

LIVOLTEK



Installation training
for Hyper series

SPAZIO
POWER 

Introduction- All In One System

Hyper series way to install it

- Install as all-in-one system: Inverter with battery and middle bracket (picture 1)



Picture 1 : all in one application

Installation training



Packing List

Installation Tools

Installation guidance

PV Specifications

Cable Connections

❖ Packing List for inverter

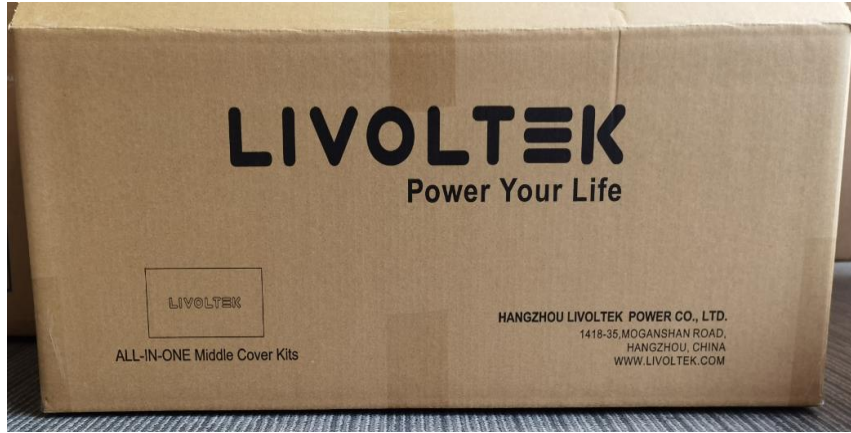


Picture 2 : packing list

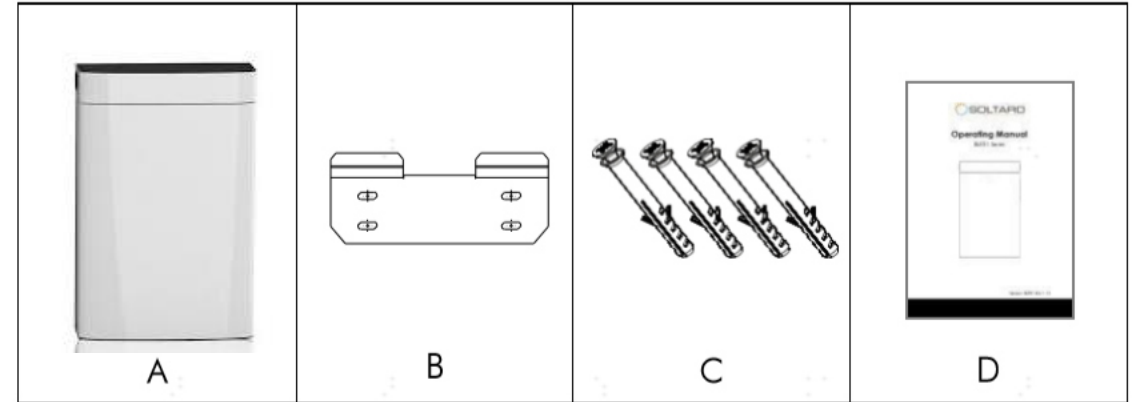


Picture 2 : Accessories Box

|| Packing List for Middle cover kit



|| Packing list for battery

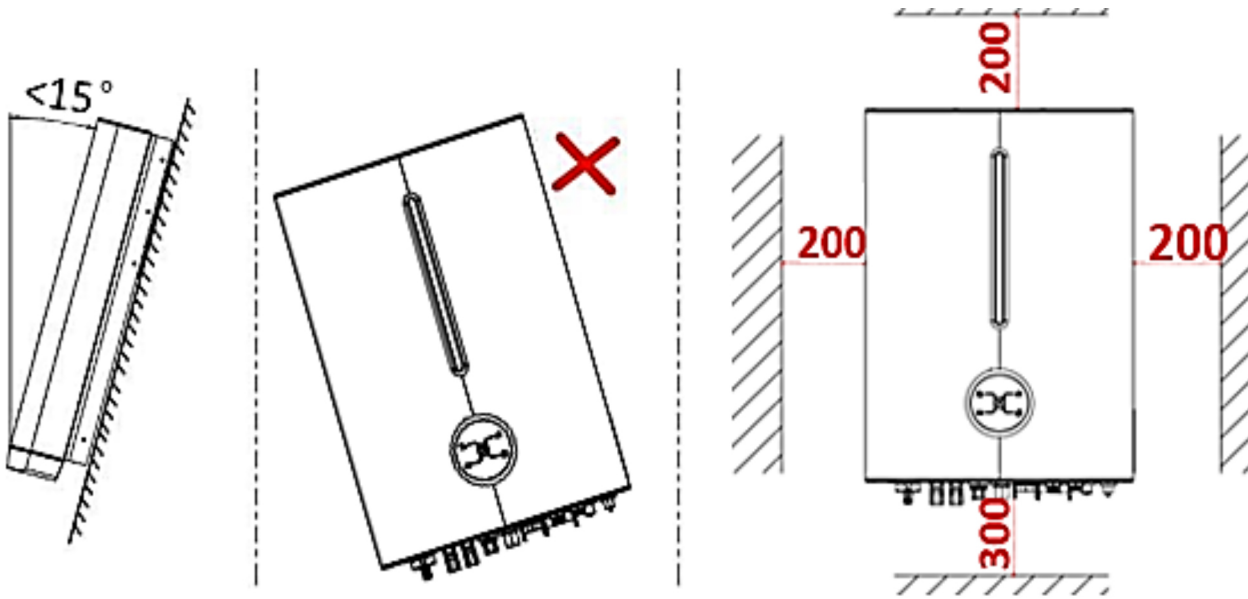


Item	QTY	Designation
A	1	Battery
B	1	Wall Mounting Bracket
C	4	Screws for Fixing Mounting Bracket
D	1	Manual

Installation Tools



Installation guidance – Space requirement



Picture 4 : install angel and space requirement

Installation angel and space requirement:
1. only allowed installed vertically (<math>< 15^\circ</math>)
2. require space for different discretion
3. choose an appropriate location capable of supporting the full weight (>90kg) and height for whole system (as picture 4 shows)

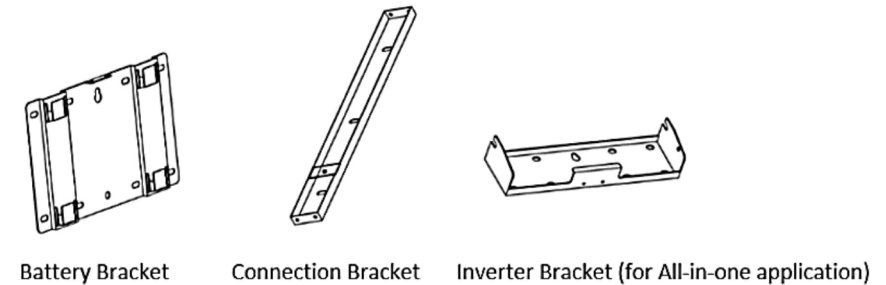
Installation guidance – all in one system

Step1: Choose a suitable location (picture 8)

- Choose an appropriate location capable of supporting the full weight (>90kg) and height of All-in-one system.
- Be sure to choose a flat wall.
- please save enough space for installation

Step 2: Take out the Brackets (picture 9)

- Open the packages of battery and middle cover kit respectively, then take out the wall-mounting brackets.
- inverter bracket for all-in-one installation are different ,please use the inverter bracket in middle cover box ,DO NOT use the original bracket in inverter box

