AEC

UPS + LITHIUM · ONE CABINET

All-in-One

6–40 kVA

An online double-conversion rack UPS, the distribution switches and hot-swappable lithium modules, factory-built into one cabinet on wheels and watched from one touch screen.

ALL-IN-ONE · 600 × 1000 × 1110 MM CABINET

1 cabinet
UPS, distribution switches and lithium modules

6 models
6 to 40 kVA, single-phase or three-phase

40 · 50 · 100 Ah
hot-swappable lithium modules

up to 200 min
at 6 kW with 8 × 50 Ah modules

WHY ALL-IN-ONE

UPS and lithium battery, one delivery, one footprint

One cabinet replaces a UPS, a distribution box and a separate battery cabinet: less floor space, faster installation and long backup time in a small footprint.

1 cabinet

Nothing to assemble on site

UPS, distribution breakers (with maintenance bypass on three-phase systems) and lithium modules in one 600 × 1000 mm cabinet on wheels.

6–40 kVA

Proven rack UPS inside

IST3-J single-phase in 2U (6 and 10 kVA) or IST9 three-phase in 3U (10 to 40 kVA), online double conversion.

Hot-swap

Modules change live

Modules of 40, 50 or 100 Ah slide in like drawers. A faulty module leaves the system on its own while the others keep supplying the load.

DC/DC

Isolated from the mains

Every module has its own DC/DC converter: the battery is electrically isolated from the mains, and old and new modules work together.

2 layers

BMS from cell to system

A battery management unit in every module and a system BMS in the touch screen: cell, module and system data, fault records, early warning.

1 screen

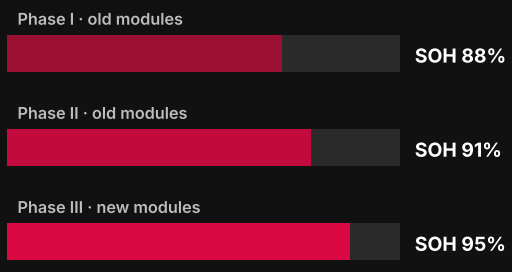
UPS and battery together

The tilted touch screen on the door shows UPS energy flow, battery cabinet, every module and every cell.

OLD AND NEW TOGETHER

Grow the battery over the years

Modules added at different times work in the same cabinet: each DC/DC converter balances its own module.



LITHIUM VS LEAD-ACID

	All-in-One	UPS + VRLA
Units to install	**1 cabinet**	UPS + battery cabinet
Installation	**1 person, 30–60 min**	2 people, 2–4 h
Cycle life	**5,000 cell cycles at 50% DoD**	300 at 30% DoD

AEC comparison, indicative values.

DESIGNED FOR

IT rooms · Offices & finance · Communication · Transport · Security systems · Education & public

THE RANGE

Six models, two cabinet versions

From 6 kVA single-phase to 40 kVA three-phase. The cabinet takes up to eight 40 or 50 Ah modules, or up to four 100 Ah modules for long backup.

FROM THE TOP

- **Touch screen**, tilted, on the door
- **Rack UPS**, 2U or 3U, and **distribution switches**: input, output, bypass, battery; maintenance bypass on three-phase
- **Lithium modules**

600 × 1000

mm footprint (W × D)

1110 mm

height on wheels; 1000 mm without wheels

All-in-One cabinet on wheels, front and three-quarter view.

Ratings

Rating	UPS inside	Input / output	UPS height	Number of modules (from backup tables)
6 kVA	IST3-J 6 kVA	1/1	2U	40 / 50 Ah: 1–8 · 100 Ah: 2–4
10 kVA	IST3-J 10 kVA	1/1	2U	40 / 50 Ah: 1–8 · 100 Ah: 2–4
10 kVA	IST9 10 kVA	3/3 · 3/1 · 1/1	3U	40 / 50 Ah: 1–8 · 100 Ah: 2–4
20 kVA	IST9 20 kVA	3/3 · 3/1 · 1/1	3U	40 / 50 Ah: 2–8 · 100 Ah: 4
30 kVA	IST9 30 kVA	3/3 · 3/1	3U	40 / 50 Ah: 3–8
40 kVA	IST9 40 kVA	3/3 · 3/1	3U	40 / 50 Ah: 4–8

40 / 50 Ah cabinet

Up to 8 modules of 223 mm width, two per row. Short and medium backup times.

