

M-Combiner Quick Installation Guide

Applicable model: MC100-T

NOTE:

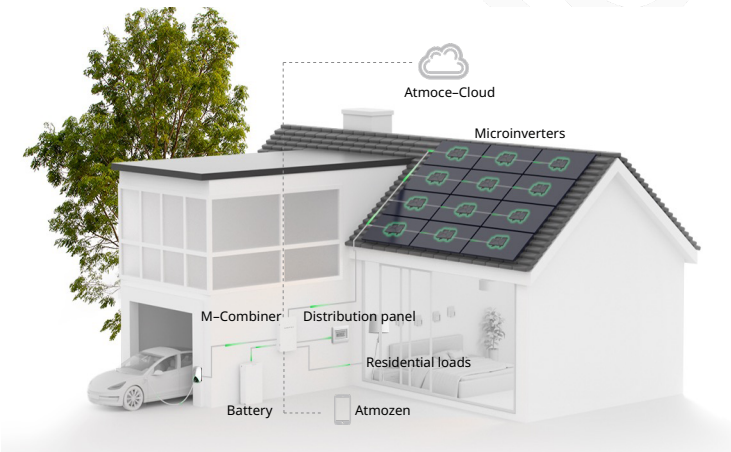
- The installer must follow all the NOTES in this guide.

Atmoce System Introduction

The three-phase M-Combiner (MC100-T) is an integrated management and power equipment that ensures the proper connection of microinverters, batteries and loads, and achieves grid connection. By integrating a smart energy controller M-Gateway (MG100), the combiner can manage the system performance and the devices above. The combiner communicates with the Atmoce-Cloud and Atmozen app, allowing users to learn about the energy production and consumption in their homes

The system includes the following:

- Microinverter: MI-400/MI-425/MI-450/MI-500, etc.
- M-Combiner
- Grid (distribution panel)
- Atmoce-Cloud & Atmozen app
- Battery (Optional)
- AC EV charger (Optional)
- Heat pump or other residential loads (Optional)



Pre-installation

a. What's in the MC100-T

Refer to the figure on the right for pre-installed components in the MC100-T.

b. Check the grid voltage

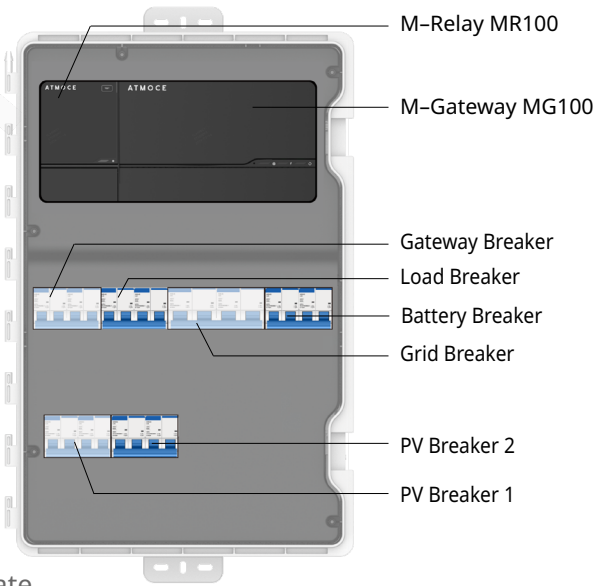
The MC100-T should connect to a three-phase grid. Measure the AC voltages at the point of connection to confirm that they are within the ranges.

Phase setup		Voltage range
Three-phase	L1, L2, L3 to N	184 to 276 Vac

c. Prepare the cables

To properly set up the system, it is necessary to select the appropriate cables. The table below shows the recommended cable requirements. You can replace the PV breaker with one rated at 25A and select the cables that meet the local electrical code requirements.

