AEC

ONLINE UPS · 120 V · RACK / TOWER · 2U

FERRUS RT 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 RT 1K | FERRUS RT 1.5K | FERRUS RT 2K | FERRUS RT 3K

AEC-QG-FRT-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 RT 1–3 kVA UPS and its batteries. Follow them during installation, operation and maintenance.

⚠ DANGER

The battery can cause electric shock and a high short-circuit current. Before you replace or connect 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

- The battery circuit is not isolated from the input. Hazardous voltage can be present between the battery terminals and ground. Check for voltage before you touch them.
- Even with the input unplugged, the internal circuits stay connected to the batteries. Before maintenance, switch off the breaker of every battery pack.
- Connect or disconnect a battery pack only with the UPS switched off and unplugged from the utility receptacle.

⚠ WARNING

Improper use can cause electric shock or fire. Never block the ventilation openings or put 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 packs: never open the UPS.

⚠ 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, space heaters or any appliance with half-wave rectification.

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

2 Check the delivery and the site

1. Open the package and check its contents: the FERRUS RT UPS (2U); the user manual; the input cord (1K, for the IEC C14 inlet — the 1.5K, 2K and 3K have an attached cord); the battery cable (long-backup systems); 2 rack ears with handles and 2 tower stands; 1 RLKT telescopic rail kit (2- or 4-post 19-inch rack, max. 100 lb).
2. Inspect the UPS for transport damage. If anything is damaged or missing, do not switch the UPS on: notify the carrier and AEC immediately.
3. If the UPS was unpacked in a cold place, wait until it is completely dry inside and out before you install it. Condensation can cause electric shock.

> ⚠ ***CAUTION***
>
> The UPS weighs 41.8–61.7 lb (19–28 kg) and a battery pack up to 94.2 lb (42.7 kg). Lift them with two people.

TABLE 2-1 Operating environment

Item	Requirement
Location	Indoors, clean, dry; away from water, flammable liquids, gases and corrosive substances
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	Air flows in at the front and out at the rear: keep both clear
Receptacle	Near the UPS and easy to reach, so the plug can be pulled quickly

3 Mount the UPS

The 2U chassis mounts in a 19-inch rack or stands upright on its two stands. Choose rack or tower.

Rack mounting. Use the RLKT rail kit and the two rack ears supplied. The rails carry the weight; the rack ears only hold the UPS in place.

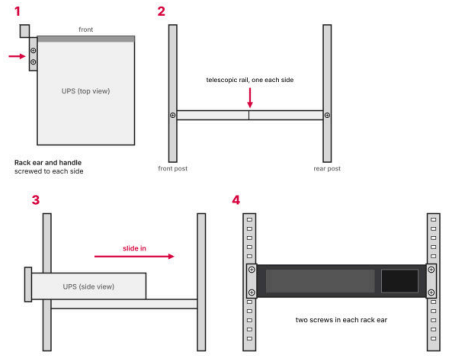
1. Plan the rack: the battery packs go at the bottom, the UPS above them (Figure 3-2).
2. Fit a rack ear to each side of the UPS, at the front (Figure 3-1, step 1).
3. Fit the two RLKT rails to the front and rear posts of the rack, level and at the same height (step 2). Adjust the rail length to the depth of the rack.
4. With a second person, lift the UPS and slide it onto the rails from the front (step 3).
5. Fix each rack ear to the front post with two screws (step 4).
6. Mount each battery pack below the UPS in the same way.

> ⚠ ***WARNING***
>
> Do not hang the UPS or a battery pack on its rack ears alone. Always support it on rails or a shelf. Mount the heaviest units lowest in the rack so the rack does not tip.

Tower mounting

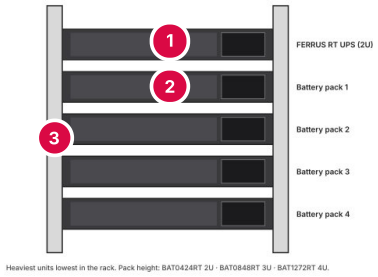
1. Lay the two stands on a flat, level floor, about as far apart as the depth of the UPS.
2. With a second person, stand the UPS upright with the operation panel at the top.
3. Set the UPS into the two stands, one near the front and one near the rear (Figure 3-3).
4. Check that the UPS stands firmly and does not rock.
5. Leave at least 12 in (300 mm) free at the front and at the rear for the cooling air.