100 Ah cabinet

Up to 4 modules of 440 mm width, one per row. Long backup times.

The module quantity depends on the load and the backup time required: see the backup tables. Configuration by AEC.

INSIDE THE CABINET

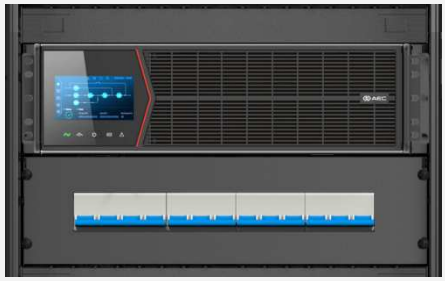
Everything wired at the factory

The UPS and the distribution switches sit at the top, the lithium modules underneath, all wired at the factory.

40 / 50 Ah cabinet with 8 modules, door open.

1. **Rack UPS**
   IST3-J 6 / 10 kVA (2U) or IST9 10–40 kVA (3U), online double conversion, with its own display.
2. **Distribution switches**
   Input, output, bypass and battery breakers on one front panel. Three-phase systems add the maintenance bypass, its cover monitored by a door switch.
3. **Lithium modules**
   Hot-swappable modules, each with its own switch, indicators, battery management unit and DC/DC converter.
4. **System touch screen**
   On the door: UPS and battery status down to the cell, records, settings and upgrades, with a 3-colour LED status bar.

UPS and distribution



IST9 UPS and, below it, the distribution switches.

Full breaker design

Input, output, bypass and battery breakers protect every path of the system; maintenance bypass breaker on three-phase systems.

Control electronics

Power supply

Two system power boards feed the control electronics.

Communication

Communication box for the optional SNMP card; RS485 port.

Module adapters

One adapter board per module for DC power and measurement.

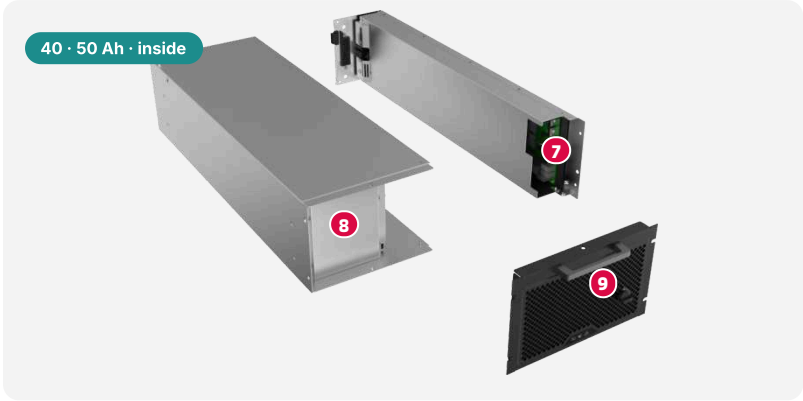
System adapter

EPO input and communication between UPS, modules and touch screen.

LITHIUM MODULES

Hot-swappable modules, managed one by one

Lithium iron phosphate modules of 40, 50 or 100 Ah slide into the cabinet like drawers. Each one has its own battery management unit, DC/DC converter, switch and indicators.

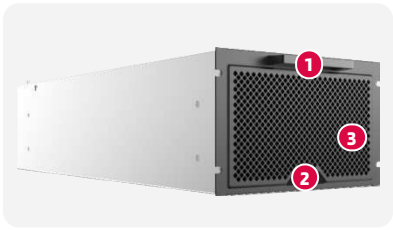


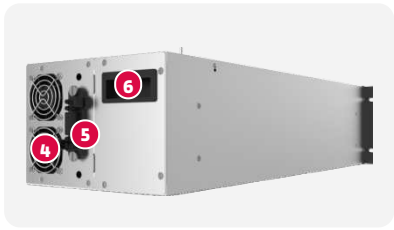
Module	V	kWh	kW	kg	max.
40 Ah	51.2	2.05	10	36 ± 1	8
50 Ah	57.6	2.88	10	37 ± 1	8
100 Ah	57.6	5.7	5	52 ± 1	4

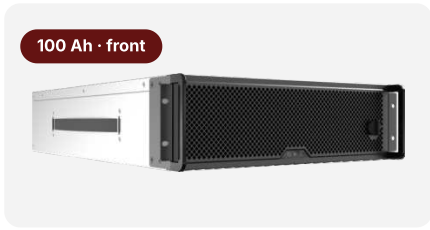
kW: DC/DC rated output per module · max.: modules per cabinet. Size 223 × 665 × 152 mm (40 / 50 Ah), 440 × 665 × 132 mm (100 Ah).