Connection		Recommendation
Microinverter	Power cable	2.5 to 4 mm ² , 4-core
	Power cable	10 to 16 mm ² , 5-core
Grid	Consumption CT signal cable	Provided by Atmoce
	Power cable	6 to 10 mm ² , 5-core
Battery	CAN cable	0.22 to 0.5 mm ² , 3-core
	Power cable	4 to 6 mm ² , 5-core
Load	Control cable	0.5 to 0.75 mm ² , 2-core
	ETH cable	802.3, Cat 6 UTP ethernet cable
Router	ETH cable	802.3, Cat 6 UTP ethernet cable



NOTE:

- When connecting the cables to the M-Combiner, you must cover the cable ends by using the cold-press terminal provided in the package.
- When stripping the cable, remove approximately 12 mm of the insulation layer from the power cable and 8 mm of insulation layer from the communication cable.

d. Prepare the tools and materials

Tools: screwdriver, wire stripper, wire crimper, diagonal cutter, torque wrench, electrical drill, hole cutter with pilot, tape measure, multimeter, marker, etc.

Materials: wall anchors ($\phi 10$) and screws (M8), corrugated protective pipe, cold-press terminal, tie wrap, etc.

e. Select how the device connects to the Internet

You can connect the combiner to the Internet through Wi-Fi and Ethernet.

- Ethernet connection: please use 802.3, Cat 6 UTP ethernet cable.
- Wi-Fi connection: install the M-Combiner within 10 meters from the router to ensure stable Wi-Fi signal.

f. Download the Atmozen app

You can download the app from Google Play or Apple App Store.

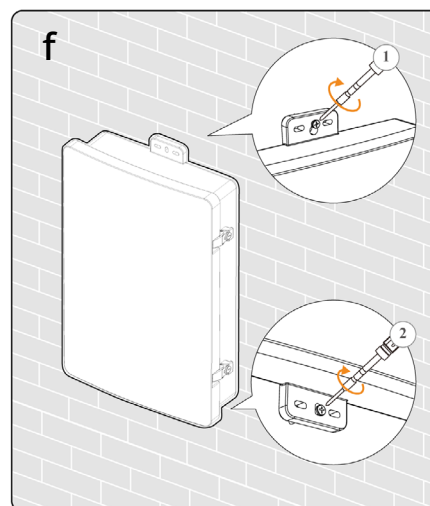
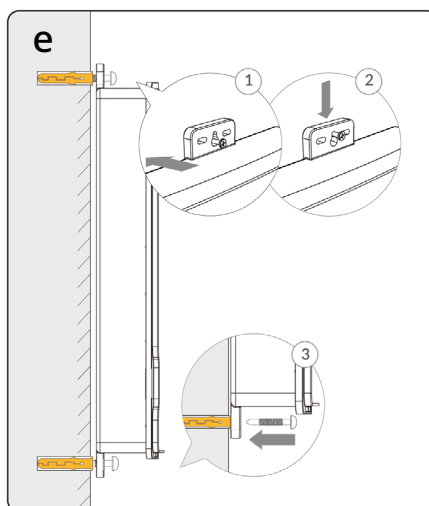
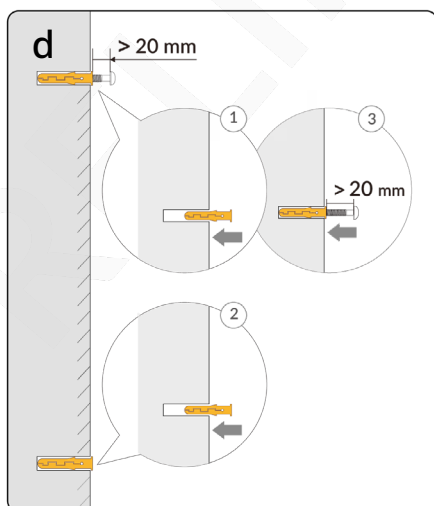
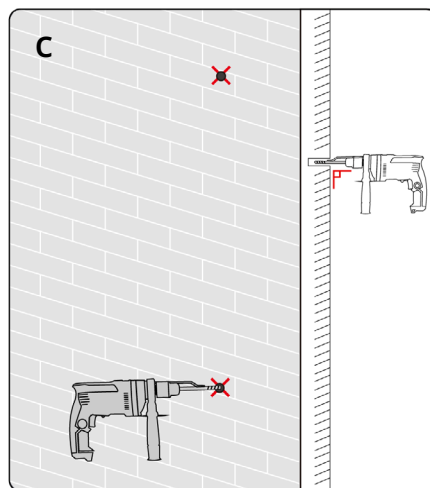
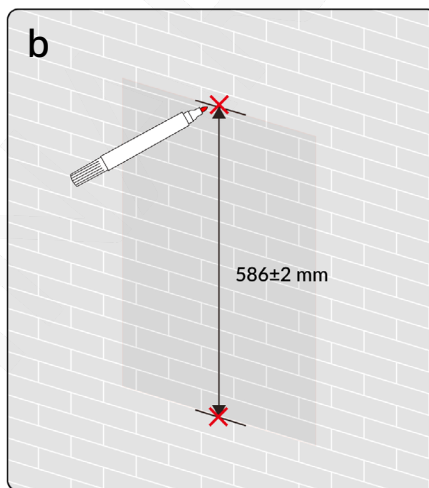
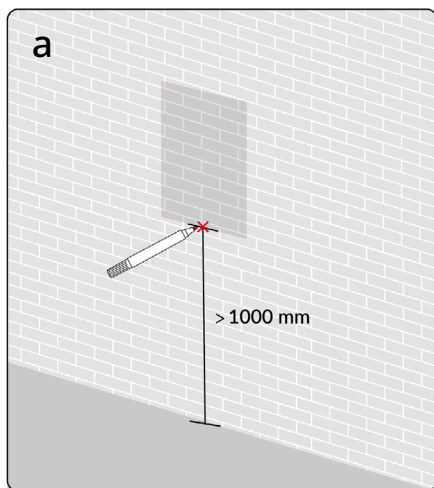
Installation