Battery packs used with a tower UPS stand beside it, on a flat floor, each pack upright and stable. Keep the battery cable short and away from walkways.



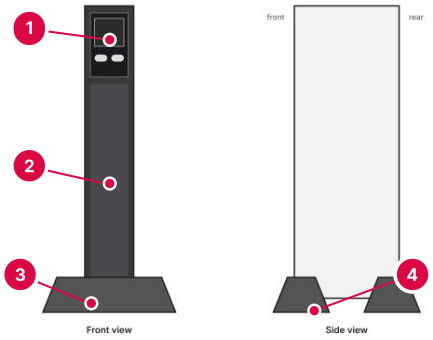
1. Fit a rack ear with its handle to each side of the UPS, at the front.
2. Fit the two telescopic rails to the front and rear posts, at the same height.
3. Slide the UPS onto the rails from the front.
4. Fix each rack ear to the front post with two screws.

FIGURE 3-1 Rack mounting — the four steps



1. FERRUS RT UPS, 2U
2. BAT...RT battery packs, one to four, below the UPS
3. Rack posts: every unit on its own rails

FIGURE 3-2 Rack layout — UPS above its battery packs



1. Operation panel at the top: it reads upright
2. Front grille: air in
3. Front stand
4. Front and rear stands under the side of the UPS

FIGURE 3-3 Tower position on the two stands

4 Wire the power

FERRUS RT 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.

- Use a breaker without ground-fault (GFCI) or leakage protection: it could trip unnecessarily.
- Do not use an extension cord or a power strip on the UPS input.
- Branch-circuit conductors: copper, 75 °C (167 °F) terminations (NEC 110.14(C)), sized to NEC 310.16.

TABLE 4-1 Input current and branch circuit

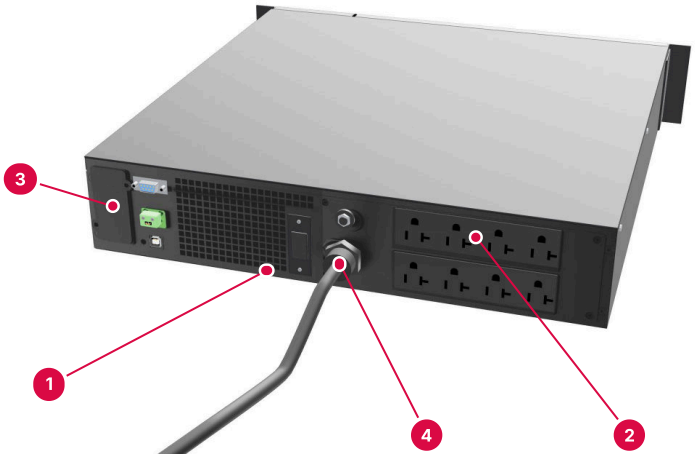
Model	UPS input	Max. input current (factory data)	Building breaker, 1-pole	Receptacle	Branch conductor, Cu (NEC 240.4(D))
FERRUS RT 1K	IEC C14 inlet, cord supplied	10 A	15 A	NEMA 5-15R	14 AWG
FERRUS RT 1.5K	Attached cord, NEMA 5-20P	20 A	20 A	NEMA 5-20R	12 AWG
FERRUS RT 2K	Attached cord, NEMA 5-20P	20 A	20 A	NEMA 5-20R	12 AWG
FERRUS RT 3K	Attached cord, NEMA L5-30P	30 A	30 A	NEMA L5-30R	10 AWG

WARNING

Plug, receptacle and breaker must match. The maximum input current of the 1.5K, 2K and 3K equals the plug rating (20 A, 20 A and 30 A). 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

All connections are on the rear panel (Figure 4-1); the item numbers below are those of Figure 4-2 to Figure 4-4.