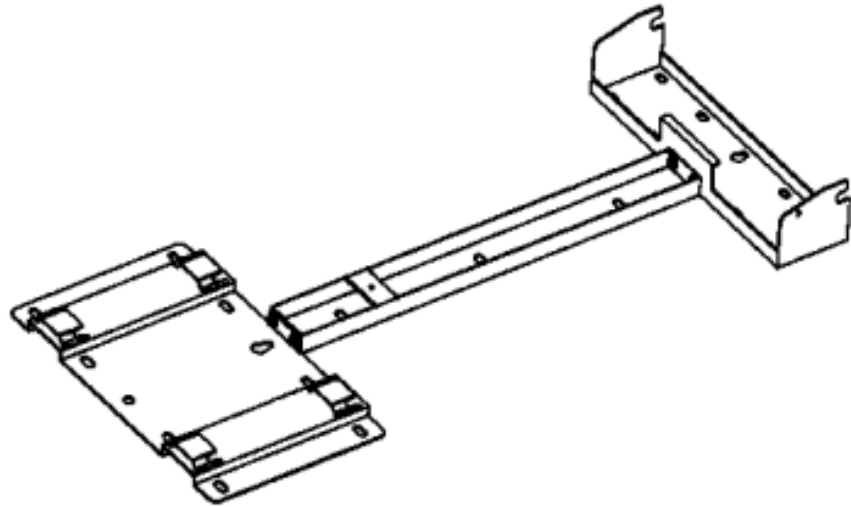


Picture 6 : take out brackets

Installation guidance – all in one system

Step 3: Assemble the All-in-one Mounting Bracket (picture 7)

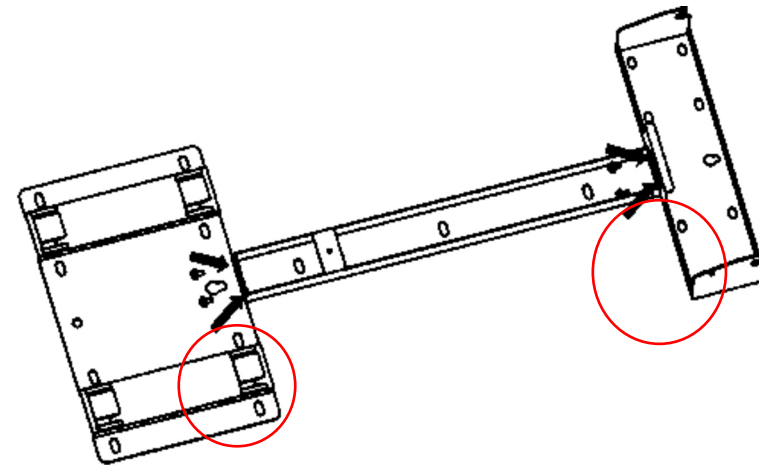
- Assemble the All-in-one Mounting Bracket with 4 screws as picture shows



Picture 7 :assemble all-in-one mounting bracket

Step 4: Anchor All-in-one Mounting Bracket (picture 8)

- fix the All-in-one Mounting Bracket with 4 screws as picture shows

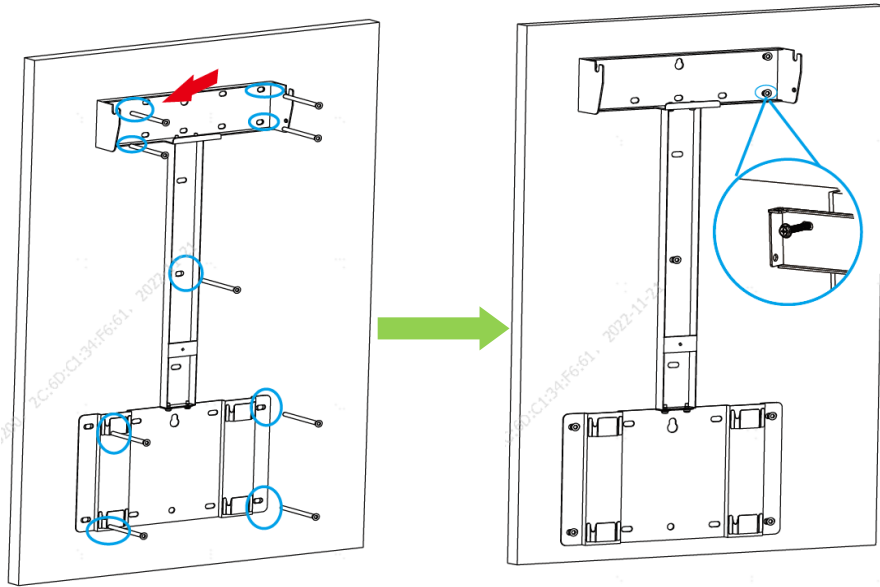


Picture 8 :anchor all-in-one mounting bracket

Installation guidance – all in one system

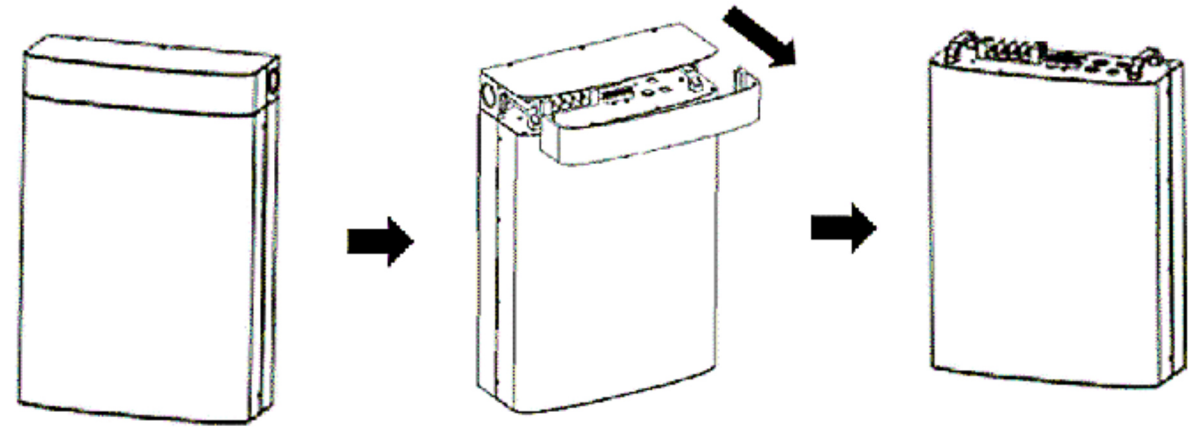
Step 5: Secure the All-in-one bracket on the wall
(picture 12)

- Fix the All-in-one bracket to the wall with 9 expansion bolts



Picture 9 :secure bracket on the wall

Step 6: Remove the upper cover of the Battery (picture 13)

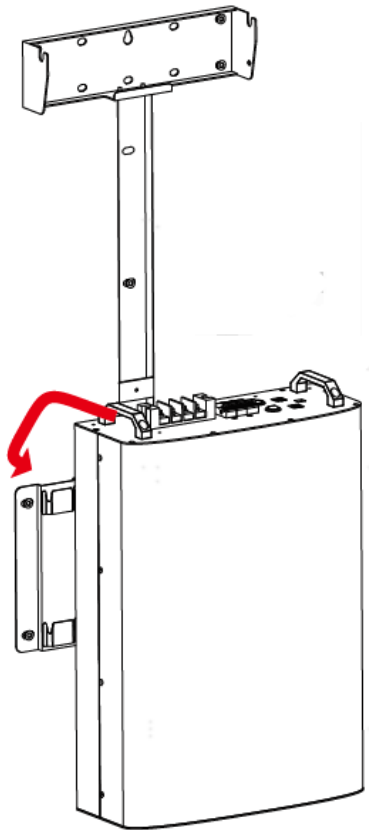


Picture 10 : remove the upper cover of battery

Installation guidance – all in one system

Step 7: Install the battery on the Bracket (picture 14)

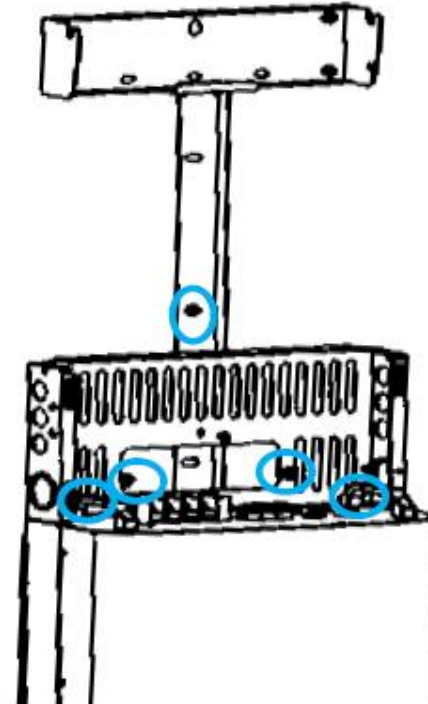
- Lift and hang the battery to the battery-bracket.



