AEC

ONLINE UPS · DOUBLE CONVERSION

IST3

1–10 kVA

Clean, uninterrupted power for servers, networks and offices, in a compact tower format.

- **DSP control**
  digital signal processor
- **Single-phase in and out**
  L + N + PE connection
- **EMC class A**
  for commercial and industrial sites



STANDARD MODELS
IST3-10 · IST3-3 · IST3-1

PF 1
output power factor: kVA = kW

95.5%
AC/AC efficiency in online double conversion

5 models
1, 2, 3, 6 and 10 kVA

3 years
warranty, extendable with a maintenance contract

WHY IST3

Key features
IST3 1–10 kVA

Five power ratings in one family, with the same LCD panel and the same communication options on every model.

Online

High-frequency double conversion

Pure online design with a pure sine wave output: clean, steady power for servers, networks and other sensitive loads.

120 V

The battery stays full

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

PFC

High input power factor

Active power factor correction eases the load on the power grid: a new generation of green power.

1.0

Output power factor

Output power factor 1: every VA is a usable watt (kVA = kW), more real power from the same kVA rating.

PWM

Compact and efficient

High-frequency PWM conversion: high efficiency, small volume and light weight, with better reliability.

Protected

Full protection

Triple overcurrent protection against grid disturbances.

IST3-10 · STANDARD
on wheels, with maintenance bypass



CONNECTIVITY

Standard ports, optional cards

RS232
monitoring software, remote ON / OFF

USB
standard on every model

SNMP
optional card

EPO
emergency power off

DESIGNED FOR

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

THE RANGE

Models and range
IST3 1–10 kVA

Every rating comes as a standard model with internal batteries or as a long backup model for external battery cabinets.

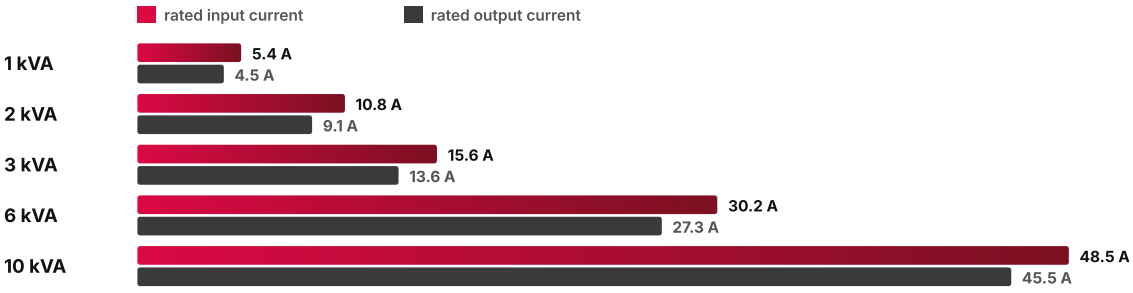


Model	VA / W	Internal batteries	Backup, full / half load	W × D × H (mm)	kg	Long backup: battery	kg
1 kVA	1000 / 1000	2 × 9 Ah · 24 V	3 min	145 × 357 × 226	8.5	36 V	4.6
2 kVA	2000 / 2000	4 × 9 Ah · 48 V	3 min	190 × 397 × 330	17.6	72 V	9.0
3 kVA	3000 / 3000	6 × 9 Ah · 72 V	3 min	190 × 397 × 330	22.5	96 V	9.2
6 kVA	6000 / 6000	16 × 9 Ah · 192 V	5 / 20 min	230 × 524 × 553	54.5	192 V	11.0
10 kVA	10,000 / 10,000	16 × 9 Ah · 192 V	1 / 15 min	230 × 524 × 553	56.2	192 V	12.5

Backup at full load for 1–3 kVA; 6 and 10 kVA full / half load. Long backup 6–10 kVA: 190 × 429 × 337 mm; 1–3 kVA same size as the standard model. 6–10 kVA: 16 to 20 batteries of 12 V settable, 192 V by default.

