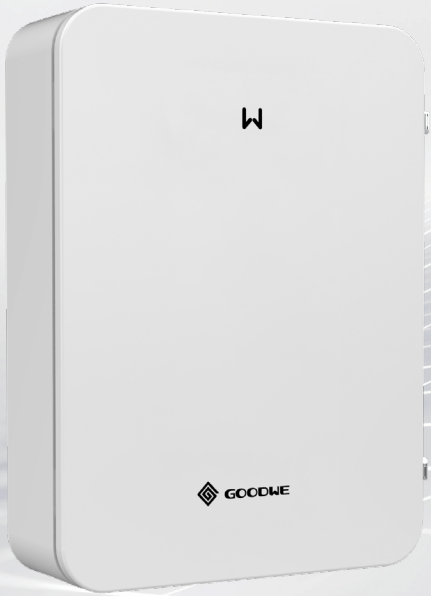
GOODWE
YOUR SOLAR ENGINE



Quick Installation Guide

Automatic Transfer Device

ATD Series

(ATD200-50-US10 | ATD100-50-US10)

V1.0-2022-05-30

1 IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

You shall follow all the safety precautions mentioned in this manual when working on the device.

Notice
The product is designed and tested to strictly comply with related safety rules. Read and follow all the safety instructions and cautions before any operations. Improper operations might cause personal injury or property damage as the device is electrical equipment.

1.1 Hazard Level Definition

Different levels of warning messages in this manual are defined as follows:

⚠ DANGER
Indicates a high-level hazard that, if not avoided, will result in death or serious injury.
⚠ WARNING
Indicates a medium-level hazard that, if not avoided, could result in death or serious injury.
⚠ CAUTION
Indicates a low-level hazard that, if not avoided, could result in minor or moderate injury.
NOTICE
Highlights key information and supplements other text. It may include skills and methods to solve product-related problems.

1.2 General Safety

NOTICE
• The information in this manual is subject to change due to product updates or other reasons. This guide cannot replace the product labels or other safety precautions unless otherwise specified. All descriptions here are for guidance only. • Before installation, read through this manual to learn about the product and the precautions. • All operations should be performed by trained and knowledgeable technicians who are familiar with local standards and safety regulations. • Use insulating tools and wear personal protective equipment when operating the device to ensure personal safety. Wear anti-static gloves, cloths, and wrist strips when touching electronic devices to protect the device from damage. • Strictly follow the installation, operation, and configuration instructions in this manual. The manufacturer shall not be liable for device damage or personal injury if you do not follow the instructions. Visit the official website to get more information about product warranty.

1.3 Device Safety

WARNING

The voltage and frequency at the connecting point should meet the on-grid requirements.
Make sure that the current rating of this product's main breaker meets the specifications of the household power distribution unit.
The PE (equipment grounding) cable of the device must be connected firmly.
For AC circuit connections, copper (CU) conductors are recommended.

DANGER

All labels and warning marks should be visible after the installation. Do not scrawl on, damage, or cover any label on the device.
Unauthorized dismantling or modification may damage the equipment. Such action may damage the equipment and is not covered under the warranty.
Warning labels on the device are as follows.

	DANGER High voltage hazard. Disconnect all incoming power and turn off the product before working on it.		Delayed discharge. Wait 5 minutes after power off until the components are completely discharged.
	Read through the user manual before working on this device.		Potential risks exist. Wear proper PPE before any operations.
	High-temperature hazard. Do not touch the product under operation to avoid being burnt.		Grounding point.
	Do not dispose of the device as household waste. Discard the product in compliance with local laws and regulations, or send it back to the manufacturer.		SGS certification mark.

1.4 Personal Requirements

NOTICE

- Personnel who install or maintain the device must be strictly trained, learn about safety precautions and correct operations.
- Only qualified professionals or trained personnel are allowed to install, operate, maintain, and replace the device or parts.

2 Product Introduction

2.1 Product Introduction

Function Description

The device transfers between on-grid mode and backup mode with an integrated switch. The device connects the main panel, the utility grid, and the on-grid output of the inverter to form an on-grid system when the utility grid works normally. Once the utility grid fails, the device will connect the main panel and the backup output of the inverter only to form a backup system.

Model Description

This manual covers listed device below:

ATD Series

- ATD200-50-US10
- ATD100-50-US10

Model Explanation

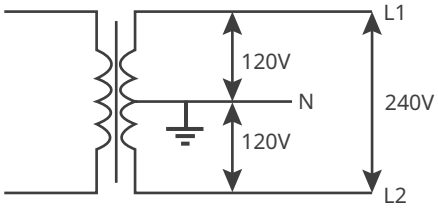
ATD200-50-US10

1 2 3 4 5

No.	Meaning	Description
1	Product	Automatic transfer device
2	Main breaker rating	200: Applies to the main service panel whose main breaker rating is smaller than or equal to 200A and larger than 100A. 100: Applies to the main service panel whose main breaker rating is smaller than or equal to 100A.
3	Protection current of the inverter breaker	50: The protection current of the inverter breaker is 50A, which matches with the following inverters: Hybrid inverters: GW5000/6000/7000/7600/8600/9600A-ES AC-coupled inverters: GW5000/6000/7000/7600/8600/9600A-BP
4	Region code	US: the U.S.
5	Generation code	10: generation 1.0

