

Quick Installation Guide

Hybrid Inverter(Single Phase)

HP1-1K5S2/3KS2/3K6S2/5KS2/5KS2C/6KS2/7K5S2/8KS2



Scan the QR code for the installation video

II

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
MC4 crimping tool	Wire stripper	Diagonal pliers	OT terminals press clamp	Crimping tool (RJ45)
Utility knife	Marker pen	Hydraulic tong	(Range ≥ 500V DC) Multimeter	AC/DC clamp-on ammeter

I

Packing List

Inverter *1 pcs	PV pin terminals *2 pairs	PV connectors *2 pairs	Battery connectors *1 pair	Grid connector and tools *1 pair
EPS&GEN connector and tools *2 pairs	8-pin terminal block *2 pcs	5-pin terminal block *1 pcs	Wall-mounting bracket *1 pcs	
Parallel communication cables *1 pcs	Battery temperature sensor *1 pcs Sticker *1 pcs	Expansion tubes & self-tapping screws *3 pairs	CT *1 pcs	
OT terminal *1 pcs	M5*12 screws *2 pcs	Wi-Fi logger *1 pcs	Documents *3 pcs	



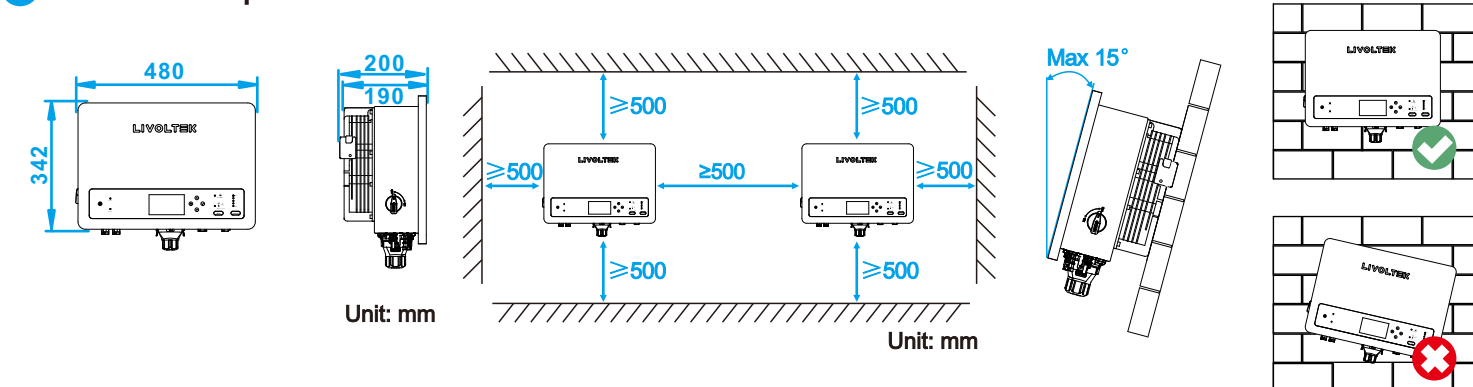
Notice:

- 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.
- For the HP1-1K5S2 inverter, a pair of PV pin terminals and PV connectors is supplied in the accessory.

