 @AlphaEnergyStorageSystem

 @AlphaESS





 @alpha_ess

 @AlphaESS

Alpha ESS Co., Ltd.

 +86 513 806 068 91
 info@alpha-ess.com
 www.alpha-ess.com
 JiuHua Road 888, High-Tech Industrial Development
 Zone 226300 Nantong City, Jiangsu Province

Alpha ESS Suzhou Co., Ltd.

 +86 512 6828 7609
 info@alpha-ess.com
 www.alpha-ess.com
 Building 10-A, Canal Town Industrial Park,
 99 Taihu E Rd, Wuzhong District, Suzhou 215000

Alpha ESS Europe GmbH

 +49 610 3459 1601
 europe@alpha-ess.de
 www.alpha-ess.de
 Paul-Ehrlich-Straße 1a 63225 Langen




Alpha ESS Italy S.r.l.

 +39 599 239 50
 info@alpha-ess.it
 www.alpha-ess.it
 Via Loda,17-41013 Castelfranco Emilia(MO)



Alpha ESS Australia Pty. Ltd.

 +61 1300 968 933
 australia@alpha-ess.com
 www.alpha-ess.com.au
 Unit 1, 2 Ralph Street Alexandria NSW 2015

Alpha ESS Korea Co., Ltd

 +82 64 721 2004
 korea@alpha-ess.com
 2F, 19-4, Nohyeong 11-gil, Jeju-si, Jeju-do,
 Republic of Korea

Alpha ESS UK Co., Ltd

 uk@alpha-ess.com
 Drake House, Long Street, Dursley, gl11 4hh

INSTALLATION MANUAL OF ENERGY STORAGE SYSTEM(ESS)

STORION-T30 (INDOOR,WITH M48112-S)



Copyright Statement

This manual is under the copyright of Alpha ESS Co., Ltd, with all rights reserved. Please keep the manual properly and operate in strict accordance with all safety and operating instructions in this manual. Please do not operate the system before reading through the manual.

CONTENT

01	INTRODUCTION	04
1.1	Brief Introduction	04
1.2	Explanation of Terms	04
02	SAFETY INSTRUCTIONS	05
2.1	Manual Keeping	05
2.2	Operator Requirements	05
2.3	Protection of Warning Sign	05
2.4	Setting of Warning Sign for Safety	06
2.5	Live Line Measurement	06
2.6	Measuring Equipment	06
2.7	Electrostatic Prevention	06
2.8	Moisture Prevention	06
2.9	Operation after Power Failure	06
2.10	Minimum Personal Protective Equipment	07
03	PRODUCT DESCRIPTION	08
3.1	Appearance of the Product	09
3.2	Product Characteristics	09
3.3	Parameters of Components	10
3.3.1	PCS	10
3.3.2	Battery System	11
3.3.3	T30 cabinet	16
3.3.4	Backup box (If available)	16
04	INSTALLATION	17
4.1	Installation Precautions	17
4.2	Parts List	17
4.3	Installation	19
4.3.1	Cabinet Installation	19
4.3.2	Battery Installation	21
4.4	Wiring	22
4.4.1	Battery Side Wiring	22
4.4.2	System Grounding	26
4.4.3	AC Side-Wiring	27

4.4.4 Backup box (If available)	28
4.4.5 Meter Wiring	28
4.4.6 AC Auxiliary Power Cable Connection	30

05 START-UP AND OPERATION 31

06 CONTACT 32

01 Introduction

1.1 Brief Introduction

This manual applies for Storion-T30 Li-ion battery energy storage system, mainly includes:

(1) Safety introduction

Introduces the product use, operating notes and qualification of operators of T30 Li-ion battery energy storage system.

(2) Product description

Describes product appearance, product characteristics, system composition and major functions of T30 Li-ion battery energy storage system.

(3) System installation

Introduces the installation of T30, including cautions.

1.2 Explanation of Terms

(1) Lithium iron phosphate cell (LiFePO₄)

Basic unit is constituted by electric poles and electrolytes; Each cell is independent and closed.



NOTE: Paralleled cell cannot be regarded as an independent cell, even repacked as one whole battery pack.

(2) Lithium iron phosphate pack

Combination made up of battery monitoring circuit, battery equalization circuit, electrical connectors, communication interfaces, thermal management devices and multiple Lithium iron phosphate cells.



NOTE: For packs from same company, all the details such as physical size, working performance and interface specification should be consistent so that all the packs are compatible and interchangeable.

(3) Battery management system

Electronic equipment collection for monitoring the operating information of cells, packs and system units (such as voltage, current, temperature, protective parameter of batteries), evaluating the state of charge (SOC), the state of health (SOH) and cumulative processed energy and protecting batteries for safety, etc.

(4) Battery system unit

A combination of batteries through series parallel combination inside and a battery management system (BMS) in which accesses to DC side of a bidirectional converter.

(5) Storage unit

A combination of a bidirectional converter and a battery system unit, which can be used as an independent load or be controlled directly by monitoring system.

2.1 Manual Keeping

This manual contains important information about operating the system. Please read it carefully before operation.

The PCS should be operated in strict accordance with the description in the manual, in case that it causes damage or loss to equipment, personnel and property.

This manual should be kept carefully for maintenance and repairation.



NOTE: To ensure optimal reliability and to meet warranty requirements, the Energy Storage System must be installed according to the instructions in this manual.

2.2 Operator Requirements

The operators should get a professional qualification, or be trained.

The operators should be familiar with the whole storage system, including compositions and working principles of the system. ;

The operators should be familiar with the Product Instruction.

While carrying out maintenance work it has to be at least two operators in the field all the time. They cannot operate on any equipment until they are all powered off and fully discharged.

It is strictly prohibited for any maintenance to be carried out when equipment is on or charged.



NOTE:

(1)If the installer leaves the site, the system that has not started normal operation during debugging should be shut down in time, including batteries and PCS.

(2)When the system fails in normal operation, please refer to the troubleshooting table to solve the problem first. If the problem cannot be solved, please contact AlphaESS engineers. If you cannot contact in time, please shut down the system.

If the equipment is damaged due to unauthorized operation without following the above precautions, it will not be covered by the warranty.

2.3 Protection of Warning Sign

The warning sign contains important information for the system to operate safely and it is strictly prohibited to torn or damage the sign.

Ensure that the warning sign is always clear.

The signs should be replaced immediately if damaged.

2.4 Setting of Warning Sign for Safety

While instructing, maintaining and repairing, in case of incorrect operation or accident caused by unrelated personnel nearby, the suggestions below should be followed: Obvious signs should be set at front switch and rear-level switch in case of accidents caused by false switching.

Warning signs or tapes should be set near the operation areas.

