User Manual

EPS BOX PRO/PRO-G

Please read this manual carefully before use to avoid improper operation.

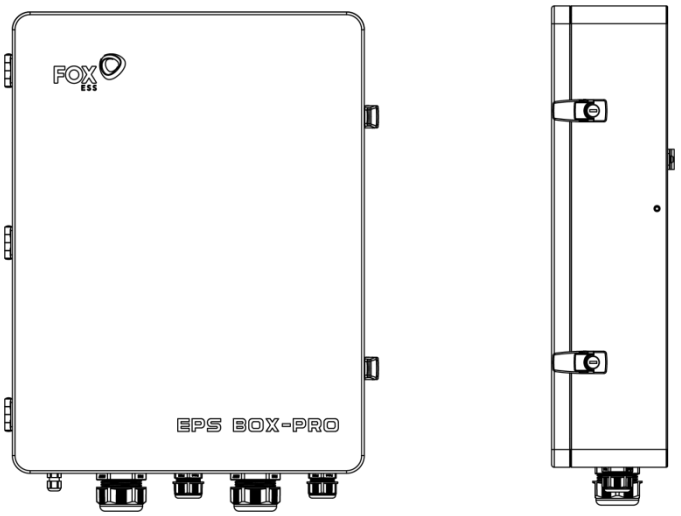
Table of Contents

1 Introduction

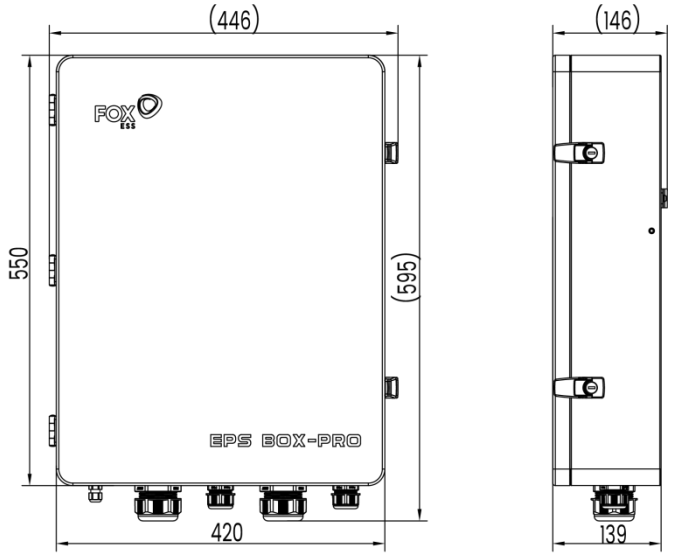
1.1 Basic Features

EPS BOX PRO/PRO-G is a auxiliary product of AIO H3/H3/H3 Smart. EPS BOX PRO is suitable for the residential power system and integrates Smart Meter, Breaker, ATS and other devices internally; It features convenient installation, and the power supply status of the load can be switched automatically or manually. The automatic switching time is less than 3s. It can automatically switch to the Reserve power supply side (EPS terminal of the inverter) to supply power to the load when the power grid fails. It can switch to the power grid side to supply power to the load when the power grid is restored.

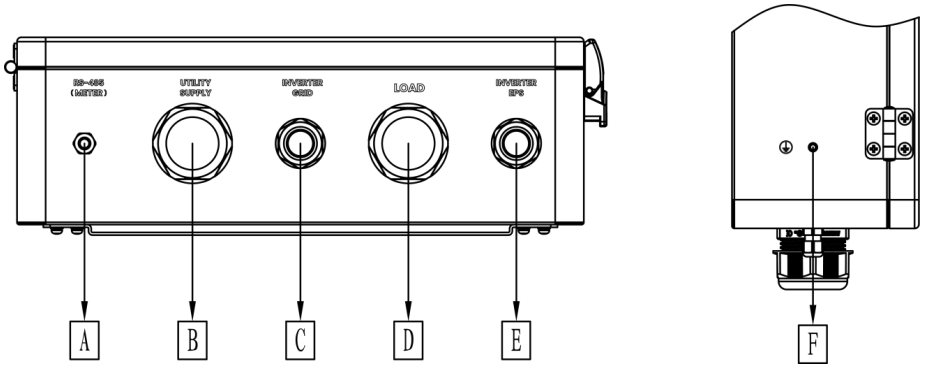
Note: EPS BOX PRO-G no Smart Meter.



1.2 Dimensions(Unit: mm)



1.3 Ferrules of EPS BOX PRO



Item	Description	Item	Description
A	RS-485(METER)	D	LOAD
B	UTILITY SUPPLY	E	INVERTER EPS
C	INVERTER GRID	F	GROUND

NOTE

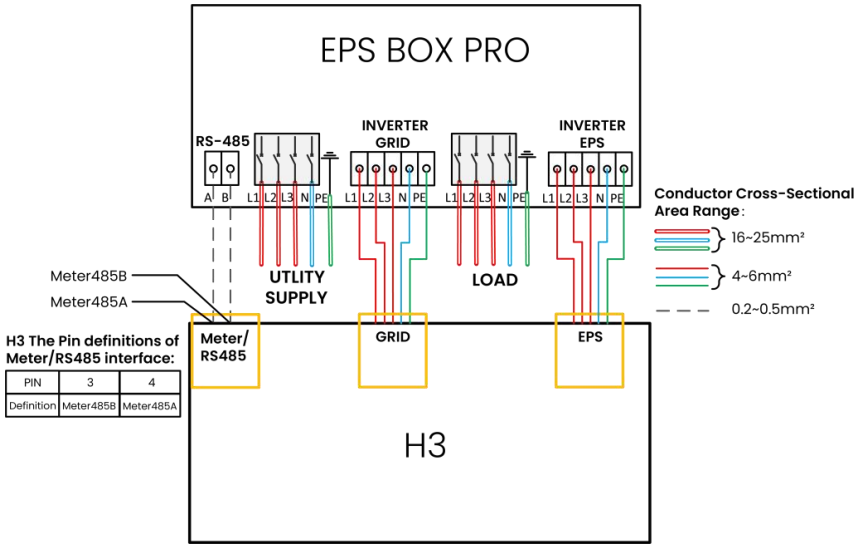
EPS BOX PRO-G no RS-485 (METER)

