Connect the positive cable (Red cable from cabinet) to the “P+“ of battery.

Tools: Cross screwdriver, Fixed torque: $20 \pm 2 \text{ kgf.cm}$



- c) Connect the grounded cable (Yellow cable from cabinet) to the “GND” pole of battery.



- d) Connect the communication cable (Gray cable from cabinet) to the RS485"COM-IN" of battery. There is a communication cable from BMU of cabinet, when install the battery communication cable, should connect this cable to "COM IN" of the first battery. then use the communication cable do connections between "COM OUT" of first battery and "COM IN" of the second battery, as shown in below picture:



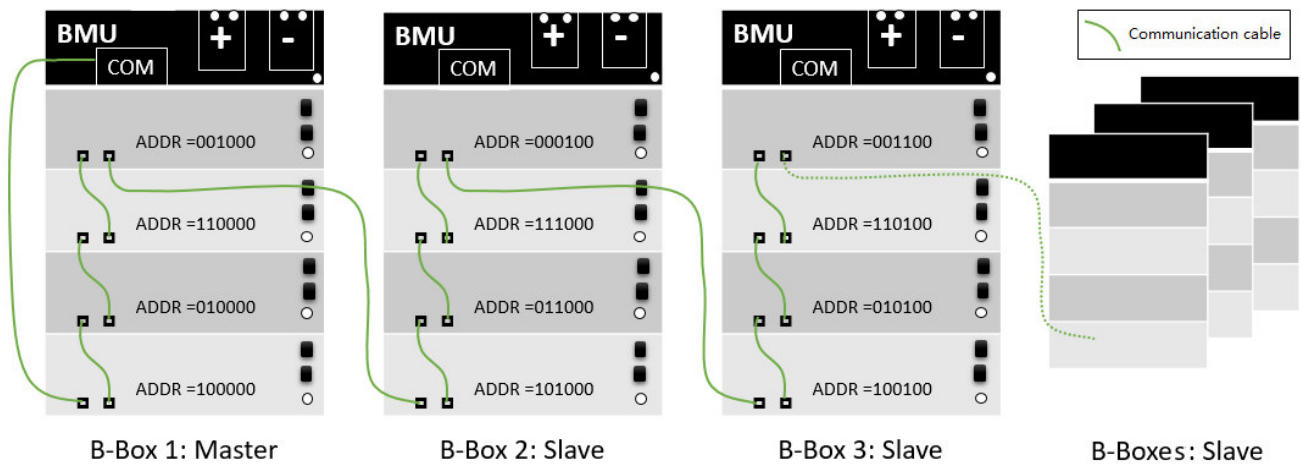
Communication cable on cabinet



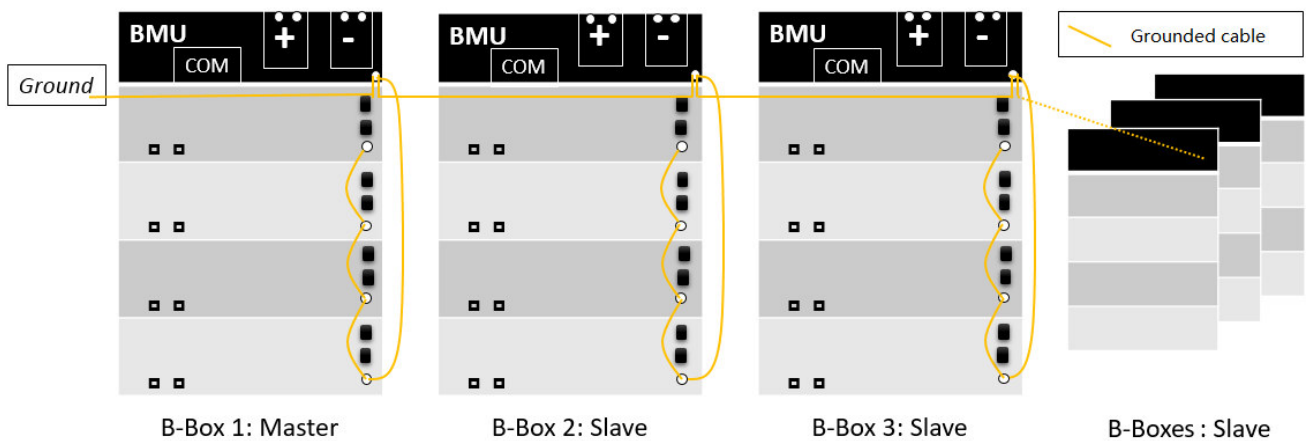
5.4 More cabinet installation

When user need more than one cabinet to install, should repeat above operations.then do parallel connections between cabinet.

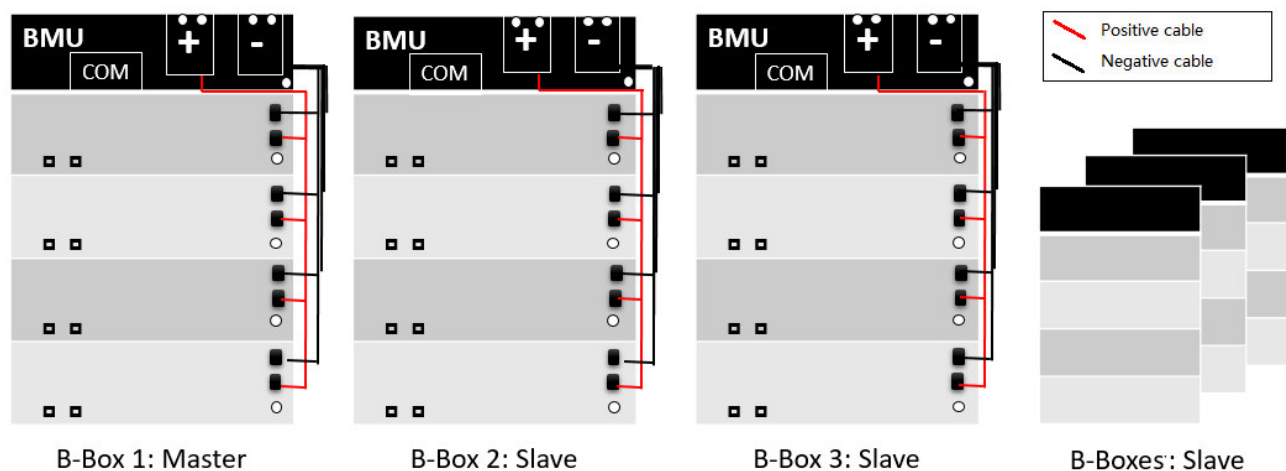
5.4.1 Communication cable connection drawing



5.4.2 Grounded cable connection between several B-BOX



5.4.3 Power cable connection between several B-BOX



5.4.5 Parallel connection cable suggestion

NO.	Parallel Connection quantity	Cable name	Cable spec	QTY	Connection instruction
1	3	B+ cable	$\geq 70\text{MM}^2$, (M10 screw)*1.5M	3	Connect the B+ terminals between B-BOX.
2		B- cable	$\geq 70\text{MM}^2$, (M10 screw)*1.5M	3	Connect the B- terminals between B-BOX.
3		Communication cable	$\geq 2\text{M}$	3	Connect “COM IN” and “COM OUT” between several batteries.
4		Ground cable	10AWG, (M6 screw), 1.8M	3	Connect ground cable from BOX1's bus-bar through BOX1's AC IN to BOX2's bus-bar through BOX2's AC IN.

Notice:

1 The cable length between 2 cabinets listed in Table 8 is just for reference, installer should refer to actual cabinet distance to decide the specification of cable.

2. Please add another group of cables when increase more cabinet.

5.5 Battery address set up

After install battery, installer should setup battery address by “ADDR” switch.

“ADDR” switch introduction:

Function: Communicate between battery and BMU, BMU will communication with external equipment when using CAN communication.

Each DIP switch definition:

There are 6 bit switches, keep the switch on down side means "0", turn up the switch to "ON" means "1".