1. Mount the M-Combiner

- Use a tape measure and make a mark on the wall at least 1,000 mm vertically from the ground.
- Measure approximately 586 mm above the mark and make another mark.
- Drill at the two marks by using an electric drill with an bit ($\phi 10$).
- Insert the wall anchors (provided in the package) in to the holes, and then insert the M8 screw into the TOP hole but do not completely tighten it.
- Hang the top mounting tab on the screw and check if the combiner is level by using a spirit level, and then insert the screw into the bottom hole.
- Tighten the M8 screws by using a Phillips #2 screwdriver with a torque of 9–14 N·m.

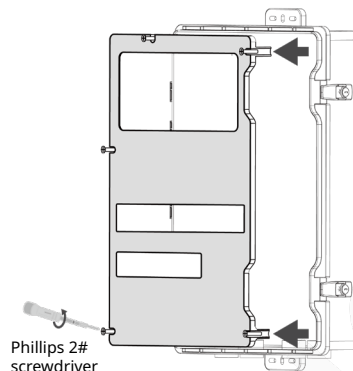
NOTE:

- Do not expose the M-Combiner to direct sunlight, unless installing a sunshade.
- The signal cable of the consumption CT is 5 meters long. Therefore the M-Combiner must be installed closed to the distribution panel.



2. Remove the protective panel

- Open the door of the combiner and use a Phillips 2# screwdriver to remove the protective panel.