⚠ WARNING

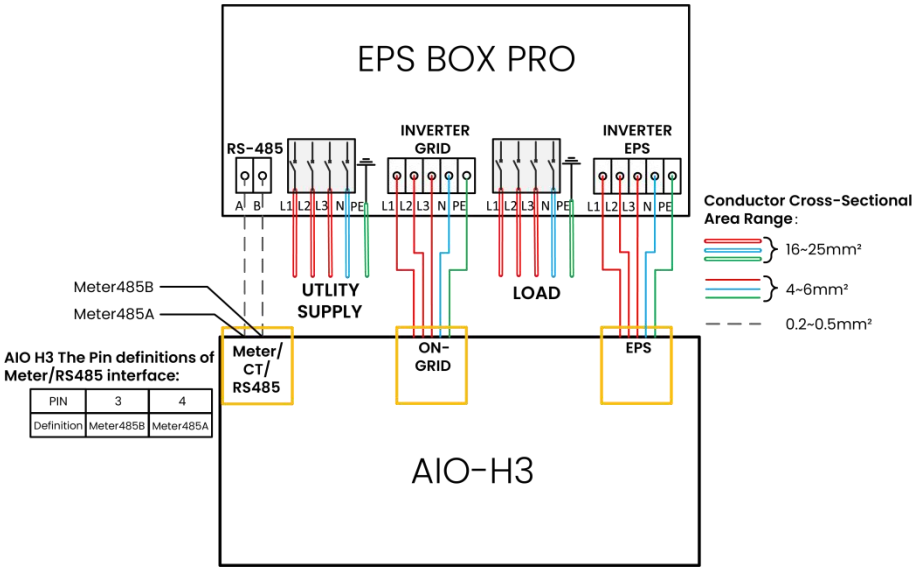
Only authorized personnel are permitted to set the connection.

1.4 Wiring Diagram

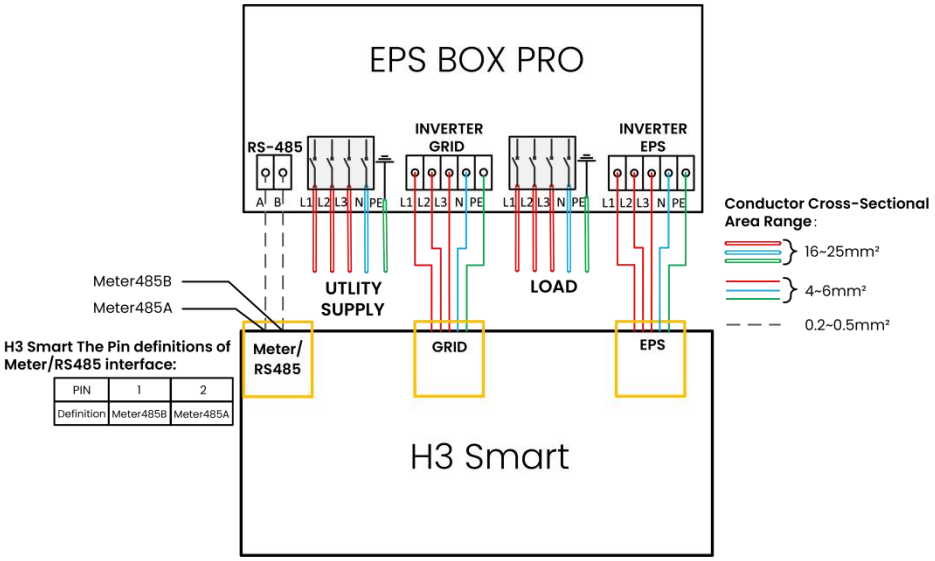
The wiring diagram of EPS BOX PRO with H3/AIO H3/H3 Smart is shown below.



