AEC

ONLINE UPS · 120 V · TOWER

FERRUS 1–3 kVA

Quick Installation Guide

From delivery to normal operation. The branch circuit is installed by a qualified electrician; battery work is done by qualified personnel. Read every safety message.

FERRUS 1K | FERRUS 2K | FERRUS 3K

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



1 Safety first

Read these messages before you start. The complete safety chapter is in the user manual, section *Safety*.

⚠ WARNING

IMPORTANT SAFETY INSTRUCTIONS — SAVE THESE INSTRUCTIONS. This guide and the user manual contain important instructions for the FERRUS 1–3 kVA UPS and its batteries that must be followed during installation, operation and maintenance.

⚠ DANGER

The battery can cause electric shock and high short-circuit current. Before you work on the batteries: wear rubber gloves and boots; remove rings, watches and other metal objects; use tools with insulated handles; do not lay tools or metal objects on the batteries. If a battery is damaged or leaking, contact AEC service immediately.

⚠ WARNING

Improper use can cause electric shock or fire. Never block the ventilation openings or insert objects into them. Do not place the power cord where it can be damaged. The UPS contains no user-serviceable parts except the internal battery pack: never open it for any other reason.

⚠ WARNING

Connect or disconnect a battery cabinet only with the UPS switched off and unplugged from the utility receptacle.

⚠ CAUTION

Do not connect equipment that could overload the UPS or draw DC current from it — for example electric drills, vacuum cleaners, laser printers, hair dryers or any appliance with half-wave rectification.

The branch circuit that feeds the UPS must be installed by a qualified electrician to the National Electrical Code (NFPA 70) and local codes. Battery work must be done by qualified personnel.

2 Check the delivery and the site

1. Open the package and check its contents: the FERRUS UPS, the user manual, the input cable (1K, for the IEC C14 inlet; the 2K and 3K have an attached cord) and, for long-backup systems with BAT cabinets, the battery cable.

2. Inspect the UPS for transport damage. If anything is damaged or missing, do not switch the UPS on: notify the carrier and your AEC dealer immediately.
3. If the UPS was unpacked in a cold place, wait until it is completely dry inside and out before installing it: condensation can cause electric shock.

TABLE 2-1 Size and weight

Model	Rating	W × D × H	Weight
FERRUS 1K	1,000 VA / 1,000 W	5.6 × 8.6 × 13.9 in (142 × 218 × 353 mm)	16.5 lb (7.5 kg)
FERRUS 2K	2,000 VA / 2,000 W	7.5 × 12.6 × 15.8 in (190 × 319 × 400 mm)	36.3 lb (16.5 kg)
FERRUS 3K	3,000 VA / 3,000 W	7.5 × 12.6 × 15.8 in (190 × 319 × 400 mm)	45.2 lb (20.5 kg)

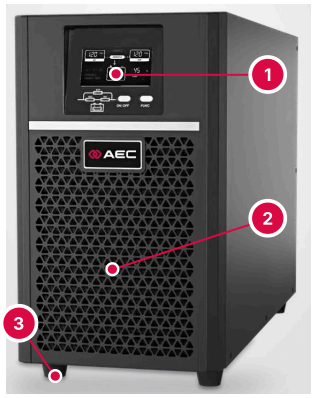
TABLE 2-2 Operating environment

Item	Requirement
Location	Indoors, clean, dry; away from water, flammable liquids, gases and corrosive substances; out of direct sunlight
Temperature	32–104 °F (0–40 °C); battery life is best at 68–77 °F (20–25 °C)
Humidity	Below 95 %, non-condensing
Altitude	Full power up to 3,300 ft (1,000 m); derate above (user manual, section *Specifications*)
Ventilation	Front and rear vents clear

3 Place the tower

FERRUS is a tower UPS: it stands on the floor or on a desk. Cooling air enters at the front and leaves at the rear.