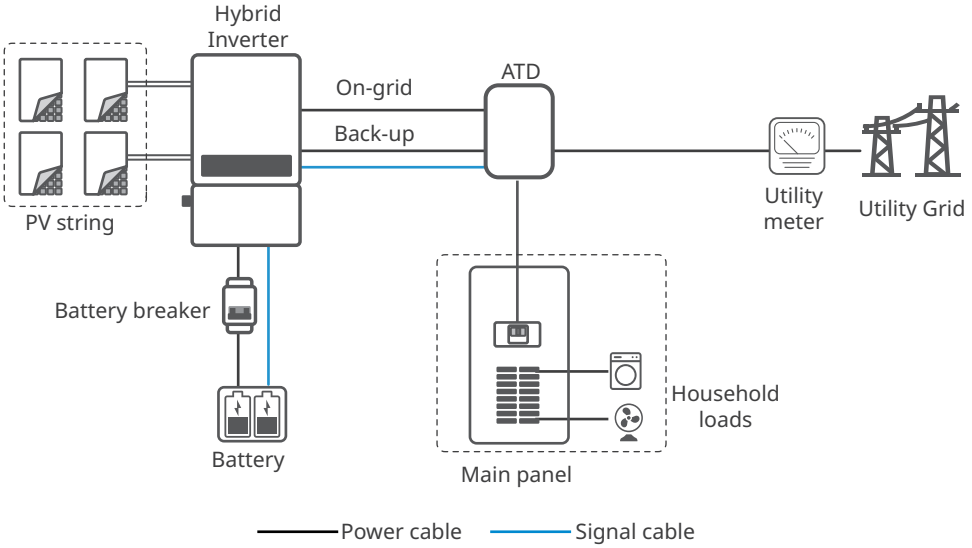
Supported Grid Type

The device supports 120/240V split phase grid type.