Picture 11 : install battery on the bracket

Step 8: Install the bottom of middle cover kit to the Bracket (picture 15)

- Install the bottom of middle cover kit to the all-in-one bracket and tighten the screws (M5*5).

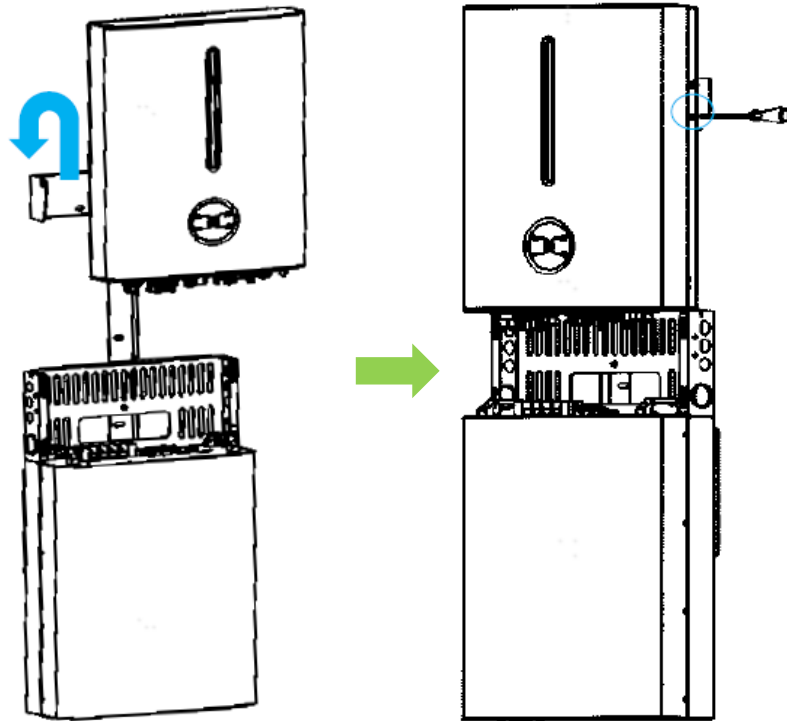


Picture 12 : install the bottom of middle cover

Installation guidance – all in one system

Step 9: Install the Inverter to the Bracket (picture 13)

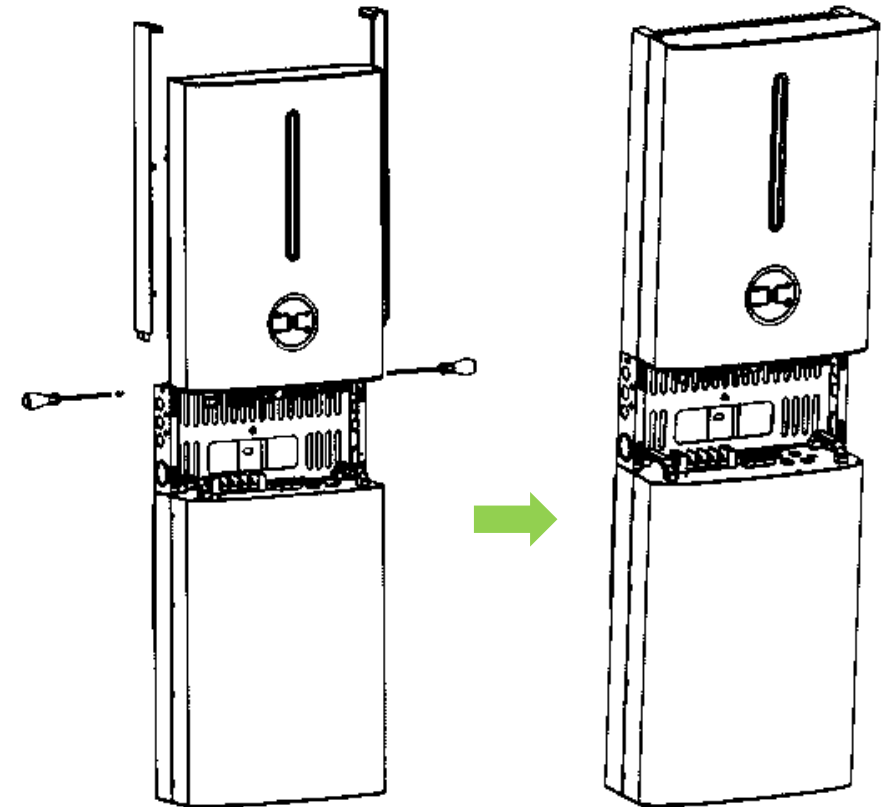
- Lift and hang the Inverter to the bracket and secure with screw.
- Make sure that 2 mounting ears are perfectly engaged with the bracket.



Picture 13 : install battery on the bracket

Step 10: Install the side frames (picture 14)

- Install the left and right frames. The upper part of which should be hung to the corresponding holes of the inverter, and the lower part should be inserted into the middle cover bottom. Then tighten them with M5 screws.



Picture 14 : install side frames

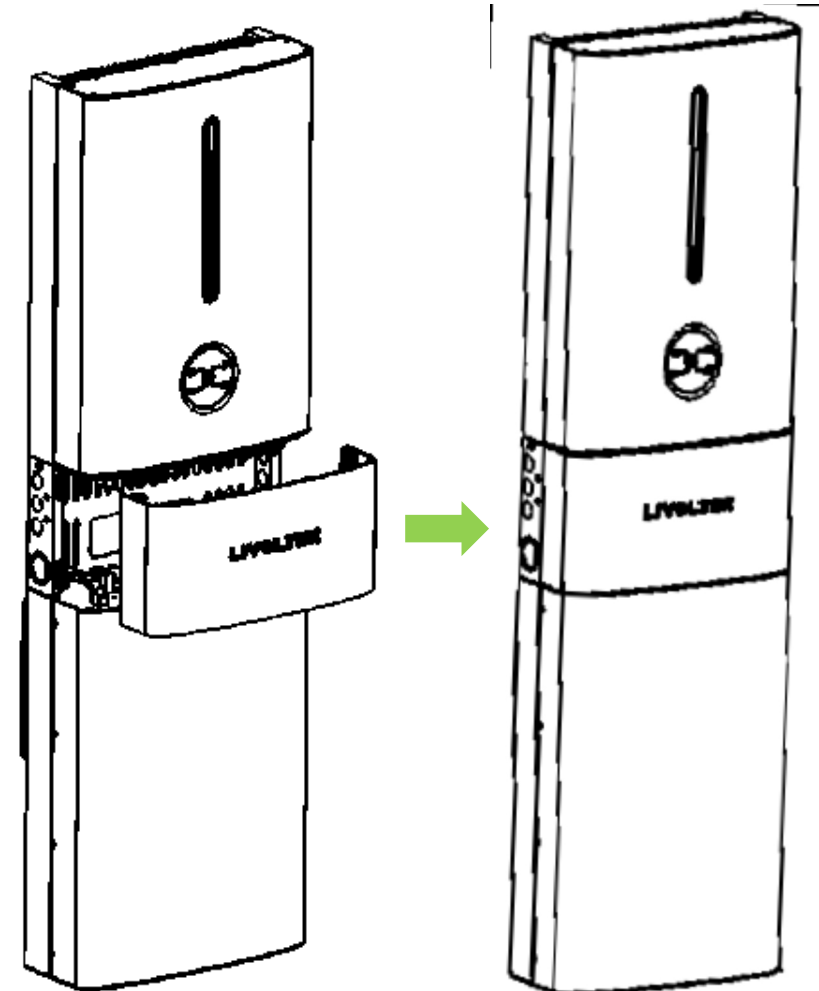
Installation guidance – all in one system

Step 11: Electrical Connection

Please refer to the Electrical Connection instructions in the next chapter.