Wiring diagram with H3

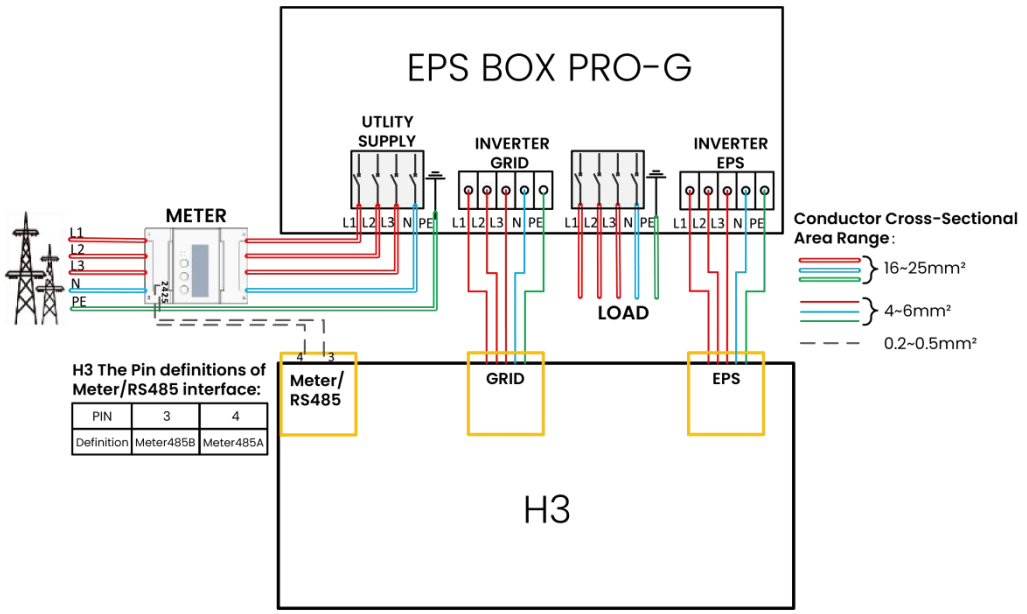


Wiring diagram with AIO-H3

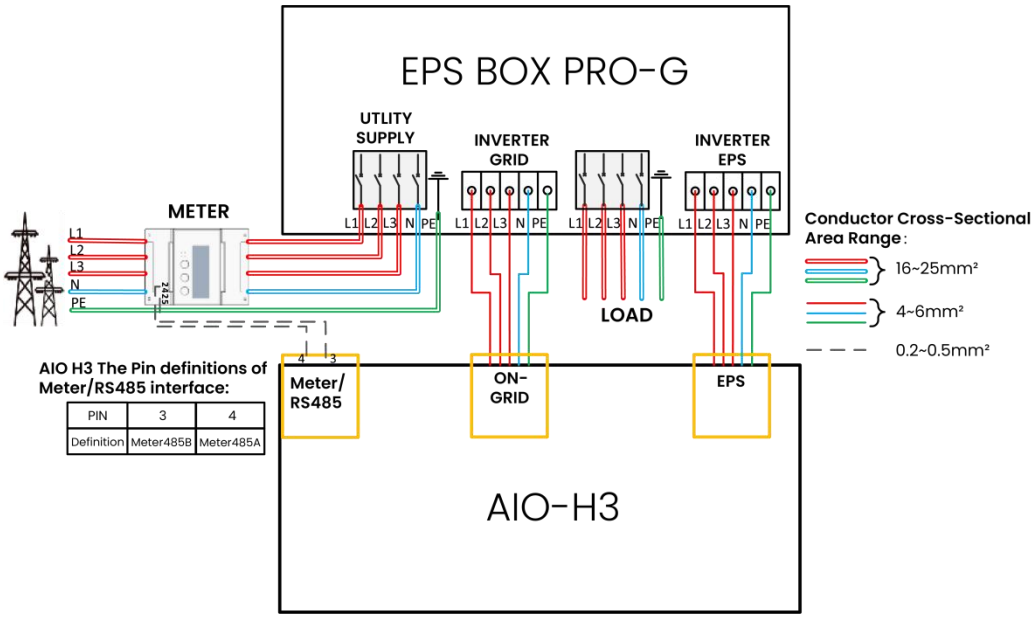


Wiring diagram with H3 Smart

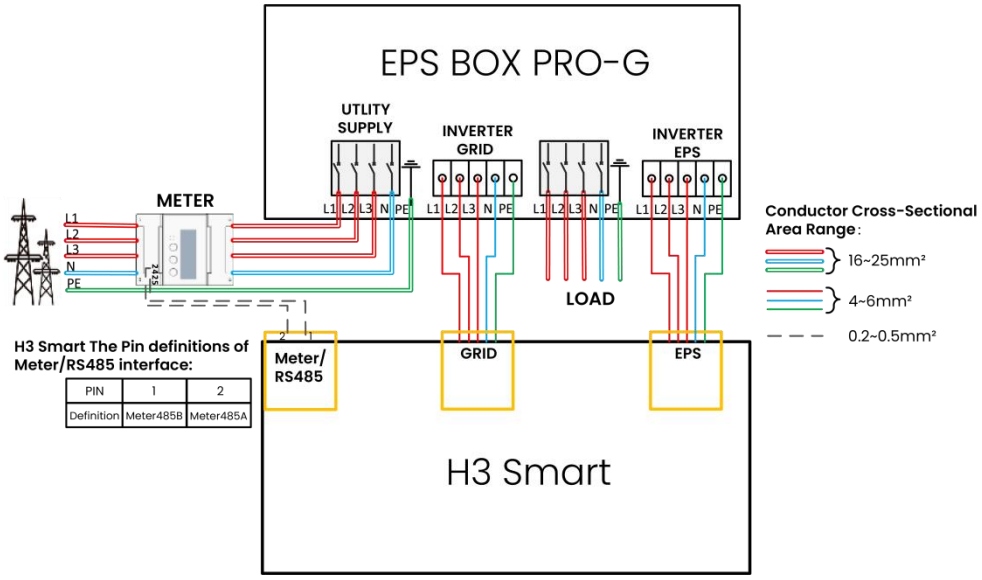
The wiring diagram of EPS BOX PRO-G with H3/AIO H3/H3 Smart is shown below.



Wiring diagram with H3



Wiring diagram with AIO-H3



Wiring diagram with H3 Smart

⚠ CAUTION

1. When the inverter is in off-grid state, the load power shall not exceed the maximum output power of the off grid inverter. We will not be responsible If the machine is unable to operate normally due to high load;
2. When the grid voltage is normal, the maximum current of both the UTILITY SUPPLY port and the Load port should not exceed 63A.

1.5 Symbols Used

The following types of safety instructions and general information appear in this document as described below:

⚠ DANGER
“Danger” indicates a hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING
“Warning” indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION
“Caution” indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTE
“Note” provides important tips and guidance.

2 Installation

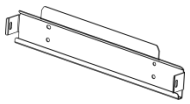
2.1 Check for Physical Damage

Ensure that the EPS BOX PRO/PRO-G is intact during transportation. If there is any visible damage, such as cracks, please contact your dealer immediately.

2.2 Packing List

Please check the accessories after you open the package and remove the product. There should have the parts as the packing list in below:

A



B

C

D

E

F

G

H

Object	Quantity	Description	Object	Quantity	Description
A	1	EPS BOX PRO/PRO-G	E	3	OT Ferrules
B	1	Back sheet	F	20	Tubular Ferrules
C	5	Expansion bolt, sleeve	G	2	Keys
D	5	Screws	H	1	Manual

2.3 Mounting

(1) Installation Precaution

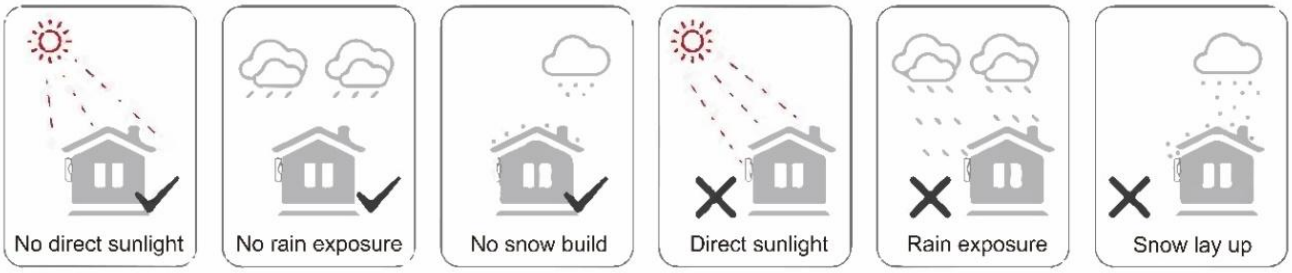
Ensure that the installation site meets the following conditions:

- Not in direct sunlight.
- Not in areas where highly flammable materials are stored.
- Not in potential explosive areas.
- Not in the cool air directly.
- Not near the television antenna or antenna cable.
- Not higher than altitude of about 2000m above sea level.
- Not in environment of precipitation or humidity (> 95%).
- Under good ventilation condition.
- The ambient temperature in the range of -25°C to +60°C.
- The slope of the wall should be within +5*.