Address: 000000



Address: 100000

For example: when two battery in using, "ADDR" setting:



No.1 battery address: 100000



No.2 battery address: 010000

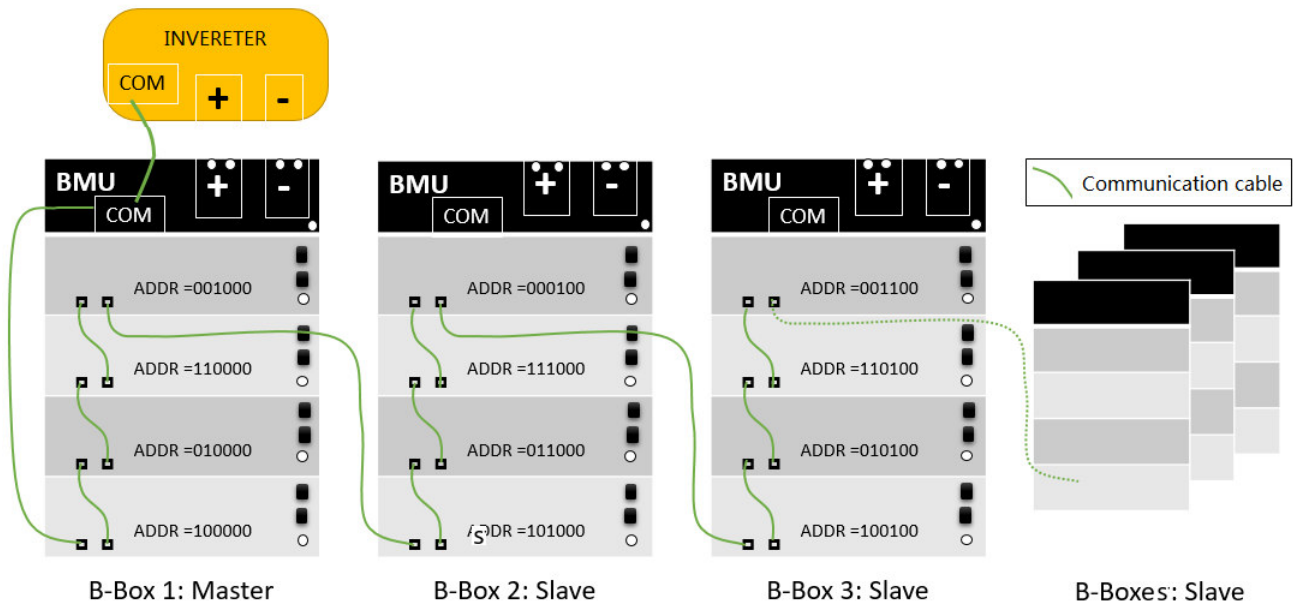
Address setting please according to the configuration list in **Appendix1**.

5.6 Connect to inverter

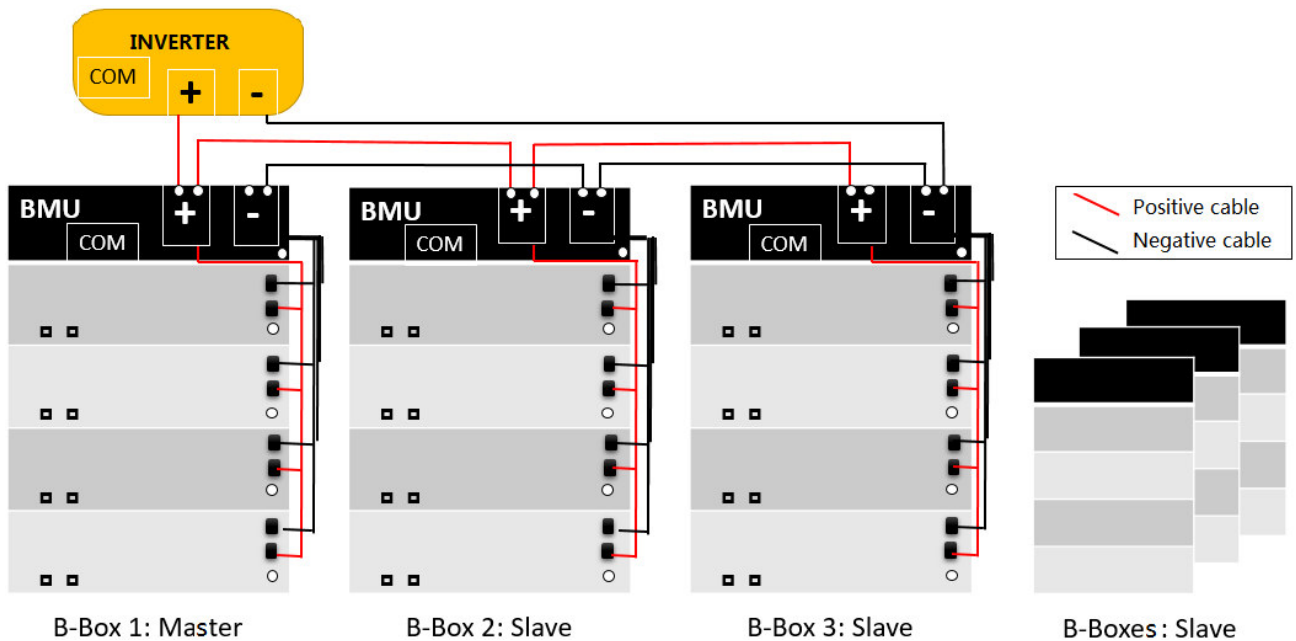
Tools: Cross screwdriver, Fixed torque: $25 \pm 2.5\text{Nm}$

5.6.1 CAN cable connection

When installer do "CAN" ports connections between B-BOX and inverter, please refer to below drawing.



5.6.2 Power cable connection



6 Start system

Notice : Before activity the system, operator should check the cable connection strictly till make sure of the cable connection is hard, and check the batteries address had been setup correctly.

6.1 System activity procedures when B-BOX connect to SMA Sunny island:

- i. Press the all the "Reset" button on front panel of B-Plus 2.5;

Tips: Press "Reset" button one second can start B-Plus;

Once start, the LED lights of B-Plus 2.5 will be in different status according battery status as below:

LED status when normal start

Item	LED	Status
1	Run	Green
2	SOC	More than one is green. Slow blink is charging and Fast blink is discharging.
3	ERROR	OFF
4	Alarm	OFF

Remark:

Slow blink: Indicator light is on and off every 1s (0.5Hz).

Fast blink: indicator light is on and off every 0.25s(2HZ)

SOC status and indicate

Item	Status	Indicate
1	Four lights are all normally on	Capacity is 100%-75% (including)
2	The last three lights are normally on	Capacity is 74%-50% (including)
3	The last two lights are normally on	Capacity is 49%-25% (including)
4	The last one light is normally on	Capacity is 24%-0% (including)

ii. **Switching on the Sunny Island**

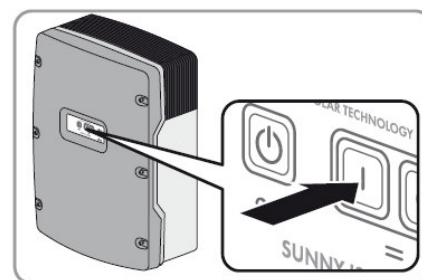
Requirements: ☐ The load-break switch in the DC cable must be closed. ☐ The Sunny Island must not have switched itself.

Procedure:

• For systems with one Sunny Island, press the "On" button on the Sunny Island. • For systems with up to three Sunny Island inverters, press and hold the "On" button on the master until an acoustic signal sounds.

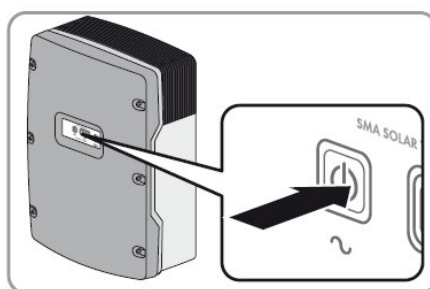
• For multicluster systems, press and hold the "On" button on each master until an acoustic signal sounds.

☒ The inverter LED on each Sunny Island inverter is glowing orange and the Sunny Island inverters are in standby.



- i. Start the inverter;

Requirement: ☐ All Sunny Island inverters must be switched on.



Procedure:

- Press the start-stop button on the Sunny Island and hold it until an acoustic signal sounds. **or** Press and hold the button on the Sunny Remote Control until an acoustic signal sounds. ☑ The inverter LED on each Sunny Island is glowing green.
- ii. System start;
- iii. Set up battery parameters on SRC of inverter.