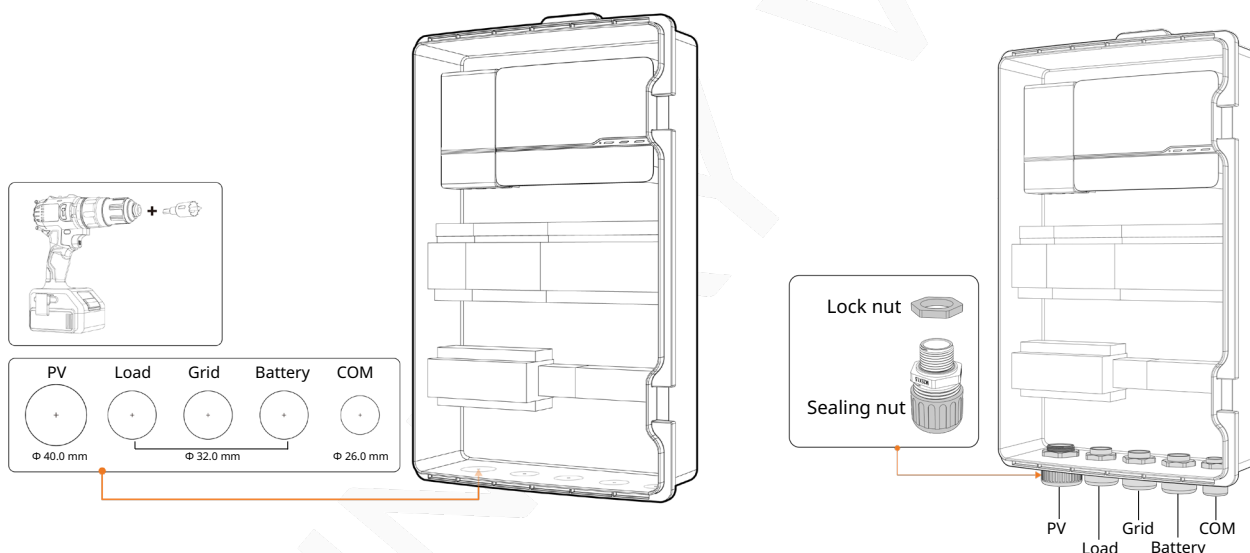


3. Drill on the M-Combiner

- Use the electrical hole cutter with a pilot drill bit to drill holes. The drilling area and recommended cable outlets can be found at the bottom of the MC100-T.
- Install the rain-tight fittings to the holes. Several waterproof glands can be found in the package.
- Tighten the lock nuts of the glands with a torque of 4-5 N·m and the sealing nuts with a torque of 7-7.5 N·m.

NOTE:

- Ensure that the edge of the holes do not exceed the indicated circle.



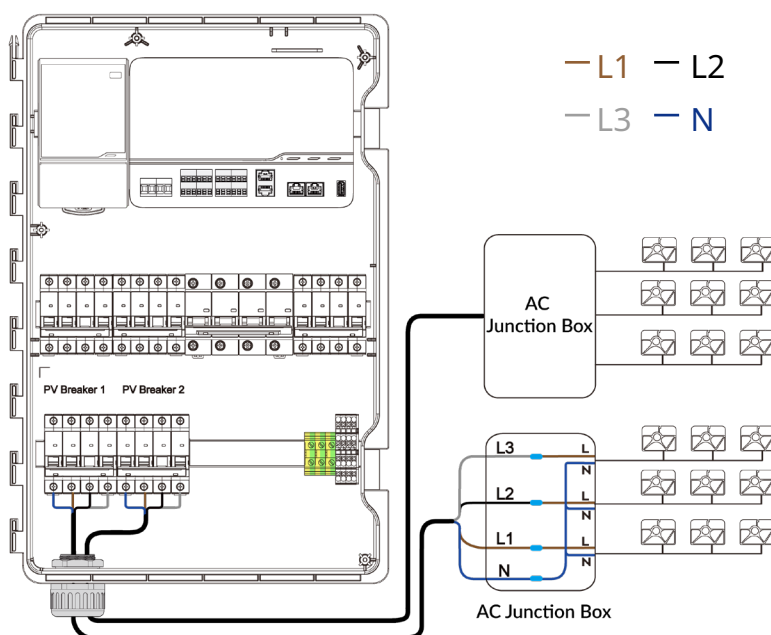
4. Wire to the M-Combiner

4.1 Wire from the PV branch (microinverter)

- Bring in the cables from the PV branch circuit through the PV hole of the combiner.
- Connect the cables (N, L1, L2 and L3) from the PV branch circuit to the PV breaker(s). Observe the polarity mark at each breaker.
- Tighten the screws by using a Phillips #2 screwdriver with a torque of 2-2.5 N·m.
- Optional: Wire the ground cable from the PV rack system to the AC junction box and connect this cable to the PE terminal block in MC100-T.