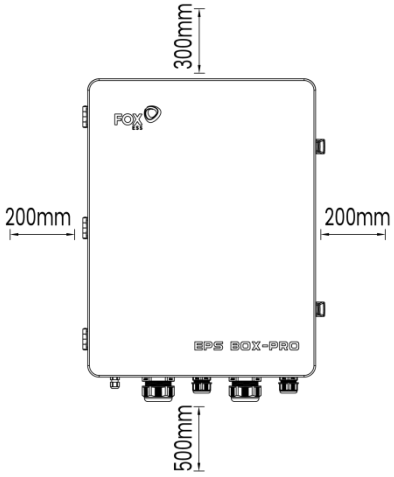
The wall hanging the EPS BOX PRO should meet conditions below:

A. Solid brick/concrete, or strength equivalent mounting surface;
B. EPS BOX PRO must be supported or strengthened if the wall's strength isn't enough (such as wooden wall, the wall covered by thick layer of decoration).

Please avoid direct sunlight, rain exposure, snow laying up during installation and operation.



(2) Space Requirement



Position	Min Distance
Left	200mm
Right	200mm
Top	300mm
Bottom	500mm

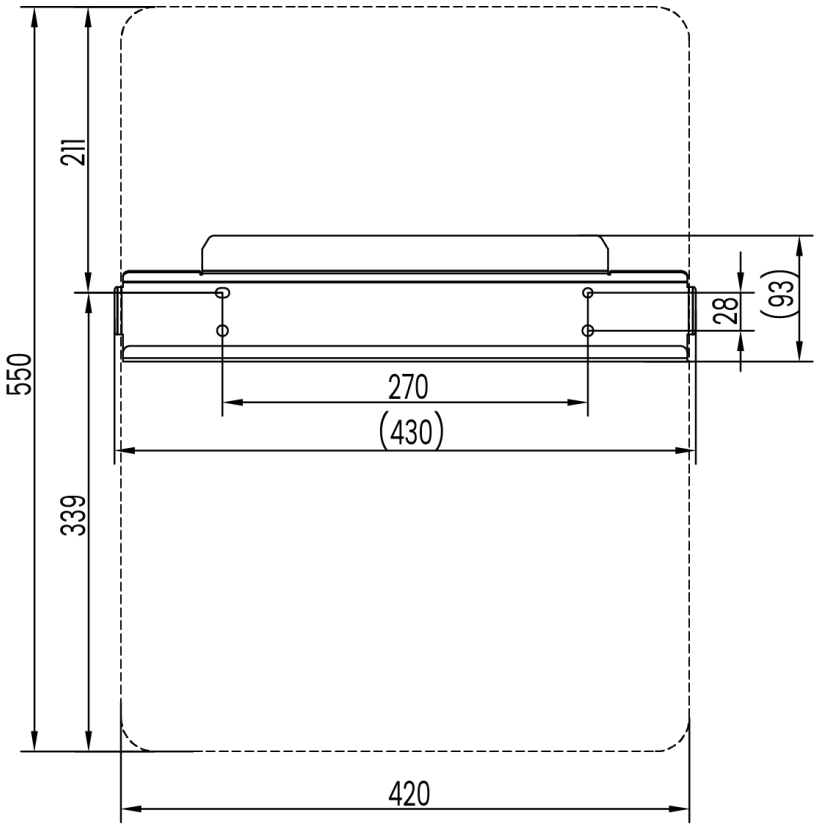
(3) Tools required for installation:

- Marker pen;
- Electric drill (drill bit set 8mm);
- Crimping pliers;
- Stripping pliers;
- Screwdriver.

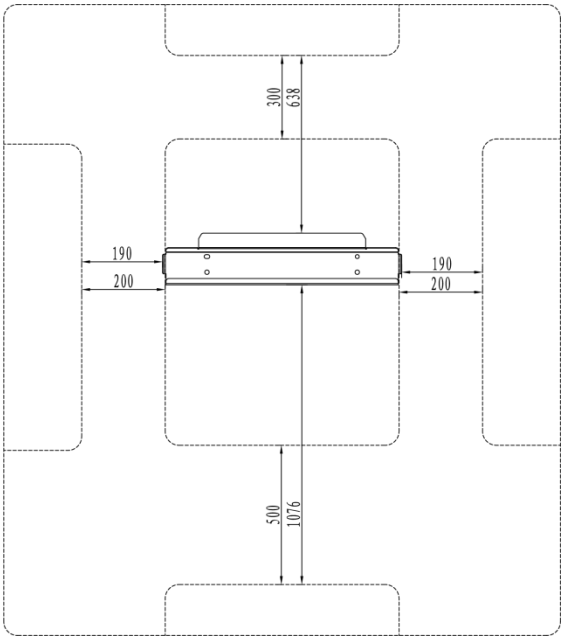
2.3.1 Mounting Steps

(1) Fix the bracket on the wall

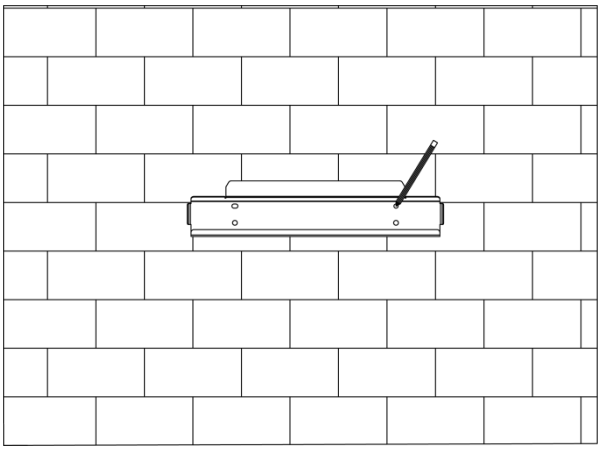
1) Choose the place you want to install the EPS BOX PRO.
2) Please select solid brick-concrete structure and concrete wall for installation location. If other types of wall are selected, the wall must be made of fire-retardant materials and meet the load bearing requirements of the equipment.
3) The dimensions (Unit: mm) on the back of the machine are as follows:



4) Before drilling holes, please ensure the distance (Unit: mm) between the machine and nearby objects.



