M–Combiner Quick Installation Guide

Applicable model: MC100L

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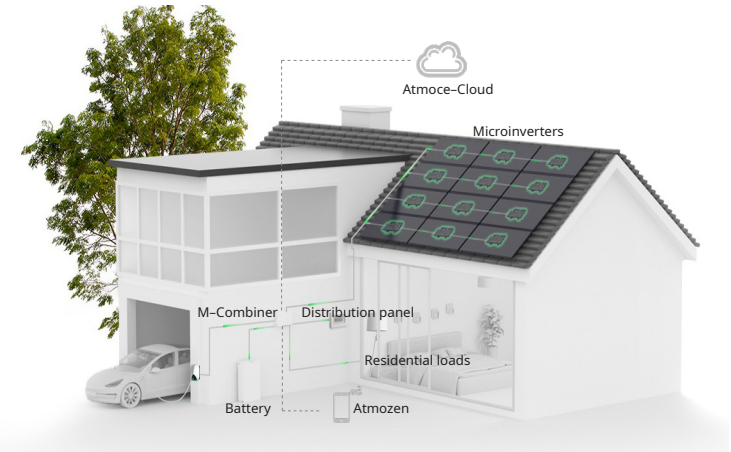
Atmoce System Introduction

The single–phase M–Combiner Lite (MC100L) is an integrated management and power equipment that ensures the proper connection of microinverters, batteries and loads, and achieves grid–connection with the distribution panel. The MC100L integrates an M–Gateway Lite to 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 consists of the following:

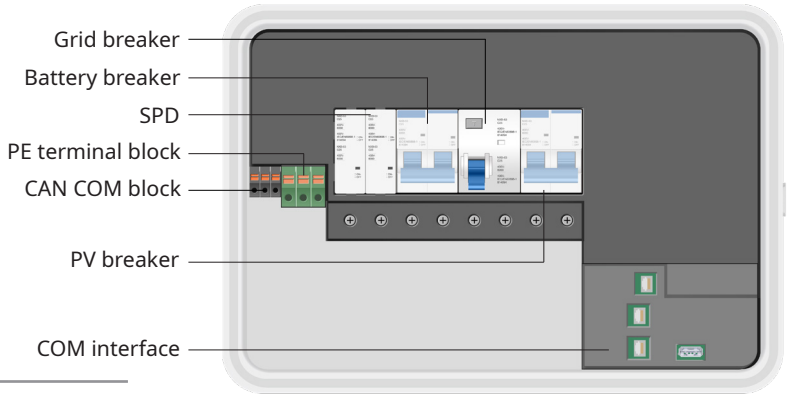
- Microinverter: MI–400/MI–425/MI–450/MI–500, etc.
- M–Combiner
- Grid (distribution panel)
- Atmoce–Cloud & Atmozen app
- Battery (Optional)
- AC EV charger (Optional)
- Heat pump or other residential loads (Optional)



Pre–installation

a. What's in the MC100L

Refer to the figure on the right for pre–installed components in the MC100L.



b. Check the grid voltage

The MC100L should connect to a single–phase grid. Measure the AC voltage at the point of connection to confirm that it is within the range.

Phase setup		Voltage range
Single–phase	L 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, 2–core
Grid	Power cable	6 to 10 mm^2, 3–core
	Consumption CT signal cable	Provided by Atmoce
Battery	Power cable	4 to 6 mm^2, 3–core
	CAN cable	0.25 to 0.75 mm^2, 3–core
Load	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 proper 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 (Φ8) and screws (M6), 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 application from Google Play or Apple App Store.

