

4.6 Power on the System

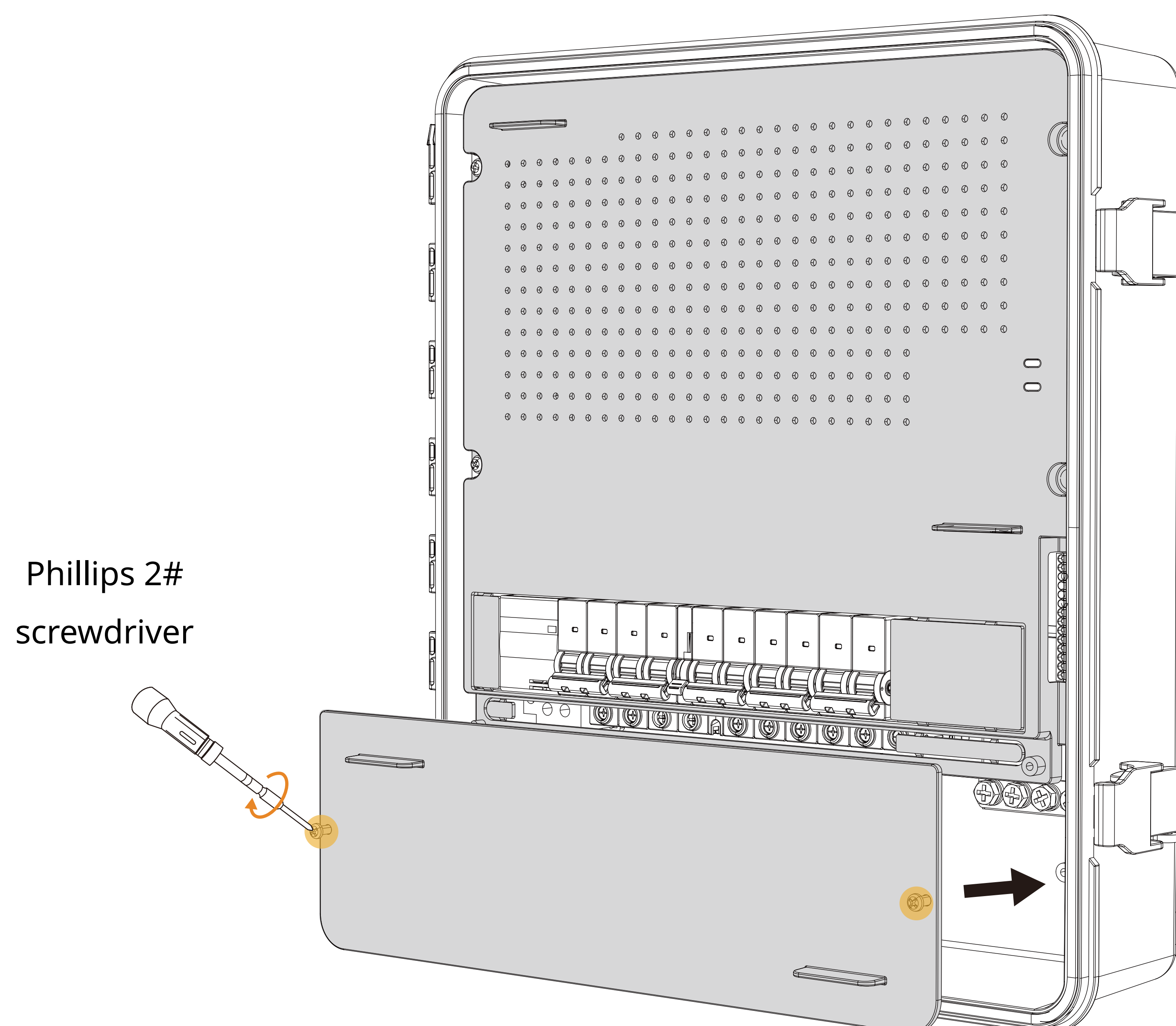
- a. Turn on the breaker in the grid.
- b. To check the phase sequence, perform the following steps:
 - Use the multimeter to measure the voltage between the N pole and L pole of grid breaker.
- c. If the voltage value is approximately the nominal phase voltage, e.g. 220 V, 230 V and 240 V, turn on the grid and other breakers in the M-Backup and the LEDs will be on.

NOTE:

- If the voltage value is outside the range (176 to 276 V), do not switch on the grid breaker inside the M-Backup. Check the cable connection to avoid damaging the device and voiding the warranty.

4.7 Close the M-Backup

- a. Re-install the cover to close the M-Backup.

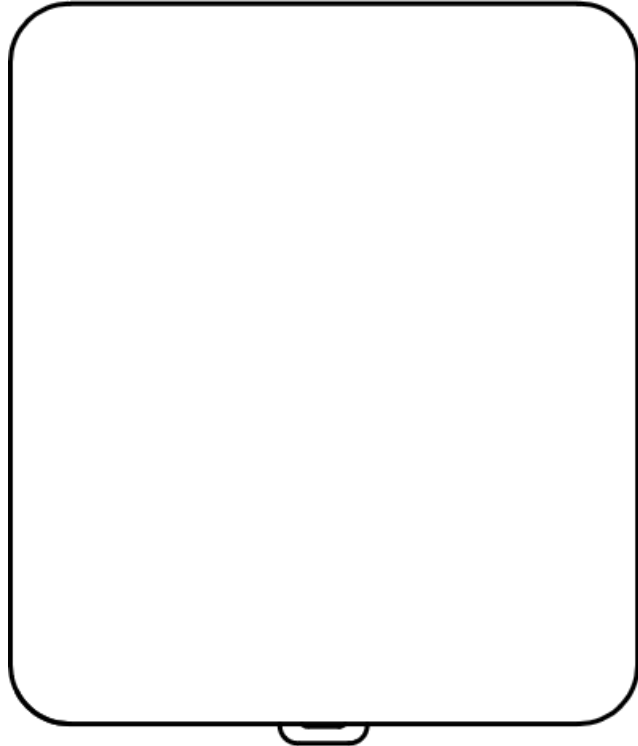


MU100-T Installation

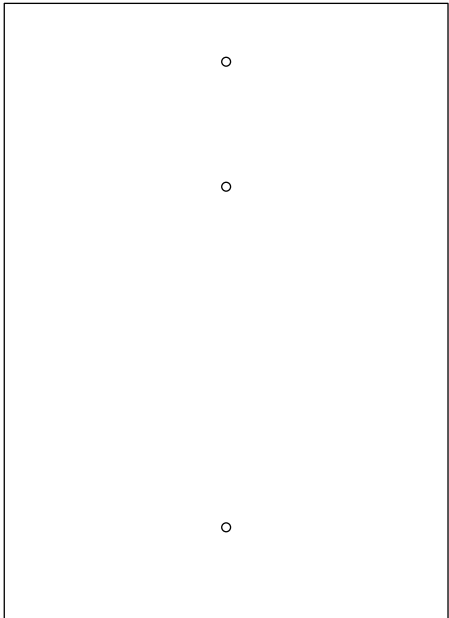
5.1 Prepare for Installation

5.1.1 Check the Items in the Package

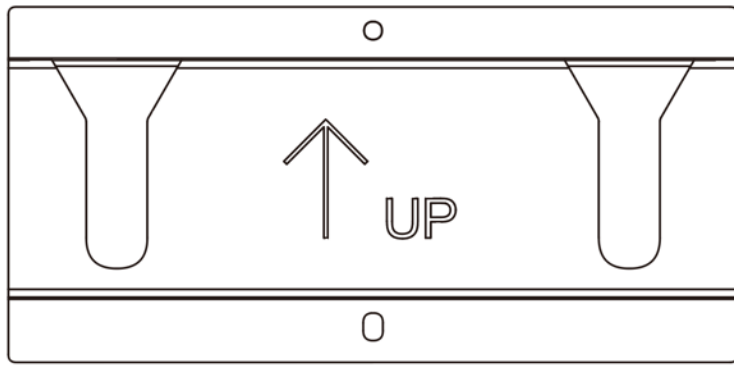
Please make sure that the following items are included in the package before installation.



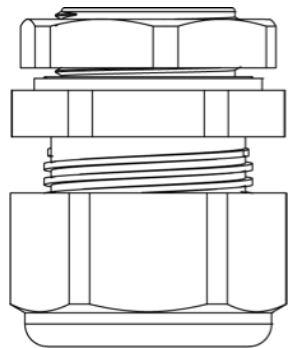
M-Backup



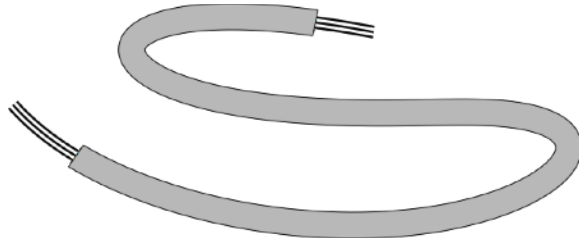
Marking plate



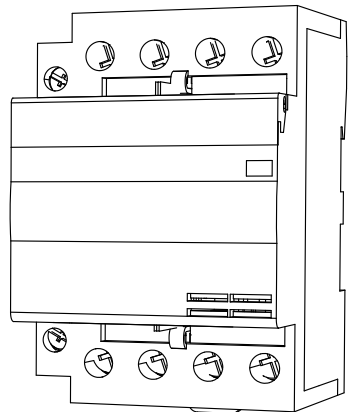
Mounting plate



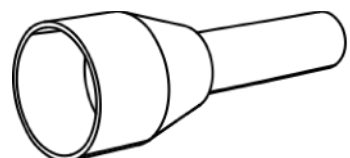
Waterproof glands



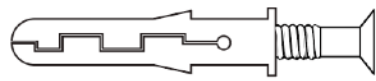
CAN Communication cable



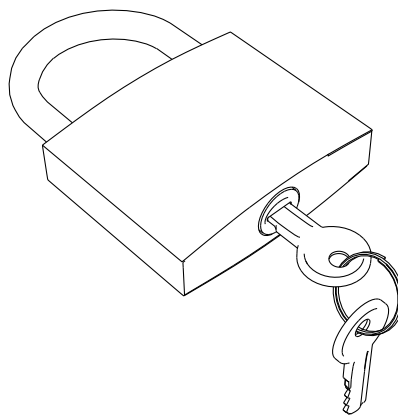
Contactor



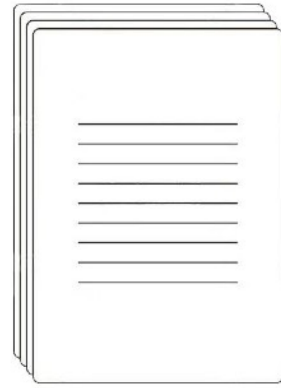
Cold-press terminals



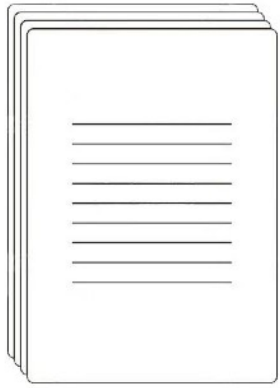
Wall anchors and screws



Lock and key



Delivery inspection report



Quick installation guide

5.1.2 Check the Grid Voltage

The M-Backup should connect to a three-phase grid. Measure the AC voltage at the point of connection to confirm that it is within the range.

Phase setup		Voltage range	
Three-phase	L1, L2, L3 to N	176 to 276 Vac	

5.1.3 Prepare the Cables

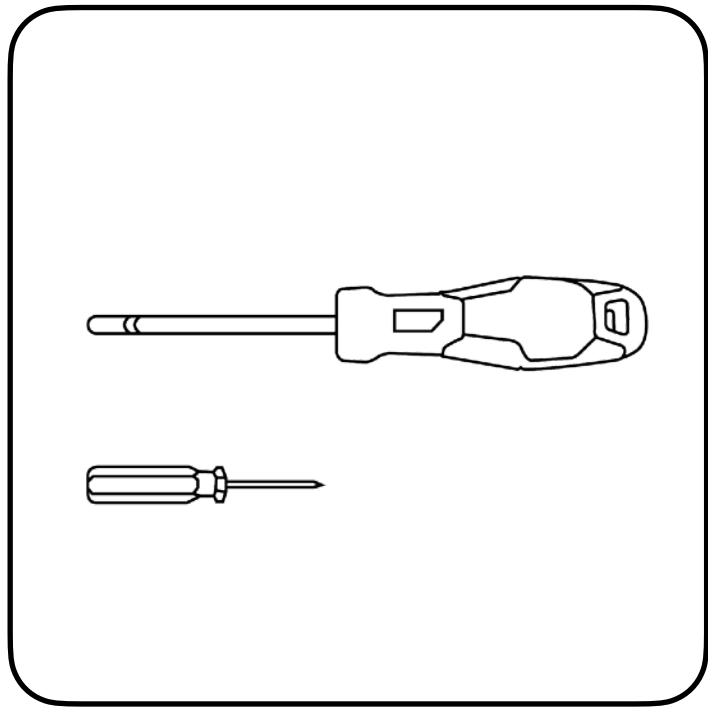
To properly set up the system, it is necessary to select the appropriate cables. The table below shows the recommended cable requirements.

Connection		Recommended cable size		Terminal requirement
Grid	Power cable	6 to 25 mm ² , 4-core or 5-core		Cold-pressed Terminal
	Communication cable	0.25 to 0.75 mm ²		Cold-pressed Terminal
Backup	Power cable	6 to 25 mm ² , 4-core or 5-core		Cold-pressed Terminal
M-Combiner / Battery	Power cable	6 to 25 mm ² , 4-core or 5-core		Cold-pressed Terminal
COM interface	Communication cable	0.25 to 0.75 mm ²		Cold-pressed Terminal

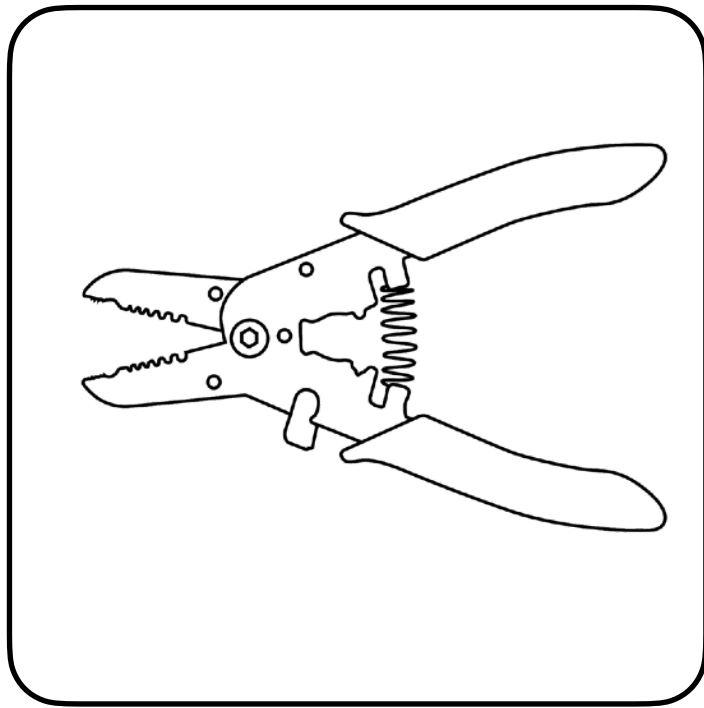
NOTE:

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

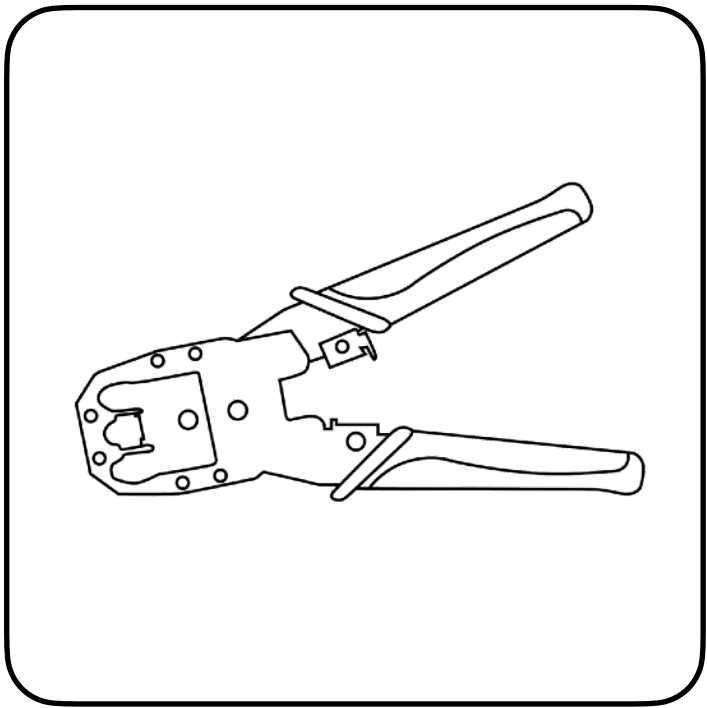
5.1.4 Prepare the Tools and Materials



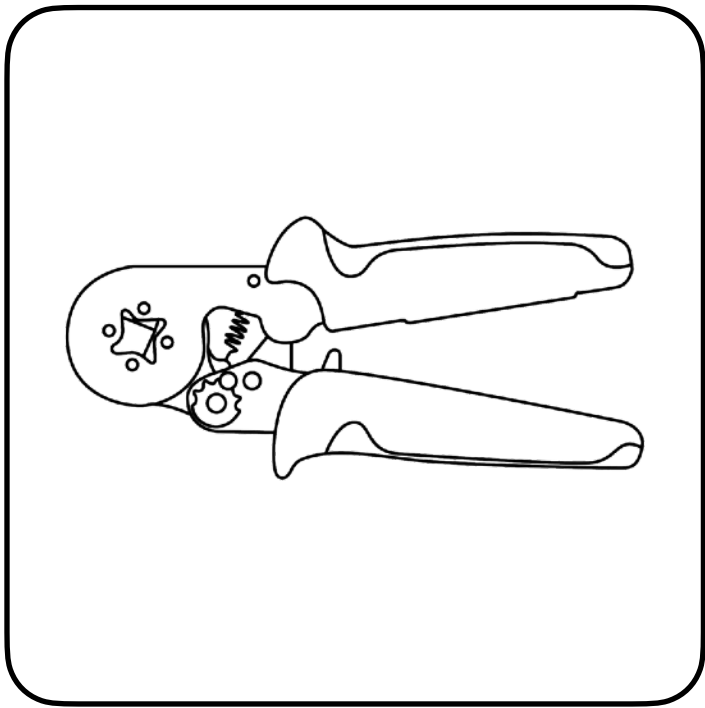
Screwdriver(M8)



