

# INSTALLATION & OPERATION MANUAL ENERGY STORAGE SYSTEM (ESS) **SMILE-B3**



## Copyright Statement

The copyright of this manual is owned by Alpha ESS Co., Ltd. (hereinafter referred to as "AlphaESS") and all rights are reserved. Please keep the manual properly and operate strictly according to all safety and operation instructions in this manual. Do not operate the system before reading the manual.

## Version Information

Version	Date	Content
V01	Nov. 30th, 2018	Newly compiled manual.
V02	Dec. 5th, 2018	Modified the connection diagram of meters. Added the notice of external connection of backup and grid neutral line in Australia.
V03	Jan. 9th, 2019	Modified side screen print and internal component layout.
V04	May 5th 2019	Added instruction of installation location for AU Added battery expansion installation Added CT and meter mixed installation sequence Modified some details
V05	June 13th, 2019	Modified as a result of structure change Added WIFI (Yilian) LED display Added server setting steps
V07	Aug. 8th, 2019	Modified WIFI configuration
V09J	10082020	SAJ new Version

# CONTENTS

<b>01</b>	<b>INTRODUCTION</b>	<b>01</b>
1.	Introduction of System .....	01
2.	General Precautions .....	02
<b>02</b>	<b>INSTALLATION</b>	<b>03</b>
1.	Parts List .....	03
2.	System Appearance .....	04
3.	Limitation of Liability .....	06
4.	System Installation .....	06
1.	Installation Site and Environment .....	07
2.	Installation Tools .....	08
3.	SMILE-B3 Installation .....	08
4.	Battery Expansion .....	14
5.	Electricity Meter Wiring .....	25
<b>03</b>	<b>EMS INSTRUCTION</b>	<b>30</b>
1.	Switch On .....	30
2.	Switch Off .....	30
3.	Emergency Procedure .....	31
1.	Emergency Handling Plan .....	31
2.	Hazards .....	31
3.	Fire .....	31
<b>04</b>	<b>WIFI MODULE CONFIGURATION</b>	<b>32</b>
<b>05</b>	<b>SYSTEM REGISTRATION</b>	<b>34</b>
1.	System Setup in Monitoring .....	35
1.	Basic Information .....	35
2.	Meter Information .....	35
3.	Inverter Information .....	36
4.	Other Information .....	37
<b>06</b>	<b>ON-LINE MONITORING</b>	<b>37</b>
6.1	Account Registration .....	37

## 1.1 System Introduction

SMILE-B3 is an AC coupled all-in-one battery energy storage system (BESS). It can help to achieve the optimal usage of renewable energy. SMILE-B3 can control the bi-directional flow of electric power, work under auto/manual & time-of-use (TOU) modes, charge/discharge the battery as per customer's setting. Under the auto mode, SMILE-B3 will store surplus renewable energy onto the battery and discharge battery to supply power to local loads when renewable energy is not enough. SMILE-B3 is equipped with 3 buttons, friendly human machine interaction system. More importantly SMILE-B3 is stable, safe, and reliable. The standard schematic is shown in Figure 1.1:

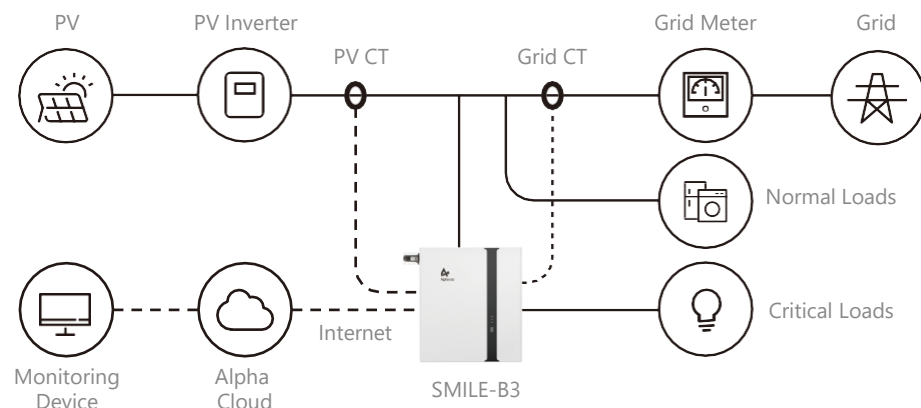


Figure 1.1 SMILE-B3 System with PV



**NOTE:** For the AC coupled system with PV, if only install the Grid CT, the system cannot display the power generated by PV inverter, electric energy production etc.

If there is no PV, the schematic is as below:

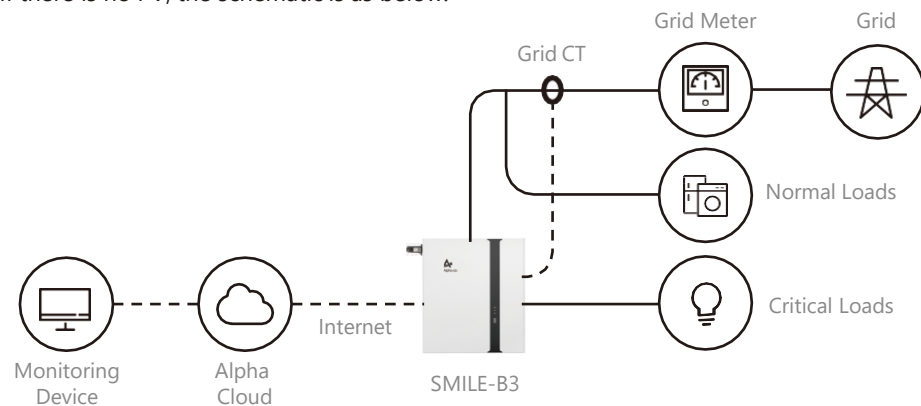


Figure 1.2 SMILE-B3 System without PV

## 1.2 General Precautions



### DANGER

#### Danger to life due to high voltages of battery and electric shock.

- ★ Do not touch uninsulated cable termination.
- ★ Do not touch the DC wires.
- ★ Do not open the inverter and battery.
- ★ Do not use wet cloth to wipe the system.
- ★ Do not dispose of batteries in fire. The batteries may explode!
- ★ Only qualified personnel with the corresponding skills can install and debug the system. Before performing any work on the inverter or battery pack, please disconnect the inverter from all voltage sources as described in this document.



### WARNING

**Risks of chemical burn electrolyte or toxic gases.**  
During standard operation, electrolyte won't leak from the battery pack as well as form of toxic gases. However, when the battery pack is damaged or broken down, electrolyte may leak or form toxic gases.

- ★ Do not install the system in temperature or humidity exceeding the permitted range.
- ★ Please do not use wet hands to touch the system.
- ★ Do not place heavy objects on the top of the system.
- ★ Do not damage the system using sharp objects.
- ★ Do not install or operate the system in the inflammable and explosive environment or high humidity environment.
- ★ Do not install explosive gas and the battery pack in the area that containing highly flammable substance or gas.
- ★ If the moisture penetrates the system (e.g. due to casing damage), please do not install or operate the system.
- ★ When the system has connected the extended battery module, please do not move the system.
- ★ Use strapping if necessary during transportation to prevent tipping.
- ★ SMILE-B3 transport must be conducted by the manufacturer or professionals, these operations should be recorded and used.
- ★ Certified ABC extinguishers with minimum capacity 2 kg must be carried during transportation.
- ★ No smoking during unloading of vehicles and close to them.
- ★ If you want to replace the battery module, please pack new dangerous packaging according to needs, pack them and let the supplier receive them.
- ★ If contacting with the electrolyte, please wash affected area with water immediately, and consult a doctor immediately.



### Risk of injury by hoisting or falling system



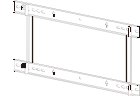








Inverters and batteries are heavy and can cause personal injury if the inverter or battery is improperly lifted or dropped during transport or when attached or removed from walls. Lifting and transporting SMILE-B3 is conducted by more than 1 person.

## 2.1 Parts List




Check the following parts list for completeness.

AlphaESS provides a complete set of system for on-site customers, including:

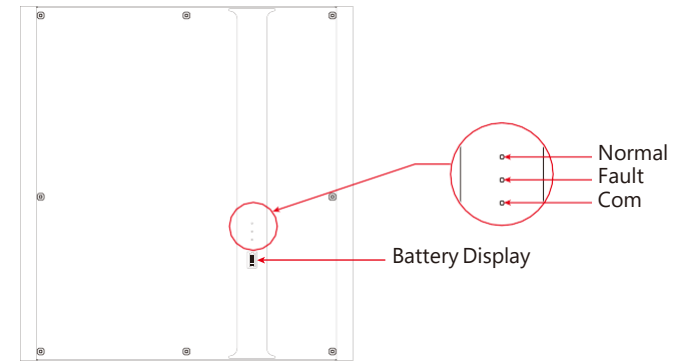
**Table 1 Parts List of B3**

SMILE5-B3			
			
2 x M4*12 screw	4 x Expansion screw	1 x Installing support	8 x White plug
			
2 x CT (100A, 3000:1) (1 x CT for DE version)	1 x Battery user manual	1x Installation manual	1 x WiFi module (optional / Standard for AU version)
			
2x Gum-elastic ring	2x M25 Pipe joint (AU version)	1x 10m Net cable (AU version)	

**Table 2 Parts List of Battery Expansion Accessory Package**









SMILE-B3 Battery Expansion Accessories (Optional, Standard for DE Version)		
		
2 x Screw M5*10	1 x Positive power line 1 x Negative power line	1 x Battery communication cable

## 2.2 System Appearance



**Figure 2.1 SMILE-B3 Exterior View**

**Table 3 SMILE-B3 System LED Display**

LED	Status	Description
Normal		Normally on: Normal system operation
		Single flicker: system standby or self-inspection
		Off: out-of-order
Fault		Off: fault-free
		Normally on: out-of-order
Com		Normally on: Normal network connection
		Flicker: connecting to the server
		Off: un-connected network

**Table 4 SMILE-B3 Battery LED Display**








	SOC Status	Description
SOC Instruction		SOC < 5%
		5% = < SOC < 25%
		25% = < SOC < 50%
		50% = < SOC < 75%
		75% = < SOC < 95%
		SOC > 95%
LED Outer Ring Light Flicker Status		Standby: green light flickers for 1s Work: green light flickers for 10s