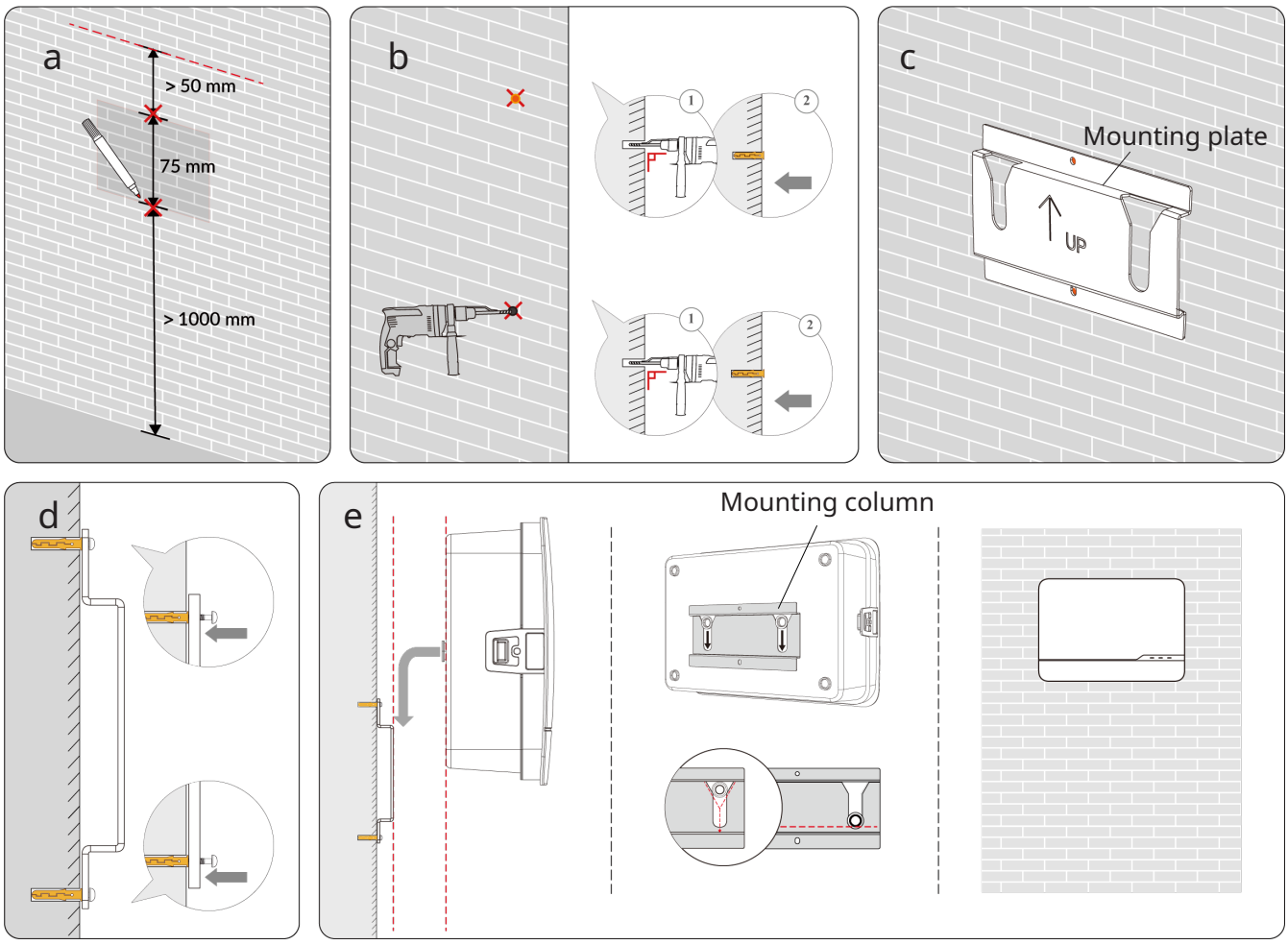
Installation

1. Mount the M–Combiner

a. Use a tape measure and make a mark on the wall at least 1,000 mm vertically from the ground. Measure approximately 75 mm above the mark and make another mark.
b. Drill along these marks by using an electric drill with an bit (Φ8) and insert the wall anchors (provided in the package) into the holes.
c. Take out the mounting plate in the package and align the screw holes of the mounting tab with the wall anchors.
d. Insert and tighten the M6 screws by using a Phillips #2 screwdriver with a torque of 2.5–3.5 N·m.
e. Insert the two mounting columns at the bottom of the MC100L into the sliding rail and slide them to the end.