- Place the UPS indoors only, on a flat, stable floor or desk (Figure 3-1).
- Leave free space at the front and rear so the cooling air can flow. Do not place the tower against a wall or in a closed cabinet.
- Stand the BAT battery cabinets, if any, beside the UPS (same height).
- Keep the UPS away from water, heat sources, flammable gas and corrosive agents, and out of direct sunlight.



1. Operation panel — LCD, status LEDs and the keys ON/OFF and FUNC
2. Front grille — cooling-air inlet; keep clear
3. Feet — stand the tower on a flat, stable floor or desk

FIGURE 3-1 FERRUS front view (2K and 3K shown; the 1K is the same design, smaller)

4 Wire the power

FERRUS is a plug-in UPS: the input is the power cord to a utility receptacle, the outputs are receptacles on the rear panel.

Branch circuit. Plug the UPS into a grounded receptacle on its own branch circuit. The breaker of that circuit has the same rating as the plug of the UPS (Table 4-1) and is never larger: NEC 210.21(B) requires the receptacle to match the rating of the branch circuit. The maximum input current in the table is the factory value at low input voltage, full load and full battery recharge; it is not a continuous current.

TABLE 4-1 Input and branch circuit by model

Model	UPS input	Max. input current (factory data)	Building breaker, 1-pole	Receptacle	Branch conductor, Cu (NEC 240.4(D))
FERRUS 1K	IEC C14 inlet, cord supplied	10 A	15 A	NEMA 5-15R	14 AWG
FERRUS 2K	Attached cord, straight-blade plug (type: ask AEC)	20 A	20 A for a NEMA 5-20P — see the warning	NEMA 5-20R	12 AWG
FERRUS 3K	Attached cord, NEMA L5-30P plug	30 A	30 A	NEMA L5-30R	10 AWG

- Use a dedicated branch circuit for the UPS. Do not use an extension cord or a power strip on the UPS input.
- Use copper conductors and terminations rated 75 °C (167 °F) (NEC 110.14(C)).
- Keep the working space in front of the receptacle and the panelboard required by NEC 110.26.

⚠ WARNING

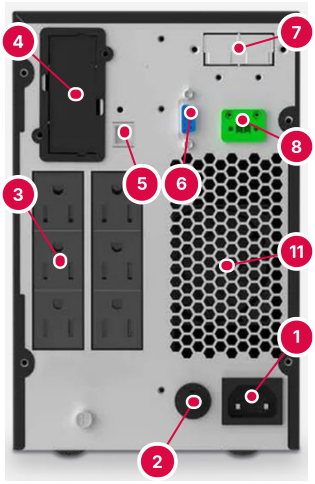
Plug, receptacle and breaker must match. The plug type of the 2K is not yet confirmed (20 A applies to a NEMA 5-20P), and the maximum input current of the 2K and 3K equals the plug rating. Do not install a larger breaker and do not change or adapt the plug: contact AEC (+1 786 553 2100) if the plug does not match the receptacle. The 1K uses its supplied cord on a 15 A circuit.

Connect the input and the loads

1. Check that the branch circuit and receptacle match Table 4-1.
2. 1K: plug the input cable supplied into the IEC C14 inlet (item 1 in Figure 4-1). Do not plug the UPS into the utility receptacle yet — that starts the UPS (Step 6).
3. Switch the loads off, then plug them into the output receptacles (item 3). The total load must not exceed the UPS rating (1,000 W per kVA). On the 3K, the NEMA L5-30R twist-lock receptacle (item 9) serves a load drawing more than 20 A: insert the plug and turn it clockwise.
4. Optional: connect the monitoring and signal cables before starting the UPS — RS-232 (item 6) or USB (item 5), the card in the intelligent slot (item 4) and the EPO (item 8; normally closed — opening the loop turns the output off).

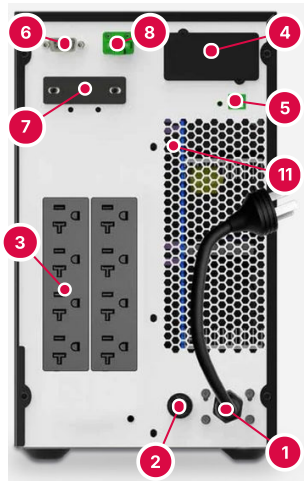
⚠ CAUTION

Do not connect surge-protector strips to the output, and never connect a UPS to the output of another UPS.



