AEC
Technology Behind Power

CRITICAL POWER · EUROPE · MIDDLE EAST · AFRICA

Company & Products 2026

Online UPS from 1 kVA to 1.2 MVA: single-phase, three-phase, modular and lithium. Battery systems, commissioning and service across EMEA. All ranges of the 2026 catalogue, the AEC partner programme and the new partner portal.



1968
Founded in Taipei, Taiwan

TWSE:1514
Listed on the Taiwan Stock Exchange since 1994

80+
Countries served by the AEC network

3 years
Warranty on AEC UPS, 5 years on lithium ranges

AGENDA · 21 CHAPTERS · ABOUT 104 MINUTES

The EMEA range, in depth

Show all chapters or choose the ones for your audience. Click a chapter to open it. Press C for the next chapter and M for the chapter list.

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ALLIS ELECTRIC GROUP · SINCE 1968

Allis Electric group
company overview

AEC is the UPS brand of Allis Electric Co., Ltd., founded in Taipei in 1968 and listed on the Taiwan Stock Exchange (TWSE:1514). Under the AEC UPS brand the group is recognised for uninterruptible power supplies, renewable energy, and lead-acid and lithium-ion storage.

80+
countries reached by the AEC network

844
employees in the group

6
group sites, four continents

58
years of activity, since 1968

130
electronics engineers, 15 % in R&D

TWSE:1514
listed in Taipei since 1994

3 · 5 yr
warranty: 3 on every UPS · 5 on lithium ranges

AEC history · 1968 Taipei, 1998 Lainate

Switchboards in Taipei from 1968, then transformers, switchgear and power electronics; from 1998 UPS technology for Europe, from Lainate.







58
years of activity, since 25 September 1968

1998
AEC UPS Italia in Lainate: UPS technology for Europe, the Middle East and Africa

1968
Allis Electric founded
Taipei: switchboards, motor control centres, industrial controls.

1994
Listed in Taipei
TWSE:1514. Market cap above $100 million (≈ €89 million), 500+ employees.

1998
AEC UPS Italia
Lainate, Milan: partnership with Dr. Bruno Carozzi.

2000
AEC in Europe
AEC S.p.A. sells UPS and rectifiers across Europe.

2002
AEC South Africa
PHD Powerhouse serves the Republic of South Africa.

2009
Cast-resin transformers
A plant is acquired in Germany; capacity is added in Taiwan.

2015
AEC Nippon
Joint venture in Tokyo for transformers and equipment.

2022
AEC Power · AEC USA
Regional offices in Dubai, United Arab Emirates, and Miami, Florida.

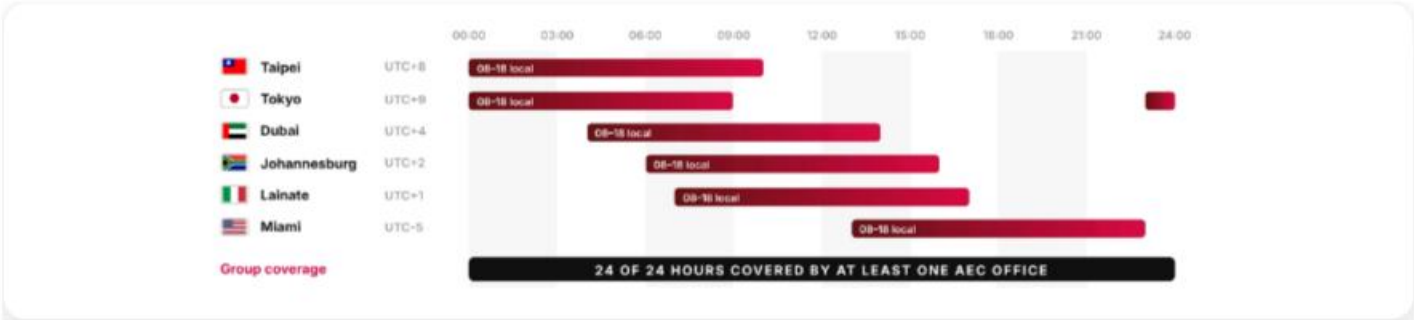
2024
Transformer plant 2
The new Yangmei transformer plant is commissioned in Taiwan.

GLOBAL PRESENCE

AEC group · six sites, one service network

Subsidiaries, branch offices and certified partners, with local stock and field engineers where customers operate. Europe, the Middle East and Africa are served from Lainate.





- **Lainate · Milan**
  AEC International Srl · Europe, Middle East and Africa
- **Taipei**
  Allis Electric Co., Ltd. · group headquarters
- **Dubai**
  AEC Power LLC · Middle East
- **Johannesburg**
  AEC PHD Powerhouse Ltd · Republic of South Africa
- **Tokyo**
  AEC Nippon Co., Ltd. · transformers and equipment
- **Miami**
  AEC UPS USA LLC · North and Latin America

11+
service centres staffed 24/7

21+
countries with spare parts in stock

80+
countries reached



AEC INTERNATIONAL · LAINATE, MILAN

AEC INTERNATIONAL SRL · LAINATE, ITALY

AEC International
the EMEA business centre

AEC International serves Europe, the Middle East and Africa from Lainate, in the Milan business area. UPS and critical power have been its only business since 1998.

1998
UPS and critical power, only business

24/7
assistance by phone and WhatsApp · +39 393 080 5211

20/20
Italian regions with an AEC agency

80+
countries reached by the AEC network

11+
service centres staffed 24/7 in the group

3 · 5 yr
3 on every UPS · 5 on lithium ranges

One hub · for three continents

Founded in Lainate through a partnership between Allis Electric and Dr. Bruno Carozzi, AEC International builds on more than 30 years of experience in critical infrastructure. Milan is Italy's business capital, with two international airports and direct flights to most EMEA capitals.



LAINATE · MILAN, EMEA BUSINESS CENTRE

01
Sales and engineering
Sizing, offers and project support for every EMEA market

02
Stock and logistics
UPS, batteries and spare parts shipped from Lainate

03
Configuration and testing
Every unit set up for its site, loads and battery autonomy

04
Service and training
Commissioning, 24/7 assistance and technical courses

Europe
Sales, stock and service from Lainate

Middle East
AEC Power (UAE), Dubai

Africa
AEC South Africa, Johannesburg

AEC service · one partner for the whole life of the system

AEC specialists follow every phase of a project, from design to installation and maintenance, including battery replacement and generator testing.

01
Consulting
Feasibility studies and design for critical sites, data centres and solar plants.

02
Pre-sales
UPS, battery and parallel systems sized by AEC engineers.

03
Installation
Site survey, positioning and cabling of UPS and battery cabinets.

04
Commissioning
Verification of every value, parameter, access level and dry contact.

05
Assistance 24/7
Phone and WhatsApp around the clock, on-site when needed.

06
Maintenance
Contracts tailored to the site: batteries, tests, generator checks.

24/7
assistance, also on non-working days

<30 min
WhatsApp reply to any question

3 · 5 years
warranty UPS · lithium ranges

21+
countries with spare parts

A technical or sales question?

We reply on WhatsApp in under 30 minutes, 24 hours a day.

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Allis Electric
revenue and profit

Group figures of Allis Electric Co., Ltd. (TWSE:1514), parent company of the AEC group, in US dollars; euro values at the October 2026 rate. Revenue more than doubled in five years, net profit tripled.

$325M
group revenue 2025 · ≈ €290M · +10.2 %

$39M
net profit 2025 · ≈ €35M · ×3.0 since 2020

12.0 %
net margin 2025

~$894M
market cap, 8 Oct 2026 · ≈ €798M

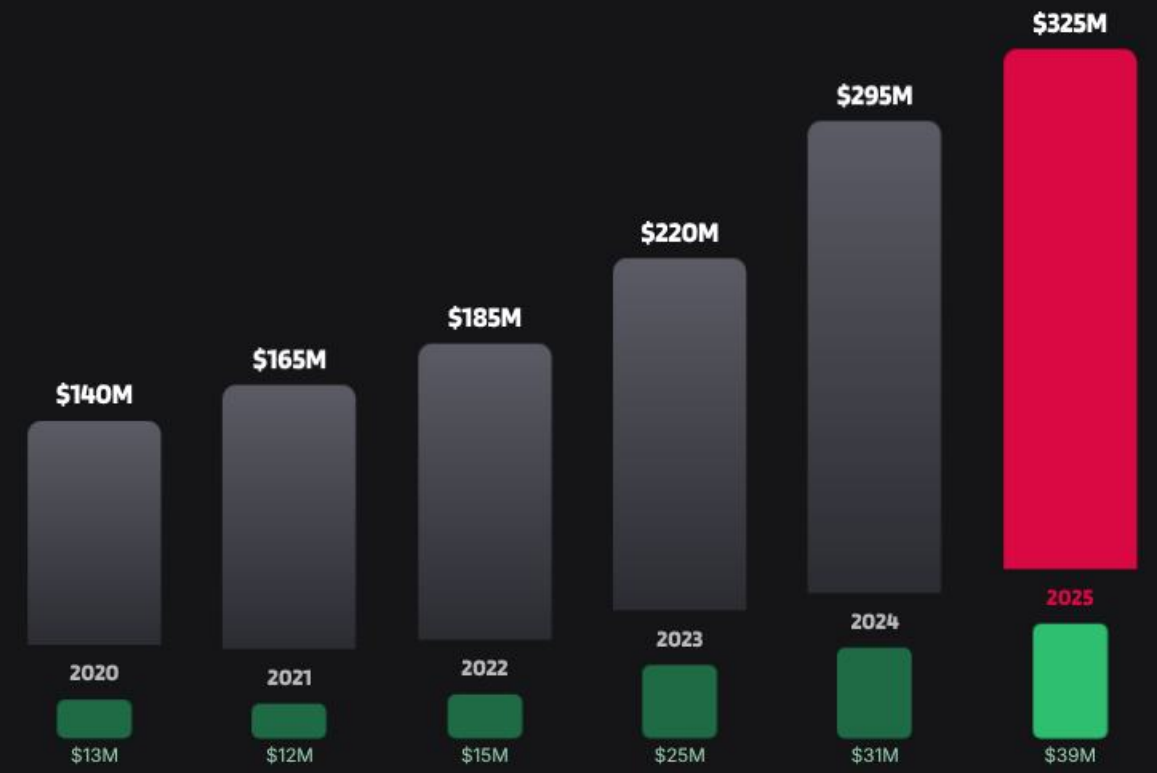
≈$19.5M
R&D 2025, 6 % of revenue · ≈ €17.4M

130
electronics engineers

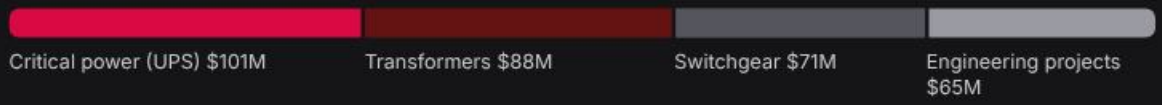
15 %
workforce in R&D

Revenue and net profit, USD million

×2.3 revenue · CAGR +18.3 %



REVENUE BY DIVISION, 2025 · $325M



Critical power (UPS) $101M · Transformers $88M · Switchgear $71M · Engineering projects $65M

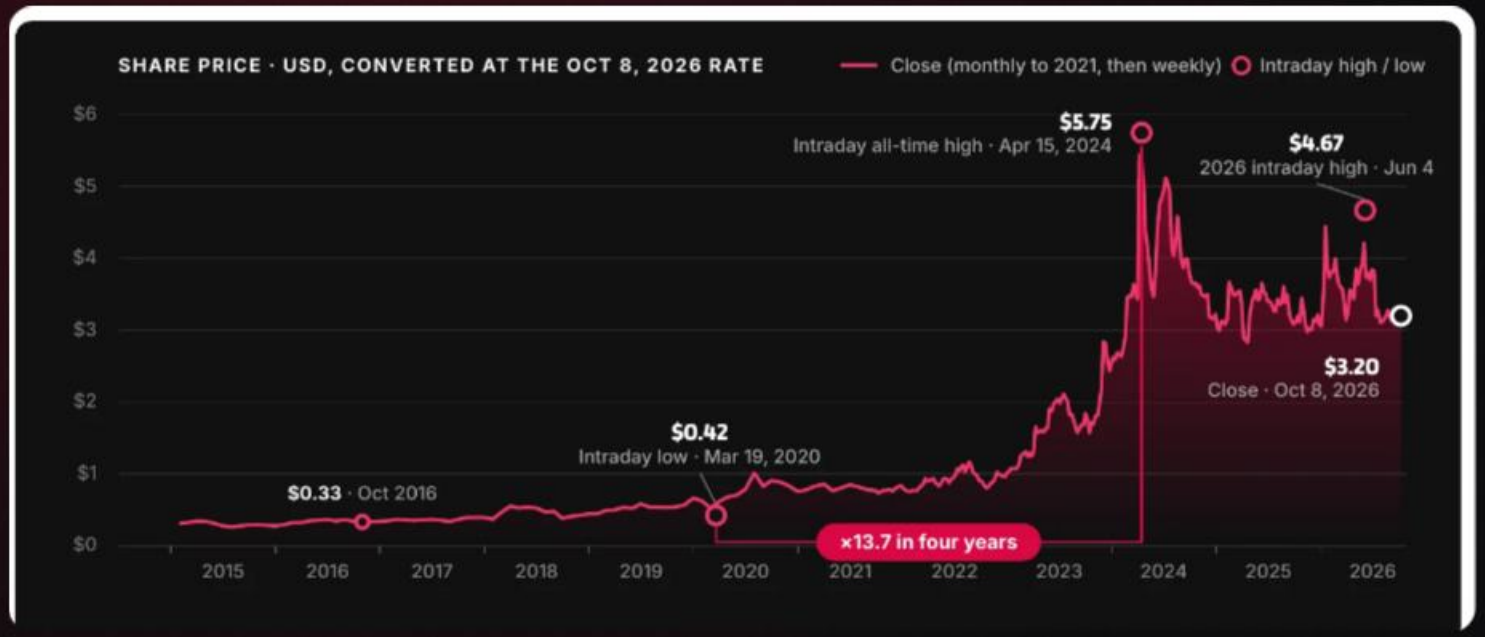
Allis Electric Co., Ltd. (TWSE:1514) consolidated results, converted to US dollars. Gray: revenue · green: net profit. Growth rates and margins calculated from the group figures.

ON THE STOCK EXCHANGE

Allis Electric stock

TWSE:1514, 2015–2026

Listed in Taipei since March 1994. Grid investment, semiconductor fabs and AI data centres have taken the share price, the dividend and the order book to record highs.



×13.7
2020 low to 2024 high

×9.7
share price in ten years

$894M
market capitalisation · ≈ €798M

×2.9
cash dividend per share



Power grid
substations, smart grid

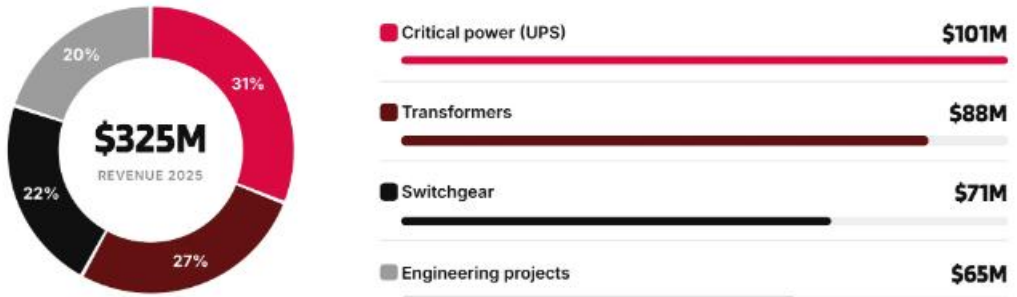
Semiconductor fabs
Taiwan, USA, Japan, Singapore, Germany

AI data centres
Asia and Latin America

Rail
third-generation train control, Taiwan Railway

Group businesses · four divisions

Critical power is the largest division of the group. Transformers and switchgear, where the group began in 1968, and engineering projects complete the portfolio.



REVENUE BY DIVISION · SHARE OF 2025 GROUP SALES

1 kVA – 1.2 MVA

Critical power

UPS and CPSS systems, lead-acid and lithium battery storage.

up to 36 kV · 15,000 kVA

Transformers

Where AEC began in 1968: cast resin, oil-immersed, dry type and amorphous core.

3.3 kV – 24 kV

Switchgear

Metal-clad, metal-enclosed and gas-insulated, plus low-voltage panels.

Data centres · solar plants

Engineering projects

Feasibility studies and design for critical sites, data centres and solar plants.

Manufactured by the group, delivered by AEC

Allis Electric Group
Design and manufacturing

→

AEC International
Sizing · configuration · commissioning · service

→

Your site
Continuity of power

AEC products are designed and manufactured within the Allis Electric Group. In Europe, the Middle East and Africa, AEC International sizes, configures, commissions and services them, with spare parts in stock and field engineers in the region.

OUR TECHNOLOGY · WHAT AEC FOCUSES ON

Our UPS expertise · lithium, three-level IGBT, modular, transformer

Every AEC UPS is online double conversion. Around that core, AEC concentrates its engineering on four technologies, and they run through every range that follows.

LFP lithium

Lithium iron phosphate cells, built in or in modules: longer life, less weight, faster recharge.

5 years
warranty on the lithium ranges

10+ years
LFP cells, 3,000–5,000 cycles at 50% DoD

×3.7
backup at full load against lead-acid, IST8 in 2U

IST8 · ALL-IN-ONE · L6

Three-level IGBT

Three-level inverters with full digital control: cleaner output, lower switching losses.

0 ms
online double conversion, mains to battery

PF 1
kVA = kW on IST3, IST3-J, IST8, IST9, IST7 10–40 and IST7 60–200

up to 96.5 %
AC/AC efficiency, IST7 60–200 · 99 % ECO

IST7 10–40 · IST7 60–200 · CPSS7

Modular N+X

Hot-swappable power modules and battery modules: grow with the load, service with the load on, keep a spare.

30 · 50 · 100 kVA
power modules, swapped live

N+1
one extra power module for redundancy

98.1 %
efficiency with PLUS power modules

IST6-120 · IST6 200–500 · IST6 400–1200 · L6

Isolation transformer

A Δ/Y output transformer built into every model, behind an IGBT rectifier that keeps the grid clean.

Δ/Y
isolation on every model, 20–200 kVA

< 5 %
input THDi, PF ≥ 0.99

100 %
three-phase unbalanced load

IST7-T

THE RANGE

From 1 kVA to 1.2 MVA

Eleven UPS ranges, sorted by power, form factor and battery technology, the CPSS7 for safety services, plus their battery systems.



IST3
1–10 kVA
Single-phase · 230 V



IST3-J
1–10 kVA
Single-phase · 230 V



IST8
1–3 kVA
Single-phase · 230 V



All-in-One
10–40 kVA
Three-phase · 400 V



IST9
10–40 kVA
Three-phase · 400 V



IST7 10–40
10–40 kVA
Three-phase · 400 V



IST7 60–200
60–200 kVA
Three-phase · 400 V



IST7-T
20–200 kVA
Three-phase · 400 V



IST6-120
30–120 kVA
Modular · 400 V



IST6 200–500
200–500 kVA
Modular · 400 V



IST6 400–1200
400–1200 kVA
Modular · 400 V



CPSS7
10–200 kVA
Safety services · EN 50171



L6 Lithium
40 · 50 · 100 Ah
Energy storage



Battery cabinets
9–100 Ah
Energy storage



OZ Power VRLA
9–200 Ah
Energy storage

THE RANGE BY POWER

Every range by power

kVA on a logarithmic scale, from the smallest to the largest model of each range.



SELECTION GUIDE

Which range for your load

Range	Ratings	Input / output	Battery
IST3	1–10 kVA	1/1, 230 V	VRLA 9 Ah inside, or external (long backup models)
IST3-J	1–10 kVA	1/1, 230 V	VRLA inside (1–3 kVA) or external in rack cabinets (6–10 kVA)
IST8	1–3 kVA	1/1, 230 V	LFP lithium inside
All-in-One	10–40 kVA	1/1 (10 kVA, IST3-J inside); 3/3 · 3/1 (10–40 kVA), 1/1 up to 20 kVA	LFP lithium modules, 40 / 50 / 100 Ah, hot-swap
IST9	10–40 kVA	3/3 · 3/1; 1/1 on 10–20 kVA	external VRLA (BBJ2 rack cabinets) or the approved lithium system
IST7 10–40	10–40 kVA	3/3 · 3/1; 1/1 on 10–20 kVA	VRLA inside (S models) and / or in BB4–BB8 cabinets
IST7 60–200	60–200 kVA	3/3, 400 V	external VRLA (BB5–BB8) or lithium with the BMS card
IST7-T	20–200 kVA	3/3, 400 V, isolated output	external VRLA or lithium
IST6-120	30–120 kVA	3/3, 400 V	external VRLA or lithium with the BMS card
IST6 200–500	200–500 kVA	3/3, 400 V	external VRLA or lithium with the BMS card
IST6 400–1200	400–1200 kVA	3/3, 400 V	external VRLA or lithium with the BMS card

SINGLE-PHASE · 230 V

IST3

1–10 kVA

Clean power, zero transfer time.



PF 1
output power factor: kVA = kW

95.5%
AC/AC efficiency in online double conversion

3 years
warranty, extendable with a maintenance contract

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

IST3 1–10 kVA · key features

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.

RS232

monitoring software, remote ON / OFF

USB

standard on every model

SNMP

optional card

EPO

emergency power off

Models and range · to scale

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



Model	Batteries	Backup full / half	W × D × H (mm)	kg
1 kVA	2 × 9 Ah	3 min	145 × 357 × 226	8.5
2 kVA	4 × 9 Ah	3 min	190 × 397 × 330	17.6
3 kVA	6 × 9 Ah	3 min	190 × 397 × 330	22.5
6 kVA	16 × 9 Ah	5 / 20 min	230 × 524 × 553	54.5
10 kVA	16 × 9 Ah	1 / 15 min	230 × 524 × 553	56.2

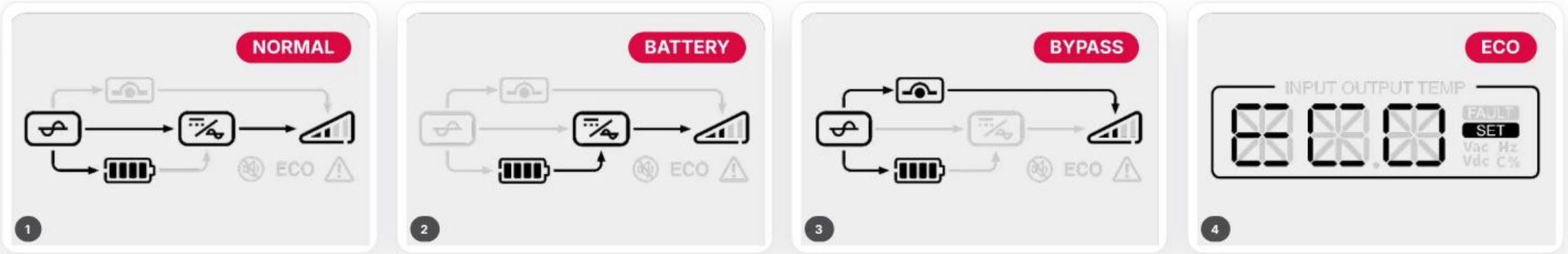
Battery voltage and long backup models

	1 kVA	2 kVA	3 kVA	6 kVA	10 kVA
V standard	24 V	48 V	72 V	192 V	192 V
V long backup	36 V	72 V	96 V	192 V	192 V
kg long backup	4.6	9.0	9.2	11.0	12.5

VA / W: 1000 / 1000 to 10,000 / 10,000. 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.

Four operating modes · shown on the LCD

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.



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

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

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

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

0 ms
transfer time

±360 V
DC bus

50 / 60 Hz
input self-adapting, ±10%

±0.2%
output frequency in battery mode

How long does the load keep running?

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



Red bars: 50% load · black bars: 100% load. 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.

176–295 V
1–3 kVA at full load; 154–176 V with load below 75%, 120–154 V with load below 50%

176–275 V
6–10 kVA at full load; 80–176 V with linear derating

50 / 60 Hz
input frequency ± 10%, self-adapting

Rear panels · 2 · 3 kVA and 6–10 kVA

2 · 3 kVA: input and output on sockets. 6–10 kVA: input, output and battery on a terminal bar; the standard model, on wheels, has its own maintenance bypass switch.