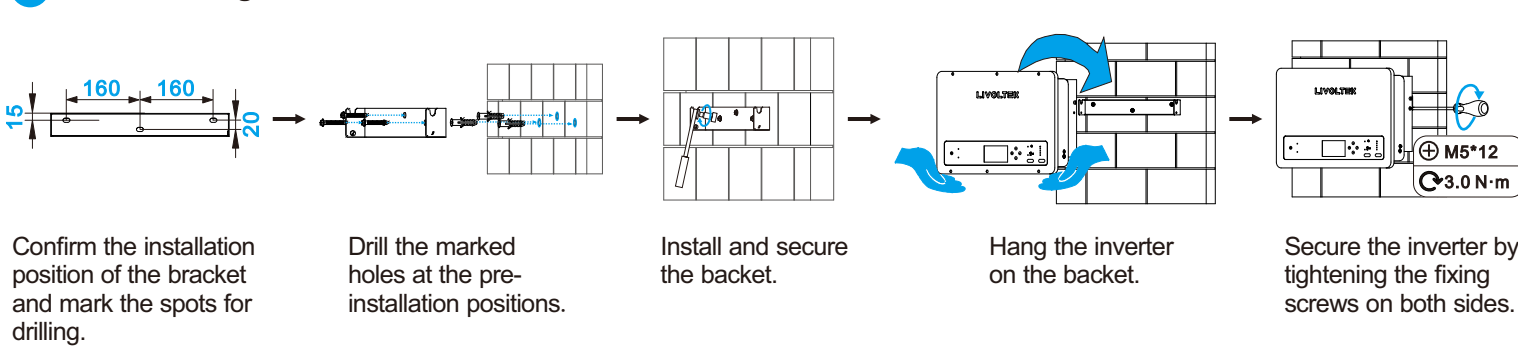
III

Mounting

A Installation requirements



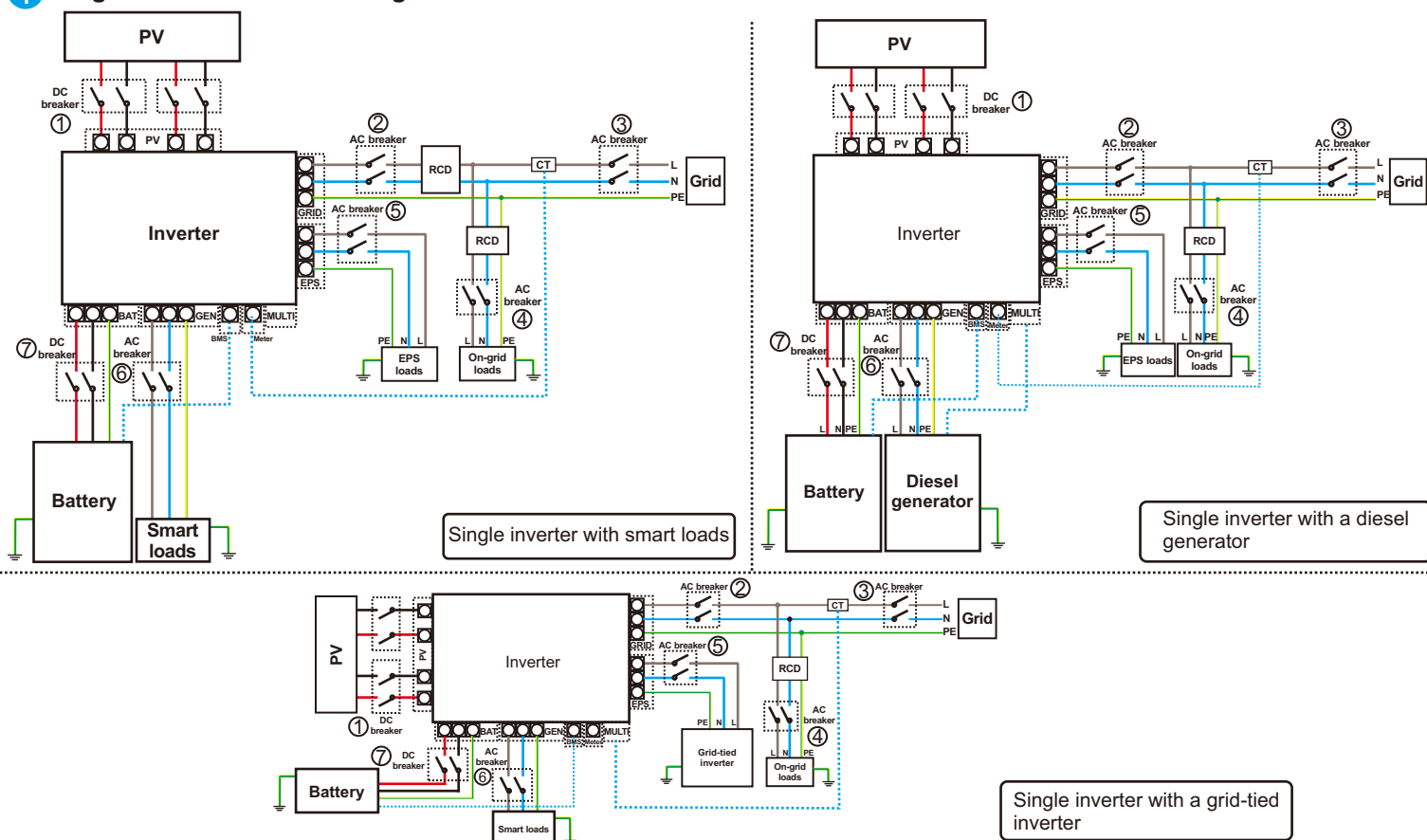
B Wall Mounting



IV

Electrical Diagram

1 Single inverter connection diagram

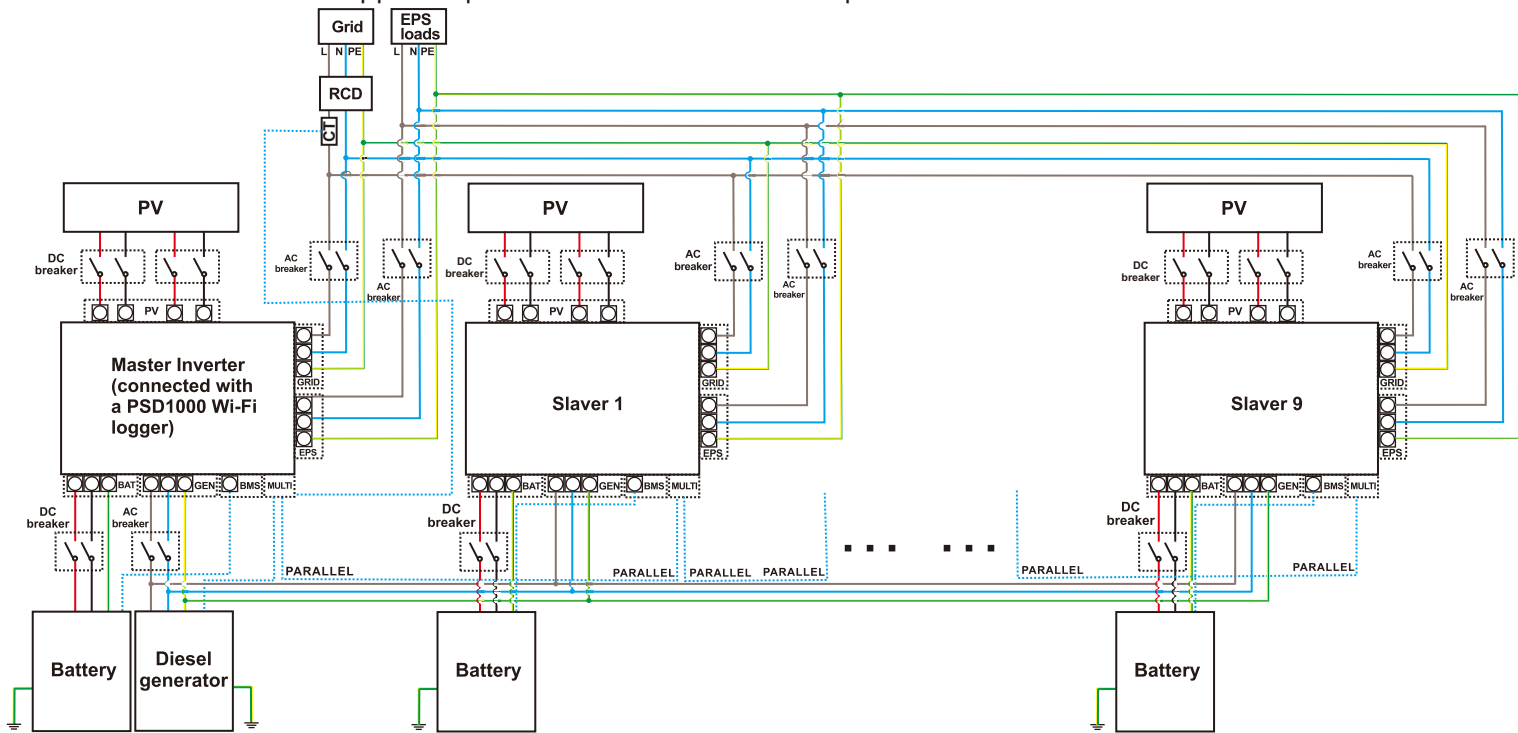


IV

Electrical Diagram

2 Parallel connection diagram

HP1 series inverter supports up to ten devices connected in parallel.



* Note:

- Customers choose a diesel generator or smart loads connected to the GEN port of the inverter. Here above a generator connected to the parallel system as an example.
- Please refer to the user manual for the electrical connection in parallel system.

V

PE Connection

Materials Preparation

- PE cable * 1 pcs (bought by customers)
- OT terminal * 1 pcs (in accessories)

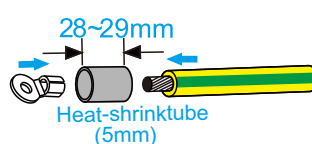
Recommended Wire Specification

Model	Wire Size	Cable
1.5-8KW	8 AWG	10 mm ²

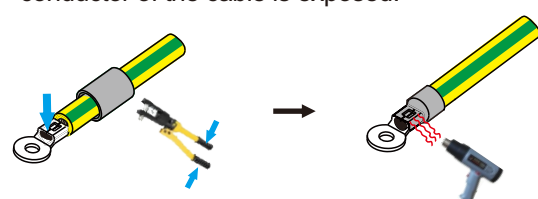
1 Strip the cable insulation for 5~7mm.



