AEC

ONLINE UPS · DOUBLE CONVERSION · TOWER

FERRUS

1–3 kVA

Single-phase online UPS for 120 V servers, networks and offices: a compact tower with internal batteries, and matching battery cabinets for longer runtimes.



FERRUS 2 · 3 kVA TOWER

kVA = kW
1,000 W in every kVA

93 %
maximum efficiency

50–150 V
input range, 60 Hz

3 years
warranty on the UPS

Product Overview
FERRUS 1–3 kVA

Single-phase online double-conversion UPS for 120 V loads: three towers, 1 to 3 kVA, with BAT battery cabinets of the same size.

THE RANGE · power, backup with the internal batteries, weight and height

1 kVA	2 kVA	3 kVA
1,000 W	2,000 W	3,000 W
4.2 min at full load	4.2 min at full load	4.2 min at full load
16.5 lb · 13.9 in high	36.3 lb · 15.8 in high	45.2 lb · 15.8 in high
2 × 12 V 9 Ah · 24 V DC	4 × 12 V 9 Ah · 48 V DC	6 × 12 V 9 Ah · 72 V DC

BAT battery cabinets, the size of their UPS: one to four per UPS, up to 56.4 min at full load.



BAT0424 · BAT0848 · BAT1272

Main Features

Online
double conversion: the inverter feeds the load, 0 ms transfer

kVA = kW
output power factor 1: every VA a usable watt

50–150 V
input window: brownouts stay on the mains

Online + ECO
online or ECO mode, set from the panel

1–4
battery cabinets of the UPS's DC voltage per UPS

56.4 min
longest backup at full load

1–8 A
charger set to the cabinets, 9–200 Ah

Tower
for the desk, the office or the shop

Key Data

Ratings	1, 2, 3 kVA
Output power	1,000 W–3,000 W (PF 1)
Input	50–150 V AC, 60 Hz ±5 Hz
Output	100 / 110 / 115 / 120 V AC, sine wave
Efficiency	up to 93 %
Battery	12 V 9 Ah VRLA inside: 2, 4, 6 blocks

Backup, full load	4.2 min inside; up to 56.4 min with cabinets
Size, W × D × H	5.6 × 8.6 × 13.9 in–7.5 × 12.6 × 15.8 in
Weight	16.5–45.2 lb
Communication	RS232, slot for SNMP-M or dry contacts, EPO, USB optional
Standards · warranty	UL 1778 standard · 3 years UPS, 2 years VRLA batteries

FERRUS · FRONT VIEW

Front View
FERRUS 1–3 kVA

The front of the FERRUS tower: the LCD, the status LEDs and two keys over the front grille.



1 LCD
input and output voltage, frequency and current; battery voltage, current and %; load in kW, kVA or %; warning code. FUNC turns the four pages.

2 Status LEDs
on the power-flow mimic: REC and INV green in normal operation, BYP yellow on bypass, BAT yellow on battery.

3 ON/OFF key
starts the inverter; held 2.5 s: load to bypass, or on battery the UPS shuts down; confirms a setting.

4 FUNC key
next LCD page; held 1.5 s: mute (page 1) or clear a fault (page 4); with ON/OFF, 2.5 s: the settings.

5 Front grille
cooling air in at the front, out at the back; keep both clear.

6 Feet
the tower stands on the floor or a desk; the BAT cabinets of the same size beside it.

Three Ratings, One Design

	W × D × H, in	Weight
1 kVA	5.6 × 8.6 × 13.9	16.5 lb
2 kVA	7.5 × 12.6 × 15.8	36.3 lb
3 kVA	7.5 × 12.6 × 15.8	45.2 lb

Start and Stop from the Front

01
Start on mains
Mains on: the fans run, REC flashes green and the UPS starts on bypass (BYP yellow); then INV flashes and, in a few seconds, the inverter feeds the load.

