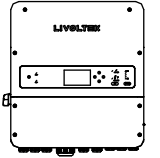
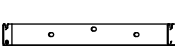
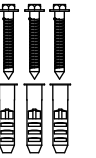
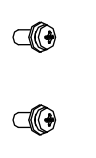
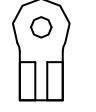

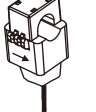

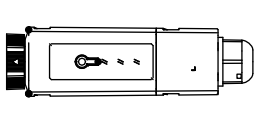
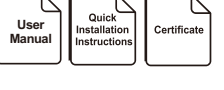


Quick Installation Guide

Hybrid Inverter(Single Phase)

HP1-7K5S2M/8KS2M/10KS2/12KS2/14KS2/16KS2

 Inverter *1	 Inverter Bracket *1	 Expansion tube& self-tapping screws *3	 M5*12 screws *2
 OT terminal*1	 Parallel communication cable*1	 CT (with a cable)	 Battery temperature sensor*1
 Wi-Fi logger	 Documents*3		

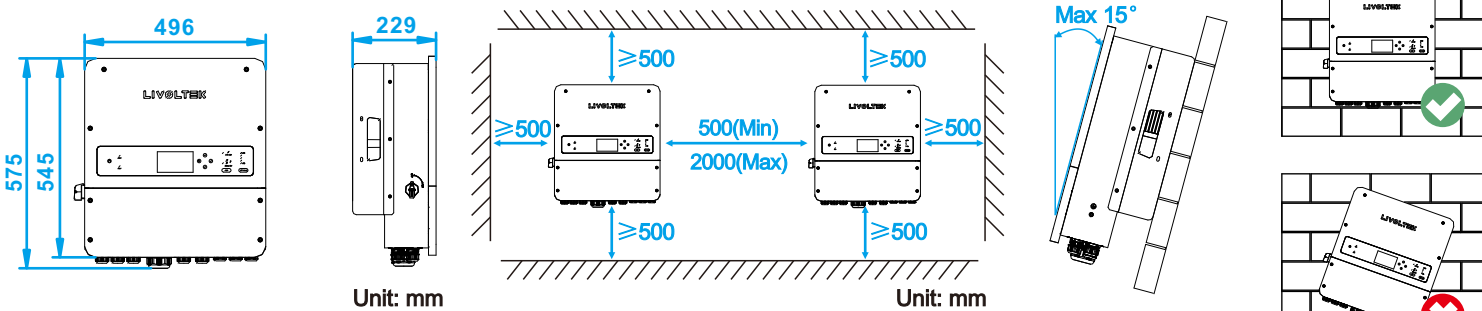
Notice: The number of PV connectors/terminals for HP1-7K5S2M/8KS2M are 2 pairs, and for HP1-10K/12K/14K/16K are 3 pairs. On receiving the inverter, please check to make sure the packing and all components are not missing or damaged. Please contact your dealer directly for supports if there is any damage or missing components.

Preparation Tools

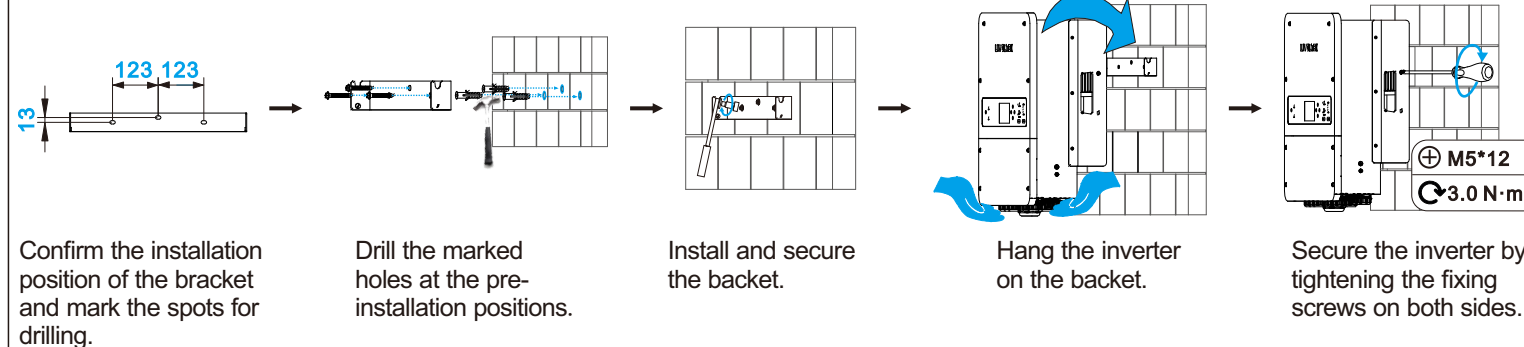
 Bit #10 Hammer drill	 Rubber hammer	 Claw safety hammer	 Cross screwdriver	 Slotted screwdriver
 Spirit level	 Tape ruler	 Insulation tape	 Dustproof cover	 Protective glasses
 Euro terminal crimping tool	 Wire stripper	 Diagonal pliers	 OT terminals press clamp	 Crimping tool (RJ45)
 Utility knife	 Marker pen	 Hydraulic tong	 Multimeter	 AC/DC clamp-on ammeter