Rated current per model

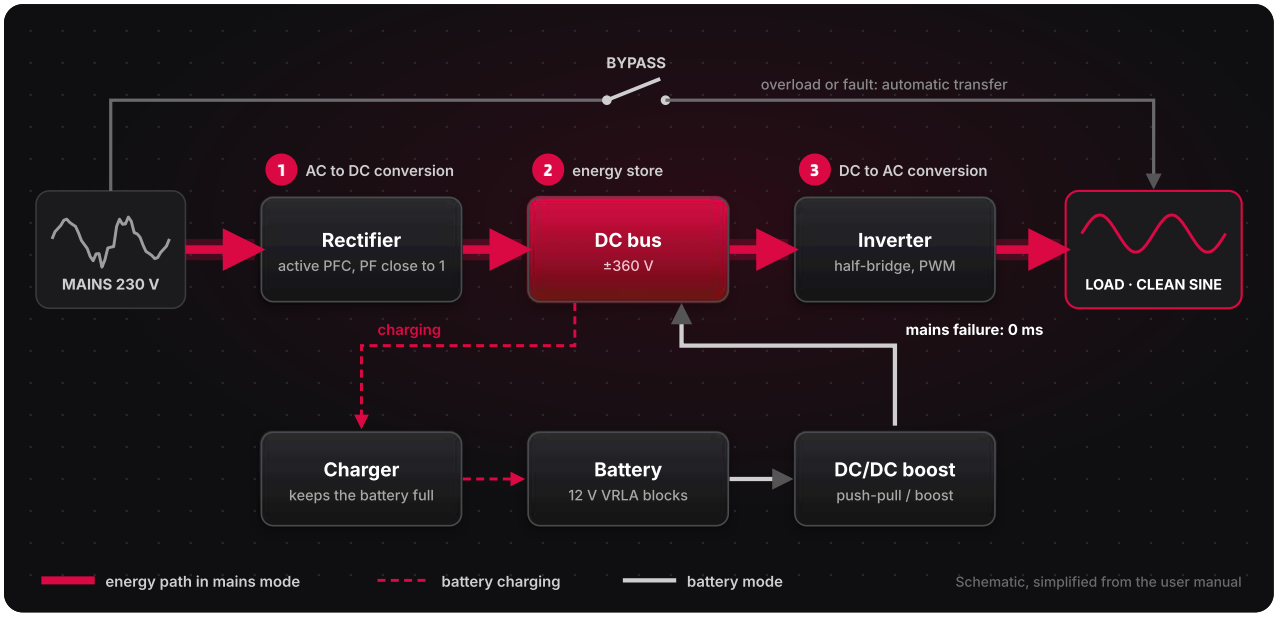
Size the supply line and the input breaker for the model



HOW IT WORKS

Operating principle
IST3 1–10 kVA

High-frequency online double conversion: in mains mode the inverter rebuilds a steady sine wave from the DC bus, and the battery takes over with no break.

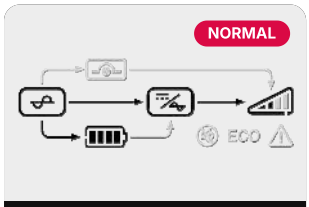


STEP 1
PFC rectifier
With the mains normal, the active PFC turns the input into a steady ±360 V DC bus, with a high input power factor.

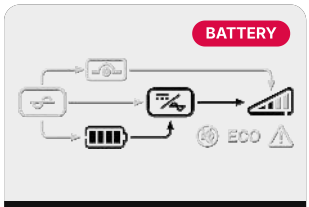
STEP 2
Inverter
A half-bridge DC/AC inverter rebuilds a steady sine wave for the load, while the charger keeps the battery full.

STEP 3
DC/DC boost
With the mains abnormal, a push-pull or boost DC/DC raises the battery voltage to the ±360 V bus: no break at the output.

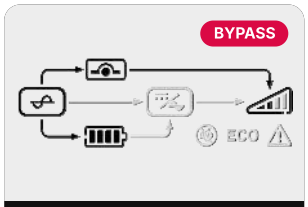
Four operating modes, shown on the LCD



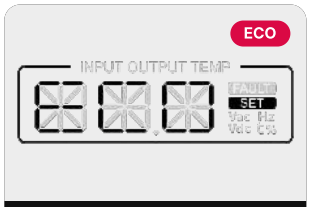
Mains mode
Mains normal: the inverter supplies the load and the battery is charged.



Battery mode
Mains abnormal: the battery is boosted to the DC bus, the inverter keeps running.



Bypass mode
The load is supplied through the bypass while the battery is charged.



ECO mode
Selected on the panel (SELECT 5 s, confirm with ON); the LCD shows ECO.

LCD in each mode, from the user manual (Fig. 2-14, 2-16, 2-15, 2-25).