Table 5 SMILE-B3 WIFI (Yilian) Display

LED	Status	Description
Red	<div><div></div></div>	Normally on: normally communicate with EMS
	<div><div></div></div>	Off: not connected to EMS
Green	<div><div></div></div>	Flickers once in 30s : not connected to router
	<div><div></div></div>	Flickers 3 times in 30s: not connected to server
	<div><div></div></div>	Normally on: normal communication with server
	<div><div></div></div>	Normally on after flickering: sending data to server

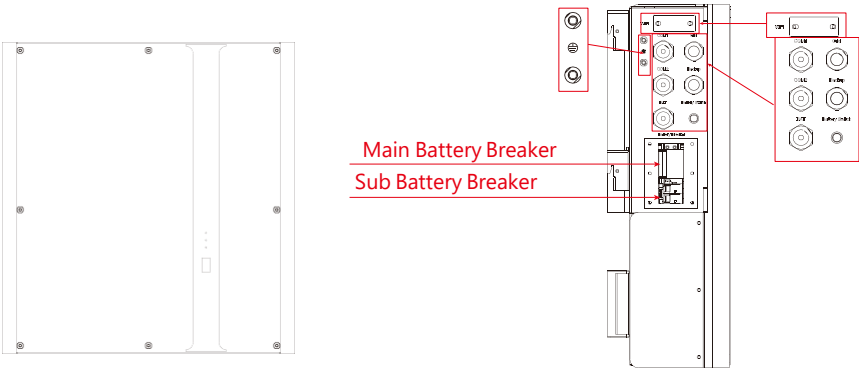


Figure 2.2 SMILE-B3 Front View

Figure 2.3 SMILE-B3 Left View

- 1Grid and Backup: If It is necessary to use a bellows on the M25 single-hole water- proof joint, M25 Pipe joint and Gum-elastic ring in the accessories can be used to replace the compression head and clamping ring of this waterproof joint.(Only for AU)
- 2COM1 and COM2 both use M32 waterproof joint, which can respectively pass two network cables and a CT harness.
- 3BAT: M32 double-hole waterproof joint. Both positive and negative power cables can be installed from here if expansion is needed.
- 4 Battery Switch: Start the batteries.

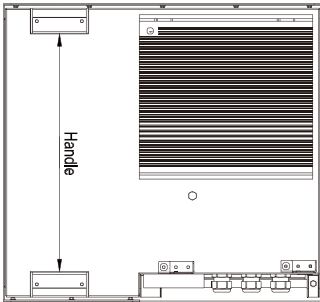


Figure 2.4 SMILE-B3 Rear View

3. Limitation of Liability

AlphaESS shall not be liable directly or indirectly for any product damage or property loss caused by any of the following conditions.

The product has been modified, the design modification or the change of parts without the authorization of AlphaESS;

Non-AlphaESS technicians change, repair and serial number removing;

System design and installation fail to meet the standards and other relevant requirements;

Fail to observe local safety regulations;

Transportation damage (including paint scratches caused by friction in packaging during transportation). Once the container/package is unloaded and the damage is confirmed, claims shall be put forward directly to the transport or insurance company;

Fail to comply with any/all user manuals, installation guide and maintenance rules;

Misfeasance or misuse of equipment;

Insufficient equipment ventilation;

Product maintenance procedures do not follow acceptable standards;

Force majeure (violent or stormy weather, thunder and lightning, overvoltage, fire, etc.);

Any damage caused by external factors

4. System Installation

This manual introduces the basic steps how to install and set up SMILE-B3.

Observe the specified minimum distance of adjacent objects;

Minimum distance guarantee;

Sufficient heat dissipation;

The upper cover of the energy storage system has enough space to open;

Sufficient room for maintenance.

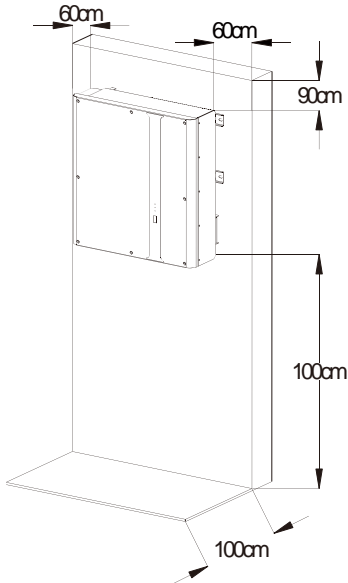


Figure 2.5 Limit the Distance to an Adjacent Object

### 2.4.1 Installation Site and Environment

The following sites are not allowed installation:

- Wall cavities;
- On roofs not specifically deemed suitable;
- Areas of access/egress;
- Under stairways;
- Under access walkways;
- Sites where the freezing point is reached, like garages, carports or other places;
- Sites with humidity and condensation above 85%.
- Places with plenty of salt.
- Flooded areas.
- Earthquake areas-additional security measures are needed here.
- Places with altitude higher than 2,000 meters.
- Place with explosive gases.
- Place with direct sunlight.
- Place with the ambient temperature extremely variable.
- Places with highly flammable materials or gases.
- Wet rooms
- Places with potentially explosive gases.
- Wall load bearing must exceed 180kg

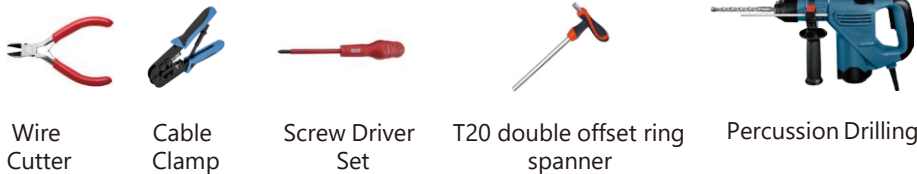


#### NOTE:

a ~ e rules are set according to AS/NZS5139. If you install the system in Australia or New Zealand, these rules must be followed. If the installing place is not in Australia or New Zealand, and there are no such rules in local regulations, you do not need to follow them.

### 2.4.2 Installation Tools

The following tools are required to install the equipment.



Wire Cutter    Cable Clamp    Screw Driver Set    T20 double offset ring spanner    Percussion Drilling



#### NOTE:

Use properly insulated tools to prevent accidental electric shock or short circuits. If insulated tools are not available, cover the entire exposed metal surfaces of the available tools, except their tips, with electrical tape.

### 2.4.2.1 Safety Gear

It is recommended to wear the following safety gear when dealing with the battery pack



Insulated gloves



Safety goggles



Safety shoes

### 2.4.3 SMILE-B3 Installation

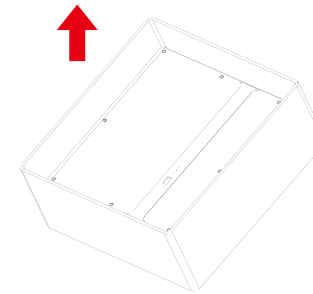


Figure 2.6 Remove SMILE-B3 Packaging

**Step 1** Take out SMILE-B3 from the packaging box, as shown in Figure 2.6



**NOTE:** Please check whether the parts quantity is consistent with the parts list after taking out the equipment.

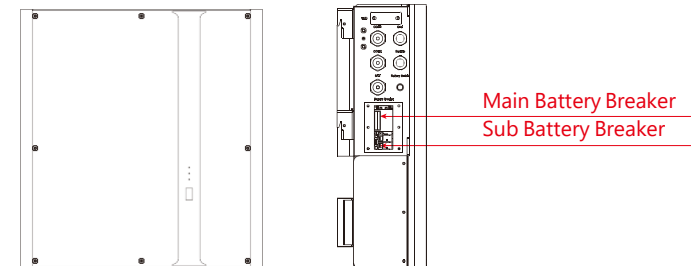


Figure 2.7 Remove SMILE-B3 Upper Cover Plate

**Step 2** Use the T20 double offset ring spanner to unscrew the screws, as shown in Figure 2.7



**NOTE:** Please ensure that the main switch and branch switch on the side are turned off before removing the upper cover plate to avoid short circuit.

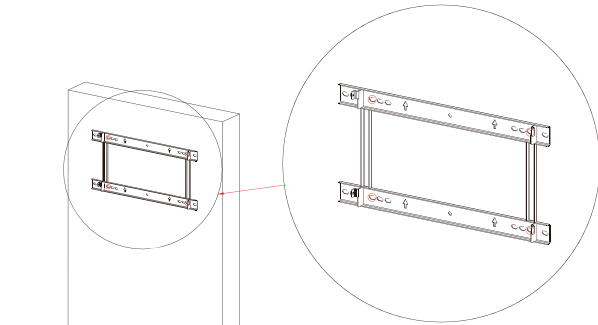


Figure 2.8 Stand Positioning

**Step 3** Place the wall bracket on the wall where the system will be installed. And use a marker to locate the bracket as shown in Figure 2.8.



**NOTE:** The hole position can be adjusted according to the site condition, but it should be fixed at each of the four corners. And please use leveling instrument to confirm that the hang-ing bracket is installed on a horizontal line to ensure that the equipment will not deflect.

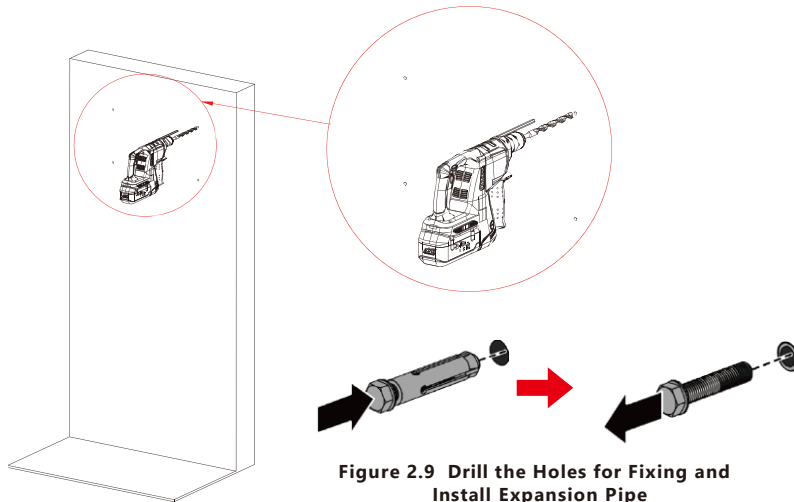


Figure 2.9 Drill the Holes for Fixing and Install Expansion Pipe

**Step 4** Drill holes at the position using a percussion drill (M12 drill, depth of hole: 70mm). After drilling, put the 4 expansion bolts into the hole and take out the expansion screws as shown in Figure 2.9.

