AEC

ONLINE UPS · RACK / TOWER

IST3-J

1–10 kVA

2U, 19 inch
every model, 1–10 kVA

Rack or tower
1–3 kVA, set on the panel

8 IEC outlets
some programmable (optional)

Single-phase online UPS for 19-inch racks, 2U high. On 1–3 kVA the LCD switches to tower reading from the panel, and the battery box mounts in the same rack.



PF 1
output power factor: kVA = kW

95.5%
AC/AC efficiency in online double conversion

RCK · TWR
display set for rack or tower (1–3 kVA)

3 years
warranty, extendable with a maintenance contract

WHY IST3-J

Key features
IST3-J 1–10 kVA

Six reasons to choose a 2U online UPS for the rack.

Online

Double conversion

High-frequency online UPS with active PFC: clean, steady sine-wave power for servers and network equipment.

RCK · TWR

Rack or tower

1–3 kVA: the LCD reading is set for rack (default) or tower mounting from the panel.

Hot-plug

Battery packs

On 1–3 kVA the battery packs of the UPS and of the battery box are hot-pluggable, from the front.

Programmable

Outlets that save backup

Optional programmable outlets switch off non-critical loads after a set time on battery, to extend backup.

120 V

The battery stays full

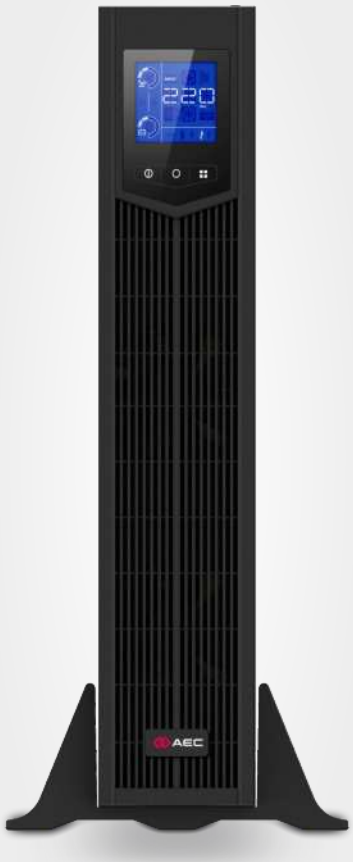
Down to 120 V of mains (1–3 kVA, load below 50%) the battery does not discharge, so it stays at 100%.

IP20

Up to 2000 m

1–3 kVA: IP20 enclosure, rated power up to 2000 m above sea level; above that, the power is reduced.

TOWER MOUNTING
1–3 kVA on its support bases



OUTPUT AND STANDARDS

Clean, quiet power

1.0
output power factor, kVA = kW

< 50 dB
noise level, 1–3 kVA

IEC 62040
safety, EMC and performance

DESIGNED FOR

- Servers & data centres
- Telecom systems
- Finance & stock
- Networks
- Railway
- Postal services

THE RANGE

Models and range
IST3-J 1–10 kVA

Three frames in the same 19-inch, 2U format. On 1–3 kVA the optional battery box has the same footprint as the UPS.



UPS with battery box, rack-mounted

FRONT VIEWS



1 · 2 · 3 kVA



6 · 10 kVA

1 kVA

1000 VA / 1000 W

- 438 × 423 × 86 mm, 14 kg
- Battery 36 V: 3 × 12 V 9 Ah inside
- 8 IEC C13 outlets

2 · 3 kVA

2000 / 3000 VA · 2000 / 3000 W

- 438 × 572 × 86 mm, 20 / 26 kg
- Battery 48 / 72 V: 4 / 6 × 12 V 9 Ah inside
- 8 IEC C13 + 1 IEC C19 outlets

6 · 10 kVA

6000 / 10,000 VA · 6000 / 10,000 W

- 438 × 500 × 86 mm, 10.6 / 12.2 kg
- Long backup: external battery only
- 10 kVA /B: parallel version

AEC rack battery cabinets

BBJ

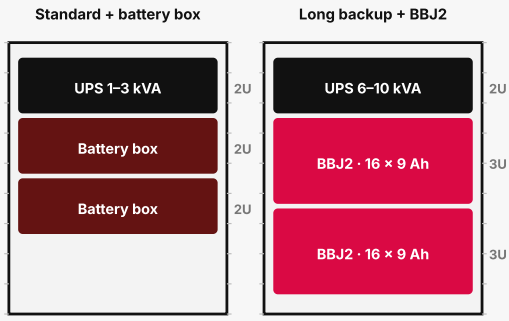
2U battery box for 1–3 kVA

Two battery strings per box. Optional: add one or more boxes for longer backup.