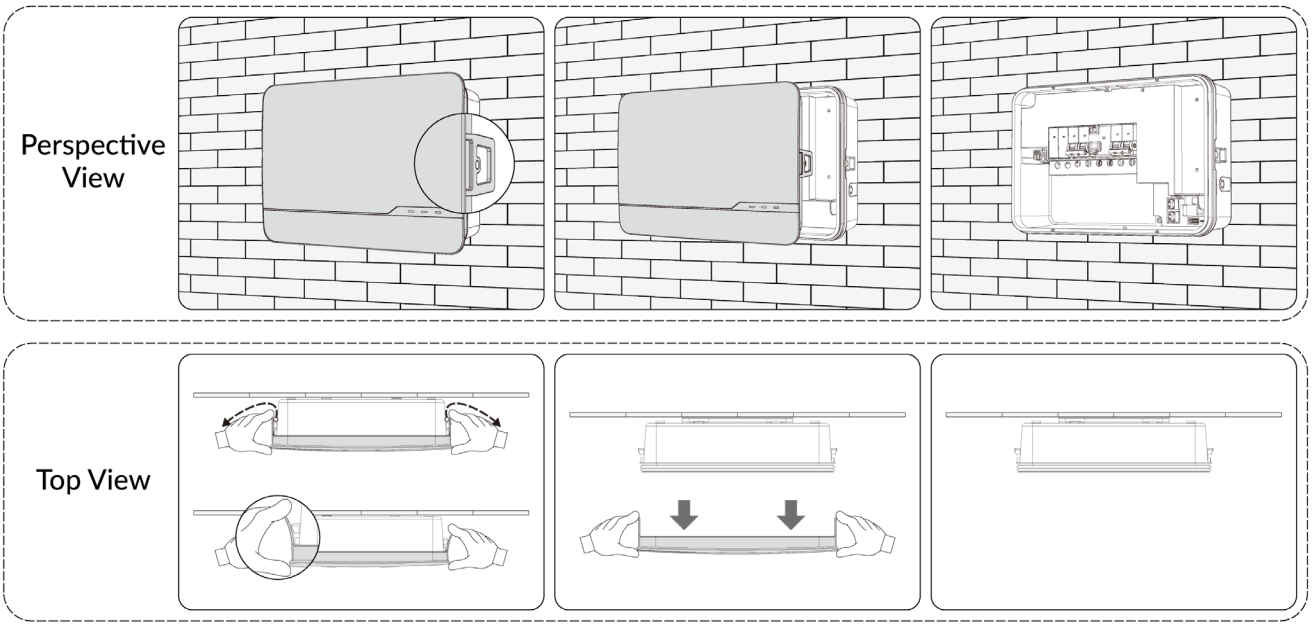
NOTE:

- 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.