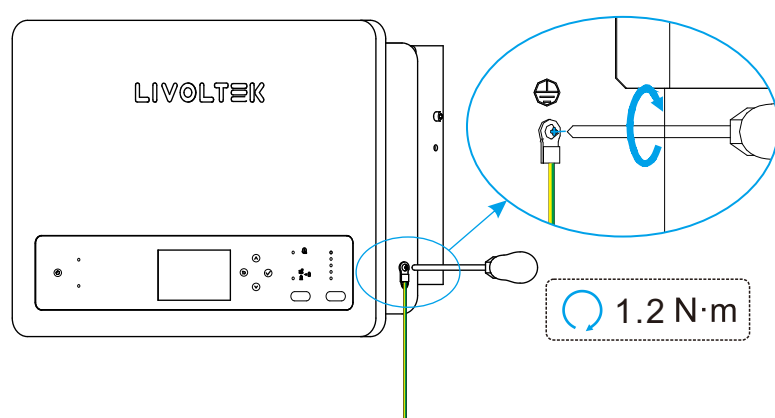
2 Cut a 28~29mm heat-shrink tube. Insert the stripped end through the heat-shrink tube and into the terminal.



3 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.



4 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.

VI

Wi-Fi Connection

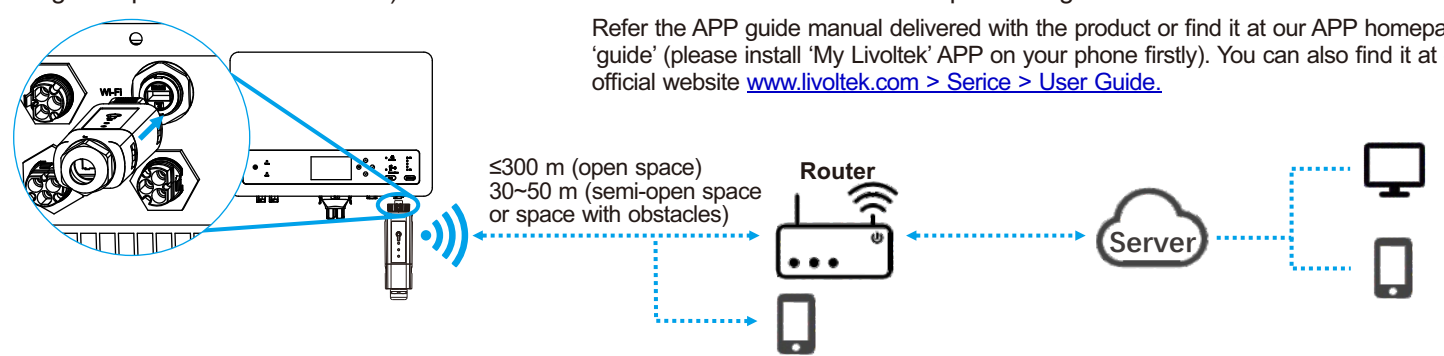
Materials Preparation

- LIVOLTEK PSD300 Wi-Fi Logger * 1 pcs (in accessories for single inverter communication)
- LIVOLTEK PSD1000 Wi-Fi Logger (additionally bought for parallel communication)

1 Remove the waterproof lid from the Wi-Fi terminal.

2 Insert the Wi-Fi logger into the communication port. Slightly shake it by hand to determine whether it is installed firmly.

3 Build the connection between the inverter and router. Please refer to the Wi-Fi or the inverter user manual to complete configuration.

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.livolttek.com > Service > User 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.livolttek-portal.com/>

For Asia, Latin American, Australia and others.

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

For Europe, Middle East Regions, Africa.

Contact Livoltek after-sale service team if you need any help

Service Tel / Whatsapp / Wechat: +86-176-8184-0966

E-mail: service@livolttek.com

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Materials Preparation

- GRID (larger) connector * 1 pcs (in accessories)
- EPS connector * 1 pcs (in accessories)
- GRID & EPS power cable * 2 pcs (bought by customers)

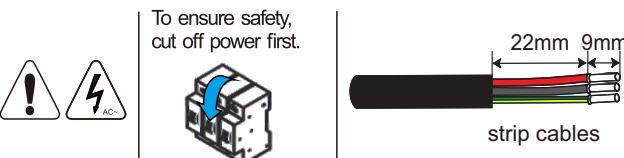
Recommended Wire Specification (EPS)

Model	Wire Size	Cable	Single-phase AC breaker
1.5~8kW	8 AWG	10 mm ²	Rated current ≥63 A a.c.

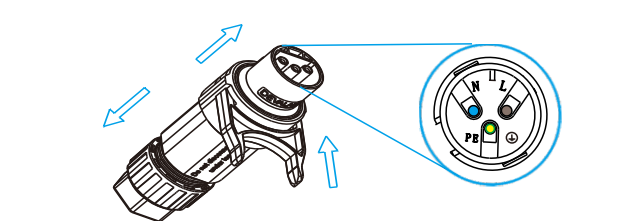
Recommended Wire Specification (Grid)

Model	Wire Size	Cable	Single-phase AC breaker
1.5~8kW	8 AWG	10 mm ²	Rated current ≥63 A a.c.