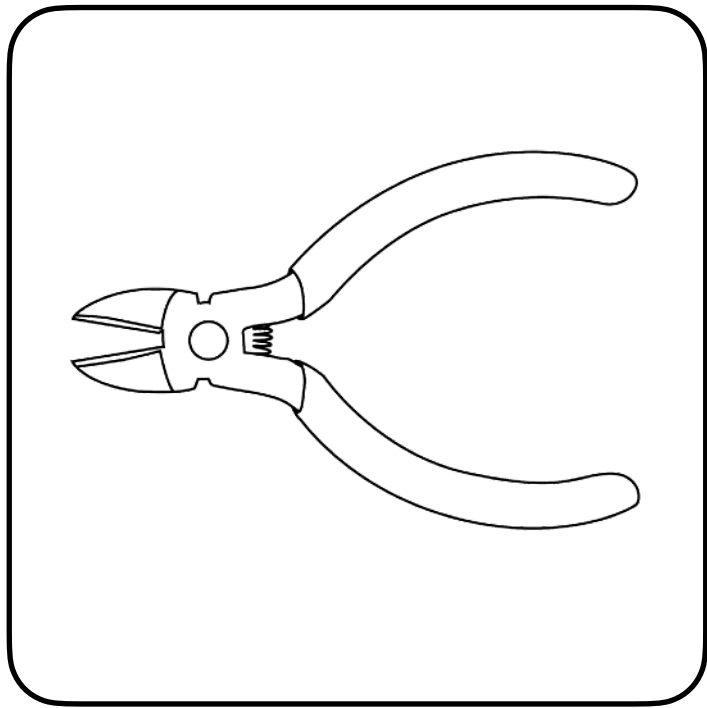
Wire stripper



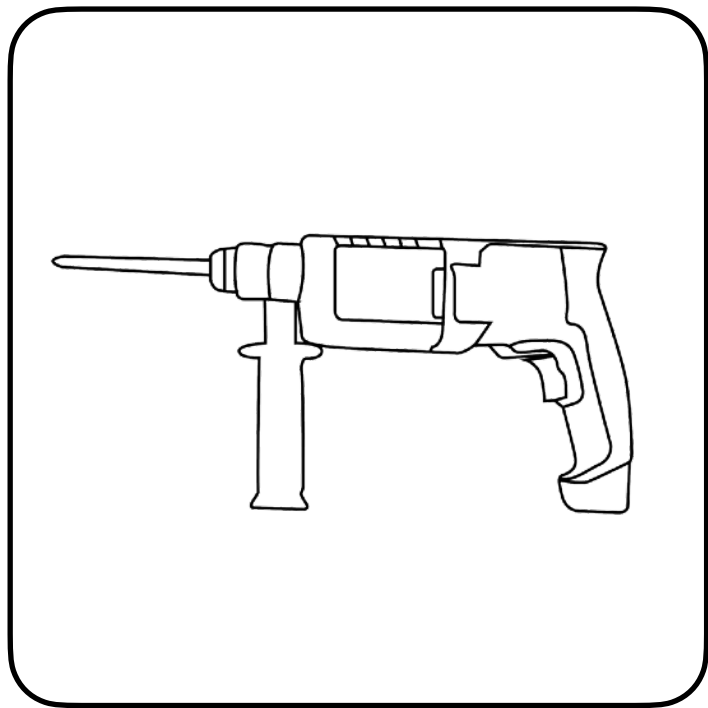
Power line crimper



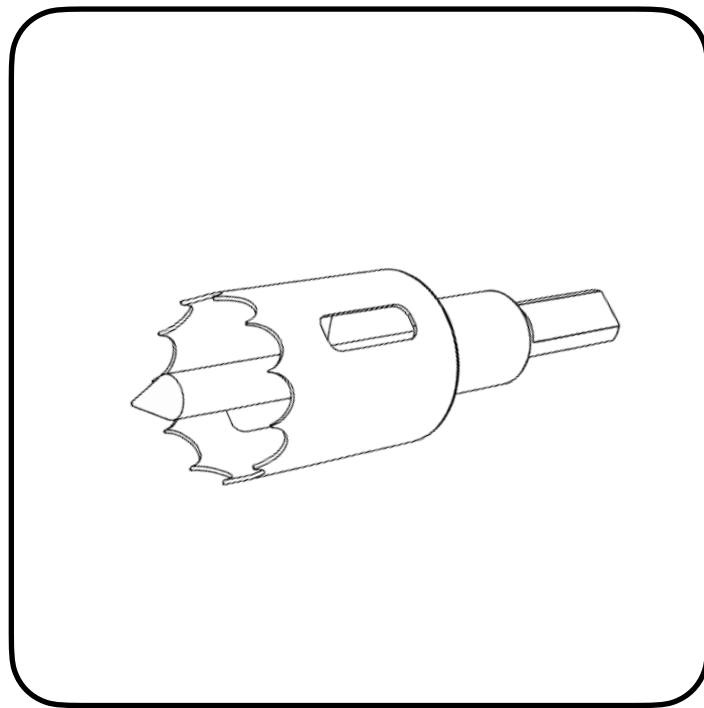
Communication line crimper



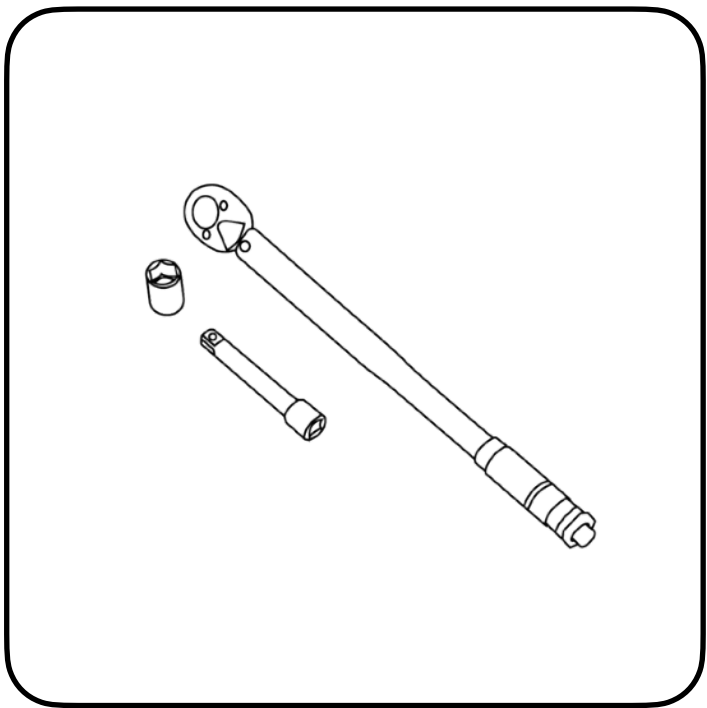
Diagonal cutter



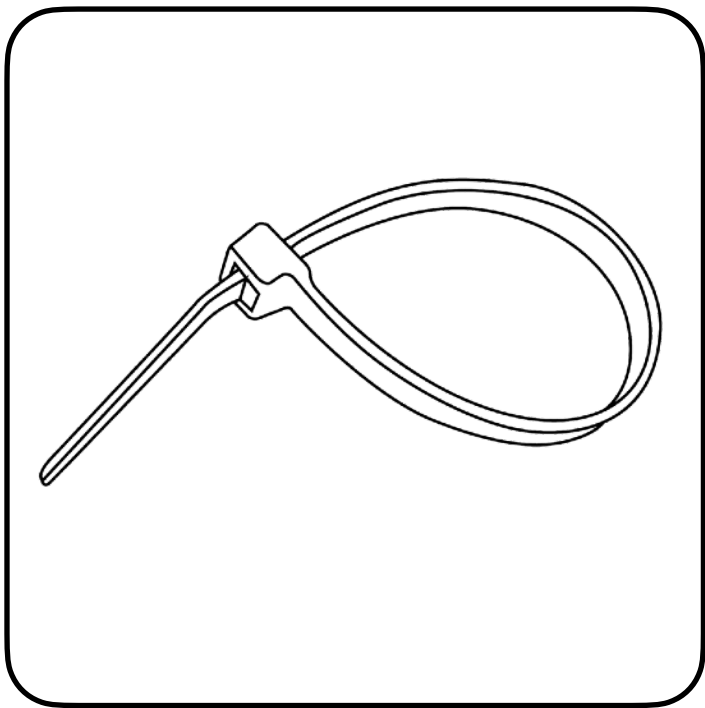
Drill



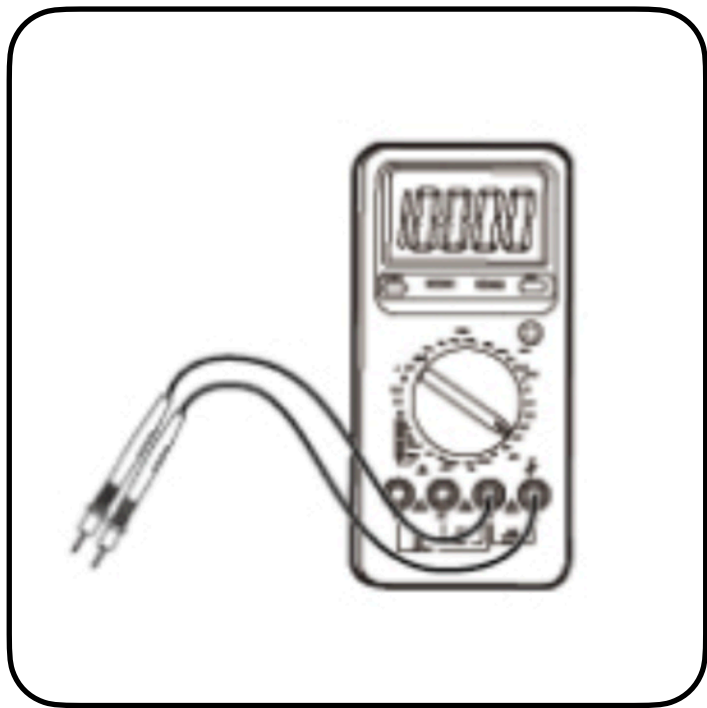
Hole cutter with pilot
(Φ40, Φ32 mm and Φ25 mm)