Mounting

A Installation requirements



B Wall Mounting



PV Connection

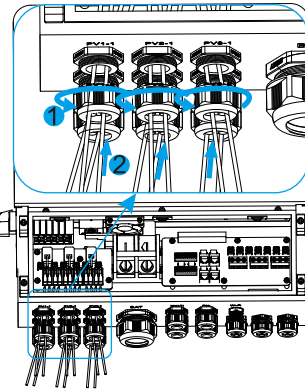
Materials Preparation

- PV cable

Recommended Wire Specification

Model	Wire Size	Cable	Breaker
7.5~16kW	/	/	/

- Loosen the PV swivel nuts, thread PV cables through PV ports into the inverter.

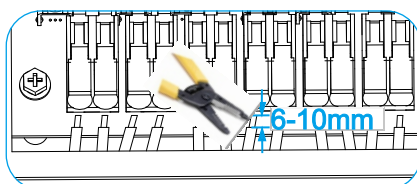


Notice

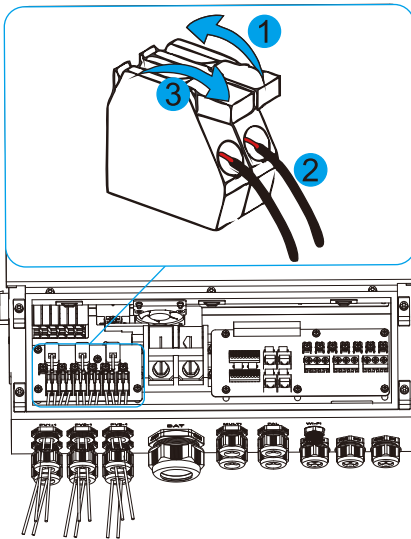
- Do not connect the AC circuit breaker before finishing electrical connection.
- The 7.5 - 16kW inverter is designed with MPPT trackers, if the inputs of the PV panels are paralleled, please consult with your local distributor for technical support.



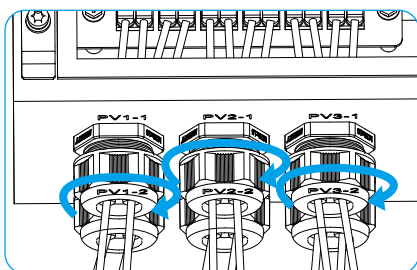
- Strip 6-10mm insulation off the PV cables.



- Check the polarity of the PV module inside the inverter. Open the switch. Connect the positive pole (+) of the PV cable to the positive pole (+) of the PV module and the negative pole (-) of the PV cable to the negative pole (-) of the PV module. Close the switch and slightly pull PV cables to ensure PV cables are firmly fixed.



- Tighten the PV swivel nuts.



PE Connection

Materials Preparation

- PE cable
- OT terminal (in accessories)

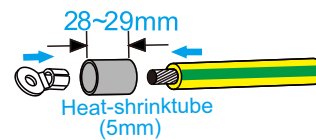
Recommended Wire Specification

Model	Wire Size	Cable
7.5~12kW	6 AWG	16 mm ²
14~16kW	5 AWG	16 mm ²

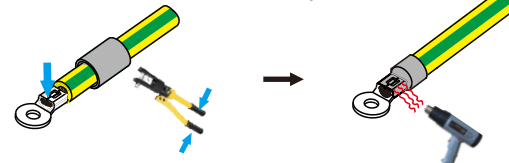
- Strip the cable insulation for 5~7mm.



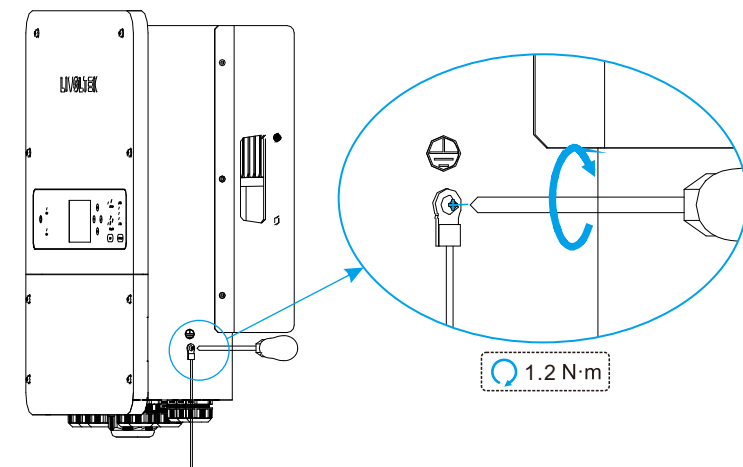
- Cut a 28~29mm heat-shrink tube. Insert the stripped end through the heat-shrink tube and into the terminal.