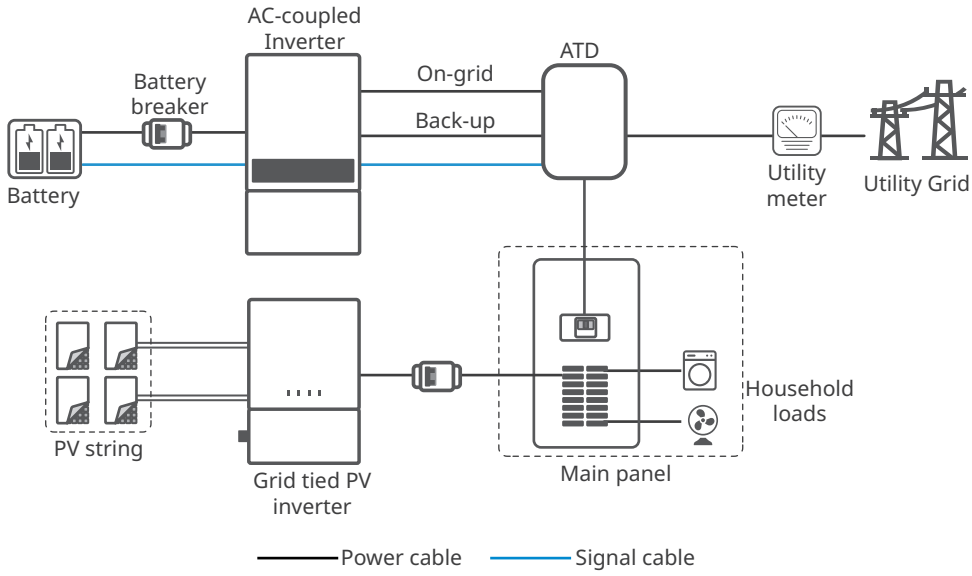


2.2 Application Scenarios

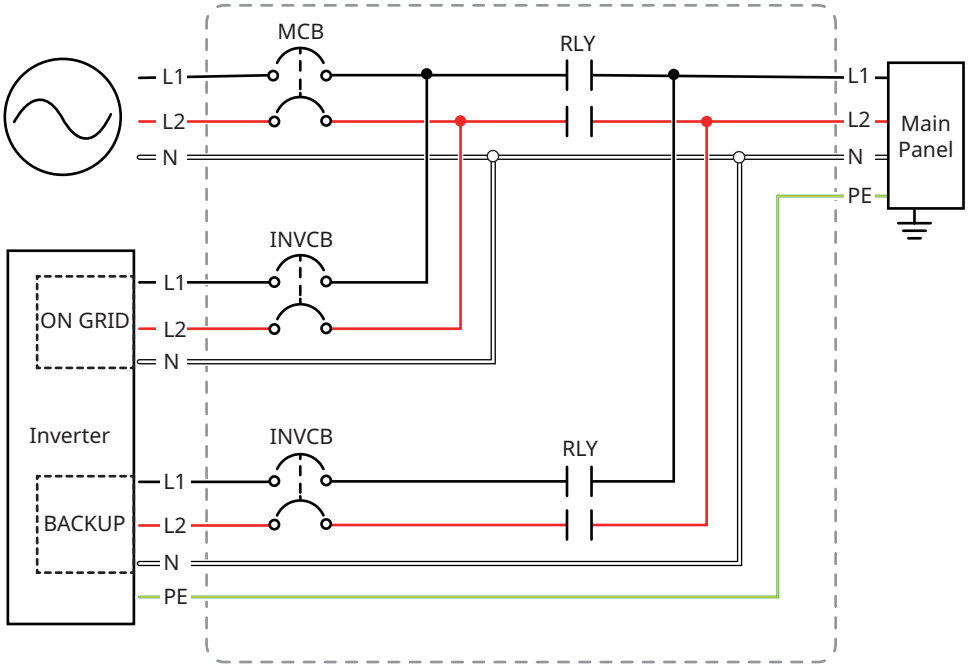
- Whole Home Backup System



- Microgrid System

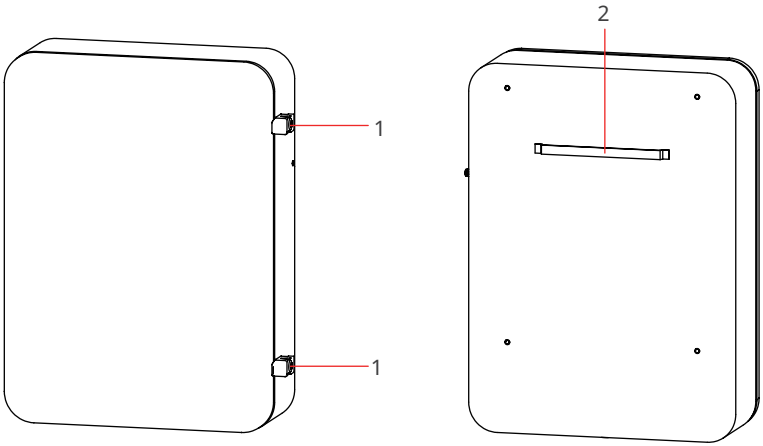


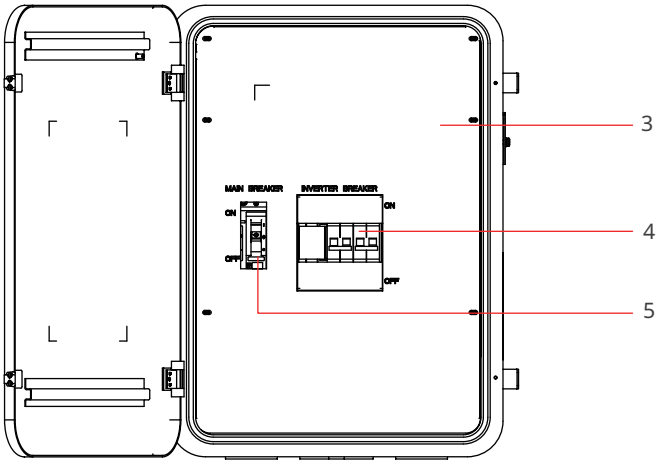
2.3 Electrical Diagram



2.4 Appearance

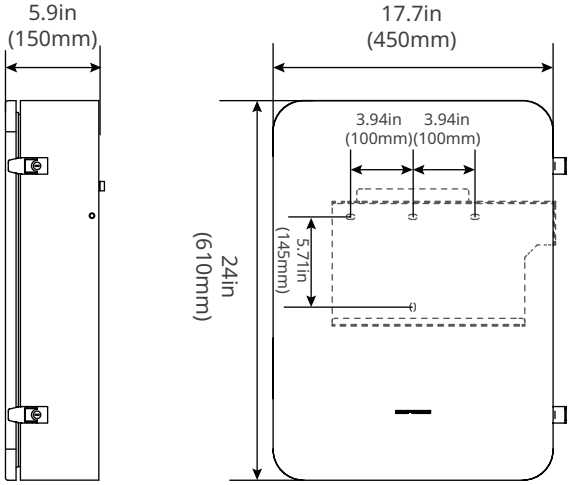
2.4.1 Parts



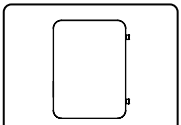


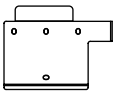
No.	Part	Description
1	Lock	To lock the device's door (key included).
2	Hanging bracket	Hang the device on the mounting support.
3	Insulation board	Ensures personal safety and protects the device.
4	Inverter breaker	Provides overcurrent protection for the inverter. Recommended specifications: 50A Breaker, UL489 certified.
5	Main Breaker	This breaker is optional when the main panel is also equipped with a breaker. Provides overcurrent protection from utility grid.