BBJ2

3U battery cabinet for 6–10 kVA

16 × 12 V 9 Ah per cabinet, 438 × 500 mm. Add cabinets for longer backup: AEC sizes the number for the site.



Examples; number of cabinets per UPS: see the ordering codes.

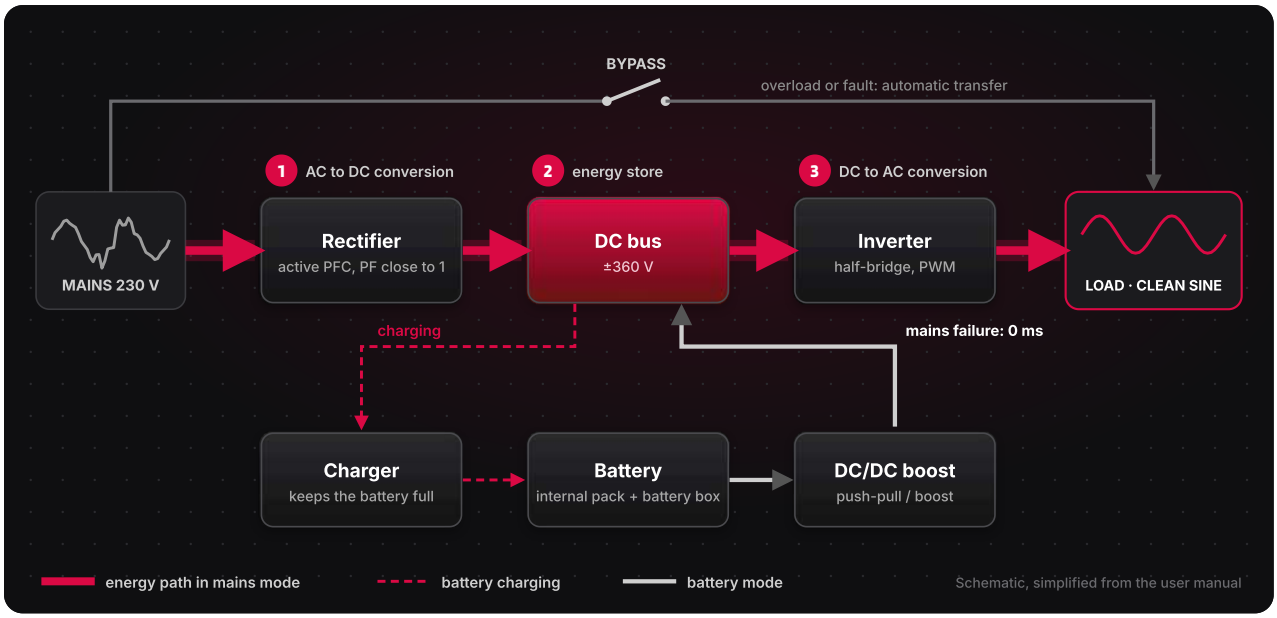
4.8–50 A
rated input current, 1 to 10 kVA

IEC C14 · C20
input inlets, 1–3 kVA

2 × C13
6–10 kVA outlets, ≤ 10 A each, plus wire terminal

HOW IT WORKS

Operating principle
IST3-J 1–10 kVA



STEP 1

Active PFC

With the mains normal, the PFC rectifier turns the input into a steady ±360 V DC bus with a high input power factor.

STEP 2

Half-bridge inverter

The DC/AC inverter rebuilds a steady sine wave for the load while the charger keeps the battery full.

STEP 3

DC/DC boost

With the mains abnormal, the DC/DC raises the battery voltage to the DC bus. On 6–10 kVA the charger is fed from the DC bus and fully isolated.