Please refer to the “Battery Parameter setting” table in Appendix 2;

- iv. System running;

6.2 System activity procedures when B-BOX connect to GOODWE ES/BP:

- i. Download the APP on user’s cell phone and open the home page;
- ii. Press the all the “Reset” button on front panel of B-Plus 2.5;

Tips: Press one second can start B-Plus;

Once start, the LED lights of B-Plus 2.5 will be in different status according battery status as below:

LED status when normal start

Item	LED	Status
1	Run	Green
2	SOC	More than one is green. Slow blink is charging and Fast blink is discharging.
3	ERROR	OFF
4	Alarm	OFF

Remark:

Slow blink: Indicator light is on and off every 1s (0.5Hz).

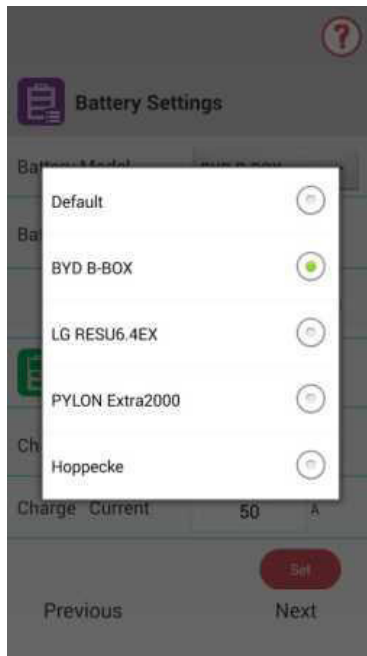
Fast blink: indicator light is on and off every 0.25s(2HZ)

SOC status and indicate

Item	Status	Indicate
1	Four lights are all normally on	Capacity is 100%-75% (including)
2	The last three lights are normally on	Capacity is 74%-50% (including)
3	The last two lights are normally on	Capacity is 49%-25% (including)

4	The last one light is normally on	Capacity is 24%-0% (including)
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- iii. Inverter activity;
- iv. Go to the home page of APP, enter into the Battery Setting page, select "BYD B-BOX" battery, then select "NEXT" until the last page, at last select "Start".



- i. System running;

7 Stopping the system

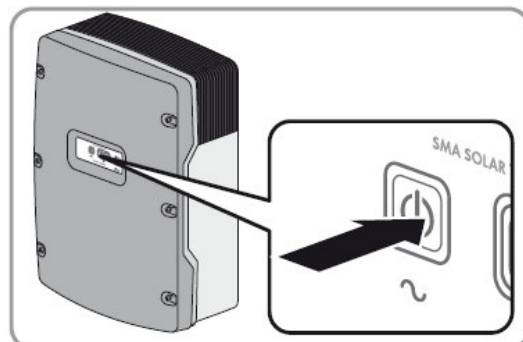
7.1 Stopping the system when B-BOX working with SMA SUNNY ISLAND

If you stop the system, the Sunny Island switches from operation into standby mode. In standby mode, the Sunny Island discharges the battery due to its standby consumption.

Tip: For longer shut-down periods, switch off the Sunny Island .

- i. Stopping the system

Procedure • Press and hold the start-stop button on the Sunny Island until the inverter LED is glowing orange. **or**
Press and hold the button on the Sunny Remote Control until the progress bar has run down.



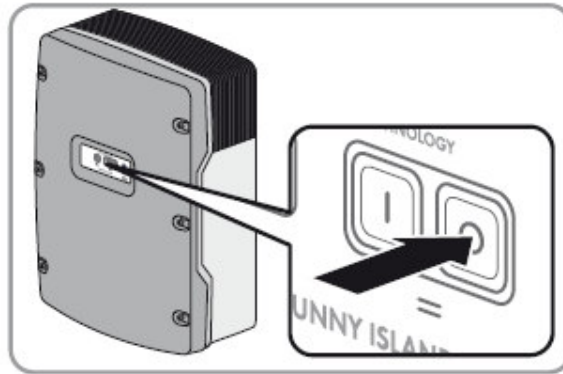
- ☑ The inverter LED on each Sunny Island is glowing orange. The Sunny Island inverters are in standby.

ii. Switching off the Sunny Island

Requirement: ☐ The system is stopped.

Procedure: • Press and hold the "Off" button on the Sunny Island until an acoustic signal sounds.

- ☑ The inverter LED is off on all Sunny Island inverters.



iii. Stopping the B-Plus 2.5;

Press all the "RESET" on front panel of B-Plus2.5 until all the led are off.

iv. The system stopping;

7.2 Stopping the system when B-BOX working with GOODWE inverter

- i. Disconnect the load from inverter;
- ii. Disconnect the solar panel from inverter;
- iii. Disconnect the AC grid from inverter;
- iv. Stopping the B-PLUS2.5: Press all the "RESET" on front panel of B-Plus2.5 until all the led are off;
- v. System stopping;

8 Normal alarm and solution for first installation

8.1 Normal alarm and solution display on SMA sunny island SRC

SMA SRC	Reason	Solution
F221	External Alarm-InvalidBatType	1.Reset battery type to "Li" on SRC.
F920(XA01General)	1.All the batteries are failed to communicate at the same time; 2.BMU and battery are failed to RS485communicate;	1.Inspect whether the RS485 communicate cable had been connected correctly and reliability; 2.Inspect DIP switch setting according to the DIP switch setting table in user manuel; 3.Change BMU in cabinet;
F930(XA11Short)	External Alarm - Short circuit	1.Power off; 2.Inspect short connection of cable between P+&P-; 3.If short connection is confirmed,please reconnect cable correctly; 4.restart battery;
F952	External Alarm - ExtBMSTimeout	1.Check the CAN communication,should connect well. 2.Change BMU.
W936(XW01General)	External Warning - General	1.Inspect whether the RS485 communicate cable had been connected correctly and reliability; 2.Inspect DIP switch setting according to the Address setting table;
W937(XW02DcHiVolt)	External Warning - Battery High Voltage	Normal alarm and do not need to deal with;
W938(XW03DcLoVolt)	External Warning - Battery Low Voltage	Normal alarm and do not need to deal with;
W939(XW04DcHiTmp)	External Warning - Battery High Temp	Normal alarm and do not need to deal with;
W940(XW05DcLoTmp)	External Warning - Battery Low Temp	Normal alarm and do not need to deal with;
W941(XW06DcHiTmpC)	External Warning - Battery High Temp Charge	Normal alarm and do not need to deal with;
W942(XW07DcLoTmpC)	External Warning - Battery Low Temp Charge	Normal alarm and do not need to deal with;
W943(XW08DcHiCur)	External Warning - Battery High Current	Normal alarm and do not need to deal with;
W944(XW09DcHiChgCur)	External Warning - Battery High Current Charge	Normal alarm and do not need to deal with;
W953	External Warning - ExtBMSTimeout	1.Check the CAN communication communication,should connect well. 2.Change BMU.

8.2 Normal alarm and solution display on B-Plus 2.5

	B-Plus display info	Reason	Solution
LED	Yellow led(Alarm) blinks for 0.5Hz , other led are on off continuously;	Battery power off abnormal;	1.Press "RESET" button for 2-3 secs untill battery can work normal; 2.If yellow blink continuously,need change battery;
	Yellow led(Alarm),Yellow led on and buzzing with 4 times.	Protected or external connection incorrect;	1.Power off the battery; 2.Inspect short/reverse connection of cable between P+&P-; 3.If short/reverse connection is confirmed,please reconnect cable correctly; 4.restart battery;
Buzzer	Buzzing for 4 times	Short/reverse connection ;	1.Power off; 2.Inspect short/reverse connection of cable between P+&P-; 3.If short/reverse connection is confirmed,please reconnect cable correctly; 4.restart battery;

Appendix 1 : Battery address setting list

Battery address setting list (from 1~32 batteries):

Battery No.	Address	Battery No.	Address
1	100000	17	100010
2	010000	18	010010
3	110000	19	110010
4	001000	20	001010
5	101000	21	101010
6	011000	22	011010
7	111000	23	111010
8	000100	24	000110
9	100100	25	100110
10	010100	26	010110
11	110100	27	110110
12	001100	28	001110
13	101100	29	101110
14	011100	30	011110
15	111100	31	111110
16	000010	32	000001

Appendix 2: Battery Parameter setting table for SMA

Battery Parameter setting table for B-BOX2.5:

