AEC

THREE-PHASE ONLINE UPS · 208/120 V · LITHIUM

ETHERNO 10–30 kVA

Quick Installation Guide

From delivery to normal operation: place the UPS, install the lithium modules, wire it and start it. Qualified electricians only. Read every safety message.

ETHERNO 10K | ETHERNO 20K | ETHERNO 30K | ETH-50-LI module

AEC-QG-ETH-US · REV. A · NOVEMBER 2026



1 Safety first

IMPORTANT SAFETY INSTRUCTIONS — SAVE THESE INSTRUCTIONS. The full safety chapter is in the user manual.

DANGER

Hazardous voltage and high temperature inside. Before you move, rewire or service the UPS, disconnect every power source — AC input, bypass and battery — so the UPS is isolated. Wait at least 10 minutes after it is fully off before you work on it: the output can still be live.

WARNING

- Only authorized, qualified personnel install the UPS and handle the battery modules. Wire it to the National Electrical Code (NFPA 70) and local codes.
- Ground the UPS properly. Connect the ground cable first.
- Never connect live cables: open the utility breakers feeding the UPS first.
- Remove watches, rings and other conductive objects. Use tools with insulated handles. Never short-circuit or reverse the battery terminals.
- Use only AEC ETHERNO lithium modules (ETH-50-LI). Do not open or damage a module.
- In case of fire, use an extinguisher suitable for lithium-ion battery systems. Do not use water on live equipment.

CAUTION

With the module knob on the closed padlock, the module switches on automatically and its output connector carries DC voltage. Keep every knob on the open padlock while you install the modules.

2 Check the delivery and the site

1. Check the packaging for transport damage. If it is damaged, notify the carrier immediately.
2. Remove the outer packaging, take out the accessories and check them against the packing list. The front-door key is supplied. Report anything missing to AEC.
3. Inspect the UPS for transport damage.

The site.

- Indoors, in a well-ventilated room: 32–104 °F (0–40 °C), 0–95 % relative humidity, non-condensing; up to 6,560 ft (2,000 m). Best battery life at 68–86 °F (20–30 °C).

- No flammable or explosive gas, no conductive dust, no direct sunlight, water, corrosive or salt air.
- A flat floor, tilted no more than 5°, of concrete or an equivalent non-combustible, rigid material, rated for the weight (Table 2-1).
- At least 12 in (300 mm) free behind and beside the UPS: air enters at the front and leaves at the rear (Figure 2-1).
- The NEC 110.26 working space in front of the rear panel and of the front door, and room to open the door and pull out a module (26.2 in / 665 mm long).

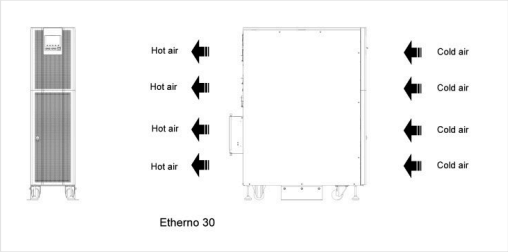


FIGURE 2-1 Cooling: cold air in at the front, hot air out at the rear — keep the rear at least 12 in (300 mm) from the wall

TABLE 2-1 Weight and size

	ETHERNO 10K	ETHERNO 20K	ETHERNO 30K
Frame only	216 lb (98 kg)	227 lb (103 kg)	240.2 lb (109 kg)
With modules (factory configuration)	297.6 lb (135 kg), 1 module	390.2 lb (177 kg), 2 modules	485 lb (220 kg), 3 modules

Size W × D × H, all models: 12.6 × 39.1 × 49.2 in (320 × 993 × 1,250 mm); the base with the anchoring brackets is 14.9 in (378 mm) wide.

3 Place the UPS

⚠ CAUTION

Two people move the UPS, one on each side, to keep it from tipping. Keep it upright; move it gently with a forklift or a pallet jack, centered on the forks.