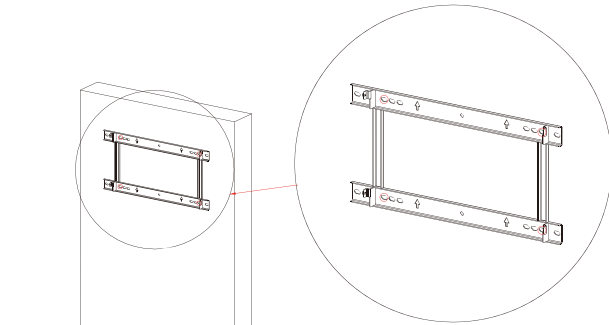


Figure 2.10 Fix the Wall Bracket

**Step 5** Use a SW13 sleeve or other tools for M8 flange to lock the expansion screws and fix the wall bracket, as shown in Figure 2.10.

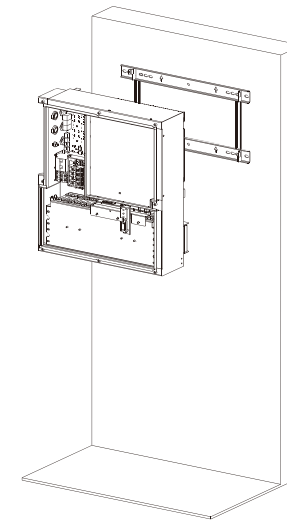


Figure 2.11 Install SMILE-B3

**Step 6** Install SMILE-B3 on the wall bracket, as shown in Figure 2.11.

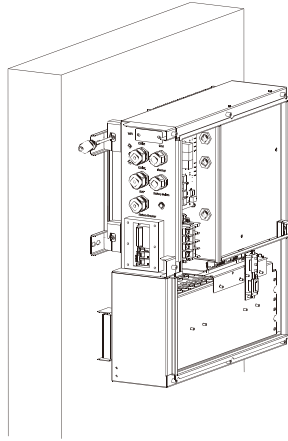


Figure 2.12 Fix SMILE-B3 to the Wall Bracket

**Step 7** Use a T20 screwdriver and M4\*12 screws in the package to fix Smile-B3 to the wall bracket, as shown in Figure 2.12.

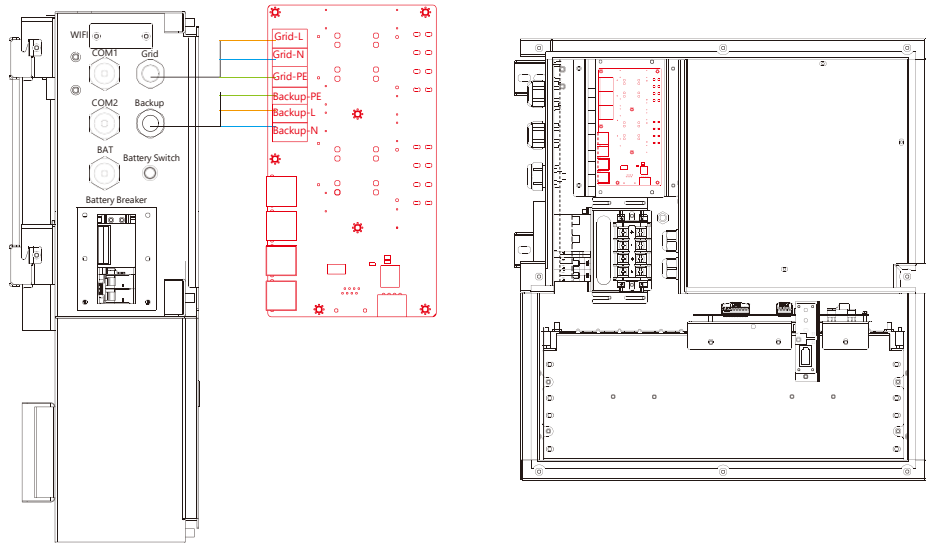


Figure 2.13 Backup and Grid Wire Harness Wiring

**Step 8** Connect Grid and Backup wire harness, as shown in Figure 2.13.

**NOTE:** After the wiring harness is installed, the waterproof connector must be tightened with a torque of  $3.75 \text{ Nm} \pm 10\%$ .

**NOTE:** In Australia and New Zealand, the neutral of backup and grid circuit should be externally connected on the neutral bar.

**NOTE:** In Australia and New Zealand, the Type AC RCD could be installed on the backup port of the system, so that the installation of inverter could fulfill AS/NZS 3000, AS/NZS 4777.1 and AS/NZS 5033.

**NOTE:** In some places like AU and NZ, the corrugated pipes will be needed. Please remove the original gum-elastic rings and the connectors of Backup and Grid port waterproof contact and then replace them with the M25 pipe joints and the gum-elastic rings in parts list.  
The suggested torque for the waterproof contact is  $3.75 \text{ N.m} \pm 10\%$ .

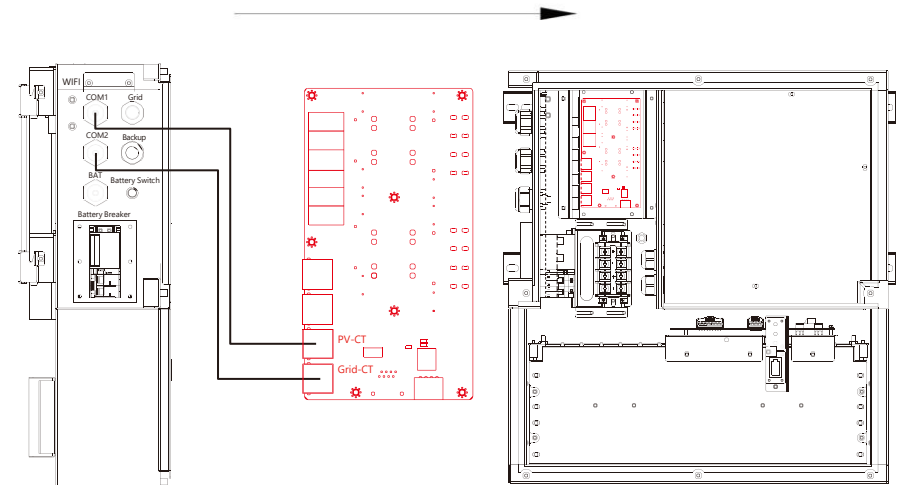
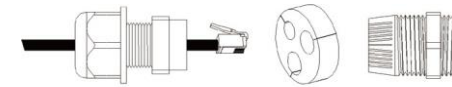


Figure 2.14 CT Wire Harness Wiring

**Step 9** Installing CT as shown in Figure 2.14.

**NOTE:** After the wiring harness is installed, the waterproof connector must be tightened with a torque of  $5 \text{ Nm} \pm 10\%$ .

**NOTE:** CT communication wires can be connected directly through the gum-elastic ring of the M32 waterproof contact, no need to make the on-site network line.



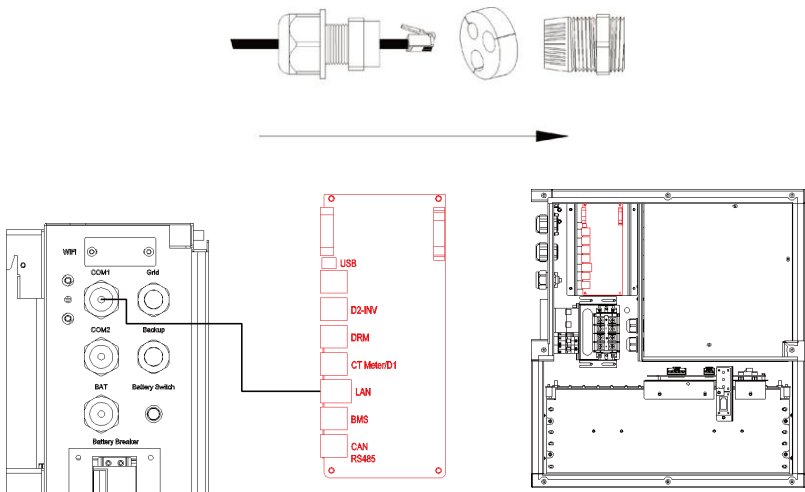


Figure 2.15 Ethernet Communication Cable Wiring

**Step 10** Install ethernet communication cable, as shown in Figure 2.15. It won't be needed if the WiFi module will be used.

**NOTE:** After the wiring harness is installed, the waterproof connector must be tightened with a torque of 5 Nm±10%.

**NOTE:** The ethernet communication cable can be connected wiring directly through the gum-elastic ring of the M32 waterproof contact, no need to make the on-site network cable. The maximum outer diameter of the network cable does not exceed 14mm.

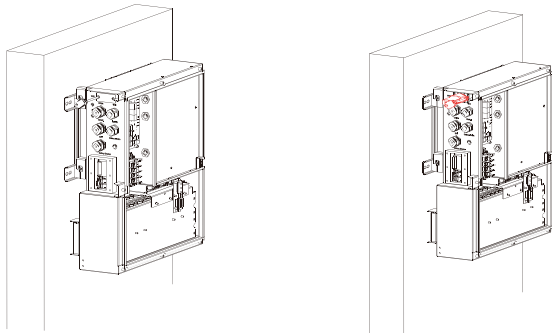


Figure 2.16 Install WiFi Module

**Step 11** Install WiFi module, as shown in Figure 2.16.

**NOTE:** Please tighten the screws here with the torque of 2 N.m±10% to avoid problems such as poor signal.

**NOTE:** If using WiFi module, open the cover plate of the side WiFi module, insert the WiFi module into the terminal port and then fix it with screws by using T20 double offset ring spanner, as shown in Figure 2.16. The suggested torque is 1.6 N.m±10%  
If you will install external M4856-P for expansion, please go to section 2.4.4 directly.

