AEC

ONLINE UPS · RACK / TOWER

# IST8

## 1–3 kVA

**LITHIUM LFP** lithium iron phosphate

Single-phase online double-conversion UPS from 1 to 3 kVA: two rack units in a 19-inch cabinet, or standing as a tower.



**LFP**
Lithium iron phosphate battery built into the UPS

**×3.7**
Backup at full load against lead-acid in the same 2U

**PF 1**
Output power factor: 3 kVA = 3 kW

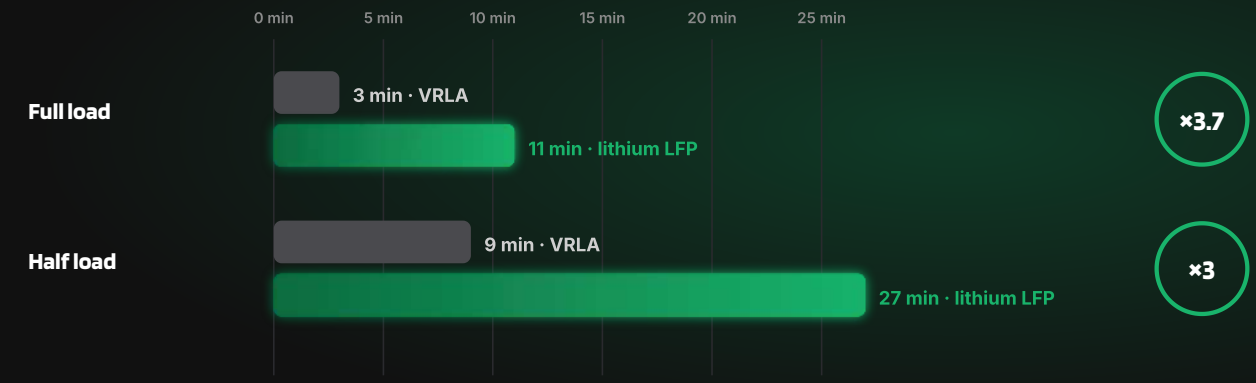
**0 ms**
Transfer time between mains and battery

LITHIUM VS LEAD-ACID

# Key features
# IST8 1–3 kVA

IST8 with its built-in lithium iron phosphate battery against an online rack UPS of the same size with lead-acid batteries: AEC runtime tables, user manuals and battery data.

BACKUP TIME, BUILT-IN BATTERY · 1, 2 AND 3 kVA




Typical values at 25 °C with new batteries, AEC runtime tables. Same values for 1, 2 and 3 kVA.

## One IST8 replaces a UPS and its battery box

For 27 minutes at half load, a lead-acid rack UPS needs an extra 2U battery box. The IST8 does it alone.

LEAD-ACID · UPS + BATTERY BOX — 4U



| 4U | 49 kg | 27 min |
|---|---|---|
| rack space | 2 kVA + box | half load |

LITHIUM LFP · IST8 ALONE — 2U



| −50% | −72% | 27 min |
|---|---|---|
| rack space | weight, 13.6 kg | half load |

| | IST8 · lithium LFP | Lead-acid rack UPS |
|---|---|---|
| Battery chemistry | Lithium iron phosphate (LiFePO4) | Lead-acid AGM (VRLA) |
| Backup, full / half load | 11 / 27 min | 3 / 9 min |
| Design life | up to 10 years | 3–5 years |
| Cycle life | 3000 cycles at 50% DoD | about 500 cycles at 50% DoD |
| Operating temperature | 0 … 60 °C | −5 … 50 °C (derated above 40 °C) |
| Output power, 3 kVA | 3000 W (PF 1) | 3000 W (PF 1) |
| Weight, 3 kVA | 16.1 kg | 26 kg |
| Transport | UN38.3 tested, UN3480 | — |

Lead-acid values: IST3-J 1–3 kVA user manual and AEC runtime tables; VRLA cycle life from the 12 V 9 Ah battery data at 25 °C.