Keys of the system must be pulled out after maintenance or operation.

2.5 Live Line Measurement

High voltage in the cabinet which may cause vital electric shock when touched by accident.

Equipment protection must be taken in live line measurements (e.g.: insulation gloves).

The measuring equipment should be connected and used correctly to ensure personnel safety. When measuring, at least two workers are needed.

2.6 Measuring Equipment

To ensure the electrical parameters to match requirements, related measuring equipment are required when the system is being connected or tested.

Ensure that the connection and use matches specification in case of electric arc or shock.

2.7 Electrostatic Prevention

Contact or improper operation of the printed circuit board or other ESD sensitive components may result in damage to the device. Unnecessary contact should be avoided.

2.8 Moisture Prevention

It is very likely that moisture may cause damages to the system.

Do not open the cabinet door if the humidity is larger than 95%.

Repair or maintaining activities in wet conditions should be avoided or limited.

2.9 Operation after Power Failure

The battery system belongs to energy storage system, which maintains fatal high voltage even when the DC side is disconnected. Therefore, touching of the battery output is strictly prohibited.

The PCS maintains fatal voltage even when both the DC or AC side are disconnected, so it must be tested by the multimeter for safety before operation.

2.10 Minimum Personal Protective Equipment

For the safety of operators to the system, personal protective equipment are required. During the operation, following protective equipment are required:

No.	Item	Notes
1	Work clothes	
2	Protective shoes	
3	Protective glasses	

When doing maintenance works such as checking cables or wires, measuring voltage, replacing small electrical parts or cleaning modules and brackets, as minimum the following protective equipment are required:

No.	Item	Notes
1	Work clothes	
2	Protective shoes	
3	Protective glasses	
4	Insulated gloves	For touching live parts



NOTE: All metal tools during maintenance should be insulated.

When replacing modules, the following protective equipment are required:

No.	Item	Notes
1	Work clothes	
2	Protective shoes	
3	Protective glasses	
4	Insulated gloves	For touching live parts



NOTE: When replacing modules, the hydraulic lift should be used carefully in case that the modules may fall down. All workmen are suggested to wear high-safety and high strength protective shoes to protect their feet.

03 Product Description

The AlphaESS Storion-T30 energy storage system is an on-grid system designed for self-consumption at certain periods or for load shifting. Since it is equipped with an energy storage inverter, the T30 can work in DC/AC mode.

The overall system connection diagram is shown in the Figure 3-1 and Figure 3-2.

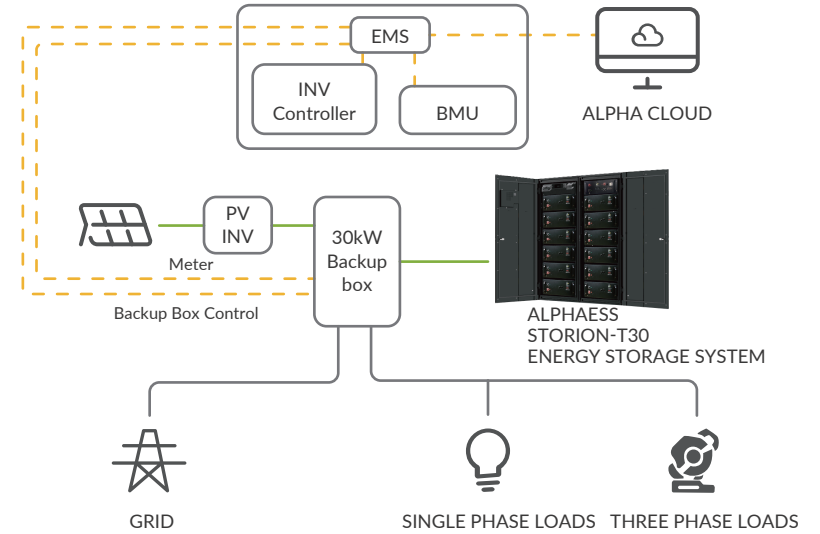


Figure 3-1 Application of the system (With backup box)

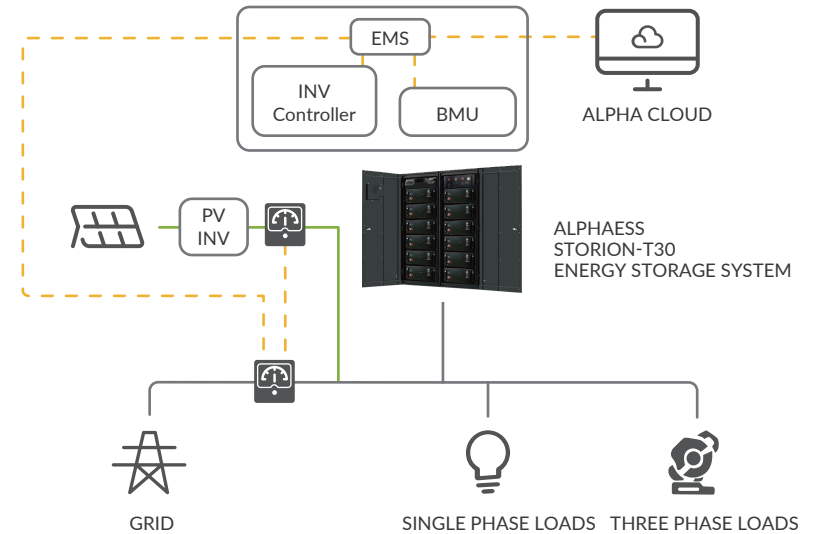


Figure 3-2 Application of the system (Without backup box)

3.1 Appearance of the Product

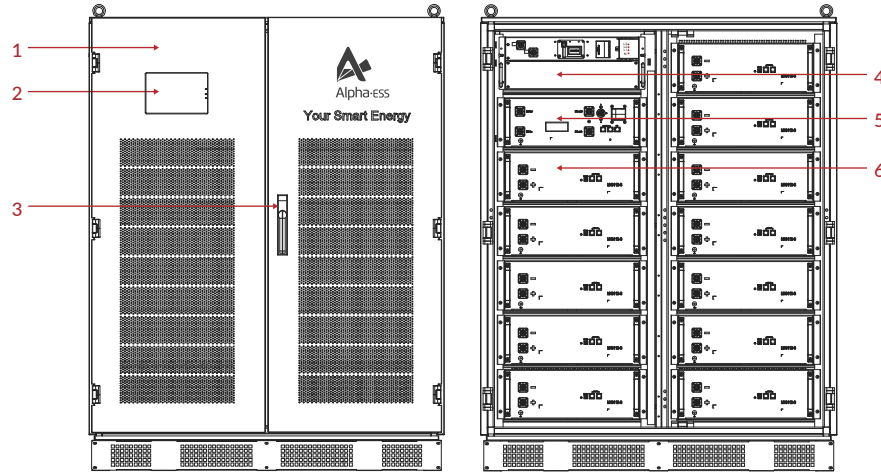


Figure 3-3 Appearance of product

Table 1 Cabinet composition

Item	Components
1	Cabinet
2	Android display screen
3	Cabinet handle
4	Inverter
5	HV900112
6	M48112-S

3.2 Product Characteristics

LiFePO4 batteries produced by AlphaESS have longer lifespan and higher reliability, which is able to satisfy the application of energy storage systems.