- 1 Remove the cable jackets and strip the wire insulation.



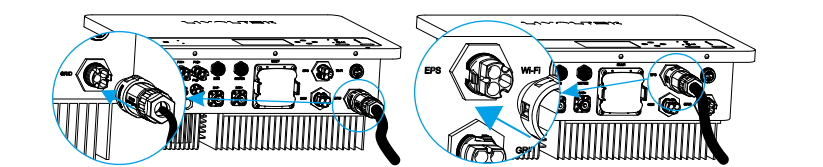
- 2 Take out the GRID & EPS terminal from the package box and disassemble it as below chart.



- 3 Put the GRID/ EPS cables through the terminal cap, insert cables into connection terminals in accordance with the polarities indicates on it and tighten the screws. Push threaded sleeve onto the connection terminal until both are locked tightly. Then screw up the terminal cap.



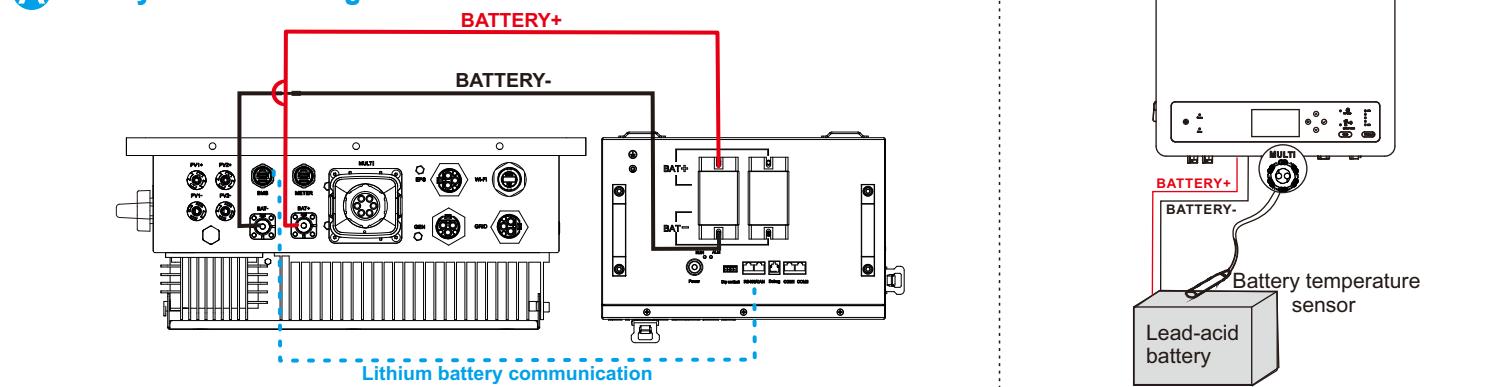
- 4 Unscrew the cap on the GRID/ EPS port. Then insert the GRID and EPS connector into the GRID and EPS port on the bottom of the inverter respectively.



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 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.

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

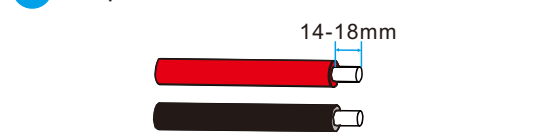
Materials Preparation

- Battery power cable * 1 pair (bought by customers)
- Battery connector * 1 pair (in accessories)

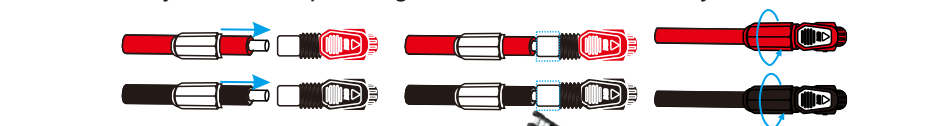
Recommended Wire Specification

Model	Wire Size	Cable	Single-phase DC breaker
1.5~8kW	3 AWG	25 mm ²	Rated current: 150 A d.c.

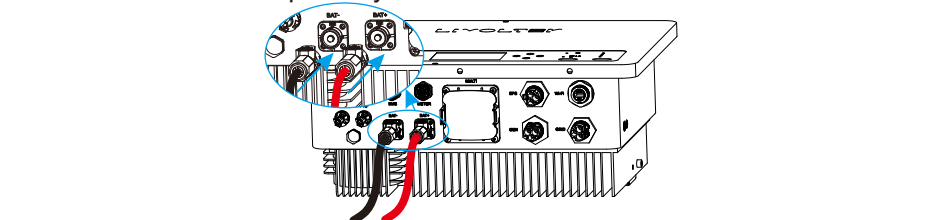
- 1 Strip BAT cable insulation for 14~18mm.