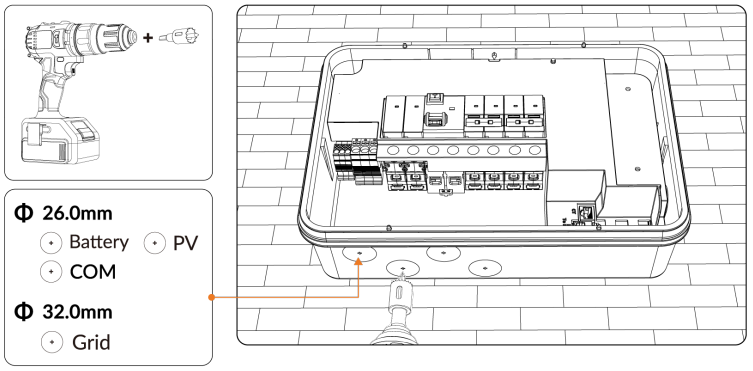
2. Remove the cover

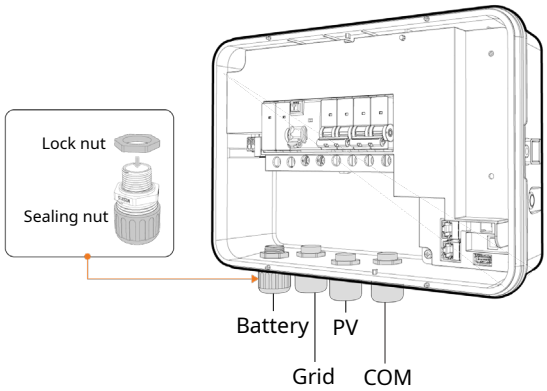
a. There are two snap fasteners on both sides of the MC100L. Remove the cover by pulling the two snap fasteners outward at the same time and then pulling the cover toward you.



3. Drill on the M–Combiner

a. 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 MC100L.
b. Mount the rain–tight fittings on the holes. Several waterproof glands can be found in the package.
c. 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:

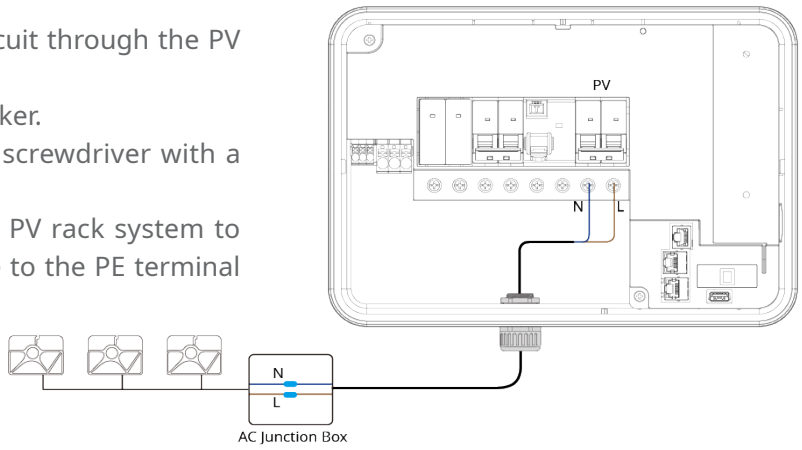
- Ensure the edge of the holes do not exceed the indicated circle.

4. Wire to the M–Combiner

— N — L

4.1 Wire from the PV branch (microinverter)

a. Bring in the cables from the PV branch circuit through the PV hole of the combiner.
b. Connect the cables (N and L) to the PV breaker.
c. Tighten the screws by using a Phillips #2 screwdriver with a torque of 2–2.5 N·m.
d. 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 MC100L.