- Crimp the stripped cable with the OT terminal. Pull the heat-shrink tube to the connection and blow the tube with a heat gun to ensure no conductor of the cable is exposed.



- Connect the assembled PE cable to the inverter.



Notice

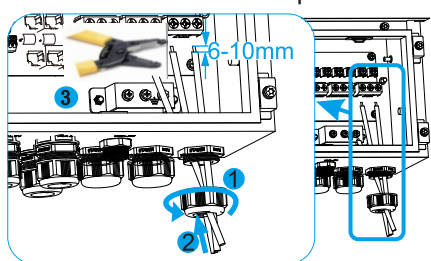
- Ensure that the PE cable is securely connected. Otherwise, electric shocks may occur.
- Do not connect the neutral wire to the enclosure as a PE cable. Otherwise, electric shocks may occur.
- The PE point at the AC output port is used only as a PE equipotential point, and cannot substitute for the PE point on the enclosure. Make sure the two terminals are both grounded reliably.

Grid Connection

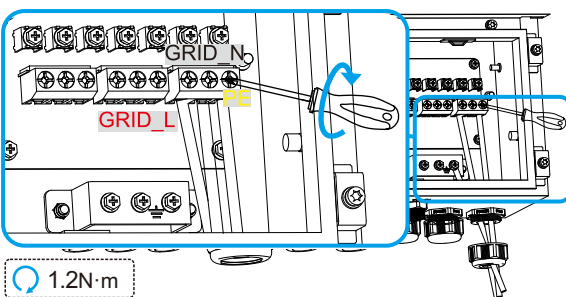
Recommended Wire Specification

Model	Wire Size	Cable	Breaker
7.5~12kW	6 AWG	16 mm ²	60 A
14~16kW	4 AWG	25 mm ²	80 A

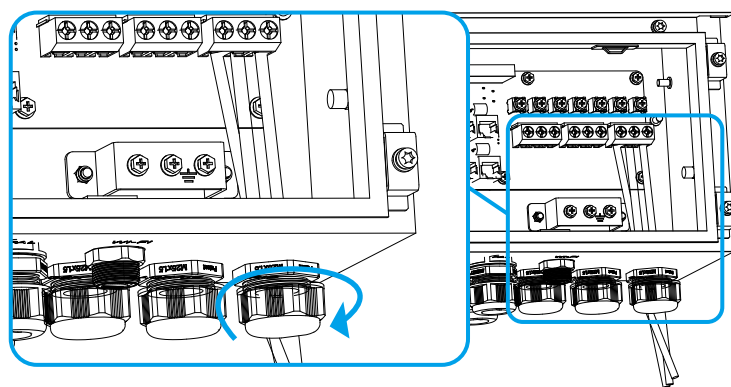
- Loosen the Grid swivel nut, thread Grid cables through the swivel nut and into the inverter. Strip 6-10mm insulation off.



- Loosen the screws on each Grid terminal. Connect the stripped L, N and PE cable to the Grid_L, Grid_N and Grid_PE terminal in the inverter. Secure the screws on each terminal.



- Tighten the Grid swivel nut.



Notice

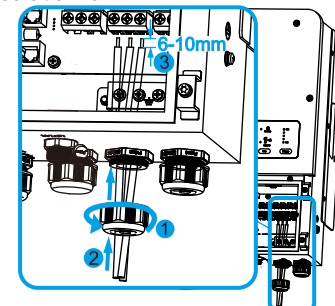
- Make sure inverter is totally isolated from any DC or AC power before connecting AC cable.
- Only with the permission of the local grid department, the inverter can be connected to the grid.
- DO NOT connect the AC grid terminal and AC Backup (EPS) terminal together.
- When you want to use both grid power and backup power, please connect both with Grid output and EPS output. When you want to use grid only, please connect with Grid output and cover EPS output with the dust plug. When you want to use backup only, please connect with EPS output and cover Grid output with the dust plug.