The system is highly modular designed, and it is easier to assemble, transport and maintain.

The system has a three-level BMS and is allowed for system expansion.

The system adopts all time balancing technology so that the consistency of batteries and modules can be well ensured.

The system is designed as a removable cabinet which is compact in structure, flexible, convenient for installation and testing, and suitable for the working environment and is able to satisfy different kinds of applications.

The system has current balance technology between strings in case of circulating current or unbalanced power.

The system has both remote monitor function and local control function.

The system realizes flexible scheduling of electric power system through communication among BMS, PCS and monitoring system.

3.3 Parameters of Components

3.3.1 PCS

3.3.1.1 Product Instruction

Storion-T30-INV is an energy storage inverter. There are three operation modes: grid-tied discharging, charging and off-grid discharging. When the battery voltage connected to T30-INV is within the preset normal voltage range, the inverter can operate under grid-tied discharging, charging and off-grid discharging. If the inverter is in discharging state, the DC power supply of the battery can be inverted into 3-phase AC power supply. If the inverter is in charging state, the 3-phase AC power energy of the power grid can be stored into battery.

3.3.1.2 Appearance Instruction

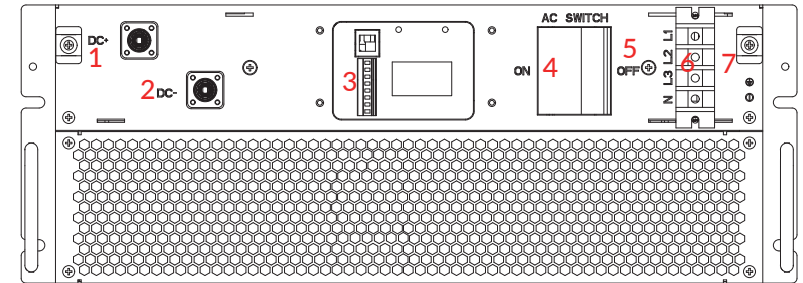


Figure 3-4 Inverter front view

Table 2 Inverter interface definition

Position	Description	Position	Description
1	DC +	5	AC protection shell fixing point
2	DC -	6	AC terminal block, M6 crimp terminal are recommended.
3	RS-485, R-in+, R-in-, R-out+, R-out-	7	Ground protection block, M4 crimping terminals are recommended.
4	AC Switch		

3.3.1.3 Technical Parameters

Table 3 Inverter parameters

Item	Description	Parameter	Remark
1	Max. AC Input Current	42 A	
2	Nominal AC Input Voltage	400 V	
3	Battery Voltage Range	200 ~ 750 V	
4	Max. Charge/Discharge Current	90 A	
5	Max. Charge/Discharge Power	30 kW	
6	Phase	Three-Phase	
7	Rated Voltage	400 V	
8	Grid Voltage Range	360 ~ 440 V	
9	Rated Frequency	50/60 Hz	
10	Dimension (W x D x H)	440 x 596 x 173 mm	
11	Weight	43kg	
12	Grid Regulation	VDE-AR-N 4105, E DIN VDE V 0124-100, G59/3-2	
13	Safety	IEC 62477-1, IEC62040-1-1	
14	EMC	EN 61000-6-2, EN 621000-6-4	

3.3.2 Battery System

Table 3 Inverter parameters

Item	Description	Parameter	Remark
1	Max. DC Power	30 kW	
2	Energy storage capacity	According to the project situation	Ambient temperature is 30°C, measured at DC side
3	Continuous discharge current	112 A (1C)	
4	DC voltage range	580 ~ 675V(12 Batteries)	
5	Communication interface	RS485, CAN2.0	

3.3.2.1 M48112-S

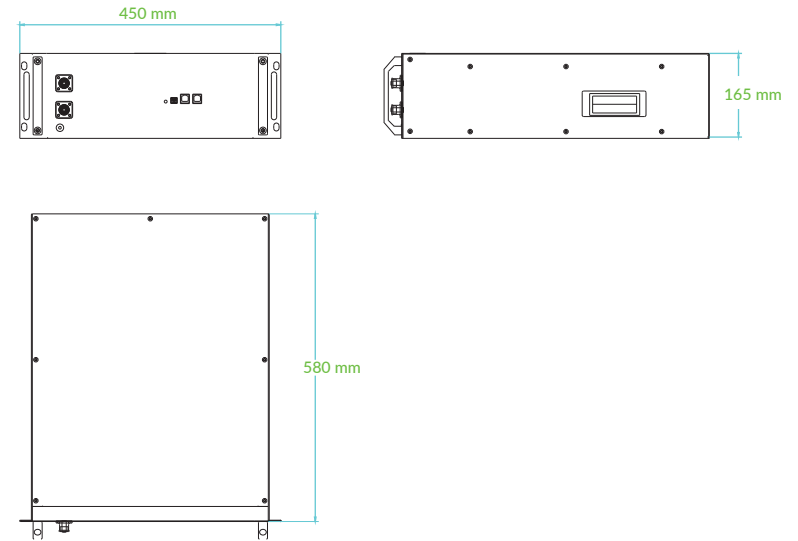


Figure 3-5 M48112-S appearance and dimensions

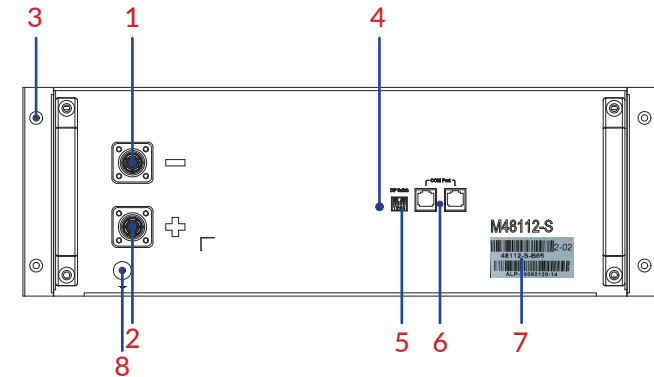


Figure 3-6 M48112-S front cover

Table 5 Battery interface definition

No.	Description	No.	Description
1	Battery negative pole	5	DIP switch
2	Battery positive pole	6	COM port (CAN) x 2
3	Grounding point x 4	7	Information label
4	LED light	8	Grounding point (Reserved)

The DIP switch of M48112-S defines the serial number. Please see the detailed description in the following table.