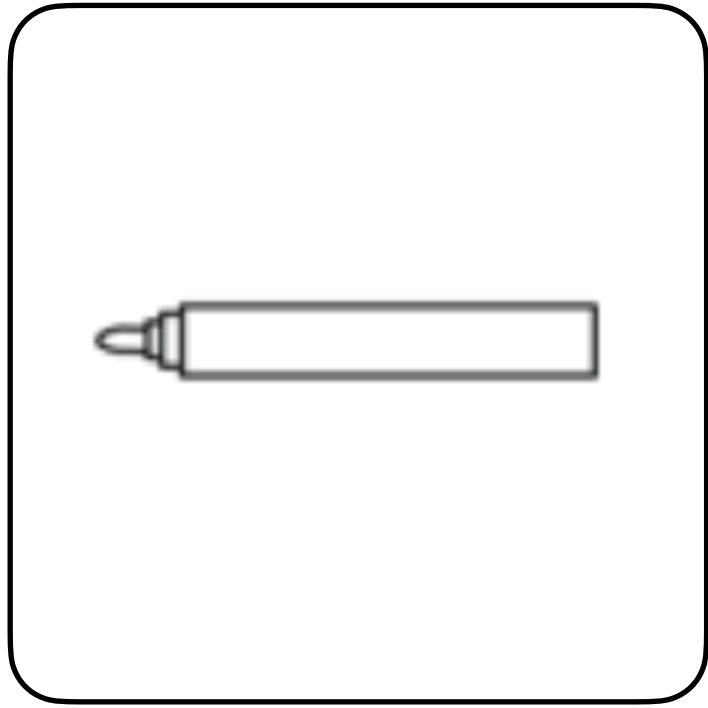
Torque wrench



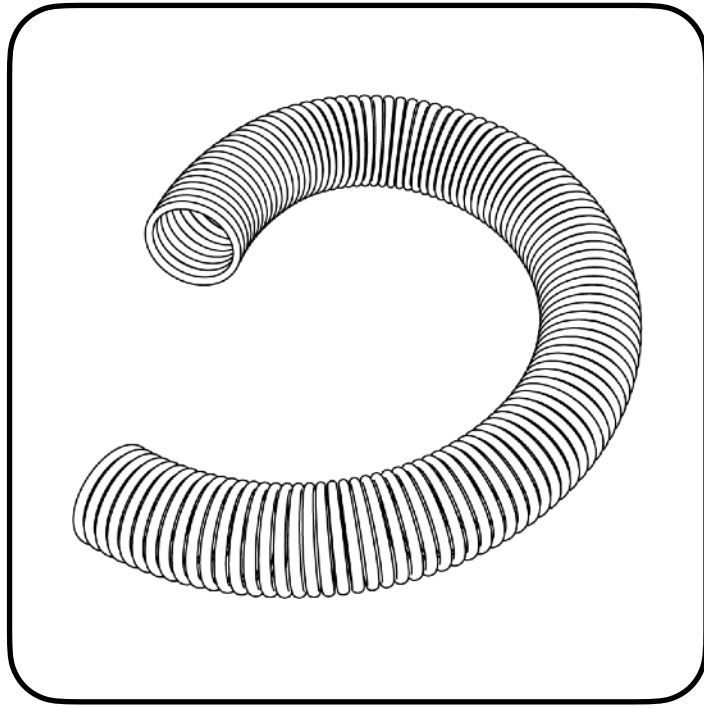
Tie wrap



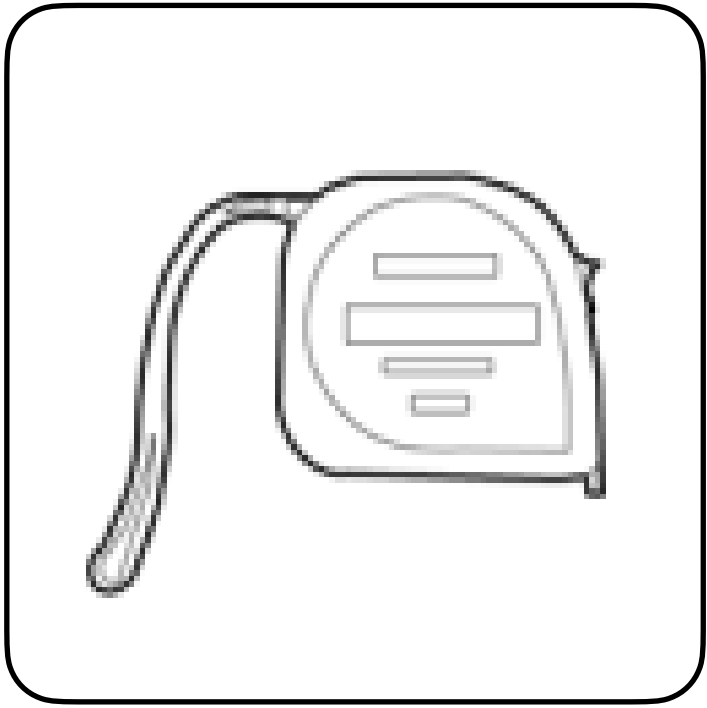
Multimeter



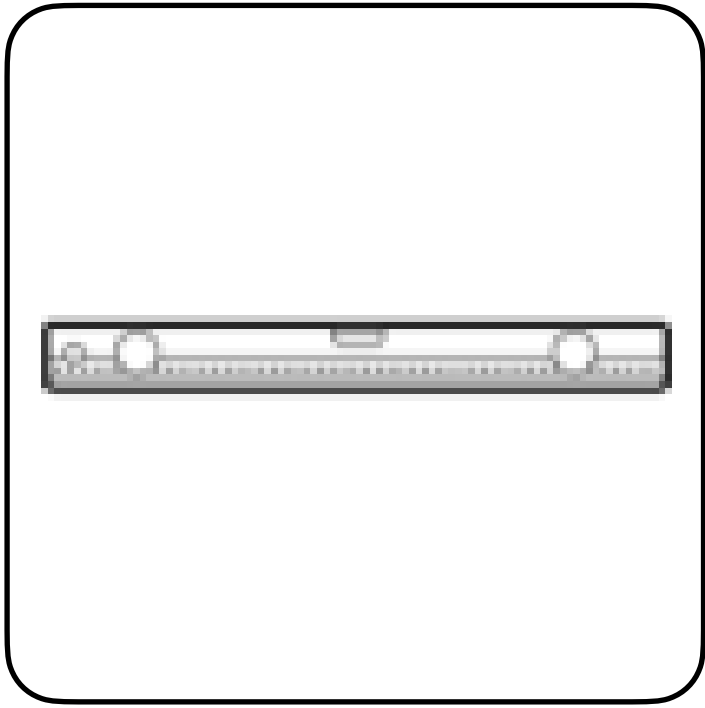
Marking pen



Corrugated protective pipe

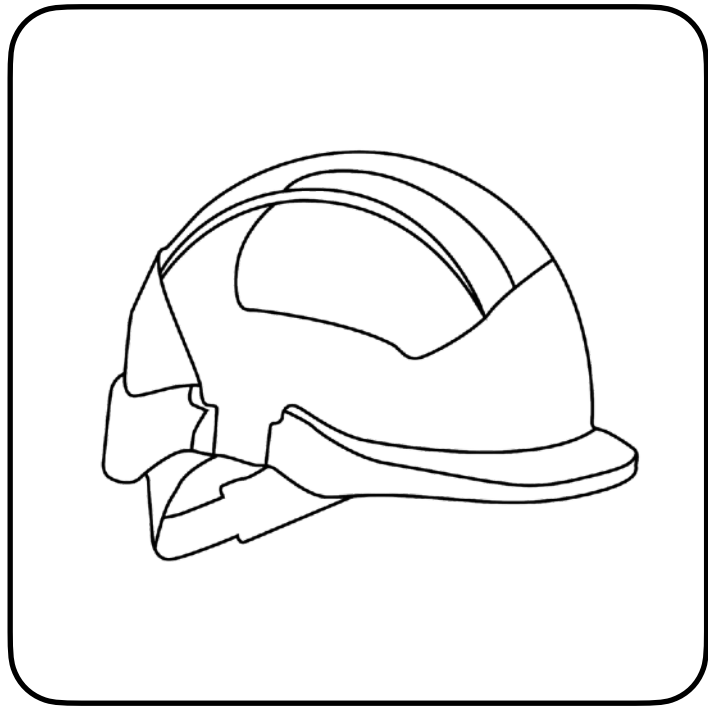


Tape measure

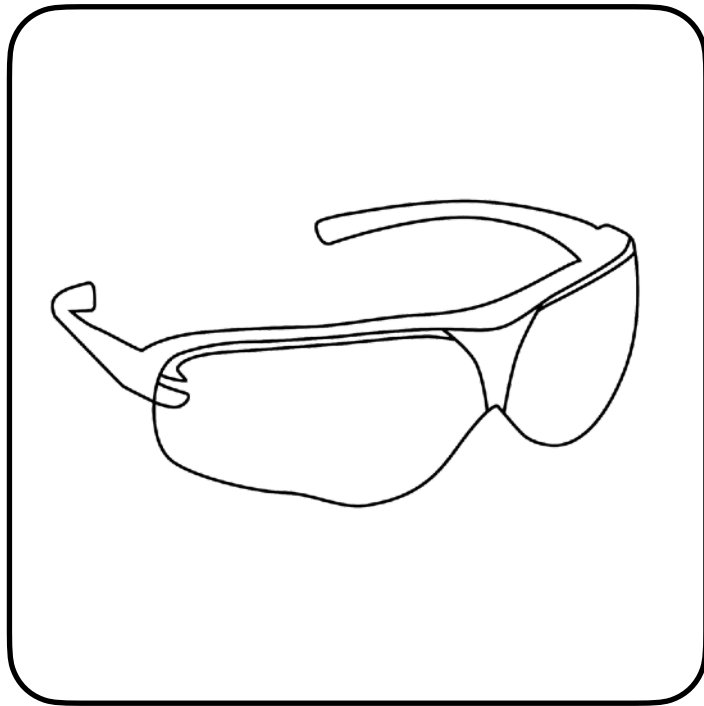


Spirit level

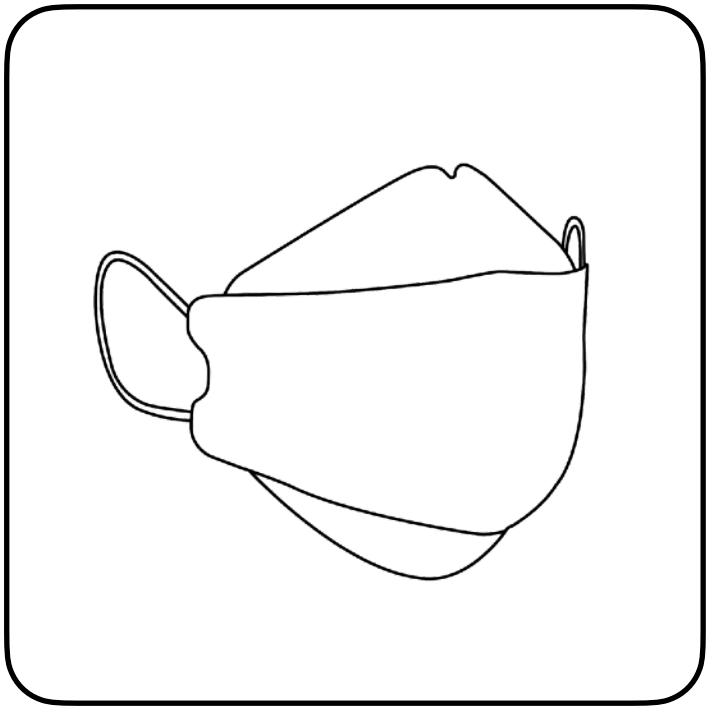
5.1.5 Prepare the Safety Equipment



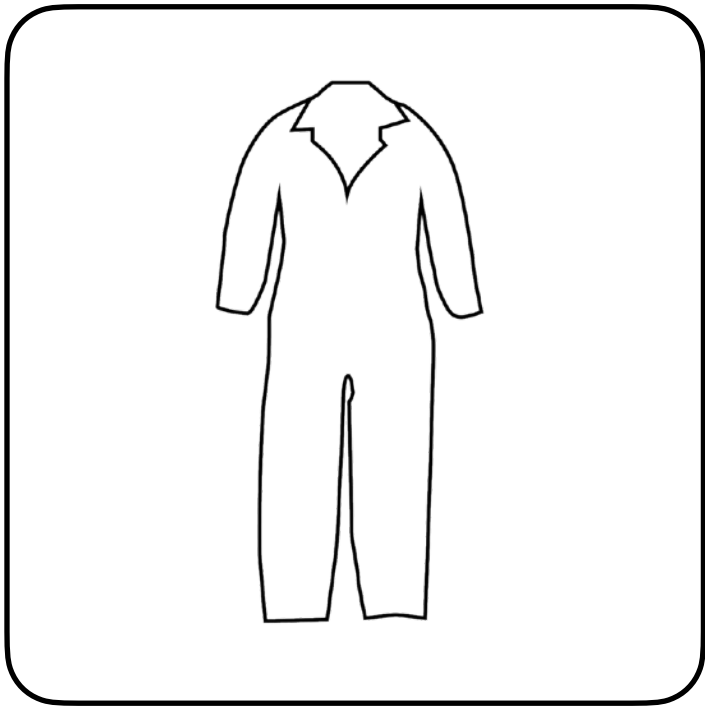
Safety helmet



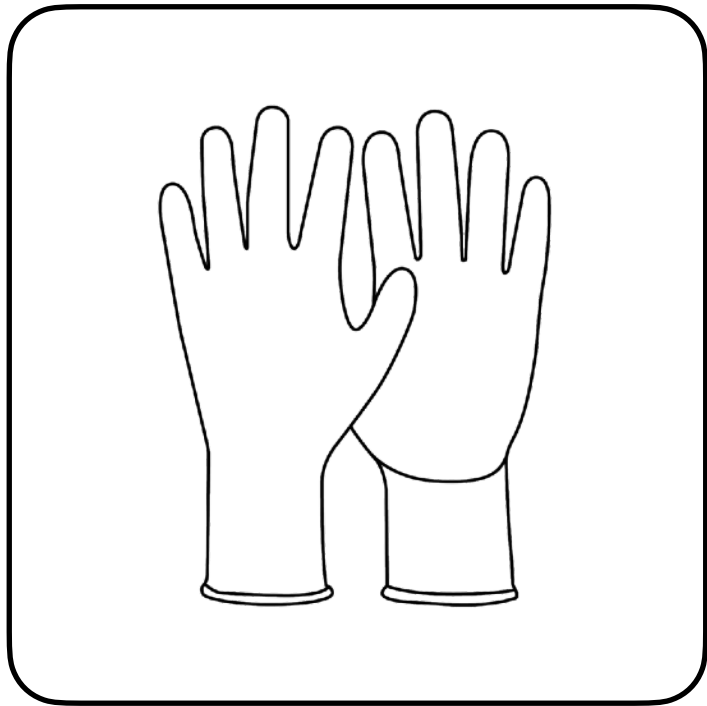
Protective goggles



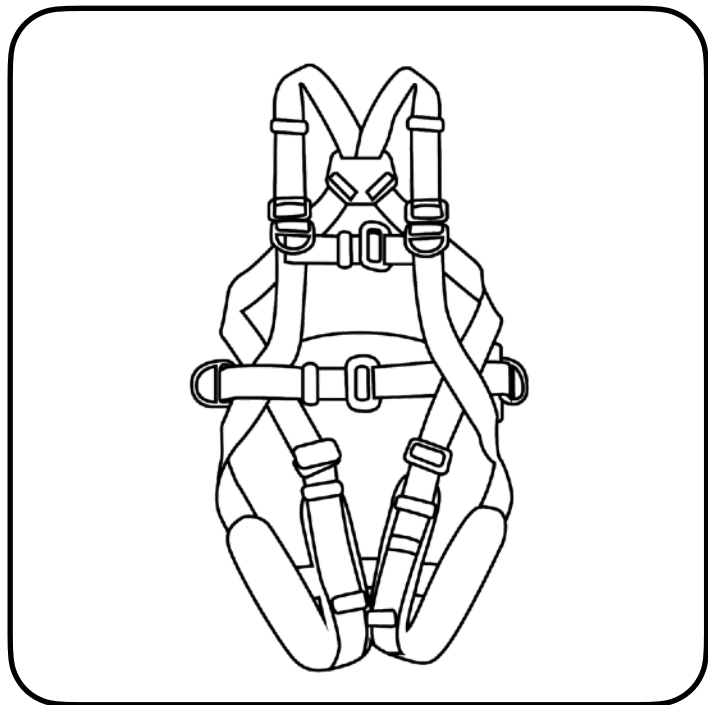
Mask



Safety clothing



Safety gloves



Safety belt



Safety shoes

5.1.6 Download the ATMOZEN App

Download the latest version of the ATMOZEN app. Open and log in to your account. You can track the progress of system installation with this app.

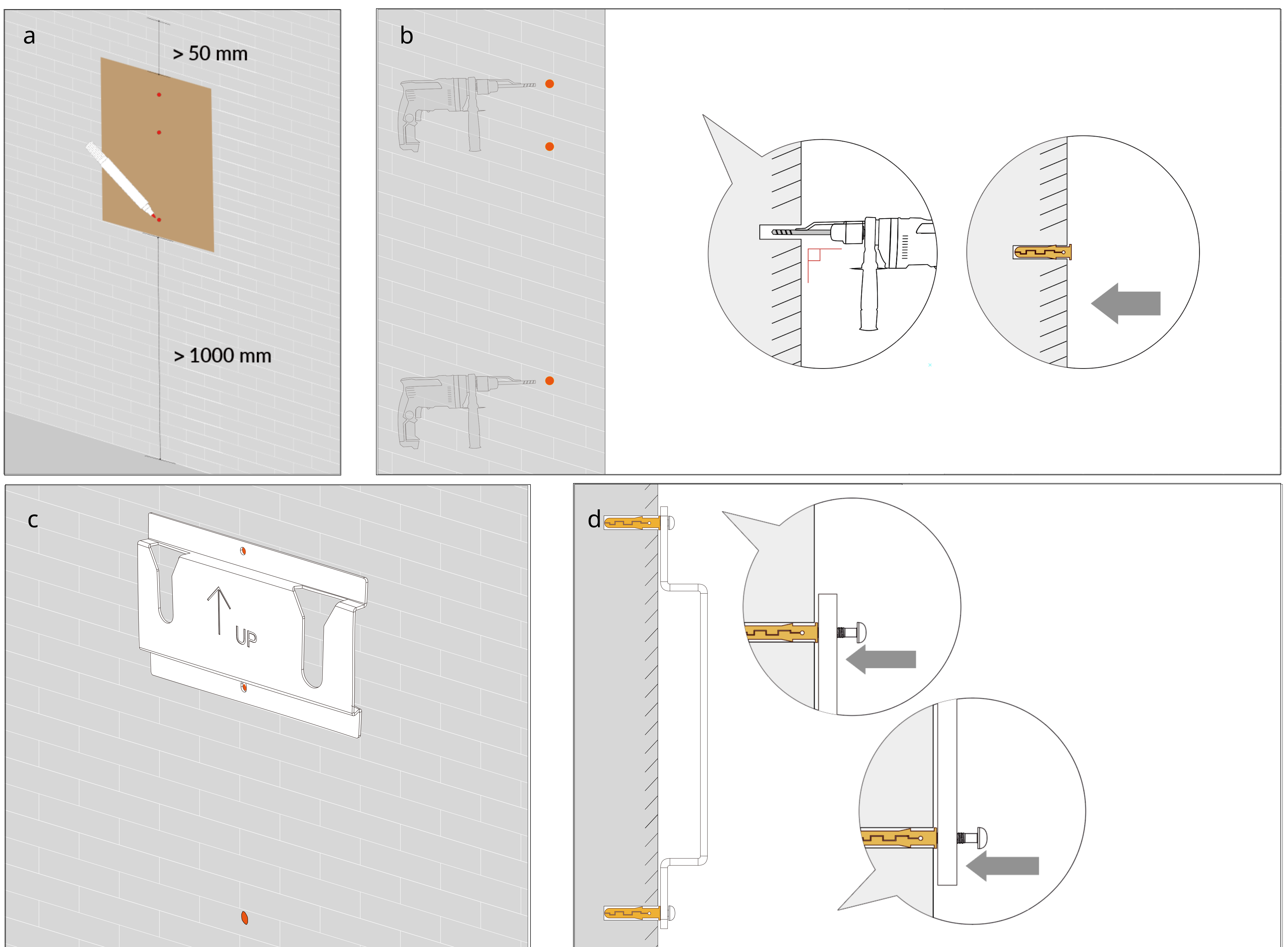


5.2 Mount the M-Backup

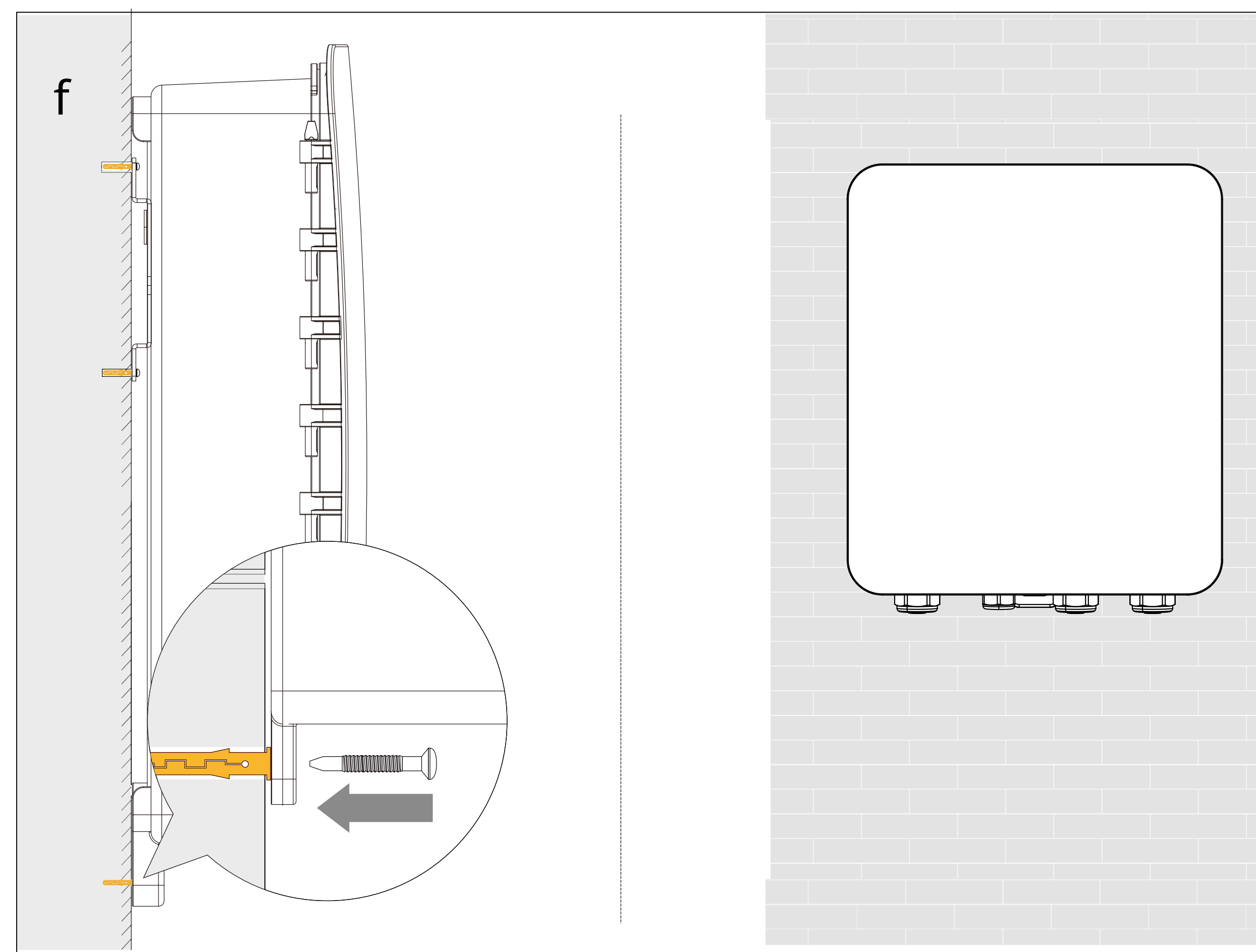
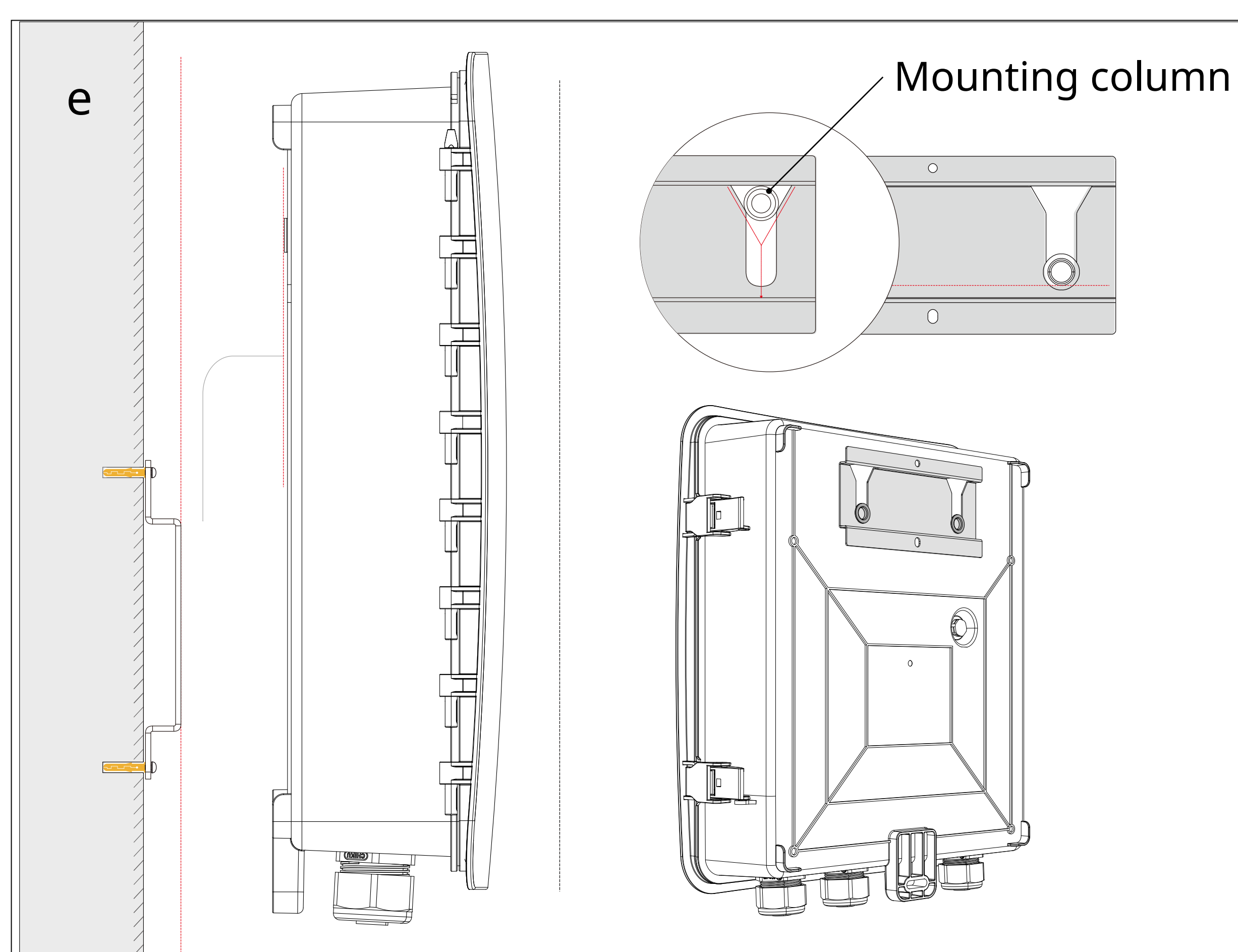
- Take out the marking plate and place it on the wall. Use the spirit level to check that the plate is level, then make the marks.
- Drill along these marks by using an electric drill with a bit ($\Phi 8$) and insert the wall anchors (along with the mounting plate) into the holes.
- Take out the mounting plate and align the screw holes with the wall anchors.
- Insert and tighten the M6 screws by using a Phillips #2 screwdriver with a torque of 2.5–3.5 N·m.