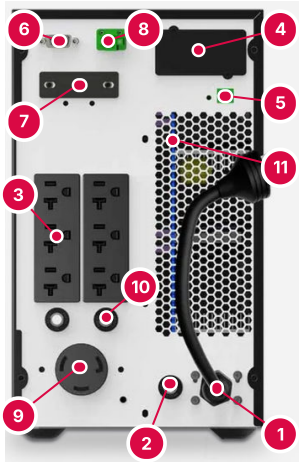
1. Input — IEC C14 inlet for the cord supplied
2. Input surge protector, resettable
3. Output receptacles, 6 × NEMA 5-15R, two groups
4. Intelligent slot — cover, SNMP-M or dry-contact card
5. USB (option)
6. RS-232, DB9
7. External battery connector, + and –
8. EPO terminal, 2 pins, normally closed
11. Fan grille — air out; keep clear

FIGURE 4-1 Rear panel — FERRUS 1K



1. Input — attached cord
2. Input surge protector, resettable
3. Output receptacles, 8 × NEMA 5-20R, two groups
4. Intelligent slot — cover, SNMP-M or dry-contact card
5. USB (option)
6. RS-232, DB9
7. External battery connector, + and –
8. EPO terminal, 2 pins, normally closed
11. Fan grille — air out; keep clear

FIGURE 4-2 Rear panel — FERRUS 2K



1. Input — attached cord, NEMA L5-30P plug
2. Input surge protector, resettable
3. Output receptacles, 6 × NEMA 5-20R, two groups
4. Intelligent slot — cover, SNMP-M or dry-contact card
5. USB (option)
6. RS-232, DB9
7. External battery connector, + and –
8. EPO terminal, 2 pins, normally closed
9. NEMA L5-30R twist-lock receptacle, 30 A
10. Output protectors, resettable, one per receptacle group
11. Fan grille — air out; keep clear

FIGURE 4-3 Rear panel — FERRUS 3K

5 Connect the battery cabinets

Long-backup systems only: one to four BAT battery cabinets of the UPS's DC voltage extend the runtime. With the internal batteries only, skip this step.

TABLE 5-1 BAT battery cabinets

Code	Blocks · DC voltage	For	W × D × H	Weight
BAT0424	4 × 12 V 9 Ah (2 strings of 2) · 24 V DC	FERRUS 1K	5.6 × 8.6 × 13.9 in (142 × 218 × 353 mm)	31.4 lb (14.2 kg)
BAT0848	8 × 12 V 9 Ah (2 strings of 4) · 48 V DC	FERRUS 2K	7.5 × 12.6 × 15.8 in (190 × 319 × 400 mm)	58.8 lb (26.7 kg)
BAT1272	12 × 12 V 9 Ah (2 strings of 6) · 72 V DC	FERRUS 3K	7.5 × 12.6 × 15.8 in (190 × 319 × 400 mm)	86.2 lb (39.1 kg)

⚠ CAUTION

- **Same voltage, same type.** Use only the matching BAT cabinet: 24 V DC (1K), 48 V DC (2K) or 72 V DC (3K).
- **Minimum capacity for the charge current.** Connect at least 40 Ah of battery when the charger is set to 8 A, and at least 20 Ah when it is set to 4 A. A smaller battery can be damaged.
- **Battery current.** The battery current reaches 50 A max. Use only the battery cable supplied by AEC.

1. Shut the UPS down (Step 8) and unplug it from the utility receptacle. Check that the breaker of the battery cabinet is open.
2. Take the battery cable supplied: one end has a plug, the other end has two wires.
3. Connect the RED wire to the "+" terminal and the BLACK wire to the "–" terminal of the battery cabinet (Figure 5-1).
4. Plug the battery connector into the external battery connector on the rear panel (item 1 in Figure 5-2; item 7 in Figure 4-1, Figure 4-2 and Figure 4-3).
5. Close the breaker of the battery cabinet.
6. After the start, set the battery capacity and the charge current (Step 7).