Table 6 DIP switch definition of M48112-S

Serial Number	DIP Switch	Serial Number	DIP Switch	Serial Number	DIP Switch
1		6		11	
2		7		12	
3		8		13	
4		9		14	
5		10		15	

Table 7 Battery technical parameters

No.	Item	Technical parameter	Remark
1	Battery model	M48112-S	
2	Assembly method	16S2P	
3	Nominal voltage	51.2 V	
4	Voltage range	48 ~ 57.6 V	
5	Nominal capacity	112 Ah	Max. charge / discharge current 1C
6	Nominal stored energy	5.734 kWh	
7	Work power consumption	0.4752 W	
8	Dormant power consumption	1.52 mW	Battery dormant state
9	Max. charge/discharge current	112 A	Constant current mode
10	DC internal resistance	< 20 mΩ	Factory default

11	Transportation/storage temperature range	-20 ~ 45 °C	
12	Operating temperature range	-10 ~ 50 °C	
13	Communication mode	CAN	
14	Weight	65 kg	
15	Size (W x D x H)	450 × 580 × 165 mm	
16	Humidity	15% ~ 85%	

3.3.2.2 HV900112

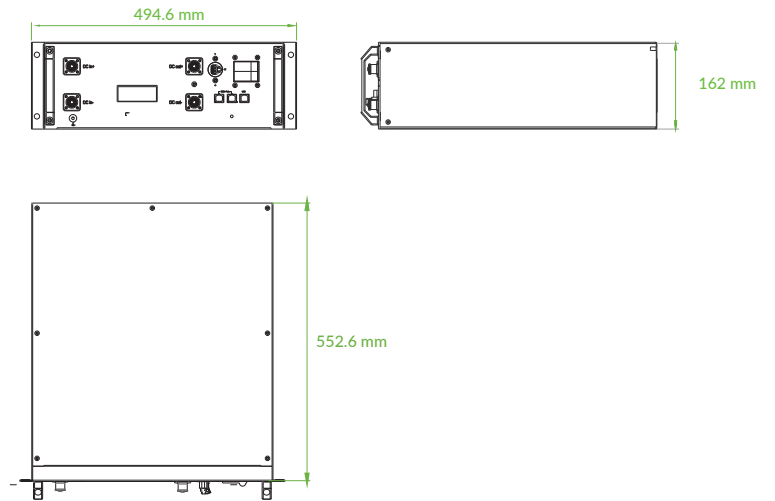


Figure 3-7 HV900112 appearance and dimensions

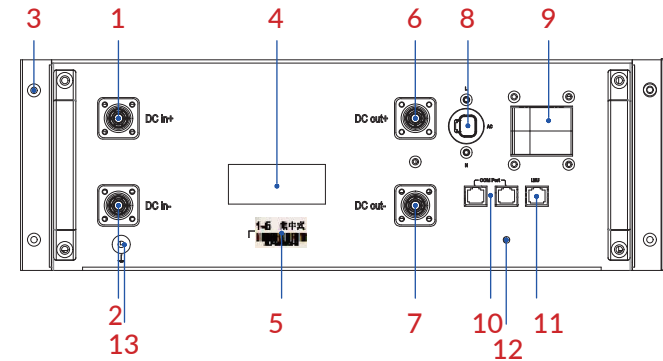


Figure 3-8 HV900112 front view

Table 8 HV900112 interface definition

No.	Description	No.	Description
1	DC in+	8	AC input (auxiliary power)
2	DC in-	9	AC Air switch (auxiliary power)
3	Grounding point x 4	10	BMU COM port (CAN) x 2
4	Moulded case circuit breaker	11	LMU COM port (CAN)
5	Information label	12	LED light
6	DC out+	13	Grounding point (Reserved)
7	DC out-		

Table 9 HV900112 technical parameters

No.	Item	Technical parameter	Remark
1	High-voltage control box	HV900112	
2	Working voltage range	200 ~ 900 V	
3	Modules Connection	5~12 M48112-S in series	with only 5 batteries, the batteries will not be fully discharged
6	Rated current	112 A	
7	Dimensions (W x D x H)	495*553*162 mm	
8	Weight	20 kg	
9	Power consumption	<10 W	

3.3.3 T30 cabinet

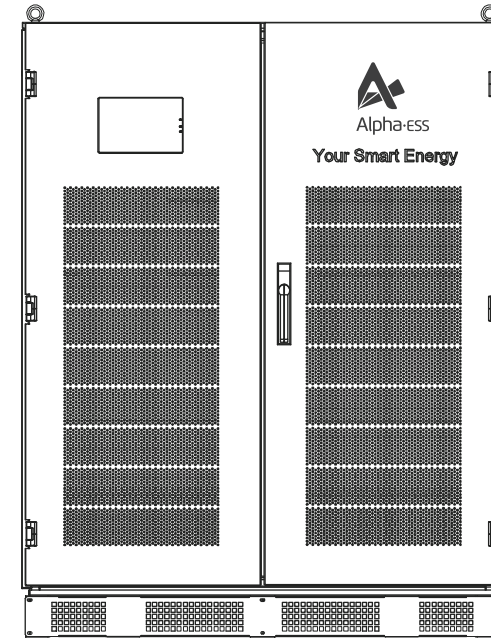


Figure 3-9 Cabinet appearance

Table 10 Main parameters of cabinet

No.	Item	Parameter
1	Dimensions (W x D x H)	1180 * 700 * 1500 mm
2	Weight	170 kg
3	Color	Black

3.3.4 Backup box (If available)

For the detailed installation steps of Backup box, please refer to "QUICK INSTALLATION Backup Box (30kW)".

4.1 Installation Precautions

The following sites are not allowed for installation:



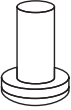

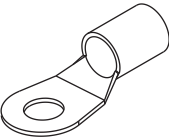
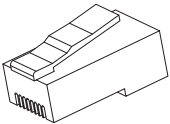
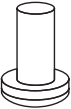
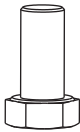
- A.Sites which are salty and where humid air can penetrate.
- B.Flooded areas.
- C.Earthquake areas(additional security measures are required here).
- D.Sites that are higher than 3000 meters above the sea level.
- E.Sites that are in an explosive or potentially explosive atmosphere.
- F.Sites with extreme changes of ambient temperature.
- G.Sites with highly flammable materials or gases.