Charging the battery Usage through battery backup system without increased self-consumption	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	50
262.01ProtResSOC	6
262.02BatResSOC	12
Charging the battery usage through battery backup system with increased self-consumption	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	50
261.01SlfCsmpIncEna	Enable
261.03Saisonenable	Yes
262.01ProtResSOC	3
262.02BatResSOC	2
262.03BuresSOC	0
262.04PVResSOC	5
262.05MinSlfCsmpSOC	70
Charging the battery usage through system for increased self-consumption without a battery backup grid	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	50
261.01SlfCsmpIncEna	Enable
261.03Saisonenable	Yes
262.01ProtResSOC	3
262.02BatResSOC	2
262.04PVResSOC	5
262.03BuresSOC	0
262.05MinSlfCsmpSOC	70
Charging the battery protection mode in off-grid system	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	50
223.05BatPro1Soc	18
223.06BatPro2Soc	12
223.07BatPro3Soc	6

Battery Parameter setting table for B-BOX5.0:

Charging the battery Usage through battery backup system without increased self-consumption	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	100
262.01ProtResSOC	3
262.02BatResSOC	6
Charging the battery usage through battery backup system with increased self-consumption	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	100
261.01SlfCsmpIncEna	Enable
261.03Saisonenable	Yes
262.01ProtResSOC	3
262.02BatResSOC	2
262.03BuresSOC	0
262.04PVResSOC	4
262.05MinSlfCsmpSOC	85
Charging the battery usage through system for increased self-consumption without a battery backup grid	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	100
261.01SlfCsmpIncEna	Enable
261.03Saisonenable	Yes
262.01ProtResSOC	3
262.02BatResSOC	2
262.04PVResSOC	4
262.03BuresSOC	0
262.05MinSlfCsmpSOC	85
Charging the battery protection mode in off-grid system	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	100
223.05BatPro1Soc	9
223.06BatPro2Soc	6
223.07BatPro3Soc	3

Battery Parameter setting table for B-BOX7.5:

Charging the battery Usage through battery backup system without increased self-consumption	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	150
262.01ProtResSOC	3
262.02BatResSOC	4
Charging the battery usage through battery backup system with increased self-consumption	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	150
261.01SlfCsmpIncEna	Enable
261.03Saisonenable	Yes
262.01ProtResSOC	3
262.02BatResSOC	2
262.03BuresSOC	0
262.04PVResSOC	4
262.05MinSlfCsmpSOC	85
Charging the battery usage through system for increased self-consumption without a battery backup grid	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	150
261.01SlfCsmpIncEna	Enable
261.03Saisonenable	Yes
262.01ProtResSOC	3
262.02BatResSOC	2
262.04PVResSOC	4
262.03BuresSOC	0
262.05MinSlfCsmpSOC	85
Charging the battery protection mode in off-grid system	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	150
223.05BatPro1Soc	9
223.06BatPro2Soc	6
223.07BatPro3Soc	3

Battery Parameter setting table for B-BOX10.0:

Charging the battery Usage through battery backup system without increased self-consumption	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	200

262.01ProtResSOC	3
262.02BatResSOC	4
Charging the battery usage through battery backup system with increased self-consumption	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	200
261.01SlfCsmpIncEna	Enable
261.03Saisonenable	Yes
262.01ProtResSOC	3
262.02BatResSOC	2
262.03BuresSOC	0
262.04PVResSOC	4
262.05MinSlfCsmpSOC	85
Charging the battery usage through system for increased self-consumption without a battery backup grid	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	200
261.01SlfCsmpIncEna	Enable
261.03Saisonenable	Yes
262.01ProtResSOC	3
262.02BatResSOC	2
262.04PVResSOC	4
262.03BuresSOC	0
262.05MinSlfCsmpSOC	85
Charging the battery protection mode in off-grid system	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	200
223.05BatPro1Soc	9
223.06BatPro2Soc	6
223.07BatPro3Soc	3



User Manual

B-Box 2.5~10.0

20160611

Version: 1.1

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1 INFORMATION IN THIS MANUAL

1.1 About this manual

This user manual introduces the B-Box product information, using guidance, safety caution items and normal failure and actions can be done by user. When using the B-BOX, if had any abnormal failure or urgent occurs, please contact with the after service center.

1.2 Target Group

This user manual applies for the B-BOX 2.5, B-BOX 5.0, B-BOX 7.5, B-BOX 10.0.

1.3 Intend usage

The B-BOX can be used in household energy storage application ,includes on/off grid system. When B-BOX works with different inverter, user should refer to the configuration list with different inverters which are suggested by BYD.

1.4 B-BOX&B-Plus definition

BYD battery box products- B-Box2.5~B-Box10.0 are defined as below:

B-Box: Battery-Box

B-Plus2.5: battery unit with nominal capacity is 2.56Kwh, Will be installed inside the cabinet as an energy storage module.

B-Box2.5: Battery nominal capacity is 2.56 Kwh (Includes 1pcs B-Plus 2.5)

B-Box 5.0: Battery nominal capacity is 5.12 Kwh (Includes 2pcs of B-Plus 2.5)

B-Box 7.5: Battery nominal capacity is 7.68 Kwh (Includes 3pcs of B-Plus 2.5)

B-Box 10.0: Battery nominal capacity is 10.24 Kwh (Includes 4pcs of B-Plus 2.5)

1.5 Identifying The Product

The Type Label describe the product identity and attached on the product. For safe usage, the user must be well-informed of the contents in the Type Label. The Type Label includes:

Product Name:

Product Type:

Rated output voltage:

Rated current:

Operation temperature range:

Serial Number (P/N No.):

Caution:

Certification marks:

2 SAFETY

2.1 Safety precaution

Warning, notice and caution

Users are kindly requested to use the battery which is delivered from BYD COMPANY LIMITED in strict accordance with the Datasheet and remarks include at the end of the document.

BYD COMPANY LIMITED will not guarantee against any accidents occurring due to use outside those written in this Datasheet.

WARNING

Do not crush, Dispose according to safety regulations (Do not dispose in fire or water).

Recharge Battery at least every 6 months (incl. when in storage).

Once discharged, recharge battery within 48 hours.

Do not expose to temperatures above 55°C.

Must be grounded correctly. Do not put front panel face down.

Do not short, reverse polarity or connect in series.

Disconnect from power and load before maintenance.

May only be used by qualified professionals.

NOTICE

Inadvertent operation of damaged B-Box can lead to a hazard situation that may result in serious injury due to electrical shock. Only can operate B-Box when it is technically faultless and in an operationally safe state.

Regularly check the B-Box for visible damage. Make sure that all safety equipment is freely accessible at all time. If B-Box is damaged, do not touch it.

Please contact your after sale service if a significant event message is shown on LCD or APP of inverter, please immediately contact your after service center.

CAUTION

Li-ion battery inside, when disassemble the system, do not intentionally short the positive(+) and negative(-) terminals with metallic objects.

All works on system and electrical connections must be carried out by qualified personnel only. B-Box provide a emergency switch when urgent things happen.

A potentially hazard circumstance such as excessive heat or electrolyte mist may occur due to incorrect operation, damage, abuse. The safety precautions and the warning messages described are not fully understood, or if you have any questions, please contact after service for guidance. The safety section may not include all regulations for your locale.

Personnel working with B-Box must review applicable federal, state and local regulations as well as the industry standards regarding this product.

When transport the system with package type, remove the battery from cabinet and transport them separately.

2.2 Safety guidelines for installation

CAUTION:

Li-Ion battery (energy storage unit) inside. When assembling the system, do not intentionally make a short condition between the positive (+) and negative (-) terminals of the battery box with a metallic object.

All work on the B-Box and electrical connections must be carried out by qualified personnel only. B-Box provides a safe source of electrical energy when operated as intended and as designed.

Potentially hazardous circumstances such as excessive heat or electrolyte mist may occur under improper operating conditions, damage, misuse and/or abuse. The following safety precautions and the warning messages described in this section must be observed. If any of the following precautions are not fully understood, or if you have any questions, contact Customer Support for guidance. The Safety Section may not include all regulations for your locale; personnel working with B-Box must review applicable federal, state and local regulations as well as the industry standards regarding this product.

Installation personnel can not wear watches, etc., to avoid short circuit and human damage.



CAUTION:

Due to high weight of BYD B-Box 2.5~10.0, please use hard package and do safety protection when transport, please also pay attention to the safety to avoid human damage.