Rack or tower, same UPS

RCK · RACK



TWR · TOWER



Converter mode · 50 or 60 Hz output (1–3 kVA)

Disabled by default. When it is enabled from the PC, the output frequency is set to 50 Hz or 60 Hz, as the load requires.

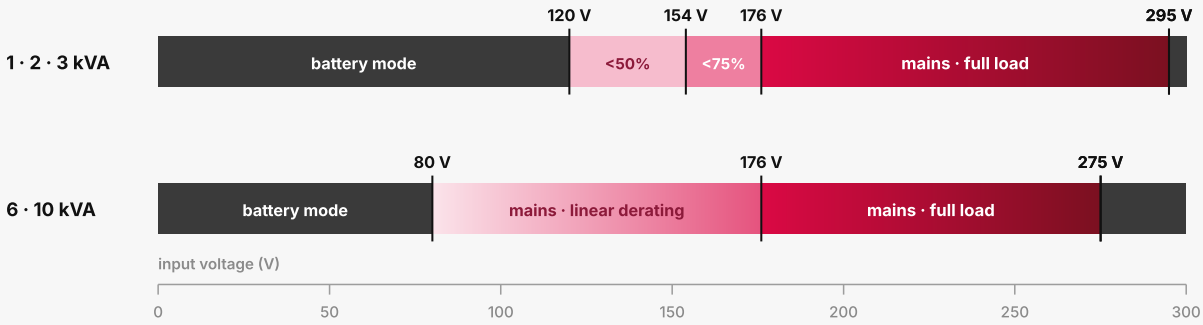
0 ms	±360 V	±0.2%
transfer time	DC bus	output frequency, battery mode

BATTERY-FRIENDLY

Battery and backup time
IST3-J 1–10 kVA

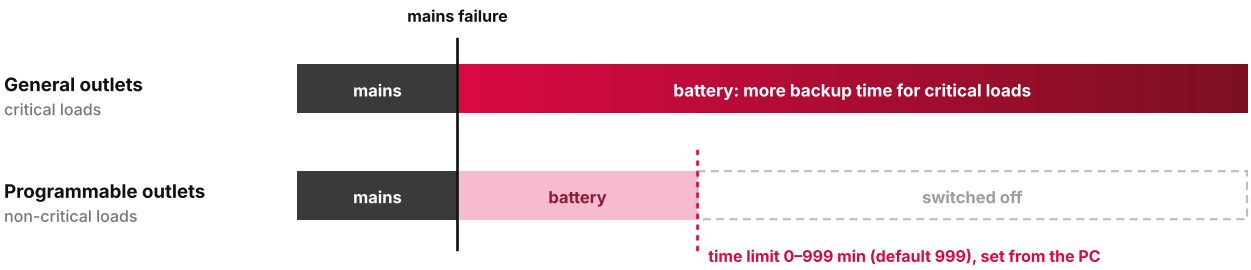
A wide input window saves the battery for real outages; programmable outlets and a settable charger stretch backup and battery life.

Input voltage window



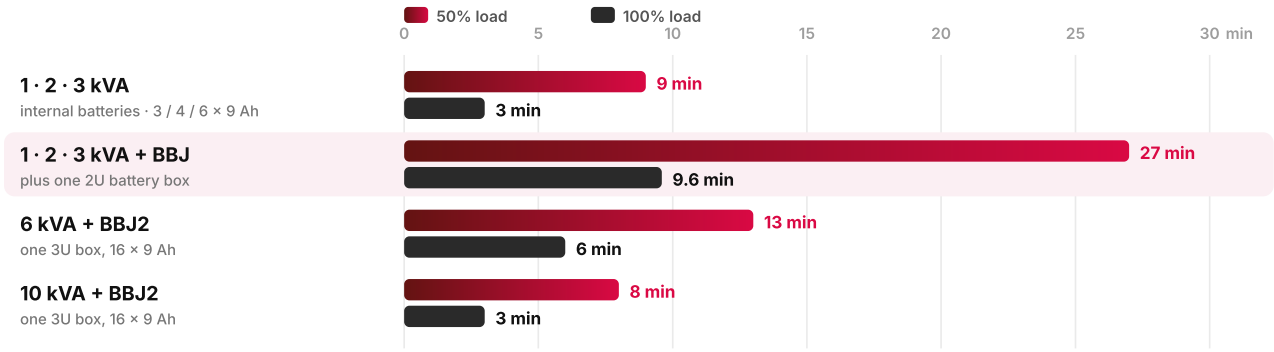
1–3 kVA: 176–295 V above 75% load, 154–176 V at 50–75%, 120–154 V below 50%. 6–10 kVA: full load from 176 to 275 V, linear derating down to 80 V; 50 / 60 Hz ± 10%, self-adapting.