Step 12: Install the Middle-cover (picture 15)

- Buckle the middle-cover to the all-in-one system after all electrical connection and settings are done
- DO NOT forget to grounding the Inverter and battery.



Picture 15 : install the middle cover

PV Specification

Hyper Series Specifications	
Model	Hyper- 5000
Max.PV Input Power	7500Wp
Norminal DC Input Voltage	360V
MPPT Voltage Range	125~550V
No. of MPPTs/String per MPPT	2/1
Max. Input Current	14/14A
Max. Short Circuit Current	17.5/17.5A

Solar panel parameter (for example)

Maximum power (Pmax)	545W
Maximum power voltage (Vmp)	42.35V
Maximum power current (Imp)	12.87A
Open circuit voltage (Voc)	49.98V
Short circuit current (Isc)	13.66A

Case study with Hyper-5000

PV max power should not over 7500W,

$$545W \times 6\text{pcs} / 2 \text{ Strings} = 6540W < 7500W$$

Hyper-5000 have two MPPT (one string per MPPT), each string max short circuit current shouldn't over the limitation(17.5A),max input voltage(open circuit voltage) shouldn't over the limitation(550V),two string voltage and current are not required to be balanced

For each string PV panel

short circuit current are 13.66A < 17.5A

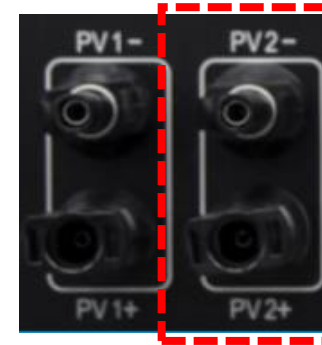
Open circuit Voltage

For 6pcs

$$Voc = 299.88V < 550V$$

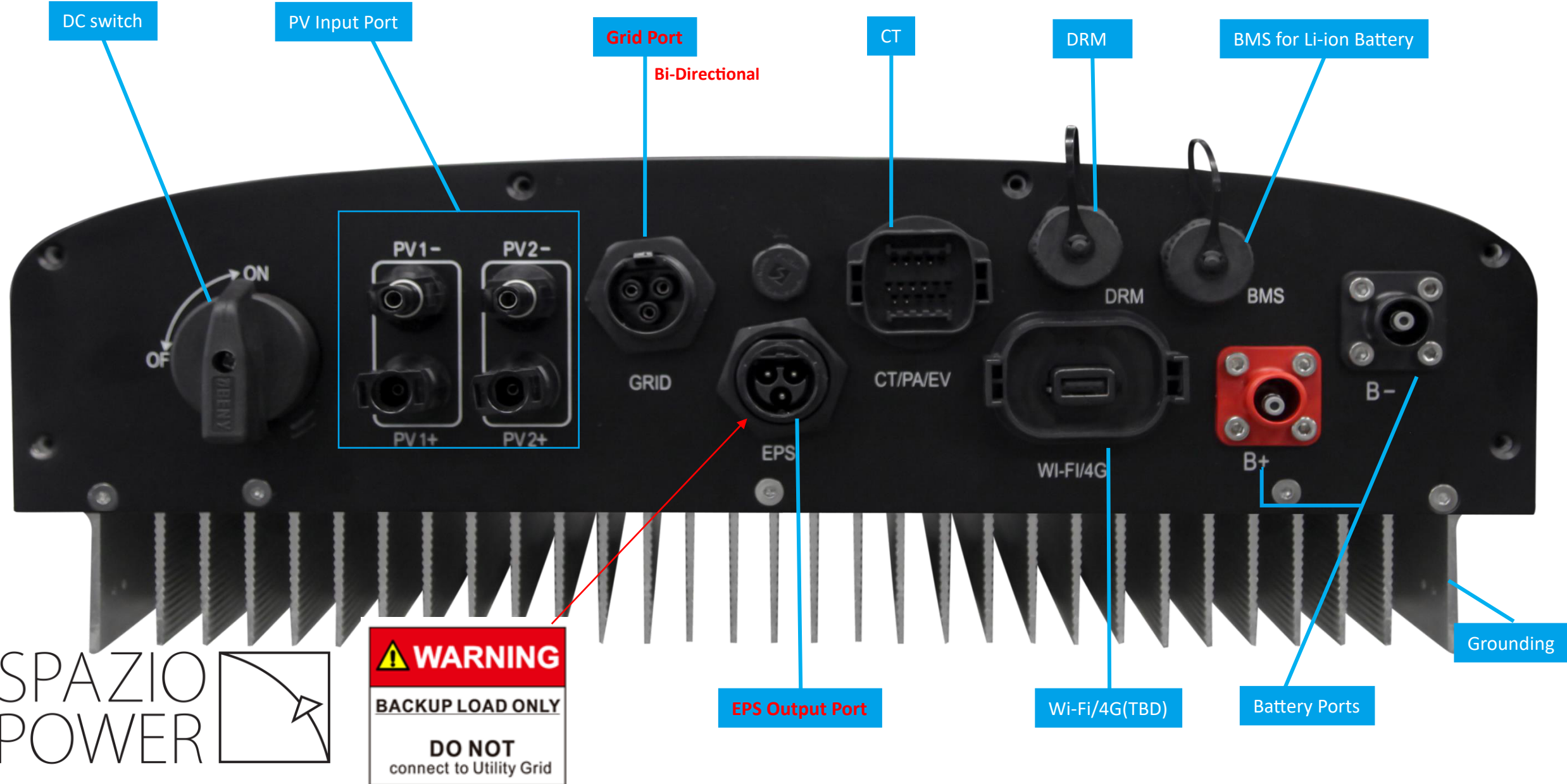
PV Specifications

Technical Data Sheet	Hyper-3000	Hyper-3680	Hyper- 4600	Hyper-5000
Max. PV Input Power (Wp)	4500	5520	6900	7500
Max. PV Input Voltage (V)	600			
Nominal DC Input Voltage (V)	360			
MPPT Voltage Range (V)	125~550			
No. of MPPTs/Strings per MPPT	1 / 1	2 / 1	2 / 1	2 / 1
Max. Input Current (A)	14	14/14	14/14	14/14
Max. Short Circuit Current (A)	17.5	17.5/17.5	17.5/17.5	17.5/17.5
AC Output @ Grid				
Nominal AC Power (W)	3000	3680	4600	5000
Max. Apparent Output Power (VA)	3300	4000	4600	5500
Nominal AC Voltage (V)	220/230/240			
Nominal AC Voltage Range (V)	186~290			
AC Frequency (Hz)	50/60 ±5			
Max. AC Current (A)	13.0	16.0	20.0	21.7
THDi, Rated Power(%)	<3			
Power Factor	~1 (Adjustable from 0.8 leading to 0.8 lagging)			
EPS Output @ Off Grid				
Nominal EPS Power (W)	3000	3680	4600	5000
EPS Peak Power [VA]	1.1 x Pnom, 10 sec; 1.5 x Pnom, 1 sec			
Nominal Output Voltage (V)	220/230			
Nominal Frequency (Hz)	50/60			
Nominal Output Current (A)	13.0	16.0	20.0	21.7
THDv(@Linear Load)(%)	< 3%			
Battery Data				
Battery Type	Lead-acid/Lithium			
Nominal Battery Voltage (V)	48			
Battery Voltage Range (V)	40~60			
Max. Charge/Discharge Current (A)	60	80	100	100
Communication with BMS	CAN			