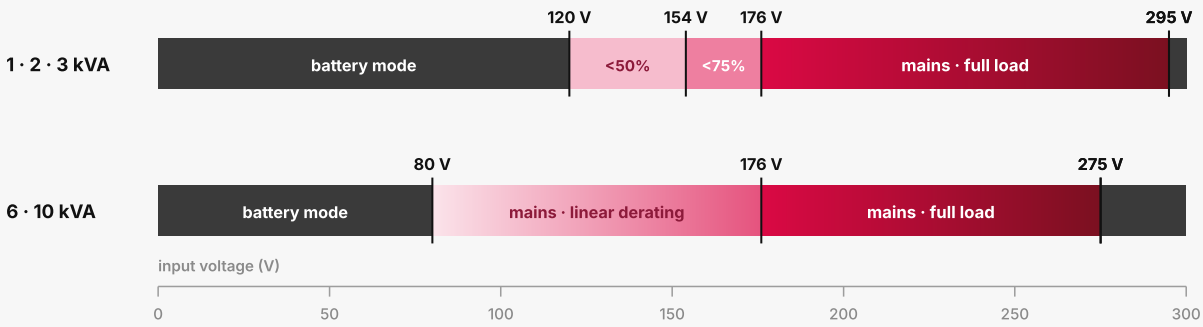
0 ms	±360 V	50 / 60 Hz	±0.2%
transfer time	DC bus	input self-adapting, ±10%	output frequency in battery mode

BATTERY-FRIENDLY

Input range and battery
IST3 1–10 kVA

A wide input window keeps the load on the mains during brownouts, so the battery is saved for real outages and stays charged.

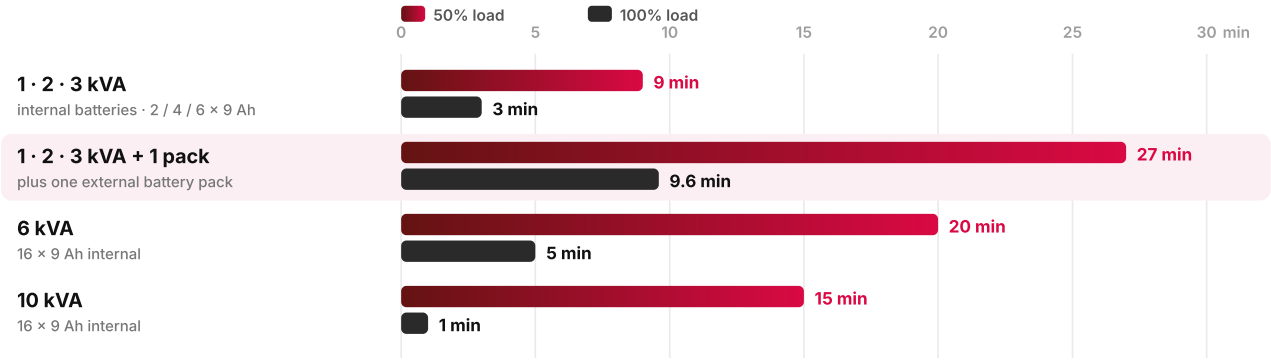
Input voltage window



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

How long does the load keep running?

Backup time with the internal batteries, and with one extra battery pack



Typical values at 25 °C with new, fully charged batteries; 50% load = 500 / 1000 / 1500 W on 1 / 2 / 3 kVA. Long backup models: as many battery cabinets as the site needs; AEC calculates the backup time for each project.

Battery care

DAY 1

1

Charge 10 hours

before first use

EVERY 4–6 MONTHS

2

Discharge and recharge

or every 2 months in hot areas

IN STORAGE

3

Recharge > 10 hours

every 3 months

3–5 YEARS

4

Typical battery life

with temperature and use

3 s
battery test from the ON button

< 75%
load: no limit on battery discharge time (1–3 kVA)

0–40 °C
storage, 20–80% RH

6 months
storage limit, then re-check; recharge every 3 months

Front and rear panels
IST3 1–3 kVA

Input and output on sockets: connect the UPS to the wall socket and the loads to the Schuko outputs. The long backup model adds the external battery cable.





1 kVA
rear panel

1. RS232 port
2. EPO connector
3. Rating label
4. USB · intelligent slot (SNMP or RS485 / dry contact)
5. 2 × Schuko output
6. Cooling fan
7. Mains input socket with fuse
8. External battery connector