EPS Connection

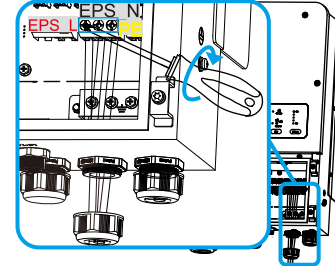
Recommended Wire Specification

Model	Wire Size	Cable	Breaker
7.5~12kW	6 AWG	16 mm ²	60 A
14~16kW	4 AWG	25 mm ²	80 A

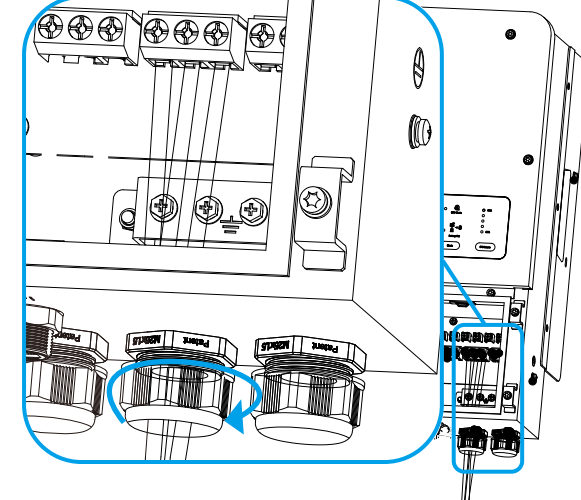
- Loosen the BACK-UP (EPS) swivel nut, thread EPS cables through the swivel nut and into the inverter. Strip 6-10mm insulation off.



- Loosen the screws on each Grid terminal. Connect the stripped L, N and PE cable to the EPS_L, EPS_N and EPS_PE terminal in the inverter. Secure the screws on each terminal.



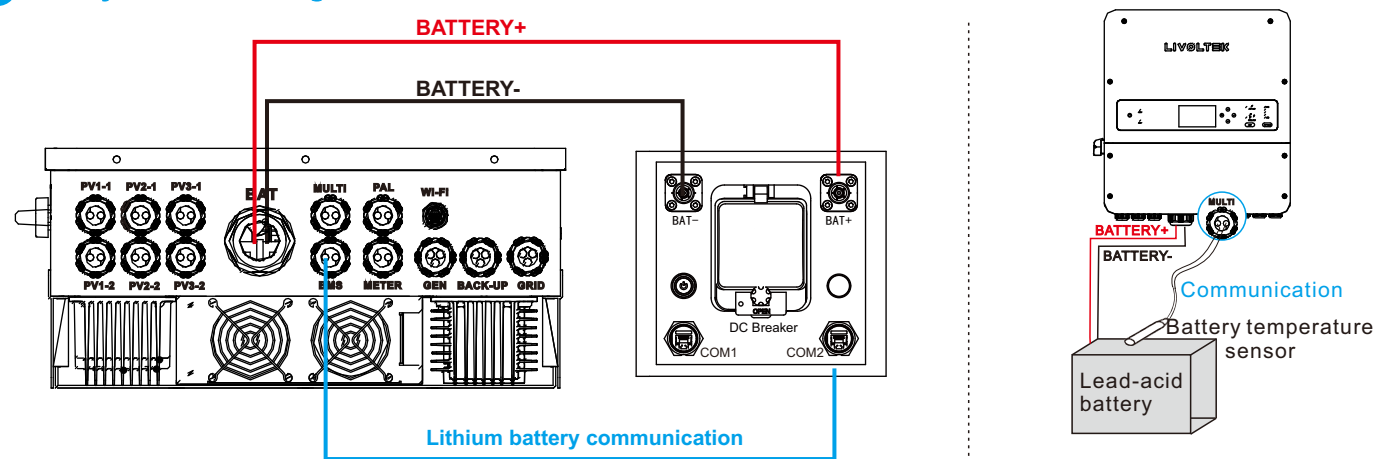
- Tighten the BACK-UP (EPS) swivel nut.



Notice

- Make sure inverter is totally isolated from any DC or AC power before connecting AC cable.
- DO NOT connect the AC grid terminal and AC Backup (EPS) terminal together.
- DO NOT connect the AC Backup (EPS) terminal to grid.
- When you want to use both grid power and backup power, please connect both with Grid output and EPS output. When you want to use grid only, please connect with Grid output and cover EPS output with the dust plug. When you want to use backup only, please connect with EPS output and cover Grid output with the dust plug.

A Battery Connection Diagram



- Notice**
- For batteries without a built-in DC breaker, make sure that an external DC breaker connected.
 - This inverter can only be connected with LIVOLTEK high-voltage lithium or lead-acid batteries with nominal voltage now.

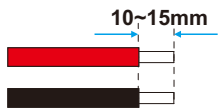
B Battery Cable Connection

- Materials Preparation
- Battery cable
 - A pair of battery cable connector

Recommended Wire Specification

Model	Wire Size	Cable	Breaker
7.5-12kW	1/0AWG	50 mm ²	250 A
14-16kW	1/0AWG	50 mm ²	290 A

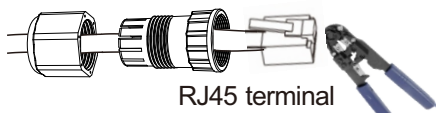
1 Strip BAT cable insulation for 10~15mm.