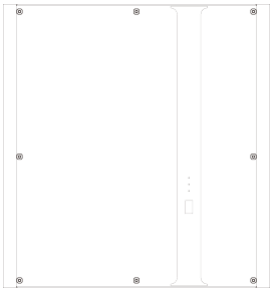


Figure 2.17 Re-cover the Upper Cover Plate

**Step 12** The wiring is completed, please re-cover the B3 upper cover plate and use the T20 double offset ring spanner to tightly lock the upper cover screw. The suggested torque is 2.8 N.m±10%. Then install the white plug, as shown in Figure 2.17.

2.4.4 Battery Expansion

If you are not installing external M4856-P battery for expansion, please neglect this section.

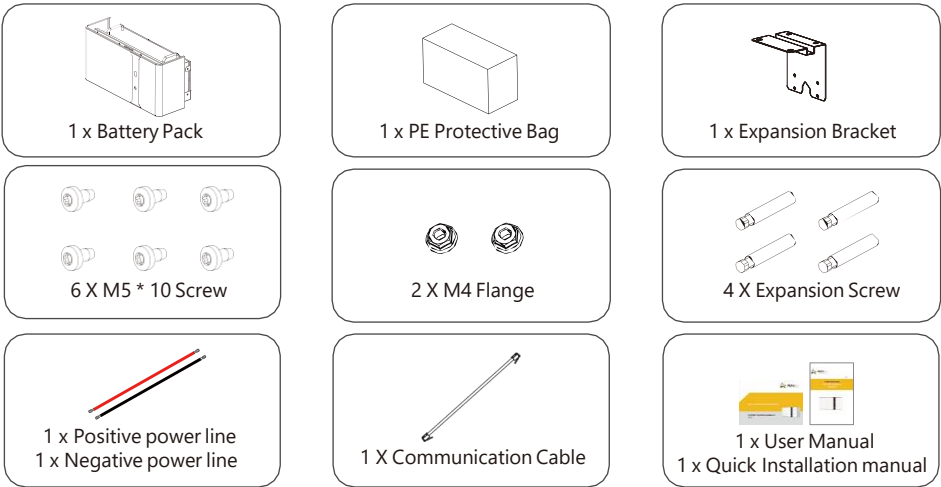
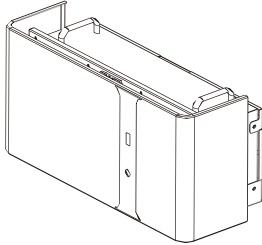


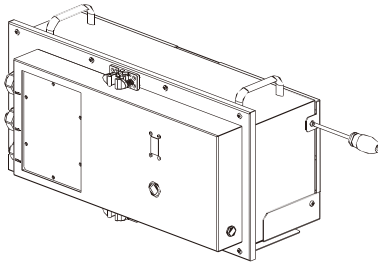
Figure 2.18 Parts List of M4856-P Accessory Package

**Step 1** Take out the M4856-P(indoor) from the carton; confirm whether the accessories are complete, as shown in Figure 2.18



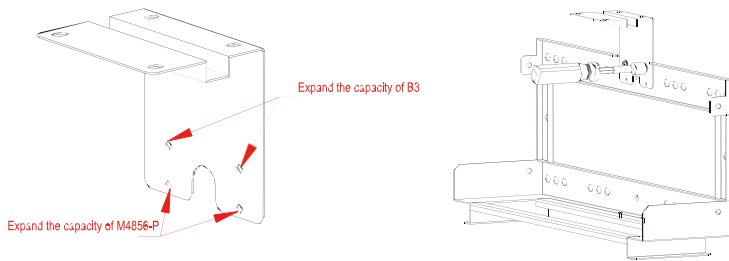
**Figure 2.19 Remove the Decoration of M4856-P**

**Step 2** Pull down the buckles on the top and bottom of the battery and take out the decoration, as shown in Figure 2.19



**Figure 2.20 Remove the Wall Bracket of M4856-P**

**Step 3** Use T20 screwdriver to remove the 4 screws fixing the box and the wall bracket, as shown in Figure 2.20

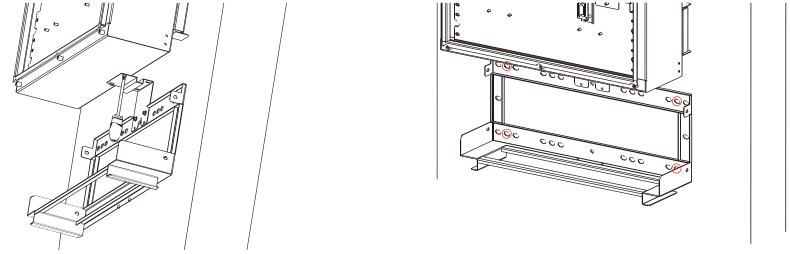


**Figure 2.21 Install M4856-P Expansion Bracket**

**Step 4** Use SW7 sleeve or other tools for the M4 flange and M4 flange nuts to connect the M4856-P wall bracket to the expansion bracket, as shown in Figure 2.21.



**NOTE:** The connection points between the wall bracket and the expansion bracket must be the two holes above (the holes for B3 expansion).

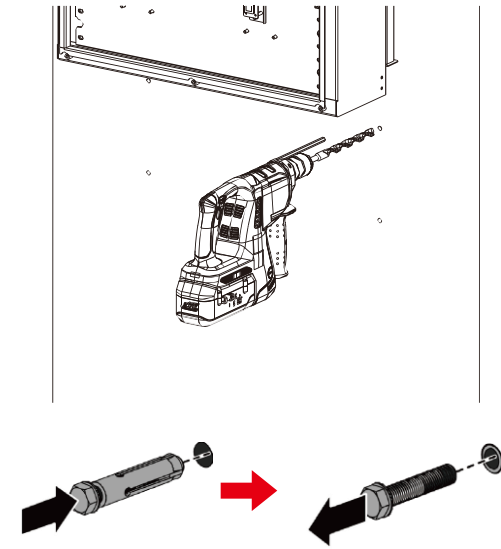


**Figure 2.22 Install the Positioning Bracket**

**Step 5** After installing the expansion bracket, match the wall bracket with SMILE-B3, and use M5\*10 screws to lock and fix, then locate and trace.

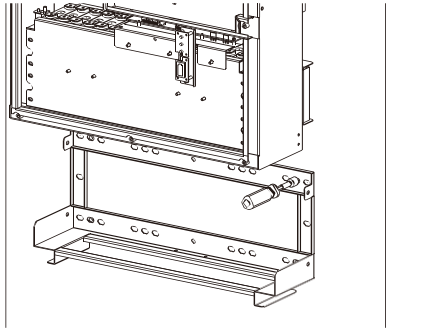


**NOTE:** If the positioner is not removed, SMILE-B3 can not be removed separately in the future.



**Figure 2.23 Holes for Fixing Bracket**

**Step 6** Drill holes at the position using a percussion drill (M12 drill, depth of holes: 70mm). After drilling, put 4 expansion bolts into the hole and take out the expansion screws as shown in Figure 2.23

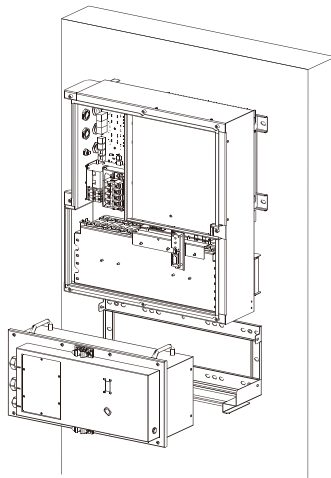


**Figure 2.24 Fix the Wall Bracket**

**Step 7** Use a SW13 sleeve or other tools suitable for M8 flanges to lock the expansion screws, and fix the wall bracket on the wall.



**NOTE:** 1. Please use the leveling instrument to confirm the hanging bracket installed on a horizontal line to ensure the equipment not to be deflected.  
2. If the positioner is not removed, SMILE-B3 can not be removed separately.

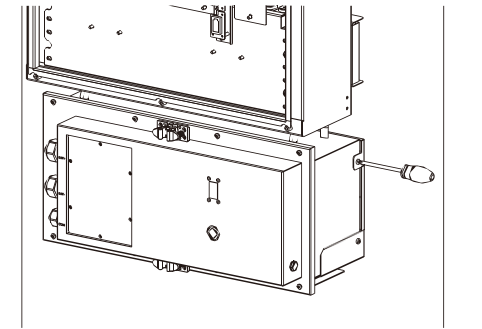


**Figure 2.25 Install the Battery**

**Step 8** Push the M4856-P into the wall bracket.

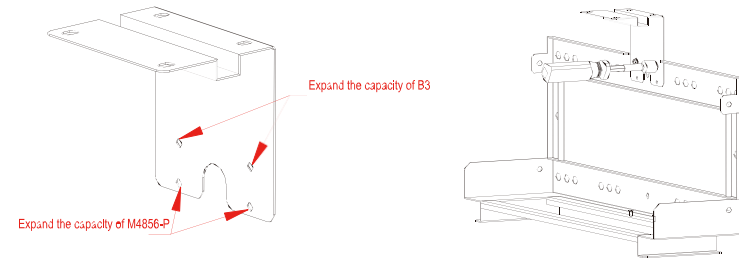


**NOTE:** Please make sure someone else is holding the battery after it has been push into the wall bracket to prevent the battery from falling until Step 9 is completed.



**Figure 2.26 Fix the Battery to the Wall Bracket**

**Step 9** Use T20 screwdriver and T20 M5\*10 screws to lock the battery to the wall bracket. The torque is  $2.8 \text{ Nm} \pm 10\%$ .

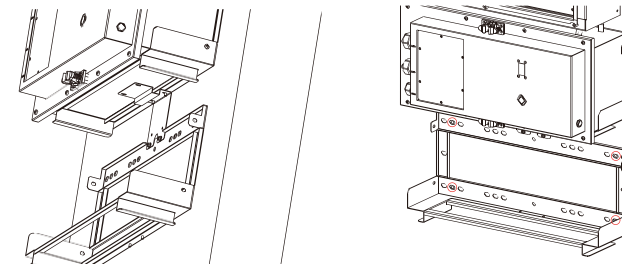


**Figure 2.27 Fix the Wall Bracket and the Expansion Bracket**

**Step 10** If you want to install more battery modules, please take out the wall bracket and expansion bracket and fix them referring to Step 1- Step 3.