1. Lower the front panel of the pallet to form a ramp (Figure 3-1).
2. Remove the bolts that fix the UPS and its support plate to the pallet (circled), and remove the support plate.
3. Slowly roll the UPS down the ramp to the floor.
4. Mark the four base mounting holes on the floor from Figure 3-4 (bottom view).
5. Drill four 0.39 in (10 mm) holes with a hammer drill (tolerance ±0.08 in / ±2 mm). Fit M8 expansion anchors (Figure 3-2). The exposed height of an anchor must not exceed 2.0 in (50 mm).
6. Move the UPS over the holes. Loosely fit the support plate and align its holes with the anchors.
7. Fit the 8 mm flat washers, spring washers and bolts. Tighten the UPS and the six support-plate screws.
8. Lower the four leveling feet together (counterclockwise) until they rest on the floor (Figure 3-3).

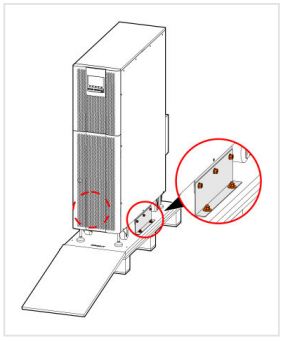
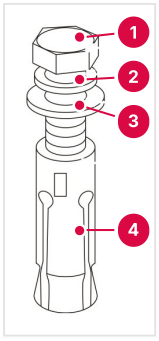


FIGURE 3-1 Pallet ramp and fixing bolts (circled)



1	Bolt
2	Spring washer
3	Flat washer
4	Expansion sleeve

FIGURE 3-2 M8 expansion anchor

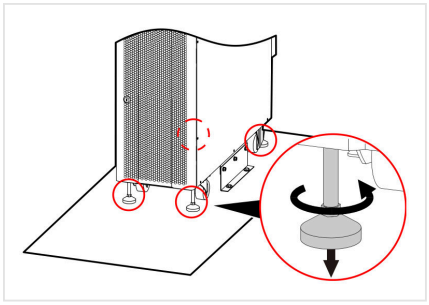


FIGURE 3-3 Lowering the leveling feet (circled)

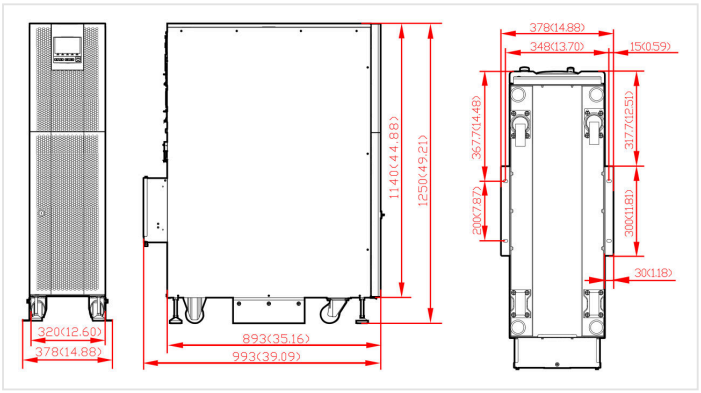
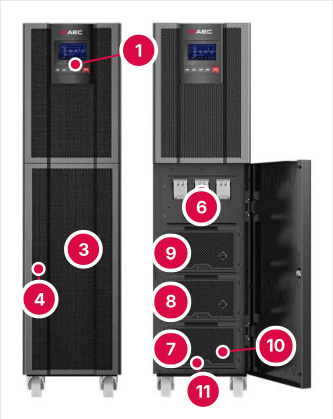


FIGURE 3-4 Dimensions in mm (in) — front view, side view and base mounting holes (bottom view)

4 Install the lithium modules

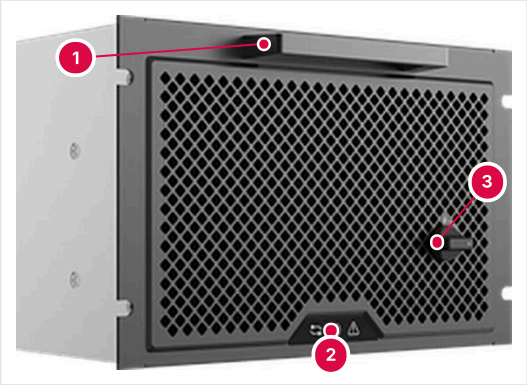
Skip this step if the modules are already in the cabinet. Each module weighs 81.6 lb (37 kg): lift it with two people.