Programmable outlets (optional, 1–3 kVA)



How long does the load keep running?

Backup time, internal batteries and with one battery box



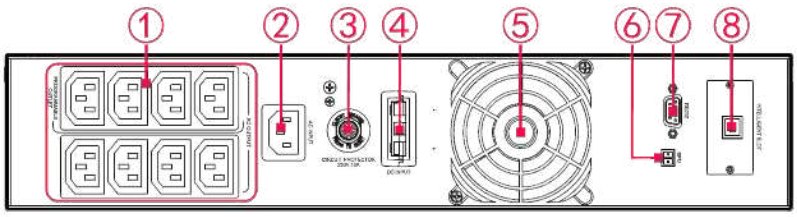
Typical values at 25 °C, new batteries fully charged; AEC runtime tables. Add battery boxes for longer backup: AEC calculates the number for each site.

Rear panels
IST3-J 1–10 kVA

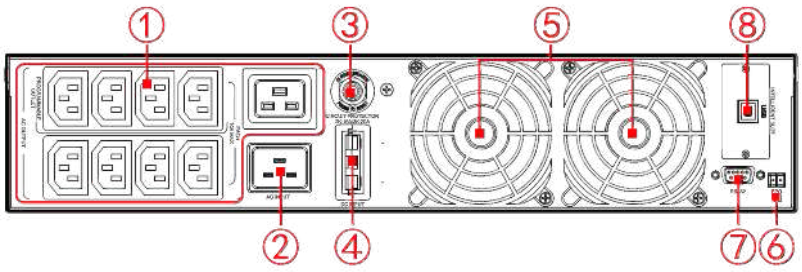
Outlets, mains input, battery port and communication on the back of every 2U chassis: IEC outlets on 1–3 kVA, a terminal block on 6–10 kVA.

1 · 2 · 3 KVA

IST3-J 1 kVA



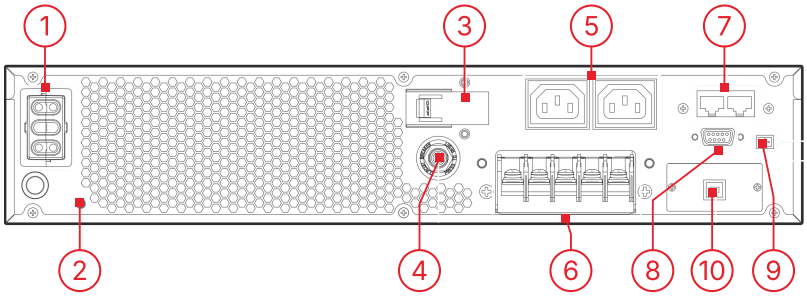
IST3-J 2 · 3 kVA



1. **Output outlets**
   IEC C13 (plus one C19 on 2–3 kVA): general outlets for critical loads; programmable outlets (optional) for non-critical loads.
2. **Input inlet**
   IEC mains input.
3. **Over-current protector**
   Resettable circuit protector on the input.
4. **External battery port**
   DC input for the battery box or the external battery.
5. **Cooling fan**
   One fan on 1 kVA, two on 2–3 kVA.
6. **EPO connector**
   Opening the contact closes the output.
7. **RS232 port**
   For UPS power management software.
8. **Intelligent slot**
   USB as standard; RS485 + dry contact, protocol transfer card or SNMP card as options.