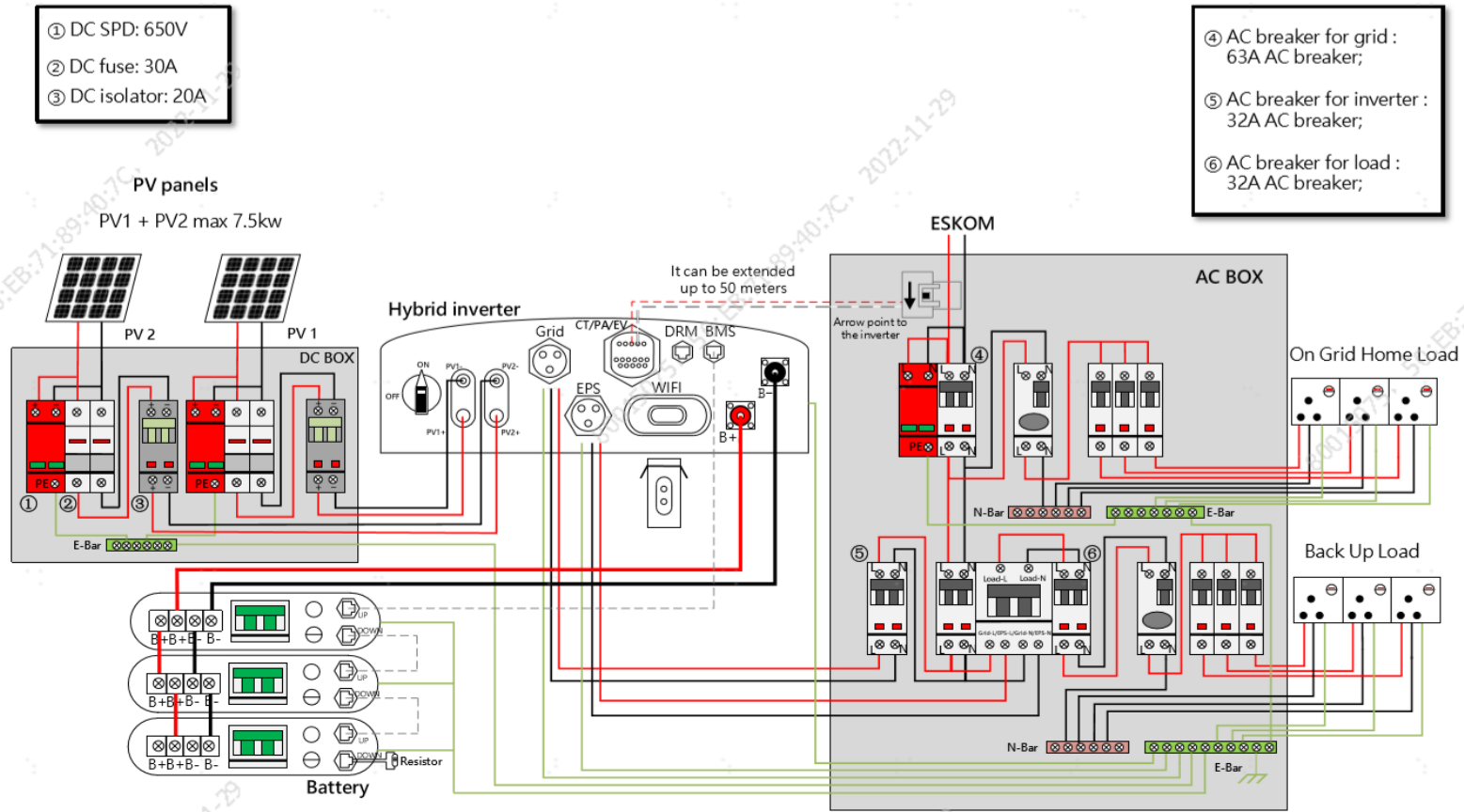


**Hyper 5000
2 MPPT**

Installation guidance – Inverter Interface



Installation guidance – wiring diagram

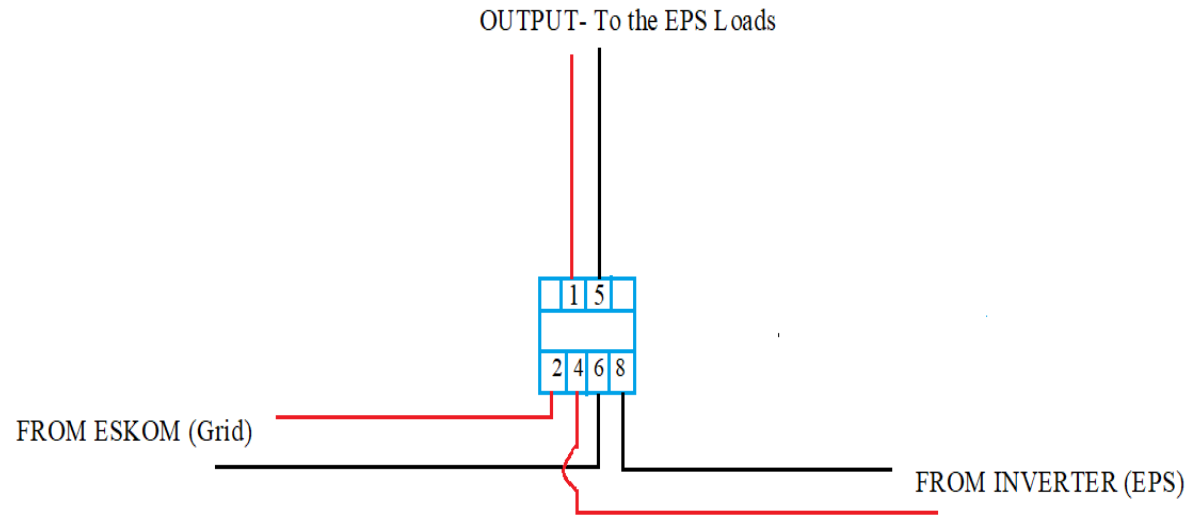


Notes:

1. It is not recommended to short the N line and PE line at the customer's distribution box;
2. It is not recommended to short the EPS output N line with the grid N line;
3. If customer needs the above two connection methods on site, some hardware of the inverter are not supported, please consult technical support
4. Choose a larger size for the Grid circuit breaker. For example, a 40A AC breaker is recommended for a 5KW inverter.