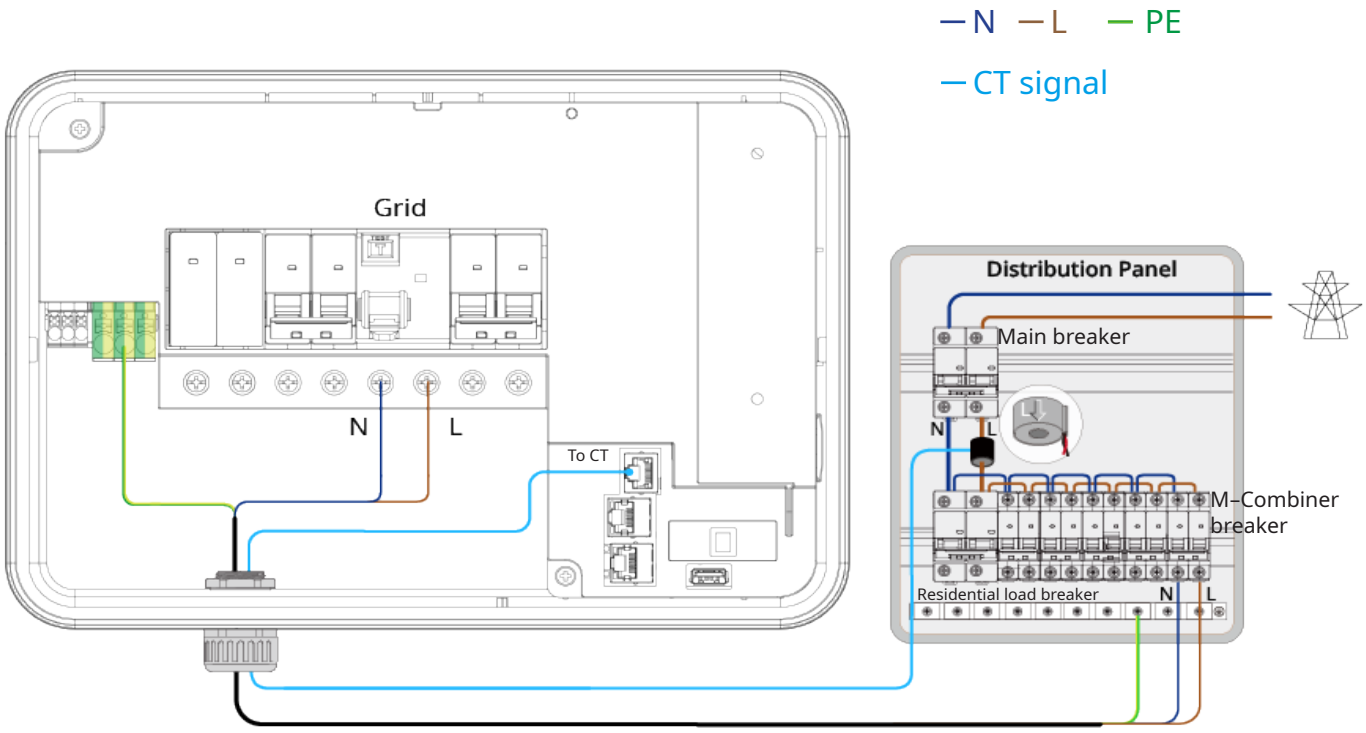
4.2 Wire from the distribution panel (grid)

Section A. Wire the power cables

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

NOTE:

- Ensure that the cable sequence (N and L) of the breaker in the MC100L is consistent with that of the M–Combiner breaker and main breaker in the distribution panel.



Section B. Wire the consumption CT

a. Install the consumption CT for electricity metering. You can find the CT in the combiner.
b. To install the CT, perform the following steps:
   - Connect the CT signal cable to the terminal of MC100L as shown above.
   - Remove the L cable of the main breaker in the distribution panel.
   - Locate the arrow on the CT's label and thread the L cable into the CT with 'L' lable. The CT's arrow must point away from the grid.
   - Reconnect the L cable to the main breaker and tighten the screws.

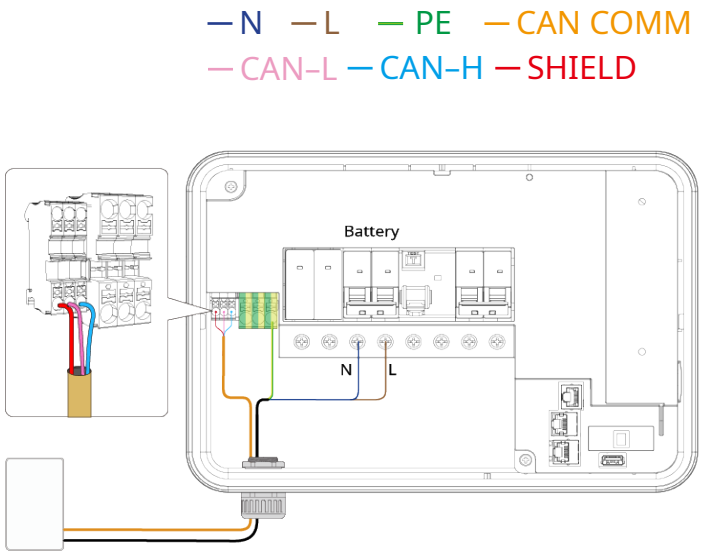
NOTE:

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

- The CT's arrow must point away from the grid.
- Ensure that the CT with 'L' lable is installed on the same power line as the L cable of the grid breaker in the M–combiner.