2 · 3 kVA
rear panel

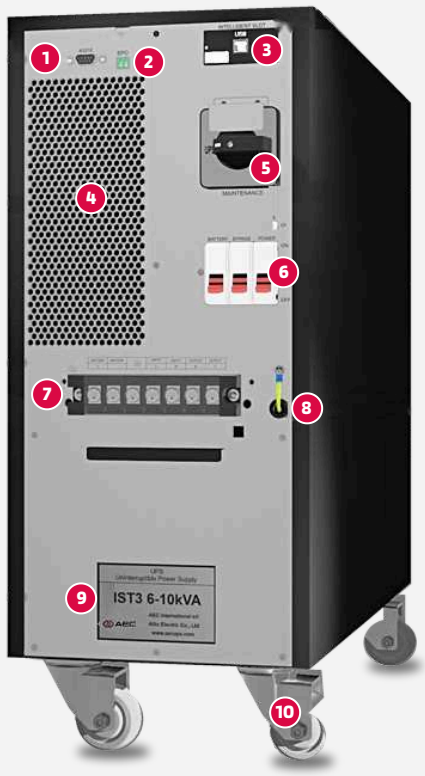
1. RS232 port
2. EPO connector
3. Rating label
4. USB · intelligent slot
5. 3 × Schuko output
6. Cooling fans
7. Overcurrent protector
8. External battery connector
9. Mains input socket

The external battery connector is standard on long backup models and optional on standard models. Load current per output socket: generally not more than 5 A. Rear panels as in the user manual, Fig. 2-7 and 2-8.

DID YOU KNOW?
Not every load suits a UPS: unbalanced, half-wave rectified or inductive loads, such as air conditioners, motors, drills or fluorescent lamps, must not be connected to the IST3.

Front and rear panels
IST3 6–10 kVA

Input, output and battery on a terminal bar. The standard model, on wheels, has its own maintenance bypass switch; the long backup model is compact and connects to external battery cabinets.



Standard model

Internal batteries, maintenance bypass, on wheels; 230 × 524 × 553 mm.

1. RS232 port
2. EPO connector
3. USB · intelligent slot
4. Ventilation grille
5. Maintenance bypass switch
6. Mains, bypass and battery breakers
7. Input, output and battery terminals
8. Ground
9. Rating label
10. Wheels



Long backup model

External battery cabinets; 190 × 429 × 337 mm.

1. RS232 port
2. EPO connector
3. USB · intelligent slot
4. Rating label
5. Ventilation grille
6. Mains and bypass breakers
7. Input, output and battery terminals

Maintenance bypass (standard 6–10 kVA)

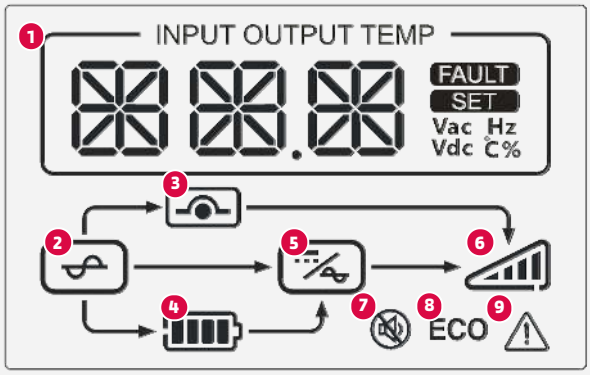
To service the UPS or replace the battery without stopping the load: switch the UPS off so it transfers to bypass, remove the maintenance bypass cover, turn the maintenance bypass switch to bypass, then switch off the mains and bypass breakers. The load is fed through the maintenance bypass; the input, output and filter-board terminals stay live.

PANEL AND DISPLAY

Display and control panel
IST3 1–10 kVA

Three buttons and an LCD show the energy path, battery and load level, fault codes and settings, with no software needed.





LCD icons, user manual Fig. 2-6; numbers as in the manual table.

1. **Display area** · Input / output voltage and frequency, load, temperature, fault code, parameters, mode.
2. **Mains** · On: mains input normal.
3. **Bypass** · On: UPS in bypass mode.
4. **Battery, 4 bars** · Running: charging · all on: full · all flashing: overvoltage · frame flashing: nearly empty.
5. **Inverter** · On: inverter working.
6. **Load, 4 bars** · Load level; all flashing: load too large.
7. **Silence** · On: buzzer silenced.
8. **ECO** · On: UPS in ECO mode.
9. **Alarm** · On: UPS failure.

ON

Hold 1 s: switch on · mains mode, hold 3 s: battery test · battery mode, hold 3 s: silence · hold 1 s: confirm a setting.

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 on the LCD

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 alarm (0.2 s beep), then protection (long beep)
OUT Long beep Output short circuit or load too large	**BAT** Long beep Battery voltage too low or too high	**CHG** Every 0.2 s Charger over-temperature or short circuit	**BYP** Every 2 s Bypass voltage or frequency abnormal

Fault symbols and buzzer, user manual Table 4-2. Settings: hold SELECT 5 s, scroll with SELECT, confirm by holding ON 1 s; without confirmation the page closes after 20 s. Settable: ECO or INV mode; output 208 / 220 / 230 / 240 V.