C BMS Connection (for lithium battery)

- Materials Preparation
- A communication cable
 - A RJ45 terminal

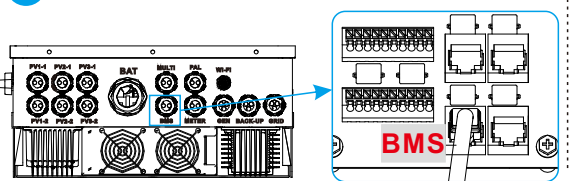
1 Pass the communication cable through the connector. Insert the communication cable into the RJ45 terminal in accordance with the pin definition and crimp it.



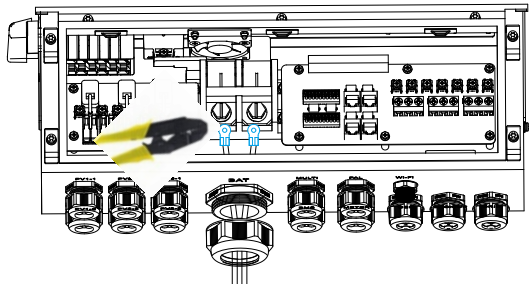
BMS Pin Definition for LIVOLTEK Li-Ion Battery

Color	Definition
orange white	BMS_CAN_H
orange	BMS_CAN_L
green white	NULL
blue	NULL
blue white	NULL
green	NULL
brown white	NULL
brown	NULL

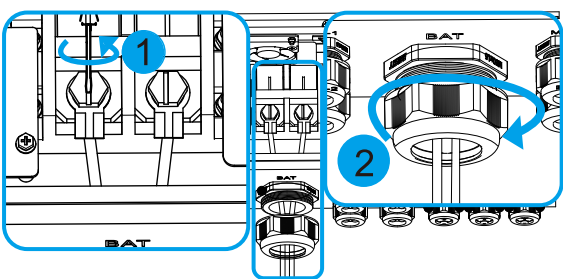
2 Connect the assembled cable to the inverter.



2 Loosen the BAT swivel nut, thread the striped end into the inverter. Then crimp the striped end with battery connectors.



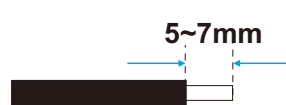
3 Secure the battery screws to ensure the cables are firmly connected. Tighten the BAT swivel nut.



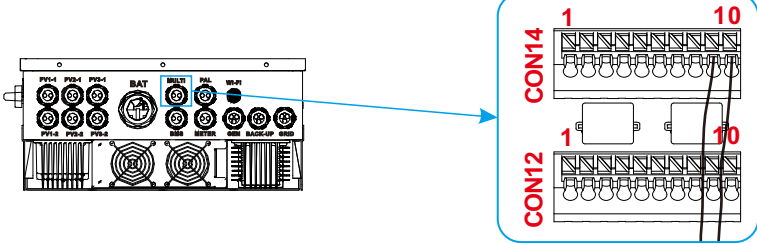
D MULTI Connection (for lead-acid battery)

- Materials Preparation
- A communication cable

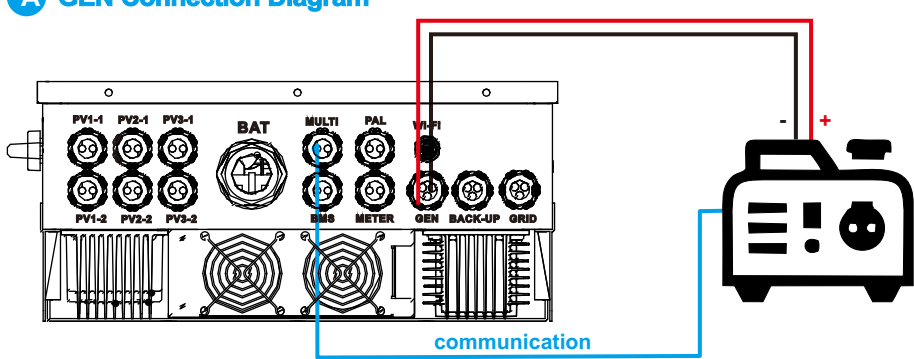
1 Strip 5~7mm insulation off the communication cables.



2 Loosen the MULTI swivel nut, thread striped cables through the swivel nut into the inverter. Connect the two cables to the pin 10 and pin 9 (in CON14 terminal block). Press the grey button on the top to fix the cable.