**NOTE:** The expansion point of the wall bracket and expansion bracket must be the two holes below (the holes for M4856-P expansion).



**Figure 2.28 Positioning Between Wall Brackets**

**Step 11** Match the wall bracket with the wall bracket of the previous M4856-P.



**NOTE:** It is not required to fix the expansion bracket to the previous wall bracket, just place them together for positioning; and then remove the expansion bracket after tracing points.

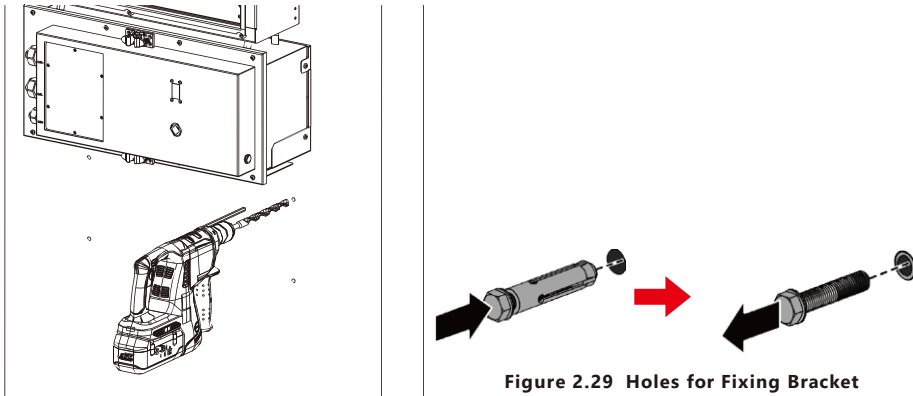


Figure 2.29 Holes for Fixing Bracket

**Step 12** Drill holes at the position using a percussion drill (M12 drill, depth of holes: 70mm). After drilling, put 4 expansion bolts into the hole and take out the expansion screws as shown in Figure 2.29

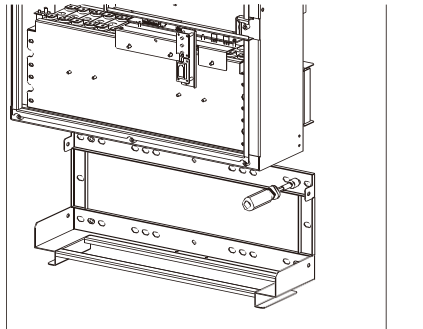


Figure 2.30 Fix the Wall Bracket

**Step 13** Use a SW13 sleeve or other tools suitable for M8 flanges to lock the expansion screws, and fix the wall bracket on the wall.



**NOTE:** 1. Please use leveling instrument to confirm that the hanging bracket is installed on a horizontal line to ensure that the equipment will not deflect.  
2. If the positioner is not removed, M4856-P can be not removed separately in the future.

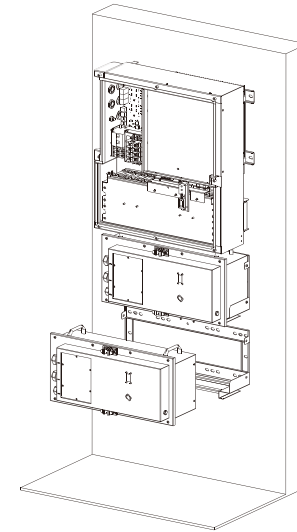


Figure 2.31 Install the Battery

**Step 14** Push the M4856-P into the wall bracket.



**NOTE:** Please let someone support the battery after pushing in to prevent the battery from falling until Step 15 is completed.

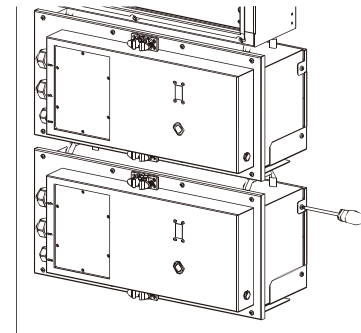


Figure 2.32 Lock the Battery to the Wall Bracket

**Step 15** Use T20 screwdriver and T20 M5\*10 screws to lock the battery to the wall bracket. The torque is 2.8 Nm±10%

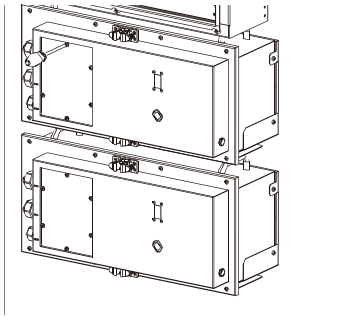


Figure 2.33 Remove the Maintenance Cover of M4856-P

**Step 16** Remove the maintenance cover (Figure 2.33)

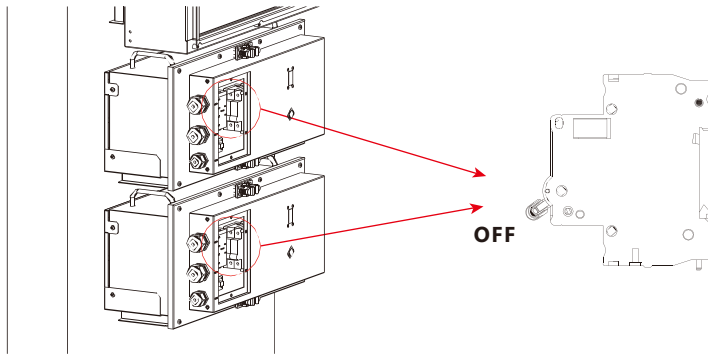


Figure 2.34 Confirm Circuit Breaker Status

**Step 17** Confirm that the status of circuit breaker is OFF. Please turn it off if it is ON. The status of the Figure 2.34 above is turned off viewed from the front.

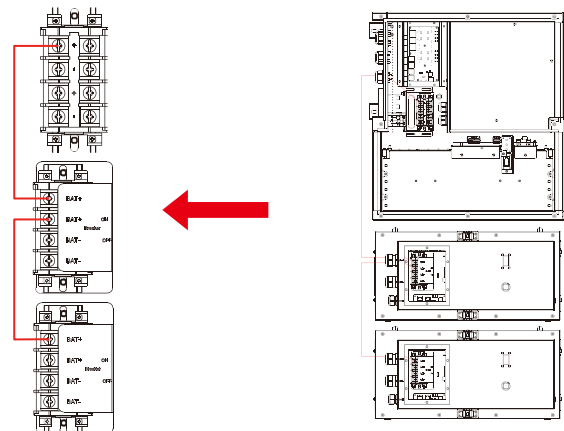


Figure 2.35 Connect the Positive Power Line

**Step 18** Connect positive power line for expansion (Figure 2.35).

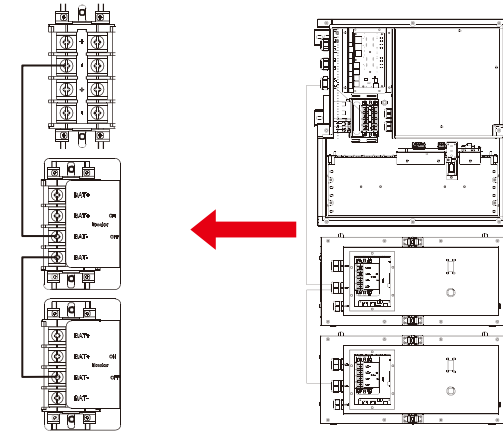


Figure 2.36 Connect the Negative Power Line

**Step 19** Connect negative power line for expansion (Figure 2.36).

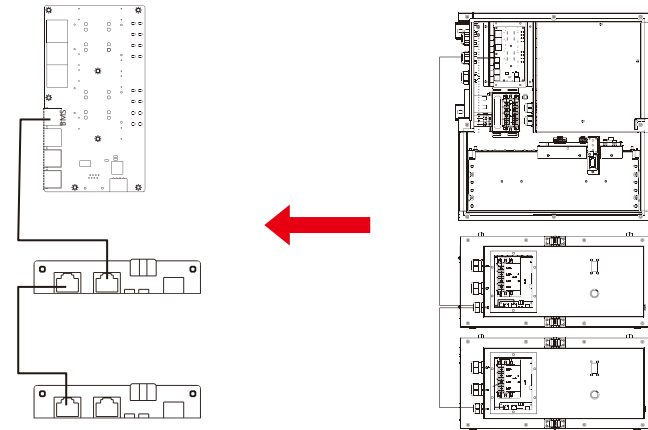


Figure 2.37 Connect the Battery Communication Line

**Step 20** Connect the battery communication line.

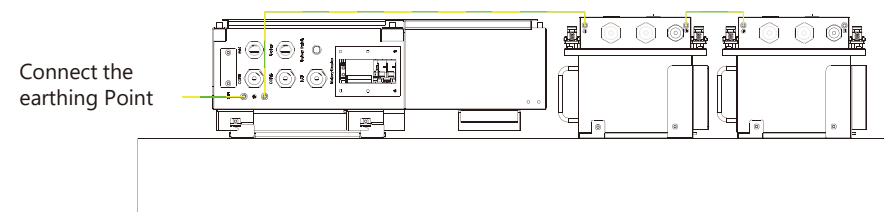


Figure 2.38 Connect the Grounding Harness

**Step 21** Connect the grounding harness

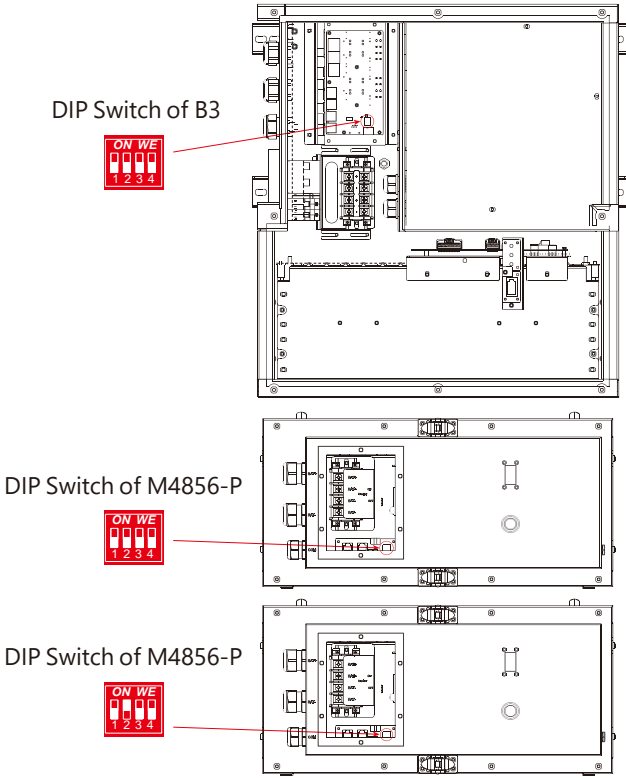


Figure 2.39 Set DIP Switch

**Step 22** Set DIP Switch

**NOTE:** If there is only one M4856-P to be connected, switch off the DIP2 in SMILE-B3 and switch on the DIP2 in M4856-P.