NOTE:

- Ensure that the N cable of the PV branch is always connected to the leftmost terminal of the PV breaker.



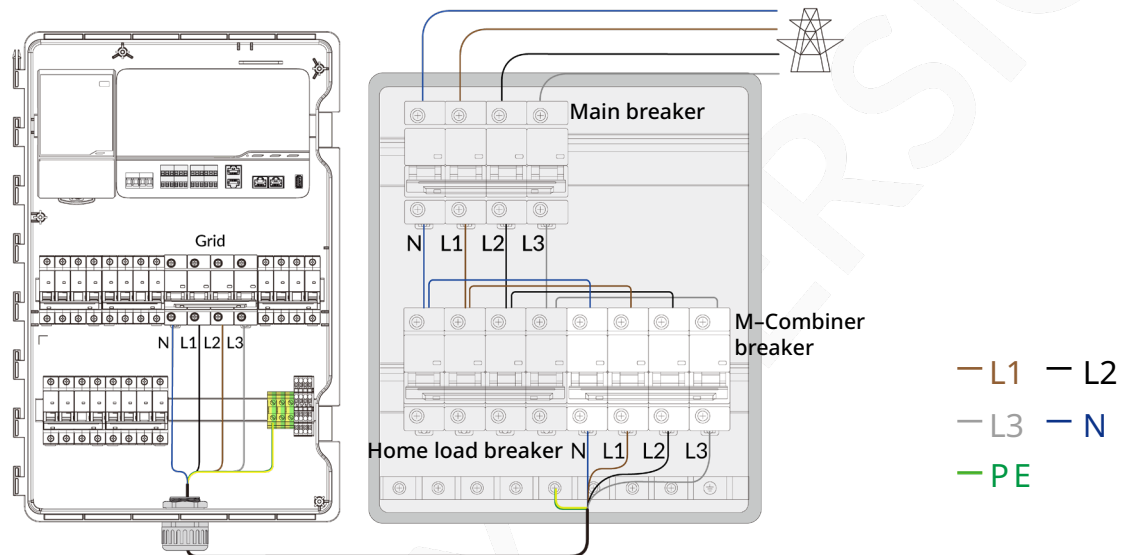
4.2 Wire from the distribution panel (grid)

Section A. Wire the power cables

- Bring in the cables from the distribution panel through the grid hole of the combiner.
- Connect the cables (N, L1, L2 and L3) from the distribution panel to the grid breaker and connect the ground cable to the PE terminal block as shown below.
- Tighten the screws by using a Phillips #2 screwdriver with a torque of 2–2.5 N·m.

NOTE:

- Ensure that the N cable of the terminal block is connected to the grid neutral line to avoid damaging the devices and voiding the warranty.
- Ensure that the cable sequence (N, L1, L2 and L3) of the grid breaker, M-Combiner breaker and main breaker are consistent.