THE RANGE

# Models and range
# IST8 1–3 kVA

The same 19-inch chassis from 1 to 3 kVA, with an LFP battery of 24, 48 or 72 V. Mounted in a rack or standing as a tower.



Tower (top) and rack (bottom) installation.



IST8 in the rack chassis.

## 1 kVA

**1000 VA / 1000 W**

- 438 × 423 × 86 mm, 8.9 kg
- Outlets: 6 × IEC C13
- Inlet: IEC C14

## 2 kVA

**2000 VA / 2000 W**

- 438 × 570 × 87 mm, 13.6 kg
- Outlets: 6 × IEC C13 + 1 × IEC C19
- Inlet: IEC C20

## 3 kVA

**3000 VA / 3000 W**

- 438 × 570 × 87 mm, 16.1 kg
- Outlets: 6 × IEC C13 + 1 × IEC C19
- Inlet: IEC C20

**91.5%**
AC/AC efficiency, 1 and 2 kVA

**93%**
AC/AC efficiency, 3 kVA

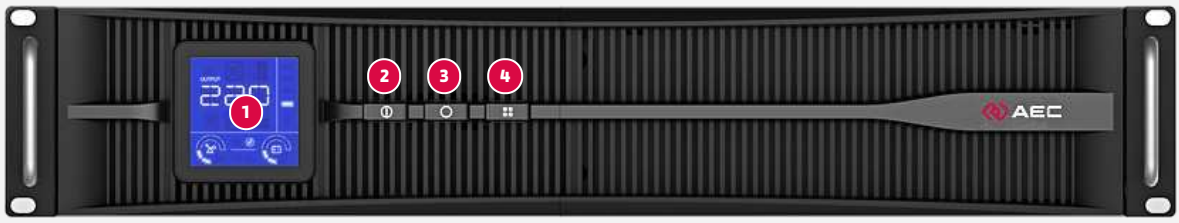
**4 A**
max. battery charging current

**19"**
rack mounting, chassis width 438 mm

FRONT PANEL

# Front panel and display
# IST8 1–3 kVA

Status, measurements and settings on the front of the UPS. Values are scrolled with SELECT and confirmed with ON.




**1 LCD**
Working status, measurements and settings.

**2 ON**
Hold 1 s to switch on. In mains mode hold 3 s for a battery test. In battery mode hold 3 s to silence the buzzer, again 3 s to cancel. In the setting page, hold 1 s to confirm.

**3 OFF**
Hold 1 s to switch the UPS off.

**4 SELECT**
Press to scroll output and input voltage and frequency, battery voltage, inner temperature, load and faults. Hold 5 s to open the setting page.




RCK · rack reading




TWR · tower reading

## What the LCD shows

Input and output voltage and frequency, load, temperature, fault code, parameters and the working mode (mode icons on page 39), plus these status icons:

- **Silence**: buzzer silenced
- **Failure**: UPS failure, with the fault code on the display
- **RCK · TWR**: reading orientation for rack or tower mounting

## Settings from the panel

**ECO · INV**
operating mode

**RCK · TWR**
rack (default) or tower reading

**208 · 220 · 230 · 240 V**
output voltage

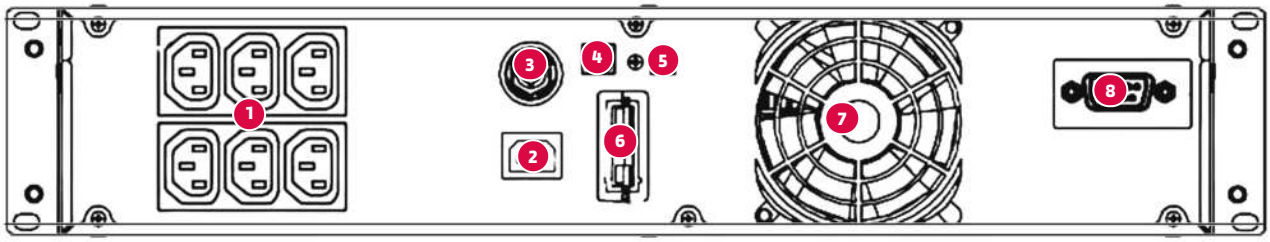
**20 s**
setting page closes without confirmation