If there are more than two batteries to be connected, please refer to DIP switch configuration table as below:

Battery	DIP 1	DIP 2	DIP 3	DIP 4	DIP Switch
Non-bottom battery (incl. B3-bat)	OFF	OFF	OFF	OFF	
battery					

Bottom	OFF	ON	OFF	OFF	
--------	-----	----	-----	-----	--

Bottom battery is the battery farthest from the inverter.

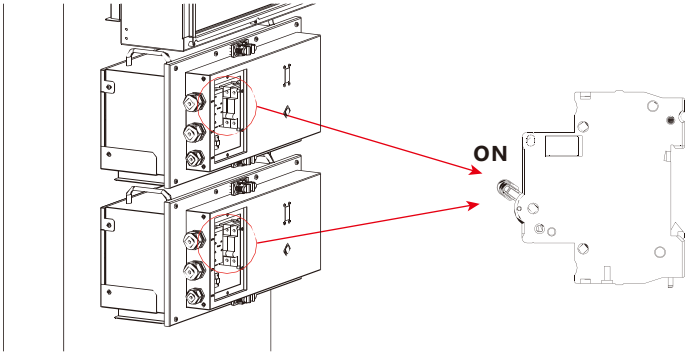


Figure 2.40 Turn on the Circuit Breaker

**Step 23** Turn on the circuit breaker. The status of the figure 2.40 above is connected viewed from the front.

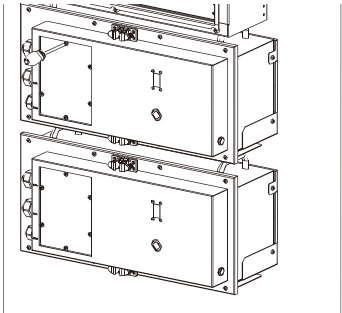


Figure 2.41 Install the Maintenance Cover

**Step 24** Install the maintenance cove with the torque being 2.8 N.m±10%.

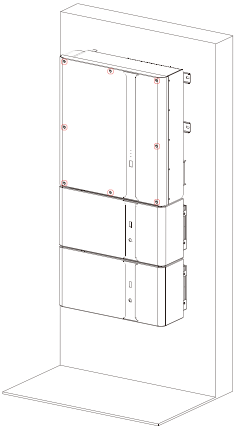


Figure 2.42 Install Decoration

**Step 25** Install the B3 upper cover and decoration of M4856-P, insert the white rubber plugs into the fixing hole of the B3 upper cover, and the installation is complete.

### 2.4.5 Electricity Meter Wiring

The power meter should be installed and connected in the distribution box. There are several types of power meters, available for CT, ADL-3000 or ACR10R.

**CT:** 100A, 1:3000

**ADL-3000:** Three-phase electricity meter (with or without CT)

**ACR10R:** Three-phase CT electricity meter (with CT)

Table 6 CT Meter Ratio and Accuracy Table

Model	CT ratio	Accuracy
ADL3000-N/CT & 300A/5A CT	60	0.6 kWh
ADL3000-N/CT & 400A/5A CT	80	0.8 kWh
ADL3000-N/CT & 400A/1A CT	400	4.0 kWh
ACR10R-100A CT	100	1.0 kWh
ACR10R-120A CT	120	1.2 kWh

#### 2.4.5.1 CT

The CTs connection is as shown in Figure 2.43:

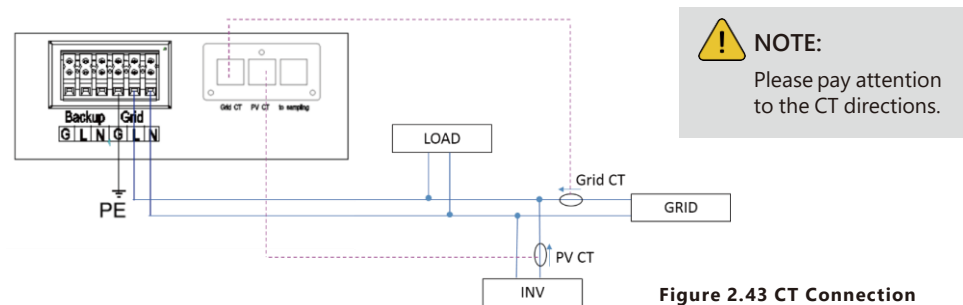


Figure 2.43 CT Connection

#### 2.4.5.2 Electricity Meter ADL-3000 (if optional)

ADL-3000 connection (without CT, without Meterplug):

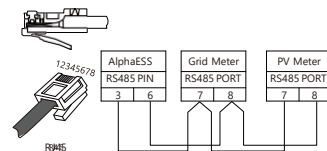
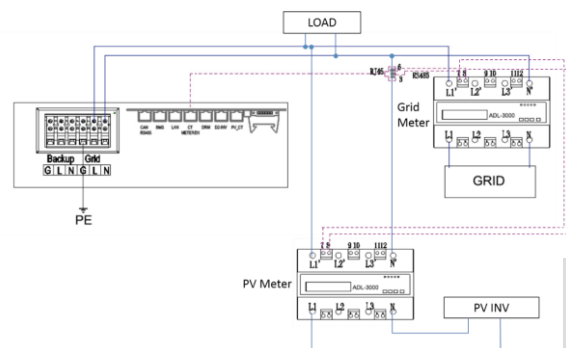


Figure 2.44 ADL-3000 Connection (without CT, without Meterplug)

**NOTE:**  
Terminal 7, 8 connecting RJ-45 PIN 3, 6.

ADL-3000 Connection (with CT and Meterplug):

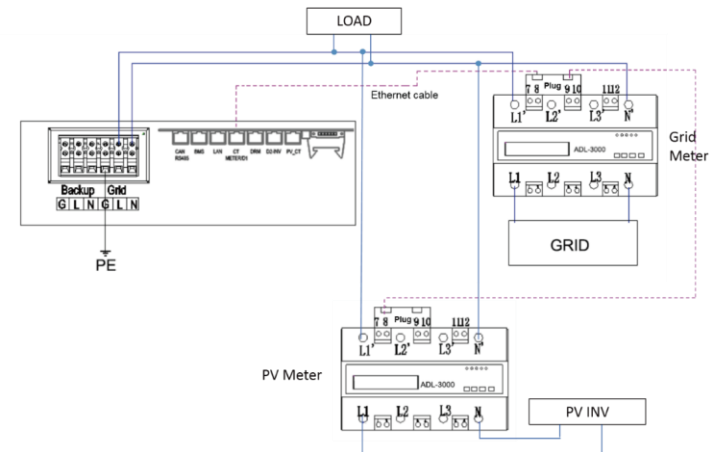


Figure 2.45 ADL-3000 Connection (without CT, with Meterplug)

ADL-3000 connection (with CT, without Meterplug)

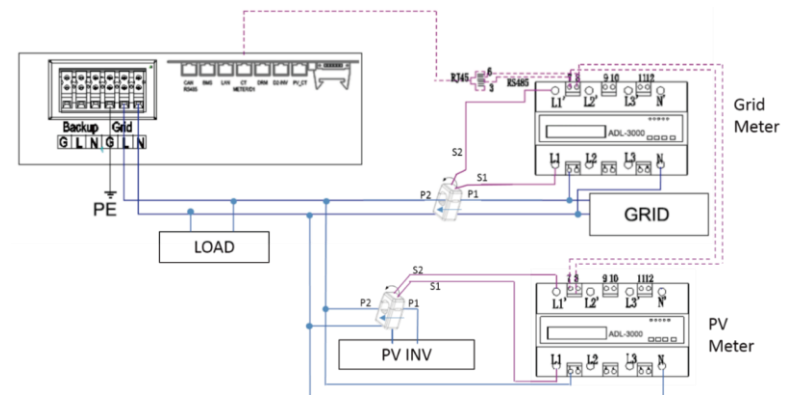
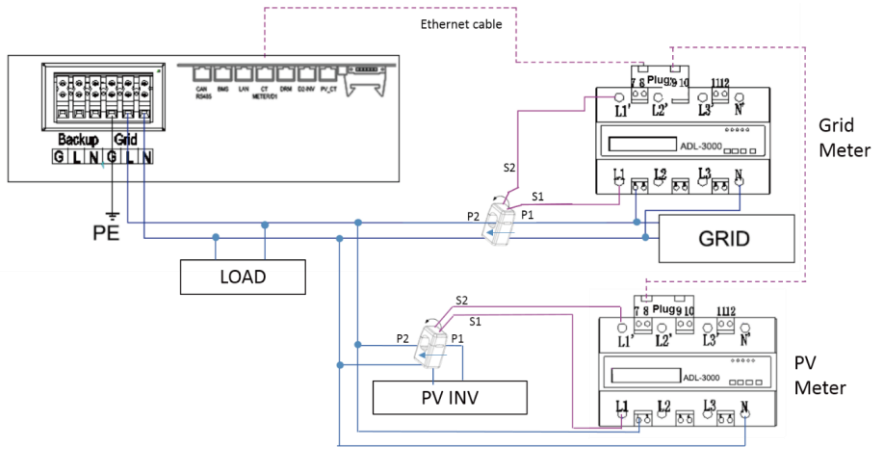



Figure 2.46 ADL-3000 Connection (with CT, without Meterplug)