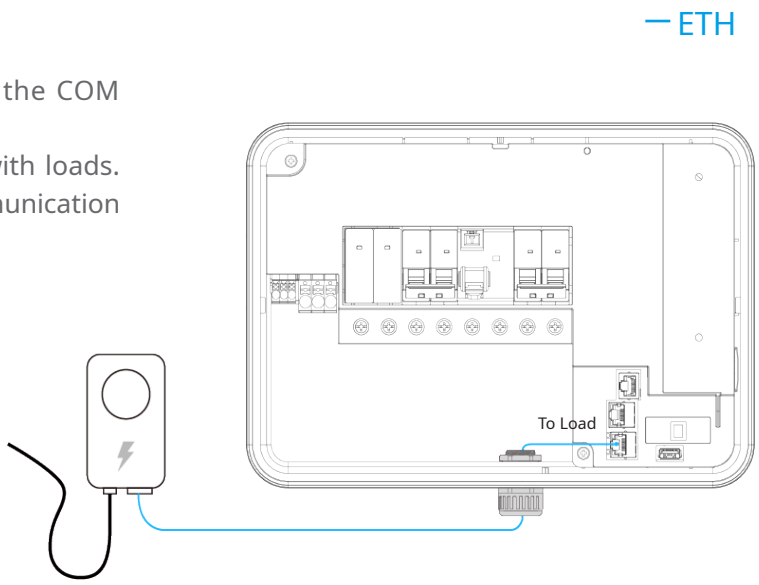
4.3 (Optional) Wire from the battery

a. Bring in the power cables from the battery through the battery hole of the combiner.
b. Connect the cables (N and L) to the battery breaker and connect the ground cable to the PE terminal block as shown.
c. Tighten the screws by using a Phillips #2 screwdriver with a torque of 2–2.5 N·m.
d. Bring in and connect the CAN cable to the terminal block as shown in the figure.



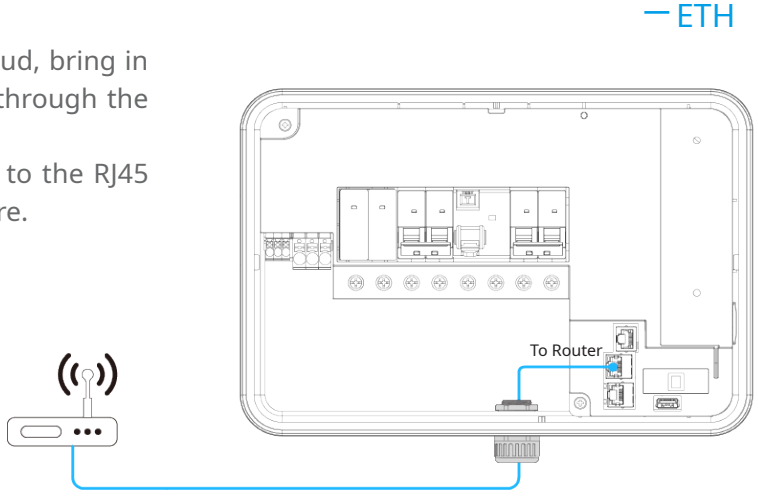
4.4 (Optional) Wire from the load

a. Bring in the cables from the load through the COM hole of the combiner.
b. The MC100L supports ETH communication with loads. Connect the cables from the load to the communication interface as shown in the right figure.



4.5 (Optional) Wire from the router

a. 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.
b. Connect the 802.3 Cat 6 UTP ethernet cable to the RJ45 terminal in the combiner as shown in the figure.