3 TECHNICAL PARAMETERS

	B-Box 2.5	B-Box 5.0	B-Box 7.5	B-Box 10.0
Battery Type	Lithium Iron phosphate battery			
Battery module type	B-Plus2.5			
Rated battery energy (0.2C charge & discharge at @+25°C)	2.56 kWh	5.12 kWh	7.68 kWh	10.24 kWh
Output power	Max 2.5 KW	Max 5.0 KW	Max 7.5 KW	Max 10.0 KW
Usable battery energy	2.45 kWh	4.91 kWh	7.37 kWh	9.83 kWh
Nominal voltage	51.2V			
Charging efficiency	99			
Working voltage range	44.8V-57.6V			
Communication	RS485/CAN			
Cabinet Net Dimension	Width 600* depth 600* mm height 1000 (Without ground feet)			
Net Weight	78Kg	116Kg	154Kg	192Kg
IP level	IP20			

When B-BOX works in different temperature, charge and discharge current will be adjusted automatically, detail parameters setting please refer to below table:

Parameter setting of charge current in various temperature	
Protect temp./Resume temp.(°C)	Normal current(A)
-7~2	0.06C*N

2~12	0.12C*N
12~55	0.7C*N
Remark: 1.Effective time is 2mins when change from one temperature range to another.) 2.N=B-Plus2.5 battery quantity	
Discharge current control with temperature	
Protect temp./Resume temp.(°C)	Normal current(A)
-20~60/(-15-55)	0.7C*N
Remark: 1.N= B-Plus2.5 U battery quantity	

4 TECHNICAL NOUN EXPLANATION

No.	Terms	comment
1	Discharge	Battery output power to load or other equipment
2	Charge	Battery get power from power supply(such as DC charger)
3	Full charged	Battery had been full charged, SOC is 100%.
4	Idle	Battery is on status of neither charge nor discharge and had not full charged.
5	Shutdown mode	Power off
6	SOC	Status of capacity
7	SW	Software
8	HW	Hardware
9	Battery voltage	The voltage between B+/B-
10	Pack voltage	The voltage between P+/P-
11	Cell voltage	single cell voltage
12	Failure	Battery or BMS are broken, to need change new unit
13	Alarm	Battery will stop charge or discharge immediately
14	Protect	Battery stop charge or discharge (e.g cell is over voltage), and it is resumable.

5 PRODUCT OVERVIEW

5.1 B-BOX System Brief introduction

B-Box is short name of battery box, as the energy storage part in the electric power system in household, the box carries BYD's lithium ferrum battery with excellent performance. There are 1/2/3/4 pcs batteries modules in each box, and the box support parallel connection to expend capacity from 2.5Kwh to 80Kwh, can meet various capacity requirement from users.

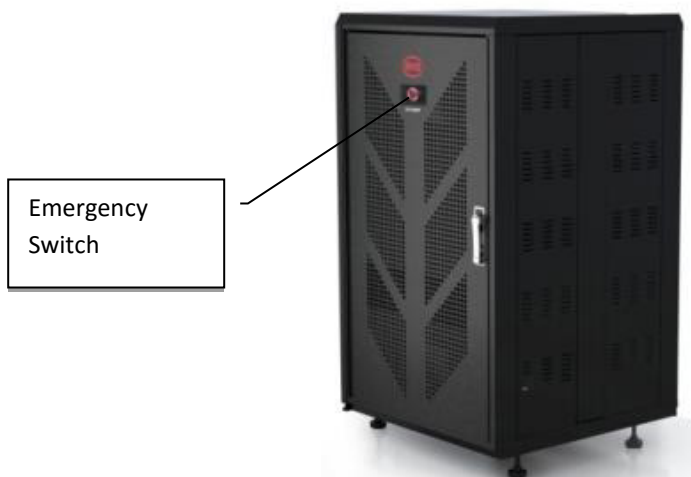


Figure 1 External drawing



Figure 2 Internal drawing

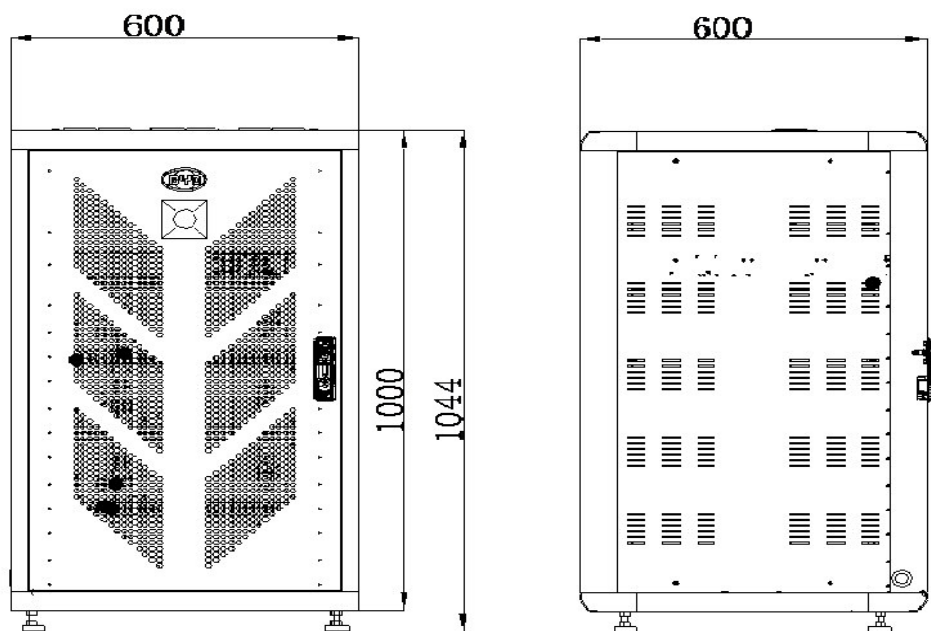


Figure 3 Structure dimension drawing (Without ground feet)

5.2 B-BOX configuration table

No.	Component	Name	Description
1	Cabinet	B-Box Cabinet	The Cabinet to install the B-Plus 2.5 inside and provide DC output(Each cabinet can install max 4pcs B-Plus2.5)
2	Battery	B-Plus2.5	Battery module with 51.2V50Ah, BYD's P/N is: U3A1-50P-A.
3	BMU	BMU	Battery management unit. Provide communication with external equipment.
4	Emergency switch	Emergency switch	Cut off the power in emergency case.

Table 1 configuration list

5.3 B-BOX System diagram

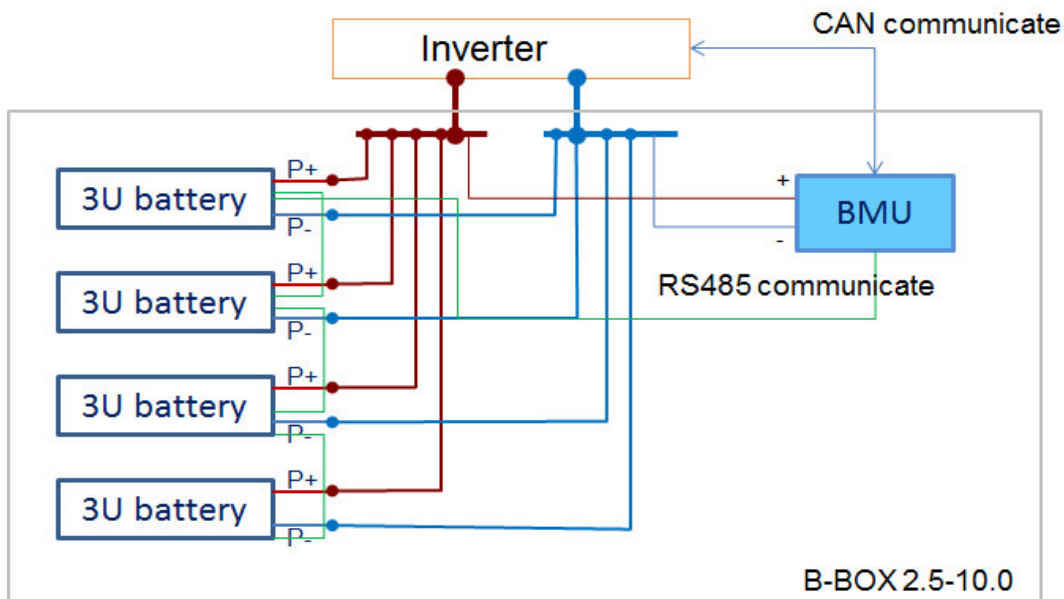


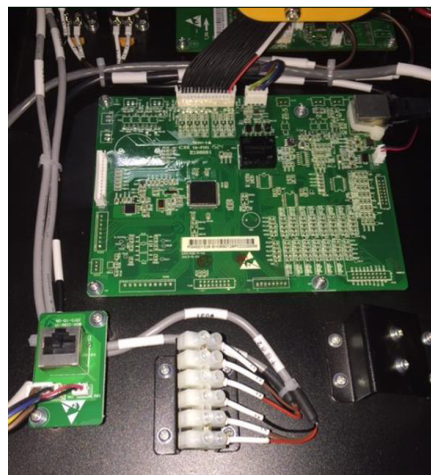
Figure 4 System diagram

5.4 General introduction of BMU

BMU is battery management unit which installed in cabinet, it as a function part in B-BOX system to manage the battery's charge and discharge, select information from battery and report to inverter.