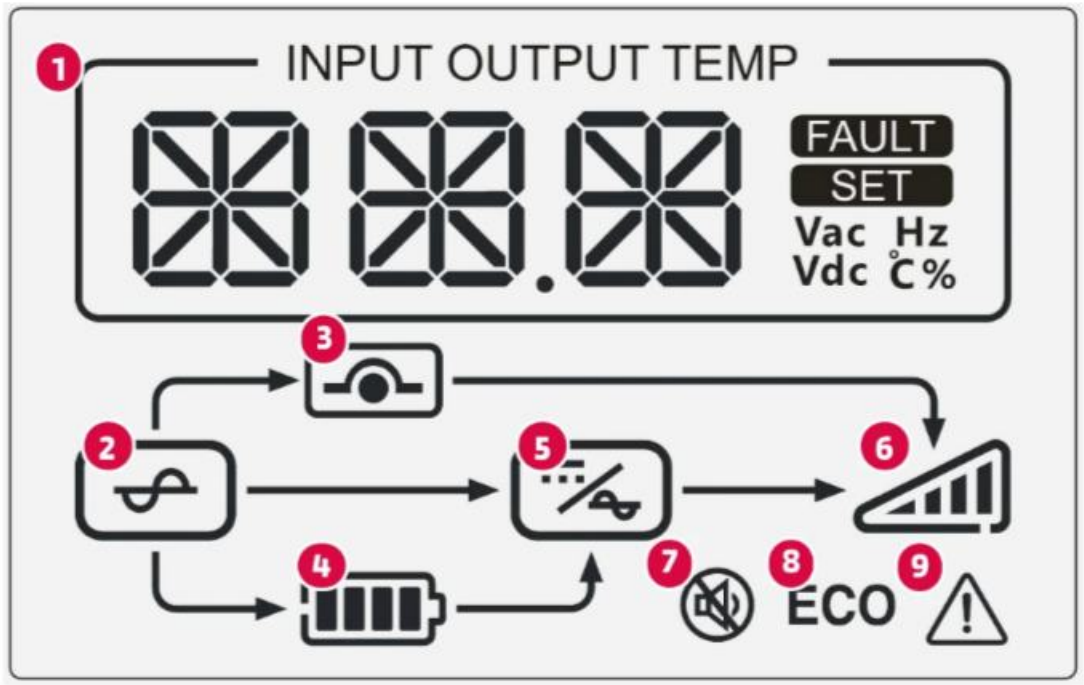


	2 · 3 kVA	6–10 kVA · standard
1	RS232 port	RS232 port
2	EPO connector	EPO connector
3	Rating label	USB · intelligent slot
4	USB · intelligent slot	Ventilation grille
5	3 × Schuko output	Maintenance bypass switch
6	Cooling fans	Mains, bypass and battery breakers
7	Overcurrent protector	Input, output and battery terminals
8	External battery connector	Ground
9	Mains input socket	Rating label
10		Wheels

USB · intelligent slot: SNMP or RS485 / dry contact. 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.

Display and control panel

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



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, 3 s: battery test · battery mode, 3 s: silence · 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.

IST3 · technical data

	1 kVA	2 kVA	3 kVA	6 kVA	10 kVA
RATING					
Power (VA / W)	1000 / 1000	2000 / 2000	3000 / 3000	6000 / 6000	10000 / 10000
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				
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 · 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	

	1 kVA	2 kVA	3 kVA	6 kVA	10 kVA
BATTERY					
Voltage, standard model	24 V	48 V	72 V	192 V (16–20 × 12 V settable)	192 V (16–20 × 12 V settable)
Voltage, long backup model	36 V	72 V	96 V	192 V	192 V
Backup time, standard model	3 min at full load			5–20 min full / half load	1–15 min full / half load
Charge recovery	standard model < 10 h · long backup: depends on the battery pack				
GENERAL					
Communication	RS232 and USB standard · SNMP card or RS485 and dry-contact card optional · EPO				
Protections	battery undervoltage, overload, short circuit, over-temperature, input overvoltage				
Noise	< 50 dB	< 50 dB	< 55 dB	< 55 dB	< 55 dB
Environment	−5 … 40 °C · 0–95% RH non-condensing · ≤ 1,000 m without derating				
Dimensions W × D × H, standard	145 × 357 × 226	190 × 397 × 330		230 × 524 × 553 mm	
Dimensions W × D × H, long backup	145 × 357 × 226	190 × 397 × 330		190 × 429 × 337 mm	
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

SINGLE-PHASE · 230 V

IST3-J

1–10 kVA

Online protection inside the rack.



PF 1
output power factor: kVA = kW

95.5%
AC/AC efficiency in
online double conversion

3 years
warranty, extendable with
a maintenance contract

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

IST3-J 1–10 kVA · key features

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.

1.0
output power factor, kVA = kW

< 50 dB
noise level, 1–3 kVA

IEC 62040
safety, EMC and performance

Models and range · 19-inch, 2U

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





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

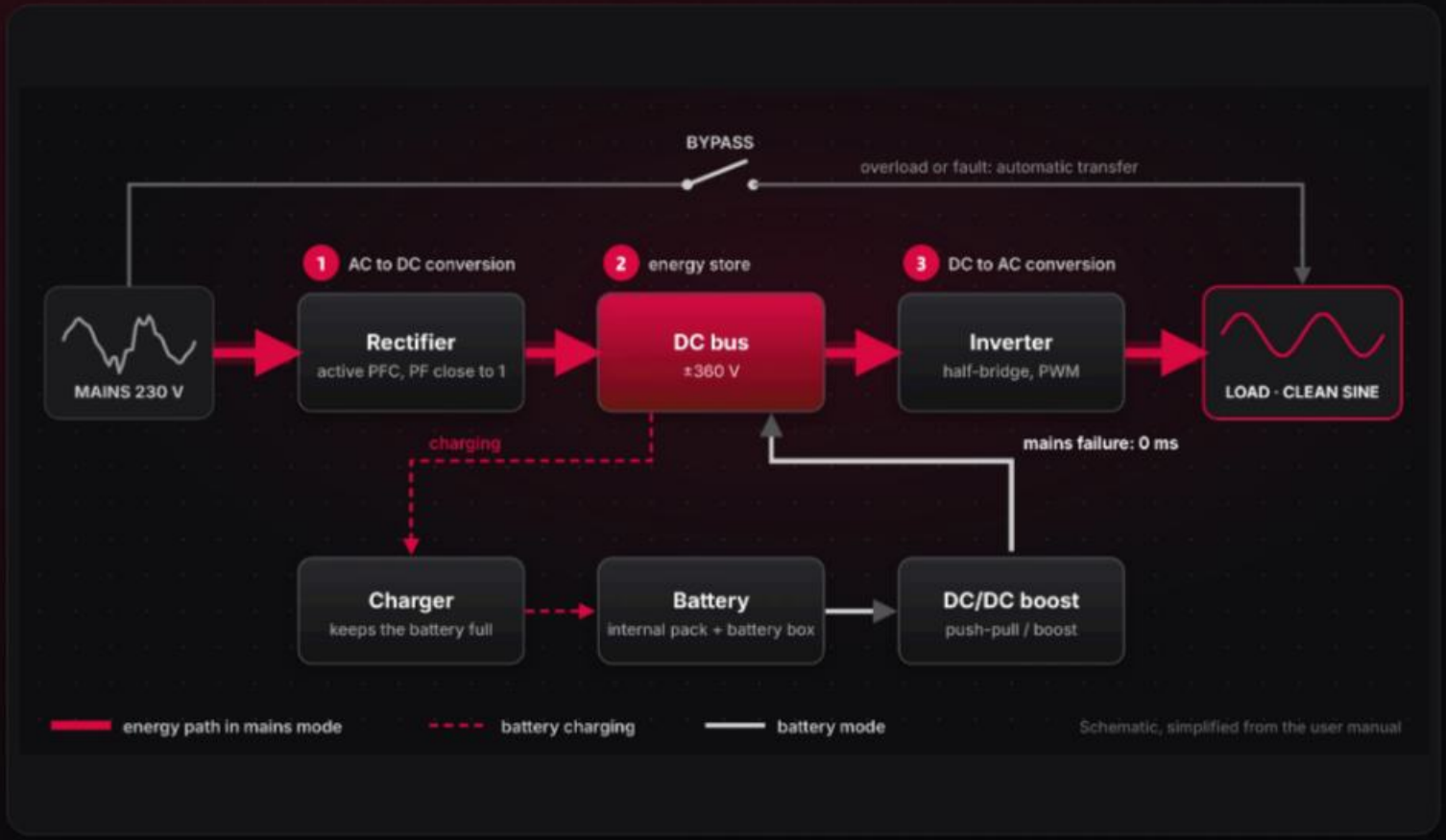
6 · 10 kVA

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

Operating principle · double conversion

Rack or tower, same UPS: online double conversion, 0 ms transfer time.



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.

2

Half-bridge inverter

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

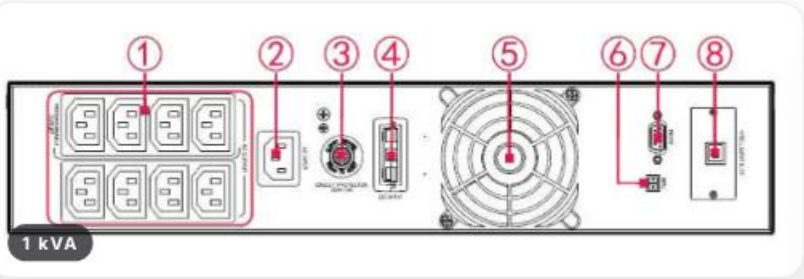
3

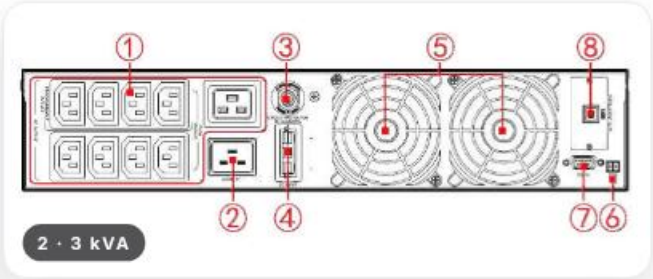
DC/DC boost

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.

Rear panels · 1–3 kVA and 6 · 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.





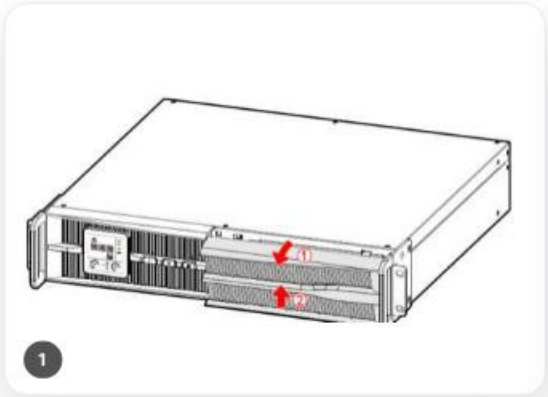


	1–3 kVA	6 · 10 kVA
1	Output outlets	Battery expansion port
2	Input inlet	Surge protection grounding
3	Over-current protector	Input breaker
4	External battery port	Over-current protector
5	Cooling fan	Output sockets
6	EPO connector	Wire terminal
7	RS232 port	Parallel port (/B only)
8	Intelligent slot	RS232 port
9		EPO connector
10		Intelligent slot (USB standard)

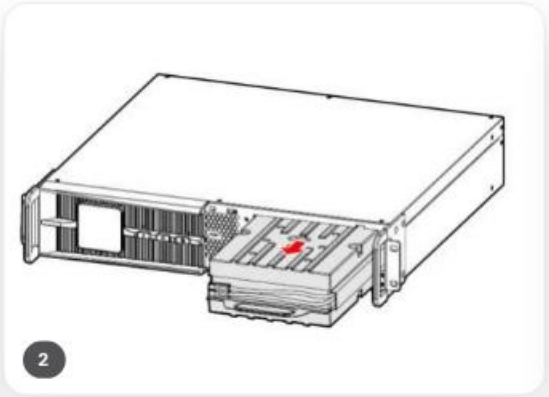
Intelligent slot: USB as standard; RS485 + dry contact, protocol transfer card or SNMP card as options. Outlets: 1 kVA 8 × IEC 320 C13; 2–3 kVA 8 × IEC 320 C13 + 1 × IEC 320 C19.

Battery and backup time · hot-swap

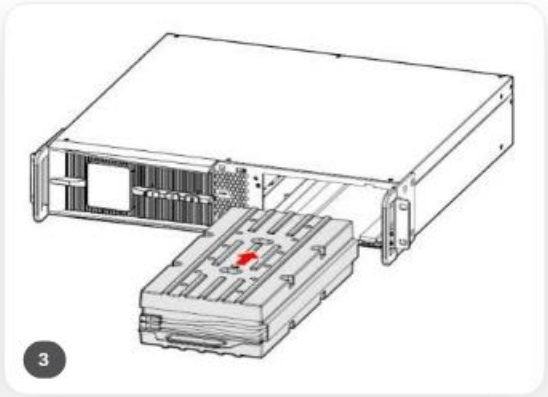
UPS and battery box packs are hot-pluggable from the front: replace them with the load running. For more backup, add 2U battery boxes in the same rack.



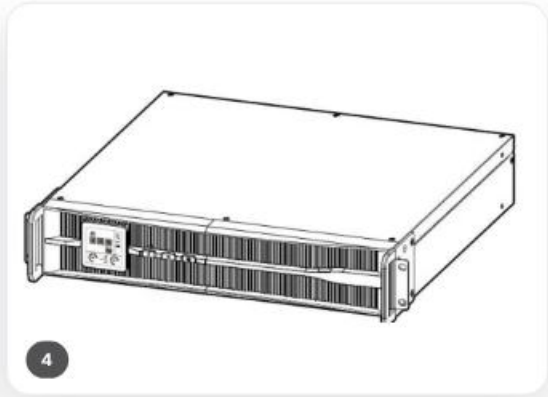
1 **Open**
Remove the right front panel and the battery plate (M4 screws).



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.

How long does the load keep running? Internal batteries and with one battery box

	1 · 2 · 3 kVA, internal	1 · 2 · 3 kVA + BBJ	6 kVA + BBJ2	10 kVA + BBJ2
50% load	9 min	27 min	13 min	8 min
100% load	3 min	9.6 min	6 min	3 min

Typical values at 25 °C, new batteries fully charged; AEC runtime tables. BBJ: one 2U battery box; BBJ2: one 3U box, 16 × 9 Ah. Add battery boxes for longer backup: AEC calculates the number for each site.

Control panel and settings

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.



Display area	input / output voltage and frequency, load, temperature, fault code, parameters, mode
Mains · bypass · battery · ECO mode	UPS working in that 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.

Below the panel: the LCD reading in rack (RCK, left) and tower (TWR, right) mounting.

IST3-J · technical data

	1 kVA	2 kVA	3 kVA	6 kVA (L)	10 kVA (/B)
RATING					
Power (VA / W)	1000 / 1000	2000 / 2000	3000 / 3000	6000 / 6000	10000 / 10000
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				
OUTPUT					
Voltage	208 / 220 / 230 / 240 V ± 1%, settable			220 V ± 2% default · 208 / 220 / 230 / 240 V	
Frequency · waveform · transfer	50 / 60 Hz ± 0.2% in battery mode · 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)			2 × IEC C13 (each ≤ 10 A) + wire terminal	

	1 kVA	2 kVA	3 kVA	6 kVA (L)	10 kVA (/B)
BATTERY					
Battery voltage	36 V	48 V	72 V	192 V default (12–20 × 12 V settable)	192 V default (12–20 × 12 V settable)
Backup · recharge	3 min full load · < 10 h			external battery, backup time as needed	
GENERAL					
Communication	RS232 + USB · options: RS485 + dry contact, protocol card, SNMP			RS232 · intelligent slot options	
Protections	battery undervoltage, overload, short circuit, over-temperature, input overvoltage				
Noise	< 50 dB			< 55 dB	
Environment	−5 … 50 °C (derated 40–50 °C) · 0–95% RH · IP20 · 2,000 m			−5 … 40 °C · 0–95% RH · < 1,000 m (derate above)	
Dimensions W × D × H (mm)	438 × 423 × 86	438 × 572 × 86	438 × 572 × 86	438 × 500 × 86	438 × 500 × 86
Weight (kg)	14	20	26	10.6	12.2

SINGLE-PHASE · 230 V

IST8

1–3 kVA

Online UPS · lithium · rack / 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

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.





	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	—

×3.7
backup at full load:
11 min against 3 min

−50%
rack space

−72%
weight, 13.6 kg against
49 kg (2 kVA + box)

Pictures: top, the IST8 alone, 2U; bottom, a lead-acid rack UPS + 2U battery box, 4U in all.

Models and range · rack or tower

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.





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 and display

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.

ECO · INV
operating mode

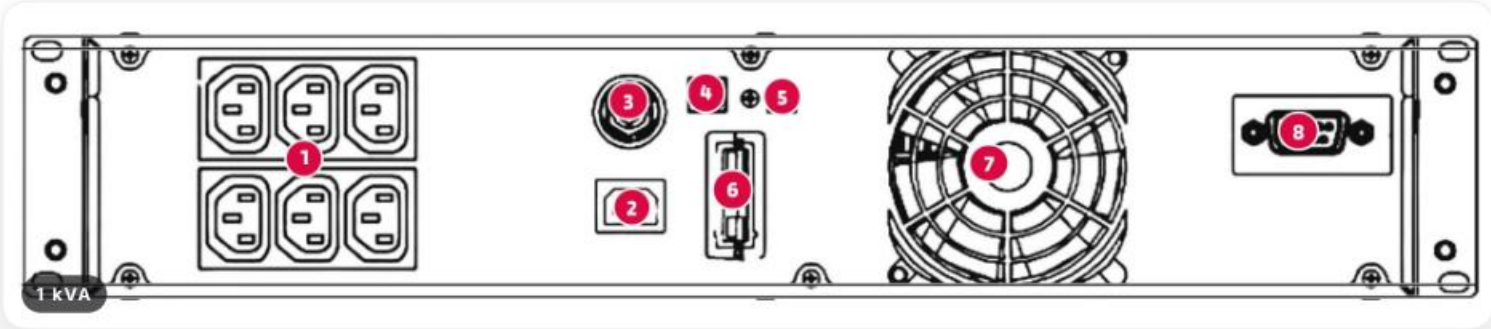
RCK · TWR
rack (default) or tower reading

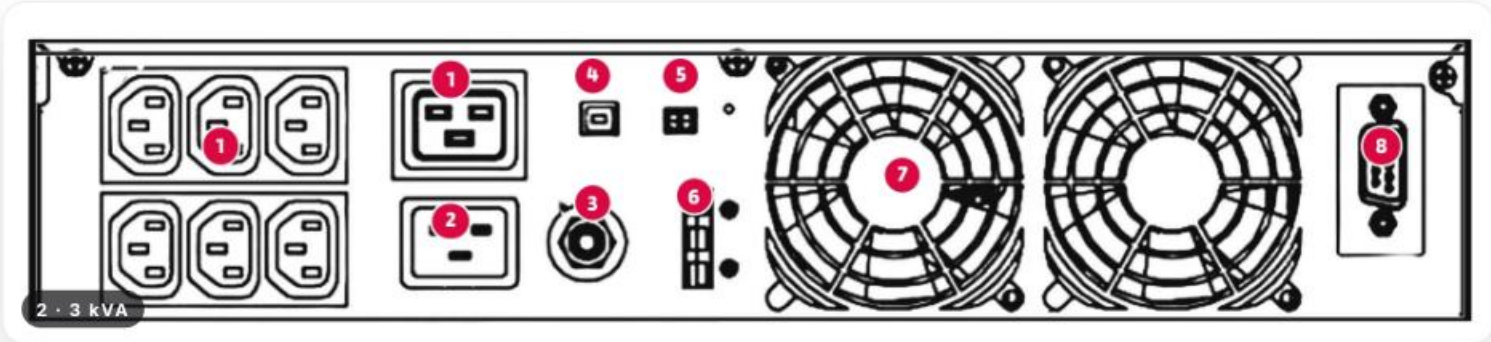
208 · 220 · 230 · 240 V
output voltage

20 s
setting page closes without confirmation

Rear panel · 1 kVA and 2 · 3 kVA

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

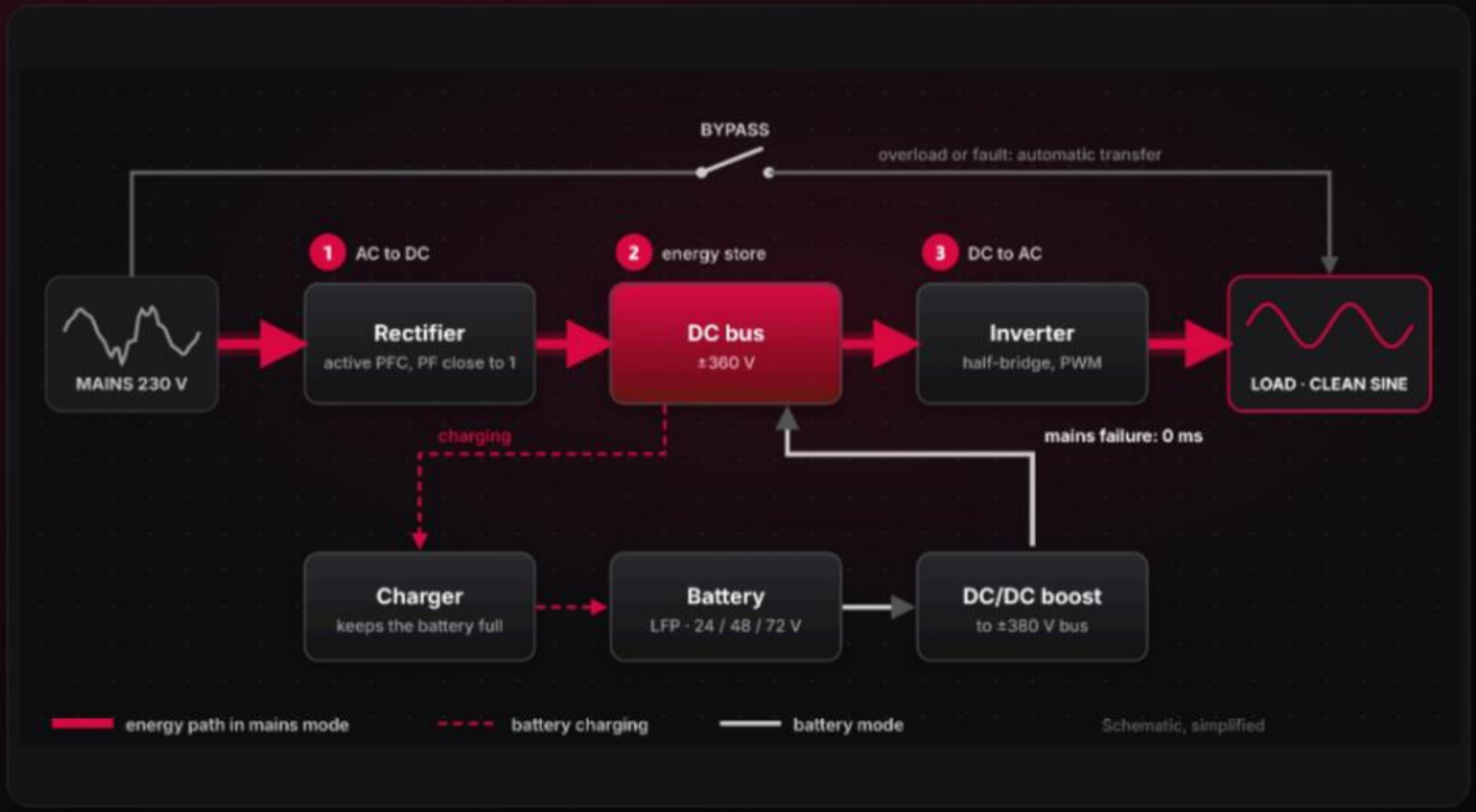




1. **Output sockets**
   1 kVA: 6 × IEC C13. 2–3 kVA: 6 × IEC C13 + 1 × IEC C19.
2. **Input socket**
   IEC C14 (1 kVA) or C20 (2–3 kVA).
3. **Over-current protector**
4. **USB port**
   Link to a computer running the power management software.
5. **EPO connector**
   Connecting its two ports closes 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: SNMP, or RS485 + dry contact.