240 / ±240 / 480 V

module rated output voltage







1 front handle · **2** indicators · **3** in-place switch · **4** fans · **5** connector · **6** rear handle · **7** DC/DC module, isolated · **8** LFP cells · **9** sealing plate — 40 / 50 Ah front, rear and inside.

Three indicators

Run (green), alarm (yellow) and fault (red) on every module.

Status	Run (green)	Alarm (yellow)	Fault (red)
Charge	on		
Discharge	flashing		
Sleep	on	on	
Off		on	
Module alarm		on	
Communication fault		flashing (3 s)	
Module protection			on
Battery fault			flashing

Flashing: once per second; (3 s): once every 3 seconds.

Safe by design

- **DC/DC isolation**: the battery is electrically isolated from the mains.
- **Zero voltage at the port**: no risk of short-circuit shock when handling.
- **Fire protection** in the module, also under extreme battery failure.
- **Automatic exit**: a faulty module leaves the system, the others keep working.
- **Less leakage risk** from the battery cells.
- **Preventive alarm** before a failure.

LFP
lithium iron phosphate cells, 3.2 V

5,000
cell cycles at 50% depth of discharge

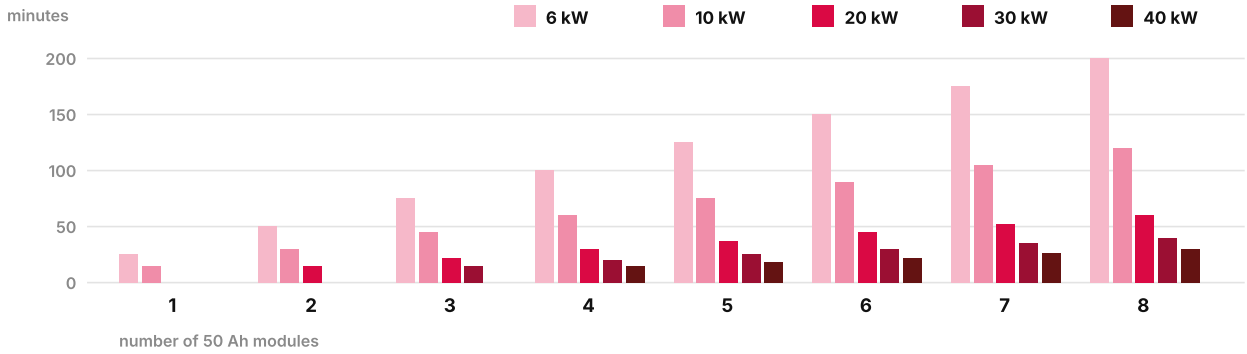
≧ 95%
SOC accuracy

0–40 °C
battery working range, 15–30 °C recommended

BACKUP TIME

Add modules, add minutes

Backup time grows one module at a time. Choose 40 or 50 Ah modules for short and medium backup, 100 Ah modules for long backup.



40 Ah modules · minutes

Load · modules	1	2	3	4	5	6	7	8
6 kW	18	36	54	72	90	108	126	144
10 kW	10	20	30	40	50	60	70	80
20 kW	–	10	15	*	25	30	35	40
30 kW	–	–	10	*	16	20	23	26
40 kW	–	–	–	10	12	15	17	20

50 Ah modules · minutes

Load · modules	1	2	3	4	5	6	7	8
6 kW	25	50	75	100	125	150	175	200
10 kW	15	30	45	60	75	90	105	120
20 kW	–	15	22	30	37	45	52	60
30 kW	–	–	15	20	25	30	35	40
40 kW	–	–	–	15	18	22	26	30

100 Ah modules · minutes

Load · modules	1	2	3	4
6 kW	–	100	150	200
10 kW	–	60	90	120
20 kW	–	–	–	60

Load in kW. Reference values, to be confirmed by actual measurement; AEC sizes every system. – : configuration not possible. * 40 Ah, 4 modules at 20 and 30 kW: value on request.