NOTE:

- Do not expose the M-Backup to direct sunlight, unless installing a sunshade.

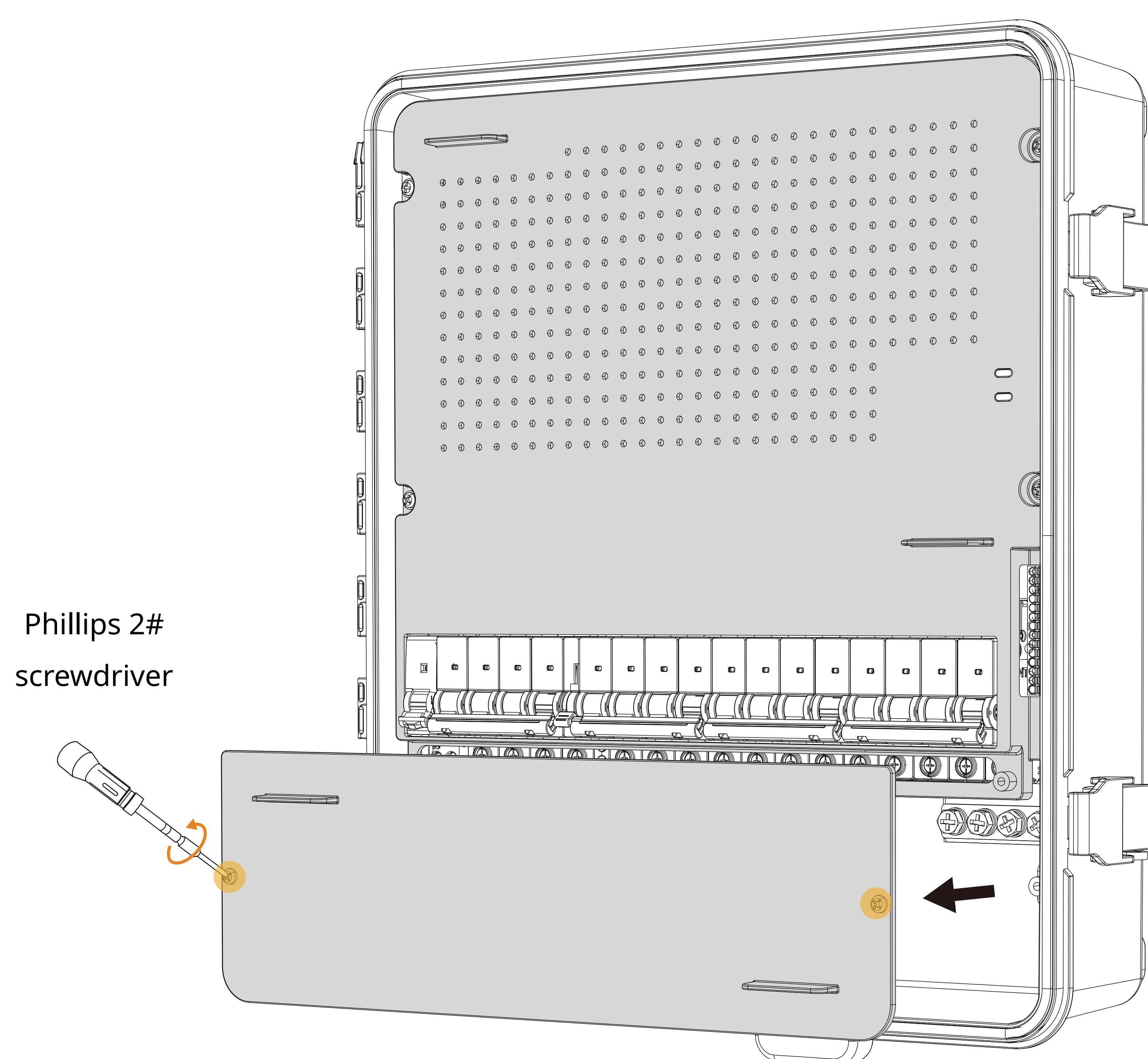


- e. Insert the two mounting columns at the bottom of the M-Backup into the sliding rail and slide them to the end.
- f. Insert the M6 screws into the bottom hole and tighten the screws by using a Phillips #2 screwdriver with a torque of 2.5–3.5 N·m.



5.3 Remove the Protective Cover

- Open the door and use a Phillips #2 screwdriver to remove the protective cover.
- Take out the accessories from the cabinet. For accessory details, please refer to the "M-Backup delivery list" in the package.

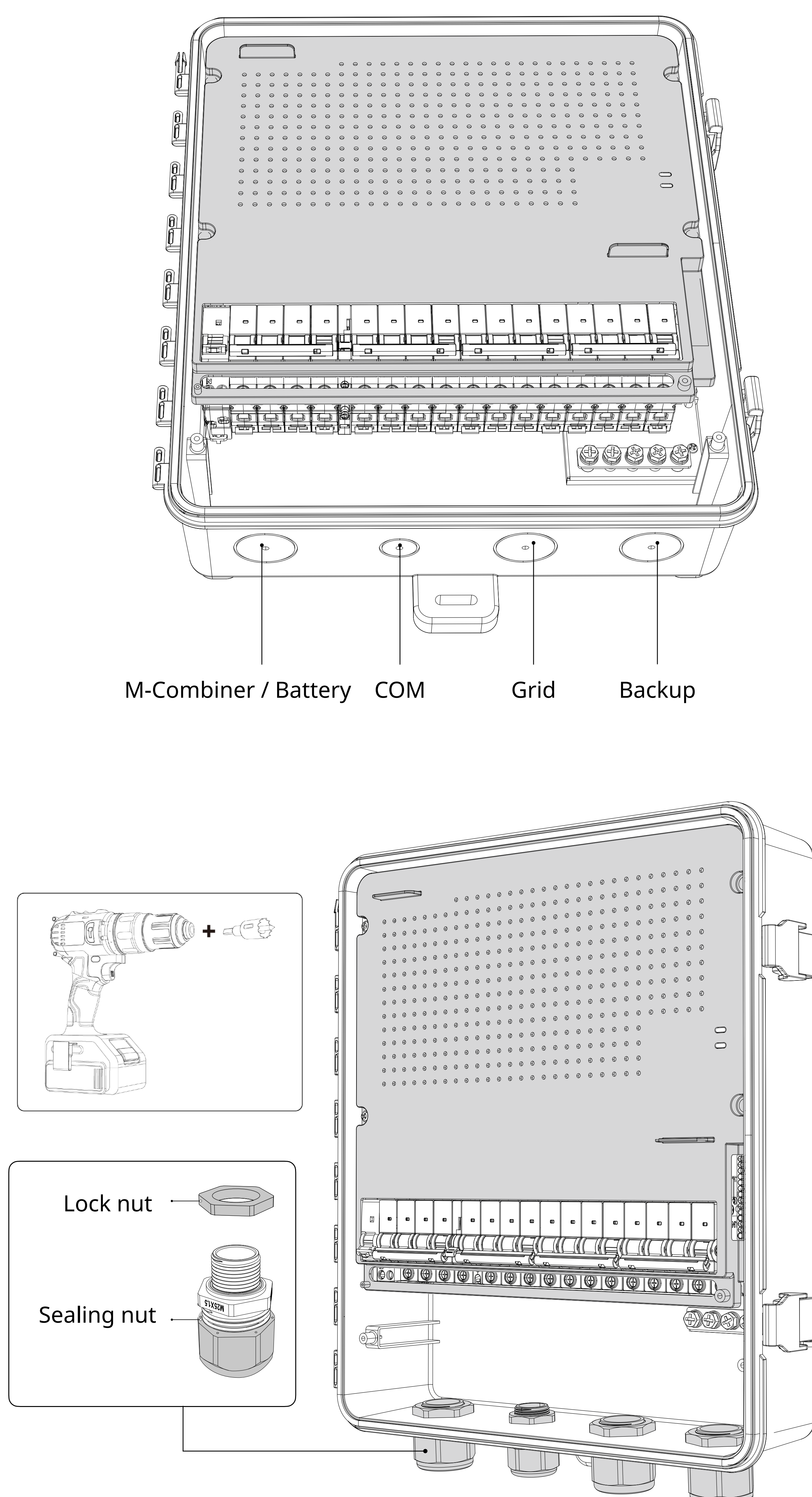


5.4 Remove the Knockouts

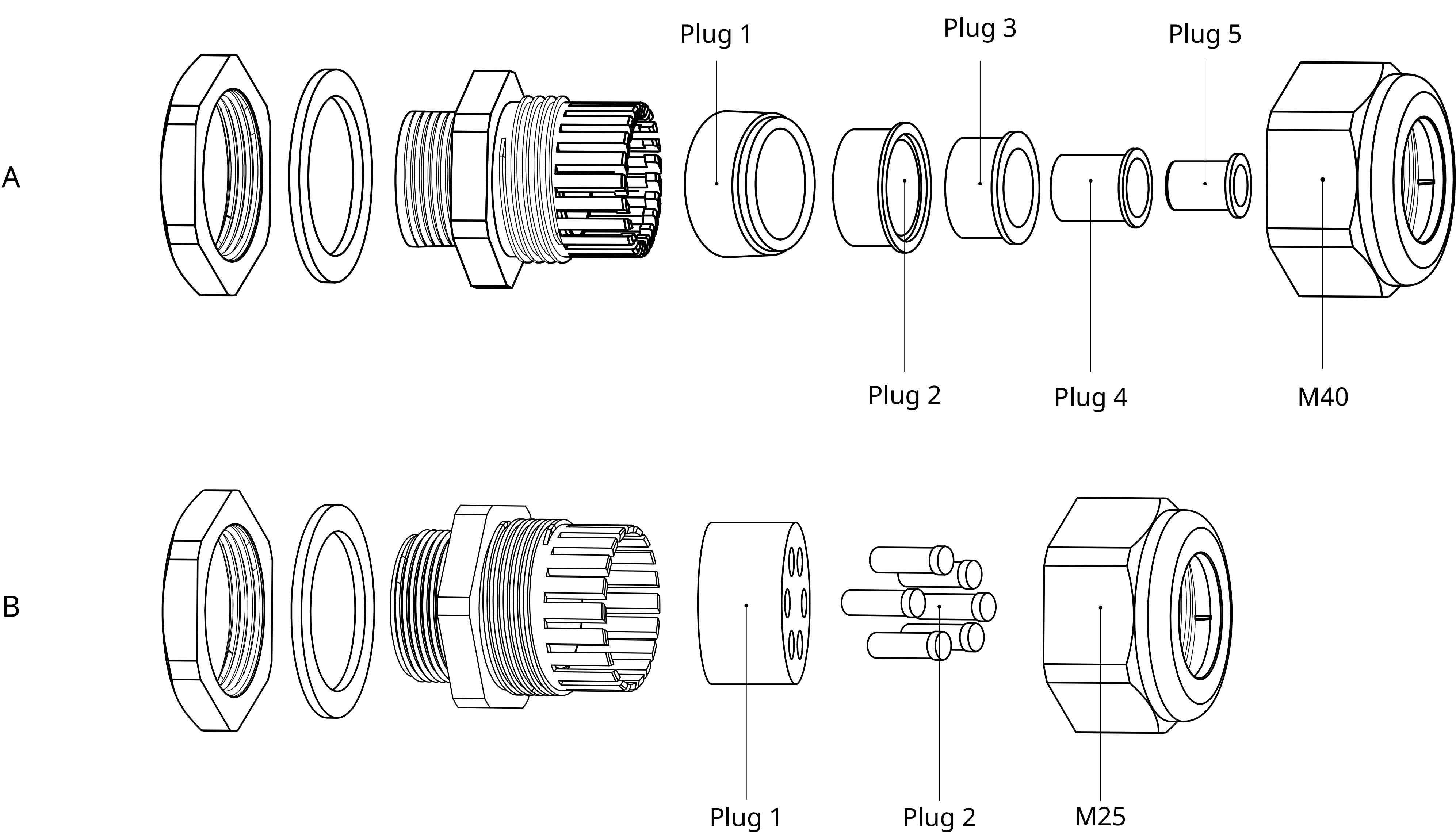
- Use the electrical hole cutter with a pilot drill bit to drill holes. The drilling area and recommended cable outlets can be found at the bottom of the M-Backup.

NOTE:

- Smooth the edge of the hole with a knife before tightening the nuts and wiring the cables.



- b. Mount the rain-tight fittings on the holes. Remove the plug as needed and thread the cable through the appropriate plug. The relationship between the plug and the wire diameter is shown in the table below.
- 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.



	Item	Recommended diameter	Wire type
A	Plug 1	5 × 25 mm ²	Power cable
	Plug 1+2	/	
	Plug 1+2+3	5 × 10 mm ²	
	Plug 1+2+3+4	/	
	Plug 1+2+3+4+5	5 × 6 mm ²	
B	Plug 1	0.25 to 0.75 mm ²	Communication cable
	Plug 1+2	Cover the unused cable holes on plug1	

NOTE:

- Recommended values are subject to local regulations. Adjust for cable diameter deviations per site conditions.

For two Combiners to one Backup, site-specific sealing is required.

5.5 Wire to the M-Backup

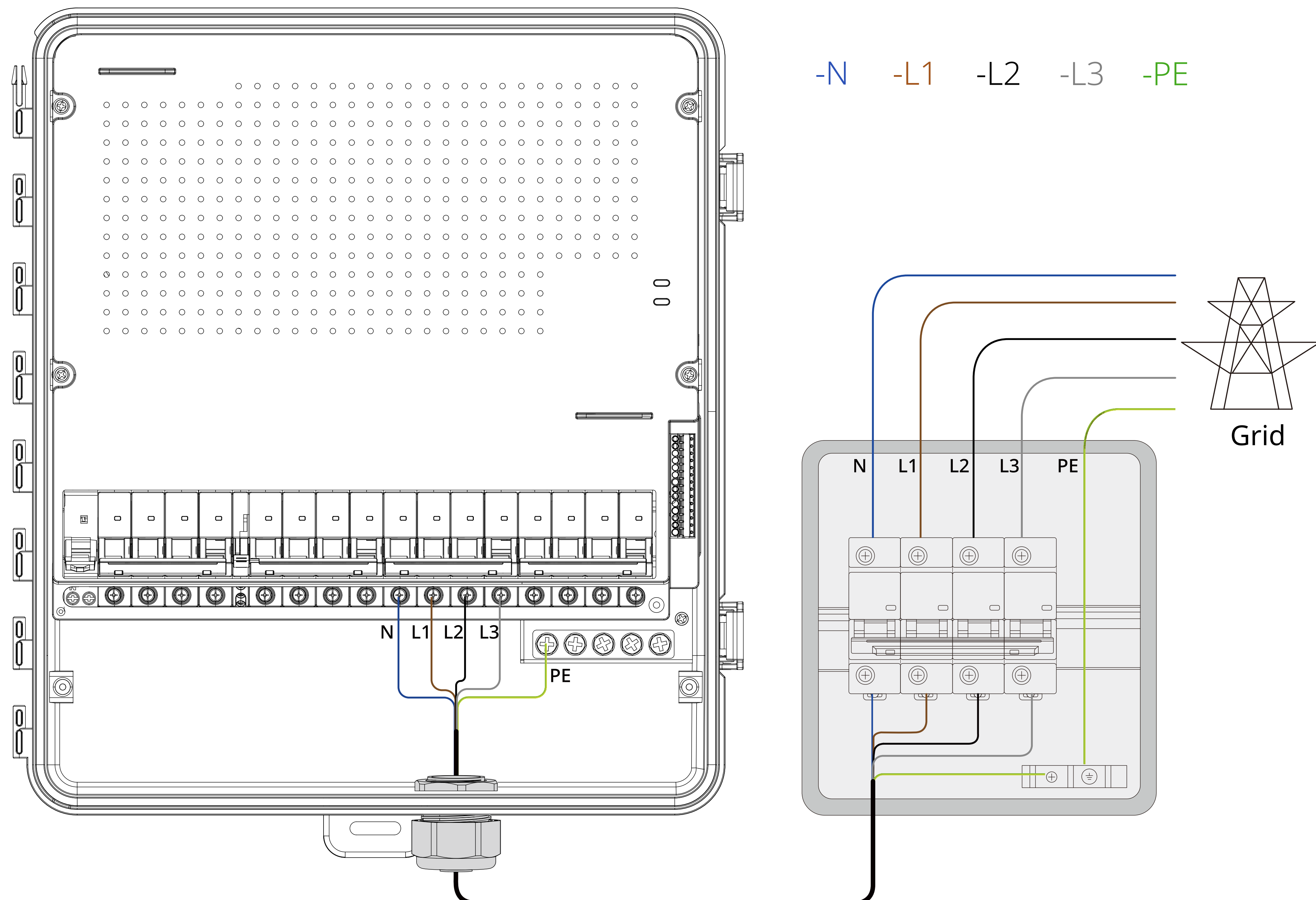
5.5.1 Wire from the grid

For the grid with L1, L2, L3, N and PE

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

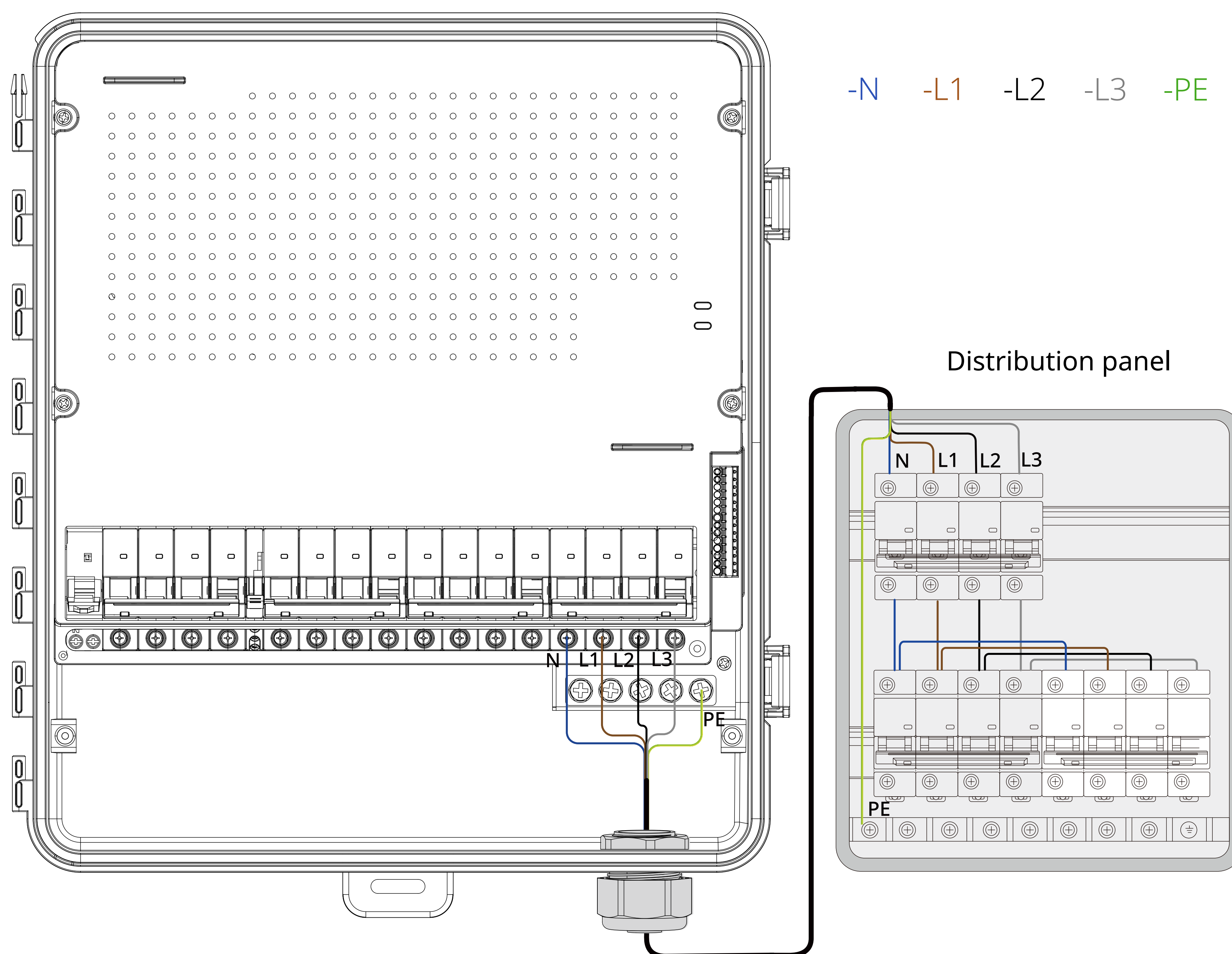
NOTE:

- Before connecting to the power grid, it is necessary to determine the power grid configuration.
- Ensure that the cable sequence (N, L1, L2 and L3) of the breaker in the M-Backup is consistent with that of the breaker from grid.