A GEN Connection Diagram



B GEN Cable Connection

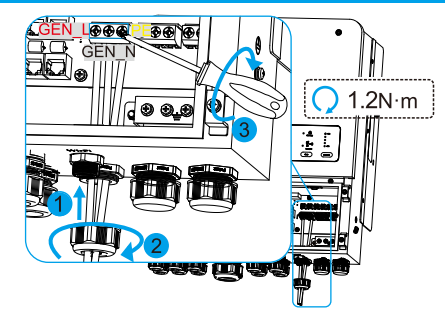
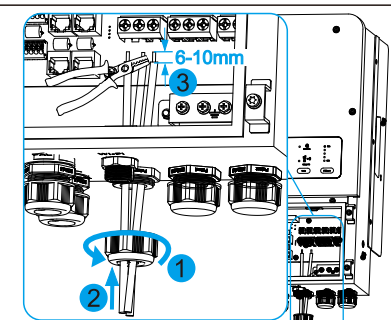
- Materials Preparation
- GEN cable

Recommended Wire Specification

Model	Wire Size	Cable
7.5-12kW	6AWG	16mm ²
14-16kW	4AWG	25mm ²

1 Loosen the GEN swivel nut, thread cables through the nut into the inverter and strip 6-10mm insulation off.

2 Loosen the GEN swivel nut, thread cables through the nut into the inverter and strip 6-10mm insulation off.



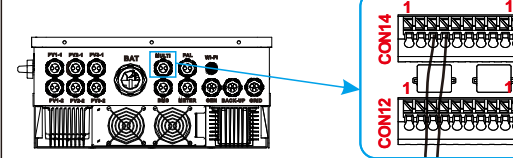
C GEN Connection

- Materials Preparation
- A communication cable

1 Strip 5~7mm insulation off the communication cables.



2 Loosen the MULTI swivel nut, thread striped cables through the swivel nut into the inverter. Connect the two cables to the pin 3 and pin 4 (in CON14 terminal block). Press the grey button on the top to fix the cable.



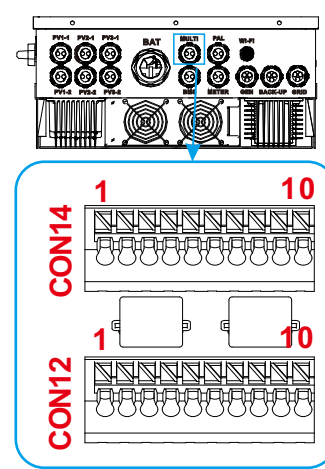
Materials Preparation

- COM cable

1 Strip the cable insulation for 5~7mm.



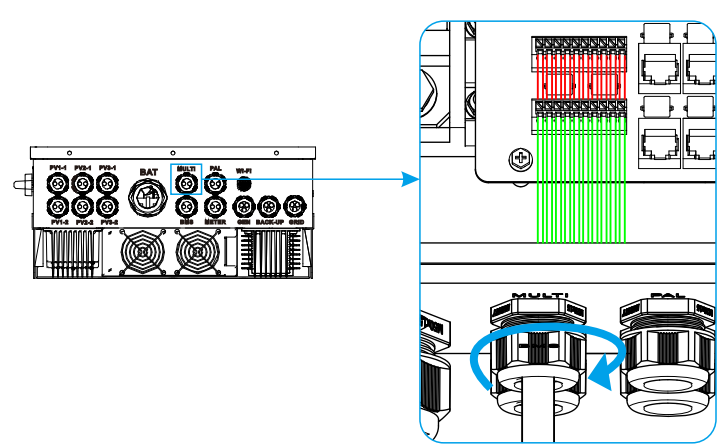
2 Loosen the MULTI swivel nut, thread communication cable through the swivel nut into the inverter. Connect the striped cable to the MULTI terminal block in accordance with the function to be achieved and the pin definition.



Pin definition of MULTI port

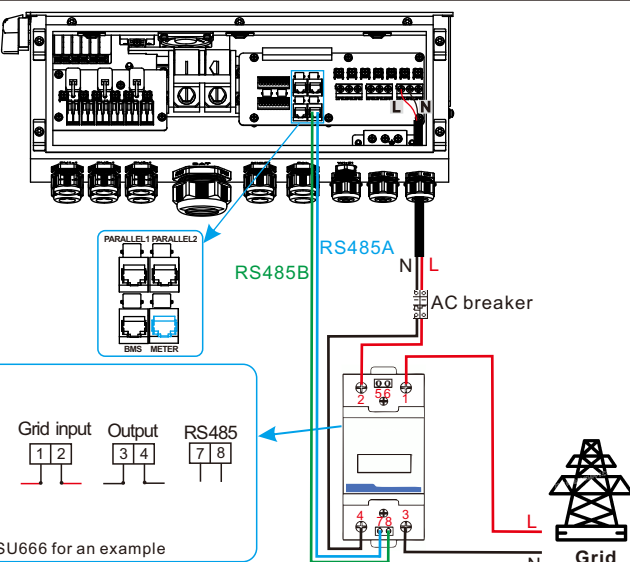
Terminal block	Pin	Pin definition	Function
CON14	1,2	DO2_KEY	reserved
	3,4	DO1_KEY	dry contact signal for startup the diesel generator
	5-6+	Remote2	reserved
	7-8+	Remote1	reserved
	9-10+	NTC_BAT	battery temperature sensor for lead-acid battery
CON12	1+2-	+12V_RSD	relay signal for cutting off the PV input
	3,4	CT2_IN	current transformer (CT1) for "zero export to CT" mode clamps on L1 when in split phase system
	5,6	CT1_IN	current transformer (CT2) for "zero export to CT" mode clamps on L2 when in split phase system
	7,8	CHARGE_485	communication connection with an EV charger
	9,10	EMS_485	connected and receiving directives from the local grid