02
Cold start
Without mains: ON/OFF once to light the LCD, then held 5 s; the UPS starts on battery.

03
Stop on mains
ON/OFF held 2.5 s: the load goes to bypass; with the mains off the UPS shuts down after a few seconds.

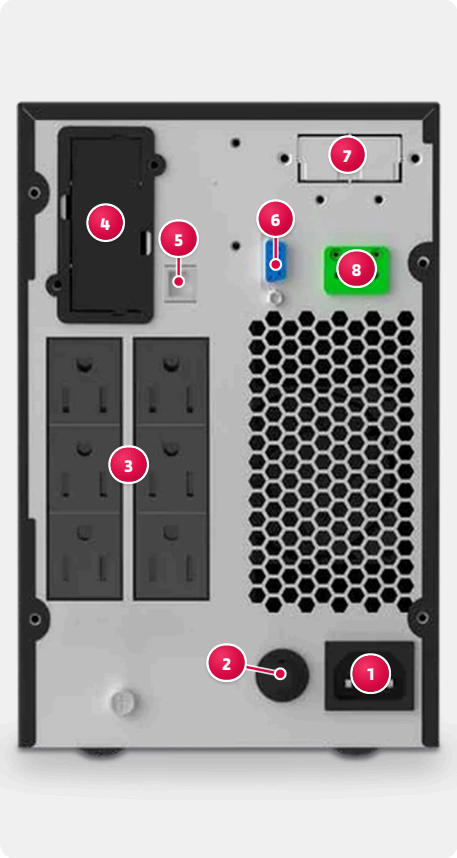
04
Stop on battery
ON/OFF held more than 2.5 s: no output, then the UPS shuts down completely.

FERRUS · REAR VIEW

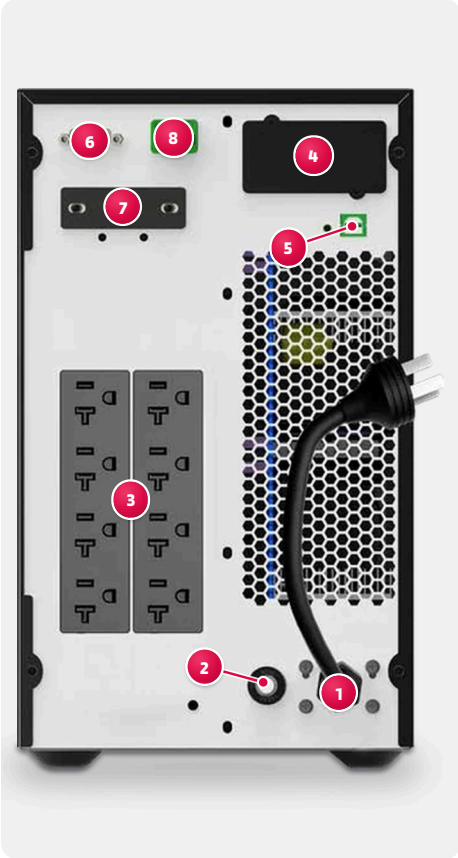
Rear View
FERRUS 1–3 kVA

The back of each rating: input, outlets, external battery terminal and communication.