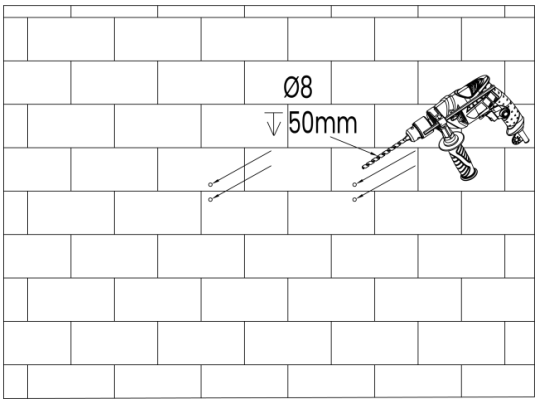
5) Place the bracket on the wall and mark the position of the 4 holes from bracket.



⚠ DANGER

Before drilling, please make sure to avoid the water and electricity lines embedded in the wall to avoid danger.

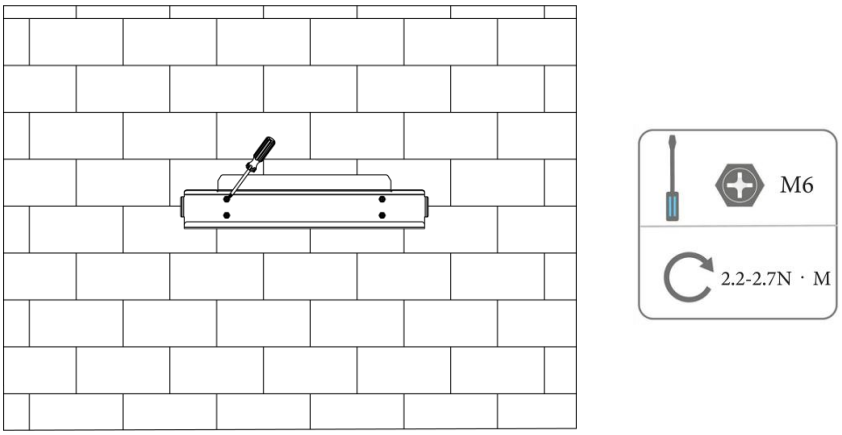
6) Drill holes with electric drill, make sure the holes are at least 50mm deep and 8mm wide, and then tighten the expansion tubes.



⚠ CAUTION

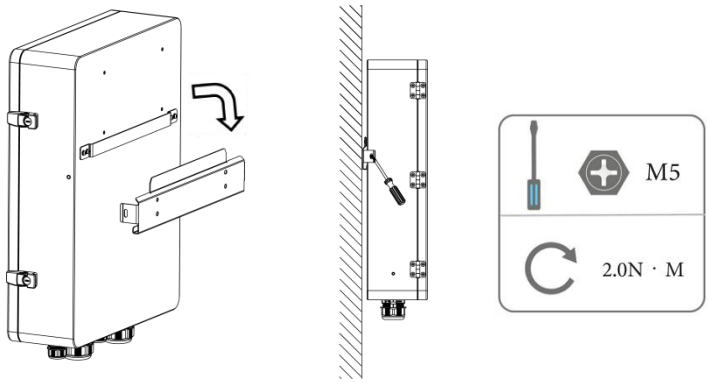
Please pay attention to safety when using the tools. Unsafe use of the drilling tools may cause damage to the body.

7) Insert the expansion tubes into the holes and tighten them. Install the bracket with the expansion screws.



(2) Match the EPS BOX PRO with wall bracket

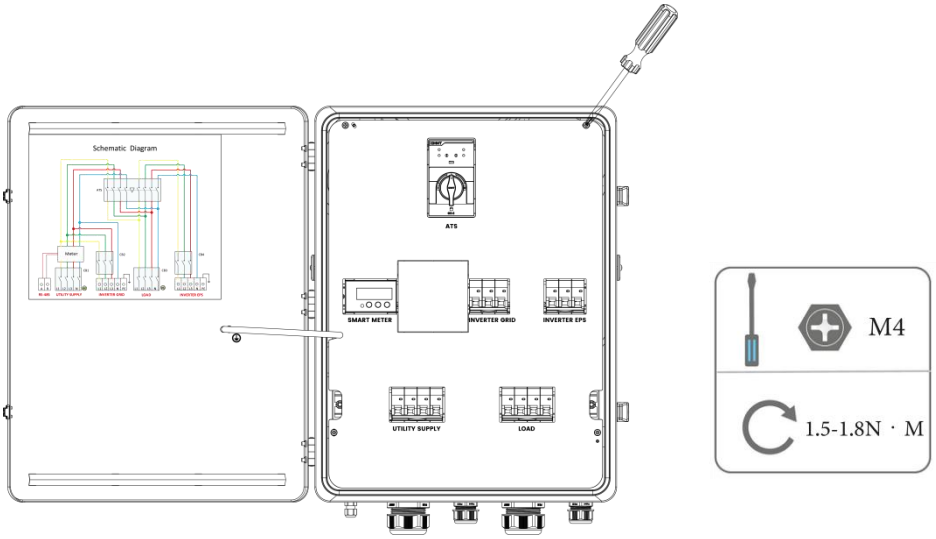
Mount the EPS BOX PRO to the bracket and fasten the BOX with two M5 bolts locking on both side.