Two-layer battery management

A battery management unit in every module (CAN) and the system BMS in the touch screen watch the battery at cell, module and system level, and talk to the UPS over RS485.

EQUALISATION

Current and voltage

Intelligent current and voltage equalisation between modules: longer backup time and better use of every module.

OLD + NEW

Mix modules

New modules work together with modules already in service, so capacity can grow over the years.

SOC

Adaptive charge control

Intelligent charge and discharge management avoids over-charge and over-discharge.

TEST

Battery test without outage

Each module is tested separately, without cutting the power supply.

RECORDS

Fault recording

Fault recording and early warning for fast, accurate fault location.

EXPANSION

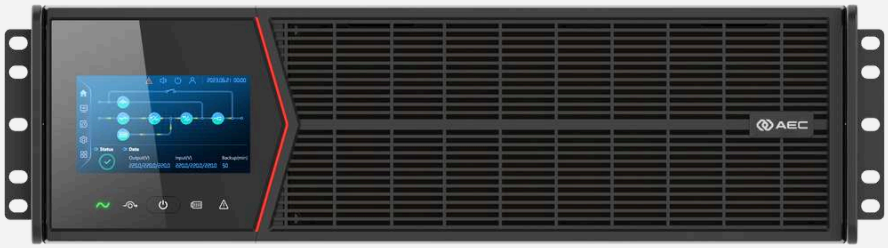
Plug and play

Modules are added or replaced in minutes, with the load supplied.

THE UPS INSIDE

Online double conversion, single-phase or three-phase

The All-in-One uses AEC rack UPS: IST3-J for 6 and 10 kVA single-phase, IST9 for 10 to 40 kVA three-phase. Full details are in the IST3-J and IST9 sections of this catalogue.



IST9 rack UPS, 3U.

3/3 · 3/1 · 1/1
IST9 input / output, 10–20 kVA; 3/3 · 3/1 on 30–40 kVA

96%
IST9 double conversion; 99% in ECO mode

PF 1
IST9 output power factor: kVA = kW

1/1 · 2U
IST3-J 6 and 10 kVA, 95.5%

Normal mode
Rectifier and inverter supply the load; the lithium modules are charged.

Battery mode
Mains abnormal: the modules supply the inverter with no break at the output.

Bypass mode
Load on the static bypass when the UPS is off (if enabled) or on a fault.

Maintenance bypass
Three-phase systems, through the distribution switches: the load stays supplied during service.

IST9 · 10–40 kVA

- Phase voltage 176–280 V at full load; 80–176 V with linear derating.
- Input 40–70 Hz; power factor ≥ 0.99; THDi ≤ 3% at resistive full load.
- Output 220 / 230 / 240 V L-N, 380 / 400 / 415 V L-L; THDv ≤ 2%.
- Inverter overload: ≤ 105% continuous · 105–110% 60 min · 110–130% 10 min · 130–155% 1 min · > 155% 200 ms.

IST3-J · 6–10 kVA

- Input 176–275 V at full load; 80–176 V with linear derating; 50 / 60 Hz ± 10%.
- Output 208 / 220 / 230 / 240 V; THD < 1% linear, < 4% non-linear load.
- Output power factor 0.9; 1.0 optional below 30 °C.
- Overload: 115–130% 10 min · 130–150% 30 s · > 150% 500 ms.

Battery cold start
The UPS starts from the lithium modules without mains.

Operating modes
IST9: generator mode, frequency converter, impact load mode and test load.

Output fine adjustment
IST9: output voltage adjustable by ± 5 V.

6–40 kVA
UPS ratings

2U · 3U
438 mm rack chassis

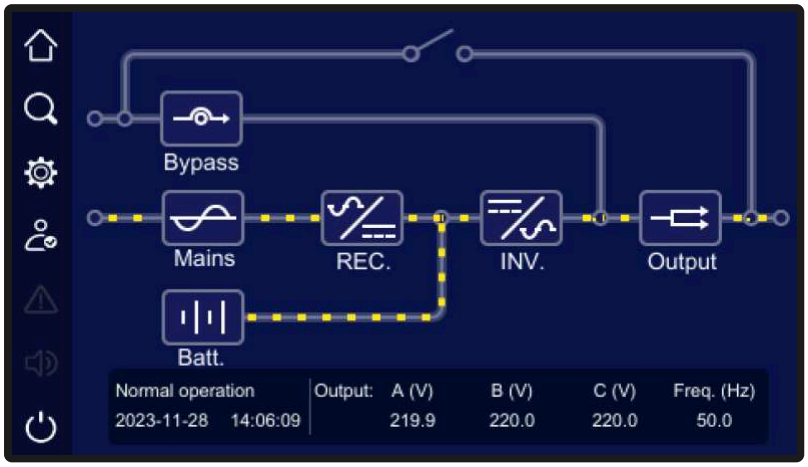
5 modes
normal · battery · bypass · ECO · maintenance