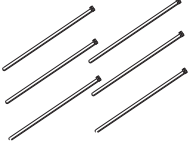


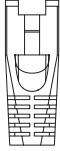
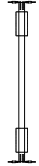






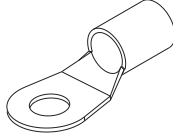
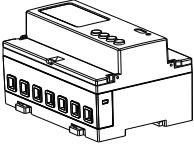
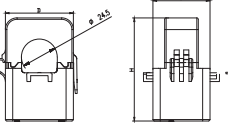


NOTE: The indoor temperature of the installation system is preferably between 15°C 25 °C.

4.2 Parts List

Table 11 Parts List

M48112-S			
			
810.10515-00 1 X Power Cable 130 mm, Black-Red, BAT-BAT	810.00033-00 1 X Communication Cable 280 mm, BAT-BAT	410.00080-00 4 X M6*16	410.50001-00 4 X M6 Grounding Serrated Washer
System			
			
110.00016-00 1X Cable Bond	112.70001-00 12XCrystal Head	410.00080-00 8 X M6*16	410.40005-00 4 X M12*25 Hex Screw

			
411.00022-00 4 X M12 Hex Nut	422.50001-00 8 X M6 Grounding Serrated Washer	640.00001-00 20 X Cable Tie	810.00035-00 1 X Communication Cable 2200 mm
			
810.00037-00 1 X Communication Cable 1150 mm	810.10412-00 2 X Terminal Resistance	810.10602-00 1 x Communication Cable 1250mm EMS-INV	810.10612-00 AC Auxiliary Power Cable 550mm
			
810.90019-00 1 X Power Cable 2300 mm, Black-Red, BAT-BAT	810.90020-00 1 X Power Cable 130 mm, Black-Black, BAT-HV	810.90021-00 1 X Power Cable 2120mm, Red-Red BAT-HV	810.90026-00 1 X Power Cable 250mm, Red-Red, HV-INV
			
810.90027-00 1 X Power Cable 235mm, Black-Black, HV-INV	6 X Cable Bond	1 x Meter with 3 CT (on-grid mode-DC); 2 x Meter with 6 CT (on-grid mode -AC)	3*CT (on-grid mode-DC); 6*CT (on-grid mode -AC) Outline size (W*H*D) : 39*71*46.5mm Through size : Φ24.5mm

			
1 x Installation manual	1 x Operation and maintenance manual		

4.3 Installation

4.3.1 Cabinet Installation

4.3.1.1 Removal

When removing the T30-cabinet, a forklift can be used to remove the whole case. Users can lift the device bottom with a forklift or remove the cabinet through the lifting hole on its top with a crane. It can be transported alone.

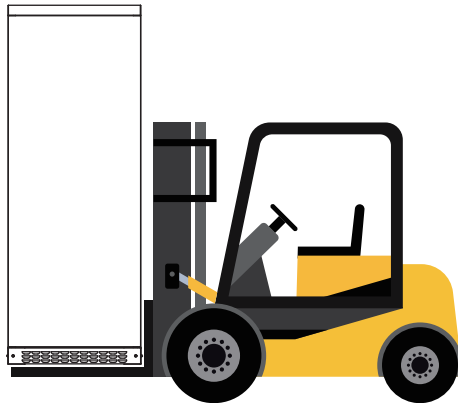


Figure 4-1 Moving method for cabinet

4.3.1.2 Operation Space

The installation space of the PCS should have a proper distance from its peripheral walls so as to ensure that the machine door can be opened and closed conveniently and there will be sufficient space for module insertion and extraction, normal heat dissipation and user's operation.

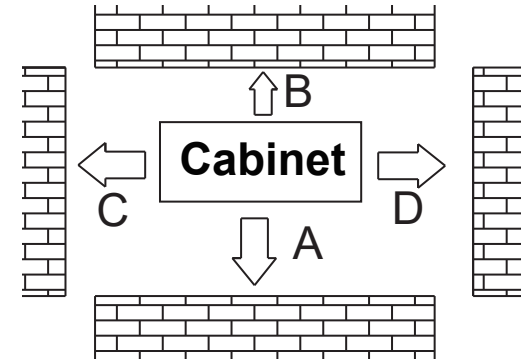


Figure 4-2 Installation space

A	"≥1,000mm, ensure that the front door of the cabinet can be fully opened. There is sufficient space for cold air to enter. Users can conveniently insert and extract modules and operate on the equipment."
B	"≥1,000mm, ensure that the rear door of the cabinet can be fully opened. Ventilation and heat dissipation should be ensured. Users can have sufficient space for maintenance."
C, D	"≥1,000mm, ensure that the front door of the cabinet can be fully opened. Ventilation and heat dissipation should be ensured. Users can have sufficient space for maintenance."

4.3.1.3 Cabinet Grounding point

After the cabinet is removed to the installation site, open the two front doors of the cabinet.



NOTE: Remove all of the cables tied to the rack from the cabinet before installation.

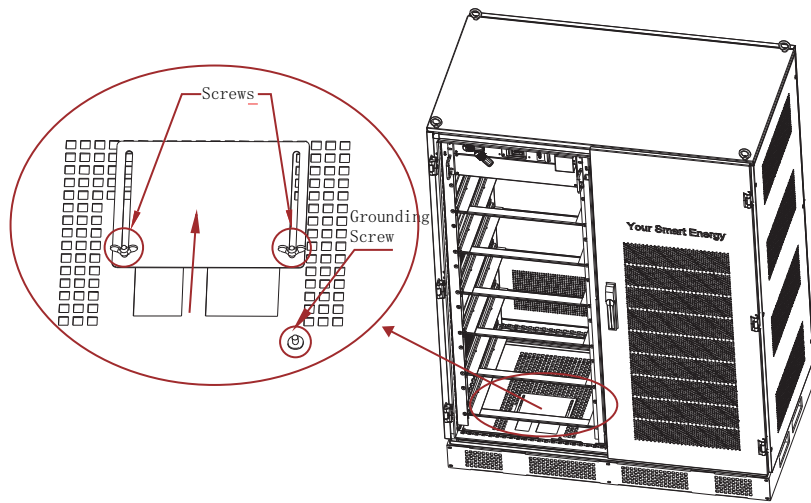


Figure 4-3 Pushed the baffle plate

After opening the cabinet door, the bottom position of the cabinet is shown in Figure 4-3. Then, please loose the baffle plate, rotate the two screws clockwise and push the baffle plate to the direction as shown in the figure. Grounding wire, communication cables and grid cables need to penetrate through the entrance, and then push the baffle plate back, and lock the screws on both sides.

Fasten the grounding wire to the screws shown in Figure 4-3 with M6 nuts.