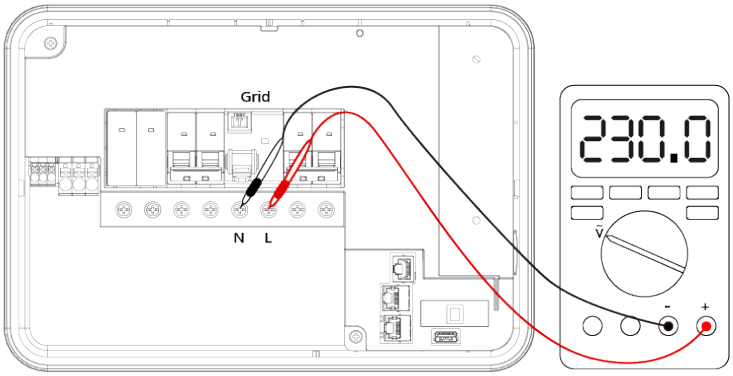


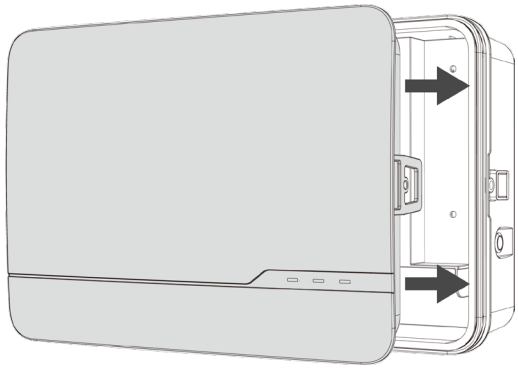
5. Power on the system

a. Turn on the main breaker and M–Combiner breaker in the distribution panel.
b. Use the multimeter to measure the voltage between the N pole and L pole of the grid breaker as shown in the figure.
c. If the voltage value is approximately the nominal phase voltage, e.g. 220 V, 230 V and 240 V, trun on the grid and other breakers in the combiner and the LEDs will be on.
d. Re–install the cover to close the combiner.

NOTE:

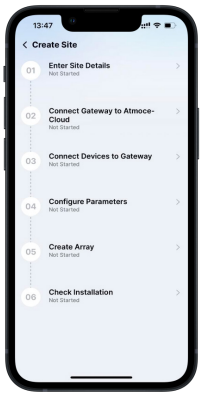
- If the voltage value is outside the range (184 to 276 V), do not switch on the grid breaker inside the combiner. Check the cable connection to avoid damaging the device and voiding the warranty.





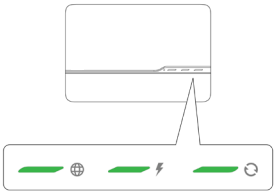
6. Activate the system

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



LED indicator description

a. The MC100L has three LEDs, and the following table describes their status.



Solid ON
Quick flash: 0.2s ON, 0.2s OFF
Slow flash: 1s ON, 1s OFF
Dim

	Function	Colour		Description
	Network Status	Solid Green	▬▬	Connecting to Atmoce–cloud.
		Quick Flash Green	▬ ▬ ▬	Connecting to Atmozen app via Bluetooth.
		Slow Flash Red	▬ ▬	No network available.
	Microinverter Power Status	Solid Green	▬▬	All communicating microinverters are generating power.
		Slow Flash Orange	▬ ▬	At least one microinverter is not generating power.
		Dim	▭	All microinverters are not generating power.
	Microinverter Communication Status	Solid Green	▬▬	All microinverters are in communication normally.
		Quick Flash Green	▬ ▬ ▬	The MG100 is detecting microinverters.
		Slow Flash Orange	▬ ▬	At least one microinverter is not in communication.
		Slow Flash Red	▬ ▬	None of the microinverters are in communication (not due to low light or night time).
		Dim	▭	None of the microinverters are in communication (due to low light or night time).
ALL		Slow Flash Green	▬ ▬	Software update is in progress.

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