Operating modes · double conversion

Online double conversion: rectifier and inverter around a ±360 V DC bus; on mains failure the DC/DC boosts the LFP battery onto the bus, 0 ms.



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).

IST8 · technical data

	IST8-1	IST8-2	IST8-3
RATING			
Power (VA / W)	1000 / 1000	2000 / 2000	3000 / 3000
INPUT			
Voltage range	120–295 V AC		
Frequency	50 / 60 Hz ± 10%, auto-sensing		
Power factor · THDi	≥ 0.99 · < 5%		
Input socket	IEC C14	IEC C20	IEC C20
OUTPUT			
Voltage	208 / 220 / 230 / 240 V ± 1%, settable from the panel		
Frequency (battery mode)	50 / 60 Hz ± 0.1 Hz		
Power factor · voltage distortion	1 · THDv < 3%		
Transfer time	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

	IST8-1	IST8-2	IST8-3
BATTERY			
Type	lithium iron phosphate (LFP), built in		
Backup time · max. charging current	11 min · 4 A		
GENERAL			
Operating modes	online (INV) · ECO, set from the panel		
Display	LCD, rack (RCK) or tower (TWR) reading		
Communication	USB · intelligent slot (DB9, RS232 + dry contact as shown; optional SNMP card or RS485 + dry-contact card) · EPO		
Protections	output overvoltage, battery undervoltage, input overvoltage, overload, short circuit, over-temperature		
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		
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

THREE-PHASE · 400 V

All-in-One

10–40 kVA

UPS + lithium · one cabinet



1 cabinet
UPS, distribution switches and lithium modules

10–40 kVA
three-phase; 10 kVA also single-phase

10+ years
LFP cells, 5,000 cycles at 50% DoD

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

Models and range · one cabinet on wheels

From 10 to 40 kVA three-phase, plus a 10 kVA single-phase version. The cabinet takes up to eight 40 or 50 Ah modules, or up to four 100 Ah modules for long backup.





Rating	UPS inside	Input / output	UPS height	40 / 50 Ah modules	100 Ah modules
10 kVA 1/1	IST3-J 10 kVA	1/1	2U	1–8	2–4
10 kVA	IST9 10 kVA	3/3 · 3/1 · 1/1	3U	1–8	2–4
20 kVA	IST9 20 kVA	3/3 · 3/1 · 1/1	3U	2–8	4
30 kVA	IST9 30 kVA	3/3 · 3/1	3U	3–8	–
40 kVA	IST9 40 kVA	3/3 · 3/1	3U	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.

600 × 1000
mm footprint (W × D)

1110 mm
height on wheels; 1000 mm without wheels

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

Cabinet layout · wired at the factory

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



1. **Rack UPS**
   IST9 10–40 kVA (3U) or IST3-J 10 kVA single-phase (2U), online double conversion, with its own display.
2. **Distribution switches**
   Input, output, bypass and battery breakers on one front panel. IST9 systems add the maintenance bypass, its cover monitored by a door switch.
3. **Lithium modules**
   Below the UPS, behind the door.
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.

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 battery modules · like drawers

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.



100 Ah MODULE · FRONT



REAR

1. **Front handle**
2. **Indicators**
   run, alarm, fault
3. **In-place switch**
   locks the module and starts its output
4. **Fan**
5. **Connector**
   power and signal
6. **Side handle**

Module	V	kWh	kW	kg	max.
40 Ah	57.6	2.30	10	36 ± 1	8
50 Ah	57.6	2.88	10	37 ± 1	8
100 Ah	57.6	5.76	5	52 ± 1	4

In every module: a bidirectional, isolated DC/DC module and LFP cells, 3.2 V, 18 in series (57.6 V = 18 × 3.2 V). kW: DC/DC output per module · max.: modules per cabinet.

Backup times · by module type and load

Minutes of backup from the factory battery tables, by module type, UPS load and number of modules. 40 or 50 Ah modules for short and medium backup, 100 Ah for long backup.

50 Ah modules · 57.6 V · 2.88 kWh each · minutes

Load	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 · 57.6 V · 5.76 kWh each · long backup · minutes

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

Load in kW. Factory reference values at 25 °C, to be confirmed by measurement; AEC sizes every system. – : not possible (each 40 / 50 Ah module delivers up to 10 kW, each 100 Ah module up to 5 kW).

Battery management · lithium against VRLA

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.

	All-in-One · lithium LFP	UPS + VRLA battery cabinet
Installation	1 person, 30–60 min	2 people, 2–4 h
Battery life	10+ years · 5,000 cycles at 50% DoD	3–5 years · about 500 cycles at 50% DoD
Battery service	one module at a time, load supplied	whole string, often with downtime
Monitoring	every cell, module and cabinet	string voltage only

AEC comparison, indicative values; VRLA cycle life from 12 V 9 Ah battery data at 25 °C.

5 min
Module change
to change a module, with the load supplied

0 V
Safe to handle
Zero voltage at the module port: no risk of short-circuit shock when a module is handled.

80 kW
Battery power per cabinet
Up to 80 kW from one cabinet with 40 or 50 Ah modules, 20 kW with 100 Ah modules.

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

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

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

UPS and modes · IST9 and IST3-J

The All-in-One uses AEC rack UPS: IST9 for 10 to 40 kVA three-phase, IST3-J for the 10 kVA single-phase version.









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

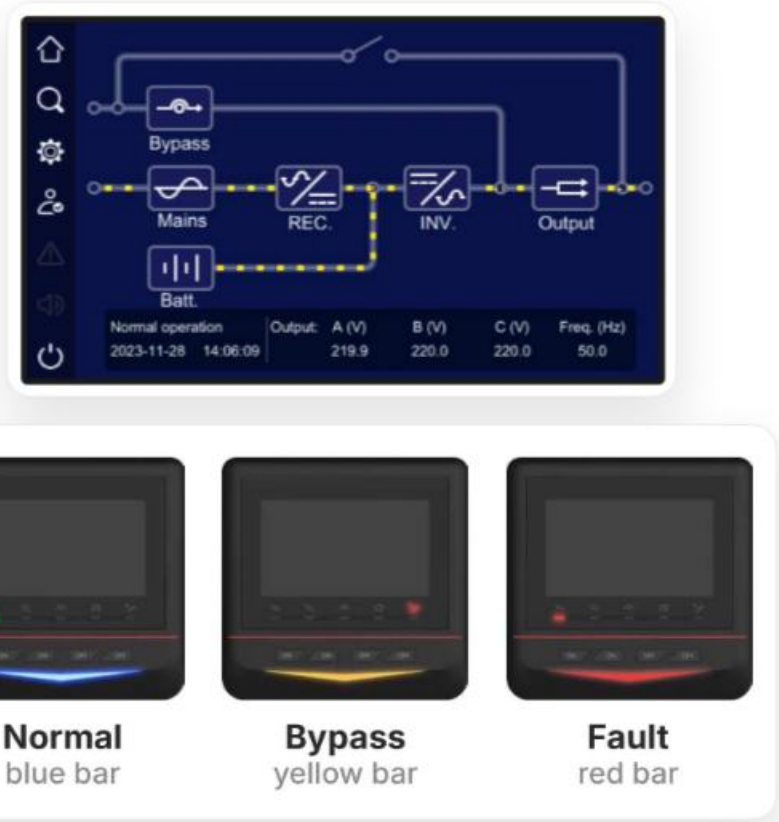
PF 1
IST9 output power factor: kVA = kW

1/1 · 2U
IST3-J 10 kVA single-phase, 95.5%

1. **Normal mode**
   Rectifier and inverter supply the load; the lithium modules are charged.
2. **Battery mode**
   Mains abnormal: the modules supply the inverter with no break at the output.
3. **Bypass mode**
   Load on the static bypass when the UPS is off (if enabled) or on a fault.
4. **Maintenance bypass**
   IST9 systems, through the distribution switches: the load stays supplied during service.

Touch screen display · the whole system

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.



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

RS232
UPS, standard

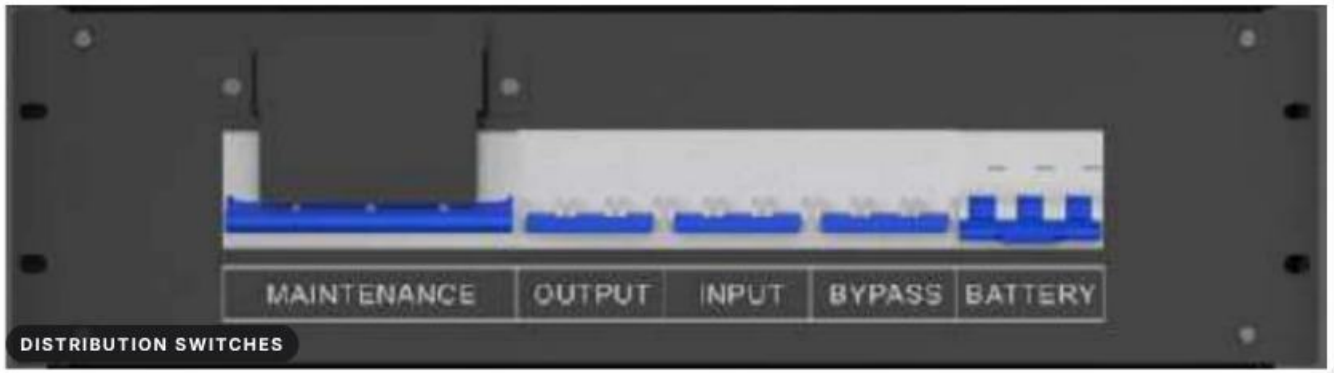
USB
touch screen

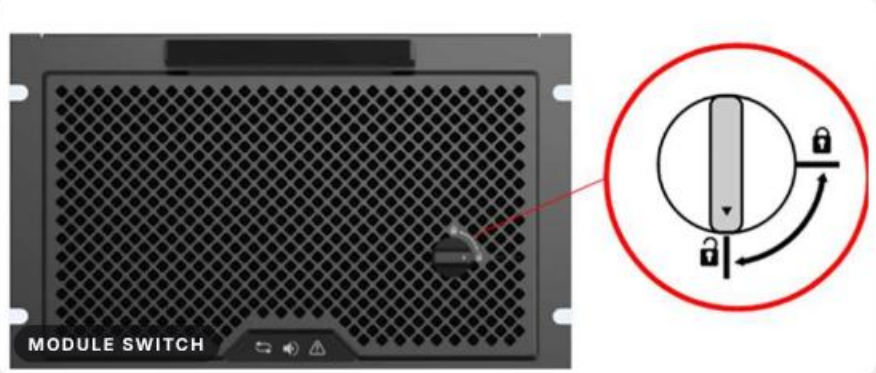
SNMP
optional, communication box

RS485
BMS to UPS; optional card

Maintenance and service · load supplied

Maintenance bypass (IST9 systems), live module replacement and USB upgrades keep the load supplied during service.





1

Inverter off

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

2

Cover off

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

3

Maintenance bypass on

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

4

Isolate

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

- Start without mains: lock any one battery module, it powers the system and the touch screen starts automatically.

All-in-One · technical data

	10 kVA 1/1	10 kVA	20 kVA	30 kVA	40 kVA
MODEL					
UPS inside	IST3-J 10	IST9 10	IST9 20	IST9 30	IST9 40
Rated power (kVA / kW)	10 / 10	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%	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			

	10 kVA 1/1	10 kVA	20 kVA	30 kVA	40 kVA
OUTPUT					
Power factor	1.0 (kVA = kW)	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 × 535 × 130 (3U)	438 × 535 × 130 (3U)	438 × 720 × 130 (3U)	438 × 720 × 130 (3U)
UPS weight (kg)	12.2	18.4	18.4	34.1	34.2

THREE-PHASE · 400 V

IST9

10–40 kVA

Three-phase power in three rack units



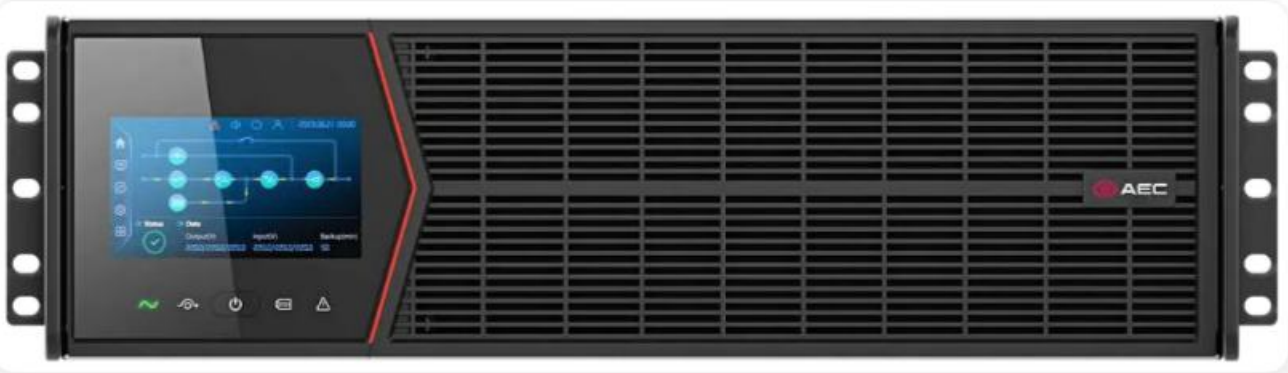
1.0
output power factor: kVA = kW

≤ 3%
input THDi on resistive load

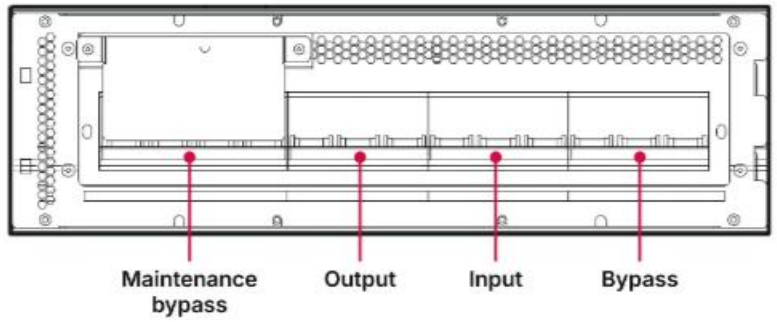
3U
one height for all four ratings

Key features · one UPS for every site

Configure the IST9 for the site, not the site for the UPS: phases, mounting, battery and service are all chosen at installation.







1

Input and output

3/3, 3/1, 1/1 set on site (1/1 on 10–20 kVA), with a separate bypass input.

2

Rack or tower

3U in a 19-inch cabinet or upright on its support base. Battery boxes and the bypass module follow the UPS in both layouts.

3

Battery

16–40 × 12 V, lead-acid or lithium.

4

Service

The external maintenance bypass module comes with the AEC IST9, in a 19-inch panel above the UPS.

96%

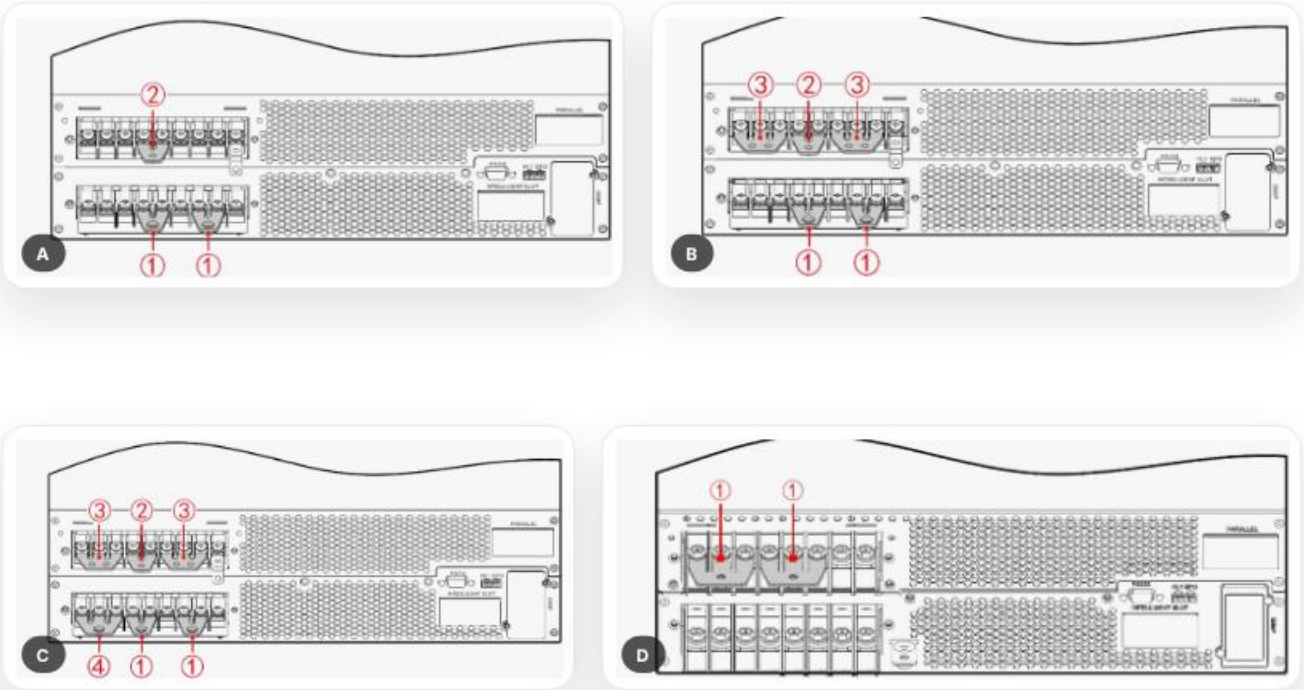
efficiency, online double conversion

99%

efficiency in ECO mode

Input and output · set on site

10–20 kVA work in 3/3, 3/1 or 1/1 mode; 30–40 kVA in 3/3 or 3/1 mode. The mode is set with connector jumpers on the rear terminals and on the touch screen.



- **A** **3/3 mode · 10–20 kVA** — three in, three out
- **B** **3/1 mode · 10–20 kVA** — three in, one out
- **C** **1/1 mode · 10–20 kVA** — one in, one out
- **D** **3/1 mode · 30–40 kVA** — three in, one out

- Circled numbers are the jumper types: 10–20 kVA types 1–2 two-pin, 3–4 three-pin; 30–40 kVA one 3-pin jumper, used only in 3/1 mode.

220 · 230 · 240 V
phase voltage, high-voltage mode (380 / 400 / 415 V line), default 220 V

110 · 115 · 120 V
low-voltage mode (190 / 200 / 208 V line), default 120 V

40–70 Hz
input frequency range

±5 V
output voltage fine adjustment

Operating modes · on the home page



1. **Normal mode**
   Rectifier and inverter supply the load; the charger charges the battery.

2. **Battery mode**
   Mains abnormal: the rectifier switches to the battery input and boosts it onto the DC bus.

3. **Bypass mode**
   With the bypass in range, the load is fed from the bypass when the UPS is off (if enabled) or on a fault.

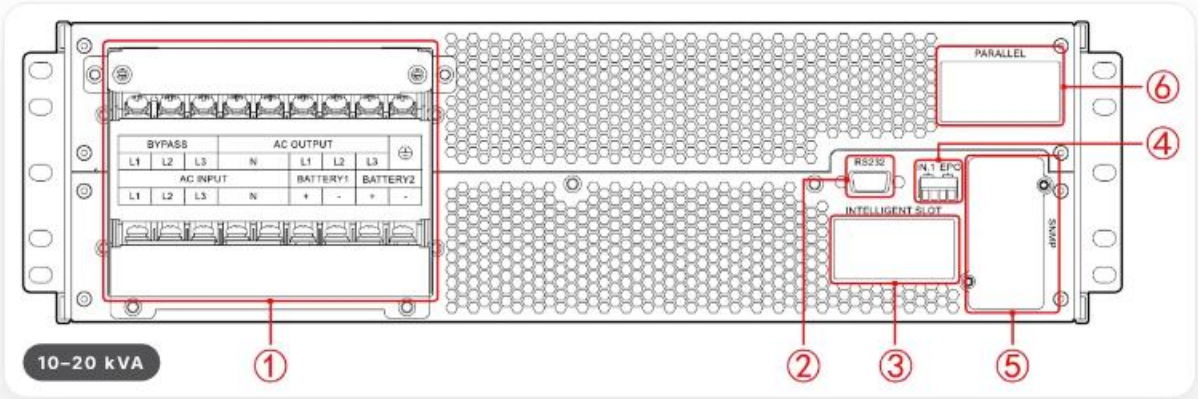
4. **ECO mode**
   Single UPS: the bypass feeds the load while it is normal; the inverter takes over when it is not.

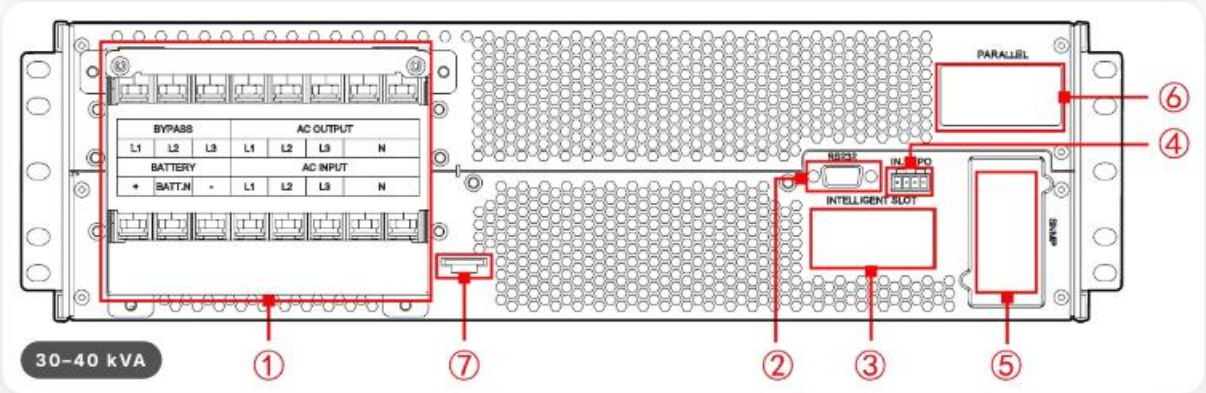
5. **Maintenance bypass**
   With the distribution module: the load stays supplied while the UPS is serviced.

< 1 ms	< 10 ms	≥ 0.99
inverter ↔ bypass, synchronised	not synchronised	input power factor

Rear panels · terminals and ports

All four ratings share the same front and width; 30–40 kVA has the deeper chassis. Terminals, communication ports and option slots are on the rear.





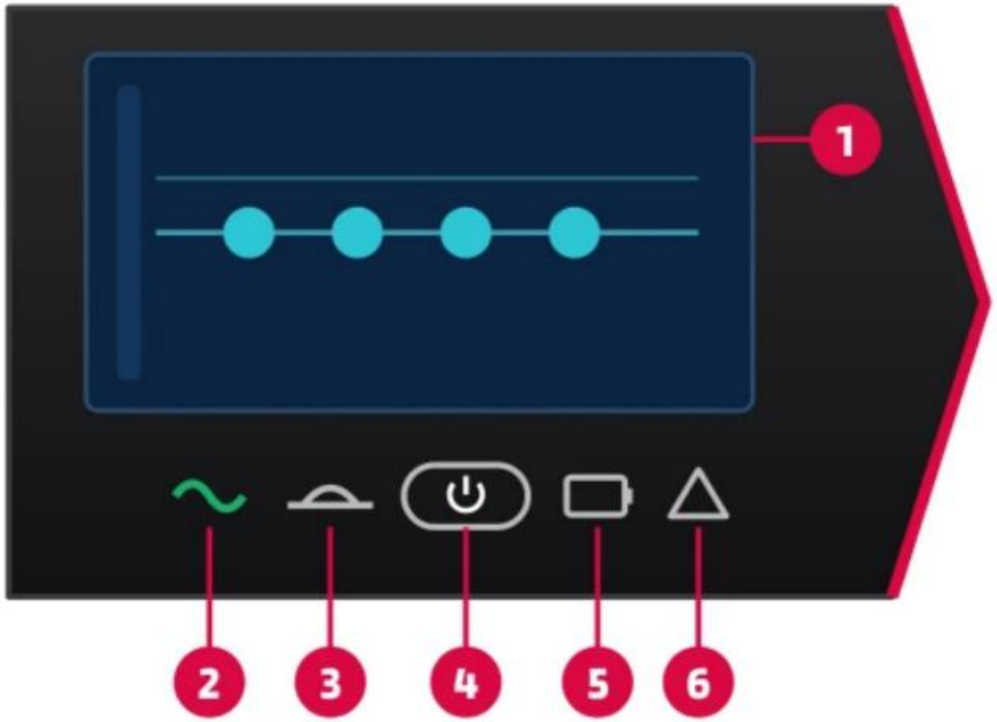
1. **Wiring terminals**
   bypass, AC output, AC input, battery
2. **RS232**
3. **Intelligent slot**
   SNMP, RS485 + dry contact or lithium protocol card
4. **EPO and input dry contact**
   IN.1, default maintenance bypass detection
5. **SNMP**
   optional
6. **Parallel port**
   optional
7. **PE**

438 × 535 × 130
mm, 10–20 kVA · 18.4 kg

438 × 720 × 130
mm, 30–40 kVA · 34.1 / 34.2 kg

Touch screen display · front panel

Landscape in the rack, portrait in the tower: the display rotates automatically, or is set by hand.
Seven languages, Italian included.