–5…40 °C
UPS working temperature

SYSTEM TOUCH SCREEN

From the cabinet down to the cell

The tilted touch screen on the door shows the whole system: UPS energy flow, battery cabinet, every module and every cell. A 3-colour LED bar shows the state from across the room.



Home page

Live energy flow from mains, bypass and battery to the output, with run status, output voltage per phase and frequency.

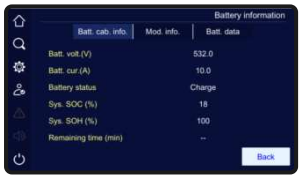
Status bar

Normal blue bar

Bypass yellow bar

Fault red bar

- Battery cabinet, module and cell data
- Current fault, history and user log
- Records downloaded to a USB stick
- Touch-screen and battery-system firmware upgraded from USB
- Password levels protect the settings



Battery cabinet

Voltage, current, status, system SOC and SOH, remaining time.

Module data

Pack voltage and temperature, SOC, SOH, current, inner temperature.

Cell voltages

Every cell of every module, page by page.

Info manage

Run information, history record, user log and device information.

Run information

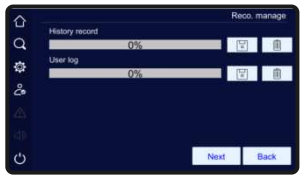
Status of mains, bypass, inverter, output, battery, fans and EPO.

History record

All abnormal events with date and time.

Device manage

Battery manage and test, communication, HMI, passwords, records, upgrade.



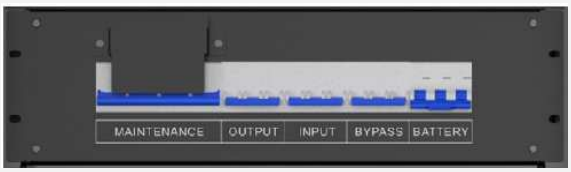
Record manage

History and user log exported to USB.

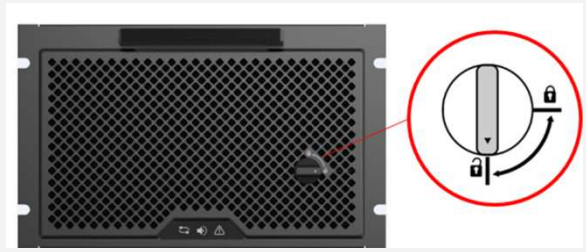
SERVICE

Serviced without switching off the load

Maintenance bypass (three-phase systems), live module replacement and USB upgrades keep the load supplied during service.



Distribution switches, three-phase system: maintenance, output, input, bypass and battery.



Module switch: unlock to isolate a module.

To maintenance bypass, without a break · three-phase systems

01

Inverter off

Press ON/OFF on the touch screen: the UPS transfers to bypass.

02

Cover off

Remove the maintenance bypass cover. If step 1 was skipped, the cover switch stops the inverter and transfers to bypass.

03

Maintenance bypass on

Close the maintenance bypass switch: the load is fed by both bypasses.

04

Isolate

Open UPS input, output and battery breakers and set every module switch to unlock: the load runs on the maintenance bypass.

Back to normal

Close input, output and battery breakers and lock the modules; open the maintenance bypass and refit its cover; switch the inverter on from the touch screen (start-up about 30 s).

Start without mains

Lock any one battery module: it powers the system and the touch screen starts automatically.