3 Confirm all cables are firmly connected, then tighten the MULTI swivel nut.



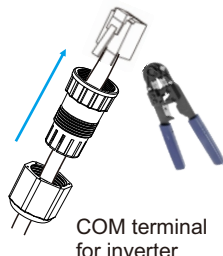
- Materials Preparation
- Meter communication cable
 - RJ45 terminal
 - Smart meter

Pin	Meter	Definition
7		Meter 485 A
8		Meter 485 B

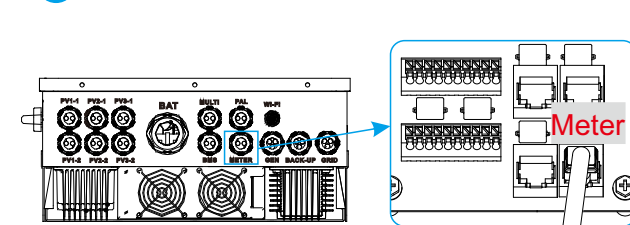


Pin	Inverter	Definition
1-orange white		Meter 485 A
2-orange		Meter 485 B
3		NULL
4		NULL
5		NULL
6		NULL
7		NULL
8		NULL

1 Prepare the communication cable.



2 Insert the cable into the meter port.



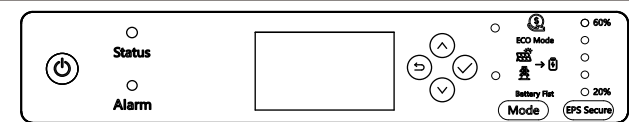
- Notice**
- After inserting the communication terminal, to ensure waterproofing, please tighten the nut on the terminal.










Powering on the System

- Step 1:**Power on the Grid;
Step 2:Power on the Battery;
Step 3:Power on the PV;
Step 4:Switch on the loads;
Step 5:Configure the Wi-Fi stick;
Step 6:Self-test in accordance with CEI 0-21 (Italy Only).

Powering off the System

- Step 1:**Turn off the loads;
Step 2:Turn off the PV;
Step 3:Turn off battery;
Step 4:Turn off the main grid switch;
Step 5:Wait for at least 5 minutes after the LED and graphical display black out for the internal circuits to discharges energy;

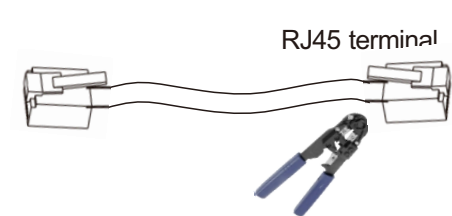


Key	Function	Description	
	System on/off key	<ul style="list-style-type: none">When the inverter is off, press the key for 3 seconds and the inverter starts system self-checkingWhen the inverter is running, press the key for 3 seconds and the inverter is turned off.	
	Up key	Move the cursor to the upper part or increase the value	
	Down key	Move the cursor to the lower part or decrease the value	
	ESC key	Exit from the current interface or function	
	Enter key	Confirm the selection	
Indicator	Color	Status	Description
	Green	Always on	The inverter is running normally. Or the inverter is upgrading software (With Alarm light always on at the same time)
		Flash	The inverter is in standby or startup status.
		Always off	The inverter is off.
	Red	Always on	The inverter is in fault status. Or the inverter is upgrading software (with Status light always on at the same time)
		Always off	The inverter is running normally.
		Always on	The inverter is working in this working mode.
	Green	Flash	<ul style="list-style-type: none">The working mode is to be confirmed.Press Enter key to confirm the working mode.Press Mode key to select the other working mode and press Enter key to confirm the working mode selected.
		ECO mode is the default working mode of the inverter. If the other working mode is selected but not confirmed, the working mode selection will turn back to be ECO mode after 3 seconds.	
		The battery discharges power to EPS loads only.	
	Green	Always on	<ul style="list-style-type: none">When the actual battery SOC > the battery SOC set, the battery discharges power to the EPS loads first and then to the smart loads.When the actual battery SOC < the battery SOC set, the battery discharge power to EPS loads only.
		Flash	<ul style="list-style-type: none">The battery SOC to secure EPS loads only is to be confirmed.Press Enter key to confirm the SOC.Press EPS Secure key to select battery SOC and press Enter key to confirm the SOC selected.
		If the SOC is selected but not confirmed, the SOC selection will turn back the default SOC after 3 seconds.	