1. **Touch screen**
   working status and settings
2. **Mains inverter indicator**
   green in mains mode
3. **Bypass indicator**
   green when the output is on bypass
4. **ON / OFF button**
   hold 3 s to switch on or off
5. **Battery inverter indicator**
   green in battery mode
6. **Fault indicator**
   red on UPS fault

- Languages: English, Italian, Spanish, French, Portuguese, Russian, Chinese.
- History: up to 1,000 records, newest first.

Advanced features · and functions

Impact load mode
For loads with high inrush, such as transformers: the UPS limits the excitation current so it cannot damage the inverter. Enabled before the load is started.

Generator mode
On a generator, battery charging is switched off: the generator only carries the load, and starts more easily.

Frequency converter
Output fixed at 50 or 60 Hz whatever the input frequency, for machines built for another grid; the bypass is not used.

Test load
Self-aging at 10–110% of rated load: the system is tested at full power without an external load bank.

Phase sequence calibration
A wrong input phase sequence is tolerated: the output runs normally without derating, and the alarm is still reported.

Short-circuit time
Inverter protection time on output short circuit, settable 10–200 ms, to clear downstream breakers selectively.

Three-level
inverter with PFC control

80 V
at light load the battery is not used down to this mains voltage

94%
efficiency in low-voltage mode

IST9 · technical data

	IST9 10 kVA	IST9 20 kVA	IST9 30 kVA	IST9 40 kVA
GENERAL				
Rated power (kVA / kW, high-voltage mode)	10 / 10	20 / 20	30 / 30	40 / 40
Rated power (kVA / kW, low-voltage mode)	10 / 10	10 / 10	—	20 / 20
Configuration	3/3 · 3/1 · 1/1		3/3 · 3/1	
INPUT				
Connection	3W + N + PE (settable 1W + N + PE)		3W + N + PE	
Voltage range (phase)	high-voltage mode 176–280 V full load, 80–176 V linear derating · low-voltage mode 90–155 V full load, 70–90 V derating			
Frequency · power factor · THDi	40–70 Hz · ≥ 0.99 · ≤ 3% resistive, ≤ 5% non-linear full load			
Bypass	50 / 60 Hz ± 10% · voltage ± 20%			
BATTERY				
Voltage	high-voltage mode ± 96 … ± 240 V DC (± 48 … ± 120 cells of 2 V, default ± 96) · low-voltage mode ± 96 … ± 120 V (± 48 … ± 60 cells, default ± 60)			
Full-load derating by cells	—		± 48 … ± 90 cells: 100 × 0.0625 × N / 6 %	
Charging current	1–10 A (default 4 A)		1–20 A (default 15 A)	
OUTPUT				
Voltage	220 / 230 / 240 V L-N, 380 / 400 / 415 V L-L (low-voltage mode 110 / 115 / 120 V); 3W + N + PE, settable 1W + N + PE			

	IST9 10 kVA	IST9 20 kVA	IST9 30 kVA	IST9 40 kVA
OUTPUT				
Frequency	tracks the bypass; 50 ± 0.1 or 60 ± 0.1 Hz in battery mode			
Waveform · distortion · power factor	sine wave · ≤ 2% resistive full load · 1.0			
Transfer inverter ↔ bypass	< 1 ms synchronised · < 10 ms not synchronised			
Inverter overload	≤ 105% continuous · 105–110% 60 min · 110–130% 10 min · 130–155% 1 min · > 155% 200 ms · > 200% immediate			
Bypass overload	< 130% continuous · 130–155% 1 min · > 155% 200 ms			
SYSTEM				
Efficiency	up to 96% (high-voltage mode) · 94% (low-voltage mode) · 99% ECO			
Display · cold start	touch screen · battery cold start included			
Communication	RS232 · options: SNMP, RS485 + dry contact, protocol card for the approved lithium system, parallel card			
Noise (20–25 °C)	≤ 50 dB half load · ≤ 55 dB 75% and full load		≤ 55 dB half load · ≤ 58 dB 75% · ≤ 60 dB full load	
Environment	−5 … 40 °C · 0–95% RH non-condensing · ≤ 2,000 m			
Dimensions (W × D × H)	438 × 535 × 130 mm (3U)		438 × 720 × 130 mm (3U)	
Weight	18.4 kg	18.4 kg	34.1 kg	34.2 kg

THREE-PHASE · 400 V

IST7 10–40

10–40 kVA

AEC's best-selling online UPS.



96%
System efficiency up to 96% in double conversion · 99% in ECO mode (single UPS)

PF 1
Output power factor: kVA = kW, settable to 0.9

176–280 V
Full-power input window; down to 80 V with linear derating

0.4%
Failure rate over 10,000 units sold in the last 2 years

Models and dimensions · two cabinets

IST7-10 and IST7-20 share the 250 mm cabinet, IST7-30 and IST7-40 the 300 mm cabinet. Display, functions and options are identical; rating, dimensions and wiring differ.



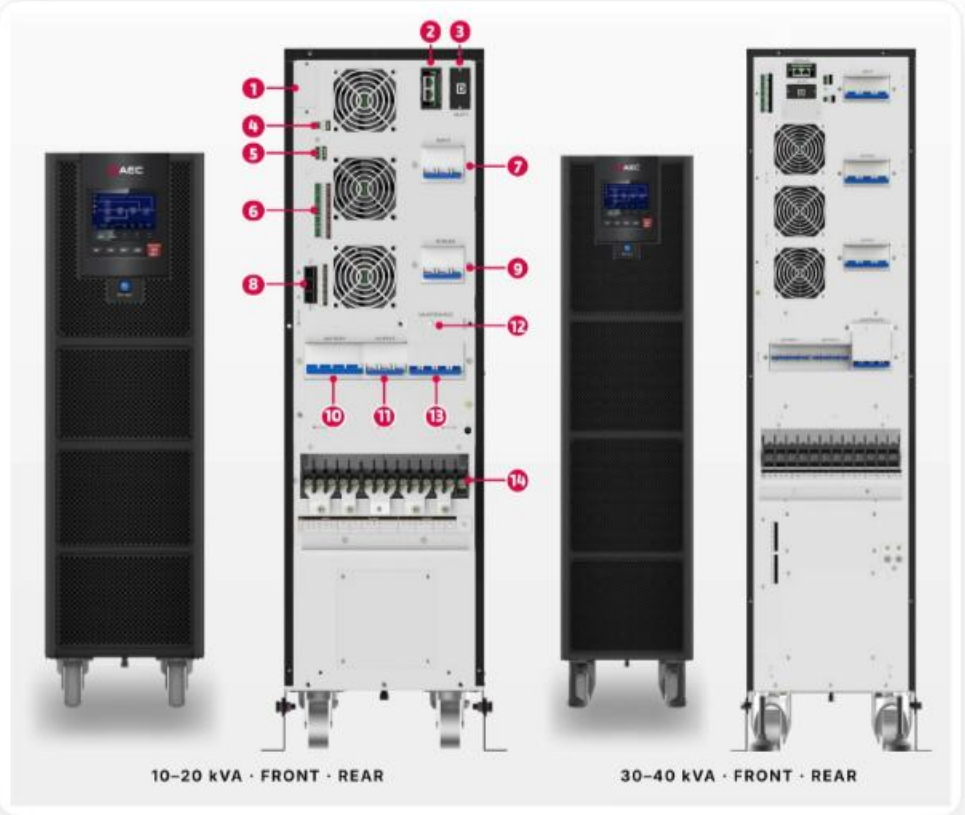
Differences between the two cabinets

Difference	IST7-10 · 20	IST7-30 · 40
Ratings · kVA = kW	10 · 20	30 · 40
Input / output	3/3 · 3/1 · 1/1	3/3 · 3/1
Internal batteries (S), 12 V 9 Ah	16 – 40 blocks (10) · 36 or 40 (20)	2 × 36 or 2 × 40 blocks
Output distortion, resistive load	≤ 2%	≤ 1%
Max. input current, 3/3	19.5 A (10) · 35.5 A (20)	65.7 A (30) · 81.7 A (40)
Feet	castors	castors and levelling feet

- Common to both cabinets: touch-screen display · output PF 1 · THDi ≤ 3% (≤ 5% non-linear) · up to 4 in parallel · dry contacts: 5 out, IN.1, EPO · RS485 + 2 slots · IP20 · < 55 dB · −5 … 40 °C

Front and rear views · rear panel and sizes

Two cabinets with the same front, display and rear layout: 250 mm wide for 10–20 kVA, 300 mm wide and taller for 30–40 kVA.



- **1–6 Communication ports** — card slots, parallel port, RS485 and dry contacts
- **7 Input breaker**
- **8 External battery port**
- **9 Bypass breaker**
- **10 Battery breaker**
- **11 Output breaker**
- **12 Gate-controlled switch** — releases when the maintenance breaker cover is removed
- **13 Maintenance breaker** — behind a cover
- **14 Wiring terminals** — input, bypass, output, PE

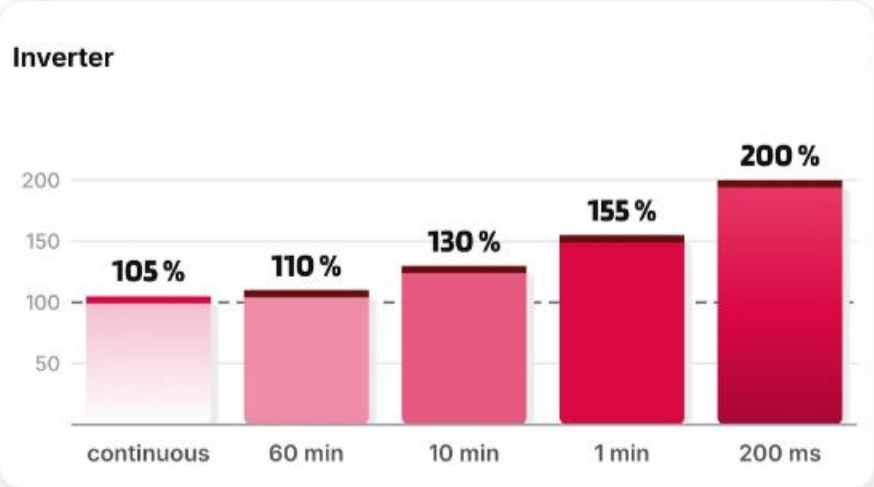
Dimensions and weight

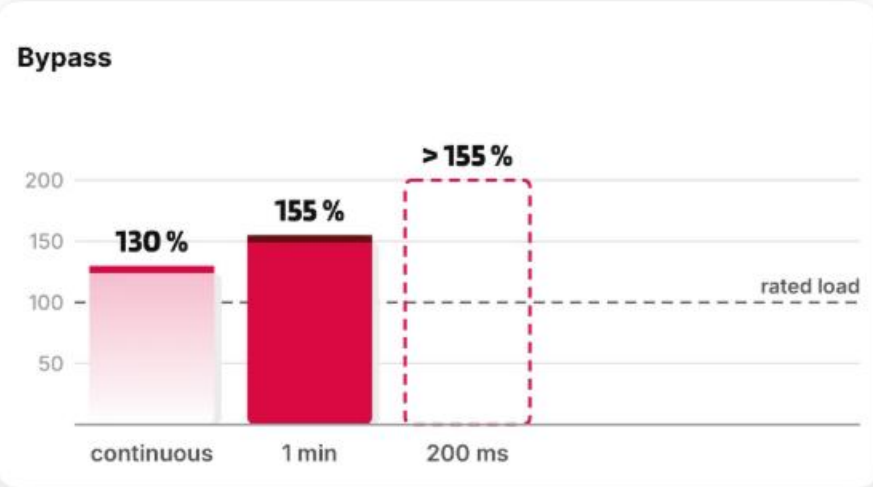
Model	Size W × D × H (mm)	Standard	S
IST7-10	250 × 806 × 880	64 kg	95 kg
IST7-20	250 × 806 × 880	64 kg	137.6 kg
IST7-30	300 × 842 × 1250	102.5 kg	249.7 kg
IST7-40	300 × 842 × 1250	102.5 kg	249.7 kg

Standard: without internal battery. S: with internal battery. IP20, −5 … 40 °C, noise < 55 dB (25 °C), up to 2000 m; 300 mm minimum from the rear panel to the wall.

Technology · input window and overload

Three-level inverter technology with PFC control: clean output voltage wave and high system efficiency. Overload capacity of inverter and bypass, with output power factor 1.





176–280 V
Full power input; from 176 V down to 80 V the rated power decreases linearly

39.5–70.5 Hz
Input frequency accepted: the load stays on the inverter without using the battery

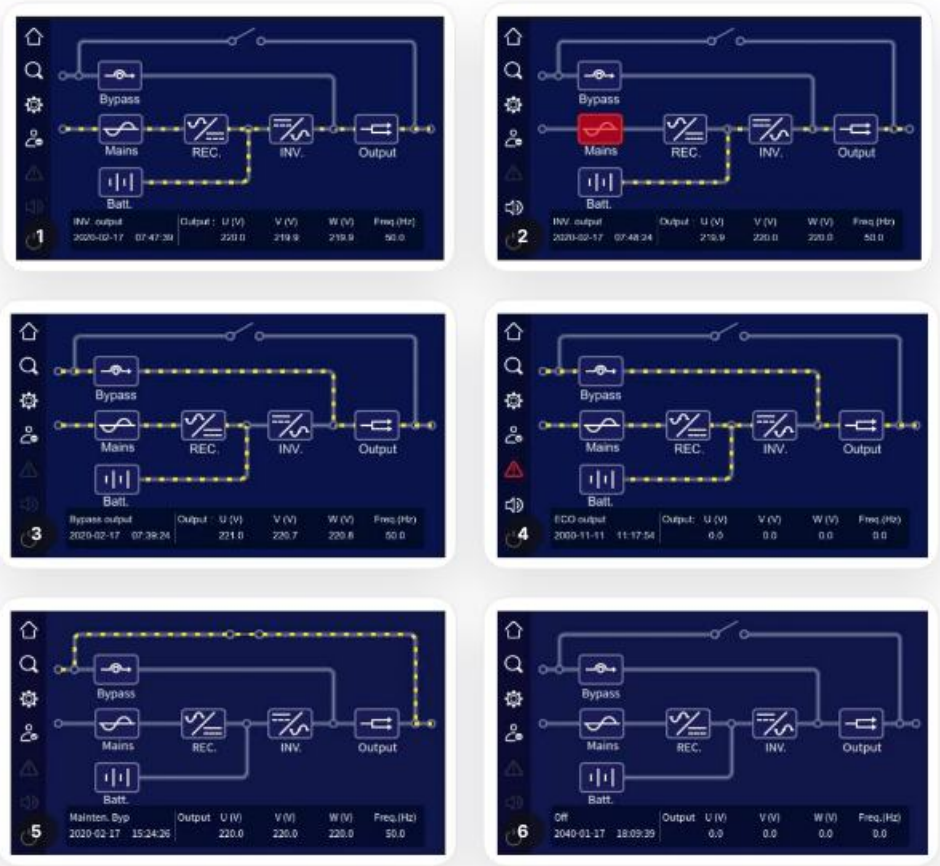
≤1%
Output voltage distortion at resistive full load, 30–40 kVA (≤ 2% on 10–20 kVA)

±0.1 Hz
Output frequency, 50 or 60 Hz, when the bypass is absent or out of range

- Inverter: > 200% · immediate protection · output PF 1. Bypass: > 155% · 200 ms.
- Protections: battery under-voltage · overload and short-circuit · over-temperature · input over-voltage · communication abnormal

Operating modes · and transfer times

The home page shows the active operating mode; the dotted line marks the active power path.



1. **Online double conversion**
   Rectifier/PFC and inverter supply the load with a regulated sine wave; the charger keeps the battery charged.

2. **Battery mode**
   Mains abnormal: the battery supplies the DC bus through the rectifier; the output continues without interruption.

3. **Bypass output**
   The static switch supplies the load from the bypass line, for example on overload or inverter fault.

4. **ECO mode**
   Single UPS only; efficiency up to 99%.

5. **Maintenance bypass**
   The load is supplied directly from the bypass line while the UPS is de-energised.

6. **UPS off**
   No energy transmission to the output.

0 ms
mains → battery

<1 ms
inverter ↔ bypass, synchronised (<10 ms not synchronised)

Auto
return to mains mode when the mains recovers

Operator panel · touch screen, LEDs, keys

Colour touch screen, five status LEDs and paired ON/OFF keys on the front panel. EPO for emergency shutdown and BATT. Start for a start without mains.



1 Colour touch screen
Live topology, measurements, settings and records.

2 Five status LEDs
AC/DC · DC/AC · BYP. · BATT. LOW · OVERLOAD, each with its symbol.

3 ON key pair
Press both keys until the beep: the UPS powers on. No accidental switching.

4 OFF key pair
Press both keys for 3 s: the UPS powers off.

5 EPO
Emergency power off: the output is cut at once.

6 BATT. Start
Below the panel. Hold 7 s, then ON: start from the battery without mains.

LED	● green	● red
AC/DC	rectifier normal	rectifier abnormal
DC/AC	inverter normal	inverter abnormal
BYP.	bypass output	bypass abnormal
BATT. LOW	—	battery low voltage
OVERLOAD	—	overload or overload protection

Batteries · internal or external, set on site

A standard model works with an external cabinet; an S model has its batteries inside and grows with a BB4 for longer back-up time. The number of cells is set from the display.



- Standard + external cabinet: no internal batteries, BB5 to BB8 cabinets sized for the autonomy needed
- S model + BB4: the BB4 (up to 80 blocks) takes the same 12 V 9 Ah blocks and string voltage as the internal battery, so the strings work as one
- Equalising and floating charge; charge current 1–10 A (10–20 kVA) · 1–20 A (30–40 kVA); standard or deep battery test from the screen

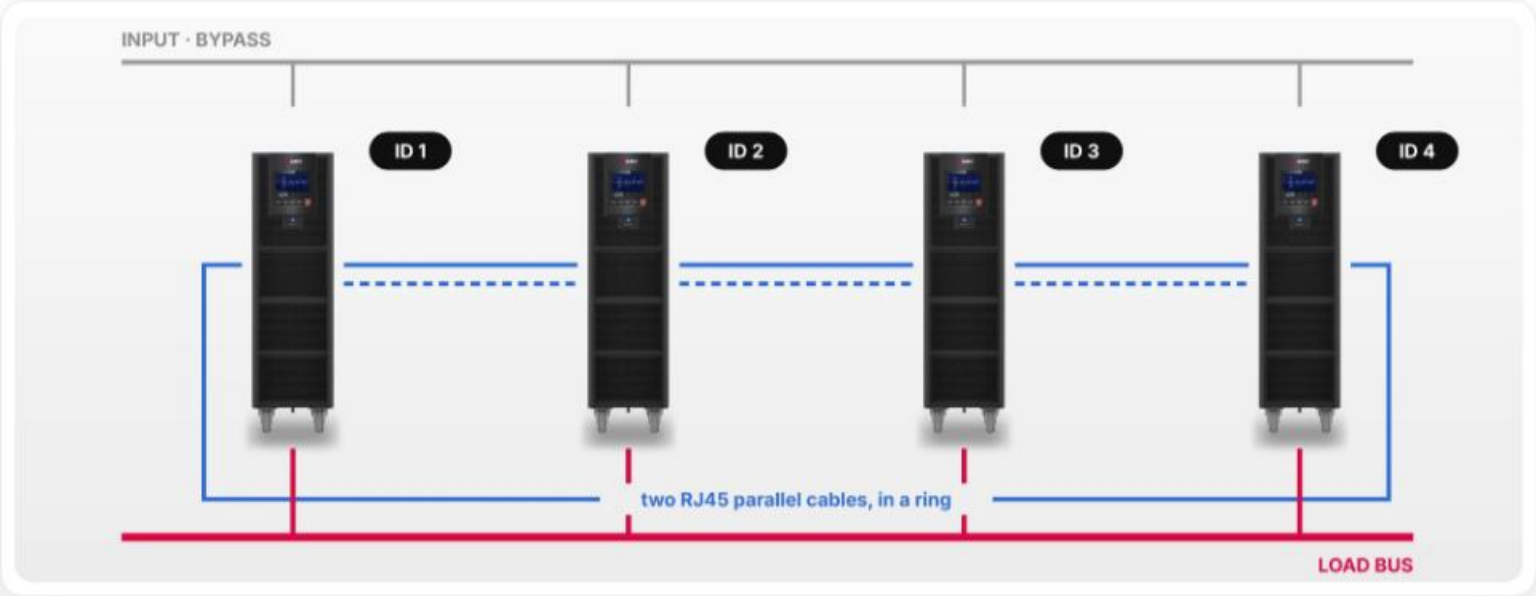
±96 … ±240 Vdc
10 kVA: full power from 16 to 40 blocks of 12 V

±144 … ±240 Vdc
20–40 kVA: full power from 32 blocks; 75% of rating with 24–30 blocks

1–2000 Ah
battery capacity, set on site

3–5 years
typical battery life, depending on temperature and discharges

Parallel operation · up to 4 units



From single unit to parallel system

The standard UPS is a single unit. The optional parallel kit is a built-in card for CAN communication between the units: it is installed in the parallel port with the UPS off, then the parallel mode is set from the screen.

Redundant parallel communication

The two RJ45 parallel ports are identical and redundant: they back each other up to increase reliability. The UPS raises an alarm if one of them is not connected.

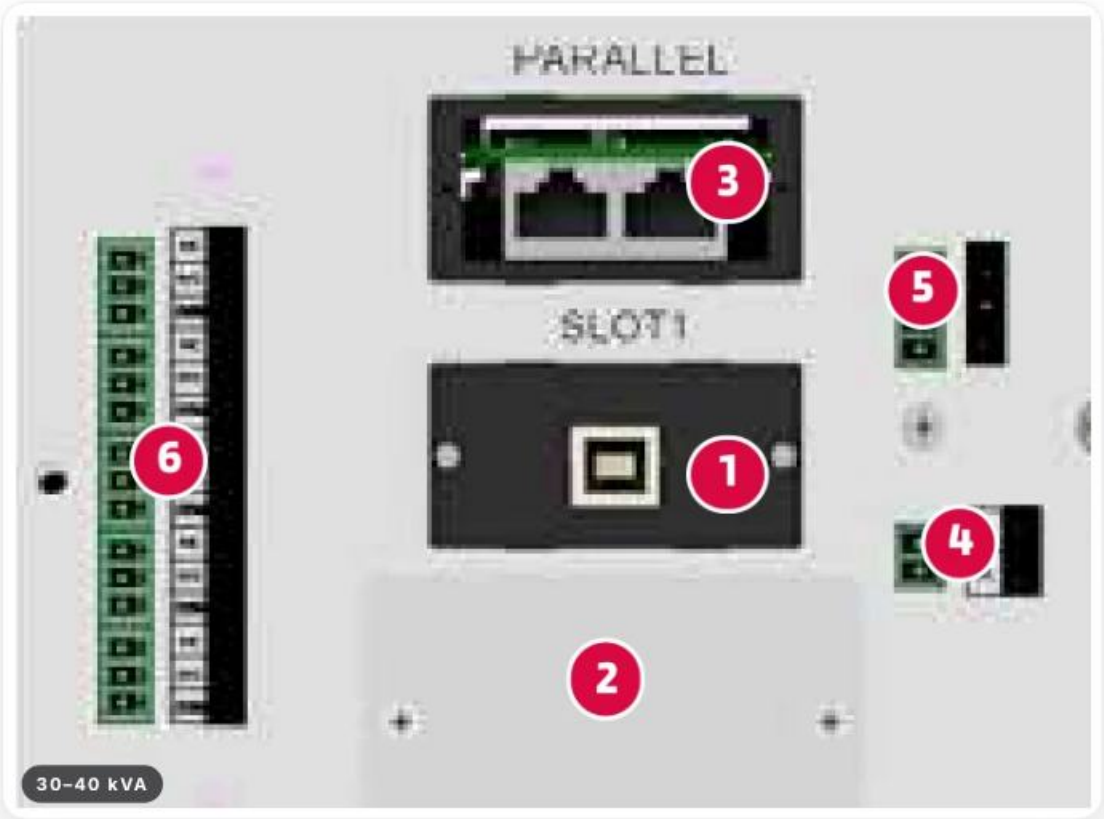
N+1

In practice

Four 20 kVA units carry a 60 kVA load with one unit spare, so any unit can stop for service while the load stays protected.