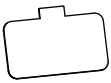
2.4.2 Dimensions



2.5 Deliverables


ATD *1


Mounting bracket *1


Waterproof nut remove tool *1


Expansion bolt *4


Screw *3


18AWG pin terminal *2


10AWG pin terminal *2


6AWG pin terminal *4


Terminal for Neutral wire *2


Communication terminal *1


Cable Tie *2


Screw Driver *1

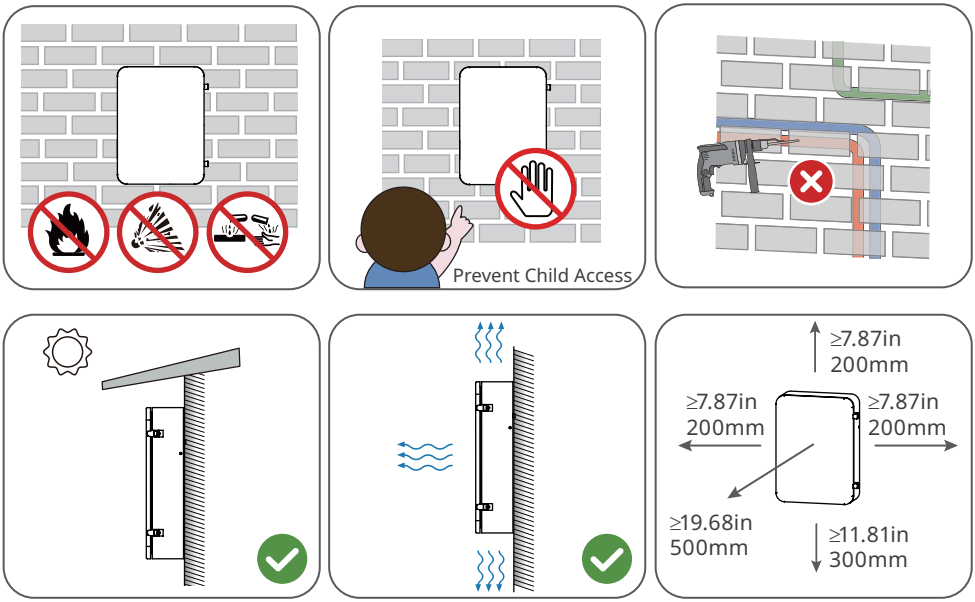

Documents *1


Key *4

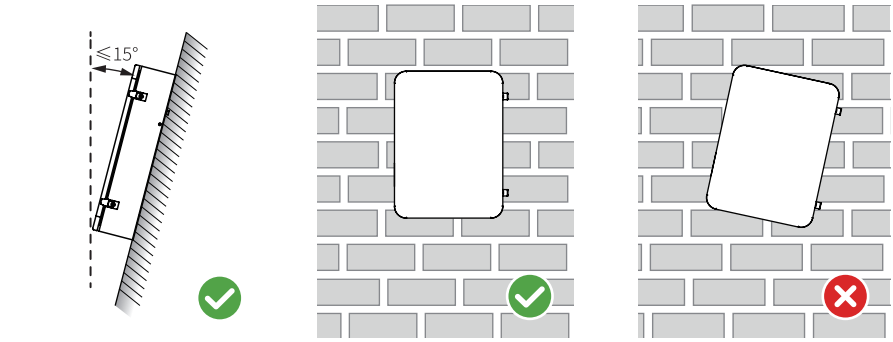
3 Installation

3.1 Installation Requirements

Installation Environment Requirements



Installation Angle Requirements

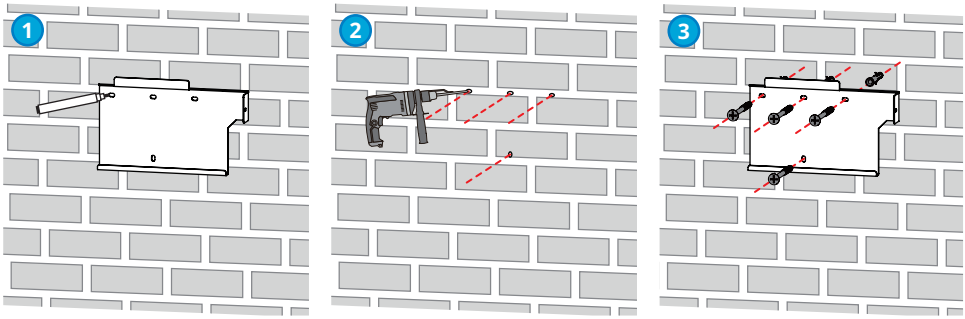


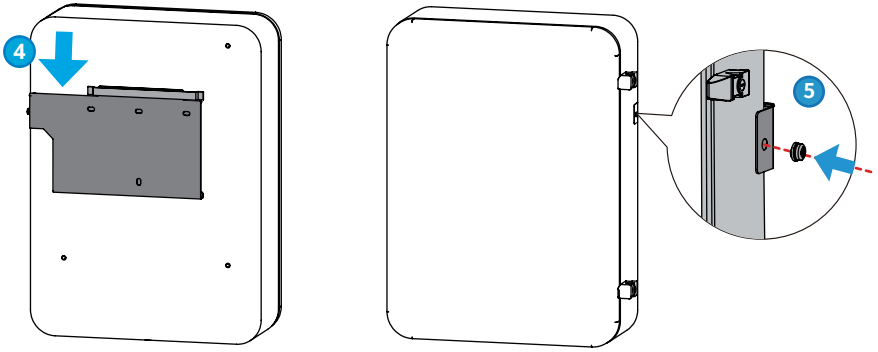
3.2 Device Installation

NOTICE

- Avoid the water pipes and cables buried in the wall when drilling holes.
- Wear goggles and a dust mask to prevent the dust from being inhaled or contacting eyes when drilling holes.

Step 1 Horizontally put the mounting bracket on the wall or the support, and mark positions for drilling holes.
Step 2 Drill holes to a depth of 3.15in(80mm) using the hammer drill. The diameter of the drill bit should be 0.39in(10mm).
Step 3 Secure the mounting bracket using the expansion bolts.
Step 4 Install the device on the mounting bracket.
Step 5 Screw to secure the device and the mounting bracket.





4 Electrical Connection

4.1 Safety Precaution

DANGER

INSTRUCTIONS PERTAINING TO A RISK OF FIRE OR ELECTRIC SHOCK

- Perform electrical connections, including operations, cables, and component specifications in compliance with local laws and regulations ANSI/NFPA 70.
- The input and output circuits are isolated from the enclosure and that system grounding, if required by the National Electric Code, ANSI/NFPA 70, is the responsibility of the installer.
- Power off the device before any electrical connections. Otherwise, an electric shock may occur.
- Tie the cables of the same type together, and place cables of different types apart. Do not place the cables entangled or crossed.
- If the tension is too large, the cable may be poorly connected. You have to reserve a certain length of the cable before connecting it to the device cable port.
- Make sure that the cable conductor fully contact with the terminal and the cable insulation part is not crimped when crimping the terminal. Otherwise, the device may not be able to work properly, or the connection may be unreliable during working, which may cause terminal block damage, etc.

NOTICE

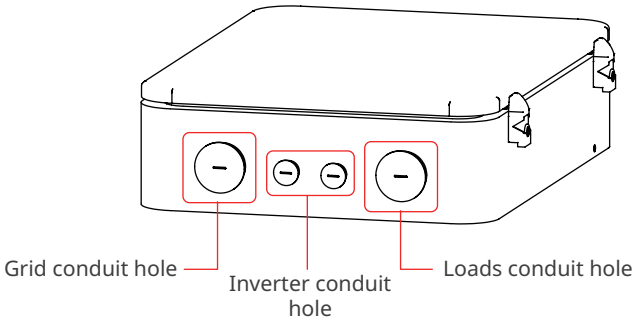
- Cable colors in this document are for reference only. The cable specifications shall meet local laws and regulations.

4.2 Preparing Conductor Conduit & Fittings

4.2.1 Conduit Holes

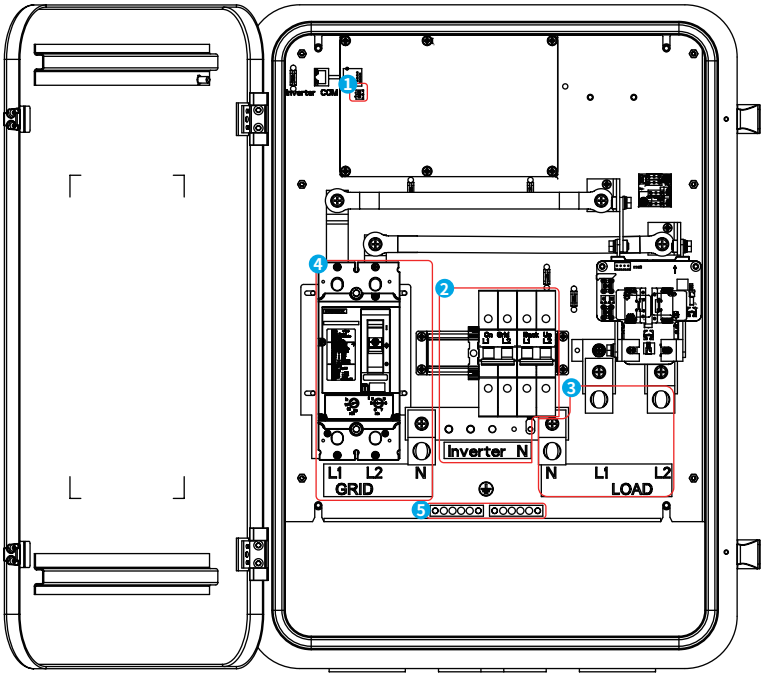
WARNING

- Customers need to prepare wiring conduits that meet the specifications of the waterproof nut. The conduit must be made in accordance with UL514B.
- To avoid influencing the protection class or damaging the equipment, check the wiring conduit to make sure that the conduit is installed properly and the holes are sealed.