- 2 Disassemble the battery connectors, thread stripped cables through the nuts of the connectors into the metal part of the connectors, crimp the connectors with a hydraulic clamp and tighten the nuts of the battery connectors.



- 3 Remove the caps on the BAT+ and BAT- ports and insert assembled positive and negative battery power cables into the BAT+ and BAT- port on the inverter respectively.

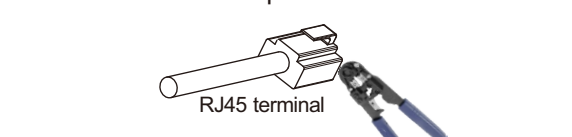


C BMS Connection (for lithium battery)

Materials Preparation

- Two-core twisted pair communication cable * 1 pcs (bought by customers)
- A RJ45 terminal * 1 pcs (bought by customers)

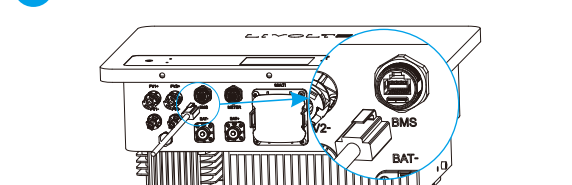
- 1 Strip and insert the communication cable into the RJ45 terminal in accordance with the pin definition and crimp the terminal.



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.

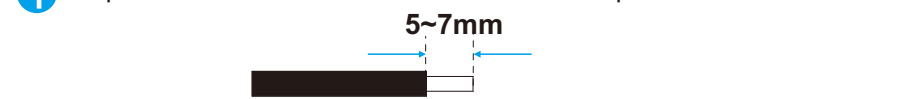


D MULTI Connection (for lead-acid battery)

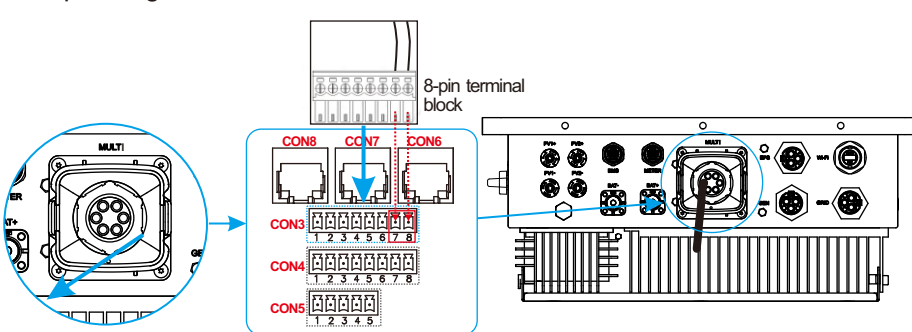
Materials Preparation

- Battery temperature sensor * 1 pcs (in accessories)
- 8-pin terminal block * 1 pcs (in accessories)
- Sticker * 1 pcs (in accessories)

- 1 Strip 5~7mm insulation off the cable of the temperature sensor.



- 2 Remove the MULTI connector, thread striped cables through the swivel nut. Connect the two cables to the 8-pin terminal block as the figure below, secure the cables on the terminal block and insert the terminal block into the CON3 terminal block (pin 7 and pin 8) inside the MULTI port. Tighten the MULTI connector.



- 3 Use a sticker to fix the lead-acid battery and the temperature sensor.

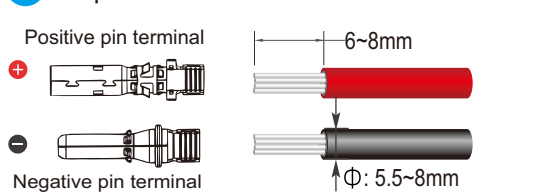
Materials Preparation

- PV connectors * 2 pairs (in accessories)
- PV pin terminals * 2 pairs (in accessories)
- PV power cables * 2 pairs (bought by customers)

Recommended Wire Specification

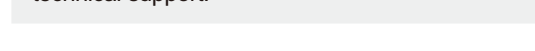
Model	Wire Size	Cable	Single-phase DC breaker
1.5~8kW	6 AWG	4 mm ²	Rated current ≥25A

- 1 Strip the cable insulation for 6~8mm

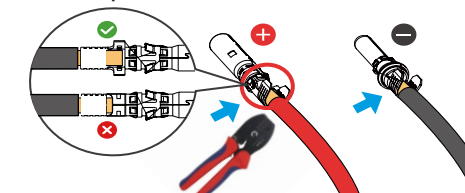


Notice

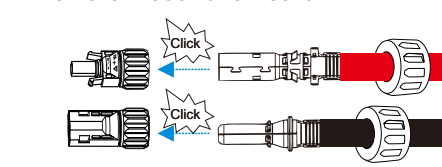
- Do not connect the AC circuit breaker before finishing electrical connection.
- The 1.5~8kW inverter is designed with 2 MPPT trackers, if the inputs of the PV panels are paralleled, please consult with your local distributor for technical support.