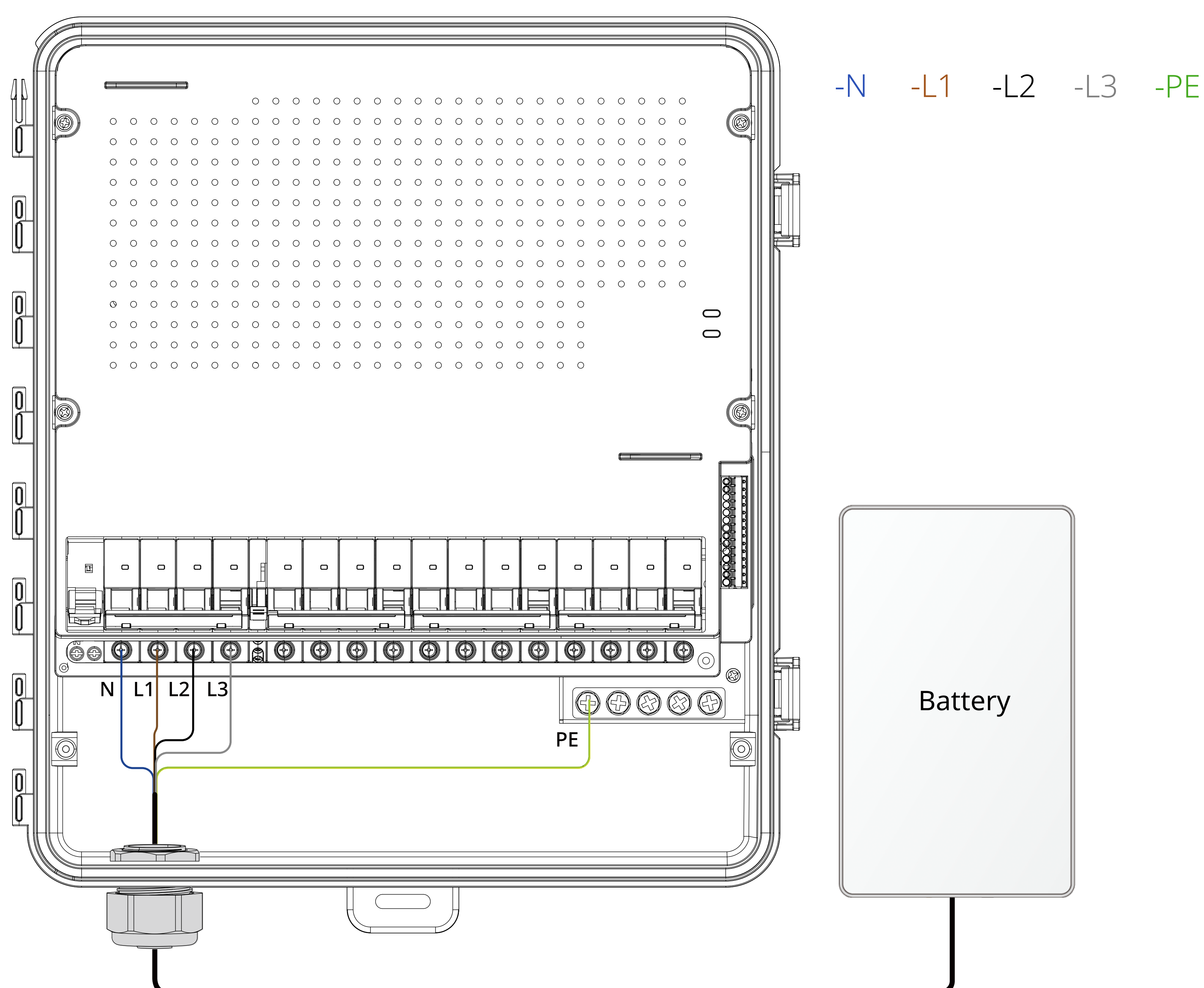
5.5.2 Wire from the Backup load

- Disconnect the main breaker in the distribution panel.
- Bring in the cables from the distribution panel through the Backup hole.
- Connect the cables (N, L1, L2 and L3) to the Backup power block.
- Connect the PE cable to the PE terminal.
- Tighten the screws by using a Phillips #2 screwdriver with a torque of 2–2.5 N·m.



Section B. Wire from the Battery (not using Combiner, use ESS Kits)

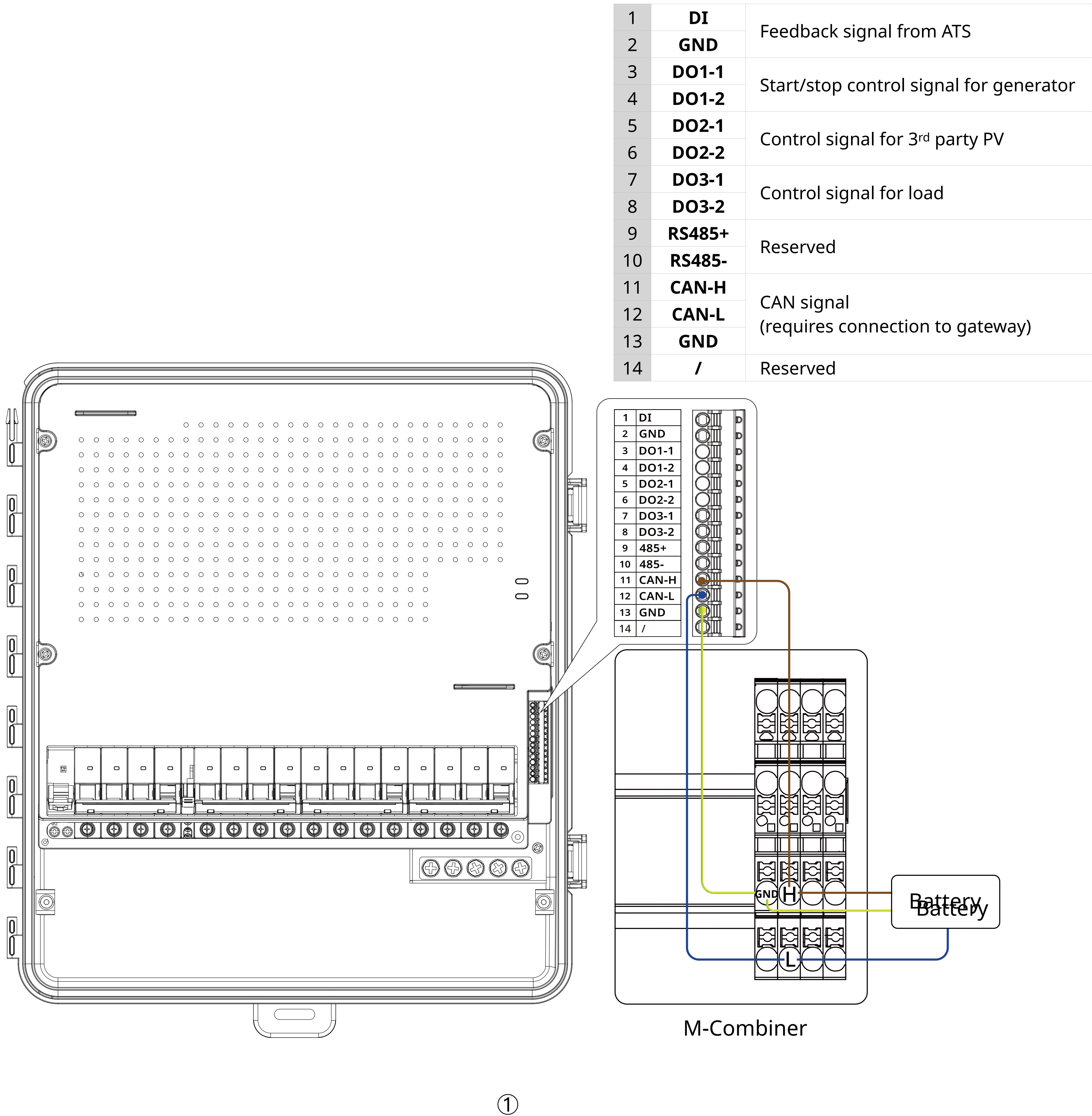
- Bring in the cables from the Battery through the hole.
- Connect the cables (N, L1, L2 and L3) to the M-Combiner / Battery breaker and connect the PE cable to the PE terminal.
- Tighten the screws by using a Phillips #2 screwdriver with a torque of 2–2.5 N·m.



5.5.4 Wire to the COM interface

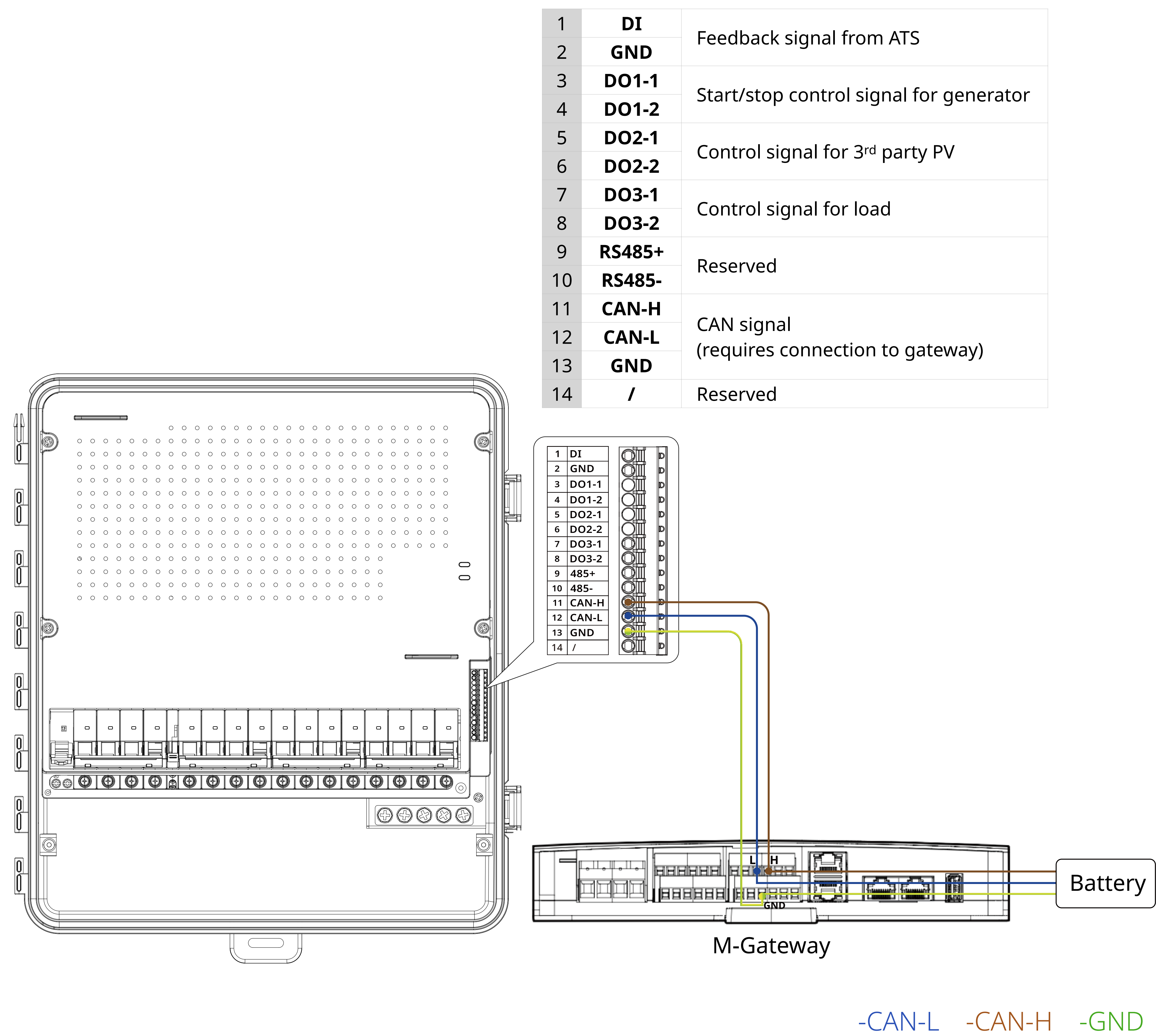
The M-Backup supports CAN, RS485, DI CTRL, and DO CTRL interfaces, etc. For both Battery and Backup CAN cables:

- a. Strip the ends of CAN-H, CAN-L, and GND wires.
- b. Crimp matching wires together using cold-press terminals (CAN-H to CAN-H, CAN-L to CAN-L, GND to GND).
- c. If using M-Combiner, connect the combined wires to the M-Combiner at the designated location (as shown in the diagram ①).



-CAN-L -CAN-H -GND

d. If using ESS Kits, connect the combined wires to the M-Gateway at the designated location (as shown in the diagram ②).

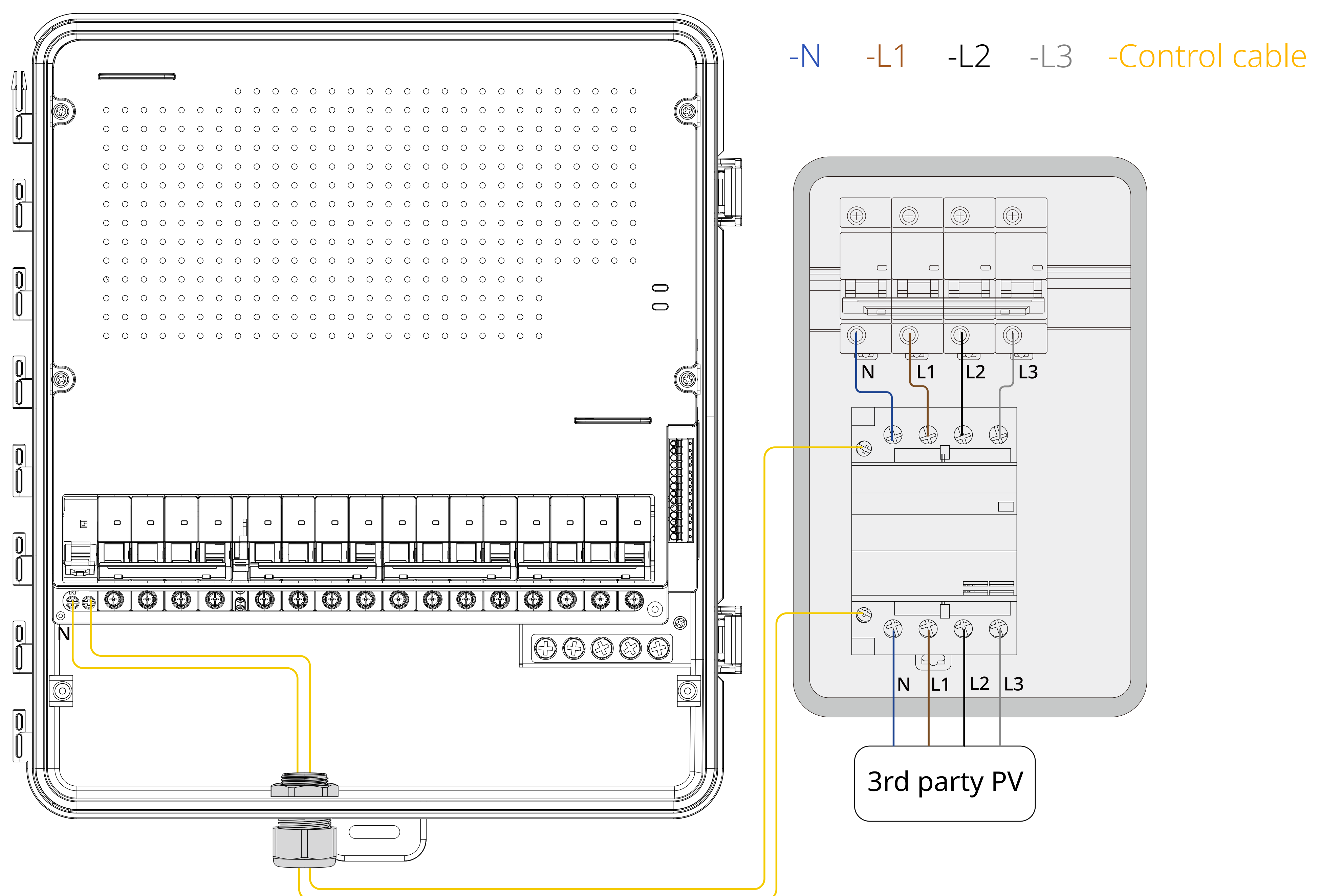


5.5.5 (Optional) Wire from the 3rd party PV

- Install the contactor in the distribution panel and connect the cables (N, L1, L2 and L3) to the 3rd party PV system and the breaker in distribution panel as the diagram.
- Connect the two cables to the 3rd party PV breaker in the Backup box through the COM hole as diagram. The sequence of the two cables is not important.
- Tighten the screws by using a Phillips #2 screwdriver with a torque of 2–2.5 N·m.