Communication · every port on the rear

All communication ports are on the rear, in the same set on both cabinets: two card slots, parallel port, RS485 and two dry-contact blocks.



1. **Intelligent slot 1**
   SNMP, dry-contact or protocol card
2. **Intelligent slot 2**
   second optional card
3. **Parallel port**
   two RJ45, with the parallel kit
4. **RS485**
   to a PC or a BMS: A to A(+), B to B(−)
5. **Dry contact 2**
   EPO and programmable input IN.1
6. **Dry contact 1**
   five relay outputs OUT.1 … OUT.5

- Dry contacts: 1 input + EPO · 6 functions; 5 outputs (NO / NC / COM) · 13 functions, each assigned from the display
- Relay rating 277 Vac / 30 Vdc / 10 A per contact

IST7 10–40 · technical data

	IST7-10	IST7-20	IST7-30	IST7-40
GENERAL				
Rated power (kVA / kW)	10 / 10	20 / 20	30 / 30	40 / 40
Input / output configuration	3/3 · 3/1 · 1/1		3/3 · 3/1	
INPUT				
Connection	3 + N + PE (settable 1 + N + PE)		3 + N + PE	
Voltage range	176–280 V at 100% load · 80–176 V with linear derating			
Frequency range	39.5–70.5 Hz			
Bypass synchronisation range · bypass voltage range	50 / 60 Hz ± 10% (self-adapting) · 10 / 15 / 20% (default 20%)			
Power factor · THDi	≥ 0.99 · ≤ 3% resistive full load, ≤ 5% non-linear full load			
BATTERY				
Battery voltage (Vdc)	± 96 … ± 240	± 144 … ± 240	± 144 … ± 240	± 144 … ± 240
Cells (2 V), settable · default	± 48 … ± 120 · ± 48	± 72 … ± 120 · ± 96	± 72 … ± 120 · ± 96	± 72 … ± 120 · ± 96
Charge current (A)	1–10 (default 1)		1–20 (default 2)	
OUTPUT				
Connection	3 + N + PE (settable 1 + N + PE)		3 + N + PE	
Voltage	L-N 220 / 230 / 240 V · L-L 380 / 400 / 415 V			
Frequency	tracks the bypass; with bypass absent or out of range 50 ± 0.1 or 60 ± 0.1 Hz (default 50)			

	IST7-10	IST7-20	IST7-30	IST7-40
OUTPUT				
Waveform · power factor	sine wave · 1 (settable 0.9)			
Voltage distortion (resistive / non-linear)	≤ 2% / ≤ 4%		≤ 1% / ≤ 4%	
Transfer time inverter ↔ bypass	< 1 ms synchronised · < 10 ms not synchronised			
Inverter overload (PF 1)	< 105% continuous · 105–110% 60 min · 110–130% 10 min · 130–155% 1 min · 155–200% 200 ms · > 200% immediate			
Bypass overload	< 130% continuous · 130–155% 1 min · > 155% 200 ms			
SYSTEM				
System efficiency	up to 96% · 99% in ECO mode (single UPS)			
Parallel	up to 4 units with the optional parallel kit			
Display · communication	touch screen · RS485 · dry contacts: EPO, 1 input, 5 outputs · optional cards: SNMP, protocol transfer, dry-contact kit			
DC start · alarms	battery start included · battery low voltage, mains abnormal, UPS fault, output overload			
Environment	−5 … 40 °C · 0–95% RH non-condensing · IP20 · noise < 55 dB (25 °C) · up to 2,000 m			
Dimensions W × D × H	250 × 806 × 880 mm		300 × 842 × 1250 mm	
Weight standard / S	64 / 95 kg	64 / 137.6 kg	102.5 / 249.7 kg	102.5 / 249.7 kg

THREE-PHASE · 400 V

IST7 60–200

60–200 kVA

Online UPS · double conversion · three-phase 400 V



96.5%
AC/AC efficiency (peak) in double conversion · 99% in ECO mode

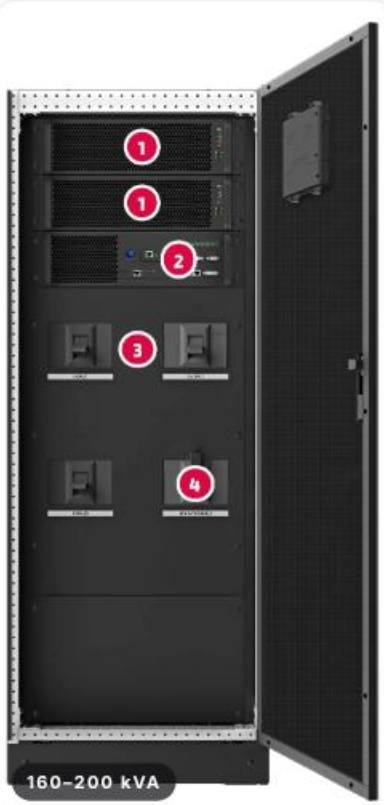
PF 1
Output power factor: kVA = kW

≤3%
Input current THDi at full load, input PF ≥ 0.99

1.6 MW
Up to 8 units in parallel, N+X redundancy

Inside the cabinet · two frames

Two cabinet sizes cover 60 to 200 kVA; IST7-80 is upgraded to 100 or 120 kVA, IST7-100 to 120 kVA, IST7-160 to 200 kVA from the display, in the same footprint.



160–200 kVA



60–120 kVA

1 Power unit
PFC rectifier, three-level inverter and battery booster in one unit.

2 Bypass and control unit
Static bypass, system control card, communication ports and the battery cold-start button.

3 Switchgear
Mains input, bypass input and output switches.

4 Maintenance bypass
The load stays supplied while the UPS is de-energised for service.

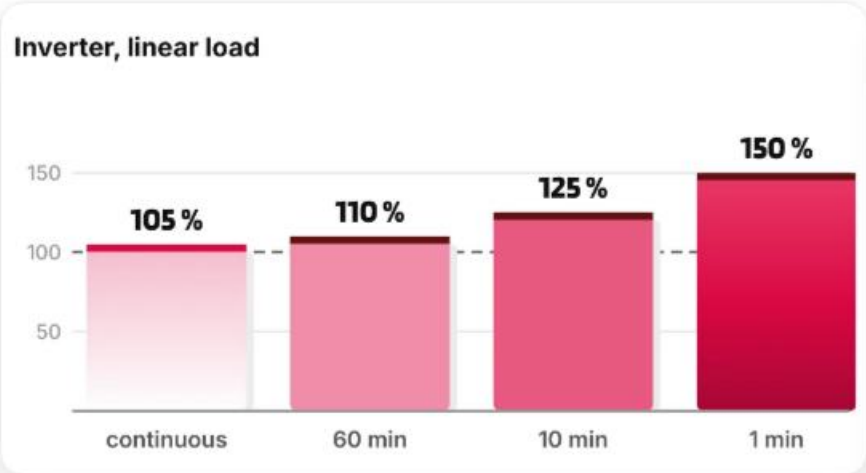
5 Surge protection (option)
Class C SPD with its own disconnect switch.

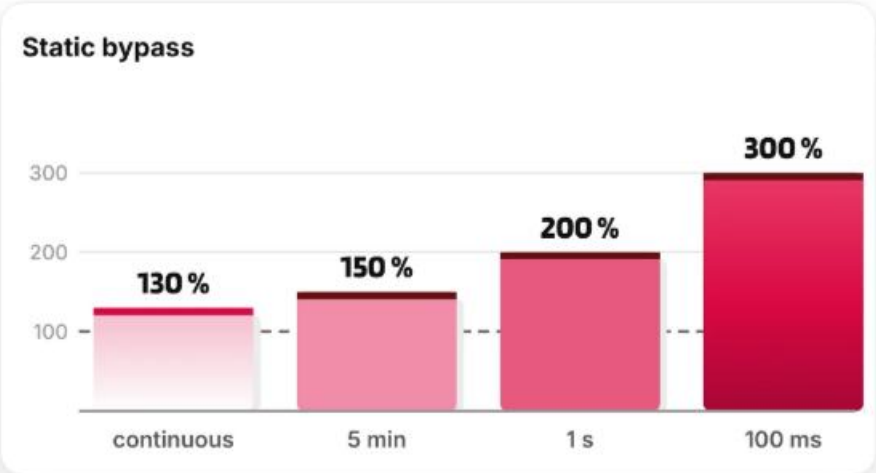
Model	Size W × D × H (mm)	Weight
IST7-60	400 × 960 × 1193	153 kg
IST7-80	400 × 960 × 1193	163 kg
IST7-100	400 × 960 × 1193	165 kg
IST7-120	400 × 960 × 1193	167 kg
IST7-160	600 × 1000 × 1600	294 kg
IST7-200	600 × 1000 × 1600	296 kg

Cable entry: input, output, battery and PE cables from below on all models. Indoor, IP20, forced-air cooling; noise < 65 dB at 1 m from the front.

Technology · input, overload, smart functions

The inverter switches between +Vdc, 0 and −Vdc instead of two levels: lower switching losses and a cleaner output. Overload: time the UPS keeps supplying the load.





187–280 V
Full power, phase voltage; from 186 V down to 80 V the rated power decreases linearly

≥ 0.99 · ≤ 3%
Input PF and THDi at full load, 40–70 Hz

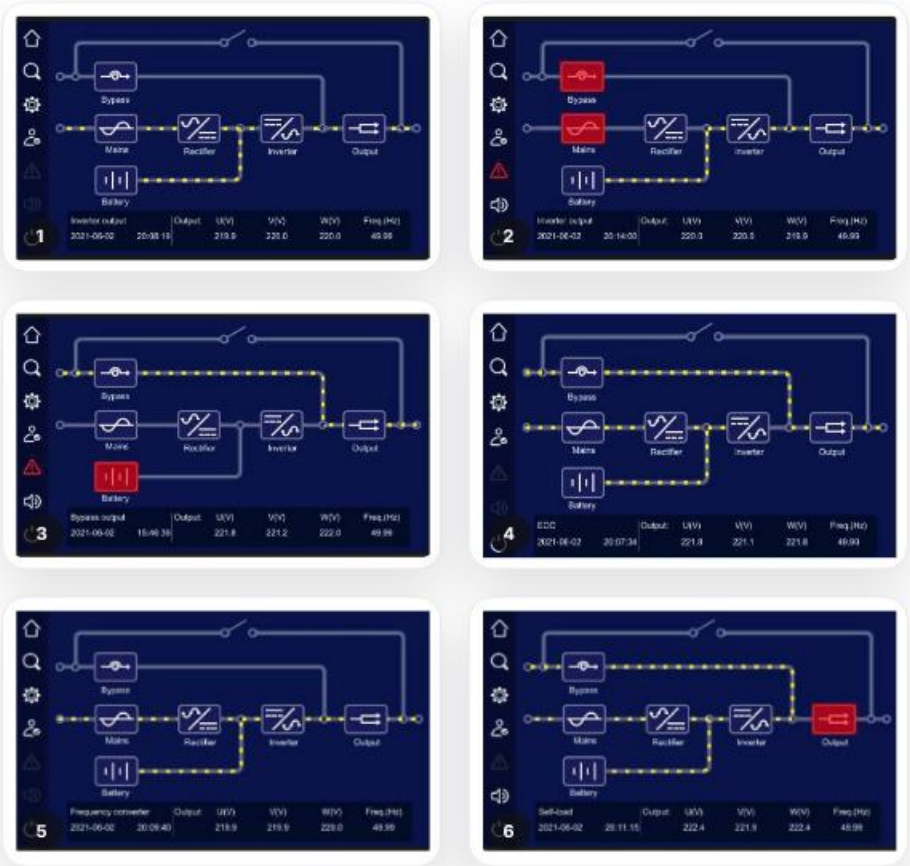
≤1%
Output THDv with linear load (≤4% non-linear)

≤5%
Voltage transient for a 0–100–0% load step

- Inverter: > 150% immediate protection (IST7-120: above 125%). Static bypass: > 300% immediate protection.
- Self-cleaning: a timed self-dedusting function keeps the air path clear (default every 360 h). Generator mode: generator rated power and charge-power derating set on screen, so the genset is not overloaded.

Operating modes · and transfer times

Real screens of the IST7: the yellow dots trace the active power path.



1. **Online double conversion**
   Mains → rectifier → inverter → load. Batteries kept charged.
2. **Battery mode**
   Mains out of limits: the batteries feed the inverter through the booster, with no break at the output.
3. **Static bypass**
   Overload or inverter fault: the load moves to the bypass and returns to the inverter when the cause is cleared.
4. **ECO · up to 99%**
   Load on bypass while the mains is within the window (default ±15% V, ±2% f).
5. **Frequency converter**
   Supplies 60 Hz loads from a 50 Hz grid or the other way round.
6. **Self-load test**
   Output switch open: the power circulates back to the input; burn-in without a load bank.

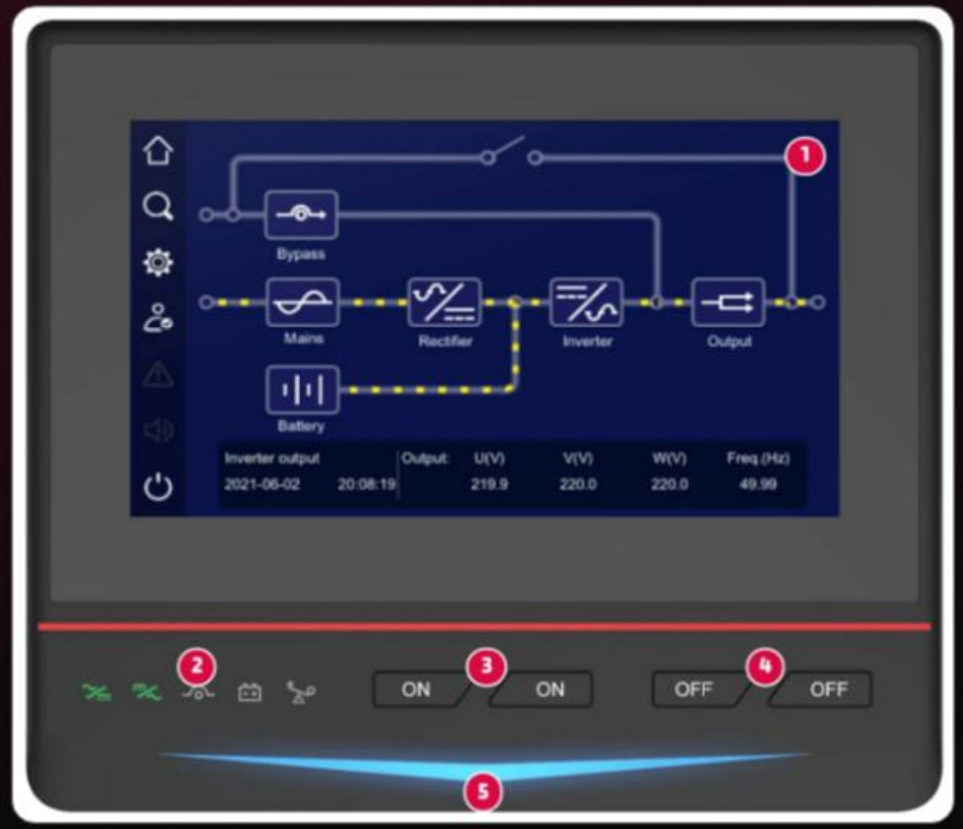
0 ms
mains → battery

<1 ms
inverter ↔ bypass, synchronised (<15 ms not synchronised)

3×
restart attempts after an output short circuit, then protection

Operator panel · touch screen and light bar

Colour touch screen with a live single-line diagram, five status LEDs, paired ON / OFF keys and an ambient light bar.



1 Colour touch screen
Live single-line diagram, measurements, settings and records.

2 Five status LEDs
AC/DC, DC/AC, bypass, battery, overload: green when active or normal, red when abnormal.

3 ON keys
Press both keys for 3 s to power on. Two keys: no accidental switching.

4 OFF keys
Press both keys for 3 s: the inverter stops and the load moves to bypass.

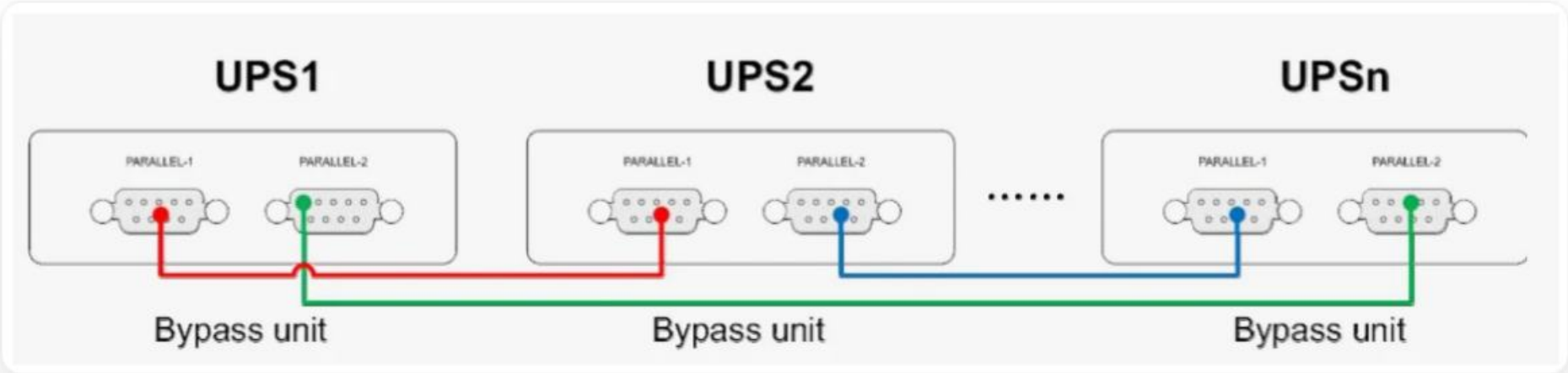
5 Ambient light bar
Shows the UPS state in colour, also when the display backlight is off.

Ambient light bar: four states, one colour each

Colour	State
Blue	Normal operation
Blue, flashing	Battery mode
Yellow	Abnormal, load still supplied
Red	Abnormal, output off

Parallel operation · up to 8 units

Parallel ports of the bypass units connected in a ring: N units, N cables, so each unit always has two connections.



1.6 MW

Up to 8 units on one load bus

Output power with 1 to 8 IST7-200 units; parallel address 1–8 from the display.

N+X

Capacity or N+X redundancy

Basic quantity and redundancy quantity of the parallel system.

Common battery

One battery bank for the whole system

Fewer cabinets, less floor space and one string to maintain.

BSC

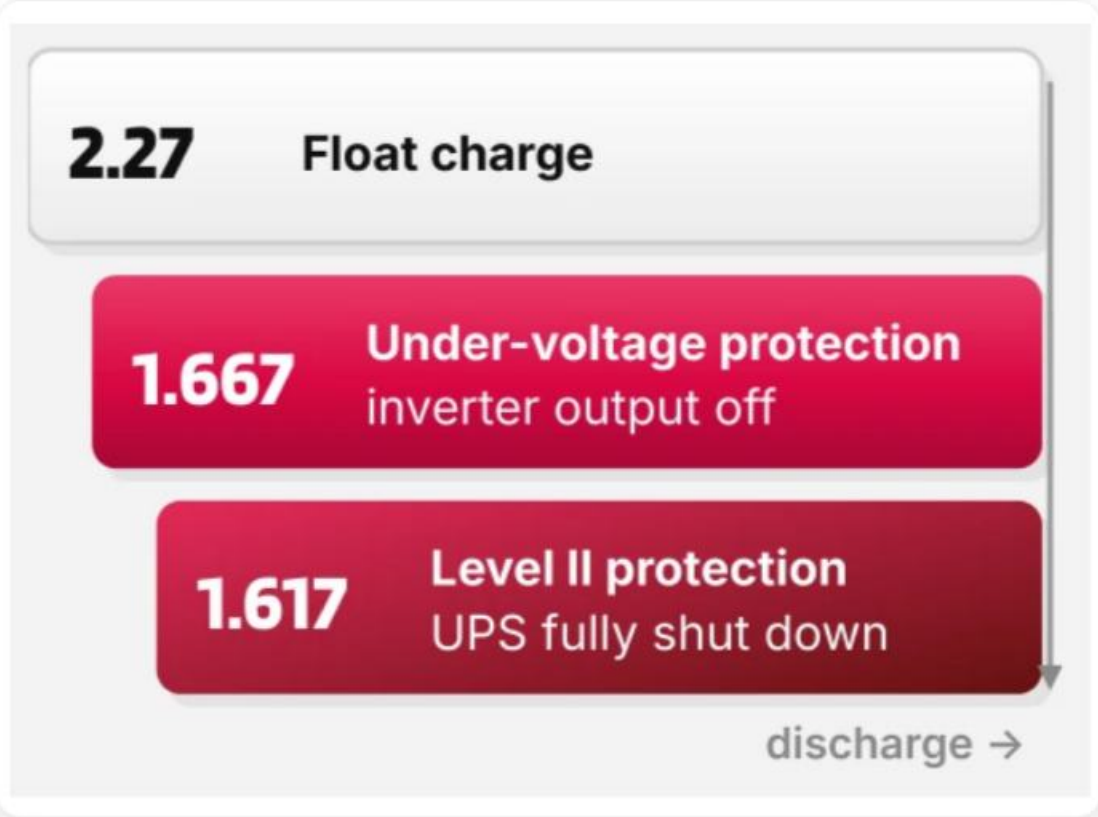
Dual bus: two systems, one rhythm

Two independent UPS systems synchronised in frequency and phase, for dual-corded loads on bus A and bus B.

- Current sharing between units ≤ 5% · parameter match page · one command copies the settings to all units · staggered start · optional EPO linkage · parallel kit PAR-IST7-60/200

Battery management · charging in stages

Current-limited charge, equalising, float, then an optional sleep phase that pauses charging and wakes up on voltage or time: less float time, longer battery life.