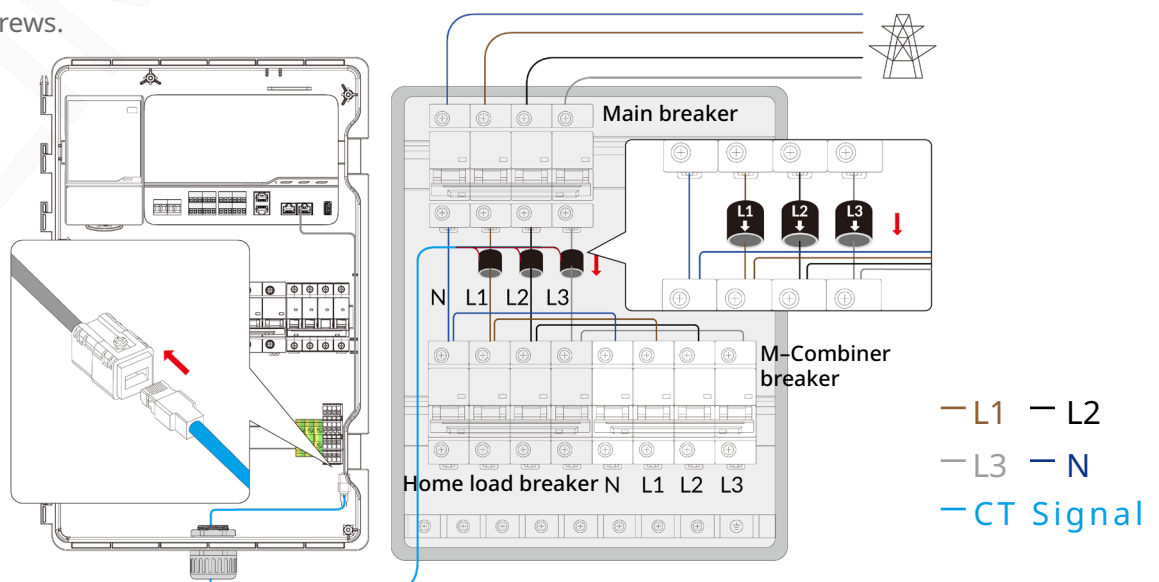
Section B. Wire the consumption CTs

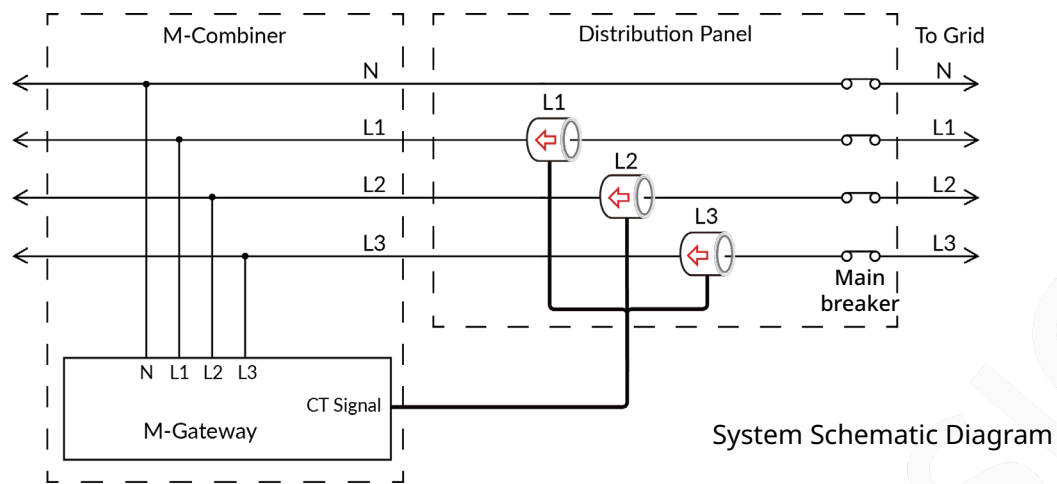
- Install the consumption CTs for electricity metering. You can find the CTs in the combiner.
- To install the CTs, perform the following steps:
 - Connect the signal cable of the CTs to the reserved RJ45 terminal as shown below.
 - Remove the L1, L2 and L3 cables of the main breaker in the distribution panel.
 - Locate the arrows on the CTs' labels and thread the L1, L2 and L3 cables into the CTs with labels "L1," "L2," and "L3," respectively. The CTs' arrows must point away from the grid.
 - Reconnect the L1, L2 and L3 cables to the main breaker and tighten the screws.

NOTE:

To guarantee the correct measurement of home energy consumption, the following items must be complied with:

- The CTs' arrows must point away from the grid.
- As shown in the system schematic diagram, ensure that the CTs with labels "L1," "L2," and "L3," are installed on the same power line as the L1, L2 and L3 power terminal blocks in the M-combiner respectively.