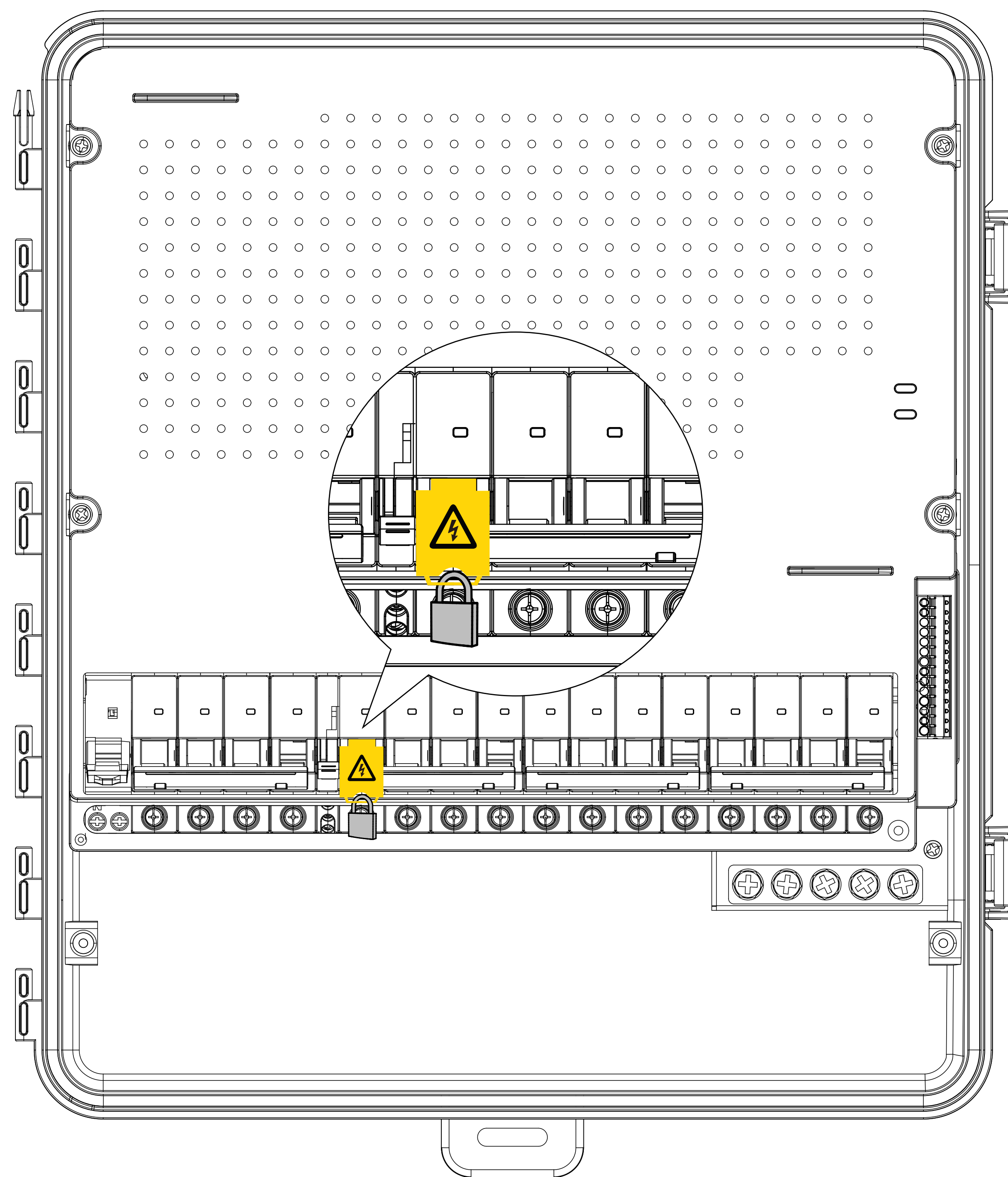
NOTE:

- The control cable size should be limited from 1 to 1.5 mm².



5.5.6 Lockout the bypass

- a. Secure the bypass access with a lock.



5.6 Power on the System

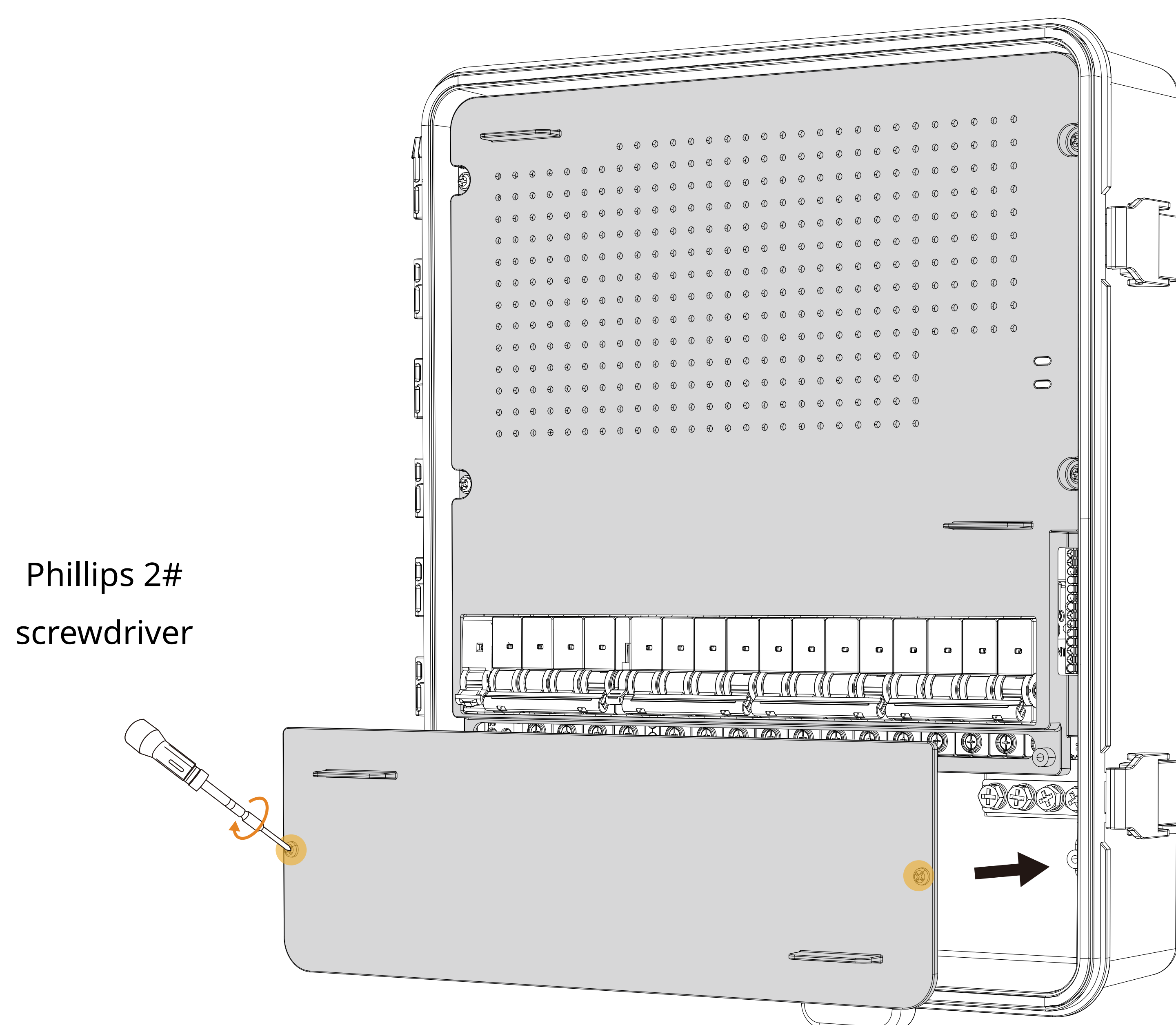
- a. Turn on the breaker in the grid.
- b. To check the phase sequence, perform the following steps:
 - Use the multimeter to measure the voltage between the N pole and L1 pole of grid breaker.
 - Measure the voltage between the N pole and L2 pole.
 - Measure the voltage between the N pole and L3 pole.
- c. If the voltage value is approximately the nominal phase voltage, e.g. 220 V, 230 V and 240 V, turn on the grid and other breakers in the M-Backup and the LEDs will be on.
- d. Re-install the cover to close the M-Backup.

NOTE:

- If the voltage value is outside the range (176 to 276 V), do not switch on the grid breaker inside the M-Backup. Check the cable connection to avoid damaging the device and voiding the warranty.

5.7 Close the M-Backup

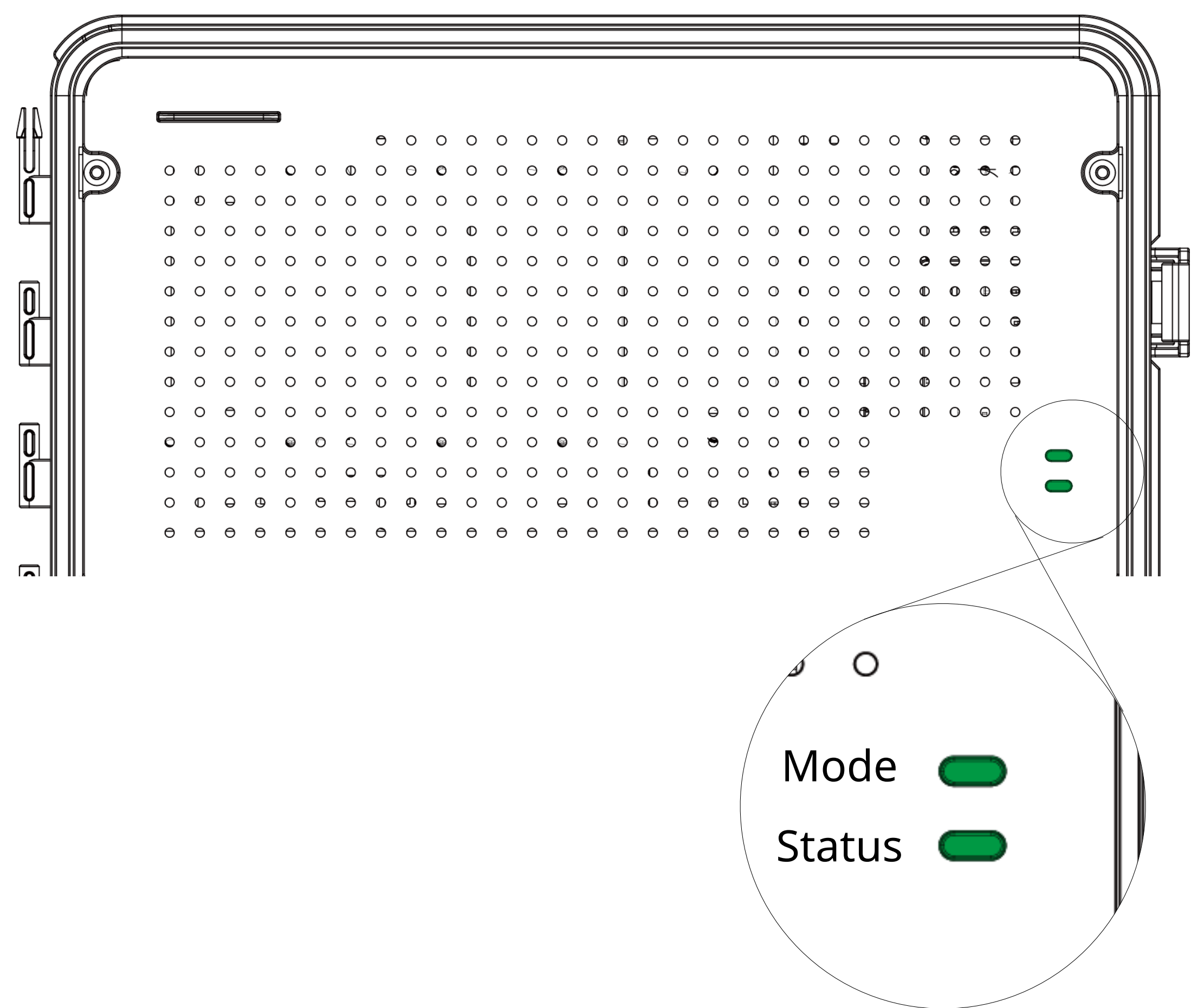
- a. Re-install the cover to close the M-Backup.



Troubleshooting

6.1 LED indicator description

a. The M-Backup has two LEDs, and the following table describes their status.

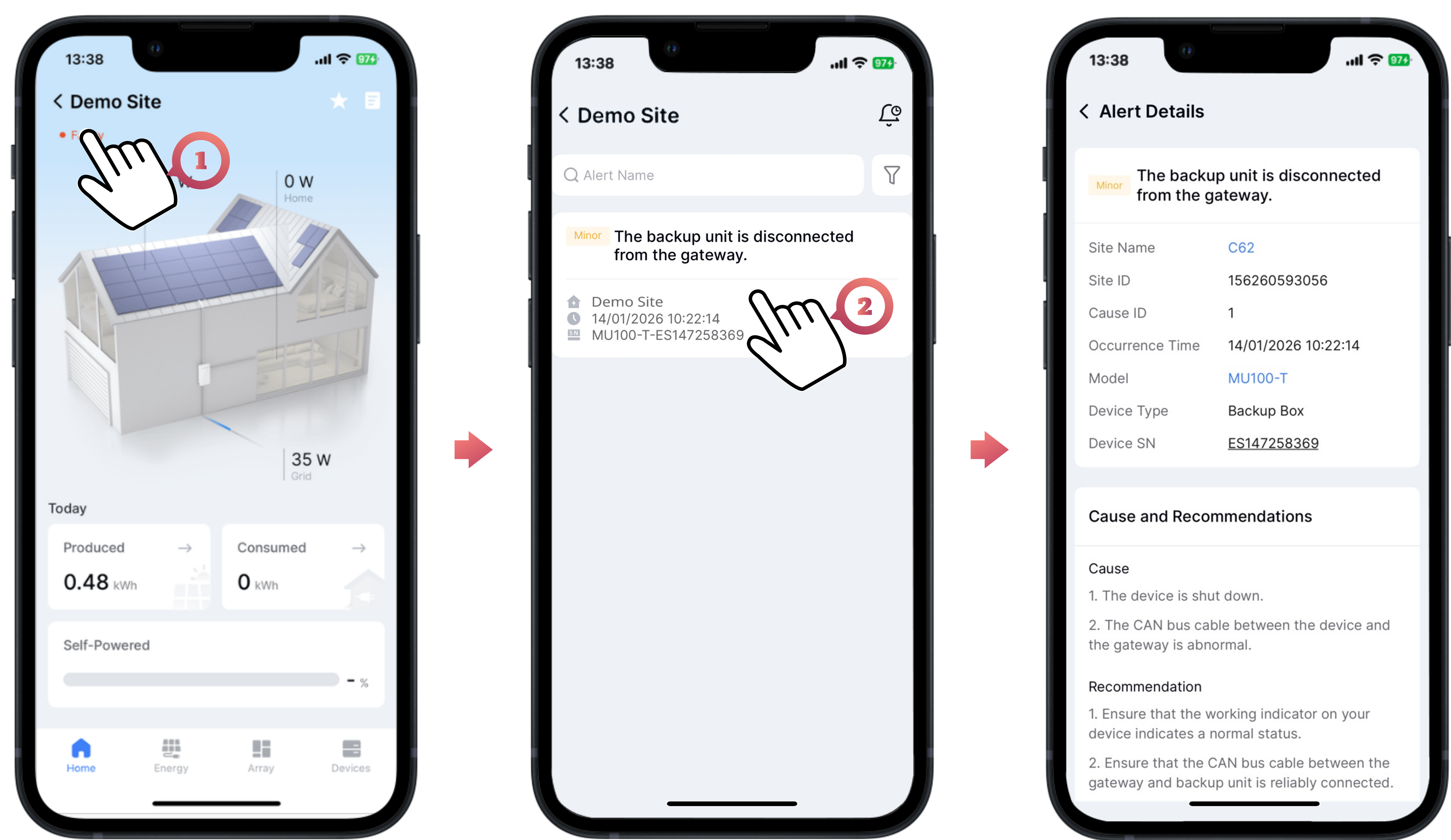


Function	Colour		Description
Mode	Solid Green		On-grid mode
	Solid Orange		Off-grid mode
	Slow Flash Green		Generator mode
Status	Solid Green		Normal
	Quick Flash Orange		Upgrading mode
	Slow Flash Red		Communication fault
	Solid Red		System fault

6.2 Check the Alert Codes

The device error codes can be viewed through the following steps in the Atmozen app:

- a. The alert code check can be performed only after the system has been activated via the Atmozen app.
- b. Alert codes can be checked only when the site status is 'Faulty' or 'Offline'.



NOTE:

- The alert code check can be performed only after the system has been activated via the Atmozen app.
- Alert codes can be checked only when the site status is 'Faulty' or 'Offline'.

6.3 Alert Codes List

The following table describes alarm codes about backup box issues.

Code	Issue	Cause	Solution
69	Internal Device Error	• The internal circuit fault protection of the backup unit is triggered.	• Power off the battery and inverter, disconnect the AC breaker, wait for 1 minute, and power on the battery and inverter again. If the fault persists, contact your distributor or Customer Service.
70	High Device Temperature	• The load power exceeds the off-grid rated power of the battery system. • The solar power exceeds the off-grid rated power of the battery system.	• Please ensure that the working conditions of the device are within the allowed range. • Disconnect the minor loads to reduce the load power. • If the alert is reported frequently, contact your distributor or Customer Service.
71	Distribution error occurred	• Abnormal closure of the backup unit bypass breaker. • Bypass breaker short circuit due to incorrect AC wiring. • PE wire is incorrectly connected. • An error is detected for wiring of the backup unit and grid.	• Ensure that the AC wiring in the backup unit is correct according to our installation guide. • Disconnect the grid-tied circuit breaker of the backup unit and the load-side circuit breaker, wait for 5 minutes, and power on the backup unit again. If the fault persists, contact your distributor or Customer Service. • Please ensure the PE wire is correctly connected according to our installation guide. • Ensure that the grid-side wiring is correct according to our installation guide. • If this alert persists, contact your distributor or Customer Service.
72	The backup unit is disconnected from the gateway	• The device is shut down. • The CAN bus cable between the device and the gateway is abnormal.	• Ensure that the working indicator on your device indicates a normal status. • Ensure that the CAN bus cable between the gateway and backup unit is reliably connected. • Reset the system in the app. • If the alert persists, contact your distributor or Customer Service.
73	Active Device Protection	• The load power exceeds the off-grid rated power of the battery system. • The solar power exceeds the off-grid rated power of the battery system.	• Disconnect the minor loads to reduce the load power, and then power on the backup unit again. • Disconnect the grid-tied circuit breaker of the backup unit and the load-side circuit breaker, wait for 5 minutes, and power on the backup unit again. If the fault persists, contact your distributor or Customer Service.

Operation & Maintenance

7.1 Remove M-Backup

If, after the above troubleshooting, the M-Backup still does not operate normally, please contact Atmoce Technical Support. If the warranty conditions are met, the M-Combiner can be removed and replaced.