Picture 16 : wiring diagram

Change-Over switch Wiring



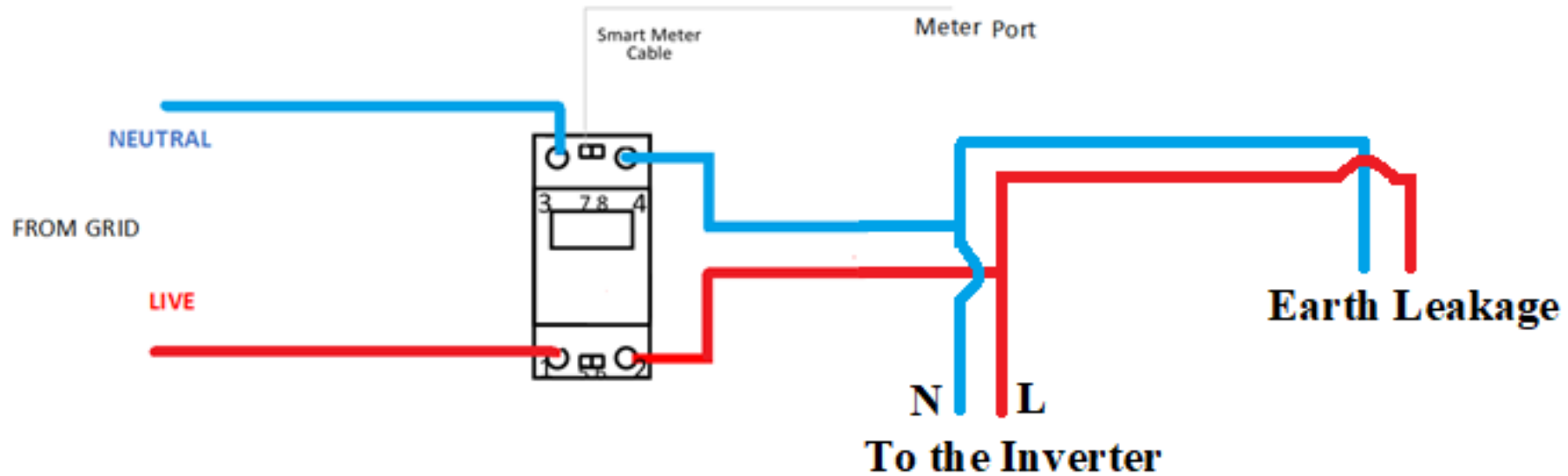
Picture 31 : Loads

LIVE switches between pin 2 and pin 4.

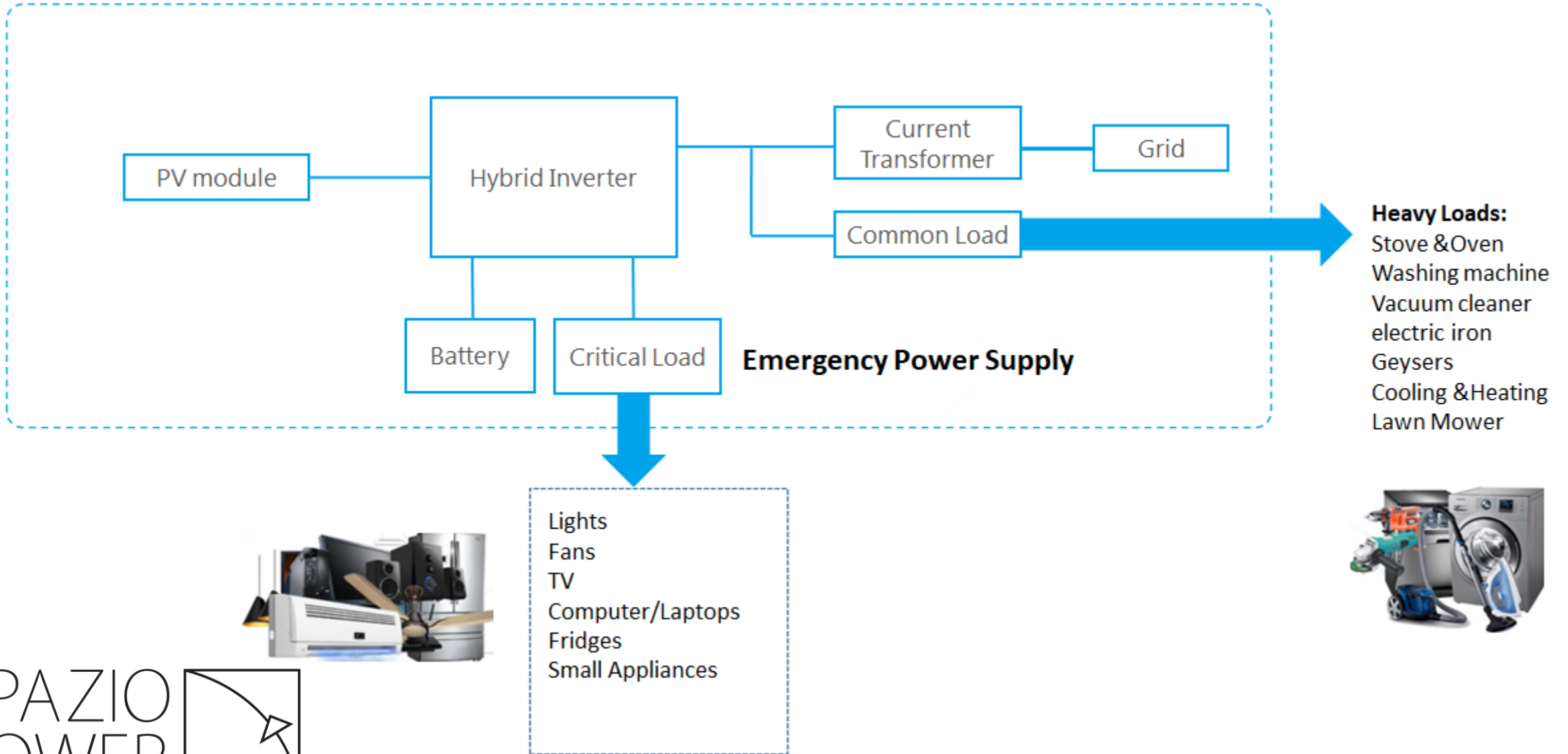
Neutral switches between pin 6 and 8.

Smart Meter Wiring

This is for old Generation (1.1). For Gen 1.2 is optional.
With this connection you are able to see the readings of all the loads in house.



Essential & Non-essential loads



Installation guidance

High leakage current!
Danger of electric shock!

- Operate by trained and certified electrician
- Please follow wiring diagram guidance



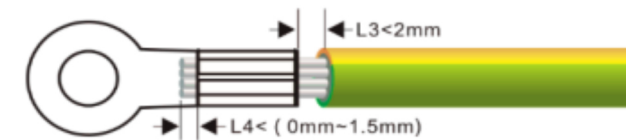
Suggested cable requirement for PV/EPS/GRID wires

Model		Cable	Beaker
5KVA		6mm	230/40A

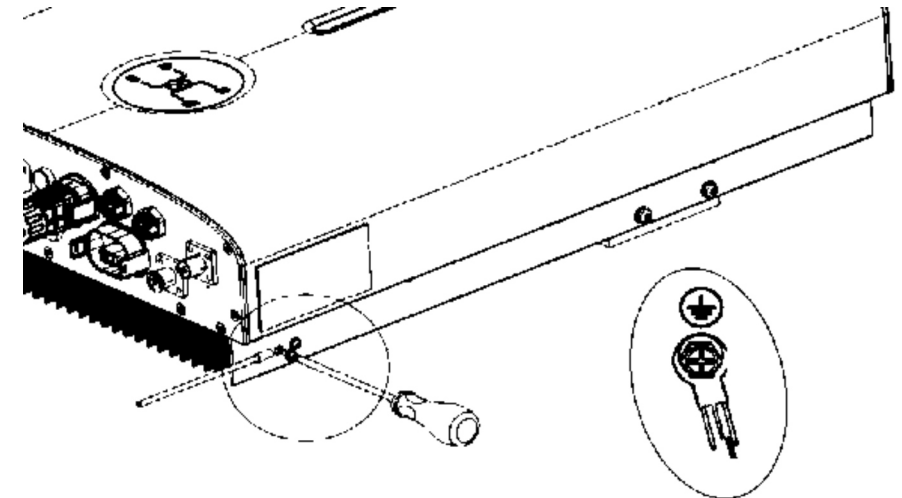
Step1: Crimp OT terminals (picture 18)

Step2: Connect the PE Cable (picture 19)

- Remove the screw on the grounding terminal on the side of the inverter and fasten the cable with a screwdriver.
- Apply paint to the grounding terminal to ensure corrosion resistance.