Main function:

- ✓ CAN /RS485Communicate with inverter
- ✓ RS485 communicate with battery/BMS
- ✓ Dry contact terminal
- ✓ Other Communication interface for maintenance
- ✓ Charge and discharge management



5.5 General introduction of B-Plus 2.5

5.5.1 B-Plus 2.5 brief introduction

B-Plus is the commercial name of BYD U3A1-50P-A backup battery with 51.2V& 50Ah which is designed for energy storage application. B-Plus 2.5 is an integrated battery which consist of shell, BMS and cells.



Figure 5 B-Plus 2.5 overview

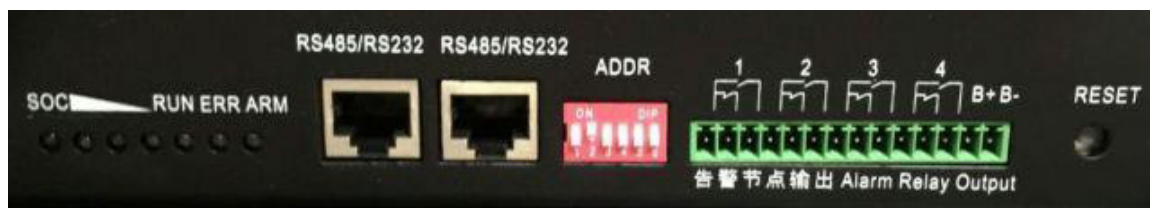


Figure 6 Display and communicate interface

Table 3 Display and communicate interface

No.	Interface	Mark	Function
①	SOC LED	SOC	Indicate State of capacity of battery
②	RUN LED	RUN	Indicate the Plus is running status
③	ERR LED	ERR ADDR	Indicate error status
④	Alarm LED	Alarm	Indicate alarm status
⑤	RJ45 terminal	RS232/RS485	Communication ports
⑥	Address	ADDR	When parallel connection, need setting address.
⑦	Alarm relay output	1.2.3.4	Dry contact application, output alarm info.
⑧	Test terminal	B- B+	Measure battery voltage when testing.
⑨	Reset	RESET	Activity battery when no external power add on battery.

5.6 Battery technical parameters

5.6.1 Charge & Discharge performance parameters

Table 4 Charging parameters

No.	Item	Requirement			Unit	Remark
		Min.	Max.	Typical		
1	Charge voltage (equalized charge)		58.5 (protect level)	56.5	V(DC)	
	Charge voltage (floating charge)	54.4		55.2	V(DC)	
2	Charge current	0	50	25	A	-10 °C ~0 °C recommend charge current is 5A 0 °C ~10 °C recommend charge current is 12.5A. 10 °C ~60 °C recommend charge current is 50A.

Table 5 Discharging parameters

No.	Item	Requirement			Unit	Remark
		Min.	Max.	Typical		
1	Discharge voltage	40	58	51.2	V(DC)	
2	Discharge current		60		A	

5.6.2 Operating environment

Table 6 Operating environment parameters

No.	Item	Requirement			Unit	Remark
		Min.	Typical	Max.		
1	Discharging temperature	-20	25	60	°C	
2	Charging temperature	-10	25	60	°C	
3	Relative humidity	5		95	%	
4	Absolute humidity	0.26		25	g/m ³	
5	Elevation	-	2000	-	m	

6	Cooling	Do not need peripheral cooling equipment
7	IP level	20
8	Storage and Temperature	When storage temperature is 25°C, should charge-discharge battery at least one cycle every 12 months or charge battery according to the "NEXT CHARGE" label in package.
		When storage temperature is 35°C, should charge-discharge battery at least one cycle every 6 months.
		When storage temperature is 45°C, should charge-discharge battery at least one cycle every 3 months.
9	Low voltage maintenance	Must charge the battery within 15 days at the conditions of battery exit the system automatic cause by low voltage protection with working temperature is 25°C.
		Must charge the battery within 7days at the conditions of battery exit the system automatic cause by low voltage protection with working temperature is 45°C.

5.7 B-Plus 2.5 address switch introduction

After finish the battery installation, installer should setup battery address by "ADDR" switch.

"ADDR" switch introduction:

Function: Communicate between battery and BMU, BMU will communication with external equipment when using CAN communication.

Each DIP switch definition:

There are 6 bit switches, keep the switch on down side means "0", turn up the switch to "ON" means "1".



Address: 000000



Address:100000

For example: when two battery in using, "ADDR" setting:



No.1 battery address:100000



No.2 battery address:010000

Address setting please according to the configuration list in **Appendix1**.

6 START SYSTEM

Notice : Before activity the system, operator should check the cable connection strictly till make sure of the cable connection is hard, and check the batteries address had been setup correctly.

6.1 System activity procedures when B-BOX connect to SMA Sunny island:

- i. Press the all the "Reset" button on front panel of B-Plus 2.5;

Tips: Press "Reset" button one second can start B-Plus;

Once start, the LED lights of B-Plus 2.5 will be in different status according battery status as below:

LED status when normal start

Item	LED	Status
1	Run	Green
2	SOC	More than one is green. Slow blink is charging and Fast blink is discharging.
3	ERROR	OFF
4	Alarm	OFF

Remark:

Slow blink: Indicator light is on and off every 1s (0.5Hz).

Fast blink: indicator light is on and off every 0.25s(2HZ)

SOC status and indicate

Item	Status	Indicate
1	Four lights are all normally on	Capacity is 100%-75% (including)
2	The last three lights are normally on	Capacity is 74%-50% (including)
3	The last two lights are normally on	Capacity is 49%-25% (including)
4	The last one light is normally on	Capacity is 24%-0% (including)

ii. Switching on the Sunny Island

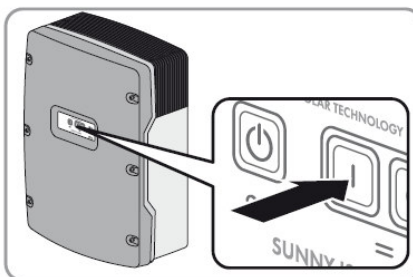
Requirements: ☐ The load-break switch in the DC cable must be closed. ☐ The Sunny Island must not have switched itself.

Procedure:

- For systems with one Sunny Island, press the "On" button on the Sunny Island.
- For systems with up to three Sunny Island inverters, press and hold the "On" button on the master until an acoustic signal sounds.

- For multicluster systems, press and hold the "On" button on each master until an acoustic signal sounds.

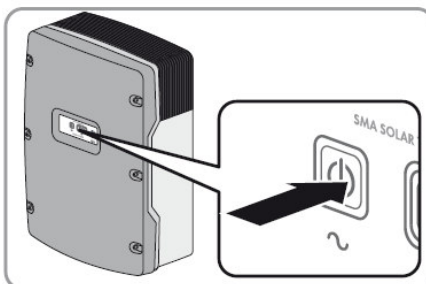
☒ The inverter LED on each Sunny Island inverter is glowing orange and the Sunny Island inverters



are in standby.

i. Start the inverter;

Requirement: ☐ All Sunny Island inverters must be switched on.



Procedure:

- Press the start-stop button on the Sunny Island and hold it until an acoustic signal sounds. **or** Press and hold the button on the Sunny Remote Control until an acoustic signal sounds. ☒ The inverter LED on each Sunny Island is glowing green.

ii. System start;

iii. Set up battery parameters on SRC of inverter.