REAR PANEL

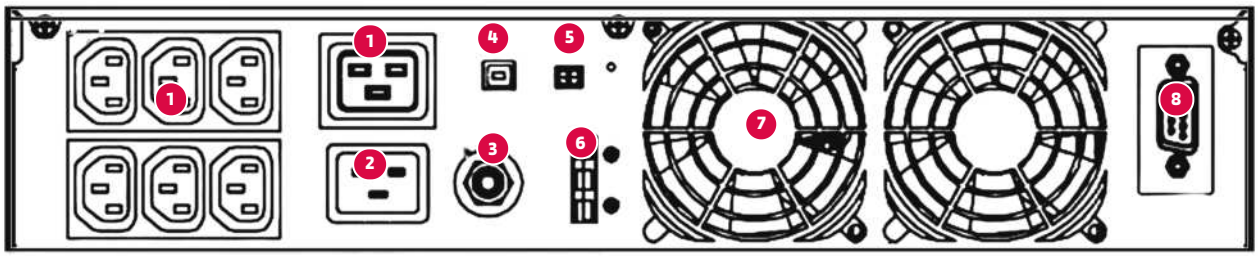
# Rear panel
# IST8 1–3 kVA

IEC inlet and outlets, battery connector and communication on the back of the 2U chassis.