30 A
max. charge current, 60–120 kVA

60 A
max. charge current, 160–200 kVA

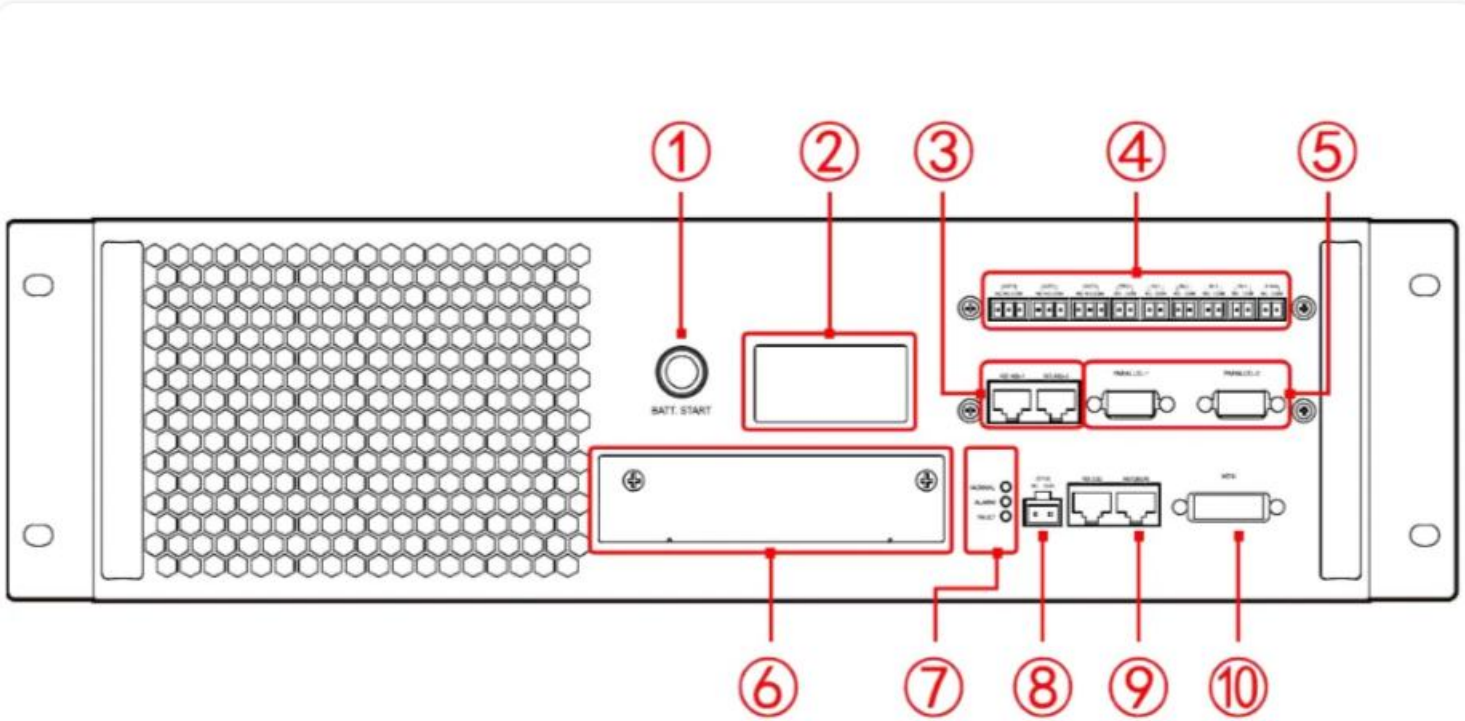
28–48
12 V blocks per string, VRLA or lithium (BMS card)

20–30 °C
best battery temperature: below 20 °C autonomy drops, above 30 °C battery life shortens

- End-of-discharge protection in two levels (V/cell), plus a maximum discharge time (default 960 min)
- The string is split into two equal halves with the neutral at the midpoint; battery breaker with three poles (+, N, –)
- Battery test: standard (10 min) or deep, started from the screen

Communication · all ports in one place

Every port is on the bypass and control unit; the options add SNMP, dry contacts and a BMS port.



1. **Battery cold start**
2. **SNMP card slot**
3. **RS485 parallel monitoring**
4. **Dry contacts, EPO, battery temp.**
5. **Parallel ports**
6. **Expansion slot**
7. **Control card LEDs**
8. **EPO2 input (NC)**
9. **Modbus RTU and RS232**
10. **Touch-screen port**

- Dry contacts: 4 inputs · 10 functions; 3 changeover outputs (NO / NC) · 18 functions, each assigned from the display
- Options: SNMP card (Ethernet, web pages, temp./humidity sensor port) · dry-contact expansion (+3 inputs, +2 outputs) · BMS expansion card for lithium batteries · battery temperature kit · battery release control (24 Vdc for shunt / UV release)

IST7 60–200 · technical data

	IST7-60	IST7-80	IST7-100	IST7-120	IST7-160	IST7-200
GENERAL						
Rated power (kVA / kW)	60	80	100	120	160	200
Capacity upgrade	—	to 100 / 120	to 120	—	to 200	—
INPUT						
Connection	3 phases + N + PE					
Rated voltage	220 / 230 / 240 V phase (380 / 400 / 415 V line)					
Voltage range	187–280 V phase at full power · 80–186 V with linear derating					
Frequency · power factor · THDi	40–70 Hz · ≥ 0.99 · ≤ 3% at full load					
Bypass synchronisation range	50 / 60 Hz ± 6 Hz					
BATTERY						
Nominal DC voltage (default)	±192 V	±192 V	±216 V	±216 V	±216 V	±216 V
String length	28–48 × 12 V blocks, set on site · VRLA or lithium (BMS card)					
Max. charge current	30 A				60 A	
OUTPUT						
Voltage · frequency	220 / 230 / 240 V phase · 50 / 60 Hz (± 0.1 Hz on battery)					
Power factor · THDv	1 (settable 0.9) · ≤ 1% linear, ≤ 4% non-linear load					
Transient · unbalance · phase error	≤ 5% for 0–100–0% step · 100% unbalanced load · ≤ 1°					

IST7 60–200 · technical data (continued)

	IST7-60	IST7-80	IST7-100	IST7-120	IST7-160	IST7-200
OUTPUT						
Transfer time inverter ↔ bypass	< 1 ms synchronised · < 15 ms not synchronised					
Inverter overload	≤ 105% continuous · ≤ 110% 60 min · ≤ 125% 10 min · ≤ 150% 1 min (IST7-120: > 125% immediate)					
Bypass overload	≤ 130% continuous · ≤ 150% 5 min · ≤ 200% 1 s · ≤ 300% 100 ms					
SYSTEM						
Efficiency AC/AC	up to 96.5% double conversion · 99% ECO mode					
Parallel	Up to 8 units, capacity or N+X · BSC dual-bus synchronisation					
Communication	RS485 · Modbus RTU · RS232 · 4 IN / 3 OUT dry contacts · EPO · SNMP slot · expansion slot					
Display	Colour touch screen, 5 status LEDs, ambient light bar, 10,000 events and 10,000 user-log entries					
Environment	−5 … 40 °C · 0–95% RH · IP20 · < 65 dB at 1 m · forced-air cooling					
Cable entry	bottom (all models)					
EMC	IEC 62040-2:2016 · category C3 (not for residential use without additional measures)					
Dimensions W × D × H	400 × 960 × 1193 mm				600 × 1000 × 1600 mm	
Weight	153 kg	163 kg	165 kg	167 kg	294 kg	296 kg

THREE-PHASE · 400 V

IST7-T

20–200 kVA

Why choose a transformer UPS

Δ/Y
output isolation transformer built into every model, 20 to 200 kVA

< 5%
input THDi, PF ≥ 0.99, IGBT rectifier, ±25% input window

100%
three-phase unbalanced load; full kVA on non-linear load

0 ms
transfer from mains to battery



Key features · IST7-T 20–200 kVA

The IST7-T is AEC's top three-phase series: transformer-based reliability with the digital control, battery intelligence and energy functions of a new-generation UPS.



Δ/Y

Transformer built in

Δ/Y output transformer on every model: galvanic isolation of the inverter output, full kVA at 100% non-linear load, stronger against short circuit.

±25%

Made for difficult grids

IGBT rectifier with input PF ≥ 0.99 and THDi < 5%. Full load from −20% to +25% of rated voltage.

100%

Unbalanced loads

Withstands a 100% three-phase unbalanced load, on every model from 20 to 200 kVA.

Backfeed to grid

A battery test that saves energy

During the battery test the residual energy is fed back to the grid instead of being wasted.

Peak shift

Energy storage UPS

With lithium batteries the UPS charges off-peak and discharges at peak hours, on a plan curve or under EMS control.

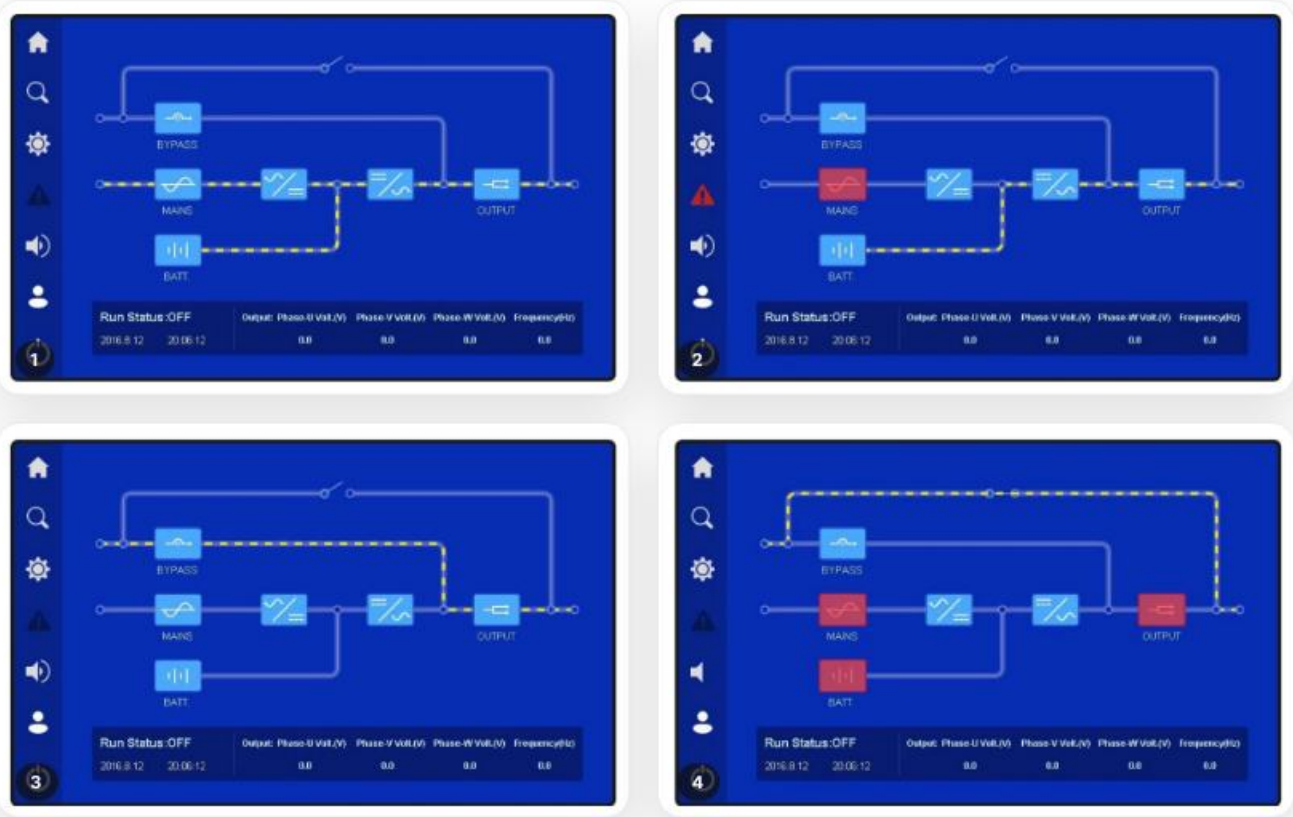
Patented

Smart battery management

Patented smart charging and automatic battery tests, battery hibernation, cell voltage, internal resistance and temperature with the optional BMS.

Operating modes · on the home page

Five operating modes: normal, battery, bypass, ECO and maintenance bypass. The home page shows which path is active.



1. **Normal mode**
   the rectifier feeds the inverter and charges the battery; the load receives clean AC through the transformer
2. **Battery mode**
   mains abnormal (red): the battery feeds the inverter through the DC/DC circuit, with no break in the output
3. **Bypass mode**
   on over-temperature, short circuit, abnormal output voltage or overload beyond the inverter limit, the static switch transfers the load to the bypass, provided the mains is normal
4. **Maintenance bypass**
   for service: the load is fed through the maintenance bypass switch; no residual current inside the UPS except N

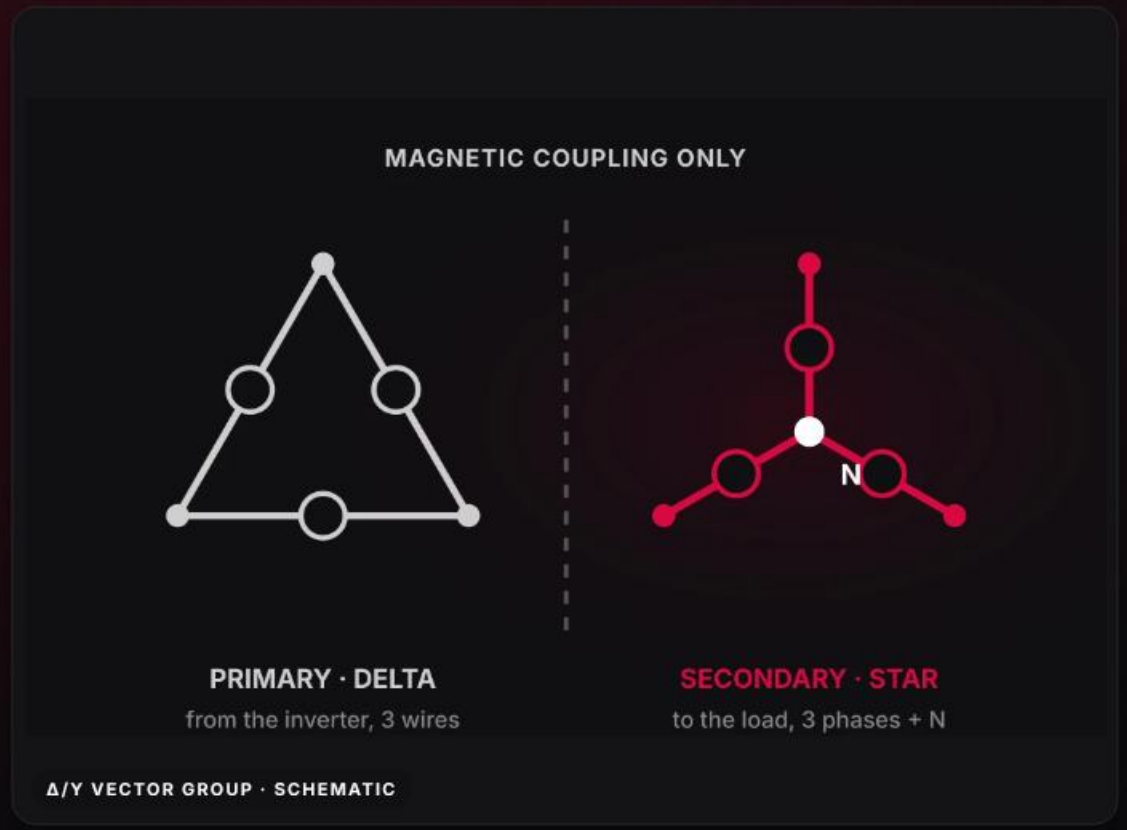
0 ms
mains → battery

1 ms
inverter → bypass

ECO
inverter in cold standby while the bypass feeds the load

Isolation transformer · built into every model

The output isolation transformer is built into every IST7-T and matched to the inverter: no external transformer to add, size or install.



1. **Galvanic isolation of the inverter output**
   power reaches the load through magnetic coupling only
2. **Full kVA at 100% non-linear load**
   and heavily unbalanced loads
3. **No inrush on the inverter**
   matched to the inverter: no excitation inrush current as with an external transformer
4. **Stronger against short circuit**
   and more capacity for inductive loads

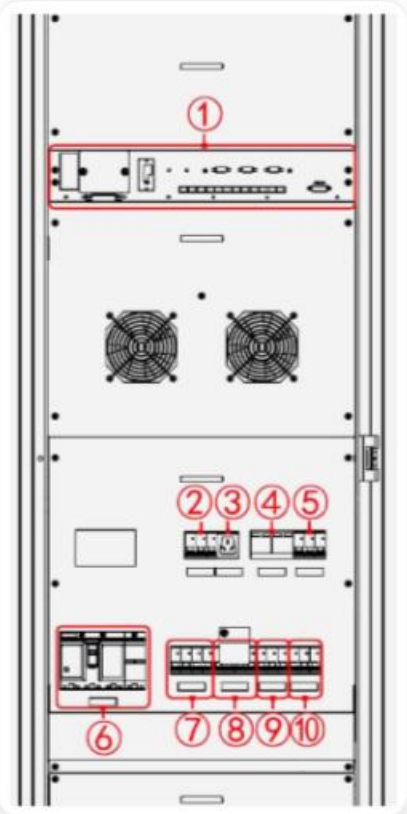
0.9	< 1%	±0.2%
Output power factor (kW / kVA)	Output voltage THD on linear load	Output frequency tolerance in battery mode, 50 Hz

Overload in inverter mode · then transfer to bypass

% of rated load	105 %	130 %	155 %	> 155 %
Time	continuous	10 min	1 min	1 s

Cabinet layout · behind the front door

Mains, bypass, maintenance bypass and output switches and the communication module sit behind the front door; cable terminals are at the bottom, behind a sealing panel.



1. **Communication module**
   terminal block, dry contacts, touch-screen interface, optional SNMP card and parallel interface
2. **Battery cold start switch**
   optional: starts the UPS from the battery with no mains or bypass
3. **Auxiliary power supply**
   supplies external low-power instruments
4. **Surge protection device**
   optional class C SPD
5. **SPD switch**
   optional overcurrent protection of the SPD circuit
6. **Battery switch**
   optional battery connection switch
7. **Output switch**
   connects the UPS output to the load
8. **Maintenance bypass switch**
   supplies the load directly during service
9. **Bypass switch**
   connects the bypass input
10. **Mains switch**
    connects the rectifier input

Copper busbar

output connection from 40 kVA; terminal block on 20 kVA

Top entry

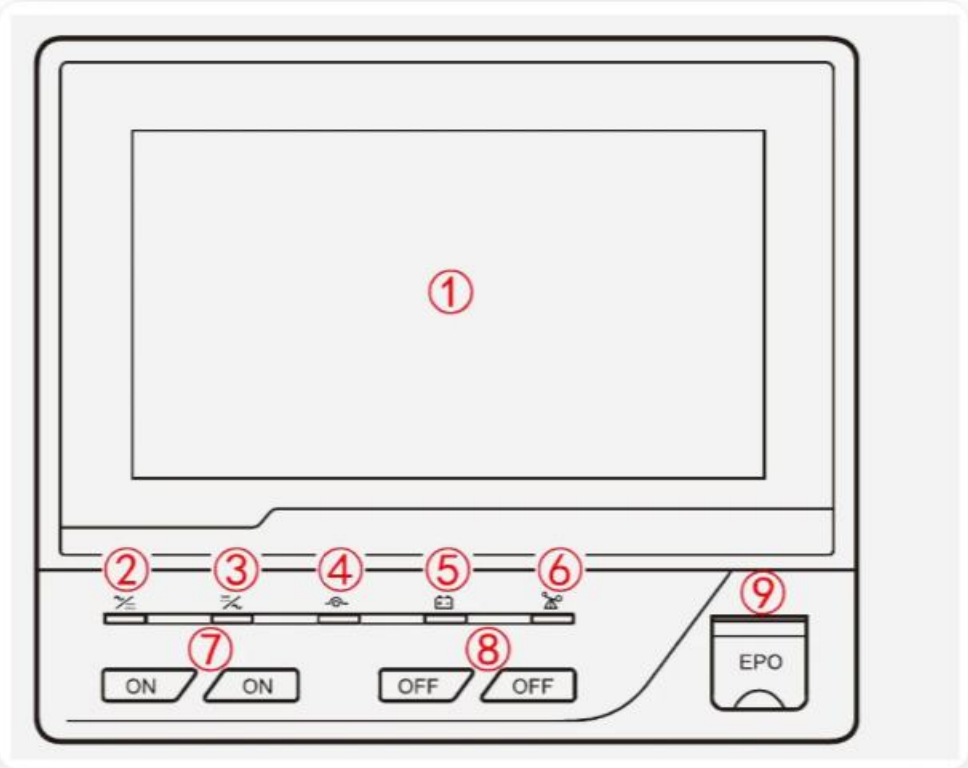
cable entry optional up to 120 kVA; bottom entry as standard

IP20

IP21 with the optional waterproof top cover

Operator panel · and touch screen

A touch screen, five status indicators and paired ON / OFF buttons: on the panel, both buttons are pressed together. Power on and off is also available from the touch screen, with confirmation.



1. **Touch-screen display**
   operating parameters and status: voltage, current, load
2. **Rectifier indicator**
   green: running normally · red: abnormal · off: not running
3. **Inverter indicator**
   green: running normally · red: abnormal · off: not running
4. **Bypass indicator**
   green: bypass output · red: bypass abnormal · off: no bypass output
5. **Battery indicator**
   green: discharging normally · red: undervoltage protection · red blinking: battery abnormal · off: normal
6. **Load indicator**
   green: load normal · red: output overload · off: no output
7. **ON**
   power on: press both buttons together
8. **OFF**
   power off: press both buttons together
9. **EPO**
   emergency power off under a cover; disabled by default, enabled on request

Energy functions · and battery

During the battery test the IST7-T feeds the residual energy back to the grid, and with lithium batteries it can shift energy from off-peak to peak hours.



3 tests

Backfeed to grid

Standard, depth-of-discharge and constant-current discharge test; the residual energy goes back to the grid without waste.

EMS

Energy storage UPS

Plan curve: up to 8 periods with start and end time, charge / discharge power or current. EMS mode: the upper computer sets mode, power and current over Modbus.

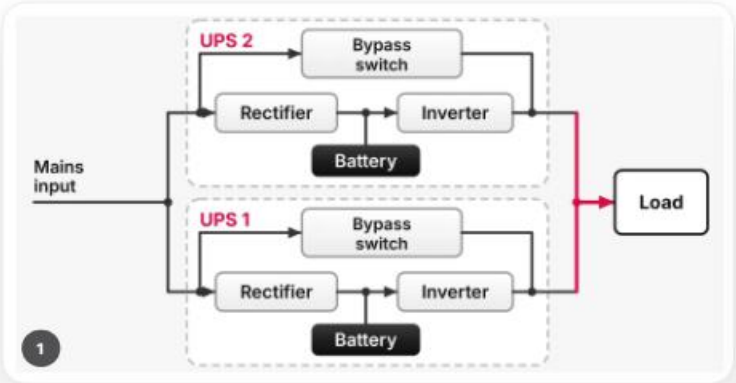
Safe SOC

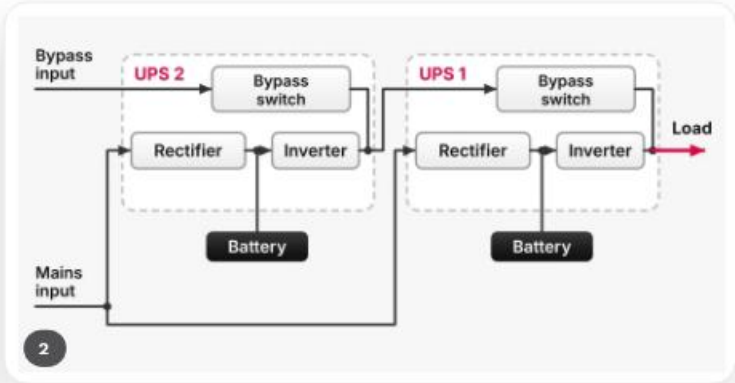
Over-discharge protection

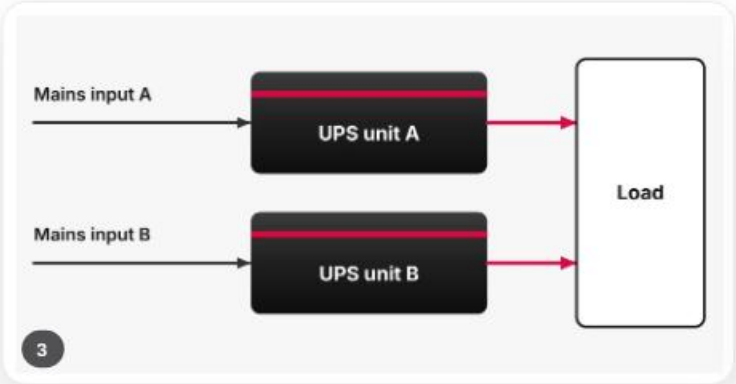
A safe SOC threshold prevents over-discharge in both modes.

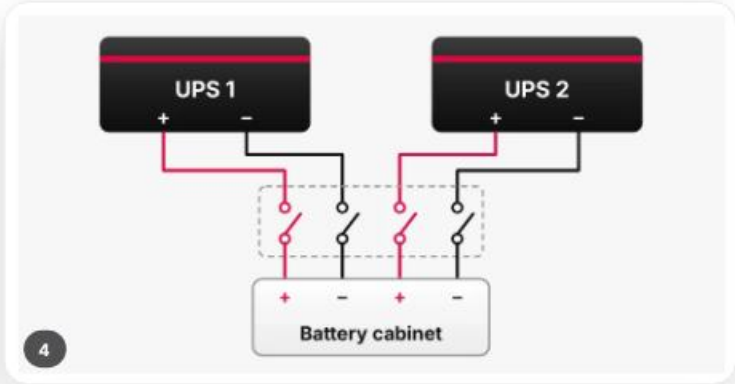
System configurations · for redundancy

Parallel, series hot standby and dual-bus systems, with a common battery pack when required.