4.3.2 Battery Installation

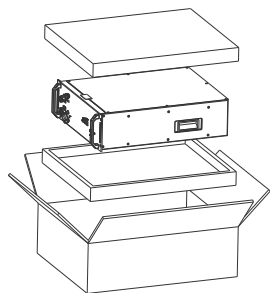


Figure 4-4 Remove the battery

Step 1:
Open all the battery packages.

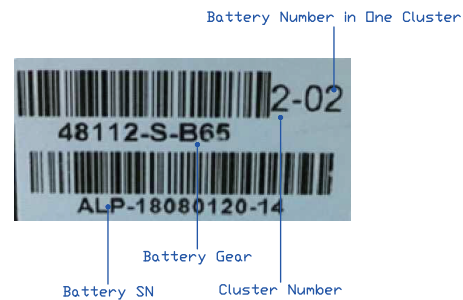


Figure 4-5 Battery label information

Step 2:
Check the Battery No. and cluster No. on the battery cover.

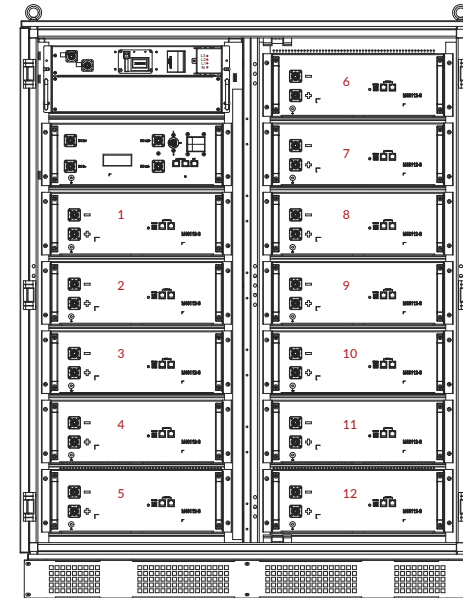


Figure 4-6 Install the battery

Step 3:

Put the same cluster of batteries on the same rack with the serial number of 01 to 12 as the above figure shows. The DIP switch defines the serial number, see Table 6.



NOTE: All the battery group No. shall be the same. In one cluster the DIP switch of each battery should be different from others. When you are installing the battery, please to avoid scratches because of the heavy battery.

Step 4:

After completing one rack, please check whether the installed batteries have the same cluster No. and the same battery group No.

4.4 Wiring

4.4.1 Battery Side Wiring

4.4.1.1 Communication Cables Connection

A. Please refer to the following figure, connect the communication cables among batteries of one cluster. These cables are in parts list of each battery.

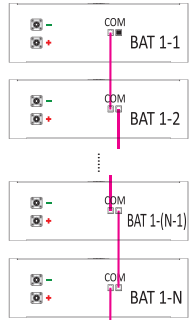


Figure 4-7
Communication cables connection in one cluster

B. Take the terminal resistance in the HV900112 parts list and insert it into the bottom of the battery COM port. You can see the detailed information in Figure 4-8.

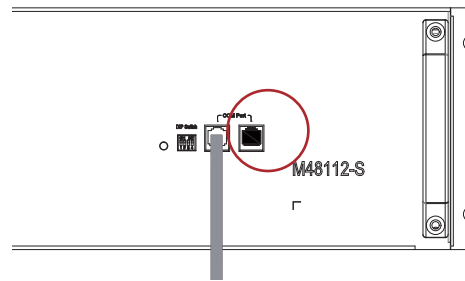


Figure 4-8
Terminal resistance in the bottom of the battery

C. Connect the first battery to HV900112 (LMU Port) by using the communication cables from system parts list. Please see Figure 4-9.

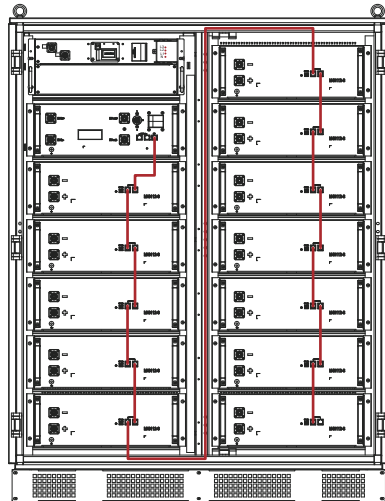


Figure 4-9 Battery side communication cables connection

D. Another COM port of HV900112 should be inserted with the terminal resistance from system parts list. You can see the detailed information in Figure 4-10.

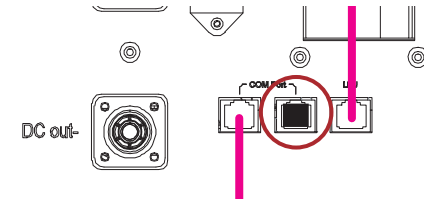


Figure 4-10 Terminal resistance in one of the HV900112

4.4.1.2 Internal Connection

The communication connection is as shown in Figure 4-11.

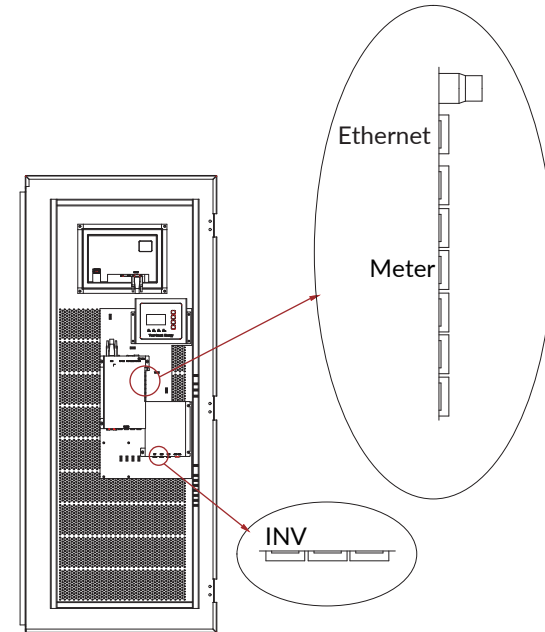


Figure 4-11 Connection LAN and Meter communication cables

a. Connect the LAN communication cable between the Ethernet COM port of EMS board and the router. The definition of RJ45 connector pin is shown in Figure 4-12.

b. Connect the Meter communication cable between the Meter COM port of EMS board and the power meter. Line sequence 3A6B for meter communication RJ45. The definition of RJ45 connector pin is shown in Figure 4-12.

c.If you need dispatching functionality, you can connect the dispatching module in your own location as shown in Figure 4-11. Line sequence 3B6A of dispatching communication RJ45.