### ADL-3000 Connection (with CT and Meterplug):

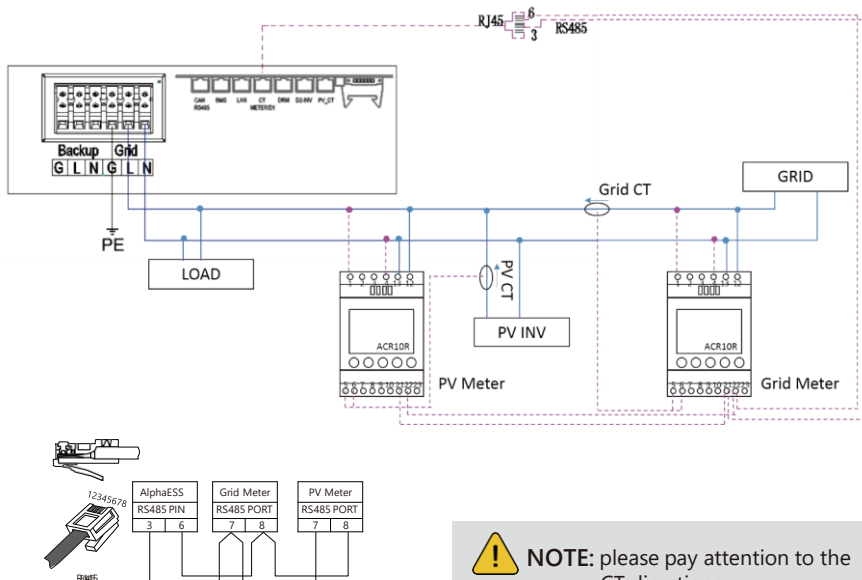



**Figure 2.47 ADL-3000 Connection (with CT and Meterplug)**



 **NOTE:** In AC system the both two meters' addresses should be set, please refer to 2.4.5.5.1.

#### 2.4.5.3 Electricity meter ACR10R (if optional)



 **NOTE:** please pay attention to the CT directions.

**Figure 2.48 ACR10R Connection**

In AC system the both two meter addresses should be set, please refer to 2.4.5.5.2.

#### 2.4.5.4 Mixed Installation of CT and Meter

A CT and a three-phase meter (ADL3000, ALD3000 with CT, ACR10R with CT) can be installed in the same system, the CT and the meter shall be installed according to the corresponding position, otherwise the system will run abnormally.

The initial setup is CT connection. If a meter is connected, after connecting, a relevant configuration work shall be carried out by the installer on AlphaCloud, please refer to 5.1.2.

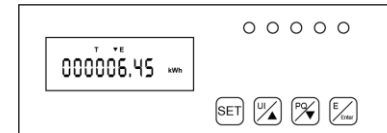


**NOTE:** This function is released in SMILE-B3 EMS firmware version V1.00.33 or above.  
In AC system and the mixed installation of CT and meter situation, the meter address should be also set in the meter, please refer to 2.4.5.5.1 (ADL3000) and 2.4.5.5.2 (ACR10R).

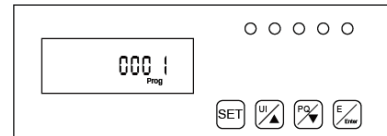
#### 2.4.5.5 Meter setting

#### 2.4.5.5.1 ADL3000

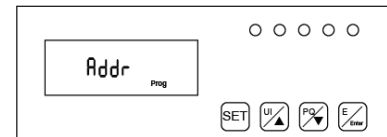
**Step 1** The initial interface of the meter (normal working interface) is as shown below:



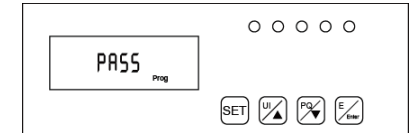
**Step 3** Click the "Enter" button to enter the following interface, and press the up and down arrow keys to enter the password 0001;



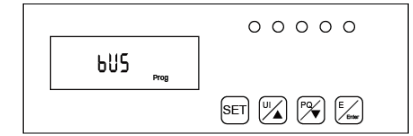
**Step 5** Click the “Enter” button again to enter the address interface:



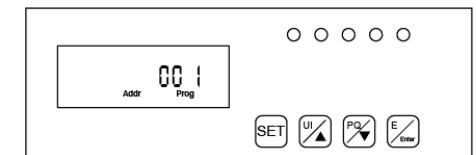
**Step 2** Click the "SET" button to enter the password interface:



**Step 4** Click the "Enter" button and the password input is completed.

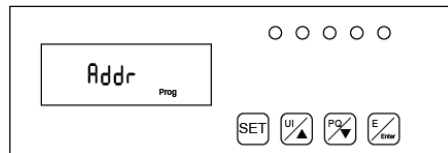


**Step 6** Click the “Enter” button to enter the following interface, press the up and down arrow keys to set the meter address, the Grid meter (DC, AC and Hybrid system) address is set to 001, and the PV meter (AC and Hybrid system) address is set to 002.

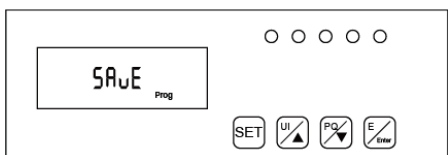




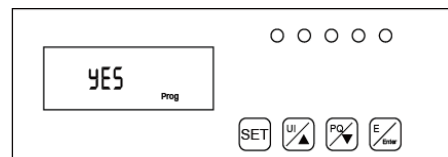
**Step 7** Click the "SET" button to enter the following interface:



**Step 9** Click the "SET" button again to enter the save interface:

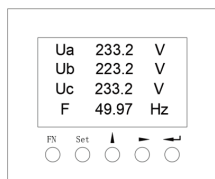


**Step 11** Click the "Enter" button and the setting ends.

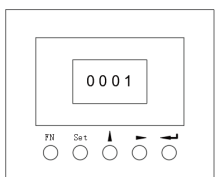


#### 2.4.5.5.2 ACR10R

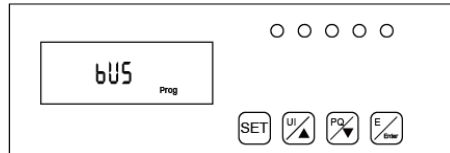
**Step 1** This is the initial interface of the meter, click the "Set" button;



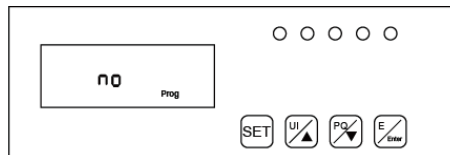
**Step 3** On the password input interface, the code is "0001", confirm entering the setting interface;



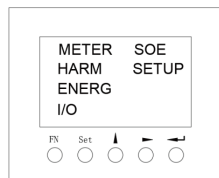
**Step 8** Click the "SET" button to enter the following interface:



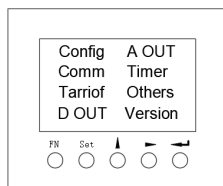
**Step 10** Click the "Enter" button to enter the following interface, press the up and down arrow keys, and set "no" to "YES" to save the configuration.



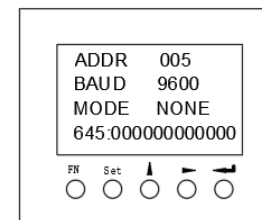
**Step 2** Click the "SETUP" button;



**Step 4** In the setting interface, select "Comm" option, enter the communication setting interface



**Step 5** Set the communication address and communication baud rate in the communication setting interface. When the meter is used as the Grid meter (DC, AC/Hybrid system), the address is set to "005". When it is used as the PV meter (AC/Hybrid system), the address is set to "006". The baud rate is set to 9600;



### 03 OPERATION

Please double check the following before operation.

1. SMILE-B3 is firmly fastened to the mounting bracket on the wall;
2. The polarity of battery wires is correct, battery wires are firmly connected;
3. 80A battery switch: OFF;
4. If PV is applied, the PV-INV switch: OFF
5. GRID / LOAD cables are firmly and correctly connected;
6. External grid AC switch is correctly connected between SMILE-B3 GRID port & GRID, AC circuit breaker: OFF;
7. If backup load is applied, external backup AC switch is correctly connected to SMILE-B3 Load port, AC circuit breaker: OFF;
8. AC contactor is correctly connected;
9. Please ensure that the communication cable has been correctly connected;

#### 1. Switch On

System shall be turned on in the correct sequence to avoid any damage.

**Step 1:** Turn on the 80A&63A battery switch of B3 system;

**Step 2:** Press the button on the battery until the battery LED lights;

**Step 3:** Turn on the external grid AC breaker;

**Step 4:** If PV is applied, turn on the PV-INV switch;

**Step 5:** If backup load is applied, turn on the external backup AC breaker; if not, keep it off.

#### 2. Switch Off

**Step 1:** If backup load is applied, turn off the external backup AC breaker;

**Step 2:** Press the button on the battery until the battery LED off;

**Step 3:** Turn off the main battery switch of B3 system;

**Step 4:** Turn off the external grid AC breaker.

### 3. Emergency Procedure

When the SMILE-B3 Battery energy storage system appears to be running abnormally, you can turn off the grid connected main switch directly feeding the BESS and turn off all load switches within the BESS, turn off the battery switch at the same time. To prevent a potentially fatal personal injury, if you want to repair or open the machine after the power is switched off please measure the voltage at the input terminals with a suitably calibrated voltage tester.

Before working on this equipment, please confirm that there is no grid electric supply to the BESS!

The upper cover plate cannot be opened until the DC-link capacitance inside the battery modules discharges completely about 15 minutes later.

#### 1. Emergency Handling Plan

1. Disconnect the AC breaker.
2. Check the control power supply. If it is OK, return the power supply to find out the reason.
3. Please record every detail related to the fault, so AlphaESS can analyse and solve the fault. Any operation of equipment during a fault is strictly forbidden, please contact Alpha as soon as possible.
4. As battery cell contains little Oxygen inside and all cells have got explosion-proof valve, explosion hardly happens.
5. When the indicator light on the battery shows a red fault, check the fault type through the communication protocol, and contact our after-sales service personnel for advice.

#### 2. Hazards

If the battery pack leaks electrolyte, avoid contact with the leaking liquid or gas. If one is exposed to the leaked substance, immediately perform the actions described below:

Inhalation: Evacuate the contaminated area, and seek medical attention.

Eye contact: Rinse eyes with running water for 5 minutes, and seek medical attention.