6 · 10 KVA

IST3-J 6 · 10 kVA



1. **Battery expansion port**
   DC input for the BBJ2 battery cabinets.
2. **Surge protection grounding**
   Earth wire of the surge protection.
3. **Input breaker**
   Mains input protection.
4. **Over-current protector**
   Resettable circuit protector.
5. **Output sockets**
   IEC outlets for local loads.
6. **Wire terminal**
   Terminal block for input and output wiring.
7. **Parallel port**
   Only on the /B parallel models.
8. **RS232 port**
   For UPS power management software.
9. **EPO connector**
   Opening the contact closes the output.
10. **Intelligent slot**
    USB as standard; SNMP or RS485 + dry-contact card as options.

Outlets

- 1 kVA: 8 × IEC 320 C13.
- 2–3 kVA: 8 × IEC 320 C13 + 1 × IEC 320 C19.
- 6–10 kVA: IEC outlets plus the terminal block.
- Load current per 10 A outlet: generally not more than 5 A.

Automatic restart

- When the battery runs out, the UPS switches off with battery low-voltage protection.
- When the mains returns, it starts again by itself and recharges the battery.

AEC IST3-J 1–3 kVA IEC outlet version.

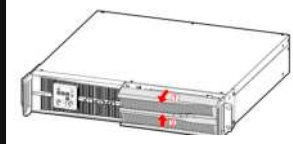
BATTERY EXPANSION · 1–3 kVA

Battery expansion
IST3-J 1–3 kVA

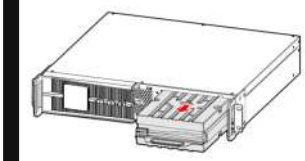
UPS and battery box packs are hot-pluggable from the front: replace them with the load running. For more backup, add 2U battery boxes in the same rack.

HOT-SWAP FROM THE FRONT PANEL

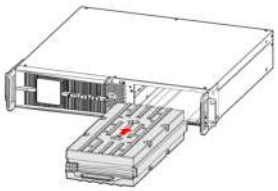
User manual, section 5.3 · same steps for 1, 2 and 3 kVA



1 Open
Remove the right front panel and the battery plate (M4 screws).



2 Pull out
Unplug the battery wire and pull the pack out of the front.



3 Push in
Slide the new pack in and plug the battery wire.



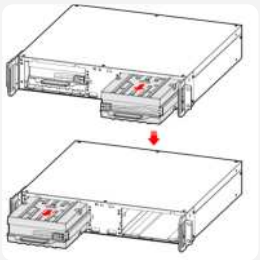
4 Close
Refit plate and panel: the load never stopped.

Stack the backup



Battery box, 1–3 kVA · 2U

UPS	Batteries (2 strings)	W × D × H mm	kg
1 kVA	2 × 3 × 12 V 9 Ah · 36 V	438 × 420 × 87	20
2 kVA	2 × 4 × 12 V 9 Ah · 48 V	438 × 570 × 87	29
3 kVA	2 × 6 × 12 V 9 Ah · 72 V	438 × 570 × 87	40



Two packs per box

Left and right packs slide out of the front of the box after removing the side panels and the battery plate. Hot-pluggable like the UPS pack.

- Same footprint as the UPS: one rack, one depth.
- Each box connects to the external battery port of the UPS.
- Add boxes for more backup: AEC sizes the number for the site.

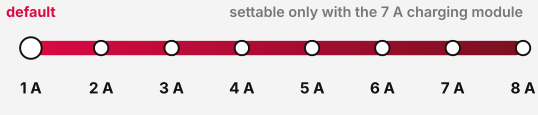
6 · 10 kVA

BBJ2, 3U, 16 × 9 Ah

Long backup models run on external BBJ2 cabinets of 16 × 12 V 9 Ah, connected to the battery expansion port on the rear panel. Add cabinets for more backup.