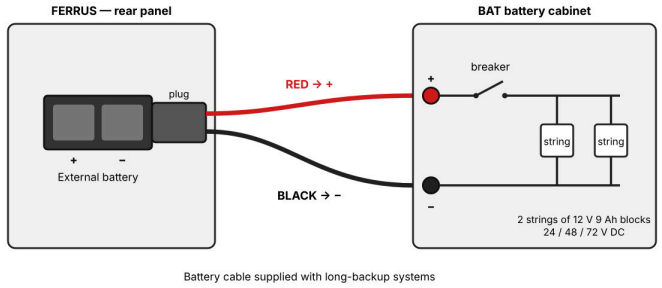
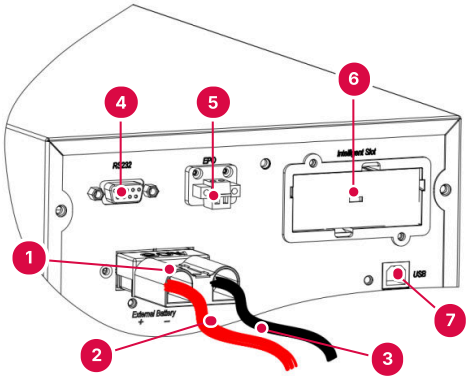


FIGURE 5-1 Connecting a BAT cabinet: red wire to +, black wire to –, plug to the external battery connector



1. External battery connector (rear-panel item 7) with the battery-cable plug
2. RED wire — to the cabinet's + terminal
3. BLACK wire — to the cabinet's – terminal
4. RS-232
5. EPO terminal
6. Intelligent slot
7. USB

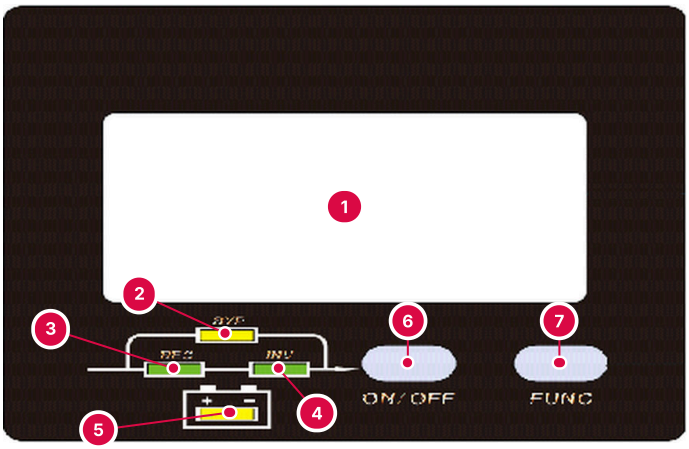
FIGURE 5-2 The battery cable plugged into the external battery connector (2K and 3K shown; on the 1K the connector is at the top right)

6 Start the UPS

No key is needed: the UPS starts on bypass and goes to normal mode by itself.

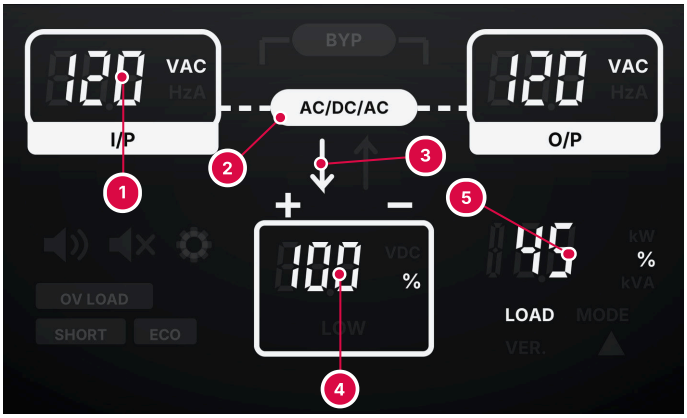
Before you start: the vents are clear; the loads are switched off and their total does not exceed the UPS rating; long-backup systems have the cabinets connected and their breakers closed.