**IST8 1 kVA**




**IST8 2 · 3 kVA**




**1 Output sockets**
1 kVA: 6 × IEC C13. 2–3 kVA: 6 × IEC C13 + 1 × IEC C19.

**2 Input socket**
IEC C14 (1 kVA) or C20 (2–3 kVA).

**3 Over-current protector**
Over-current protection device.

**4 USB port**
Link to a computer running the power management software.

**5 EPO connector**
Connecting its two ports closes the UPS output.

**6 Battery connector**
Plugs the internal battery in after installation.

**7 Cooling fan**
One fan on 1 kVA, two on 2–3 kVA.

**8 Intelligent slot**
DB9 port (RS232 + dry contact) as shown; takes an optional card, see below and page 40.

OPTIONS

### Intelligent slot: fitting an optional card

**1 Remove**
Take out the standard slot with the DB9 port.

**2 Fit**
Fit and fix the optional card: SNMP, or RS485 + dry contact.

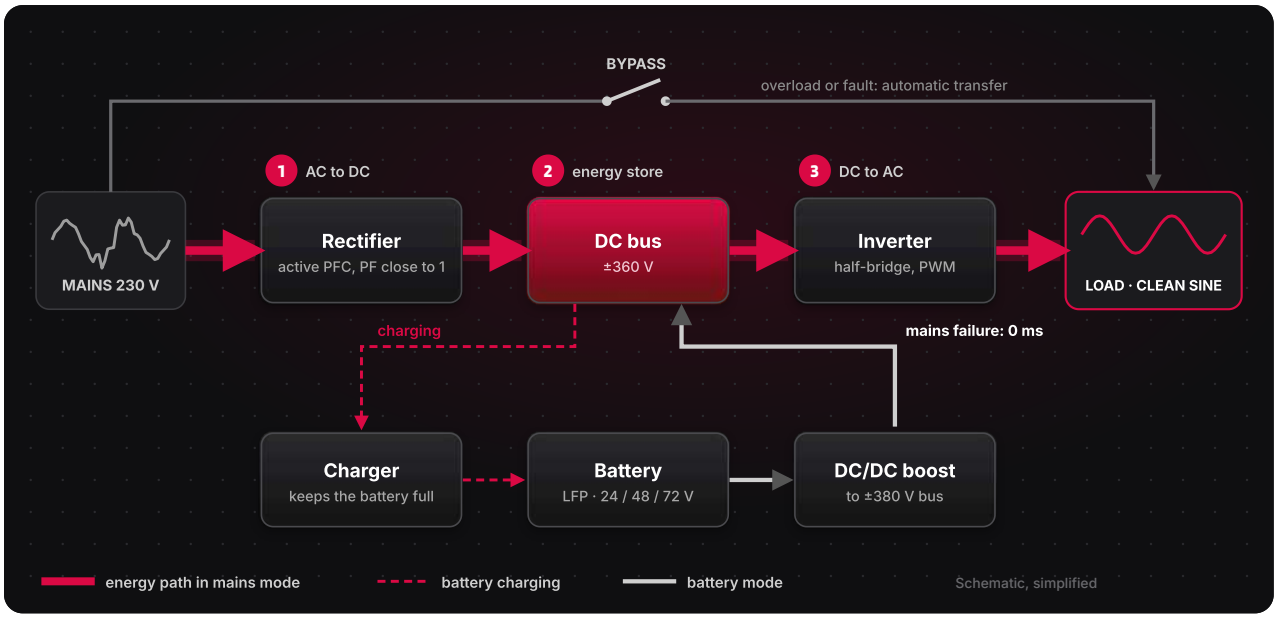
**3 Connect**
Connect the communication cable to the card.

**?** DID YOU KNOW?

The IST8 battery is made of prismatic LFP cells with their own protection board: 244.8 Wh in the 1 kVA, 489.6 Wh in the 2 kVA and 734.4 Wh in the 3 kVA.

HOW IT WORKS

# Operating modes
## IST8 1–3 kVA





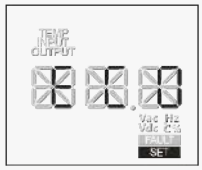

**Mains**
PFC and inverter feed the load; the battery is charged.



**Battery**
Mains abnormal: the DC/DC boosts the battery onto the DC bus.



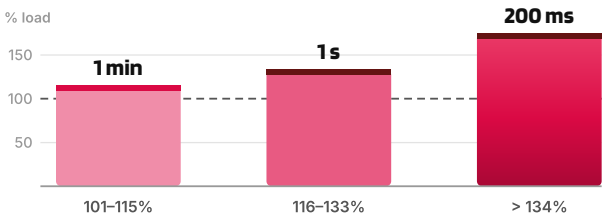
**Bypass**
Load fed from the mains through the transfer switch, e.g. after a load inrush; it returns automatically.




**ECO**
Selected from the setting page (ECO / INV).

Mode icons and ECO screen on the LCD.

## Overload




Output overload capacity.

## Fault codes on the LCD

| | |
|---|---|
| **EPO** | Emergency protection: bypass and inverter output closed |
| **BUS** | DC bus voltage fault: inverter output closed |
| **TMP** | Over-temperature: inverter output closed; check fans and air vents |
| **OUT** | Output fault: short circuit or load too large |
| **MIF** | More than 5 inverter faults within 5 minutes: UPS stays on bypass |
| **BAT** | Battery fault: voltage too low or too high |
| **FAN** | Fan fault alarm before protection |

**±360 V**
DC bus from the mains through the PFC

**±380 V**
DC bus boosted from the battery

**120–295 V**
input voltage range

**50 / 60 Hz**
auto-sensing, ± 10%

CONNECTIVITY

# Communication and connectivity
# IST8 1–3 kVA

USB with power management software as standard; the intelligent slot takes an RS232 + dry contact port, an SNMP card or an RS485 and dry-contact card.




## SNMP card




- Web page and SNMP v1 / v2c / v3 monitoring of input, output and load.
- Traps and e-mail alarms, history and event log.
- Remote ON / OFF and battery test from a web browser.
- Port for the temperature and humidity sensor.