1. Insert the key and turn it clockwise to open the front door (Figure 4-1).
2. Unplug the three battery plug-ins (Figure 4-3).
3. Remove the four screws and the battery cover plate of the bottom bay (Figure 4-4).
4. Check that the module knob is on the open padlock (Figure 4-2).
5. Slide the module into the bay (Figure 4-5).
6. Fit and tighten the screws to secure the module (Figure 4-6).
7. Repeat steps 3 to 6 for the next module, in the bay above.
8. Leave the plug-ins unplugged: plug them in only after the wiring is complete (step 8 of the wiring).



1. Operation panel: touchscreen, indicators, keys
3. Front door of the battery compartment
4. Door lock (key supplied)
6. Battery plug-ins, one per module bay
7. Bay 1 (bottom): the first module
8. Bay 2
9. Bay 3 (top)
10. Module knob
11. Module indicators

FIGURE 4-1 Front, door closed (left) and open with three modules (right)



1. Front handle
2. Indicators: run, alarm, fault
3. ON/OFF knob — open padlock: unlocked, off · closed padlock: locked, on

FIGURE 4-2 Front of a module in its bay

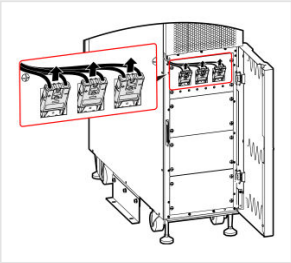


FIGURE 4-3 Step 2 — unplug the plug-ins

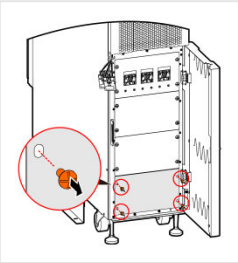


FIGURE 4-4 Step 3 — remove the cover screws

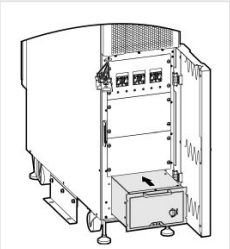


FIGURE 4-5 Step 5 — insert the module

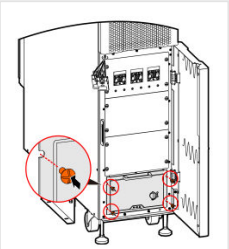


FIGURE 4-6 Step 6 — secure the module

5 Wire the power

Make sure the utility breakers feeding the UPS are open. Do not move the UPS after it has been wired.