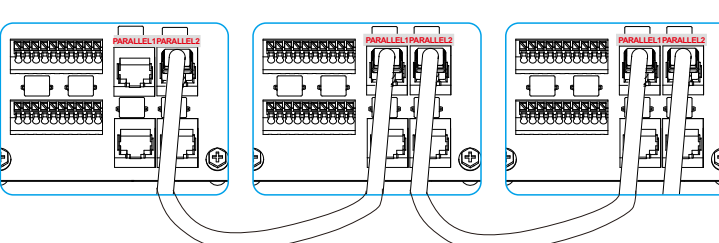
- Materials Preparation
- A PAL cable with RJ45 terminals (in accessories)

If more than two inverters are connected in parallel, wire the parallel communication cable as below.

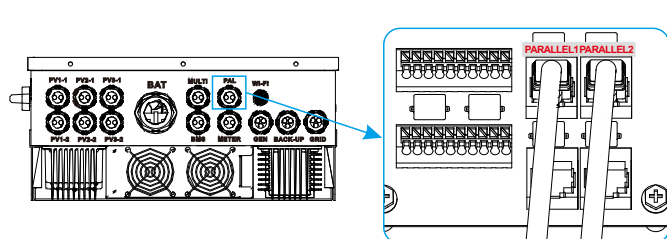
1 Strip the two ends of the cable and crimp the RJ45 terminals with the cable.



2 Connect PARALLEL2 terminal in the PAL port of the inverter 1 to the PARALLEL1 terminal in the inverter 2. PARALLEL2 terminal of the inverter 2 to the PARALLEL1 terminal terminal of the inverter 3. Inverters are connected in parallel according to this pattern. Up to 6 inverters can be connected in parallel.



3 Make sure the Parallel terminal is firmly connected. Secure the PAL swivel nut.

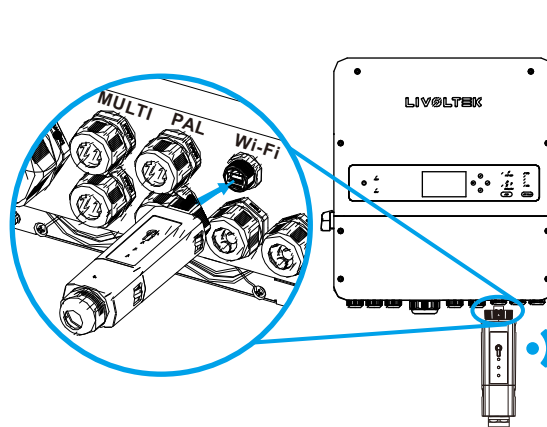


Notice

- This terminal is for parallel operation; if the user does not require this, it can be left uninstalled.
- The parallel communication cable requires a 4-core cable (network cable or twisted pair cable is recommended), to be provided by the user, with a length not exceeding 2m. One parallel communication cable is provided in the accessories.
- When making wires by yourself and inserting the wire into the terminal, the rubber core area must not exhibit the phenomenon of straddling the line.

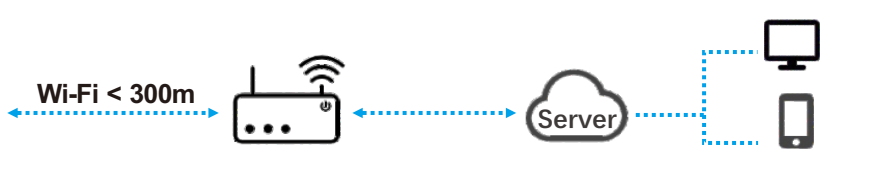
Materials Preparation

- LIVOLTEK PSD300 Wi-Fi Logger



- Remove the waterproof lid from the Wi-Fi terminal.
- Insert the Wi-Fi stick into the communication port. Slightly shake it by hand to determine whether it is installed firmly.
- Build the connection between the inverter and router. Please refer to the Pocket Wi-Fi user manual to configure the WLAN.

Refer the APP guide manual delivered with the product or find it at our APP homepage 'guide' (please install 'My Livoltek' APP on your phone firstly). You can also find it at our official website www.livoltek.com > service > guide.



'My Livoltek' is a platform to communicate with your device via Wi-Fi, you can login on our web (link as below) on your computer, also you can scan the QR code to download the APP on your phone.

APP: Search for 'My Livoltek' on Apple App Store, Google Play.

Web Link1: <https://www.livoltek-portal.com/>
 For Asia, Latin American, Australia and others.

Web Link2: <https://evs.livoltek-portal.com/>
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