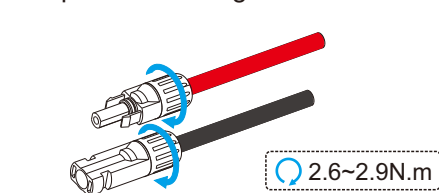
- 2 Connect the red(black) wire to the positive(negative) pin terminal, and crimp them.



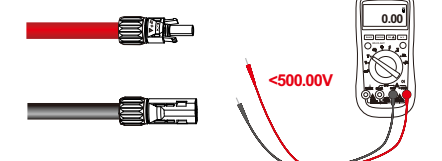
- 3 Insert the crimped positive and negative power cables into the corresponding connectors until a "click" sound is heard.



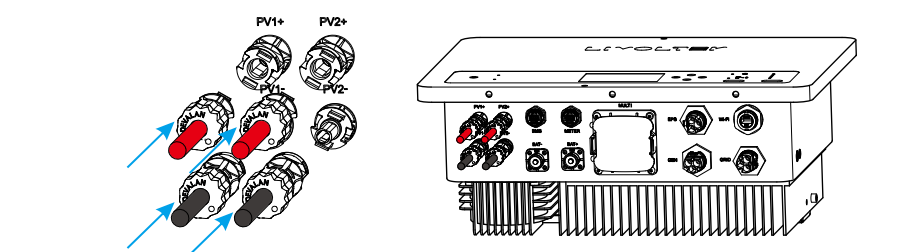
- 4 Tighten the locking nuts on the positive and negative connectors.



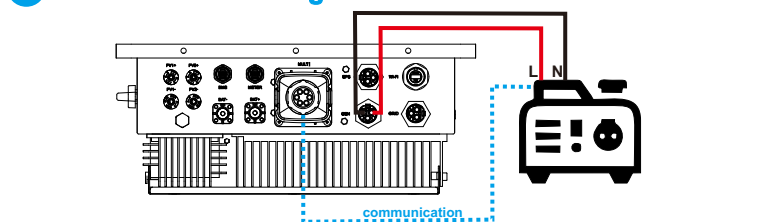
- 5 Measure the voltage of every DC strings positive and negative connectors using a multimeter.



- 6 Insert the positive and negative connectors into their corresponding terminals of the inverter until a click sound is heard.



A GEN Connection Diagram



*Note: Only automatic diesel generators that support dry contact control for start stop need to be connected to the MULTI port of the inverter; Manual start stop diesel generators do not require communication with inverters.

B GEN Cable Connection

Materials Preparation

- GEN power cable * 1 pair (bought by customers)
- GEN connector * 1 pcs (in accessories)

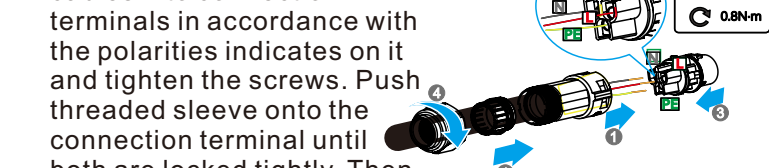
- 1 Remove the cable jackets and strip the wire insulation.



- 2 Take out the GEN connector from the package box and disassemble it as below chart.



- 3 Put the GEN cables through the terminal cap, insert cables into connection terminals in accordance with the polarities indicates on it and tighten the screws. Push threaded sleeve onto the connection terminal until both are locked tightly. Then screw up the terminal cap.



- 4 Unscrew the cap on the GEN port. Then insert the GEN connector into the GEN port on the bottom of the inverter.