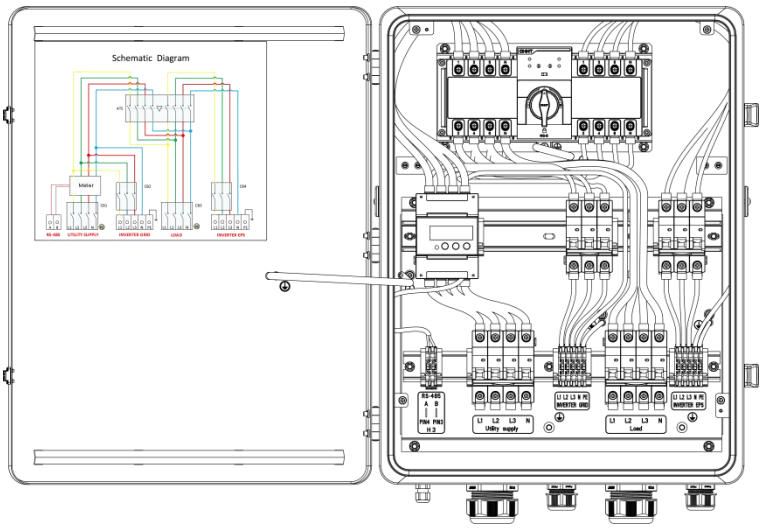
3 Electrical Connection

3.1 Wiring Connection

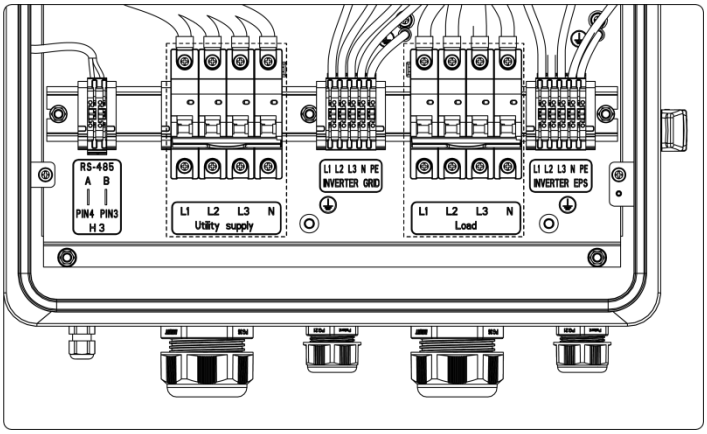
(1) Open the box cover, remove the fixing screws of the insulation board, and then take out the insulation board.



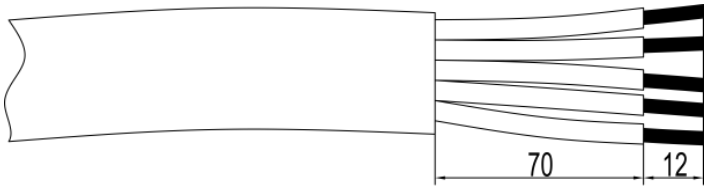
(2) Pass cable through cable gland and wire according to the marks at the bottom of the box. After wiring all cables, restore the insulation board to its original position and then tighten the box cover.



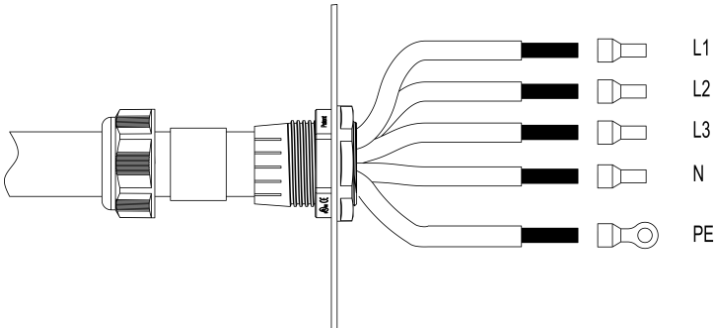
3.1.1 Utility Supply & Load Wiring Instructions



(1) Wire Specifications and Crimping The wire outer diameter is 18-25mm, the stripped length of the wire is 70mm, and the stripped length of the copper core is 12mm;

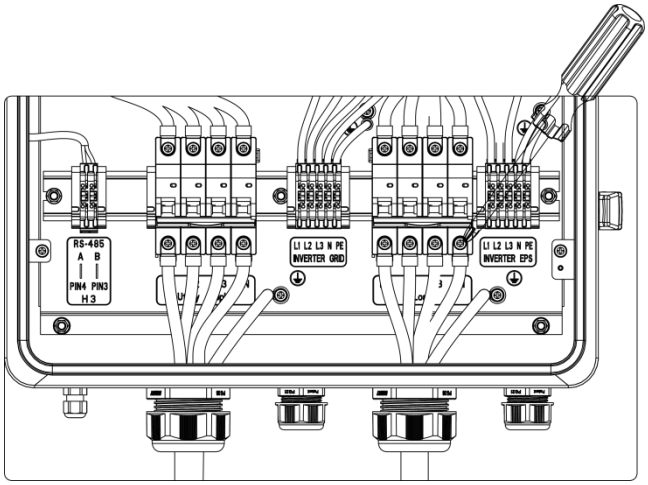


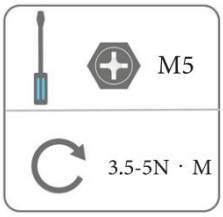
Pass cable through cable gland, connect L1, L2, L3, and N to the tubular terminal by crimping(only multi-core soft stranded wires must be crimped to tubular terminal, single core wires, thick stranded hard stranded wires, and tinned fine wire soft stranded wires may not be crimped), and connect PE to the cold-pressed Ferrules by crimping;



(2) Connect the protective grounding wire: Connect the protective grounding wire to the bottom of the box;

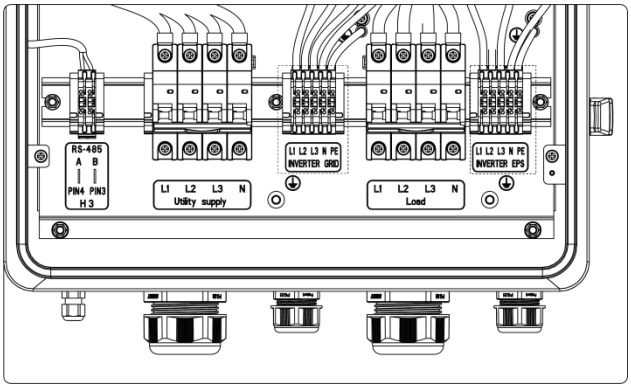
(3) Connect the power lines L1, L2, L3, and N: Insert them in the circuit breakers in sequence according to the marks on the bottom of the box, and then tighten the screws.





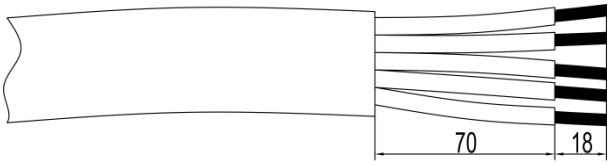
NOTE
It is necessary, that PE is connected to a functional ground, even if the grid connection is not active.