The removal procedure is as follows:

- a. Disconnect the main circuit breaker in the distribution panel.
- b. Open the door of the M-Backup and turn off all the breakers in the backup box.
- c. Waiting for 3 mins until the LED for battery goes out.
- d. Remove the protective panel of the M-Backup.
- e. Remove the power and communication cables from the breakers and terminal blocks in the M-Backup.
- f. Unscrew the screws for that fasten the mounting tabs and remove the M-Backup from the wall.
- g. Reinstall the protective panel and close the door.

7.2 Bypass Breaker Operation Guide

7.2.1 Usage Scenario

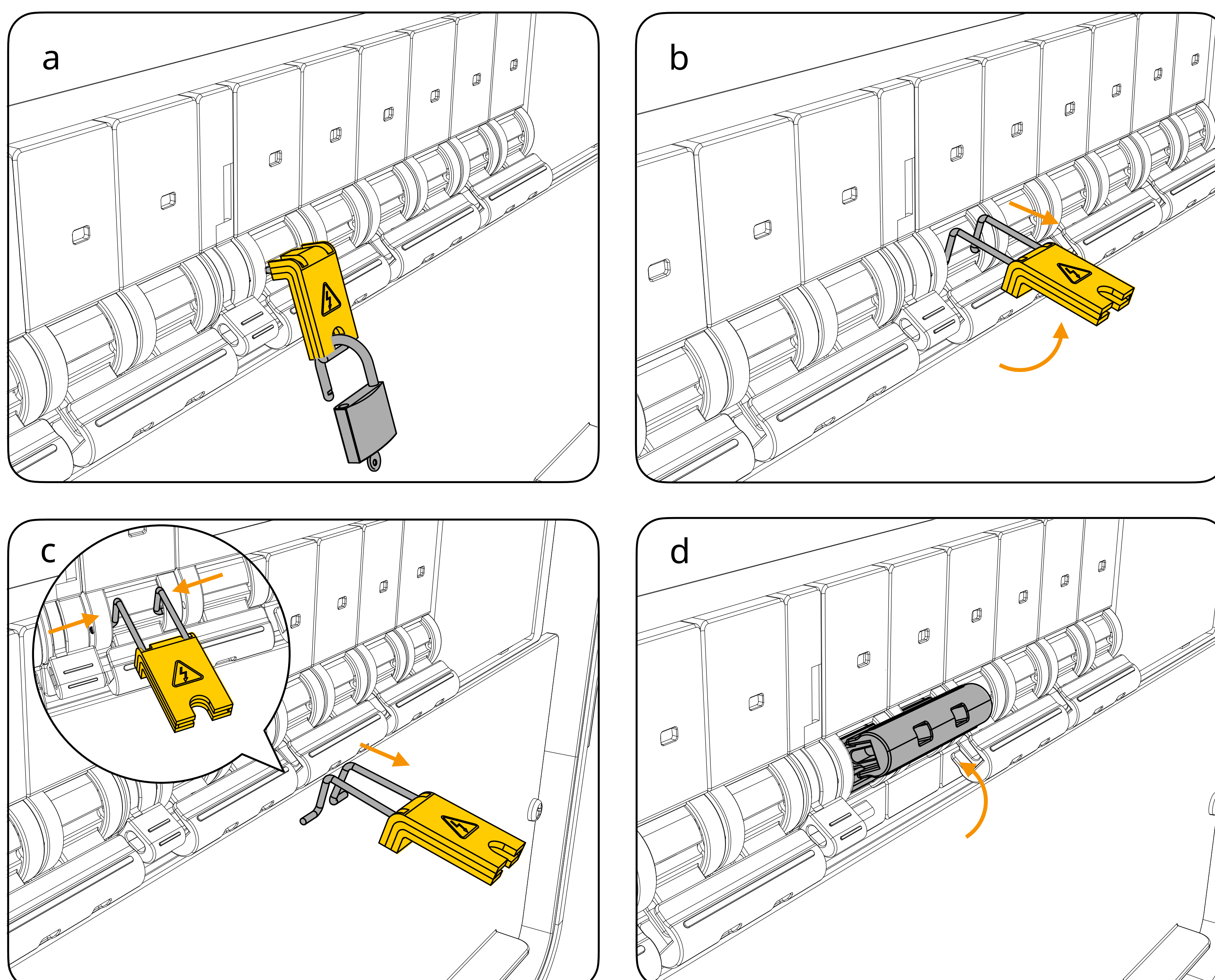
- When surrounding users have normal power supply, but only your system experiences a power outage, indicated by all grid-connection and off-grid indicators being off or a fault light being illuminated.

7.2.2 Preparation Process

- Disconnect the battery breaker on the Backup unit.
- Use a multimeter to measure the voltage between the L and N terminals on the grid side. If voltage is present, proceed to the next step.

7.2.3 Operating Procedure

- Unlock the lock on the bypass circuit breaker with the key.
- Rotate the yellow component upward by 45 degrees, then pull the yellow tab all the way down.
- Following the illustration, pinch the metal part inward with two fingers to detach the entire yellow component from the breaker.
- Finally, close the circuit breaker to restore normal grid-connected power supply.

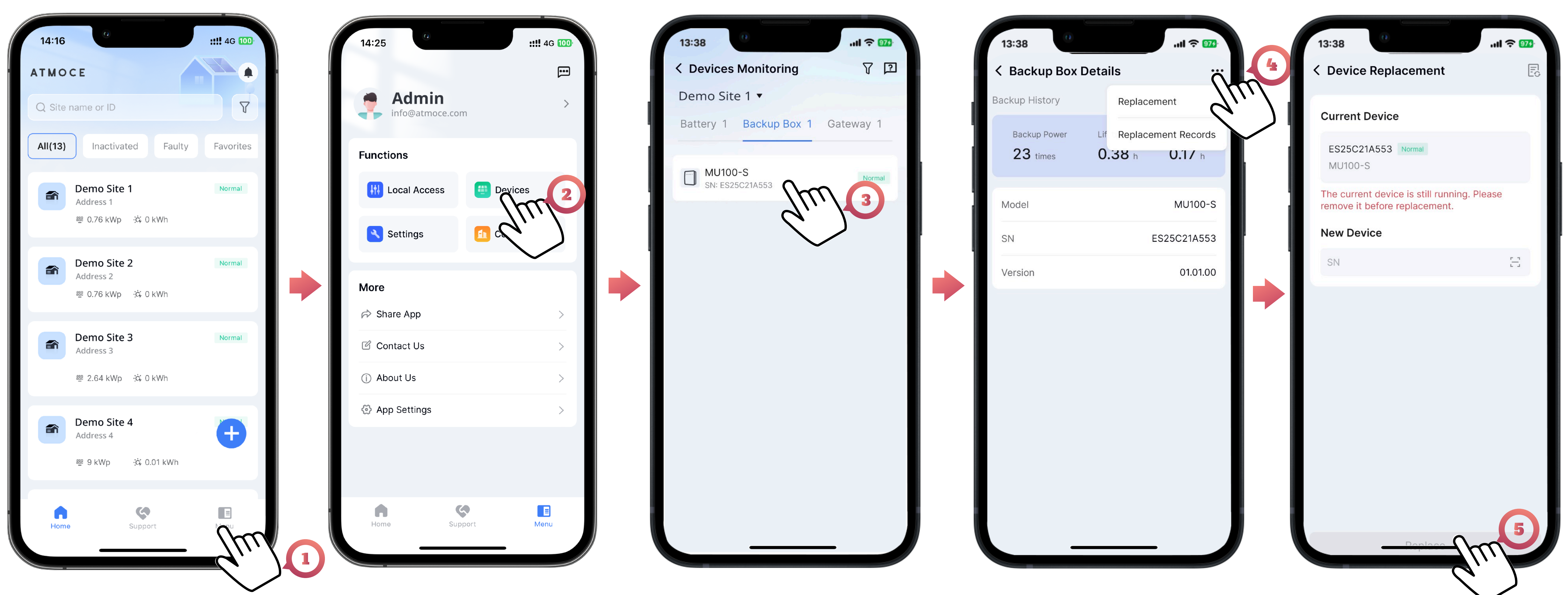


7.3 Replace M-Backup

If, after the above troubleshooting, the M-Backup still does not operate normally, please contact Atmoce Technical Support. If the warranty conditions are met, the M-Backup can be removed and replaced.

The replacement procedure is as follows:

- Remove the M-Backup (refer to the "Remove M-Backup" section).
- Secure the replaced M-Backup to the wall (refer to the "Installation" section).
- Turn on the circuit breakers in the distribution panel and M-Backup.
- Retrieve the serial number of the removed M-Backup from the device list in the Atmozen app and replace the device. Specifically, perform the following steps:
 - Tap Menu – Devices.
 - Select the replaced device to check the details.
 - Tap Replacement – Enter the SN of new device.



- Check the operating status and the device information of the device in the Atmozen app to confirm that the new M-Backup is operating normally.

NOTE:

- If both the M-Backup and the microinverter need to be replaced, the M-Backup must be replaced first.

Technical Data

8.1 M-Backup Data Sheet

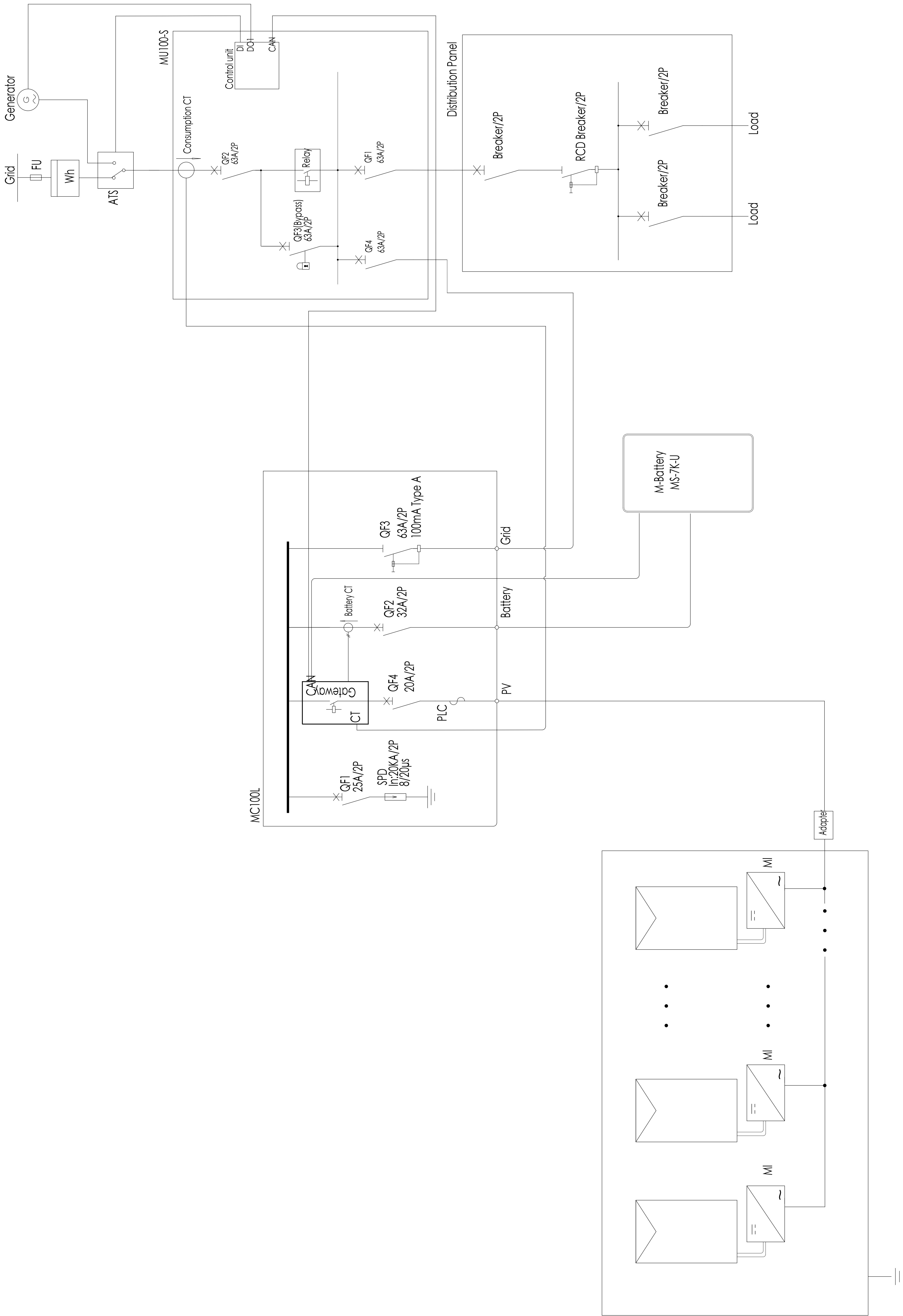
Items	Unit	MU100-S	MU100-T
What's in the M-Backup			
M-Combiner / Battery Breaker		1 × unit, 63 A, 2-pole	/
3rd Party PV breaker		1 × unit, 63 A, 2-pole	/
3rd Party PV controller breaker		/	1 × unit, 6 A, 1P+N
Backup Breaker		1 × unit, 63 A, 2-pole	1 × unit, 63 A, 4-pole
Grid Breaker		1 × unit, 63 A, 2-pole	1 × unit, 63 A, 4-pole
Bypass Breaker		1 × unit, 63 A, 2-pole	1 × unit, 63 A, 4-pole
Electrical Parameters			
Grid Setup		Single-phase	Three-phase
Nominal Voltage	V	220/230/240 Va.c.	220/380 Va.c., 230/400 Va.c., 240/415 Va.c., 3/N~
Operating Voltage Range (L to N)	V		176 to 276
Nominal Frequency	Hz		50/60
Extended Frequency Range	Hz		45 to 65
Max. Combiner/Load Current	A		63
Max. Grid Current	A		63
Max. Distribution Panel Current	A		63
Overvoltage Category			III
Noise	dB		<25
Altitude	m		3000
Protection Class			II
Pollution Degree			III
Mechanical Parameters			
Dimensions (W x H x D)	mm		390 × 460 × 125
Weight	kg	3.6	6
Ambient Temperature Range	°C		-30 to 50
Cooling			Natural convection
Enclosure Environmental Rating			Outdoor, IP65
Wire Sizes ^a	mm ²	Combiner/Load side: 16 to 25 Grid side: 16 to 25 Distribution panel side:16 to 25	
Communication Cable Sizes	mm ²		0.25 to 0.75
Communication			CAN, RS485, DI, DO
Compliance			
Safety			IEC 61439-1/-2
EMC			IEC 61000-6-1/-2/-3/-4

a. Refer to the local electrical regulations to select the cable size.

Appendix

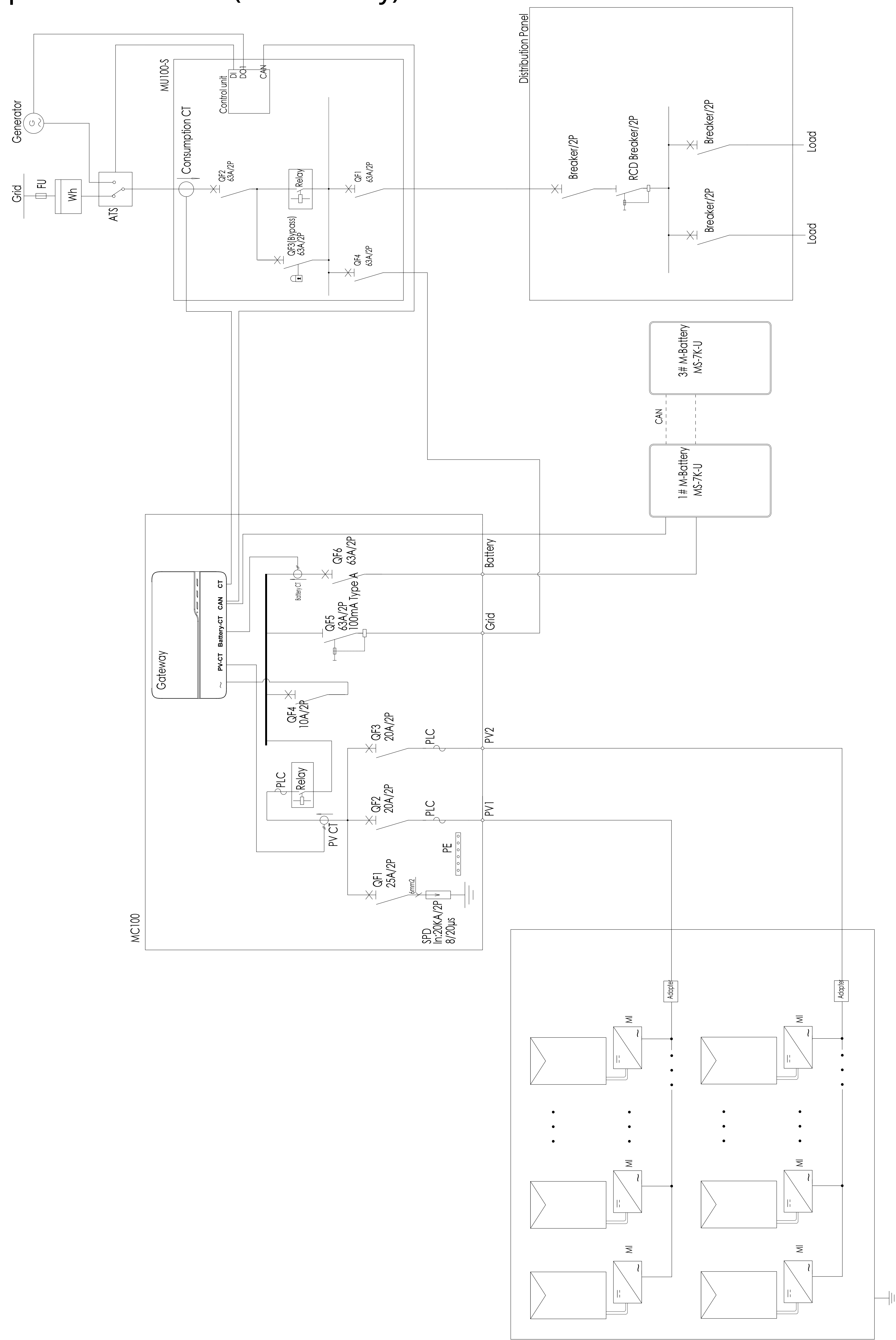
Wiring Diagram in Single-phase System 1

Whole backup:MU100-S+MC100L(PV & Battery)