TABLE 5-1 Upstream breakers (3-pole) and copper conductors, 75 °C

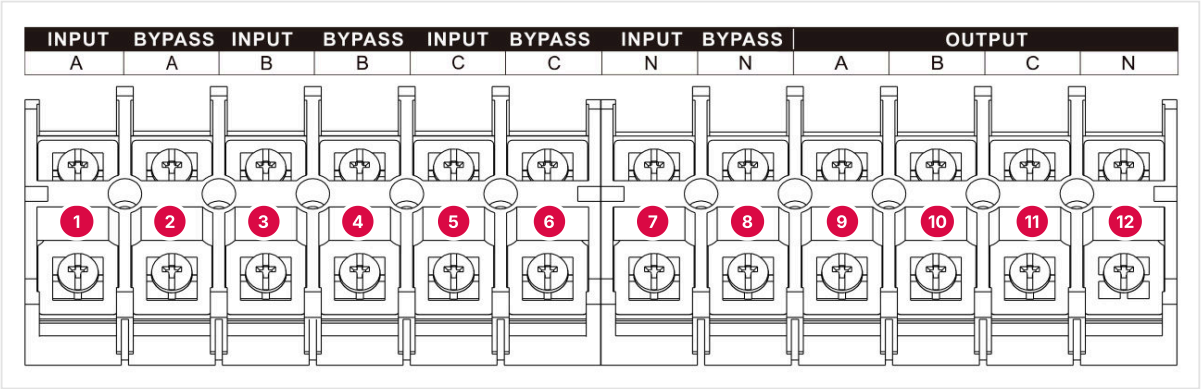
Circuit	ETHERNO 10K	ETHERNO 20K	ETHERNO 30K
AC input (37.0 / 75.9 / 100.0 A)	50 A · 8 AWG	100 A · 3 AWG	125 A · 1 AWG
Bypass input (30.3 / 60.6 / 90.9 A)	40 A · 8 AWG	80 A · 4 AWG	125 A · 1 AWG
AC output (30.3 / 60.6 / 90.9 A)	40 A · 8 AWG	80 A · 4 AWG	125 A · 1 AWG
Neutral (input, bypass, output)	as the phases	as the phases	as the phases
Ground (PE), NEC 250.122 minimum	10 AWG	8 AWG	6 AWG
Cable entry hole in the bottom plate	1.09 in (27.8 mm)	1.72 in (43.7 mm)	1.97 in (50 mm)

i NOTE Sized to the NEC: overcurrent device and conductors for at least 125 % of the continuous current, conductors from the 75 °C column of NEC 310.16; the installer's calculation for the actual installation prevails. Do not use breakers with ground-fault protection. With a common utility and bypass supply, one upstream breaker can feed both inputs: size it and its conductors for the input current. AEC recommends a PE conductor of 8 / 3 / 1 AWG, larger than the NEC minimum.



1. AC terminal block
2. PE (ground) bar
3. Wiring box

FIGURE 5-1 Where the terminals are — rear, wiring cover removed (illustration from the AEC 3D model)



1. INPUT A — utility input, phase A
2. BYPASS A — bypass input, phase A
3. INPUT B — utility input, phase B
4. BYPASS B — bypass input, phase B
5. INPUT C — utility input, phase C
6. BYPASS C — bypass input, phase C
7. INPUT N — utility input, neutral
8. BYPASS N — bypass input, neutral
9. OUTPUT A — output, phase A
10. OUTPUT B — output, phase B
11. OUTPUT C — output, phase C
12. OUTPUT N — output, neutral

FIGURE 5-2 AC terminal block, seen from the rear, with its markings (lower rear, behind the wiring cover; the PE bar is below it)

NOTICE

Terminal bolts: M6 minimum, 26.6 lbf·in (3.0 N·m) in the factory table; the AEC wiring drawing gives M4 × 30. Check the bolts on your unit and ask AEC for the bolt size and torque before you order ring terminals.

1. Loosen the screw at the bottom of the wiring box and remove the bottom plate (Figure 5-3).
2. Drill the cable entry holes in the bottom plate (Figure 5-7, sizes in Table 5-1), then refit the plate.
3. Remove the wiring cover: unscrew its bolts, then slide the cover upward (Figure 5-4).
4. Connect the ground (PE) cables of the input, bypass and output **first**, to the PE bar below the terminal block.
5. Connect the input, bypass and output cables exactly as marked on the terminal block (Figure 5-2). Keep the same phase rotation on the input and the bypass.
6. Divide the cables into three bundles and tie them to the bottom of the cabinet (Figure 5-5).
7. Check that every cable is securely connected. Refit the wiring cover.
8. Plug in the three battery plug-ins (Figure 5-6).
9. Turn the key counterclockwise to close the front door, and remove the key.