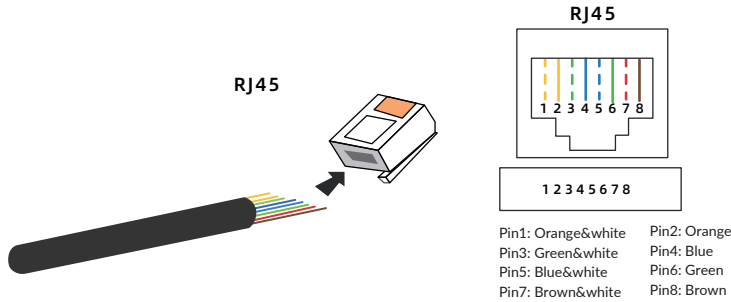


Figure 4-12 RJ45 Connector

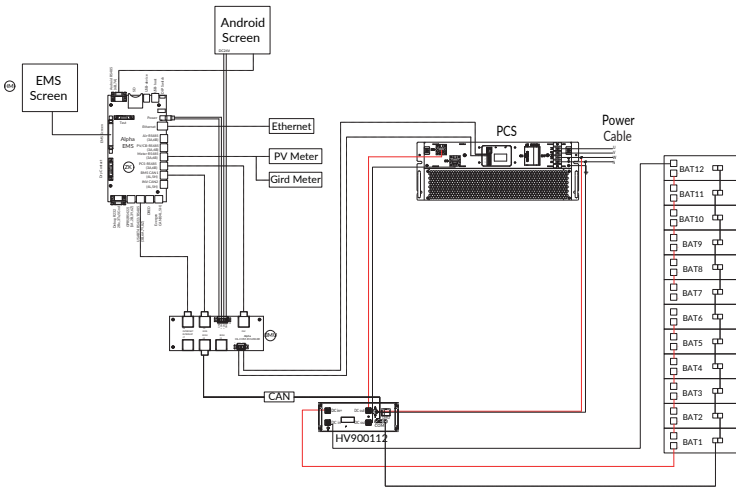


Figure 4-13 Internal Connection

4.4.1.3 Battery Power Cables Connection

The inverter is shipped with the HV900112. The power cables harness from the HV900112 to the inverter has been connected. Please connect other DC power cables between batteries, between batteries and HV900112 as shown in Figure 4-14. The short cables can be found in the battery packing list. The long cables were tied to the cabinet.



NOTE: You can hide the long cables in the cabinet wire casing.

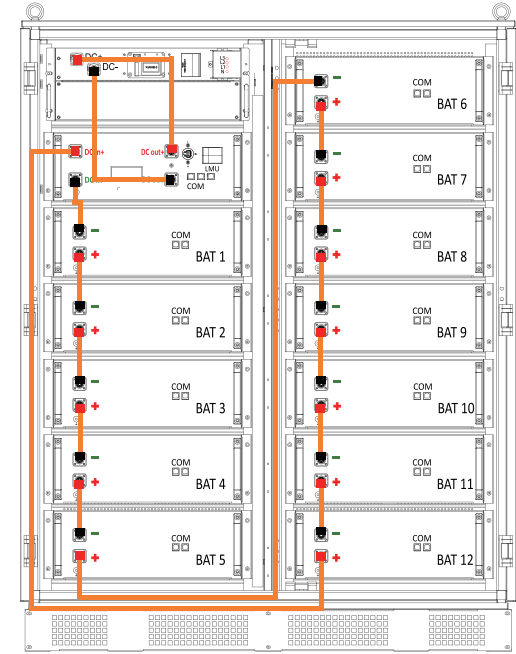


Figure 4-14 Battery side power cables connection

4.4.2 System Grounding

Connect the inverter to the grounding bar through the grounding wire for the grounding protection.

Specifications of cable and terminal:

Grounding wire: the recommended cross sectional area 6mm² (10AWG) outdoor copper core cable

Ring terminal: M4



CAUTION:

Good grounding can resist the surge voltage surge and improve EMI performance. Before connection of AC, DC and communication cables, the grounding wire should be connected first.

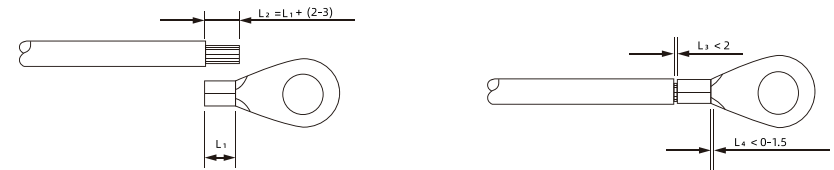


Figure 4-15 Wiring stripping

! WARNING

Rack and modules need to be grounded reliably! The grounding resistance should be less than 4Ω.

4.4.3 AC Side-Wiring

- Step 1: Use a phase-sequence meter for measurement, and ensure that the phase consequence of wires should be correct.
- Step 2: Turn off the AC breaker connected to energy storage inverter.
- Step 3: Use a multimeter to measure and confirm that the cables connected to the terminals are electrically neutral.
- Step 4: Use a wire stripper to strip the AC cable in a proper length, cover a cord end terminal and use wire crimpers to compress it. Recommended AC cable 10mm² with copper cord.
- Step 5: Connect AC cable to “L1” , “L2” , “L3” and “N” of AC wire terminal block.
- Step 6: Make sure the wiring is firm and the waterproof tube of AC cable is locked tightly.

! WARNING

Ensure that there is no voltage at connection points during wiring.

! NOTICE:

All wires are connected to the wiring terminals externally from the wiring holes at the bottom of cabinet. After wiring, fireproofing mud should be used to seal the wiring holes.