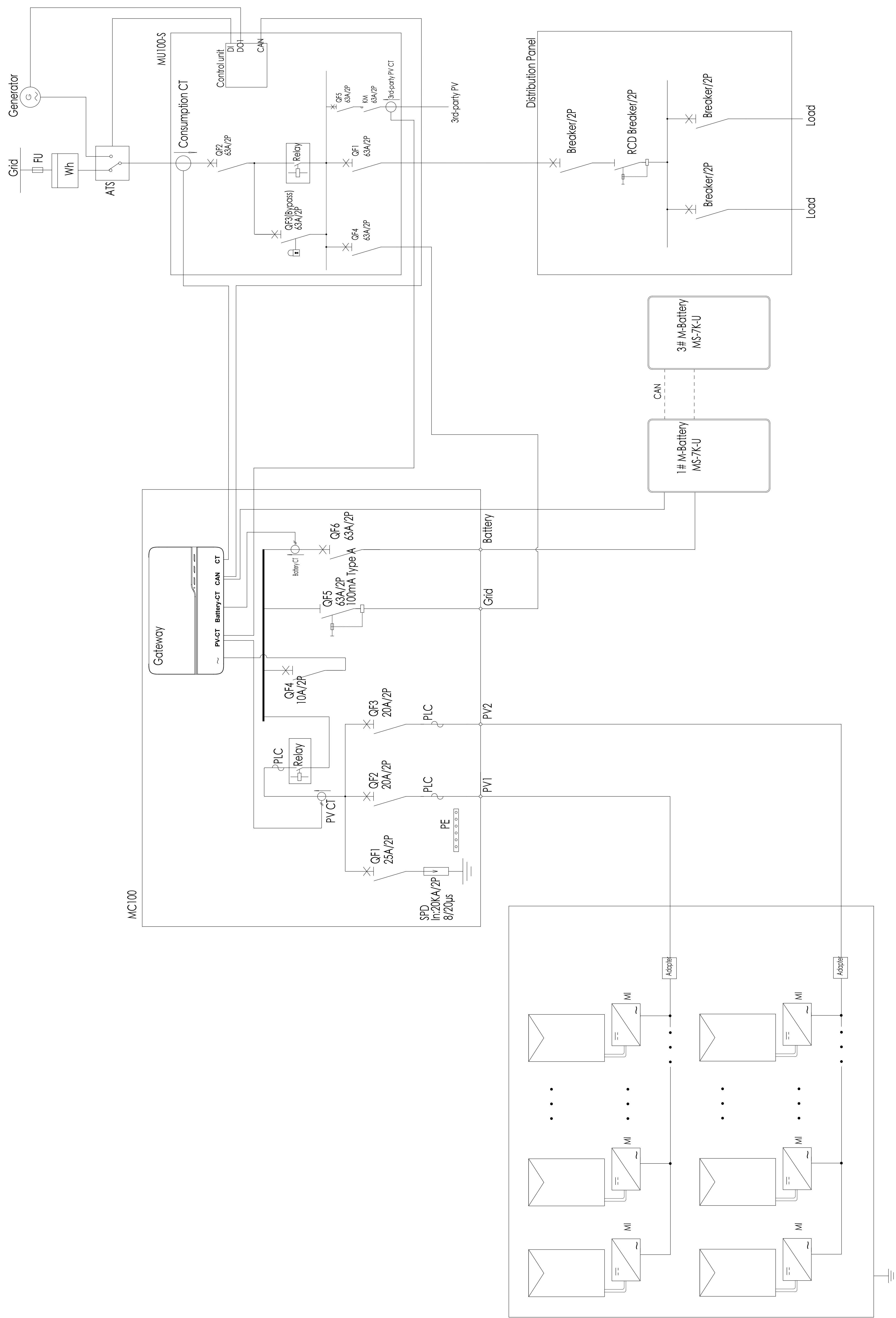
Wiring Diagram in Single-phase System 2

Whole backup:MU100-S+MC100(PV & Battery)



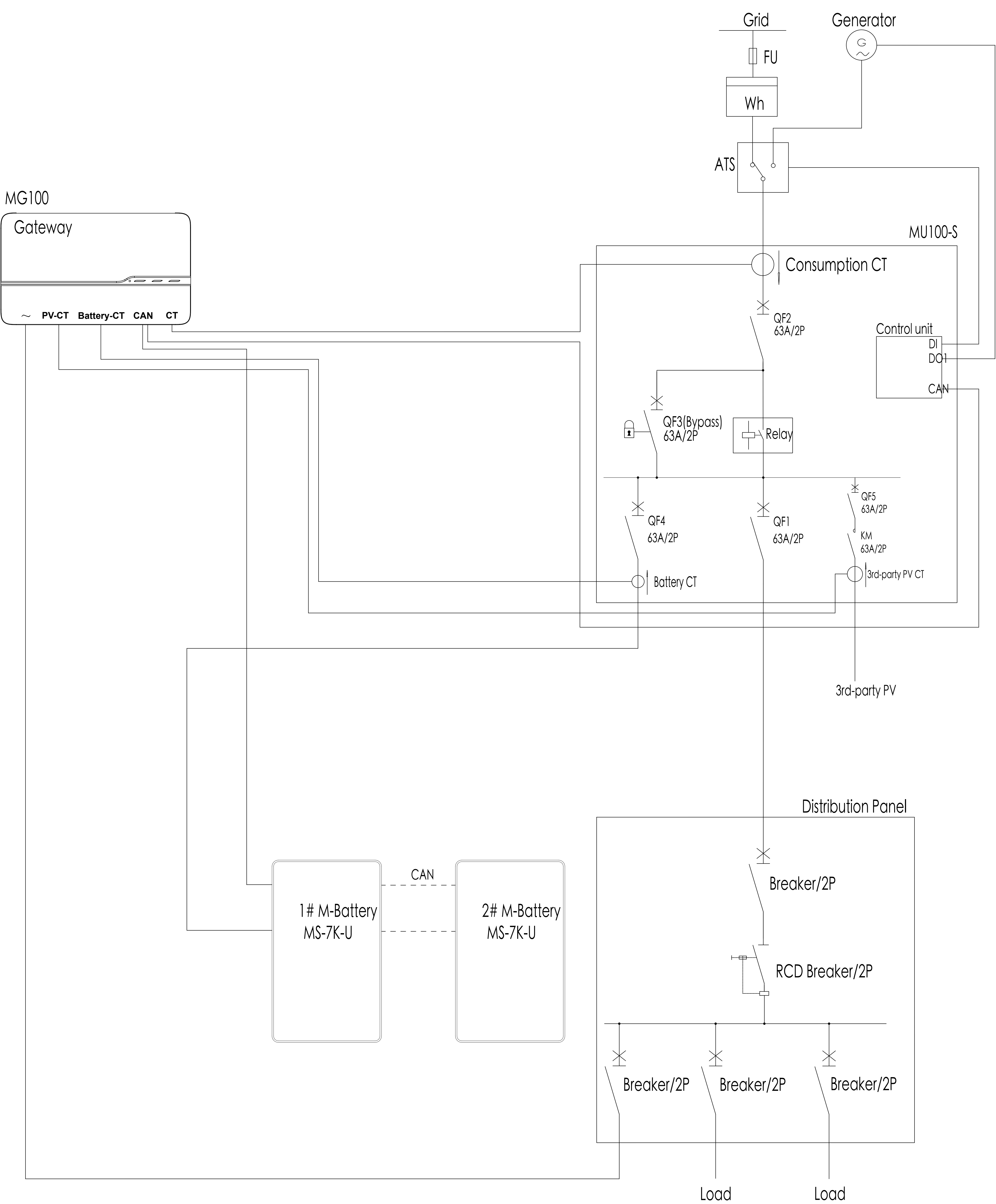
Wiring Diagram in Single-phase System 3

Whole backup:MU100-S+MC100((PV&Battery + 3rd-party PV with CT)



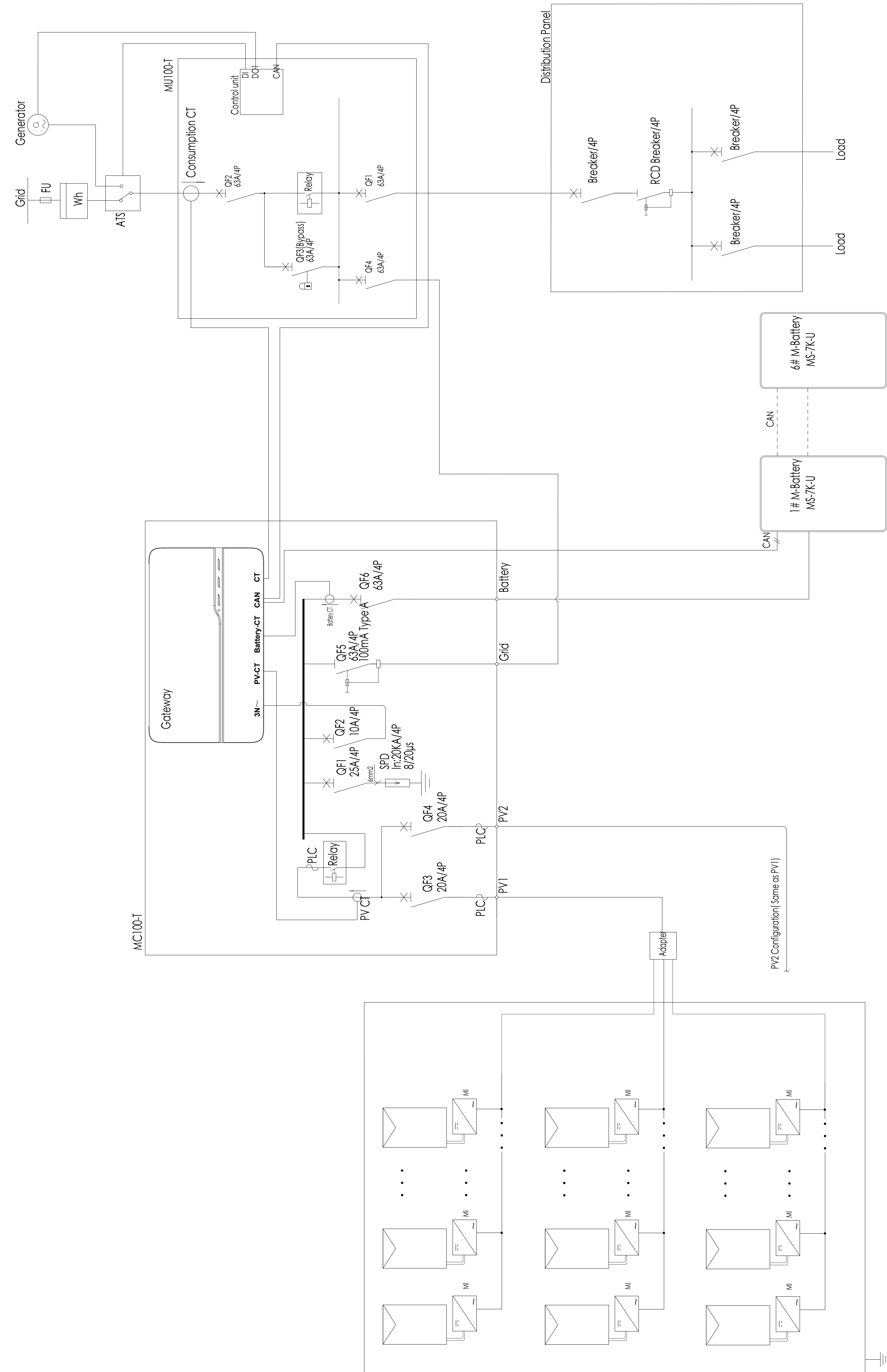
Wiring Diagram in Single-phase System 4

Whole backup:MU100-S+MG100(Battery + 3rd-party PV with CT)



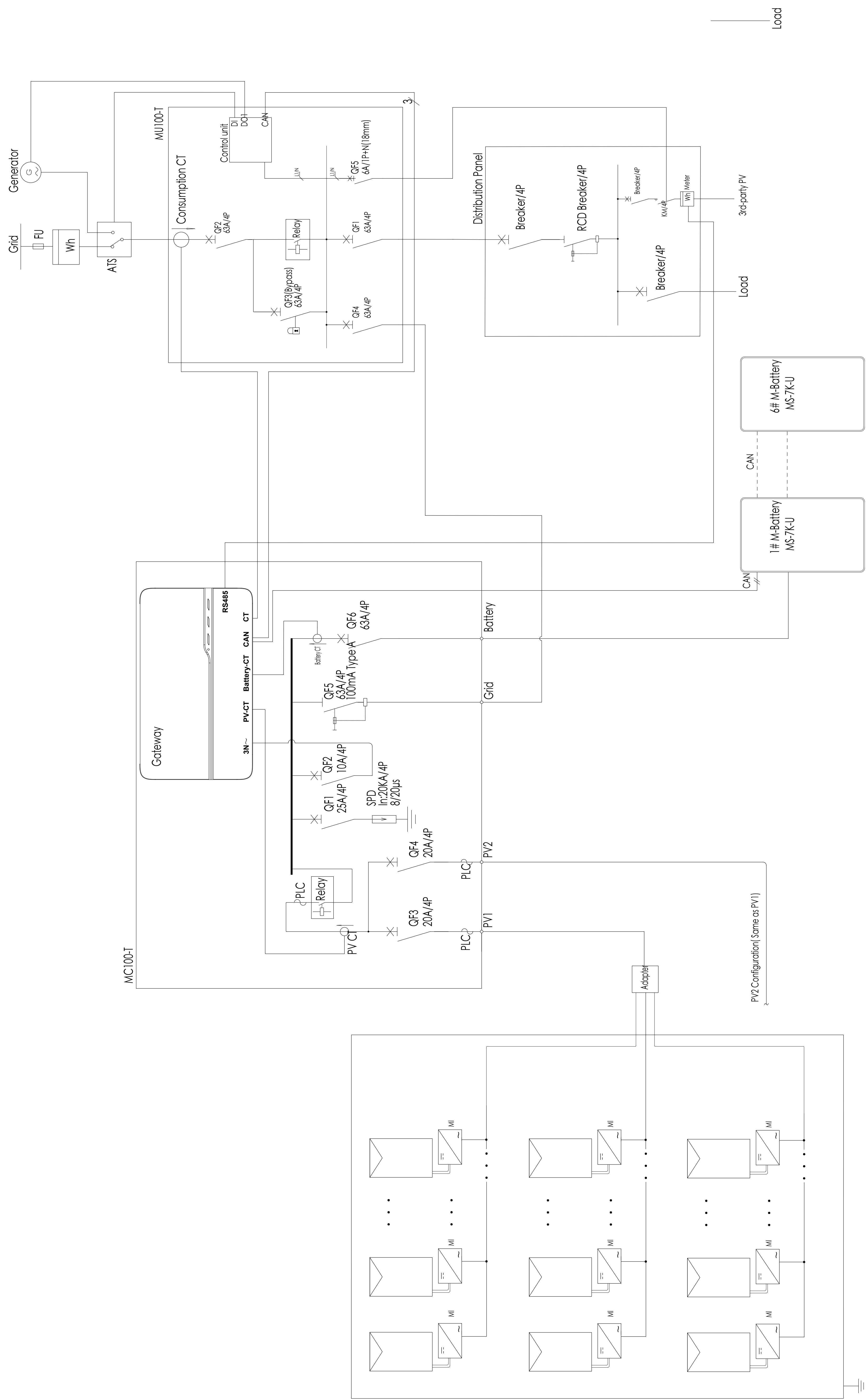
Wiring Diagram in Three-phase System 1

Whole backup:MU100-T+MC100-T(PV & Battery)



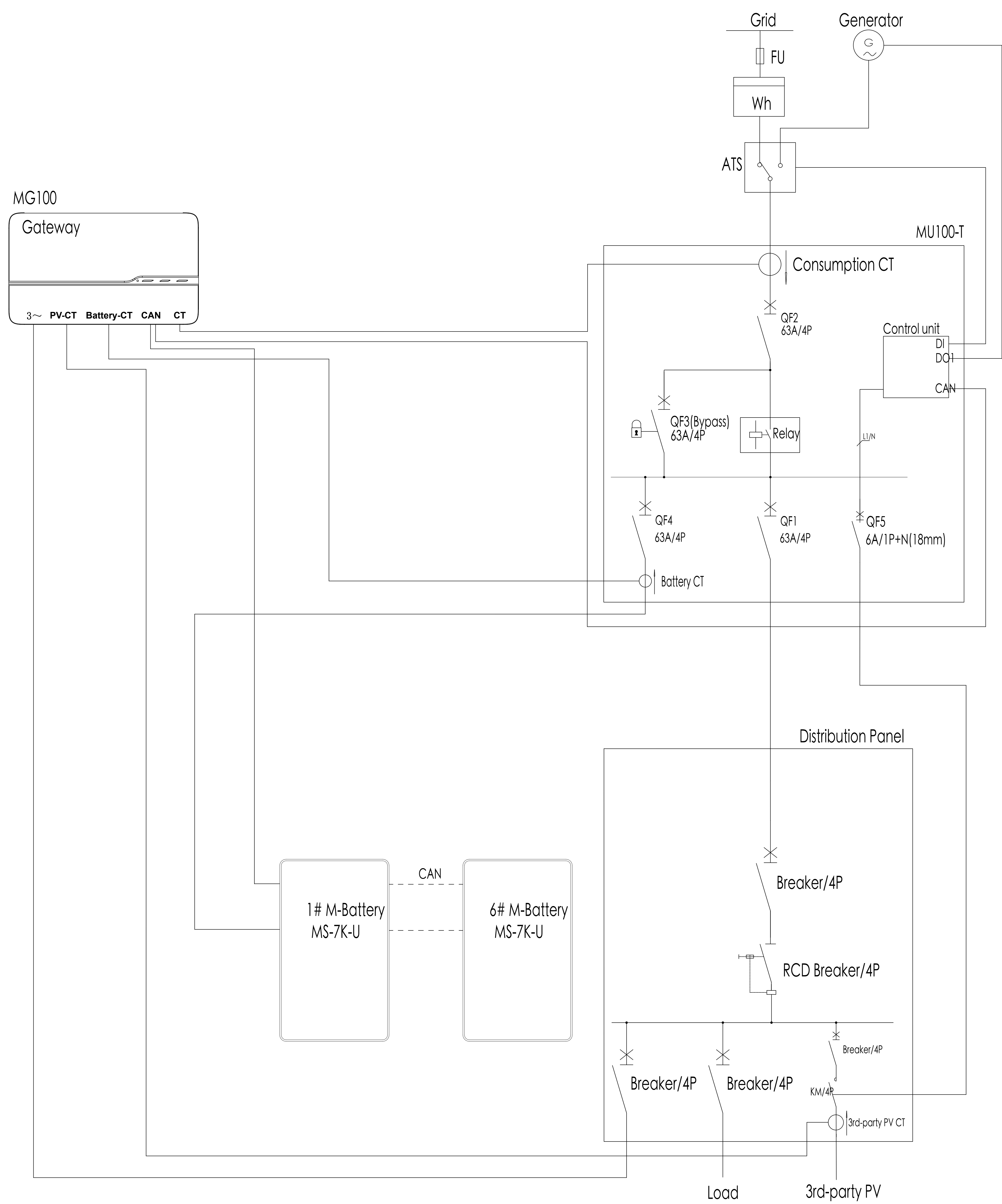
Wiring Diagram in Three-phase System 2

Whole backup:MU100-T+MC100-T(PV & Battery + 3rd-party PV)



Wiring Diagram in Three-phase System 3

Whole backup:MU100-T+MG100(Battery + 3rd-party PV)



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