Charger, 1–3 kVA

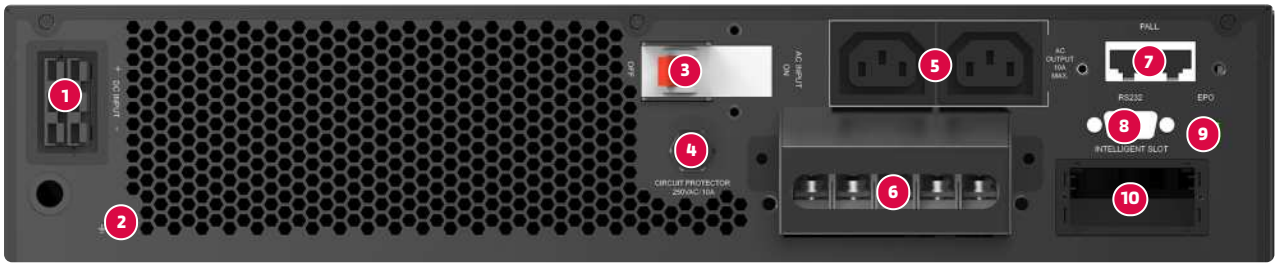
With the 7 A charging module the current is set from 1 to 8 A, to match the total Ah of the boxes.



Recommended: 0.1–0.2 C of the battery capacity

Long backup models
IST3-J 6–10 kVA

The 6 and 10 kVA models are long backup models: no internal batteries, external battery cabinets, and a wire terminal for input and output.



1. **Battery expansion port**
2. **Surge protection grounding**
3. **Input breaker**
4. **Over-current protector**
5. **Output sockets**
6. **Wire terminal**
7. **Parallel port (/B only)**
8. **RS232 port**
9. **EPO connector**
10. **Intelligent slot (USB standard)**

Good grounding

TN system, with less than 5 V AC between neutral and ground. A poor ground connection can halt a computer load when the mains fails, even though the UPS runs normally.

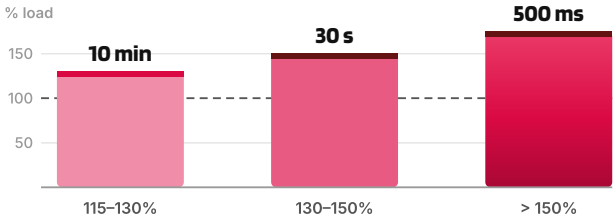
Battery set on site

192 V by default; 12 to 20 batteries of 12 V can be set through communication. Backup time set by the external battery.

Parallel version

The 10 kVA /B model can be used in parallel through its parallel port.

Overload, 6–10 kVA



- Output: 220 V ± 2% default, 208 / 220 / 230 / 240 V settable.
- THD < 1% linear, < 4% non-linear load.
- Recommended upstream input breaker: 50 A (6 kVA), 100 A (10 kVA).
- Noise < 55 dB · −5 ... 40 °C.

DID YOU KNOW?

Stored without batteries, an IST3-J tolerates −25 to 55 °C; once batteries are fitted, the recommended storage range narrows to 0–40 °C.

PANEL AND SETTINGS

Control panel and settings
IST3-J 1–10 kVA

An LCD and three buttons on the front (1–3 kVA). Settings are scrolled with SELECT and confirmed with ON; without confirmation the page closes after 20 s.





RCK · rack reading



TWR · tower

Display area
input / output voltage and frequency, load, temperature, fault code, parameters, mode

Mains mode
UPS working in mains mode

Bypass mode
UPS working in bypass mode

Battery mode
UPS working in battery mode

ECO mode
UPS working in ECO mode

Silence
buzzer silenced

Failure
UPS failure

ON

Hold 1 s: switch on · mains mode, hold 3 s: battery test · battery mode, hold 3 s: silence (again 3 s: cancel) · hold 1 s: confirm.

OFF

Hold 1 s: switch off.

SELECT

Press: scroll voltages, frequencies, battery, temperature, load and faults · hold 5 s: setting page.

Self-diagnosis: fault codes and alarms

EPO Long beep Emergency stop: bypass and inverter output closed	**BUS** Long beep DC bus voltage fault, inverter output closed	**TMP** Long beep Over-temperature: check fans and air vents	**FAN** Every 0.2 s Fan fault: alarm, then protection
OUT Long beep Output short circuit or load too large	**BAT** Long beep Battery voltage too low or too high	**Load bars** Every 0.2 s All flashing: overload, reduce the load	**Battery bars** Every 0.2 s Off, frame flashing: battery nearly empty

Fault symbols and buzzer, 1–3 kVA user manual Table 5-2 (load and battery bars: LCD energy bars).