Conduit Hole	Description	Conduit
AC Grid	Install the wiring conduit and run Grid-L1, Grid-L2, and Neutral wire through the conduit hole.	2 inch conduit
AC Loads	Install the wiring conduit and run Load-L1, Load-L2, Neutral wire, and PE through the conduit hole.	2 inch conduit
Inverter	Install the wiring conduit and run Inverter-L1, Inverter-L2, Neutral wire, PE cable, and communication cable through the conduit hole.	1 inch conduit

4.2.2 Wiring Specifications



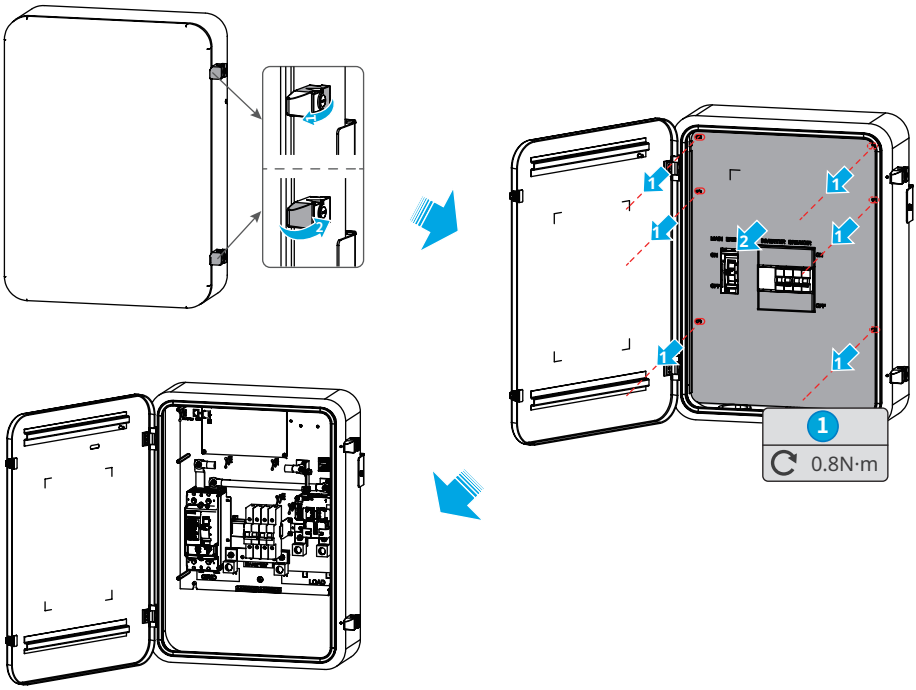
No.	Part	Labeling	Description
1.	Inverter power supply cable terminal	12V	• Terminal for connecting the power supply cable of the inverter. • Recommended specification: 18AWG, copper conductor or aluminum conductor.
2.	Inverter terminal	On Grid-L1 / L2, Back Up-L1/ L2, Inverter-N	• Terminal for connecting the AC conductor of the inverter. • Recommended specification: 6-8AWG, copper conductor, 90℃.
3.	AC Loads terminal	Load-L1, Load-L2, Load-N	• Terminal for connecting the AC conductor of the load. • Recommended specification: 4/0-3AWG, copper conductor, 90℃.
4.	AC Grid terminal	Grid-L1, Grid-L2, Grid-N	• Terminal for connecting the Grid conductor. • Recommended specification: 4/0-3AWG, copper conductor, 90℃.
5.	Grounding busbar	⏚	• Busbar for connecting the PE cable. • Recommended specification: • Load-PE: 4-6AWG, copper conductor, 90℃ • Inverter-PE: 10AWG, copper conductor, 90℃.

4.2.3 Opening the Cabinet Door

Step 1 Unlock the cabinet door using the included key.

Step 2 Remove the six screws fixing the insulation board(torque: 0.8Nm).

Step 3 Remove the insulation board.



4.3 Connecting the Conductors

⚠ WARNING

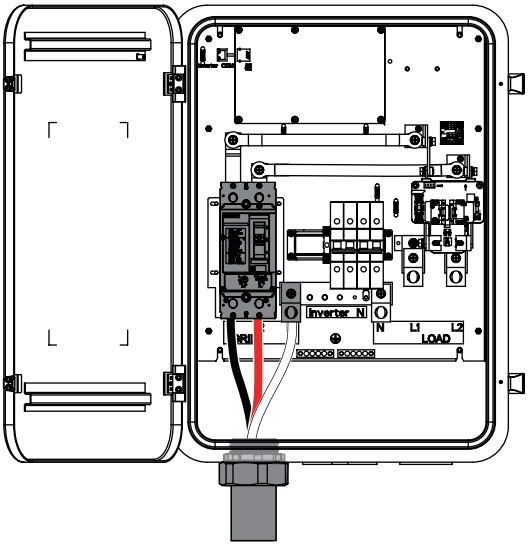
- Connect the conductors to the right terminals like L1, L2, and N. The device may be damaged if the conductors are connected inappropriately.
- Make sure that the whole conductors are inserted into the terminal holes. No part of the conductor can be exposed.
- Make sure that the conductors are connected securely. Otherwise, the terminal may get too hot and damage the device.