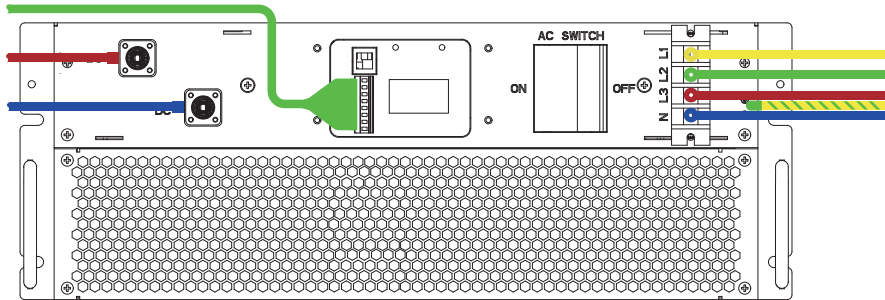


Figure 4-16 Display after completing wiring

4.4.4 Backup box (If available)

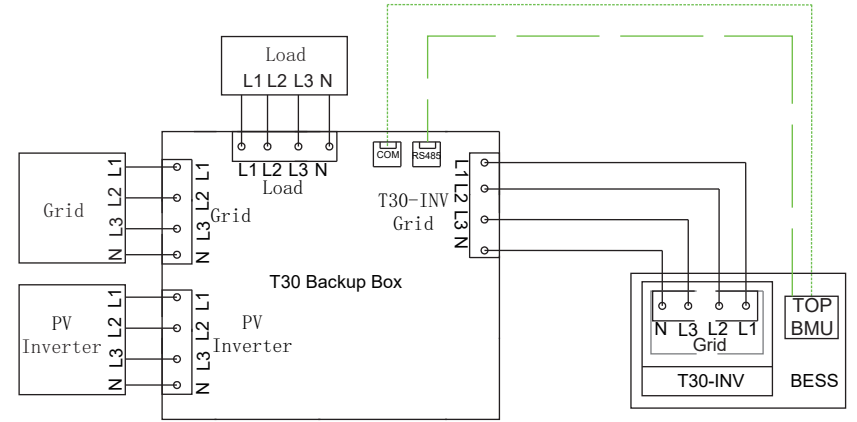


Figure 4-17 Backup box wiring diagram

For the detailed installation steps of Backup box, please refer to "QUICK INSTALLATION Backup Box (30kW)".



NOTE: It takes about 1 minute for T30 system to switch from off-grid to on-grid;It takes about 10S to switch from on-grid to off-grid.

4.4.5 Meter Wiring

Please refer to the following diagram to connect the CT meter.

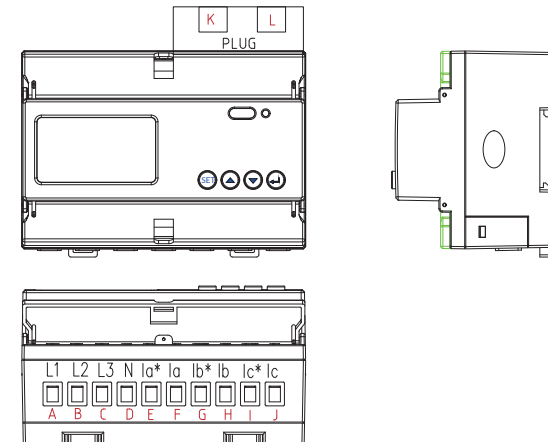


Figure 4-18 Appearance of the meter

Table 12 Ports Description

Object	Name	Description
A	Power port 1	Connect to L1
B	Power port 2	Connect to L2
C	Power port 3	Connect to L3
D	Power port N	Connect to N
E	CT1 sampling cable wiring port Ia*	Connect to S1 of CT1
F	CT1 sampling cable wiring port Ia	Connect to S2 of CT1
G	CT2 sampling cable wiring port Ib*	Connect to S1 of CT2
H	CT2 sampling cable wiring port Ib	Connect to S2 of CT2
I	CT3 sampling cable wiring port Ic*	Connect to S1 of CT3
J	CT3 sampling cable wiring port Ic	Connect to S2 of CT3
K	Meter communication port 1	Connect to EMS or other meters through network cable to realize communication between devices.
L	Meter communication port 2	Connect to EMS or other meters through network cable to realize communication between devices.

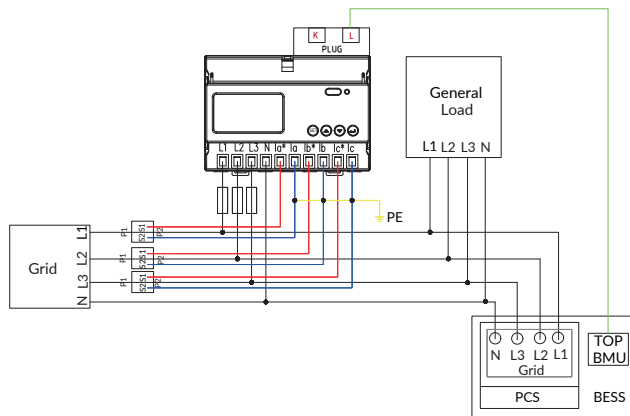


Figure 4-19 Meter wiring diagram (DC mode)

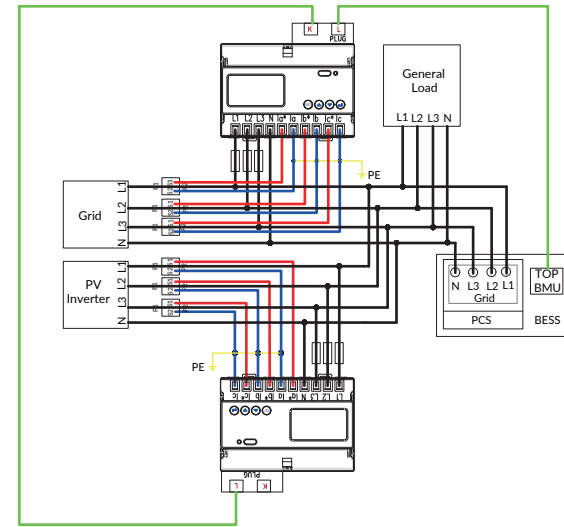


Figure 4-20 Meter wiring diagram (AC mode)

The meter communication cable should be connected to EMS COM 4.

4.4.6 AC Auxiliary Power Cable Connection

- a. Remove the plastic protective cover at the connection point.
- b. Remove the power cable bond from the packing list of cabinet and attach the cable bond to the power cable from the grid, as shown in Figure 4-21.

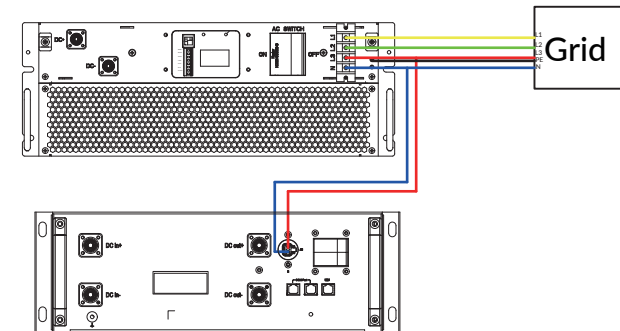


Figure 4-21 AC Auxiliary Power Cable Connection

- c. Please connect the two AC auxiliary power cables. One side of them are connected to the AC auxiliary power interfaces of HV90012 (already connected in advance) and the other side is connected to the L 1 and N port of the inverter.



NOTE: After placing the auxiliary power cable bond above the power cable bond, tighten the screw.

Please refer to the Operation Manual for details.

If you have technical problems with our products, please contact the service hotline, contact information is under the IMPRINT catalog at the beginning of this manual. Please provide the following information to help you with the necessary assistance:

A.Equipment model

B.Serial number

C.Battery type and number, or PV modules number and string type.

D.Communication type

E.Firmware version

F.Error number and error message