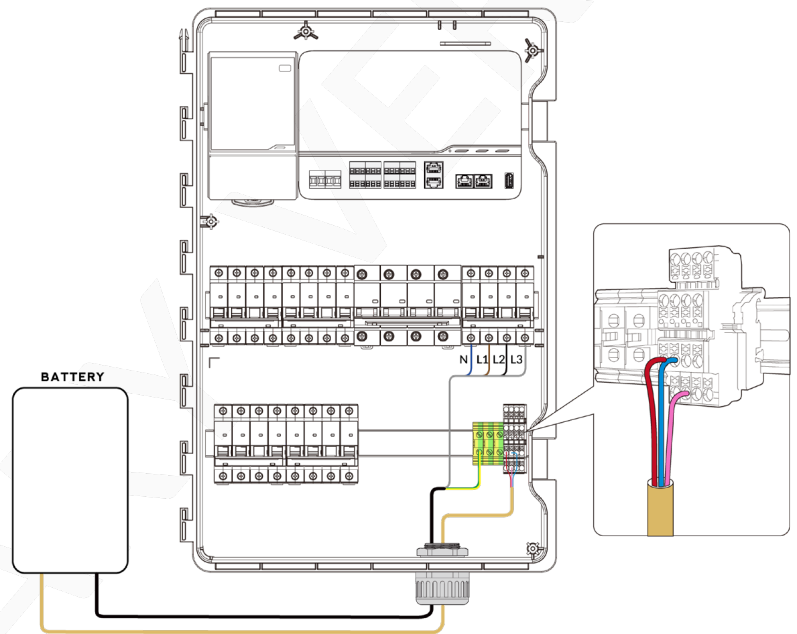




4.3 (Optional) Wire from the battery

- Bring in the cables from the battery through the battery hole of the combiner.
- Connect the cables (N, L1, L2 and L3) from the battery to the battery breaker and connect the ground cable to the PE terminal block.
- Tighten the screws by using a Phillips #2 screwdriver with a torque of 2-2.5 N·m.
- Connect the CAN COM cable of the battery to the terminal as shown in the right figure.

— L1 — L2 — L3 — N — PE
 — CAN-L — CAN-H — SHIELD
 — CAN COM

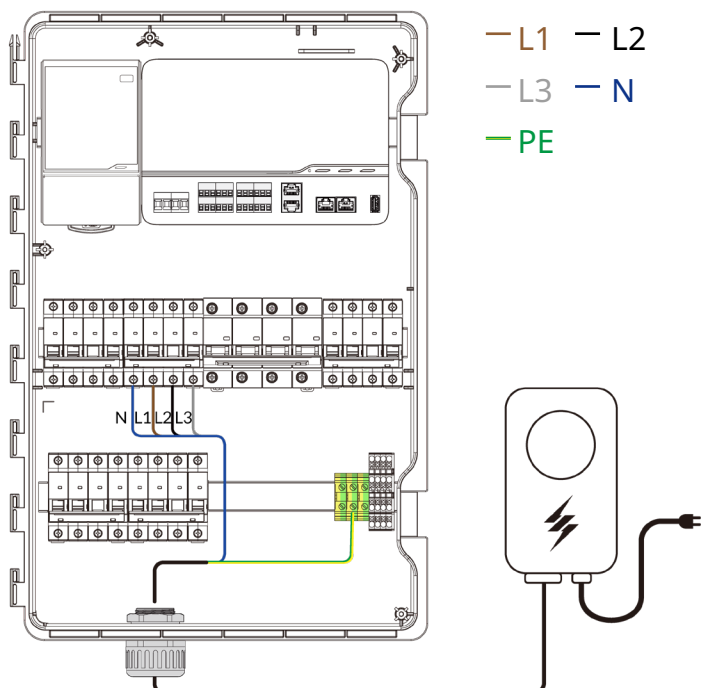


4.4 (Optional) Wire from the load

- Bring in the cables from the load through the COM hole of the combiner.
- The MC100-T supports RS485, ETH and CTRL communication. Connect the cables from the load to the communication terminal block as shown in the right figure.