SETTINGS

Panel and PC

ECO · INV
operating mode

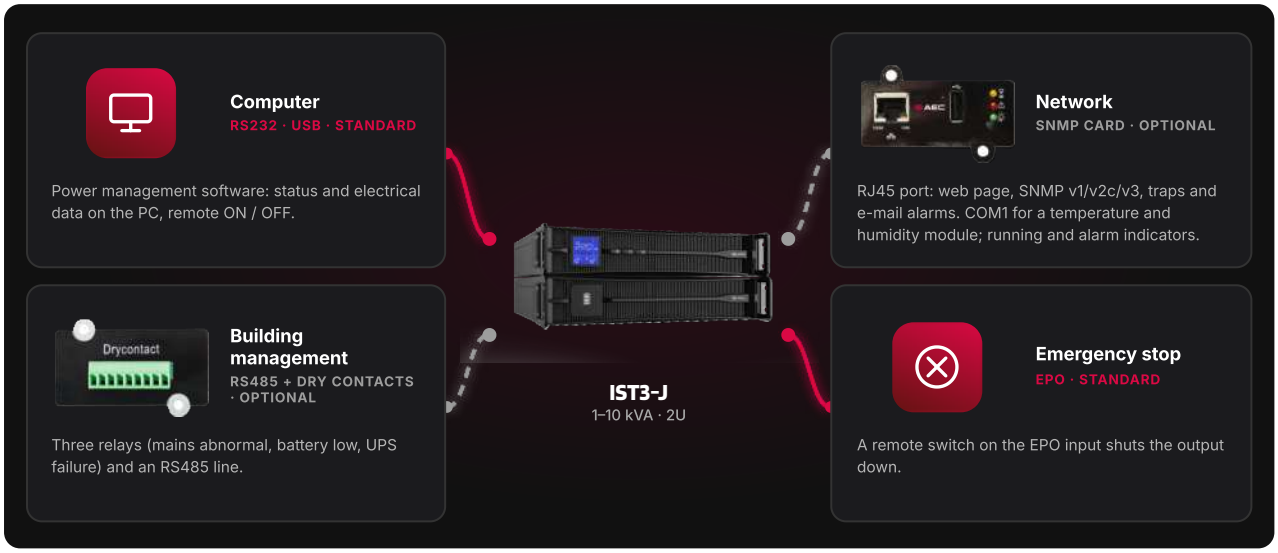
208–240
output, V; default 220

PC
programmable outlets and converter mode

CONNECTIVITY

Communication and connectivity
IST3-J 1–10 kVA

RS232 and USB with power management software as standard; cards for SNMP, RS485 with dry contacts or protocol transfer in the intelligent slot.



STANDARD

RS232 · USB

Power management software: monitoring of status and electrical data, remote ON / OFF, support for an external SNMP adaptor on RS232. USB on every model.

OPTIONAL

Intelligent slot cards

RS485 + dry contact; protocol transfer card (1–3 kVA; RS232 or RS485 on DB9, not both at once; RS485 reserved for lithium battery communication).

RS485 and dry-contact card

Pin	Signal
1 · 2	Mains abnormal: COM · NC/NO
3 · 4	Battery undervoltage: COM · NC/NO
5 · 6	UPS failure: COM · NC/NO
7 · 8	RS485-A · RS485-B

Outputs normally closed by default; jumpers CN1–CN3 select NC (pins 1–2, default) or NO (pins 2–3). Input signal below 60 V DC or 42 V AC RMS, below 1.25 A.



8-pin green terminal

RS232 cable to the computer

RS232 port of the UPS	RS232 port of the PC
Pin 9 (3)	Pin 2 · receiving end
Pin 6 (2)	Pin 3 · transmitting end
Pin 7 (5)	Pin 5 · grounding end

Pin relationship from the user manual (1–3 kVA, Table 2-7).

EPO WIRING

Closed to run, open to stop

Opening the two ports of the EPO connector closes the UPS output, and the LCD shows the EPO fault.

To restore the output, close the two ports again, power the UPS off and restart it.