1 Parallel system
master-slave adaptive digital parallel; N+x redundancy alarm

2 Series hot standby
UPS 2 feeds the bypass input of UPS 1: if UPS 1 fails, the load stays on the inverter of UPS 2

3 Dual bus (optional)
for loads with two power inputs: 2 or 4 UPS systems, synchronised through the LBS interface

4 Common battery pack
UPS units in a parallel system can share one battery pack

IST7-T · technical data

	IST7T-20	IST7T-40	IST7T-60	IST7T-80	IST7T-100	IST7T-120	IST7T-200
GENERAL							
Rated power (kVA / kW)	20 / 18	40 / 36	60 / 54	80 / 72	100 / 90	120 / 108	200 / 180
RECTIFIER INPUT							
Rated voltage · range	380 / 400 / 415 V L-L · ± 25% (full load from −20% to +25%)						
Connection · frequency	3Φ3W + PE · 45–55 or 54–66 Hz						
Power factor · THDi	≥ 0.99 · < 5%						
BYPASS INPUT							
Rated voltage · connection	380 / 400 / 415 V L-L · 3Φ4W + PE						
Synchronisation range	50 (60) Hz ± 10% (± 5% optional)				50 Hz ± 10% (± 5% optional)		
BATTERY							
Battery voltage (V DC)	216–480	324–480	348–480				
Number of batteries	18–40	27–40	29–40	29–40	29–40 (default 32)		
OUTPUT							
Voltage · waveform	220 / 230 / 240 V L-N · sine wave, THDv < 1% (linear load)						
Frequency	tracks the bypass in normal mode · 50 Hz ± 0.2% in battery mode						
Transfer time	0 ms mains → battery · 1 ms inverter → bypass						

IST7-T · technical data (continued)

	IST7T-20	IST7T-40	IST7T-60	IST7T-80	IST7T-100	IST7T-120	IST7T-200
OUTPUT							
Overload (inverter mode)	101–105% alarm, continuous · 106–130% 10 min · 131–155% 1 min · > 155% 1 s, then bypass						
Unbalanced load · isolation	100% three-phase unbalanced · output isolation transformer built in						
Output connection	terminal block (20) · copper busbar (40–80)				copper busbar		
SYSTEM							
Communication	RS232 / RS485 Modbus · 8 output and 4 input dry contacts · SNMP card, BMS and parallel optional						
Protections	battery undervoltage, overload, short circuit, over-temperature, input over- and undervoltage						
Standards	CE marking · EN / IEC 62040-1 (safety) · EN / IEC 62040-2 (EMC), category C3						
ENVIRONMENT AND MECHANICS							
Temperature · humidity	−5 … 40 °C operating · −20 … 55 °C storage · 0–95% RH non-condensing						
Altitude without derating · noise	1000 m · < 65 dB				1500 m · < 70 dB		
Protection degree	IP20 (IP21 with optional top cover)						
Dimensions (W × D × H)	600 × 800 × 2000 mm				1000 × 800 × 2000 mm		
Weight (kg ± 5%)	345	405	470	505	720	780	1280

MODULAR · 400 V

IST6-120

30–120 kVA

Start with one 30 kVA power module, grow to 120 kVA in the same cabinet.

30 → 120
kVA in 30 kVA steps, in one cabinet

N+1
fifth slot reserved for a redundant module

97%
efficiency in double conversion, up to 99% in ECO

Hot-swap
power modules replaced online





Scalability · 30 to 120 kVA in one cabinet

The cabinet is the same from the first module to the last: power is added by sliding a 30 kVA module into a free slot.


IST6-120 · DOOR OPEN

30 → 120

Pay as you grow

Add 30 kVA modules in the same cabinet when the load grows, with no new footprint.

N+1

Redundancy built in

If a module stops, the others carry the load without transfer to bypass.

Hot-swap

Service without shutdown

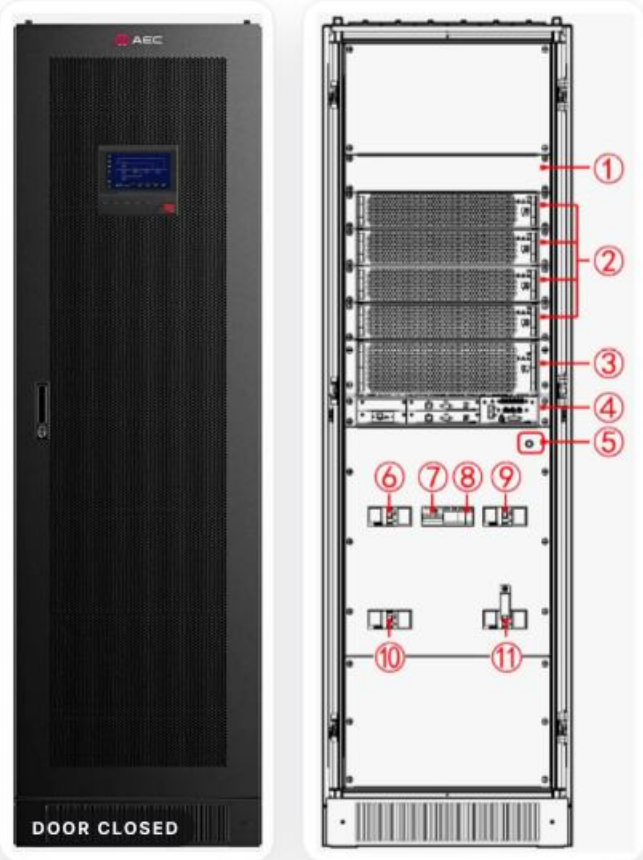
Power modules slide in and out from the front while the UPS keeps running.

Load up to	Modules (N)	Modules for N+1
30 kVA	1	2
60 kVA	2	3
90 kVA	3	4
120 kVA	4	4 + redundancy slot

The fifth slot, at the top, is the redundancy slot. Codes: IST6-120 cabinet (supplied without modules) · IST6-30-J 30 kVA / 30 kW power module · PAR - IST6 parallel kit.

Cabinet layout · 600 × 860 × 2000 mm

Power module 30 kVA · 2U, 24 kg. Bypass module centralised · 3U, 17 kg. IP20.

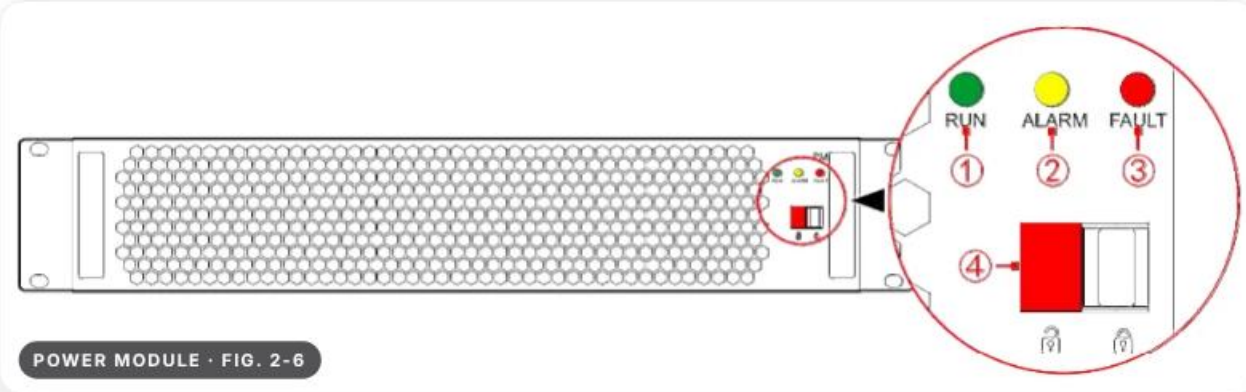


1. **Redundancy slot**
   Space for the N+1 module.
2. **Power modules 1–4**
   30 kVA each, 2U, hot-swap.
3. **Bypass module**
   Centralised static bypass, 3U, removable.
4. **System control box**
   Two control cards, monitor card, SNMP and expansion slots.
5. **Battery cold start**
6. **Mains switch**
7. **Surge protection switch**
   Optional.
8. **SPD**
   Optional surge protection device.
9. **Output switch**
10. **Bypass switch**
11. **Maintenance bypass switch**
    Manual bypass with no switching time.

Hot-swap modules · LEDs and ready switch

Every power module has a ready switch and three status LEDs: power modules are replaced without shutting down the UPS.





POWER MODULE · FIG. 2-6

1. **RUN**
   green: inverter on (flashing: standby)
2. **ALARM**
   yellow: input voltage, fan or overload alarm
3. **FAULT**
   red: module fault
4. **Ready switch**
   green, the module can be removed; red, it is locked in

0
UPS shutdowns to add or replace a power module

≥ 10 min
wait after removal before opening a module

- A faulty power module is isolated automatically; normally the system continues on the other modules, with reduced redundancy.
- No master, no slave: modules share the load equally under digital control.

Input and output · overload capacity

Full power from 176 to 280 V phase voltage; down to 80 V the UPS keeps working from the mains with derated power.

Overload capacity

Inverter · linear load, PF 1	Time	Bypass	Time
≤ 105%	continuous	< 130%	continuous
106–110%	60 min	131–150%	5 min
111–125%	10 min	151–200%	1 s
126–150%	1 min	201–300%	100 ms

PF ≥ 0.99
input power factor

THDi ≤ 3%
non-linear, full load

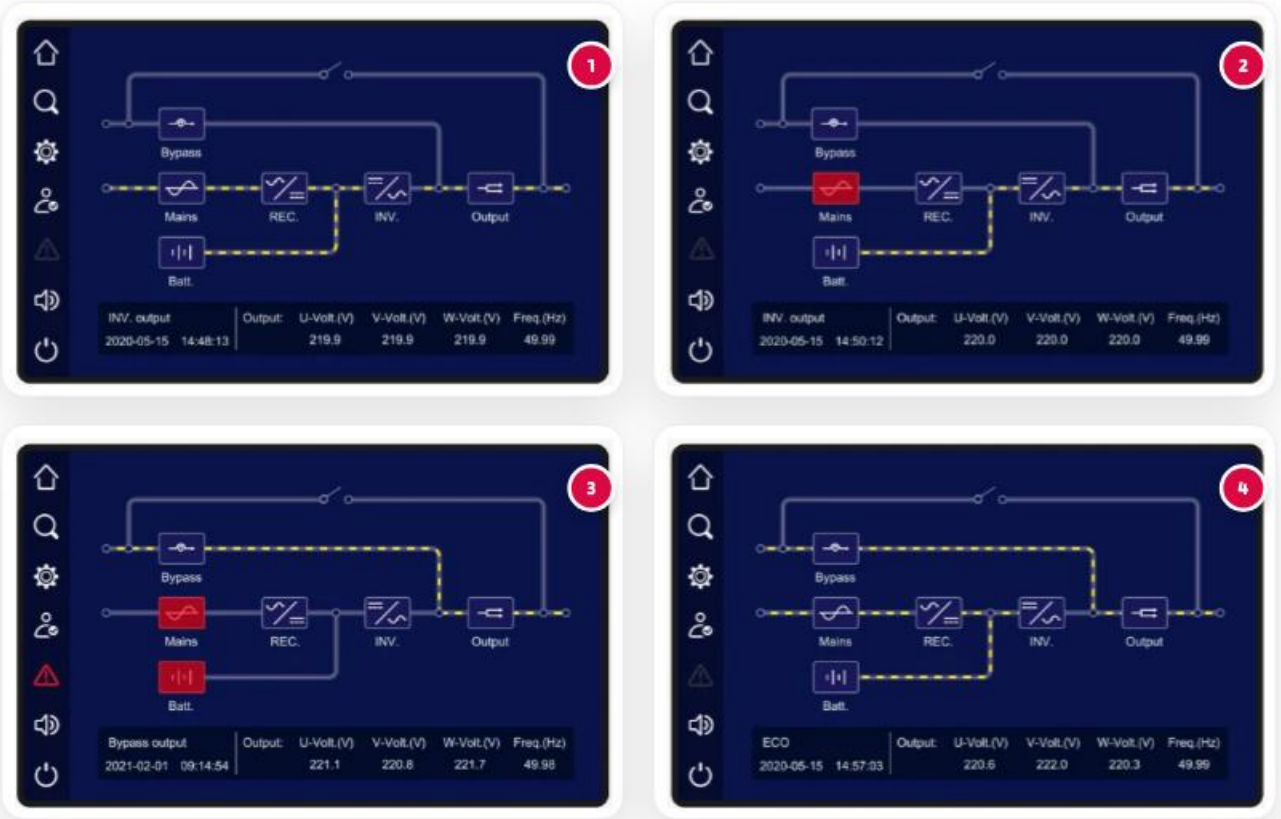
PF 1
output: kVA = kW

0 ms
transfer inverter ↔ bypass, synchronised

Inverter: above 151% transfer to bypass at once. Bypass: above 300% immediate protection. THDv ≤ 1% linear, ≤ 4% non-linear. Transfer not synchronised < 15 ms. Input frequency 40–70 Hz.

Operating modes · on the home page

Real screens of the IST6: the yellow dotted line traces the active power path. ECO efficiency up to 99%.



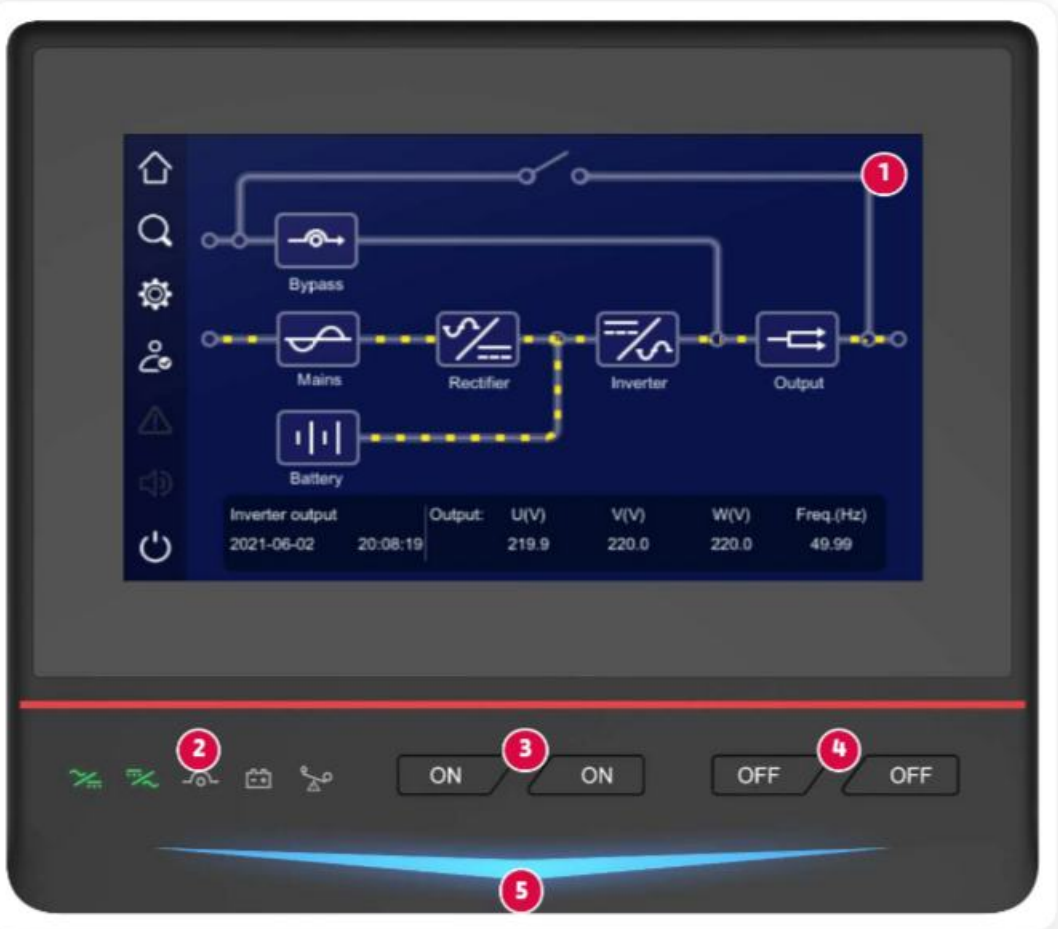
1 Mains inverter
Normal operation: mains → rectifier → inverter → load, battery charging.

2 Battery inverter
Mains abnormal: the battery feeds the inverter with no break.

3 Bypass
Load on the bypass module, e.g. on overload or inverter fault.

4 ECO
Load on the bypass within the ECO window; the rectifier keeps the battery charged.

Operator panel · screen, LEDs, light bar



1. **Colour touch screen**
   Seven inches: live power flow, measurements, settings and records.

2. **Five status LEDs**
   AC/DC, DC/AC, bypass, battery, load: green when normal or active, red when abnormal.

3. **ON keys**
   Press both keys for 3 s to power on: no accidental switching.

4. **OFF keys**
   Press both keys for 3 s to power off.

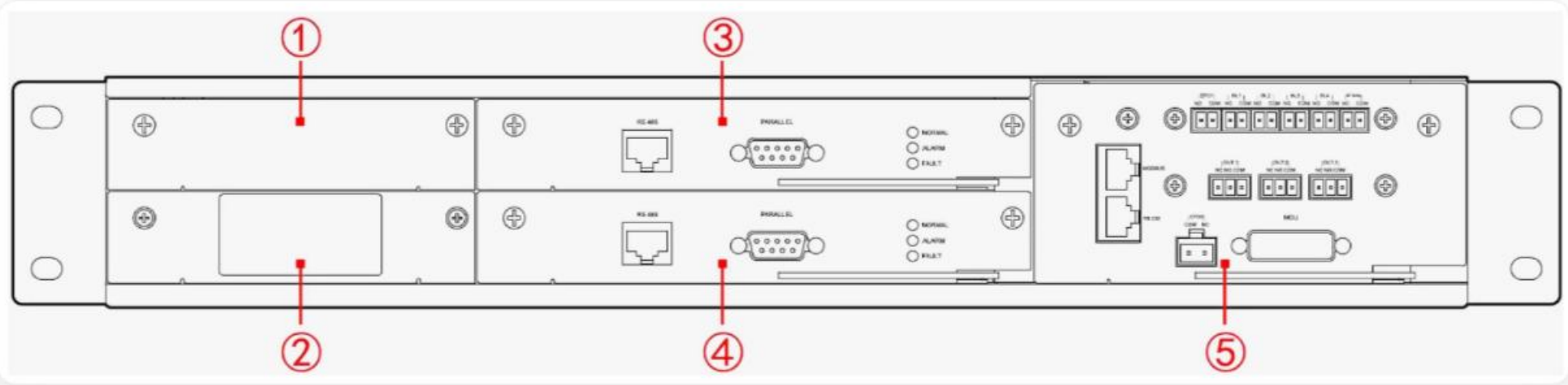
5. **Status light bar**
   Blue: normal operation · blue, flashing: battery mode · yellow: abnormal, UPS still running · red: abnormal, UPS stopped.

4
light-bar states, one colour each

10,000
records in the history, newest first

Communication · and parallel systems

System control box, user manual Fig. 2-8. Dry contacts, Modbus, RS232, RS485 and EPO as standard.



1 Expansion card position
optional

2 SNMP card position
optional

3 Control card 1

4 Control card 2

5 System monitor card

4 + 3
dry-contact inputs + outputs, standard

Modbus
RS232 · RS485 · SNMP

Ring
parallel cable topology

BSC
dual bus synchronisation

IST6-120 · technical data

	IST6-120
GENERAL	
Model	IST6-120 with IST6-30-J power modules
Rated power	30 to 120 kVA / kW in 30 kVA steps (1–4 modules) + 1 redundancy slot
Topology	online double conversion, modular, hot-swap power modules, removable bypass module
INPUT	
Connection · voltage	3 ph + N + PE · 220 / 230 / 240 V L-N
Voltage range	176–280 V full power · 80–176 V derated (linear load)
Frequency · power factor · THDi	40–70 Hz · ≥ 0.99 · ≤ 2% resistive, ≤ 3% non-linear full load
Bypass	220 / 230 / 240 V L-N; synchronisation 50 / 60 Hz ± 6 Hz
BATTERY	
Voltage · blocks	±168 … ±276 V DC · ±14 … ±23 × 12 V (default ±16; below ±16 load 80%)
Charging current	10 A × number of modules (max.)
Functions	cold start · standard / deep test · common battery · lithium with BMS card
OUTPUT	
Connection · voltage	3 ph + N + PE · 220 / 230 / 240 V L-N, 380 / 400 / 415 V L-L
Power factor · THDv	1 · ≤ 1% linear, ≤ 4% non-linear

	IST6-120
OUTPUT	
Frequency · phase error	tracks the bypass; 50 / 60 Hz ± 0.2% without mains · ≤ 1° (balanced load)
Transfer · dynamic response	0 ms synchronised, < 15 ms not synchronised · < 5% for 0↔100% step
Inverter overload (PF 1)	≤ 105% continuous · 106–110% 60 min · 111–125% 10 min · 126–150% 1 min · > 151% to bypass
Bypass overload	< 130% continuous · 131–150% 5 min · 151–200% 1 s · 201–300% 100 ms
Unbalanced load	100%
SYSTEM	
Efficiency	97% double conversion · up to 99% ECO
Display · records	7" colour touch screen · 10,000 events · 5 LEDs · status light bar
Communication	Modbus · RS232 · RS485 · 4 dry-contact inputs, 3 outputs · options: SNMP, dry-contact expansion, BMS card
Parallel	with parallel kit, ring cables; BSC dual bus
Environment	−5 … 40 °C · 0–95% RH · ≤ 2000 m · IP20 · < 65 dB · EMC class C3
Dimensions W × D × H	600 × 860 × 2000 mm · cable entry bottom (top with accessory)
Weight	cabinet without power modules 195 kg · power module 24 kg · bypass module 17 kg

MODULAR · 400 V

IST6 200–500

200–500 kVA

50 kVA power modules in cabinets of 200, 300, 400 and 500 kVA.

50 → 500
kVA in 50 kVA steps

N+1
one extra power module for redundancy

98.1%
efficiency, new-generation 50 kVA module

Hot-swap
power modules replaced online



Models and range · four cabinets, one module

Single-column cabinets for 200 and 300 kVA, double-column cabinets for 400 and 500 kVA: the same power module, the same display, the same functions.


200 · 300 kVA


400 · 500 kVA

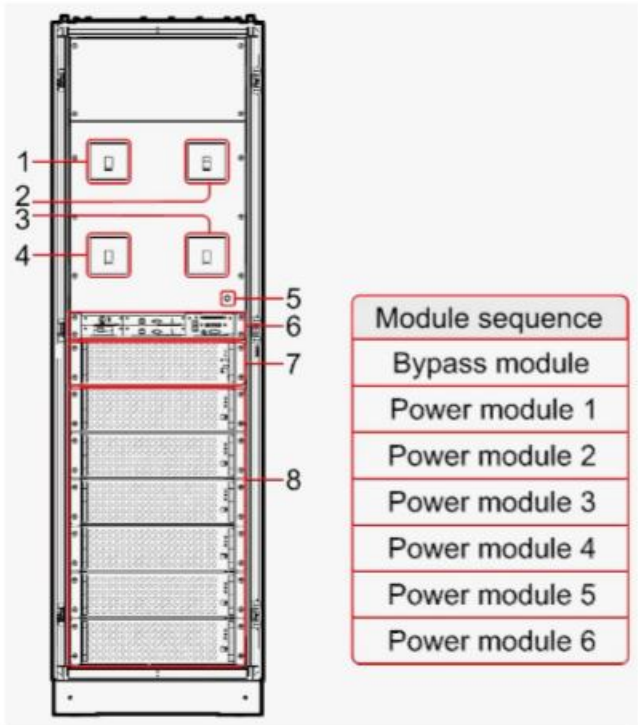
Cabinet	200 kVA	300 kVA	400 kVA	500 kVA
Power modules (50 kVA)	4	6	8	10
Bypass module	200 kVA · 3U	300 kVA · 3U	400 kVA · 3U	500 kVA · 4.5U
W × D (mm)	607 × 860	607 × 860	1203 × 864	1203 × 864
Weight without power modules	224 kg	236 kg	459 kg	506 kg
Mains input current	345 A	518 A	690 A	863 A
Cooling air flow (min.)	2420 m³/h	3630 m³/h	4840 m³/h	6050 m³/h

Cabinets 2000 mm high: single column 607 mm, double column 1203 mm wide.

Cabinet layout · 200 / 300 kVA

300 kVA with the door open, next to its structure layout from the user manual (Fig. 2-11). Power modules and the bypass module are hot-swappable.