Picture 18 : crimp OT terminals



Picture 19 : Connect the PE cable

Installation guidance – GRID & EPS Connection

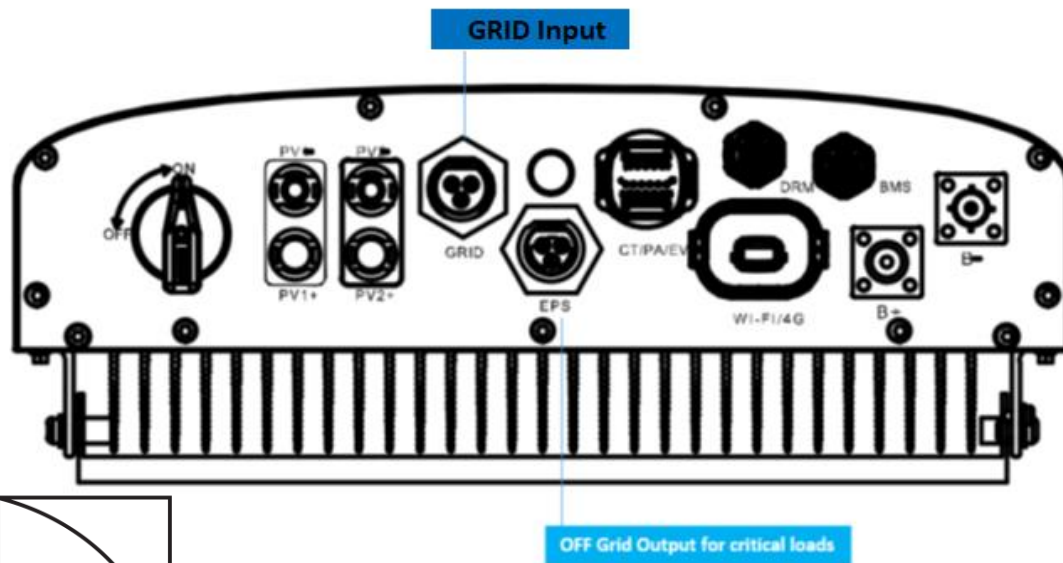
Step3: Assemble the Grid cable Connector

- Make sure to connect “PE” conductor to the grounding electrode. Connect “L” and “N” conductors to the AC circuit breaker.
- Check all the wires are firmly installed.

Step 4: Connect the Grid cable connector to the inverter

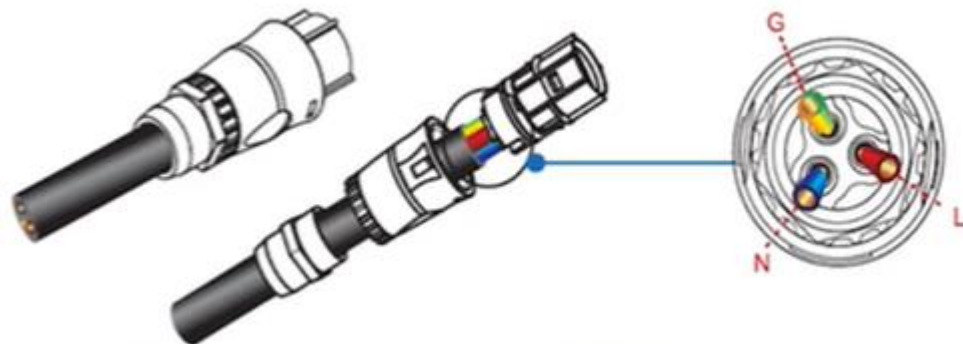
Step 5: Assemble the EPS cable Connector (reference to Grid connector)

Step 6: Connect the EPS cable to the inverter



TIPS

1. EPS cable connector and GRIG cable connector are different , please make sure wiring is correct .
2. **DO NOT swap EPS connector with GRID connector.**



Each cable must be connected to the corresponding terminal. [LIVE, NEUTRAL & EARTH]

Use a screw driver to tighten them.



Picture 21 : wiring diagram

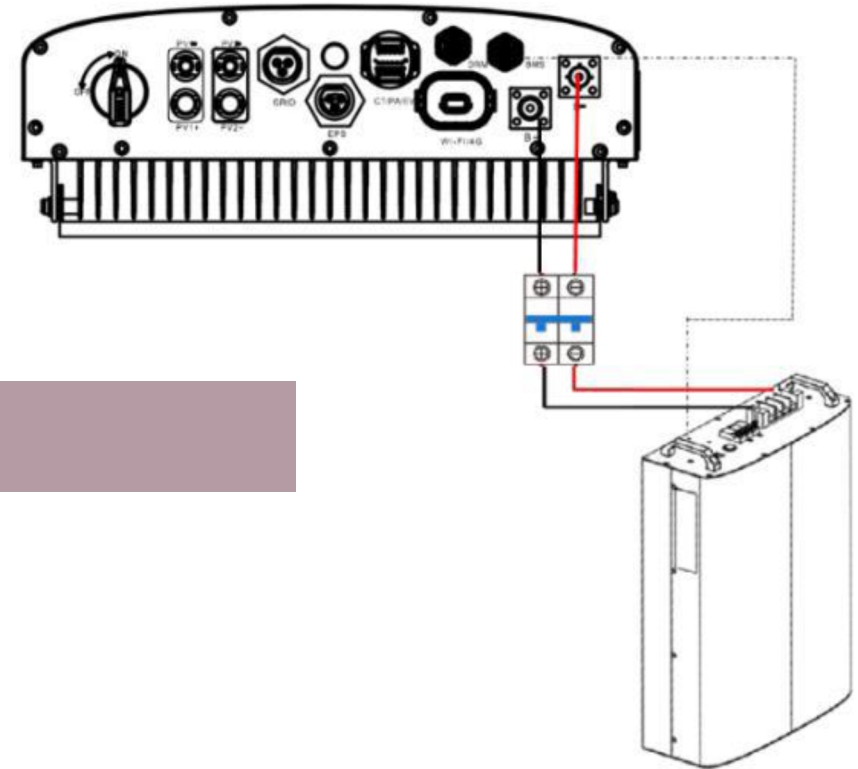
Installation guidance – Battery to Inverter diagram

Step 9: Connect the Battery cables to the inverter and battery

- Insert the battery plugs into the corresponding BAT+ and BAT- terminals at the bottom of the inverter.
- If battery cables are **reversely connected**, the inverter and battery may get **damaged**.

Tips

- For our LIVOLTEK batteries, no need to install two-pole DC circuit breaker.

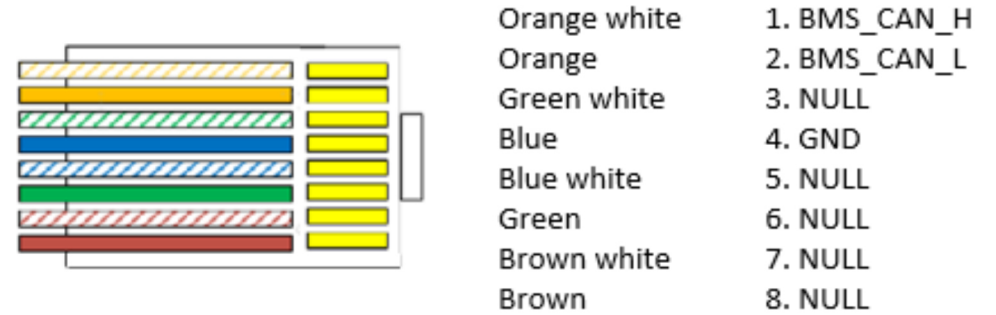


Picture 24 : battery connect diagram

Installation guidance – BMS Cable & Battery parallel

Step10: Assemble the BMS cable Connector (BMS pin definition please check picture 25)

- for Livoltek inverter and battery ,please use a standard cable or BMS cable in battery pack , no need make extra cable