1. Check that the loads are switched off. On long-backup systems, close the battery-cabinet breaker.
2. Switch the utility supply on: plug the UPS in, or close its branch breaker.
   You see: the fans start and the LCD lights.
3. Wait. The UPS starts on bypass by itself.
   You see: REC (item 3 in Figure 6-1) flashing green, BYP (item 2) steady yellow.
4. The rectifier is ready and the inverter starts by itself.
   You see: REC steady green, INV (item 4) flashing green.
5. After a few seconds the UPS is in normal mode.
   You see: REC and INV steady green, BYP off, AC/DC/AC lit on the LCD (Figure 6-2).
6. Switch the loads on one at a time, the largest first. Check the load reading on LCD page 1.
7. If the inverter does not start by itself, press ON/OFF (item 6) once.



1. LCD
2. BYP LED, yellow — bypass
3. REC LED, green — rectifier
4. INV LED, green — inverter
5. BAT LED, yellow — battery
6. ON/OFF key
7. FUNC key

FIGURE 6-1 Operation panel



1. Input 120 V AC
2. AC/DC/AC lit — the inverter feeds the load
3. Battery arrow down — the battery is charging
4. Battery capacity 100 %
5. Load 45 % of the rating

FIGURE 6-2 Normal online operation: 120 V in and out, battery 100 %, load 45 %

7 Set and check

Menu 123 sets the rated voltage and frequency, the battery capacity, the charge current and the system mode. New settings apply after a restart.

1. Open the settings: hold ON/OFF and FUNC together for 2.5 s.
   You see: "SETTING" at the bottom of the LCD, the gear icon, and all LEDs flash.
2. On the main page, press FUNC until 123 shows (Figure 7-1), then press ON/OFF.
3. On each page, press FUNC until the value of Table 7-1 is shown, then press ON/OFF to confirm it and move on.

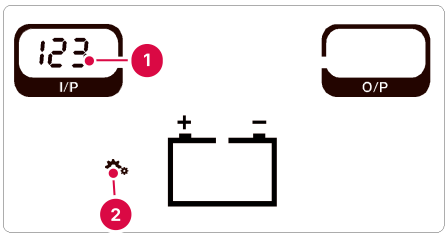
4. On the summary page, press ON/OFF to exit.
5. Restart the UPS: shut it down completely (Step 8), wait until the LCD is dark, then start it again (Step 6).
6. On LCD page 2 check the battery capacity shown.

TABLE 7-1 Menu 123 pages

Page	Set
1 · Voltage (Figure 7-2)	One value for input and output: 100, 110, 115 or 120 V AC. In the US use 120 V (or the nominal voltage of your site).
2 · Frequency	In the US leave 60 Hz.
3 · Battery capacity (Figure 7-3)	The total installed capacity in Ah, internal batteries plus cabinets (Table 7-2). Range 9 to 200 Ah.
4 · Charge current (Figure 7-4)	Standard model: 1 A. Long-backup model: 1 to 8 A — observe the minimum capacity (Table 7-2).
5 · System mode (Figure 7-5)	S — normal (online). E — ECO: the load runs on the bypass while the utility is good, without protection from disturbances.