Contact with skin: Wash the affected area thoroughly with soap and water, and seek medical attention.

Ingestion: Induce vomiting, and seek medical attention.

#### 3. Fire

If a fire breaks out in the place where the battery pack is installed, perform the following countermeasures:

##### Fire extinguishing media

Respirator is not required during normal operations.

Use Novel 1230, FM-200 or dioxide extinguisher for battery fire.

Use an ABC fire extinguisher, if the fire is not from battery and not spread to it yet.

##### Fire fighting instructions

1. If fire occurs when charging batteries, if it is safe to do so, disconnect the battery pack circuit breaker to shut off the power to charge.
2. If the battery pack is not on fire yet, extinguish the fire before the battery pack catches fire.
3. If the battery pack is on fire, do not try to extinguish but evacuate people immediately.



There may be a possible explosion when batteries are heated above 150°C. When the battery pack is burning, it leaks poisonous gases. Do not approach.

#### Effective ways to deal with accidents

On land: Place damaged battery into a segregated place and call local fire department or service engineer.

In water: Stay out of the water and don't touch anything if any part of the battery, inverter, or wiring is submerged.

Do not use submerged battery again and contact the service engineer

Please install the WiFi module. Download and install the APP by scanning the QR code (Figure 4.1), and directly connect to SMILE-B3 by WiFi module.



Figure 4.1 AlphaESS-APP

**Step 1** Open Alpha ESS APP, click the "Wi-Fi configuration" button and enter the WiFi configuration interface as shown in Figure 4.2

**Step 2** After that please check whether your mobile phone has connected to the system hotspot, as shown in Figure 4.3.

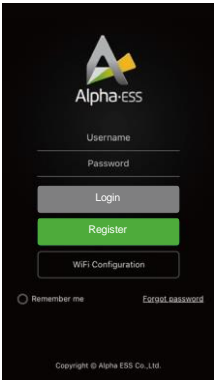


Figure 4.2 Network Setting

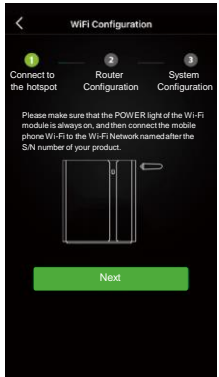


Figure 4.3 Hardware Connection

**Step 3** If your mobile phone hasn't connected to the system hotspot, please open the Wi-Fi network list. Please find the hotspot named after the product SN in WLAN list and connect to it. If the WiFi module is Yilian as shown in Figure 4.6, please enter the password 12345678, otherwise please connect directly. After successful setting, please go back to APP and click "Next"

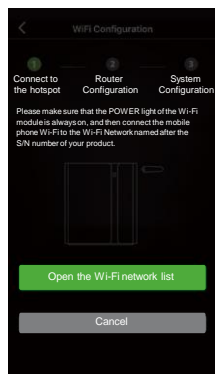


Figure 4.4 Open Wi-Fi network list

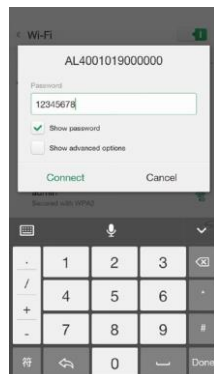


Figure 4.5 WLAN Password



Figure 4.6 Yilian WiFi module

**Step 4** Enter the WiFi account and password and then save it, the configuration is successful, click "next", as shown in Figure 4.7 and Figure 4.8.

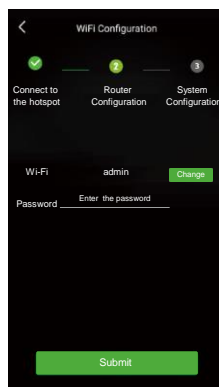


Figure 4.7 WiFi Setting

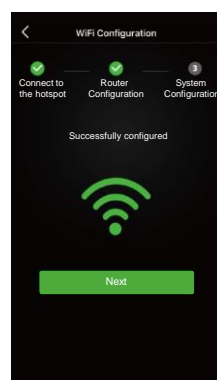


Figure 4.8 Configuration Success

**Step 5** Set the basic parameters, and you can see the details of equipment, click "submit" button, as shown in Figure 4.9 and Figure 4.10

Country Code:  
AS4777 for Australia,  
VDE4105 for Germany,  
CEI0-21 for Italy,  
G98/G99 for Britain.  
For Volt-var/watt  
function in South  
Australia please choose  
AS4777-SA.

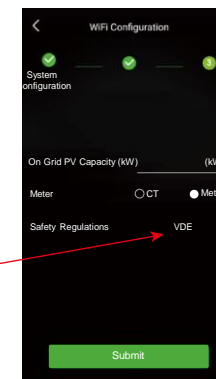


Figure 4.9 Basic Parameter Setting

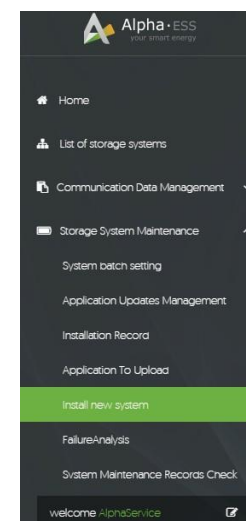


Figure 4.10 Equipment Details



**NOTE:** After downloading and installing the APP, please register following the steps.

Installers who haven't yet registered need to click "Register" to visit the registration page. Please refer to "AlphaCloud Online Monitoring Webserver Installers User Manual", which you can get from AlphaESS sales and get license number from relevant sales from Alpha ESS



Log in to your installer account and choose Storage System Maintenance> "Install new system" to register new system at Alpha ESS.

Storage System Maintenance

English Logout

Install new system

\* S/N  \* Check Code  \* License No.

\* Installation Date  \* Client Full Name  \* Contact Number

\* Contact address

Remark

Attachment  未选择任何文件

Enter the system S/N, check code, license, installation date, client name, contact number, contact address, and click the save button. The red \* in front of it is required. Click the Browse button to select the attachment you want to add.

## 1. System Setup in Monitoring

The system settings of the SMILE-B3 must be carried in the installer monitoring. To do this, follow the steps below:

**Step 1:** Please login in the installer account, click the list of storage systems and enter the SN.

### 1. Basic Information

**Step 2:** After selecting the correct system, enter System Setup interface. Enter in the "Basic Information" and input below information:

- Address,
- Zip code,
- Contact name,
- E-Mail address,
- Currencies and
- Telephone number.



**NOTE:** Do not forget to click "Save" button!

### 5.1.2 Meter Information

The initial setup is CT connection. If you use CTs, please ignore this section. Otherwise please find the "Meter Information" interface in the "System setup" menu.

Alpha-ESS

List of storage systems

English Logout

System Data

Sort by: AL400109040244 Search by:

Basic Information

Inverter Information

Battery Information

Meter Information

meter on the Grid side

Meter

CT

Meter Model

CT

Figure 5.1 Interface of Meter Information on Server

**Step 3:** Please select the meter information sub-menu and set the meter configuration. Choose the meter type used and, if necessary, the CT ratio for the grid meter and PV meter individually.

After that you must specify whether you have installed a CT or an electricity meter (ADL3000 or ACR10R) and in the case of electricity meters, please further select with or without CT were connected.

1. If a CT is installed, select directly the point "CT"

2. If a meter is installed, select the item "meter"

a) If a CT meter is installed, select in addition to the second point "CT" and set the CT ratio.

### 5.1.3 Inverter Information

**Step 4:** If PV modules are installed, please set the installed PV power, such as 8 kWp in "On Grid Cap (kW)" of "Inverter Information" interface

Inverter Information

Model Storion-SMILE-B3	PV Installed Capacity(KW) 8	Rated Output Power(KW) 3	InvSN A1S0302G1851E0022C
On Grid Cap(KW) 8	Storage Cap(KW) 0	DC Merter Negate Normal	AC Merter Negate Normal
Safe ARN4105(Germai)	Power Fact 0	Volt 5 Min Avg 0	Volt 10 Min Avg 0
Temp Threshold 0	Out Cur Protect 0	DCI 0	RCD 0
PvISO 0	Charge Boost Cur 0	Bat Ready Close	Maximum grid charging 0

### 5.1.4 Other Information

**Step 5:** Finally, select the "Other Information" submenu and set the following parameter:

- ACDC mode: it should be AC mode
- Time zone
- Data upload frequency: SMILE-B3 has second level data, you can choose it as 10s data if you wish.

Other Information

System Mode: Normal

Allow automatic updates: Yes

Update Config Time: [Empty]

ACDC: AC

Max. Feed in Rate: 100

Meter Phase: 0

EMS Set Function Mode: [Empty]

BackupBox SN: 0

SuperCableBox SN: [Empty]

Power source: [Empty]

Ems language: English

Time zone: [UTC+01:00] Amsterdam, Berlin, Bern, Rome, St

Firmware version number: V1.02

Allow Sync Time: Yes

Data upload frequency: 300[s]

### 6.1 Account Registration

You can create a new account on our webserver for the normal monitoring. In addition, a part of our warranty is based on this connection to our webserver.

The data produced prior to registration can be synchronized to the webserver.

Please use the following steps:

**Step 1:** Open the portal: [www.alphaess.com](http://www.alphaess.com).

**Step 2:** Please fill in "Username", "Password" and click "Login" if you have already registered.

If not, please register by filling in the following web form.

AlphaESS

Log in

Username

Password

Forgot Username Forgot Password

Log in

Register

Imprint Privacy Policy

Register

User Type: End user

S/N

Username

Password

Confirm Password

Country

Province/State

City

Address

Zip Code

Language: English

Contacts

Contact Number

E-mail

Time zone: [UTC+12:00] International Date Line West

Communication upgrade?

Read and accept Terms and Conditions

SIGN UP NOW

Back

In this form, all fields with a red star are compulsory, and you can select the finally users or installation procedures.

**\*Serial number:** EMS serial number (please see the nameplate of the inverter)

**\*Username:** 5-15 letters / numbers



**NOTE:** User name cannot be changed anymore after creation.

**\*Password:** 5-15 letters / numbers / characters

More details are available in the *Online Monitoring Web Server Installers User Manual*, which can be downloaded from AlphaESS homepage.

Figure 6.2 Account Registration Interface