Please refer to the "Battery Parameter setting" table in Appendix 2;

iv. System running;

6.2 System activity procedures when B-BOX connect to GOODWE ES/BP:

i. Download the APP on user's cell phone and open the home page;

ii. Press the all the "Reset" button on front panel of B-Plus 2.5;

Tips: Press one second can start B-Plus;

Once start, the LED lights of B-Plus 2.5 will be in different status according battery status as below:

LED status when normal start

Item	LED	Status
1	Run	Green
2	SOC	More than one is green. Slow blink is charging and Fast blink is discharging.
3	ERROR	OFF
4	Alarm	OFF

Remark:

Slow blink: Indicator light is on and off every 1s (0.5Hz).

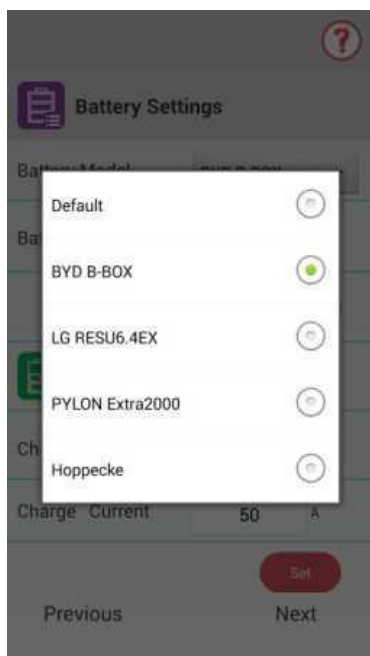
Fast blink: indicator light is on and off every 0.25s(2HZ)

SOC status and indicate

Item	Status	Indicate
1	Four lights are all normally on	Capacity is 100%-75% (including)
2	The last three lights are normally on	Capacity is 74%-50% (including)
3	The last two lights are normally on	Capacity is 49%-25% (including)
4	The last one light is normally on	Capacity is 24%-0% (including)

iii. Inverter activity;

iv. Go to the home page of APP, enter into the Battery Setting page, select "BYD B-BOX" battery, then select "NEXT" until the last page, at last select "Start".



i. System running;

7 STOPPING THE SYSTEM

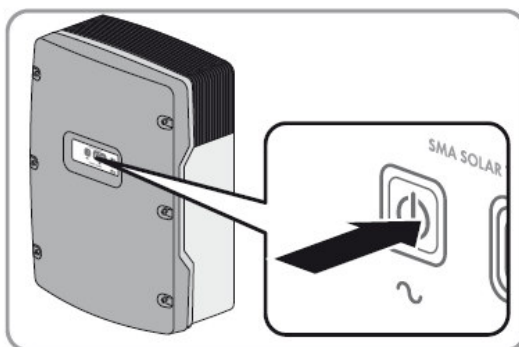
7.1 Stopping the system when B-BOX working with SMA SUNNY ISLAND

If you stop the system, the Sunny Island switches from operation into standby mode. In standby mode, the Sunny Island discharges the battery due to its standby consumption.

Tip: For longer shut-down periods, switch off the Sunny Island .

i. Stopping the system

Procedure • Press and hold the start-stop button on the Sunny Island until the inverter LED is glowing orange. **or** Press and hold the button on the Sunny Remote Control until the progress bar has run down.



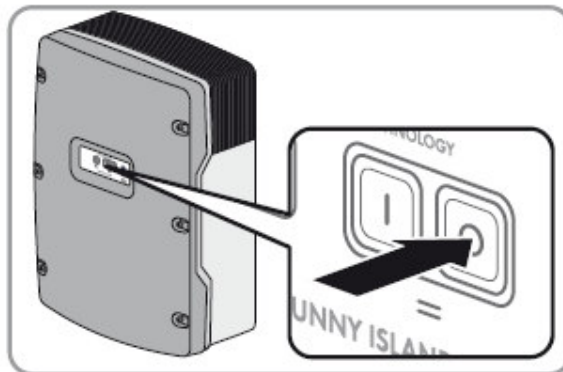
☑ The inverter LED on each Sunny Island is glowing orange. The Sunny Island inverters are in standby.

ii. Switching off the Sunny Island

Requirement: ☐ The system is stopped.

Procedure: • Press and hold the "Off" button on the Sunny Island until an acoustic signal sounds.

☑ The inverter LED is off on all Sunny Island inverters.



iii. Stopping the B-Plus 2.5;

Press all the "RESET" on front panel of B-Plus2.5 until all the led are off.

iv. The system stopping;

7.2 Stopping the system when B-BOX working with GOODWE inverter

i. Disconnect the load from inverter;

ii. Disconnect the solar panel from inverter;

iii. Disconnect the AC grid from inverter;

iv. Stopping the B-PLUS2.5: Press all the "RESET" on front panel of B-Plus2.5 until all the led are off;

v. System stopping;

8 CLEANING AND MAINTENANCE

8.1 Cleaning



CAUTION:

When user need cleaning the B-BOX, please stopping the system first.

The B-BOX system is recommended to be cleaned periodically. If the enclosure is in a dirty condition, please use a soft and dry brush or a vacuum to remove the dirt.

Do not use liquids such as solvents, abrasives or corrosive liquids in the enclosures.

8.2 Maintenance

The B-BOX should be installed in position with temperature range of $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$. And the humidity is less than 80%. The load-bearing of battery's package is less than 300Kg. So don't let 7 modules in stack.

The capacity of module before delivery is 70% (35AH). So after long time storage the module need do maintenance. Charge battery with 0.1C (5A) for 5 hours when maintenance. Detail information please check table 10.

Table 10 Maintenance time

Temperature	Months
25°C	12
35°C	6
45°C	3

When module over discharged to 37.5V. The module will damaged after several days if do not charge the module in time, so Detail information please check table 11.

Table 11 Left time after Over discharged to 37.5V

Temperature	Left time
25°C	15 days
45°C	7 days

9 DISPOSE SPECIAL SITUATION

9.1 Battery over discharged maintenance

When battery over discharge which may caused by black out, continuously rainy day.,etc, the battery can provide energy is limited, user should pay attention to the backup time of the battery, please refer to "Item 9" in table 6.

9.2 Catastrophic accidents

Catastrophic accidents, including lightning, floods, earthquakes, fires and other disasters, can bring unpredictable damage to the whole system.

10 BOX CONFIGURATION LIST WITH DIFFERENT INVERTER

10.1 B-BOX configuration list with SMA sunny island

1 Phase on Grid		
Inverter Type	B-Plus 2.5	Cabinet
SI 3.0M	≥1	≥1
SI 4.4M	≥1	≥1
SI 6.0H	≥1	≥1
SI 8.0H	≥1	≥1
3 Phase on Grid		
Inverter Type	B-Plus 2.5	Cabinet
SI 3.0M	≥3	≥1
SI 4.4M	≥4	≥1
SI 6.0H	≥4	≥1
SI 8.0H	≥4	≥1
1 Phase off Grid		
Inverter Type	B-Plus 2.5	Cabinet
SI 3.0M	≥3	≥1
SI 4.4M	≥3	≥1
SI 6.0H	≥5	≥2
SI 8.0H	≥5	≥2
3 Phase off Grid		
Inverter Type	B-Plus 2.5	Cabinet
SI 3.0M	≥8	≥2
SI 4.4M	≥8	≥2
SI 6.0H	≥12	≥3
SI 8.0H	≥12	≥3

Remark: Maximum B-Plus quantity is 32,Cabinet quantity is 8.

10.2 B-BOX configuration list with GOODWE ES inverter

1 Phase on Grid		
Inverter Type	B-Plus 2.5	Cabinet
4.6kW	$\geq 1^1$	≥ 1
1 Phase off Grid		
Inverter Type	B-Plus 2.5	Cabinet
4.6kW	≥ 2	≥ 1

Remark: Maximum B-Plus quantity is 32,Cabinet quantity is 8.