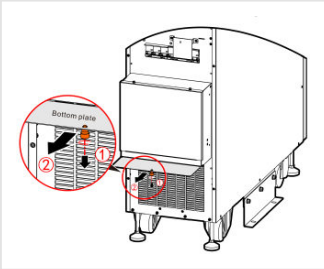


FIGURE 5-3 Step 1 — remove the bottom plate

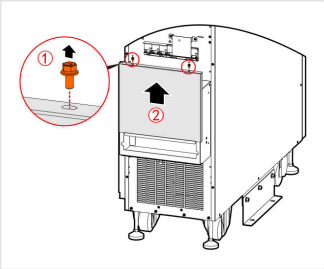


FIGURE 5-4 Step 3 — remove the wiring cover

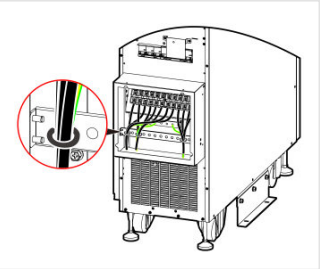


FIGURE 5-5 Step 6 — tie the cables in three bundles

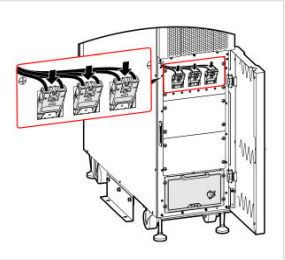


FIGURE 5-6 Step 8 — plug in the three plug-ins

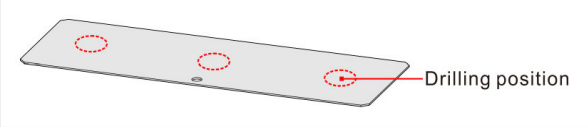


FIGURE 5-7 Step 2 — recommended drilling positions (dashed circles)

i NOTE The terminal block has no battery terminals: ask AEC before you connect any external battery. Parallel systems: see the user manual, section Wiring a parallel system.

6 Start the UPS

Check before the first start:

- All connections are tight; the UPS is properly grounded; the neutral-to-ground voltage is below 5 V AC.
- The output has no short circuit and the load does not exceed the UPS rating.
- The EPO input on the rear panel is shorted, or wired to a closed remote EPO switch.
- All breakers are OFF and the maintenance-bypass cover is fitted (Figure 6-1).

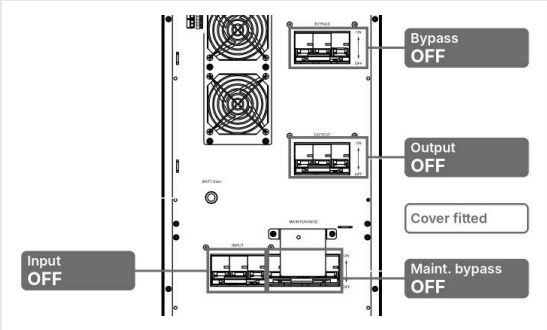
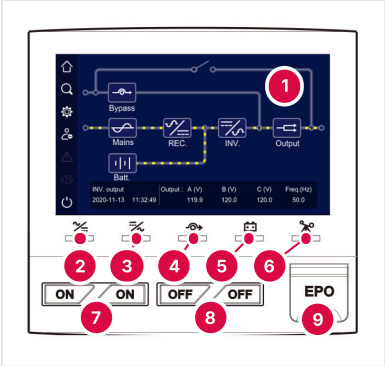


FIGURE 6-1 Before start-up: all breakers OFF, maintenance-bypass cover fitted



1	Touchscreen, 4.3-inch color
2	AC/DC indicator (rectifier): green, normal
3	DC/AC indicator (inverter): green, normal
4	BYP. indicator: green, load on bypass
5	BATT. LOW indicator
6	OVERLOAD indicator
7	ON keys (press both for 1 s)
8	OFF keys (press both for 1 s)
9	EPO button (emergency power off)

FIGURE 6-2 Operation panel under the touchscreen

1. Close the INPUT and BYPASS breakers (Figure 6-3). The touchscreen lights, initializes and shows the bypass output (Figure 6-5).
2. Open the front door. Turn the knob of every battery module to the closed padlock: all green run indicators light. Close the door.
3. Press both ON keys under the touchscreen together for 1 s (Figure 6-2, item 7). The UPS starts.
4. Wait about 10 s. The main page shows normal mode (Figure 6-6).
5. Make the first-start settings (Step 7 Set and check).
6. Close the OUTPUT breaker (Figure 6-4).
7. Switch on the loads, the largest first and the smallest last.