## RS485 and dry-contact card




8-pin green terminal

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

Outputs normally closed by default; jumpers CN1–CN3: NC = 1–2, NO = 2–3. Contacts below 60 V DC or 42 V AC RMS, below 1.25 A.

**STANDARD SLOT** As delivered, the intelligent slot has a DB9 port with RS232 and a dry contact. Either optional card replaces it: see page 38 for the three fitting steps.

TECHNICAL DATA

# IST8 1–3 kVA

| Model | IST8-1-LI | IST8-2-LI | IST8-3-LI |
|---|---|---|---|
| Power (VA / W) | 1000 / 1000 | 2000 / 2000 | 3000 / 3000 |
| Technology | high-frequency online double conversion · active PFC · DC bus ±360 V (±380 V from battery) · 19-inch, 2U | | |
| **INPUT** | | | |
| Voltage range · frequency | 120–295 V AC · 50 / 60 Hz ± 10%, auto-sensing | | |
| Power factor · THDi | ≥ 0.99 · < 5% | | |
| Input socket · breaker | IEC C14 | IEC C20 · 20 A | IEC C20 · 32 A |
| **OUTPUT** | | | |
| Voltage | 208 / 220 / 230 / 240 V ± 1%, settable | | |
| Frequency (battery mode) · waveform | 50 / 60 Hz ± 0.1 Hz · pure sine wave | | |
| Power factor · voltage distortion · transfer | 1 · THDv < 3% · 0 ms | | |
| AC/AC efficiency | 91.5% | 91.5% | 93% |
| Overload | 101–115% 1 min · 116–133% 1 s · ≥ 134% 200 ms | | |
| Output sockets | 6 × IEC C13 | 6 × IEC C13 + 1 × IEC C19 | 6 × IEC C13 + 1 × IEC C19 |
| Operating modes | online (INV) · ECO · battery · bypass | | |
| **BATTERY · BUILT-IN LITHIUM IRON PHOSPHATE** | | | |
| Chemistry | LiFePO4 (LFP), prismatic cells, with protection board | | |
| Nominal voltage | 24 V | 48 V | 72 V |
| Capacity · energy | 10.2 Ah · 244.8 Wh | 10.2 Ah · 489.6 Wh | 10.2 Ah · 734.4 Wh |
| Backup time | 11 min at full load · 27 min at half load | | |
| Max. charging current · life | 4 A · designed for up to 10 years, 3000 cycles at 50% DoD | | |
| Transport | UN38.3 tested · UN3480, class 9 | | |
| **COMMUNICATION AND DISPLAY** | | | |
| Ports | USB · intelligent slot: DB9 with RS232 + dry contact as standard; optional SNMP card or RS485 + dry-contact card · EPO | | |
| Display | LCD, rack (RCK) or tower (TWR) reading · ON, OFF, SELECT | | |
| Protections | output over-voltage, battery under-voltage, input over-voltage, overload, short circuit, over-temperature | | |
| Fault codes | EPO · BUS · TMP · OUT · MIF · BAT · FAN | | |
| **ENVIRONMENT AND MECHANICS** | | | |
| Noise | < 55 dB | | |
| Environment | 0–60 °C (best 0–40 °C; long periods at 40–60 °C may reduce the output power) · 0–95% RH non-condensing · pollution degree II | | |
| Dimensions W × D × H (mm) | 438 × 423 × 86 (2U) | 438 × 570 × 87 (2U) | 438 × 570 × 87 (2U) |
| Weight (kg) | 8.9 | 13.6 | 16.1 |
| Standards | CE · EN IEC 62040-1 · EN IEC 62040-2 · EN IEC 63000 (RoHS) | | |

230 V models. Backup at 25 °C with new batteries, AEC runtime tables. Specifications are subject to change without notice.