CONNECTIVITY

Communication and connectivity
IST3 1–10 kVA

RS232 and USB on every model; the intelligent slot takes an SNMP card or an RS485 and dry-contact card; the EPO input stops the UPS from a remote switch.



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.



RS485 and dry-contact card · 8-pin green terminal

Pin definition from the user manual, Fig. 2-12.

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, Table 2-3.

EPO WIRING

Closed to run, open to stop

The EPO input on the rear board must be closed for the UPS to work: if the function is not used, leave the 2-pin jumper terminal supplied with the UPS in place. To use it, remove the jumper and wire the remote switch.

After an EPO stop the LCD shows the EPO fault: close the contact again, power the UPS off completely and restart it.

TECHNICAL DATA

IST3 1–10 kVA

Model	1 kVA	2 kVA	3 kVA	6 kVA	10 kVA
Power (VA / W)	1000 / 1000	2000 / 2000	3000 / 3000	6000 / 6000	10,000 / 10,000
Technology	high-frequency online double conversion · active PFC rectifier · DC bus ±360 V · DSP control				
INPUT					
Voltage range	176–295 V full load · 154–176 V load < 75% · 120–154 V load < 50%			176–275 V full load · 80–176 V linear derating	
Frequency · connection	50 / 60 Hz ± 10%, self-adapting · single phase, L + N + PE				
Rated input current (A)	5.4	10.8	15.6	30.2	48.5
OUTPUT					
Voltage	220 V ± 2% (default) · 208 / 220 / 230 / 240 V settable from the panel				
Frequency · waveform	50 / 60 Hz ± 0.2% in battery mode · pure sine wave				
Voltage distortion	THD < 3% (linear load)			THD < 1% linear · < 4% non-linear	
Power factor · transfer time	1.0 (kVA = kW) · 0 ms mains to battery				
Overload	100–130% 1 min · 130–150% 1 s · > 150% 200 ms			105–130% 10 min (1 min above 30 °C) · 130–150% 30 s · > 150% 500 ms	
Rated output current (A)	4.5	9.1	13.6	27.3	45.5
Operating modes	online (INV) · ECO · battery · bypass, selected on the panel				
BATTERY					
Internal batteries, standard model	2 × 12 V 9 Ah	4 × 12 V 9 Ah	6 × 12 V 9 Ah	16 × 12 V 9 Ah	16 × 12 V 9 Ah
DC voltage standard / long backup	24 / 36 V	48 / 72 V	72 / 96 V	192 V (16–20 × 12 V)	192 V (16–20 × 12 V)
Backup time, standard model	3 min full load · 9 min half load			5 / 20 min full / half	1 / 15 min full / half
DC current, long backup (A)	29.0	27.8	31.3	30.6	52.0
Charge recovery · battery test	standard model < 10 h · long backup: depends on the battery pack · test from the ON key (3 s)				
COMMUNICATION AND DISPLAY					
Ports	RS232 and USB standard · intelligent slot: SNMP card or RS485 + 3 dry contacts (optional) · EPO, normally closed				
Display · keys	LCD with energy path, load and battery bars, fault codes · ON, OFF, SELECT				
Protections · alarms	battery under-voltage, overload, short circuit, over-temperature, input over-voltage, fan, charger · mains abnormal, battery low, UPS failure				
INSTALLATION AND ENVIRONMENT					
Input · output connection	socket + fuse · sockets	socket + overcurrent protector · sockets		terminal bar (input, output, battery); maintenance bypass on the standard model	
Input breaker (A) · AC cable (mm²)	10 · 1.5	20 · 2.5	32 · 4	50 · 6	100 · 10
Noise	< 50 dB	< 50 dB	< 55 dB	< 55 dB	< 55 dB
Environment	−5 … 40 °C (20–25 °C recommended) · 0–95% RH non-condensing · ≤ 1000 m without derating · EMC class A				
Storage	0–40 °C, 20–80% RH; recharge the batteries every 3 months				
Dimensions W × D × H (mm)	145 × 357 × 226	190 × 397 × 330		230 × 524 × 553 (standard) · 190 × 429 × 337 (L)	
Weight standard / long backup (kg)	8.5 / 4.6	17.6 / 9.0	22.5 / 9.2	54.5 / 11.0	56.2 / 12.5

Backup time at 25 °C, new batteries; half load values from AEC runtime tables. Specifications are subject to change without notice.