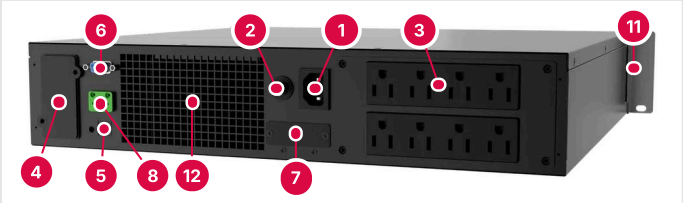


1	Rear panel: all connections	3	Intelligent slot
2	Output receptacles	4	Input cord (1.5K, 2K, 3K)

FIGURE 4-1 The rear panel, seen from behind — render of the FERRUS RT 2K

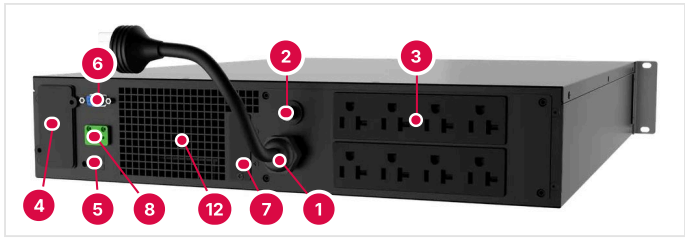
1. Check that the branch circuit and receptacle match Table 4-1.
2. 1K: plug the input cord supplied into the IEC C14 inlet (item 1 in Figure 4-2). Do not plug the UPS into the utility receptacle yet — that starts the UPS (Step 6).
3. Switch the loads off.
4. Plug the loads into the output receptacles (item 3). On the 3K, a load drawing more than 20 A goes on the NEMA L5-30R receptacle (item 9).
5. Keep the total load within the UPS rating: 1,000 W per kVA.
6. Optional: connect the monitoring and signal cables before you start 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 it turns the output off).

> ⚠ ***CAUTION***
>
> Do not plug a surge-protector power strip into the UPS, and never connect a UPS to the output of another UPS.



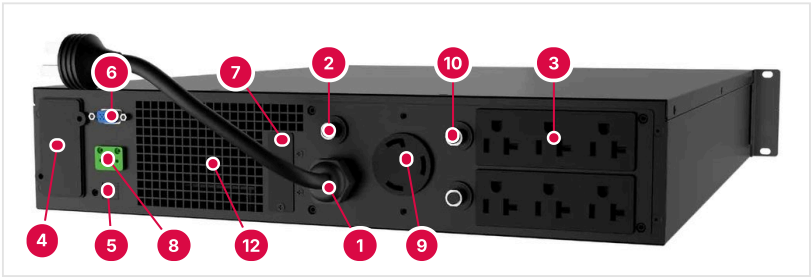
1. Input: IEC C14 inlet
2. Input surge protector, resettable
3. Output receptacles, group 1 (lower) and group 2 (upper)
4. Intelligent slot, cover fitted
5. USB (optional)
6. RS-232 (DB9)
7. External battery connector, under its cover
8. EPO terminal (normally closed)
11. Rack ear
12. Fan outlet: keep clear

FIGURE 4-2 Rear panel — FERRUS RT 1K (IEC C14 inlet, 8 × NEMA 5-15R, battery 24 V DC)



1. Input: attached cord, NEMA 5-20P plug
2. Input surge protector, resettable
3. Output receptacles, group 1 (lower) and group 2 (upper)
4. Intelligent slot, cover fitted
5. USB (optional)
6. RS-232 (DB9)
7. External battery connector, under its cover (behind the cord)
8. EPO terminal (normally closed)
12. Fan outlet: keep clear

FIGURE 4-3 Rear panel — FERRUS RT 1.5K and 2K (same panel; NEMA 5-20P cord, 8 × NEMA 5-20R, battery 48 V DC)



1. Input: attached cord, NEMA L5-30P plug
2. Input surge protector, resettable
3. Output receptacles NEMA 5-20R, group 1 (lower) and group 2 (upper)
4. Intelligent slot, cover fitted
5. USB (optional)
6. RS-232 (DB9)
7. External battery connector, under its cover
8. EPO terminal (normally closed)
9. NEMA L5-30R receptacle, 30 A twist-lock (group 3)
10. Output surge protectors, resettable (one per receptacle group)
12. Fan outlet: keep clear

FIGURE 4-4 Rear panel — FERRUS RT 3K (attached cord with NEMA L5-30P plug, 6 × NEMA 5-20R + 1 × NEMA L5-30R, battery 72 V DC)