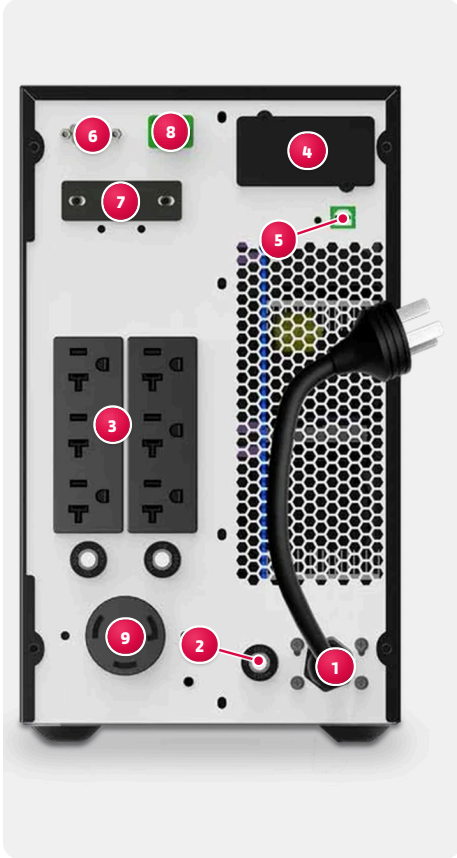
FERRUS 1 kVA



FERRUS 2 kVA



FERRUS 3 kVA



1 Input
Input socket or power cord.

2 Input surge protection
Resettable protector of the input.

3 Output sockets
NEMA outlets in two groups.

4 Intelligent slot
Dry-contact card or SNMP card.

5 USB
Optional.

6 RS232
DB9 port for monitoring software.

7 External battery terminal
For the battery cabinets (long backup).

8 EPO
Normally closed: opening it turns the UPS off.

9 NEMA L5-30R
30 A twist-lock output, 3 kVA.

SAFETY

EPO, normally closed

The EPO terminals are shorted in normal use; opening them stops the rectifier and inverter output at once. A remote switch can be wired to them.

INSTALLATION

Input cord and outlets

The input plugs into a wall receptacle: a cord in the IEC C14 inlet of the 1 kVA, an attached cord on the 2 and 3 kVA. The loads plug into the UPS.

OPTIONS

Intelligent slot

A dry-contact card (DB9 or terminal block) or the SNMP-M network card.

Display and Controls
FERRUS 1–3 kVA

The black LCD of FERRUS, its status LEDs and its two keys.



Shown in normal online operation: 120 V in and out, battery 100 %, load 45 %.

1. **Input**
   voltage (VAC), frequency (Hz) or current (A), page by page
2. **Output**
   the same readings for the output
3. **Power flow**
   AC/DC/AC lit in online operation; BYP on bypass
4. **Battery**
   voltage, current, capacity %, LOW; the arrow shows charge or discharge
5. **Load · version · code**
   load in kW, kVA or %; firmware; model; a warning code with the triangle
6. **Alarm and settings**
   buzzer, mute, OV LOAD, SHORT, ECO and the setting gear

Status LEDs

LED	Steady	Flashing	Off
REC	green: rectifier normal	green: rectifier starting	rectifier not working
INV	green: inverter normal	green: starting or tracking the bypass (ECO)	inverter not working
BYP	yellow: on bypass	yellow: bypass alarm	normal mode, bypass good
BAT	yellow: battery discharging	yellow: no battery or battery alarm	battery connected

Keys

Key	Function
ON/OFF	starts the inverter; held 2.5 s: load to bypass, or on battery the UPS shuts down; held 5 s without mains: cold start
FUNC	next page; held 1.5 s: mute (page 1) or clear a fault (page 4)
FUNC + ON/OFF	held 2.5 s together: the settings, applied after a restart

Online + ECO
online or ECO mode

100–120 V
output voltage

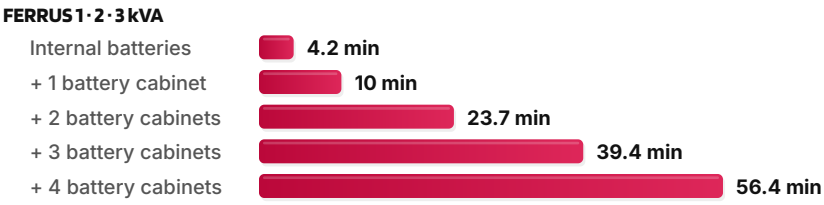
9–200 Ah
battery capacity

1–8 A
charger, long backup

Battery and Runtime
FERRUS 1–3 kVA

Every FERRUS has its batteries inside; one to four battery cabinets of the same voltage add runtime. Times at full load, new batteries.

Backup time at full load



Runtime at 100 % load; at lighter loads it is longer.