TECHNICAL DATA

IST3-J 1–10 kVA

Model	1 kVA	2 kVA	3 kVA	6 kVA (L)	10 kVA (/B)
Power (VA / W)	1000 / 1000	2000 / 2000	3000 / 3000	6000 / 6000	10,000 / 10,000
Technology	high-frequency online double conversion · active PFC · DC bus ±360 V · 19-inch rack or tower, 2U				
INPUT					
Voltage range	176–295 V > 75% load · 154–176 V 50–75% · 120–154 V < 50%			176–275 V full load · 80–176 V linear derating	
Frequency · connection	50 / 60 Hz ± 10%, self-adapting · single phase, L + N + PE, TN system				
Input connection · protection	IEC inlet (C14 / C20) · over-current protector			input breaker · wire terminal · 10 A circuit protector	
Rated input current (A)	4.8	9.2	13.6	30 (max. 36)	50 (max. 60)
OUTPUT					
Voltage	208 / 220 / 230 / 240 V ± 1%, settable (default 220 V)			220 V ± 2% default · 208 / 220 / 230 / 240 V	
Frequency · waveform · transfer	50 / 60 Hz ± 0.2% in battery mode · pure sine wave · 0 ms				
Voltage distortion	THD < 2% (linear load)			THD < 1% linear · < 4% non-linear	
Power factor	1.0 (kVA = kW)				
Overload	105–110% 10 min · 110–130% 1 min · 130–150% 1 s · > 150% 200 ms			115–130% 10 min · 130–150% 30 s · > 150% 500 ms	
Output outlets	8 × C13 (1 kVA) · 8 × C13 + 1 × C19 (2–3 kVA); programmable outlets optional			2 × IEC C13 (each ≤ 10 A) + wire terminal	
Operating modes	online · ECO · battery · bypass · converter 50 / 60 Hz (from the PC)			online · ECO · battery · bypass · parallel (/B)	
BATTERY					
Internal batteries	3 × 12 V 9 Ah	4 × 12 V 9 Ah	6 × 12 V 9 Ah	external	external
Battery voltage	36 V	48 V	72 V	192 V default (12–20 × 12 V)	192 V default (12–20 × 12 V)
Backup, internal batteries	3 min full load · 9 min half load			with BBJ2 (16 × 9 Ah): 6 / 13 min (6 kVA), 3 / 8 min (10 kVA)	
Battery box	2U, hot-pluggable packs, same footprint as the UPS			3U BBJ2, 16 × 12 V 9 Ah, below the UPS	
Charger	1 A default · 1–8 A with 7 A charging module · recharge < 10 h			isolated charger, fed from the DC bus	
COMMUNICATION AND DISPLAY					
Ports	RS232 + USB · slot: RS485 + dry contacts, protocol card, SNMP · EPO			RS232 + USB · EPO · slot: RS485 + dry contacts, SNMP · parallel port (/B)	
Display	LCD, rack or tower reading (RCK / TWR) · ON, OFF, SELECT			LCD · 3 keys	
Protections · alarms	battery under-voltage, overload, short circuit, over-temperature, input overvoltage, fan, DC bus · mains abnormal, battery low, UPS fault, overload				
INSTALLATION AND ENVIRONMENT					
Input breaker (A)	10	20	32	50	100
Noise	< 50 dB			< 55 dB	
Environment	−5 … 50 °C (derated 40–50 °C) · 0–95% RH · IP20 · 2000 m · pollution degree II			−5 … 40 °C · 0–95% RH · < 1000 m (derate above)	
Storage	−25 … 55 °C without battery; with battery 0–40 °C, recharge every 3 months				
Dimensions W × D × H (mm)	438 × 423 × 86	438 × 572 × 86	438 × 572 × 86	438 × 500 × 86	438 × 500 × 86
Weight UPS · battery box (kg)	14 · 20	20 · 29	26 · 40	10.6	12.2
Standard	IEC 62040 (safety, EMC, performance)				

6 kVA: long backup model only (L). 10 kVA: long backup, /B parallel version. Backup at 25 °C with new batteries, AEC runtime tables. Specifications are subject to change without notice.