C GEN Connection

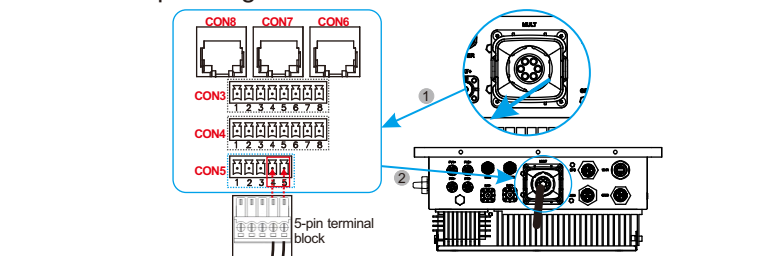
Materials Preparation

- Two-core twisted pair communication cable * 1 pcs (bought by customers)
- A 5-pin terminal block * 1 pcs (in accessories)

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

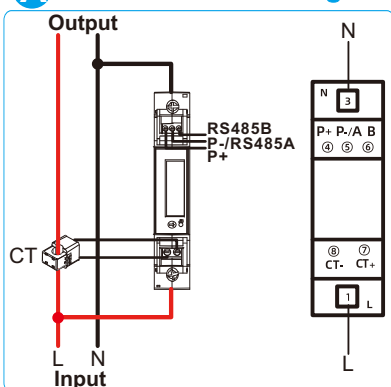


- 2 Remove the MULTI connector, thread striped cables through the swivel nut. Connect the two cables to the 5-pin terminal block as the figure below, secure the cables on the terminal block and insert the terminal block into the CON5 terminal block (pin 4 and pin 5) inside the MULTI port. Tighten the MULTI connector.



A CT is supplied in the accessory by Livoltek, please refer to MULTI COM Connection for CT connection. If customers choose to connect a smart meter, contact us for a meter.

A Meter Connection Diagram



B Meter Cable Connection

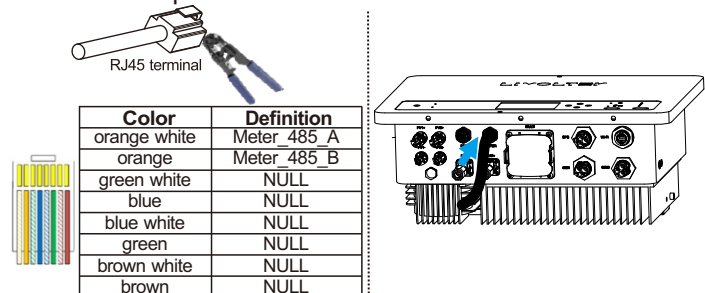
Materials Preparation

- A two-core twisted pair communication cable (bought by customers)
- A RJ45 terminal (bought by customers)
- A smart meter (bought by customers from Livoltek)

- 1 Strip the communication cable.



- 2 Insert the communication wires into the RJ45 connector in accordance with the meter pin definition, crimp the RJ45 connector and connect the assembled cable into the Meter port of the inverter.



Color	Definition
orange white	Meter 485 A
orange	Meter 485 B
green white	NULL
blue	NULL
blue white	NULL
green	NULL
brown white	NULL
brown	NULL

Color	Definition
orange white	DRM1/5
orange	DRM2/6
green white	DRM3/7
blue	DRM4/8

Color	Definition
orange white	DRM1/5
orange	DRM2/6
green white	DRM3/7
blue	DRM4/8

Color	Definition
orange white	DRM1/5
orange	DRM2/6
green white	DRM3/7
blue	DRM4/8

Color	Definition
orange white	DRM1/5
orange	DRM2/6
green white	DRM3/7
blue	DRM4/8

Color	Definition
orange white	DRM1/5
orange	DRM2/6
green white	DRM3/7
blue	DRM4/8

Color	Definition
orange white	DRM1/5
orange	DRM2/6
green white	DRM3/7
blue	DRM4/8

Color	Definition
orange white	DRM1/5
orange	DRM2/6
green white	DRM3/7
blue	DRM4/8

Color	Definition
orange white	DRM1/5
orange	DRM2/6
green white	DRM3/7
blue	DRM4/8

Color	Definition
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orange	DRM2/6
green white	DRM3/7
blue	DRM4/8

Color	Definition
orange white	DRM1/5
orange	DRM2/6
green white	DRM3/7
blue	DRM4/8

Color	Definition
orange white	DRM1/5
orange	DRM2/6
green white	DRM3/7
blue	DRM4/8

Color	Definition
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orange	DRM2/6
green white	DRM3/7
blue	DRM4/8

Color	Definition
orange white	DRM1/5
orange	DRM2/6
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blue	DRM4/8

Color	Definition
orange white	DRM1/5
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green white	DRM3/7
blue	DRM4/8

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green white	DRM3/7
blue	DRM4/8

Color	Definition
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blue	DRM4/8

Color	Definition
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orange	DRM2/6
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blue	DRM4/8

Color	Definition
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blue	DRM4/8

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green white	DRM3/7
blue	DRM4/8

Color	Definition
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green white	DRM3/7
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orange white	DRM1/5
orange	DRM2/6
green white	DRM3/7
blue	DRM4/8

Color	Definition
orange white	DRM1/5
orange	DRM2/6