3.1.2 INVERTER GRID & INVERTER EPS Wiring Instructions

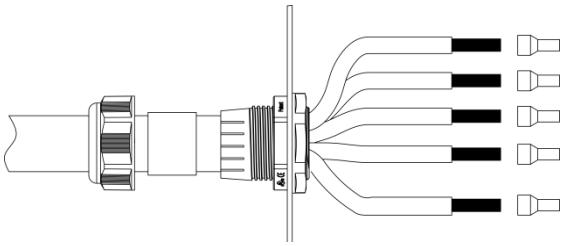


(1) Wire Specifications and Crimping

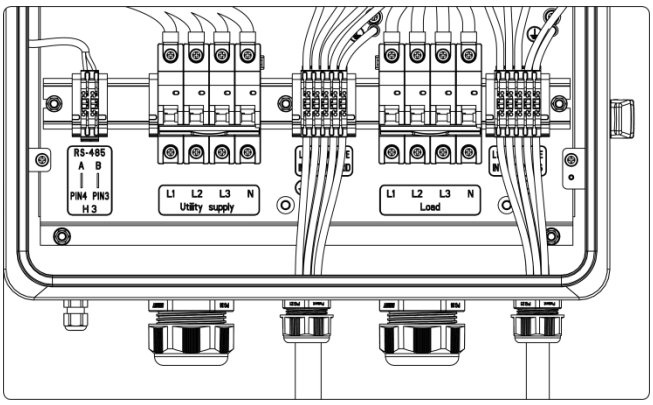
The wire outer diameter is 13-18mm, the stripped length of the wire is 70mm, and the stripped length of the copper core is 18mm;



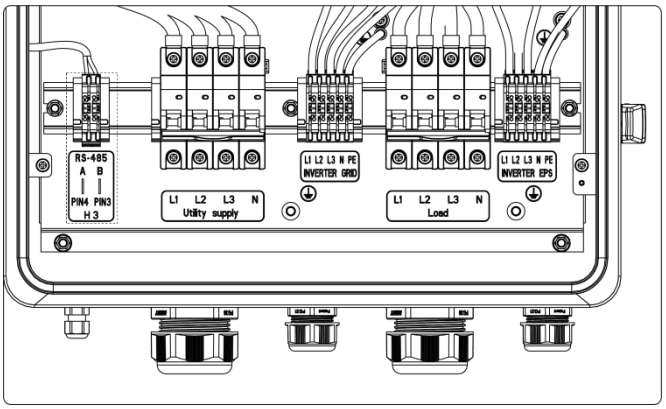
(2) Pass cable through cable gland, connect L1, L2, L3, and N to the tubular terminal by crimping (only multi-core soft stranded wires must be crimped to tubular terminal, single core wires, thick stranded hard stranded wires, and tinned fine wire soft stranded wires may not be crimped);



(3) Wiring: Insert the L1, L2, L3, N, PE wires into the quick-connect terminal.



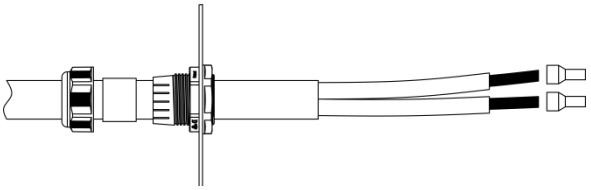
3.1.3 RS485 Wiring Instructions



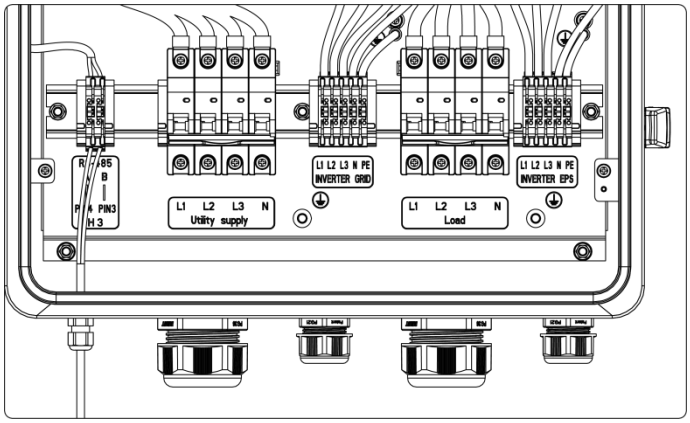
(1) Wire Specifications and Crimping

The wire outer diameter is 3-6.5mm, the stripped length of the wire is 25mm, and the stripped length of the copper core is 10mm;

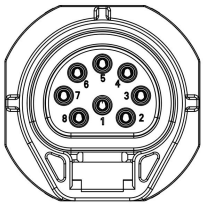
(2) Pass cable through cable gland and crimp the tubular terminal (only multi-core soft stranded wires must be crimped to tubular terminal, single core wires, thick stranded hard stranded wires, and tinned fine wire soft stranded wires may not be crimped).



(3) Wiring: Insert into the quick-connect terminal.

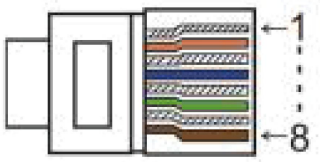


(4) The PIN of the H3 Meter/485 interface is defined as follows:



PIN	1	2	3	4	5	6	7	8
Definition	485A	485B	Meter485B	Meter485A	GND	GND	RY_ CON	+12V

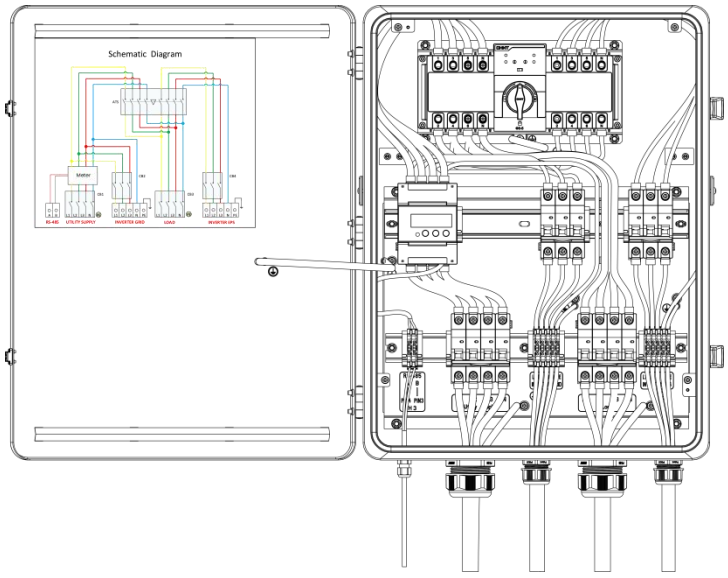
(5) The PIN of the H3 Smart Meter/485 interface is defined as follows:



PIN / Port	1	2	3	4	5	6	7	8
Meter	meter 485B	meter 485A	/	/	/	/	meter 485B	meter 485A

NOTE
EPS BOX PRO-G no meter, The Meter RS485 cable does not need to be connected.