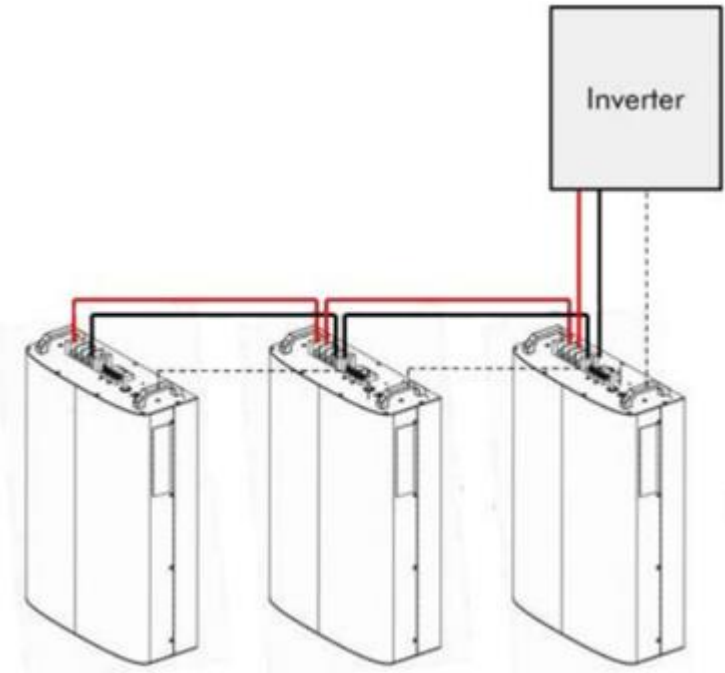
Picture 25: Livoltek inverter side BMS port pin definition

Step11: Connect the BMS cable to the inverter and battery

- batteries can be paralleled (as picture 26 shows)

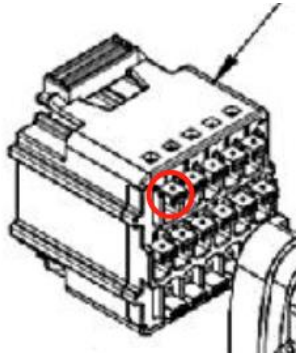
Step12: Insert terminal resistance into battery BMS port

- it's a RJ45 connector which have 120Ω resistance in BMS_CAN_H/L and insert it in another BMS COM port (insert it to last BMS COM port if battery are paralleled) (as picture 25 shows)

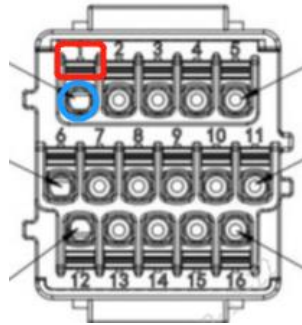


Picture 26: Livoltek inverter connection diagram

Installation guidance – CT Connection




Picture 27 housing

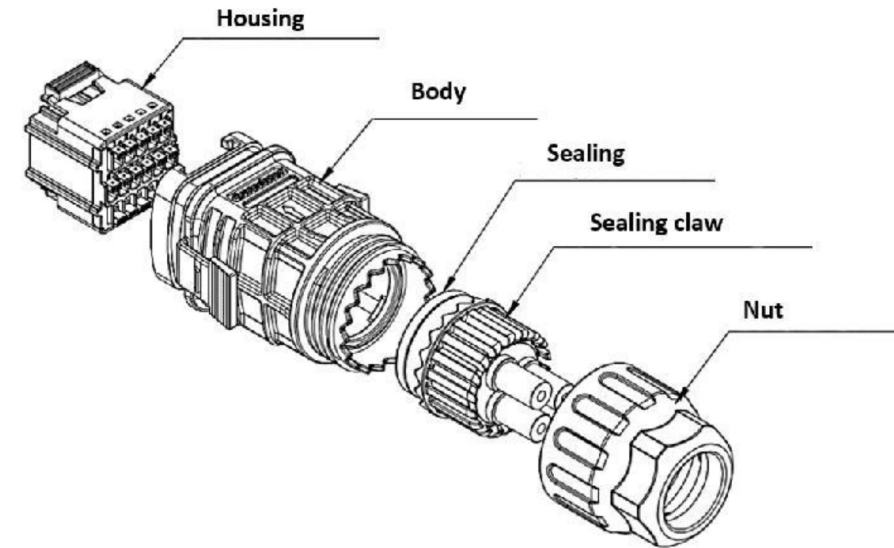


Picture 28 connection interface



Picture 29

1. Find  in Multi COM terminal accessory bag
2. Strip the insulation from each communication cable by right length.
3. Assemble the cable ends with the crimping pliers (picture 29)
4. Press the key (as picture 27/28 red mark show) and insert terminal in corresponding port (as picture 28 blue mark shows)

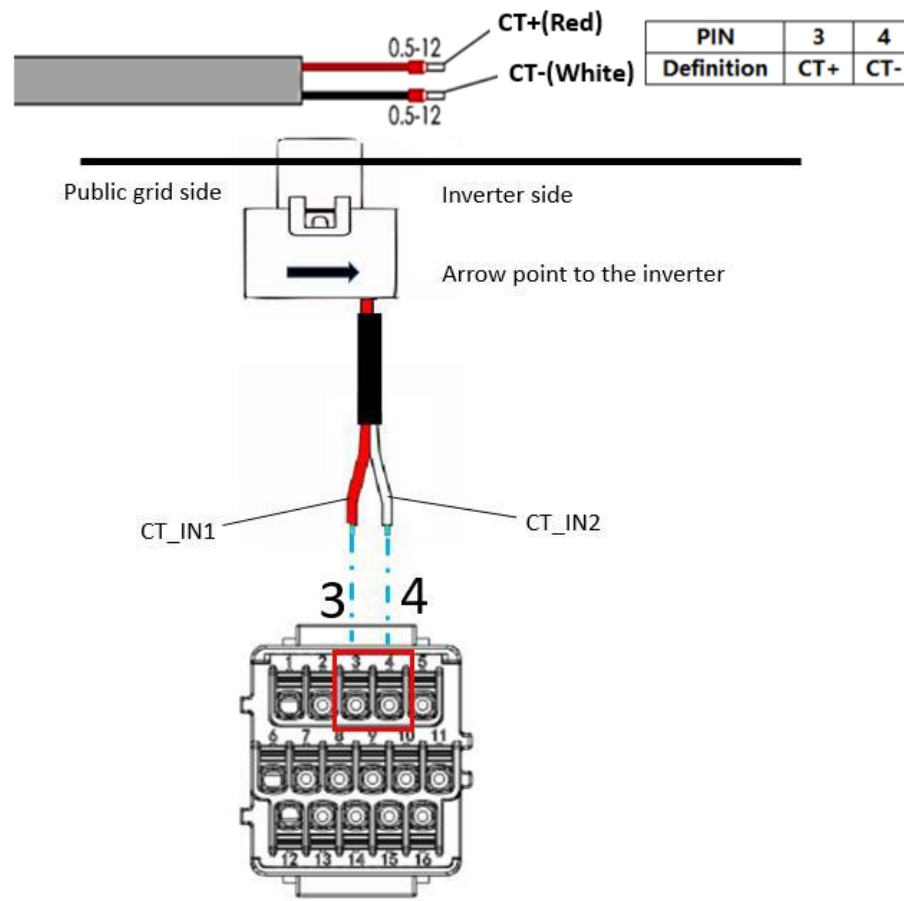


Picture 30 : wiring diagram

Installation guidance – CT connection

Step13: connect CT to inverter

- Direction on the CT must point to the inverter side.
- The hybrid inverter is equipped with the feed-in power limit function; it need CT to achieve energy management
- CT communication cable are 5 meters (can be extended to 50 meters)



Picture 31 : CT connection diagram

Installations



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Picture 31 : Installations

THANKS !

SPAZIO POWER

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