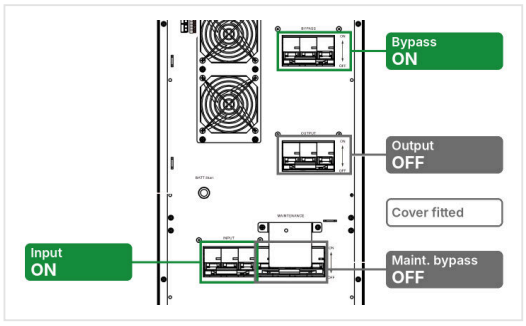


FIGURE 6-3 Step 1: INPUT and BYPASS ON

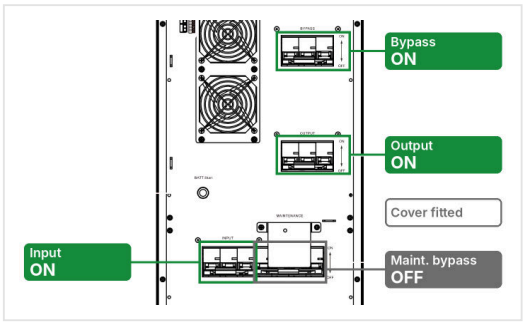


FIGURE 6-4 Step 6: INPUT, BYPASS and OUTPUT ON, maintenance bypass OFF — normal operation

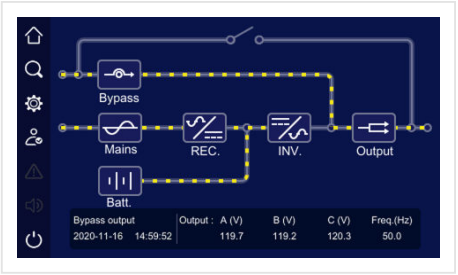


FIGURE 6-5 Step 1 — bypass output

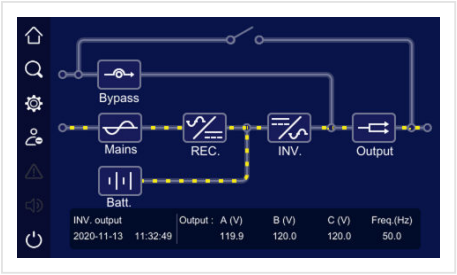
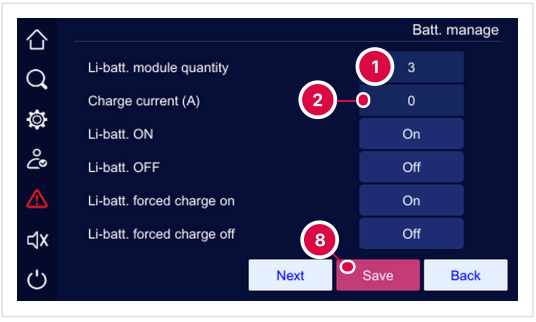


FIGURE 6-6 Step 4 — normal (inverter) mode

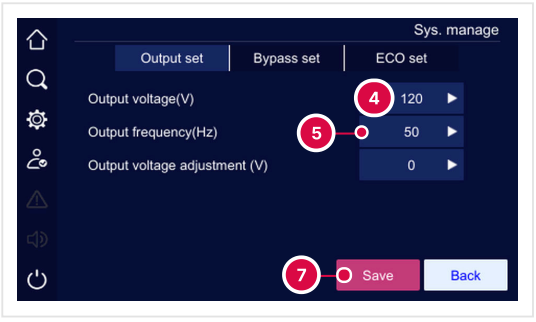
7 Set and check

1. On the main page touch **Login**, type the administrator password (given by AEC technical service) and touch **ENTER**.
2. Touch **Settings management › Batt. manage**. Set **Li-batt. module quantity** to the number of modules installed (1 to 3) and touch **Save** (Figure 7-1). A green tick confirms the change.
3. Touch **Sys. manage**. Check the output voltage **208 V** and the output frequency **60 Hz** (Figure 7-2). Touch **Save** after any change.
4. Touch **HMI set** and set the date and time: they stamp every record.
5. Touch **Password set** and change the user (111) and administrator passwords. Keep them in a safe place.