24/7
AEC technical assistance by phone and WhatsApp

<30 min
WhatsApp reply to technical and commercial questions

3 years
warranty, extendable with a maintenance contract

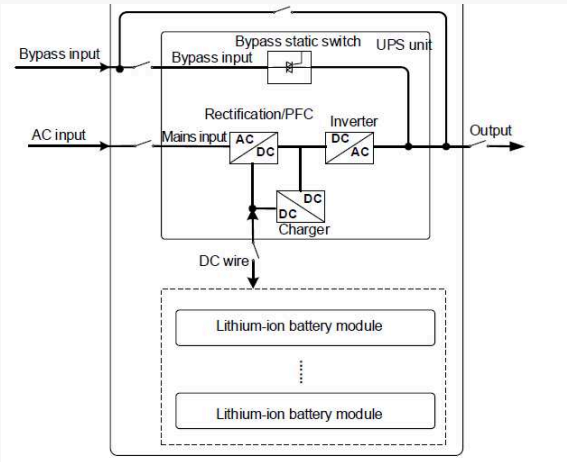
21+
countries with spare parts across the Allis Electric group

AEC SERVICE service@aecups.com +39 393 080 5211 www.aecups.com

PLANNING

One cabinet to connect

Only mains, bypass and output are wired on site; the lithium modules are already connected to the UPS inside the cabinet.



System diagram, three-phase UPS: UPS unit, DC wiring and lithium modules.

IST3-J · 6–10 kVA

Recommended upstream input breaker: 50 A (6 kVA), 100 A (10 kVA).

SITE

Space

Cabinet 600 × 1000 × 1110 mm on wheels; front access for operation, modules and breakers.

COMMISSIONING

Settings

Date, time, language, module quantity and lithium charge current set on the touch screen by AEC.

IST9 · max. steady-state current (A)

kVA	Mode	AC in	Bypass	AC out
10	33	19	15	15
10	31	19	46	46
10	11	57	46	46
20	33	35	31	30
20	31	35	91	91
20	11	105	91	91
30	33	59	46	46
30	31	59	138	138
40	33	75	61	61
40	31	75	182	182

IST9 · recommended breakers (A)

kVA	Mode	AC in	Bypass	AC out
10	33	32 × 3P	32 × 3P	32 × 3P
10	31	32 × 3P	63 × 1P	63 × 1P
10	11	80 × 1P	63 × 1P	63 × 1P
20	33	63 × 3P	50 × 3P	50 × 3P
20	31	63 × 3P	125 × 1P	125 × 1P
20	11	150 × 1P	125 × 1P	125 × 1P
30	33	100 × 3P	100 × 3P	100 × 3P
30	31	100 × 3P	200 × 1P	200 × 1P
40	33	100 × 3P	100 × 3P	100 × 3P
40	31	100 × 3P	250 × 1P	250 × 1P

From the IST9 user manual (Tables 3-1 and 3-2). Breaker 1.5–2 × max. input current, without leakage protection.

Ordering

Configuration	Description
All-in-One 6 · 10 kVA 1/1	IST3-J 6 or 10 kVA, distribution switches, 40 / 50 / 100 Ah lithium modules · code on request
All-in-One 10 · 20 kVA	IST9 10 or 20 kVA (3/3 · 3/1 · 1/1), distribution switches with maintenance bypass, 40 / 50 / 100 Ah lithium modules · code on request
All-in-One 30 · 40 kVA	IST9 30 or 40 kVA (3/3 · 3/1), distribution switches with maintenance bypass, 40 / 50 Ah lithium modules · code on request
Options	SNMP card · dry-contact card · additional modules (up to 8 × 40 / 50 Ah or 4 × 100 Ah per cabinet)

Choose the number of modules from the backup tables; AEC sizes and configures the system.