5 Connect the battery packs

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

TABLE 5-1 BAT...RT battery packs

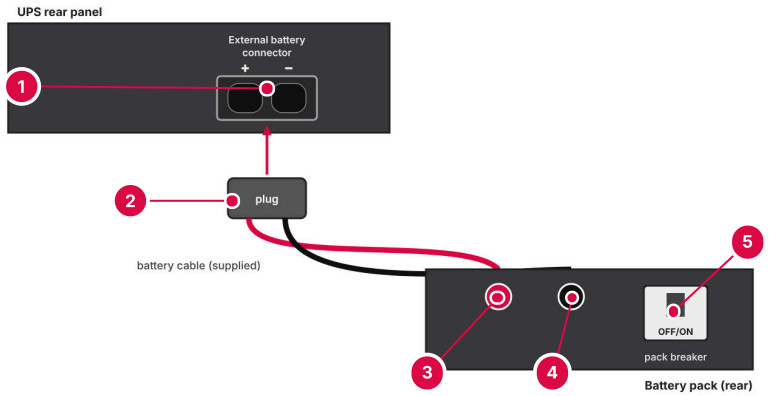
Code	For	Blocks · DC voltage	W × D × H	Height	Weight
BAT0424RT	FERRUS RT 1K	4 × 12 V 9 Ah · 24 V DC	17.3 × 17.3 × 3.4 in (439 × 439 × 86 mm)	2U	35.4 lb (16.1 kg)
BAT0848RT	FERRUS RT 1.5K, 2K	8 × 12 V 9 Ah · 48 V DC	17.3 × 17.3 × 5.2 in (439 × 439 × 132 mm)	3U	64.8 lb (29.4 kg)

Code	For	Blocks · DC voltage	W × D × H	Height	Weight
BAT1272RT	FERRUS RT 3K	12 × 12 V 9 Ah · 72 V DC	17.3 × 22.8 × 7 in (439 × 579 × 178 mm)	4U	94.2 lb (42.7 kg)

⚠ CAUTION

- External batteries must have the UPS's DC voltage and be of the same type: use only the pack listed for your model in Table 5-1 — always **same voltage, same type**.
- Use 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.
- The battery current can reach 50 A. Use only the battery cable supplied by AEC.

1. Switch the UPS off (Step 8) and unplug it from the utility receptacle. Check that the breaker of the battery pack is OFF (Figure 5-1, item 5).
2. Take the battery cable supplied. One end has a plug, the other two wires.
3. Connect the RED wire to "+" and the BLACK wire to "–" of the battery pack (items 3 and 4).
4. Remove the cover of the external battery connector on the UPS rear panel (item 7 in Figure 4-2, Figure 4-3 and Figure 4-4).
5. Plug the battery cable into the external battery connector (items 1 and 2).
6. Close the breaker of the battery pack.
7. After the start, set the battery capacity (total Ah, internal plus packs) and the charge current (Step 7).

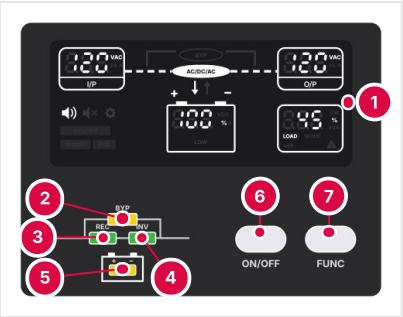


1. External battery connector on the UPS rear panel (item 7)
2. Battery cable plug
3. RED wire to + of the pack
4. BLACK wire to – of the pack
5. Pack breaker: OFF while you connect

FIGURE 5-1 Connecting a battery pack to the UPS

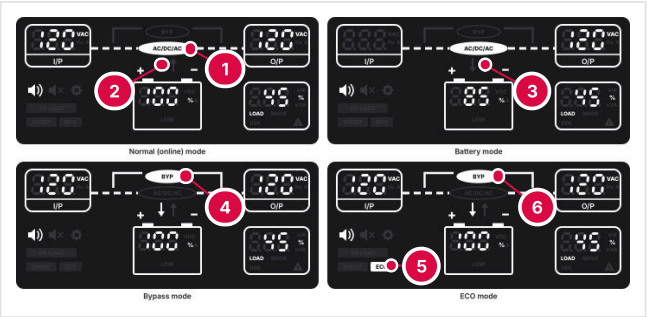
6 Start the UPS

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



1. LCD: readings, power flow, alarms and settings
2. BYP LED, yellow: load on 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 (the same in the rack and the tower position)