1. Li-batt. module quantity: the modules installed
2. Charge current (default 20 A)
8. Save

FIGURE 7-1 Battery settings, page 1



4. Output voltage: 208 V
5. Output frequency: 60 Hz
7. Save

FIGURE 7-2 Output settings

Check that the UPS is in normal mode: the main page shows the power path from Mains through the rectifier and inverter to Output (Figure 6-6); the AC/DC and DC/AC indicators are green (Figure 6-2); no icon is red and **Current faults** is not lit.

> **i NOTE** **First charge.** Let the UPS charge the lithium modules. The UPS can be used while charging, but if the utility fails during this first charge the runtime may be shorter than rated. The battery information page (**Batt.** on the main page) shows the state of charge (SOC) of the modules.

8 Shut down and maintenance bypass

Shut down the UPS

1. Switch off the loads. Let the UPS run with no load for about 10 minutes to cool down.
2. Press both OFF keys together for 1 s. The UPS shuts down.
3. Turn the knob of every battery module to the open padlock: all module indicators go off.

4. Open the INPUT and BYPASS breakers. To isolate the UPS completely, also open the OUTPUT breaker and the upstream breakers (Figure 6-1).

Transfer the load to the maintenance bypass — to service the UPS without interrupting the load. The load then runs on unprotected utility power.

1. Remove the cover of the maintenance-bypass breaker. The door switch opens: the UPS turns its inverter off and transfers the load to bypass (Figure 8-1). Check that the main page shows the bypass output.
2. Close the MAINTENANCE breaker (Figure 8-2).
3. Open the INPUT, BYPASS and OUTPUT breakers (Figure 8-3). The load is fed through the maintenance bypass.
4. To service the UPS, also turn every module knob to the open padlock, and wait 10 minutes.

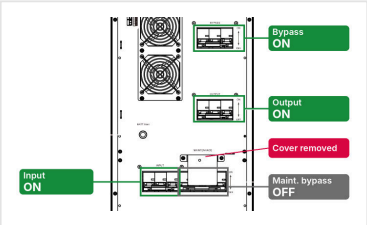


FIGURE 8-1 Step 1: cover removed, load on bypass

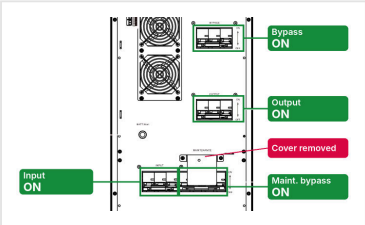


FIGURE 8-2 Step 2: MAINTENANCE ON

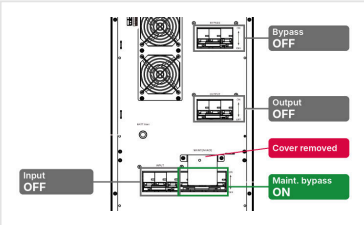


FIGURE 8-3 Step 3: INPUT, BYPASS, OUTPUT OFF

Return to the inverter

1. Turn every module knob to the closed padlock.
2. Close the INPUT, BYPASS and OUTPUT breakers, in that order (Figure 8-2).
3. When the touchscreen shows the bypass output voltage, open the MAINTENANCE breaker.
4. Refit the cover of the maintenance-bypass breaker (Figure 6-4).
5. Press both ON keys. The main page shows normal mode.

> ⚠ ***CAUTION***
>
> While you operate the maintenance-bypass breaker, do not operate the door switch behind its cover.

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Parallel systems, cold start, settings, alarms, maintenance and every detail: ETHERNO 10–30 kVA User Manual, AEC-UM-ETH-US (aecups.com · AEC app › Support › Downloads).