The battery cabinets

Code	Blocks · DC	W × D × H, in	For	Weight
BAT0424	4 × 12 V 9 Ah · 24 V DC	5.6 × 8.6 × 13.9	1 kVA	31.4 lb
BAT0848	8 × 12 V 9 Ah · 48 V DC	7.5 × 12.6 × 15.8	2 kVA	58.8 lb
BAT1272	12 × 12 V 9 Ah · 72 V DC	7.5 × 12.6 × 15.8	3 kVA	86.2 lb

Cabinets of the UPS's DC voltage and of its size; one to four per UPS.



Battery cabinets of the size of the UPS: BAT0424 as the 1 kVA; BAT0848 (48 V DC) and BAT1272 (72 V DC) as the 2 and 3 kVA.

Backup time by load

Set-up	100 %	75 %	50 %	25 %
1 · 2 · 3 kVA, internal batteries	4.2	6	10	25.1
1 · 2 · 3 kVA, + 1 battery cabinet	10	14.4	23.7	59.8
1 · 2 · 3 kVA, + 2 battery cabinets	23.7	34.1	56.4	2 h 22
1 · 2 · 3 kVA, + 3 battery cabinets	39.4	56.8	93.6	3 h 56
1 · 2 · 3 kVA, + 4 battery cabinets	56.4	81.3	2 h 14	5 h 38

Battery care

- Charge at least 12 hours before first use.
- Best at 68–77 °F (20–25 °C); 57–77 °F (14–25 °C) allowed.
- Battery life 3 to 5 years; replace as a full set.
- In storage, recharge every 4 to 6 months.

Adding battery cabinets: three steps

01

Same DC voltage as the UPS

BAT0424 (24 V DC) for the 1 kVA, BAT0848 (48 V DC) for the 2 kVA, BAT1272 (72 V DC) for the 3 kVA; one to four per UPS.

02

Wired to the external battery terminal

On the back of the tower: the external battery terminal, number 7 on the rear panel.

03

Capacity and charger set from the panel

The battery capacity, 9 to 200 Ah, is entered on the LCD; the charger is set from 1 to 8 A.

24 · 48 · 72 V
battery DC voltage

12 V 9 Ah
VRLA blocks, sealed

1–8 A
charger, long-backup set-ups

≧ 12 h
first charge

Technical Specifications
FERRUS 1–3 kVA

Model	1 kVA	2 kVA	3 kVA
Power (VA / W)	1,000 / 1,000	2,000 / 2,000	3,000 / 3,000
INPUT			
Voltage · frequency	50–150 V AC · 60 Hz ±5 Hz, single-phase		
Power factor	> 0.99 at full load		
Current, max.	10 A	20 A	30 A
Connection	IEC C14 inlet	attached cord, straight-blade plug	attached cord
OUTPUT			
Voltage	100 / 110 / 115 / 120 V AC, set from the panel		
Frequency · waveform	60 Hz (50 / 60 Hz settable) · sine wave		
Current	8.3 A	16.6 A	25 A
Outlets	6 × 5-15R	8 × 5-20R	6 × 5-20R + 1 × L5-30R
Efficiency, up to	93 %		
Modes	online (S) · ECO (E) · bypass · cold start from battery		
BATTERY			
Internal	2 × 12 V 9 Ah	4 × 12 V 9 Ah	6 × 12 V 9 Ah
DC voltage	24 V DC	48 V DC	72 V DC
Charger	1 A standard · 1–8 A with battery cabinets		
Backup at 50 % · 100 %	10 min · 4.2 min		
Recharge	at least 12 h for a full charge		
GENERAL			
Communication	RS232 · intelligent slot (dry contacts or SNMP-M) · EPO · USB optional		
Display	LCD, 4 LEDs, 2 buttons		
Environment	32–104 °F (0–40 °C) · RH < 95 % · 3,300 ft (1,000 m) at full power		
W × D × H in	5.6 × 8.6 × 13.9	7.5 × 12.6 × 15.8	
W × D × H mm	142 × 218 × 353	190 × 319 × 400	
Weight	16.5 lb (7.5 kg)	36.3 lb (16.5 kg)	45.2 lb (20.5 kg)
Standards	UL 1778 standard		
Warranty	3 years on the UPS · 2 years on VRLA batteries		

Specifications are subject to change without notice.