1. AC/DC/AC lit: the inverter feeds the load
2. Battery arrow down: charging
3. Battery arrow up: discharging; input blank, utility lost
4. BYP lit: the load is on the bypass
5. ECO lit: system mode E
6. BYP lit in ECO mode: the load runs on the bypass

FIGURE 6-2 The LCD in each operating mode (example readings)

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 packs connected and their breakers closed.

1. Check that the loads are switched off. On long-backup systems, close the breaker of each battery pack.
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, item 1).
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.

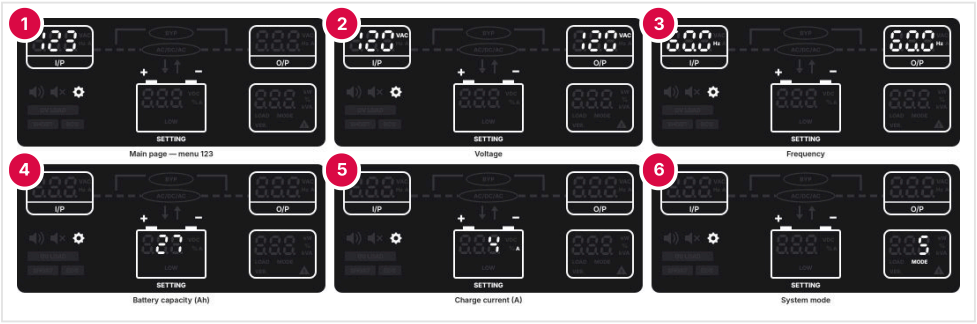
7 Set and check

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 and the gear symbol; all LEDs flash.
2. On the main page, choose **123** with FUNC and confirm with ON/OFF (Figure 7-1, item 1).
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. After the last page the LCD shows the settings made. Press ON/OFF to exit. (Holding ON/OFF + FUNC 2.5 s leaves without saving.)
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
Input / output voltage	One value for input and output: 100, 110, 115 or 120 V AC. In the US, use 120 V.
Input / output frequency	60 Hz. 50 Hz is a setting for other markets.
Battery capacity	The installed capacity in Ah, internal battery plus packs (9–200 Ah). The internal battery is 9 Ah; each pack adds 18 Ah (two strings × 9 Ah) — for example 27 Ah with one pack.
Charge current	Standard: 1 A. With battery packs: 1 to 8 A — at least 20 Ah of battery for 4 A, 40 Ah for 8 A.
System mode	S normal (online). E ECO: the load runs on the bypass while the utility is good, without protection from utility disturbances.



1. Main page: menu 123 selected
2. Input/output voltage: 100, 110, 115 or 120 V AC
3. Frequency: 60 Hz (50 Hz is a setting for other markets)
4. Battery capacity in Ah, 9–200 Ah (total of internal battery and packs)
5. Charge current: 1 A standard; 1–8 A with battery packs
6. System mode: S normal (online) or E ECO

FIGURE 7-1 Menu 123 — the setting pages in order (FERRUS RT 2K with one BAT0848RT pack, 27 Ah)

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 you rely on the full runtime (4.2 min at full load with the internal batteries, 6 min for the 1.5K; up to 56.4 min, or 80.8 min for the 1.5K, with four packs). 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: after a few seconds the UPS switches off completely and the LCD goes dark.
4. Long-backup systems: open the breaker of each battery pack.

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 once to return it to the inverter.
- **Silence the alarm:** on LCD page 1 hold FUNC 1.5 s; repeat to unmute.
- **Out of service:** shut the UPS down completely and recharge it for at least 12 hours every 4 to 6 months.

AEC technical support · 24/7
+1 786 553 2100 — WhatsApp and phone

service.us@aecups.com
sales@aecups.com

AEC UPS USA LLC
4872 SW 72nd Ave, Miami, FL 33155 ·
aecups.com

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