11 NORMAL ISSUES AND SOLUTIONS

11.1 Normal alarm and solution display on SMA sunny island SRC

SMA SRC	Reason	Solution
F221	External Alarm-Invalid BatType	1.Reset battery type to "Li" on SRC.
F920(XA01General)	1.All the batteries are failed to communicate at the same time; 2.BMU and battery are failed to RS485communicate;	1.Inspect whether the RS485 communicate cable had been connected correctly and reliability ; 2.Inspect DIP switch setting according to the DIP switch setting table in user manual; 3.Change BMU in cabinet;
F930(XA11Short)	External Alarm - Short circuit	1.Power off; 2.Inspect short connection of cable between P+&P-; 3.If short connection is confirmed, please reconnect cable correctly; 4.restart battery;
F952	External Alarm –ExtBMS Timeout	1.Check the CAN communication, should connect well. 2.Change BMU.
W936(XW01General)	External Warning - General	1.Inspect whether the RS485 communicate cable had been connected correctly and reliability ; 2.Inspect DIP switch setting according to the

¹ This configuration is only for self consumption application.

		Address setting table;
W937(XW02DcHiVolt)	External Warning - Battery High Voltage	Normal alarm and do not need to deal with;
W938(XW03DcLoVolt)	External Warning - Battery Low Voltage	Normal alarm and do not need to deal with;
W939(XW04DcHiTmp)	External Warning - Battery High Temp	Normal alarm and do not need to deal with;
W940(XW05DcLoTmp))	External Warning - Battery Low Temp	Normal alarm and do not need to deal with;
W941(XW06DcHiTmp C)	External Warning - Battery High Temp Charge	Normal alarm and do not need to deal with;
W942(XW07DcLoTmp C)	External Warning - Battery Low Temp Charge	Normal alarm and do not need to deal with;
W943(XW08DcHiCur)	External Warning - Battery High Current	Normal alarm and do not need to deal with;
W944(XW09DcHiChg Cur)	External Warning - Battery High Current Charge	Normal alarm and do not need to deal with;
W953	External Warning – ExtBMS Timeout	1.Check the CAN communication, should connect well. 2.Change BMU.

11.2 Normal alarm and solution display on B-Plus 2.5

	B-Plus display info	Reason	Solution
LED	Yellow led(Alarm) blinks for 0.5Hz , other led are on off continuously;	Battery power off abnormal;	1.Press "RESET" button for 2-3 secs untill battery can work normal; 2.If yellow blink continuously, need change battery;
	Yellow led(Alarm),Yellow led on and buzzing with 4 times.	Protected or external connection incorrect;	1.Power off the battery; 2.Inspect short/reverse connection of cable between P+&P-; 3.If short/reverse connection is confirmed, please reconnect cable correctly; 4.restart battery;
Buzzer	Buzzing for 4 times	Short/reverse connection ;	1.Power off; 2.Inspect short/reverse connection of cable between P+&P-; 3.If short/reverse connection is confirmed, please reconnect cable correctly; 4.restart battery;

12 WARRANTY

BYD provide warranty when this product is installed and used according to description in user manual, installation manual and warranty letter.

13 LOGIN IN AFTER SERVICE WEB

In order to get after service in time, after installation, please login your B-BOX information in our after service operator web:

<http://www.eft-systems.de/de/login>

14 CONTACT

For technical problems or inquiries for usage, please contact our installation company.

To receive customer support, the following information is required.

Product type
Serial Number
Connected PV module type and number
Option equipment
Detailed description with pictures of the support case and system
Any using problem please contact us by below address:

Contact us:

China

BYD LITHIUM BATTERY Co.,LTD

Customer Service Mailbox: eubatterygrp@byd.com

Telephone: +86 0755 89888888

Address: No.1, Baoping Road, Baolong Industrial Town Longgang Shenzhen, 518116, P.R.China

Germany

EFT Energy for tomorrow

Customer Service Mailbox: kontakt@eft-systems.de

Telephone : +49-9352 8523999

Germany

Austrila

Alps Power Pty Ltd

Customer Service Mailbox: leol@alpspower.com.au

Telephone : +61478 140 287

Address : U201 15Chatham Road West RydeNSW 2114 Australia

APPENDIX 1 : BATTERY ADDRESS SETTING LIST

Battery address setting list (from 1~32 batteries):

Battery No.	Address	Battery No.	Address
1	100000	17	100010
2	010000	18	010010
3	110000	19	110010
4	001000	20	001010
5	101000	21	101010
6	011000	22	011010
7	111000	23	111010
8	000100	24	000110
9	100100	25	100110
10	010100	26	010110
11	110100	27	110110
12	001100	28	001110
13	101100	29	101110
14	011100	30	011110
15	111100	31	111110
16	000010	32	000001

APPENDIX 2 : BATTERY PARAMETER SETTING TABLE FOR SMA

Battery Parameter setting table for B-BOX2.5:

Charging the battery Usage through battery backup system without increased self-consumption	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	50
262.01ProtResSOC	6
262.02BatResSOC	12
Charging the battery usage through battery backup system with increased self-consumption	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	50
261.01SlfCsmpIncEna	Enable
261.03Saisonenable	Yes
262.01ProtResSOC	3
262.02BatResSOC	2
262.03BuresSOC	0
262.04PVResSOC	5
262.05MinSlfCsmpSOC	70
Charging the battery usage through system for increased self-consumption without a battery backup grid	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	50
261.01SlfCsmpIncEna	Enable
261.03Saisonenable	Yes
262.01ProtResSOC	3
262.02BatResSOC	2
262.04PVResSOC	5
262.03BuresSOC	0
262.05MinSlfCsmpSOC	70
Charging the battery protection mode in off-grid system	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	50
223.05BatPro1Soc	18
223.06BatPro2Soc	12
223.07BatPro3Soc	6

Battery Parameter setting table for B-BOX5.0:

Charging the battery Usage through battery backup system without increased self-consumption	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	100
262.01ProtResSOC	3
262.02BatResSOC	6
Charging the battery usage through battery backup system with increased self-consumption	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	100
261.01SlfCsmplncEna	Enable
261.03Saisonenable	Yes
262.01ProtResSOC	3
262.02BatResSOC	2
262.03BuresSOC	0
262.04PVResSOC	4
262.05MinSlfCsmpSOC	85
Charging the battery usage through system for increased self-consumption without a battery backup grid	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	100
261.01SlfCsmplncEna	Enable
261.03Saisonenable	Yes
262.01ProtResSOC	3
262.02BatResSOC	2
262.04PVResSOC	4
262.03BuresSOC	0
262.05MinSlfCsmpSOC	85
Charging the battery protection mode in off-grid system	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	100
223.05BatPro1Soc	9
223.06BatPro2Soc	6
223.07BatPro3Soc	3

Battery Parameter setting table for B-BOX7.5:

Charging the battery Usage through battery backup system without increased self-consumption	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	150
262.01ProtResSOC	3
262.02BatResSOC	4
Charging the battery usage through battery backup system with increased self-consumption	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	150
261.01SlfCsmplncEna	Enable
261.03Saisonenable	Yes
262.01ProtResSOC	3
262.02BatResSOC	2
262.03BuresSOC	0
262.04PVResSOC	4
262.05MinSlfCsmpSOC	85
Charging the battery usage through system for increased self-consumption without a battery backup grid	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	150
261.01SlfCsmplncEna	Enable
261.03Saisonenable	Yes
262.01ProtResSOC	3
262.02BatResSOC	2
262.04PVResSOC	4
262.03BuresSOC	0
262.05MinSlfCsmpSOC	85
Charging the battery protection mode in off-grid system	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	150
223.05BatPro1Soc	9
223.06BatPro2Soc	6
223.07BatPro3Soc	3

Battery Parameter setting table for B-BOX10.0:

Charging the battery Usage through battery backup system without increased self-consumption	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	200
262.01ProtResSOC	3
262.02BatResSOC	4
Charging the battery usage through battery backup system with increased self-consumption	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	200
261.01SlfCsmplncEna	Enable
261.03Saisonenable	Yes
262.01ProtResSOC	3
262.02BatResSOC	2
262.03BuresSOC	0
262.04PVResSOC	4
262.05MinSlfCsmpSOC	85
Charging the battery usage through system for increased self-consumption without a battery backup grid	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	200
261.01SlfCsmplncEna	Enable
261.03Saisonenable	Yes
262.01ProtResSOC	3
262.02BatResSOC	2
262.04PVResSOC	4
262.03BuresSOC	0
262.05MinSlfCsmpSOC	85
Charging the battery protection mode in off-grid system	
Parameters	Setup value
003.07Batt Typ	Li Lon_Ext-BMS
003.10Batt Cpynom	200
223.05BatPro1Soc	9
223.06BatPro2Soc	6
223.07BatPro3Soc	3