SIZES

FERRUS 1–3 kVA

1 kVA	5.6 × 8.6 × 13.9 in 142 × 218 × 353 mm	16.5 lb
2 · 3 kVA	7.5 × 12.6 × 15.8 in 190 × 319 × 400 mm	36.3–45.2 lb

Shown: the 2 and 3 kVA; the 1 kVA is the same design, smaller. W × D × H.

Ordering Information
FERRUS 1–3 kVA

FER | **3000** | **-6X9** | **+BAT1272** | **x2**

- FER — series: FERRUS
- 3000 — rating in VA
- -6X9 — internal batteries: 6 × 12 V 9 Ah
- +BAT1272 — battery cabinet of the same voltage
- x2 — how many

EXAMPLES

FER1000-2X9
FERRUS 1 kVA, internal batteries

FER3000-6X9+BAT1272x2
FERRUS 3 kVA with two battery cabinets

Code	Description
FER1000-2X9	FERRUS 1 kVA online UPS, tower, internal batteries
FER1000-2X9+BAT0424	FERRUS 1 kVA with 1 × BAT0424 battery cabinet
FER1000-2X9+BAT0424x2	FERRUS 1 kVA with 2 × BAT0424 battery cabinets
FER1000-2X9+BAT0424x3	FERRUS 1 kVA with 3 × BAT0424 battery cabinets
FER1000-2X9+BAT0424x4	FERRUS 1 kVA with 4 × BAT0424 battery cabinets
FER2000-4X9	FERRUS 2 kVA online UPS, tower, internal batteries
FER2000-4X9+BAT0848	FERRUS 2 kVA with 1 × BAT0848 battery cabinet
FER2000-4X9+BAT0848x2	FERRUS 2 kVA with 2 × BAT0848 battery cabinets
FER2000-4X9+BAT0848x3	FERRUS 2 kVA with 3 × BAT0848 battery cabinets
FER2000-4X9+BAT0848x4	FERRUS 2 kVA with 4 × BAT0848 battery cabinets
FER3000-6X9	FERRUS 3 kVA online UPS, tower, internal batteries
FER3000-6X9+BAT1272	FERRUS 3 kVA with 1 × BAT1272 battery cabinet
FER3000-6X9+BAT1272x2	FERRUS 3 kVA with 2 × BAT1272 battery cabinets
FER3000-6X9+BAT1272x3	FERRUS 3 kVA with 3 × BAT1272 battery cabinets
FER3000-6X9+BAT1272x4	FERRUS 3 kVA with 4 × BAT1272 battery cabinets
BAT0424	Battery cabinet, tower, 24 V DC, 4 × 12 V 9 Ah, for FERRUS 1 kVA
BAT0848	Battery cabinet, tower, 48 V DC, 8 × 12 V 9 Ah, for FERRUS 2 kVA
BAT1272	Battery cabinet, tower, 72 V DC, 12 × 12 V 9 Ah, for FERRUS 3 kVA
SNMP-M	SNMP-M network card: web pages, SNMP v1/v2c/v3, Modbus TCP/IP and MQTT; for FERRUS, FERRUS RT, FERRUS SP, FERRUS SP RT, RADIANT, RADIANT-IB, CIRRO-IB and CIRRO
DRYCNT	Dry-contact relay card: mains failure, battery low, UPS fault, bypass; all AEC UPS series



FERRUS 1 kVA, rear: the external battery terminal

+



BAT battery cabinet, the size of its UPS

× 1–4

Cabinets per UPS

Of the UPS's DC voltage: BAT0424 for 1 kVA, BAT0848 for 2 kVA, BAT1272 for 3 kVA. Pictures not to scale.