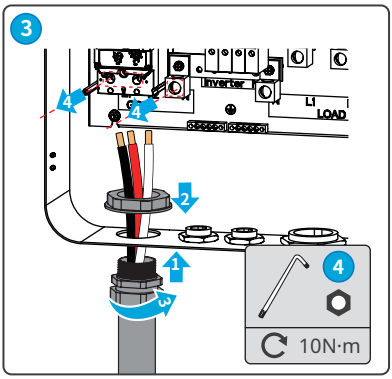
4.3.1 Connecting the AC Conductors (Grid)

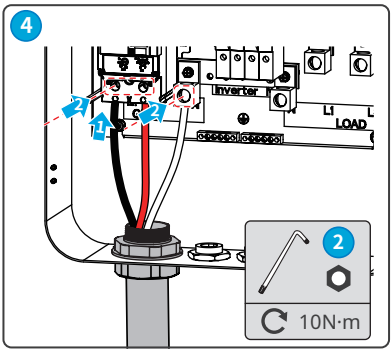
⚠ WARNING

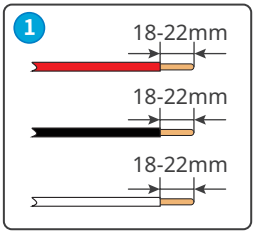
- The ac output (neutral) is not bonded to ground.

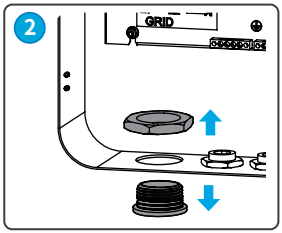
Step 1 Strip the conductor wiring.
Step 2 Remove the waterproof nut using the included removal tool.
Step 3 Insert the desired conduit and corresponding adaptors, fittings, and bushings.
Step 4 Unscrew the hex nuts at the bottom of the main breaker using a hexagon wrench.
Step 5 Insert the conductors into the terminals (Grid-L1, Grid-L2, and Grid-N) and tighten the screws to secure the conductors.





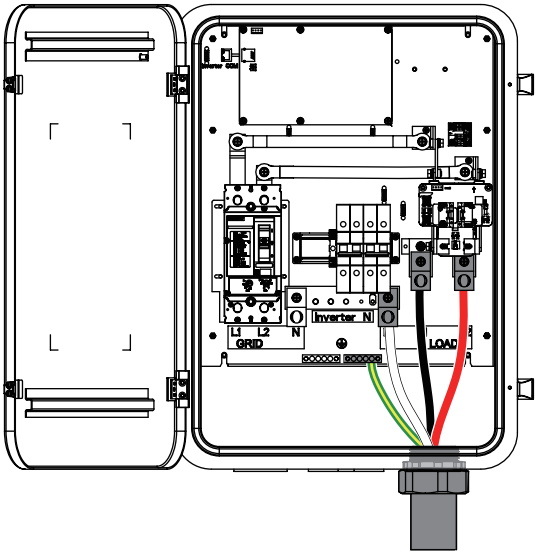


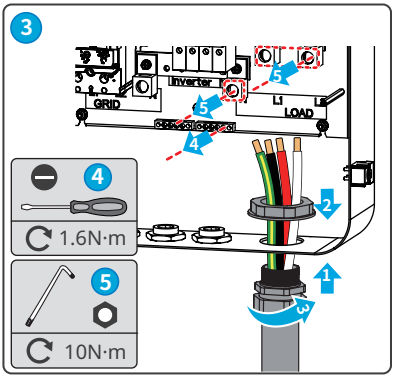


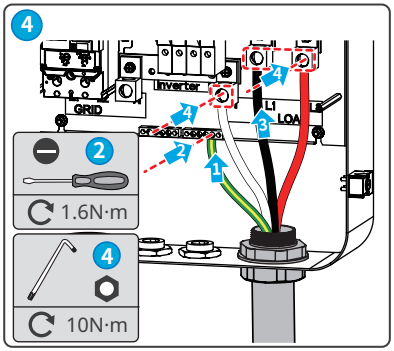


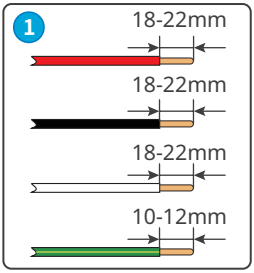
4.3.2 Connecting the AC Conductors (Load)

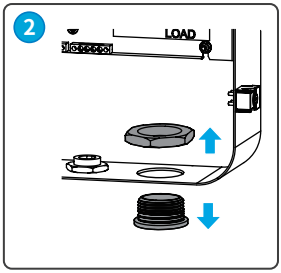
Step 1 Strip the conductor wiring.
Step 2 Remove the waterproof nut using the included removal tool.
Step 3 Insert the desired conduit and corresponding adaptors, fittings, and bushings.
Step 4 Unscrew the hex nuts using a hexagon wrench, and unscrew the grouding screw using a Philips screwdriver.
Step 5 Insert the conductors into the terminals (Load-L1, Load-L2, Load-N, and grounding busbar) and tighten the screws to secure the conductors.