3.1.4 Schematic diagram after completing wiring



3.1.5 Usage instruction

All switches are disconnected by default and need to be closed before use:

1. Push the handles of all circuit breakers to the up position (push up for turning on and down for turning off);

2. Turn the ATS knob to the left (Grid) or right (EPS). See Appendix for more detailed description on ATS.

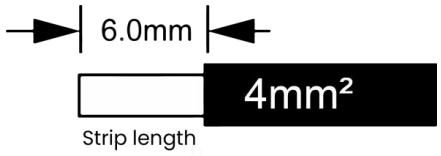
3. Some countries (such as Austria) or regions may require the activation of Fault Ride-Through (FRT) capability.

To do this, set the switches in the device to 5-30 s using a flat-head screwdriver or similar object with a minimum adjustment step of 5 seconds. The switch is set to 0 s at the factory. To change the switchover time to 5 s, the switch must be turned clockwise one notch.

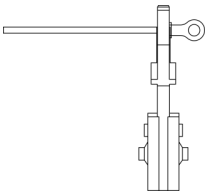
This setting ensures that the system supports grid stability in the event of short-term grid voltage dips and complies with Austrian regulations for FRT behaviour.

3.2 Earth Connection

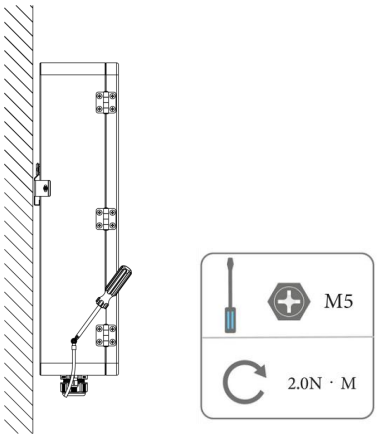
(1) Trim 6mm of insulation from the wire end.



(2) Insert striped wire into earth terminal and ensure all conductor strands are captured in the earth terminal, Crimp earth terminal by using a crimping plier. Put the earth terminal with striped wire into the corresponding crimping pliers and crimp the contact.



(3) Use the crimping pliers to press the grounding wire into the ground terminal, screw the ground screw with screwdriver as shown below:



4 Check After Installation

4.1 Check After Installation

(1) Check and confirm that the equipment is installed securely and reliably.

(2) Check if the grounding wire is correctly, firmly and reliably connected.

(3) Check if the wire is correctly, firmly and reliably connected (confirm if the phase sequence is correct).

(4) Check if the communication wire is correctly, firmly and reliably connected.

NOTE
The default state of the automatic transfer switching equipment is manual mode. If automatic switching is required, the dual power transfer switch needs to be modulated to automatic mode.

4.2 Maintenance

Before product maintenance and testing, all external power sources must be cut off, and maintenance shall be operated by professional personnel.

Do not modify the product during maintenance. Our Company is not responsible for any problems caused by unauthorized modification.

5 Technical Data

EPS BOX PRO specification	
Model	**EPS BOX PRO**
UTILITY SUPPLY	
Rated voltage	220/380VAC, 230/400VAC, 3L/N/PE
Rated frequency	50/60Hz
Max. input current (per phase)	63A
INVERTER GRID	
Rated voltage	220/380VAC, 230/400VAC, 3L/N/PE
Rated frequency	50/60Hz
Max. input current (per phase)	25A
INVERTER EPS	
Rated voltage	220/380VAC, 230/400VAC, 3L/N/PE
Rated frequency	50/60Hz
Max. input current(per phase)	25A
Load	
Rated voltage	220/380VAC, 230/400VAC, 3L/N/PE
Rated frequency	50/60Hz
Max. output current (per phase)	63A
Communication interface	
RS-485 (Meter)	
General Data	
Cooling concept	Natural
Installation	Wall-mounted
Operating temperature range	-25 ~ +60℃ [1]
Dimensions(W*H*D)(mm)	550*420*138.5
Dimensions of packing(W*H*D)(mm)	665*515*235
Net Weight(Kg)	16
Ingress protection	IP65
Humidity (No Condensation)	50% RH at 40℃
Max. operating altitude (m)	<4000m @Derating exceeding 2000m
Protection class	Class I
Pollution degree	PD3(outside), PD2(inside)
Overvoltage category	III

⚠ CAUTION

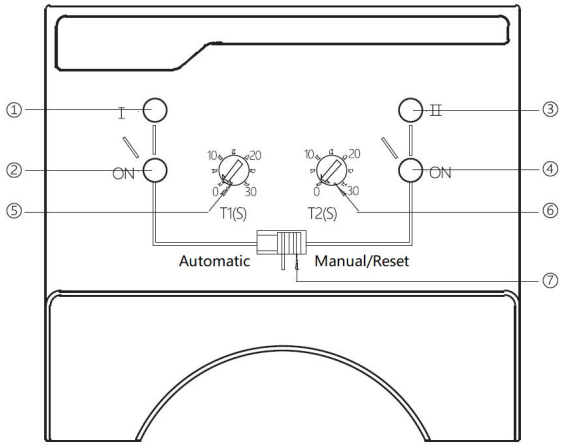
[1] Derating is required when the operating temperature exceeds 45°C. Please refer to the table below for

specific derating.
NOTE
EPS BOX PRO-G no meter RS-485 communication port, Other technical data are the same as EPS BOX PRO.

For derating use, please refer to the following table:

Ambient Temperature/℃ Max Current/A	45	50	55	60
LOAD Current/A	60	55	51	48
UTILITY SUPPLY Current(A)	60	55	51	48

Appendix: ATS Operation Mode and Indicator Status



① Normal power supply indicator (red indicator keeps ON when the Normal power supply is normal)

② Normal side power supply closing indicator (green indicator keeps ON when the normal side power supply is closed)

③ Reserve power supply indicator (red indicator keeps ON when the Reserve power supply is normal)

④ Reserve side power supply closed indicator (green indicator keeps ON when the Reserve side power supply is closed)

⑤ Switching delay time setting (switching from Normal power supply to Reserve power supply)

⑥ Return delay time setting (switching from Reserve power supply to Normal power supply)

⑦ Automatic/Manual switching

I refers to Normal power supply II refers to Reserve power supply

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