TABLE 7-2 Battery capacity to set, and the highest charge current the capacity rule allows

Battery set-up	Capacity to set	Charge current
Internal batteries only	9 Ah	1 A (standard model)
Internal + 1 cabinet	27 Ah	up to 4 A (at least 20 Ah)
Internal + 2 cabinets	45 Ah	up to 8 A (at least 40 Ah)
Internal + 3 cabinets	63 Ah	up to 8 A
Internal + 4 cabinets	81 Ah	up to 8 A



1. Menu number
2. Gear — settings open

FIGURE 7-1 Main page, menu 123

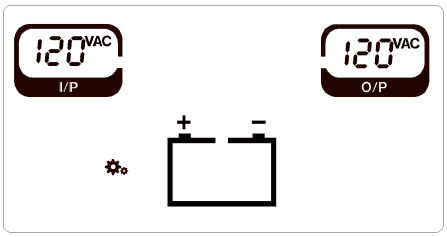


FIGURE 7-2 1 · Voltage

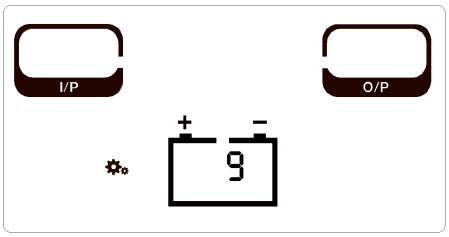


FIGURE 7-3 3 · Battery capacity, Ah

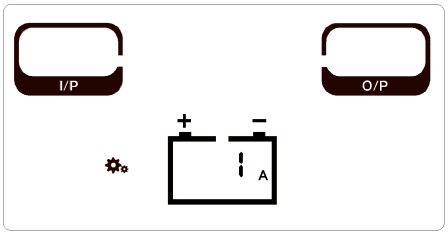


FIGURE 7-4 4 · Charge current, A

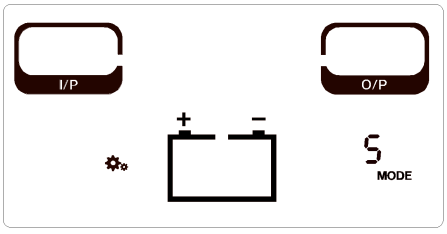


FIGURE 7-5 5 · System mode: S or E

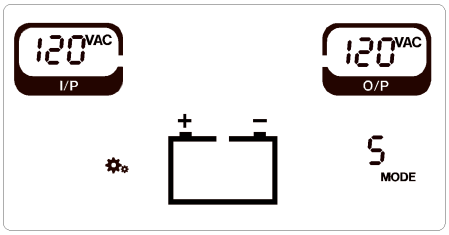


FIGURE 7-6 Summary of the values set

Check that the UPS is in normal mode

- REC and INV steady green, BYP off, AC/DC/AC lit, no warning triangle.
- Press FUNC to page 4: the alarm code is 0. Any other number is a code — look it up in the user manual, section *Fault and warning codes*.
- LCD page 1: the load is within the rating.

i NOTE **Charge the battery for at least 12 hours** before relying on the full runtime (4.2 min at full load with the internal batteries; up to 56.4 min with four cabinets). You can use the UPS meanwhile.

8 Turn the UPS off

ON/OFF alone never removes power from the receptacles while the utility is present: the inverter stops, and the load is fed by the utility through the bypass, without protection. To make the receptacles dead, unplug the UPS as well.

In normal mode (utility present)

1. Save your work and switch off the loads.
2. Hold ON/OFF for 2.5 s.
   You see: INV off, BYP steady yellow: the inverter is off and the load is on bypass.
3. Switch the utility supply off: unplug the UPS or open its branch breaker.
   You see: models with internal batteries switch off completely after a few seconds; the LCD goes dark.
4. Long-backup systems: open the battery-cabinet breaker.

In battery mode (utility failed)

1. Save your work and switch off the loads.
2. Hold ON/OFF for more than 2.5 s.
   You see: the output goes off, then the LCD goes dark: the UPS is off.

- **Bypass and back:** in normal mode hold ON/OFF 2.5 s to move the load to the bypass; press ON/OFF to return it to the inverter.
- **Silence the alarm:** on LCD page 1 hold FUNC 1.5 s; repeat to unmute.
- **Out of service:** recharge the battery for at least 12 hours every 4 to 6 months.

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Settings, fault codes, communication, maintenance and every detail: **FERRUS 1–3 kVA User Manual, AEC-UM-FER-US** (aecups.com · AEC app › Support › Downloads).