TECHNICAL DATA · UPS

All-in-One 6–40 kVA

All-in-One	6 kVA	10 kVA 1/1	10 kVA	20 kVA	30 kVA	40 kVA
UPS inside	IST3-J 6	IST3-J 10	IST9 10	IST9 20	IST9 30	IST9 40
Rated power (kVA / kW)	6 / 5.4	10 / 9	10 / 10	20 / 20	30 / 30	40 / 40
Input / output	1/1		3/3 · 3/1 · 1/1		3/3 · 3/1	
INPUT						
Voltage range	176–275 V full load · 80–176 V linear derating		phase 176–280 V full load · 80–176 V with linear derating			
Frequency	50 / 60 Hz ± 10%, auto-sensing		40–70 Hz			
Power factor · THDi	–		≥ 0.99 · ≤ 3% resistive, ≤ 5% non-linear full load			
OUTPUT						
Voltage	220 V ± 2% default · 208 / 220 / 230 / 240 V settable		220 / 230 / 240 V L-N · 380 / 400 / 415 V L-L			
Frequency on battery	50 / 60 Hz ± 0.2%		50 or 60 ± 0.1 Hz			
Voltage distortion	THD < 1% linear · < 4% non-linear		≤ 2% resistive full load			
Power factor	0.9; 1.0 optional below 30 °C		1.0			
Transfer time	0 ms		< 1 ms synchronised · < 10 ms not synchronised			
Overload	115–130% 10 min · 130–150% 30 s · > 150% 500 ms		≤ 105% continuous · 105–110% 60 min · 110–130% 10 min · 130–155% 1 min · > 155% 200 ms			
Efficiency (AC/AC)	up to 95.5%		up to 96% · 99% in ECO mode			
GENERAL						
Communication	RS232 · EPO · USB · slot: SNMP, RS485 + dry contact		RS232 · EPO · options: SNMP, RS485 + dry contact			
Noise	< 55 dB		≤ 55 dB (10–20 kVA) · ≤ 60 dB (30–40 kVA) at full load			
Working temperature · humidity	−5 … 40 °C · 0–95% non-condensing					
UPS size W × D × H (mm)	438 × 500 × 86 (2U)	438 × 500 × 86 (2U)	438 × 535 × 130 (3U)	438 × 535 × 130 (3U)	438 × 720 × 130 (3U)	438 × 720 × 130 (3U)
UPS weight (kg)	10.6	12.2	18.4	18.4	34.1	34.2

UPS data from the IST3-J and IST9 user manuals. Specifications are subject to change without notice.

CHOOSING THE UPS

6 · 10 kVA

IST3-J · 1/1 · 2U

Single-phase input and output.

10 · 20 kVA

IST9 · 3/3 · 3/1 · 1/1 · 3U

Three-phase or single-phase, set on site.

30 · 40 kVA

IST9 · 3/3 · 3/1 · 3U

Three-phase input; three-phase or single-phase output.

TECHNICAL DATA · BATTERY AND CABINET

Lithium modules and cabinet

Lithium module	40 Ah	50 Ah	100 Ah
Cells	LFP, 3.2 V	LFP, 3.2 V	LFP, 3.2 V
Rated voltage (V)	51.2	57.6	57.6
Max. energy (kWh)	2.05	2.88	5.7
DC/DC rated output power (kW)	10	10	5
Rated output voltage (V)	240 / ±240 / 480	240 / ±240 / 480	240 / ±240 / 480
Size W × D × H (mm)	223 × 665 × 152	223 × 665 × 152	440 × 665 × 132
Weight (kg)	36 ± 1	37 ± 1	52 ± 1
Max. modules per cabinet	8	8	4
Cycle life	5,000 cell cycles at 50% DoD	5,000 cell cycles at 50% DoD	5,000 cell cycles at 50% DoD
SOC accuracy	≥ 95%	≥ 95%	≥ 95%

Cabinet and system	All-in-One
Cabinet W × D × H (mm)	600 × 1000 × 1110 on wheels · 600 × 1000 × 1000 without wheels
Cabinet weight	120 kg without UPS and modules
Breakers	input, output, bypass, battery · maintenance bypass on three-phase systems
Displays	UPS display · tilted system touch screen with 3-colour LED status bar
Battery management	two layers: BMU in every module (CAN) · system BMS in the touch screen (RS485 to the UPS)
System communication	RS485 · USB on the touch screen (records, upgrades) · options: SNMP card, dry-contact card
Alarms	low battery, abnormal AC input, UPS failure, overload and more
Protections	low battery, overload, short circuit, over-temperature and more
Working temperature	UPS −5 … 40 °C · battery 0–40 °C, 15–30 °C recommended
Relative humidity	0–95%, non-condensing

40 / 50 Ah cabinet, up to 8 modules.

100 Ah cabinet, up to 4 modules.

Lithium module 40 / 50 Ah.

6–40 kVA
six models

8 · 4
max. modules: 40 / 50 Ah · 100 Ah

200 min
6 kW with 8 × 50 Ah or 4 × 100 Ah

0.6 m²
floor space of the cabinet

Lithium module data as in the L6 section of this catalogue; cabinet data from the All-in-One factory datasheet. Specifications are subject to change without notice.