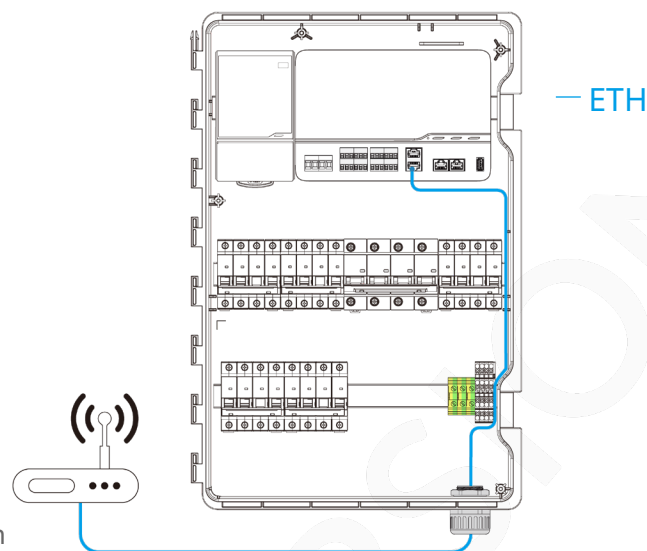
NOTE:

- The load power must be less than 22 kW.



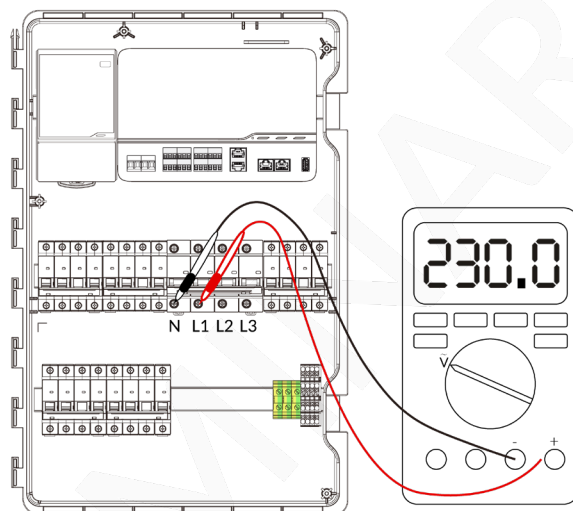
4.5 (Optional) Wire from the router

- When you use ETH to connect to Atmoce-Cloud, bring in the cable from the home broadband router through the COM hole of the combiner.
- Connect the 802.3 Cat 6 UTP ethernet cable to the RJ45 terminal in the combiner as shown in the figure.



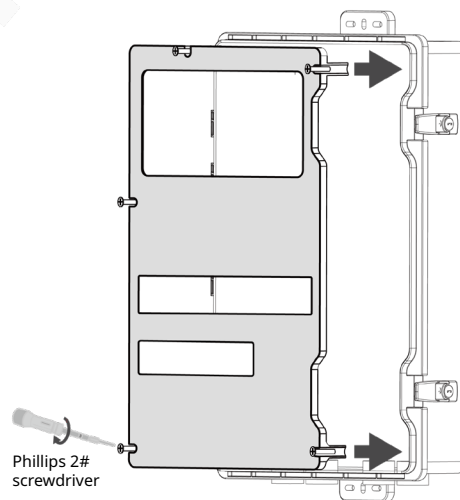
5. Power on the system

- Turn on the main breaker and M-Combiner breaker in the distribution panel.
- To check the phase sequence, perform the following steps:
 - Use the multimeter to measure the voltage between the N pole and L1 pole of grid breaker as shown in the figure.
 - Measure the voltage between the N pole and L2 pole.
 - Measure the voltage between the N pole and L3 pole.
- If the voltage value is approximately the nominal phase voltage, e.g. 220 V, 230 V and 240 V, re-install the protective panel.
- Turn on the grid, gateway and other breakers in the combiner, and the LEDs on the MG100 will be on.



NOTE:

- If the voltage value is outside the range (184 to 276 V), do not switch on the grid breaker inside the combiner. Check the cable connection to avoid damaging the device and voiding the warranty.



6. Activate the system

- Log in to the Atmozen app on your mobile phone and follow the deployment guide in the app to activate the system.
- After the system is activated, all LEDs will be solid green.

7. Lock the M-Combiner

- Close the door of the MC100-T and lock it with the key provided in the package.