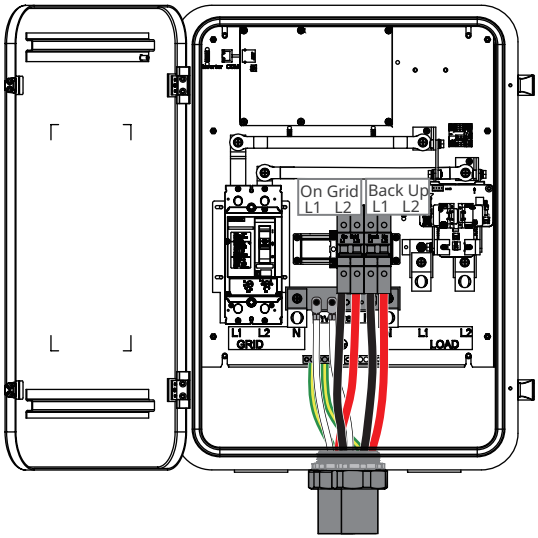


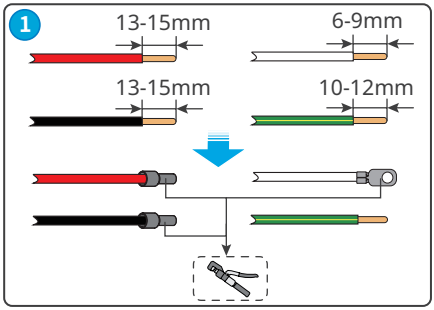


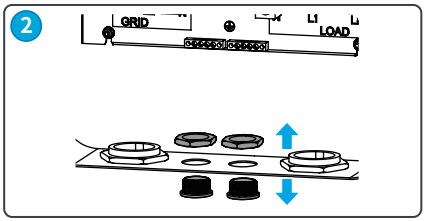


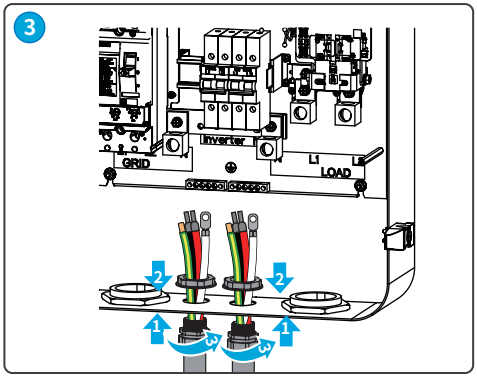
4.3.3 Connecting the AC Conductors (Inverter)

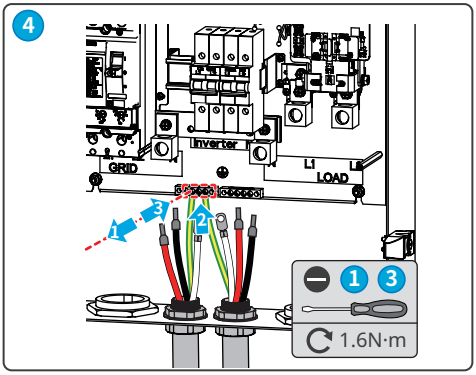
Step 1 Strip the conductor wiring and crimp the conductor with appropriate wire connector.
Step 2 Remove the waterproof nut using the included removal tool.
Step 3 Insert the desired conduit and corresponding adaptors, fittings, and bushings.
Step 4 Unscrew the screws using a screwdriver.
Step 5 Insert the conductors into the terminals (On Grid-L1, On Grid-L2, Back Up-L1, Back Up-L2, Inverter-N, and grounding busbar) and tighten the screws to secure the conductors.

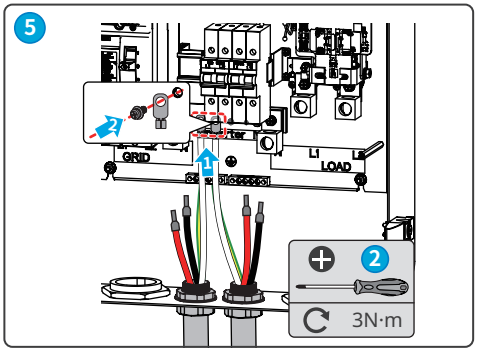

On Grid
L1 L2
Back Up
L1 L2
GRID
LOAD

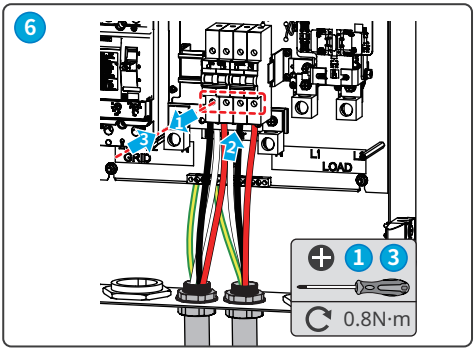

1
13-15mm
6-9mm
13-15mm
10-12mm


2
GRID
LOAD


3
Inverter
GRID
LOAD

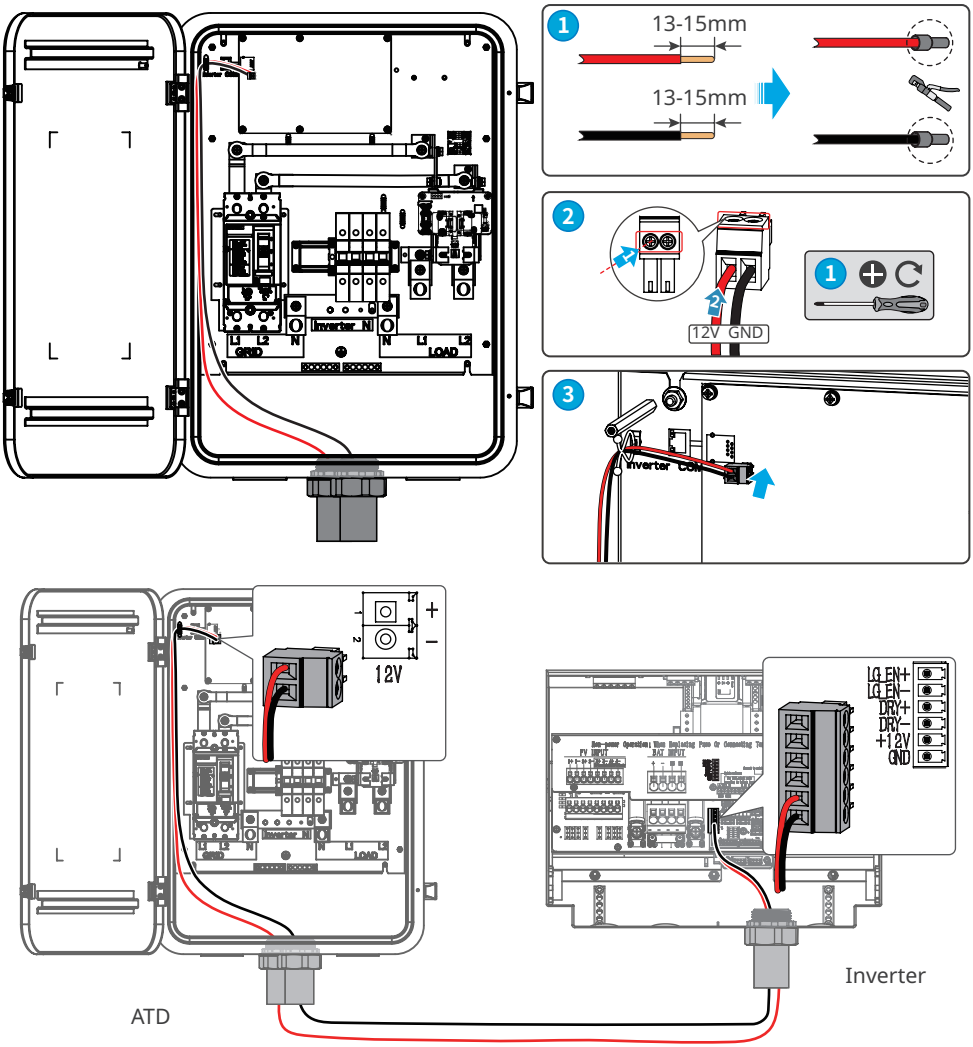

4
Inverter
GRID
LOAD
1.6N·m


5
GRID
LOAD
3N·m


6
GRID
LOAD
0.8N·m

4.3.4 Connecting the Power Supply Cable

Step 1 Strip the conductor wiring, crimp the conductor with appropriate wire connector.
Step 2 Insert the conductors into the 2PIN terminal block.
Step 3 Run the cable through the cable clip and the conduit.
Step 4 Tighten the conduit.

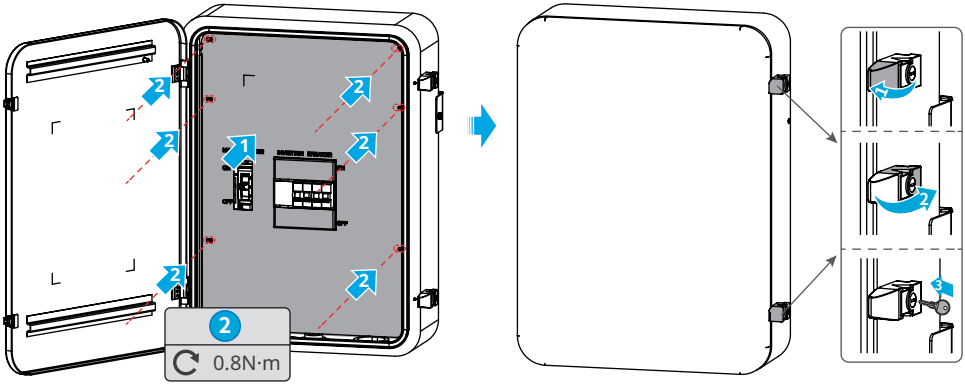


4.4 Closing the Cabinet Door

Step 1 Install the insulation board.

Step 2 Tighten the six screws fix the insulation board(torque: 0.8Nm).

Step 3 Optional. Lock up the device using the cabinet key. Save the key properly for future use.



5 Power ON

5.1 Check Before Power ON

No.	Check Item
1	The product is firmly installed at a clean place that is well-ventilated and easy-to-operate.
2	The PE and power conductors are connected correctly and securely.
3	Cable ties are intact, routed properly and evenly.
4	All the conduit holes are fitted using the waterproof caps or well sealed.
5	The insulation board is installed properly.
6	The voltage and frequency at the connection point meet the grid connection requirements.

5.2 Power ON the Device

Step 1 Turn on the main breaker of the device.

Step 2 Turn on the inverter breaker of the device.

6 Maintenance

6.1 Power OFF the Device

⚠ DANGER

INSTRUCTIONS PERTAINING TO A RISK OF FIRE OR ELECTRIC SHOCK

- Power off the device and the inverter before operations and maintenance. Otherwise, the device may be damaged or electric shocks may occur.
- Delayed discharge. Wait until the components are discharged and the LED indicators are off after power off.

Step 1 Turn off the main breaker of the device.
Step 2 Turn off the inverter breaker of the device.
Step 3 Turn off the breaker of the main panel.
Step 4 Power off the inverter.

6.2 Replacing the Inverter Breaker

⚠ WARNING

- Make sure that the device is powered off.
- Wear proper personal protective equipment before any operations.

Step 1 Loosen the screws and cables of the breaker.
Step 2 Pull the plastic slot under the breaker.
Step 3 Replace the breaker with a new one, the new breaker shall be AC50A and UL489 certified.
Step 4 Place the breaker properly and push the plastic slot. Make sure that the breaker is securely installed.
Step 5 Tighten the cables.

7 Technical Parameters

Technical Data	ATD200-50-US10	ATD100-50-US10
Electrical Data		
Nominal Output Voltage (V)	240	
Output Voltage Range (V)	211~264	
Feed-in Type	Split Phase	
Nominal AC Voltage of Line Conductor (V)	120/240	
Nominal AC Frequency (Hz)	60	
AC Frequency Range (Hz)	56~64	
Current Rating (From Grid)(A)	200	
Max. Continuous Current From Inverter (A)	40	
Maximum Overcurrent Protection of Main Breaker (A)*1	200	100
Maximum Overcurrent Protection of Circuit Breaker of Inverter (A)	50	
General Data		
Operating Temperature Range (℉)	-13℉~+140℉ (-25℃~+60℃)*2	
Max. Operating Altitude (ft)	9842ft (3000m)	
Cooling Method	Natural Convection	
Weight (lb)	28lb (12.5kg)	
Dimension (W×H×D in)	17.7×24×5.9 in (450×610×150 mm)	
Mounting Method	Wall Mounted	
Ingress Protection Rating	Type 3R, IP44	
Certification		
Safety Regulation	UL1741, CSA 22.2 No. 107-01	
EMC	FCC part15 CLASS B	

*1: The main breaker is optional.
*2: Derating temperatrure: 113℉(45℃).

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