1. **Bypass switch**
2. **Maintenance bypass switch**
3. **Output switch**
4. **Mains switch**
5. **Battery cold start button**
6. **System control box**
7. **Bypass module**
8. **Power modules · 1–6**

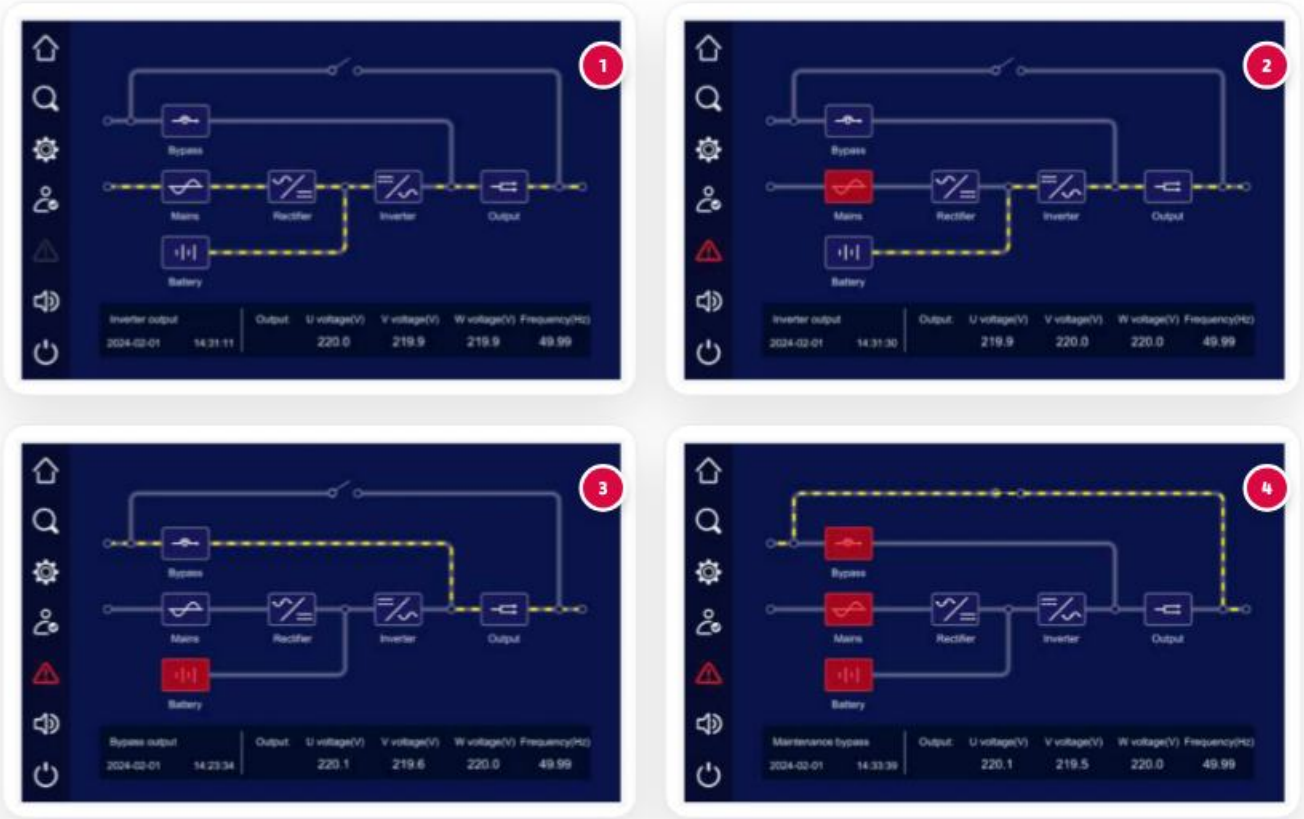
39 kg
power module, 500 × 650 × 130 mm

23–50 kg
bypass module, 200 to 500 kVA cabinet

≥ 15 min
wait before opening a removed module

Operating principle · on the touch screen

Each operating mode as shown on the touch screen: N power modules in parallel and one bypass module.



1. **Mains mode**
   Each module rectifies the mains and the inverter supplies the load; the battery is charged.

2. **Battery mode**
   Mains abnormal: the DC/DC converter boosts the battery to the inverters, 0 ms.

3. **Bypass mode**
   Overload or fault: the bypass module supplies the load.

4. **Maintenance bypass mode**
   Bypass, mains and output switches open: the load stays on the maintenance bypass for service.

0 ms	< 1 ms	≤ 5%
mains ↔ battery	bypass ↔ inverter, synchronised	current sharing between modules

Input and output · overload capacity

Full power from 324 to 485 V line voltage; below, the load capacity is derated linearly down to 10% at 173 V, and the UPS still runs down to 138 V.

Overload capacity

Inverter · linear load, PF 1	Time	Bypass	Time
≤ 105%	continuous	≤ 130%	continuous
105–110%	60 min	130–150%	5 min
110–125%	10 min	150–200%	1 min
125–150%	1 min	200–300%	100 ms

≤ 1.5%
THDi, full load

PF 0.8–1.0
output, settable (default 1.0)

20–200 ms
short-circuit trip time

Inverter: above 150% to bypass at once. Bypass: above 300% immediate protection. Output voltage accuracy ≤ 1%.

Battery options · string length set on site

Split battery +/N/−, ±240 V DC nominal (40 blocks of 12 V); 30 to 50 blocks accepted, with the output factor below for short strings.

12 V blocks per string (lead-acid) and output factor

Blocks	30	32	34	36	38	40 (standard)	42–50
Output factor	0.75	0.8	0.8	0.9	0.9	1	1

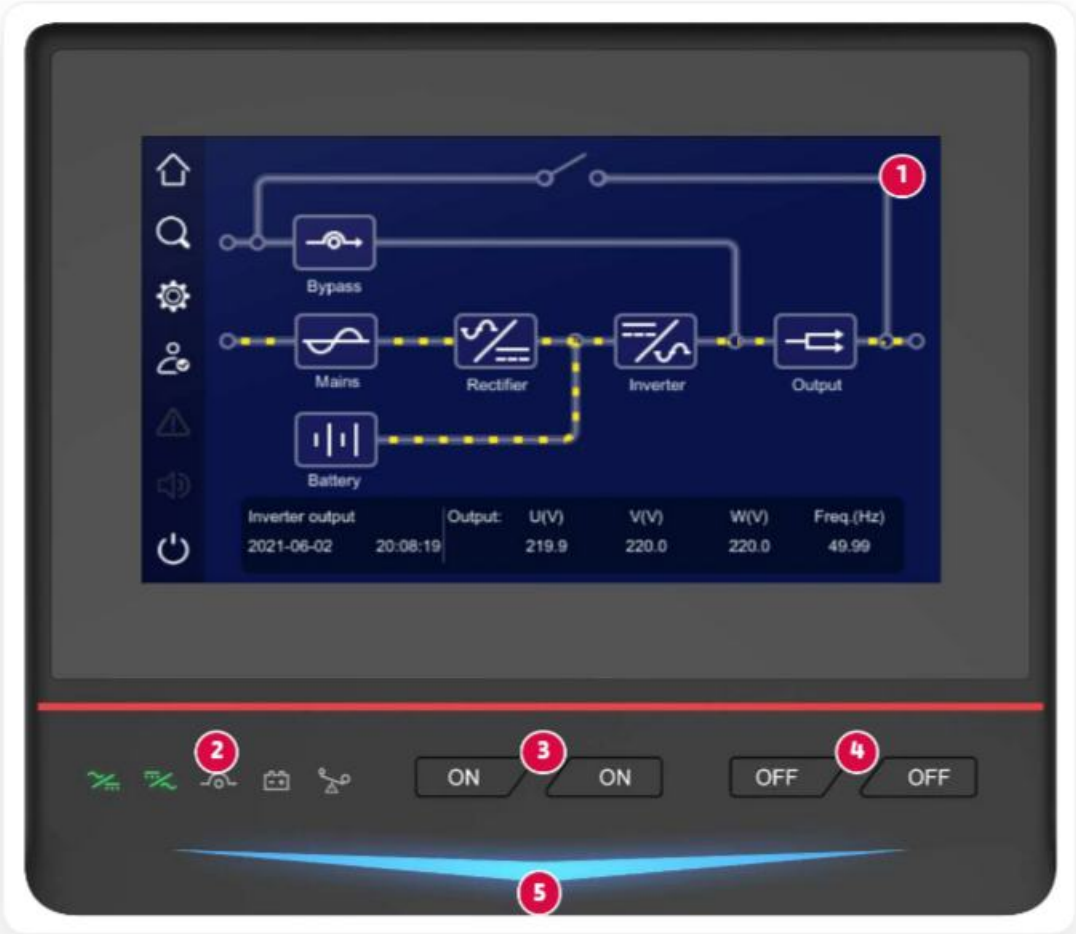
30 A
Charging current
up to 30 A per power module

±256 V
Lithium nominal
120–200 cells (standard 160), with the BMS card

> 3 s
Cold start
Battery cold start button: hold more than 3 s to start the UPS from the battery.

Shared
Common battery
Shared battery pack mode available for parallel systems.

Operator panel · screen, LEDs, light bar



1 Colour touch screen
Live power flow, measurements, settings and records.

2 Five status LEDs
AC/DC, DC/AC, bypass, battery, load: green when normal or active, red when abnormal.

3 ON keys
Press both keys for 3 s to power on: no accidental switching.

4 OFF keys
Press both keys for 3 s to power off.

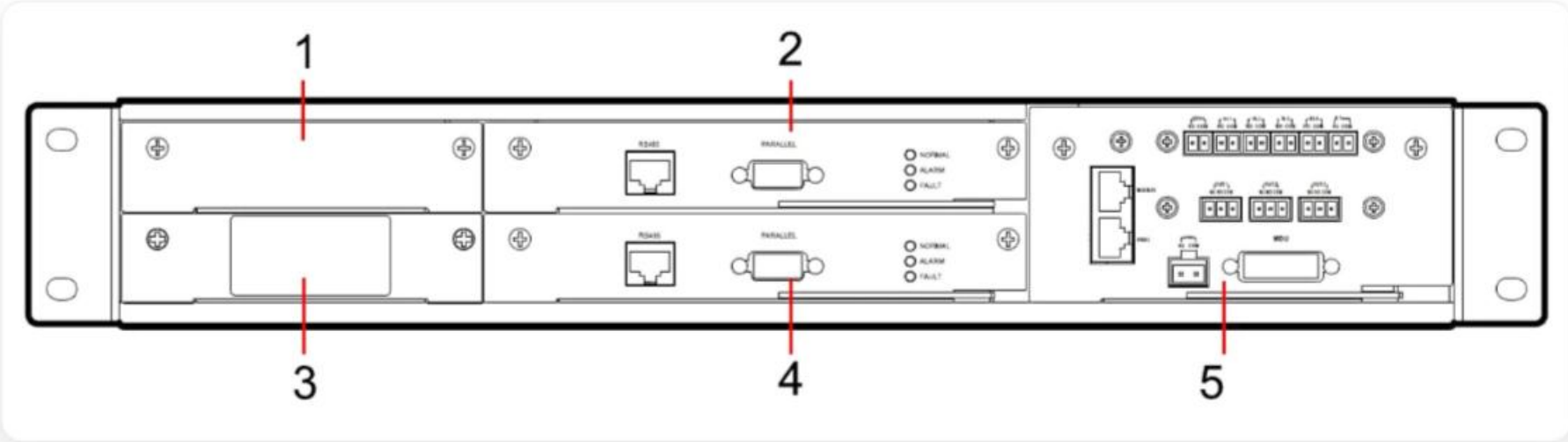
5 Status light bar
Blue: normal operation · blue, flashing: battery mode · yellow: abnormal, UPS still running · red: abnormal, UPS stopped.

4
light-bar states, one colour each

10,000
events, wave capture of faults and monthly energy records

Communication · and parallel systems

System control box, from the user manual (Fig. 2-19): all five cards are hot-swappable.



1. **Expansion card position** — optional
2. **System control card 1**
3. **SNMP card position** — optional
4. **System control card 2**
5. **System monitoring card**

4 + 3
inputs + outputs, standard

Modbus
RS232 · RS485 · SNMP

8
UPS in parallel (max.)

3
buses in multi-bus mode

IST6 200–500 · technical data

	200 kVA	300 kVA	400 kVA	500 kVA
CABINET				
Power modules · rating	4 × 50 kVA	6 × 50 kVA	8 × 50 kVA	10 × 50 kVA
Bypass module	200 kVA · 3U	300 kVA · 3U	400 kVA · 3U	500 kVA · 4.5U
INPUT				
System · voltage	3Ph+N+PE · 380 / 400 / 415 V; 138–485 V (full power 324–485 V, linear derating below)			
Frequency · PF · THDi	40–70 Hz · ≥ 0.99 · ≤ 1.5% at full load			
Bypass	304–438 V; synchronisation 50 ± 5 / 60 ± 6 Hz; settable range			
BATTERY				
Lead-acid	±240 V DC nominal (±180 … ±300 V), 30–50 × 12 V blocks, standard 40			
Lithium (with BMS card)	±256 V DC nominal (±192 … ±294.4 V), 120–200 cells, standard 160			
Charging current	up to 30 A × number of modules · cold start · shared battery			
OUTPUT				
System · voltage	3Ph+N+PE (3Ph+PE optional) · 380 / 400 / 415 V ± 1%			
Power factor · THDv	settable 0.8–1.0 (default 1.0) · ≤ 1% linear, ≤ 4% non-linear			

	200 kVA	300 kVA	400 kVA	500 kVA
OUTPUT				
Frequency · phase error	tracks the bypass; 50 / 60 ± 0.1 Hz with mains abnormal · ≤ 1° balanced, ≤ 3° unbalanced			
Transfer	mains ↔ battery 0 ms · bypass ↔ inverter < 1 ms synchronised, < 15 ms not synchronised			
Inverter overload (PF 1)	≤ 105% continuous · 105–110% 60 min · 110–125% 10 min · 125–150% 1 min · > 150% to bypass			
Bypass overload	≤ 130% continuous · 130–150% 5 min · 150–200% 1 min · 200–300% 100 ms			
SYSTEM				
Efficiency · modes	up to 98.1% · ECO, WECO, source share, redundancy sleep			
Parallel	up to 8 UPS, current imbalance ≤ 5% · BSC dual bus and multi-bus (3 buses)			
Communication	Modbus · RS232 · RS485 · 4 inputs / 3 outputs dry contact · options: SNMP, expansion, BMS			
Environment	0 … 40 °C · 0–95% RH · ≤ 2000 m (derating to 4000 m) · IP20 · < 70 dB · EMC C3			
W × D × H (mm)	607 × 860 × 2000	607 × 860 × 2000	1203 × 864 × 2000	1203 × 864 × 2000
Weight without power modules	224 kg	236 kg	459 kg	506 kg

MODULAR · 400 V

IST6 400–1200

400–1200 kVA

100 kVA power module · 3U · hot-swap

100 → 1200
kVA in 100 kVA steps

N+1
one extra power module for redundancy

98.1%
efficiency with PLUS power modules

Hot-swap
power modules replaced online





Models and range · 400 to 1200 kVA

Single-column cabinets from 400 to 800 kVA, double-column cabinets for 1000 and 1200 kVA; the same power module, display and functions.

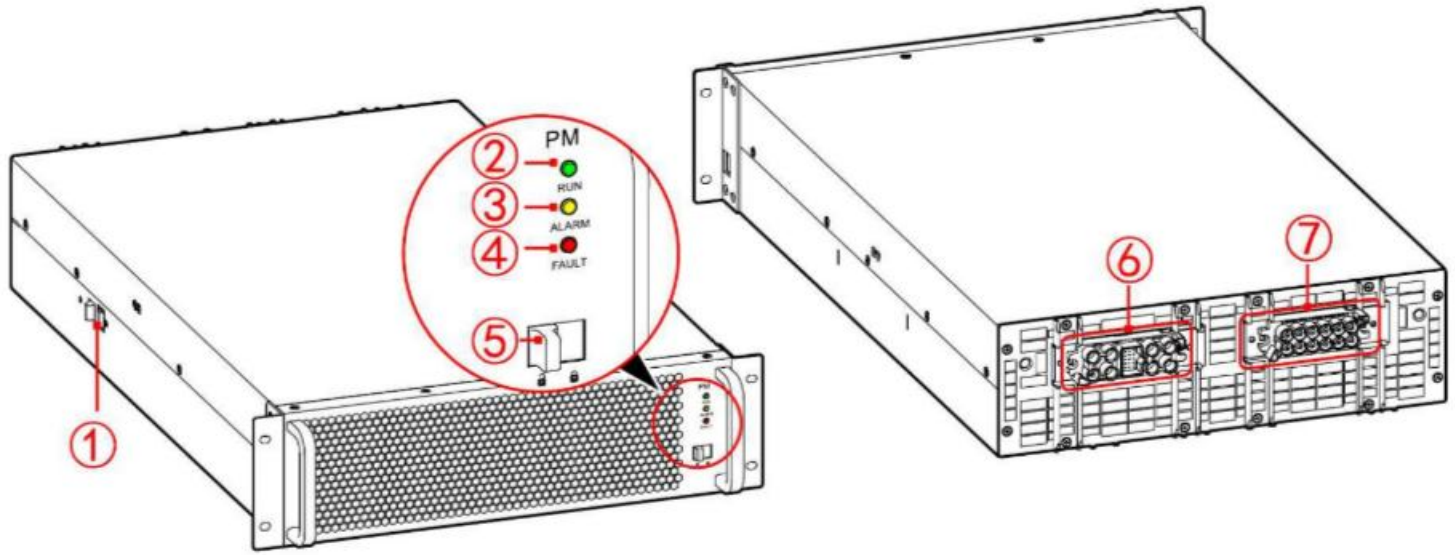


Cabinet	400 kVA	500 kVA	600 kVA	800 kVA	1000 kVA	1200 kVA
Power modules (100 kVA)	4	5	6	8	10	12
W × D (mm) · H 2000	801 × 1000	801 × 1000	801 × 1000	801 × 1000	1201 × 1000	1201 × 1000
Weight without modules	345 kg	434 kg	434 kg	435 kg	662 kg	662 kg
Code	on request	on request	on request	IST6-800	IST6-1000	IST6-1200

Front views to scale, height 2000 mm; the last two with the optional distribution cabinet. Power module IST6-100-J, 100 kVA / 100 kW.

Power module · 100 kVA in 3U

The same 100 kVA module from 400 kVA to 1.2 MW: rectifier, inverter and DC/DC converter in a 3U drawer, with output power factor 1 (kVA = kW).



1. **Limit lock**
   press to pull the module out
2. **RUN · green**
3. **ALARM · yellow**
4. **FAULT · red**
5. **Ready switch**
   green unlocked · red locked
6. **Output port · rear**
7. **Input port**
   AC mains and DC battery

100 kW
rating: 100 kVA / 100 kW

54 kg
440 × 760 × 130 mm

Cabinet layout · 400 kVA, 4 modules

400–600 kVA single column with internal power switches; 1000–1200 kVA double column, with the switches in the optional distribution cabinet.



1·2 **Mains and output switches**

3 **Maintenance bypass switch**

4 **Bypass switch**

5·6 **SPD switch and SPD**
optional

7 **System control box**
five hot-swappable cards

8 **Battery cold start**

9 **Bypass module**
3U, under the control box

10 **Fan control switch**
optional

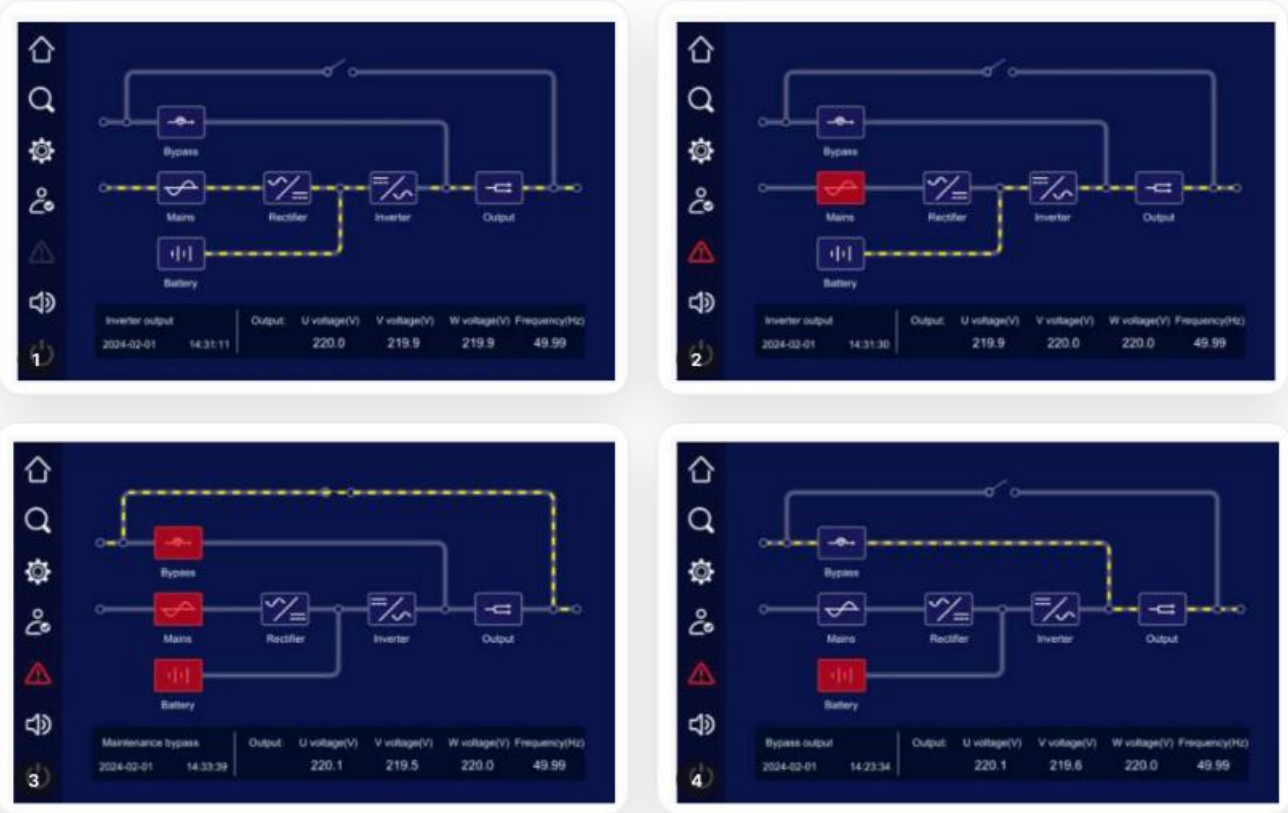
11 **Power modules**
100 kVA each

12 **Switch operating lever**

500 / 600 kVA: 4.5U bypass module and 6 module slots; 800 kVA: single column with 8 modules and no internal power switches.

Operating principle · four modes

Each operating mode as shown on the touch screen: N power modules in parallel and one bypass module.



1 Mains mode
Each module rectifies the mains and the inverter supplies the load; the battery is charged.

2 Battery mode
Mains abnormal: the battery feeds the inverters through the DC/DC converter, 0 ms.

3 Maintenance bypass
Manual switch: the load stays supplied while the UPS is serviced.

4 Bypass mode
Overload or fault: the bypass module supplies the load.

0 ms
mains ↔ battery

< 1 ms
inverter ↔ bypass, synchronised

≤ 5%
current sharing between power modules

Grows with the site · and saves energy

Add 100 kVA modules or whole UPS as the site grows; set redundancy and redundancy sleep from the screen.

100 kVA
Step size
One 3U module at a time, in free slots up to the cabinet rating.

4 → 12
Modules per cabinet
400, 500, 600, 800, 1000 or 1200 kVA cabinets.

× 8
UPS in parallel
Further UPS join with the parallel kit, with N+X redundancy between UPS.

N+X
Two redundancy levels
Basic and redundant modules per cabinet and per parallel system.

99.2%
ECO mode
The load runs on the static bypass while the bypass is within the ECO window; the inverter is in standby and the rectifier keeps the battery charged.

99%
W-ECO mode
High-efficiency mode with input THDi below 5%; its state is shown live on the home page.

Storage
Energy storage mode
Peak cutting and valley filling: the battery supplies part of the load at peak hours and recharges in the valley.

Sleep
Redundancy sleep
At light load the spare modules sleep, while the basic modules carry the load within the sleep safety load capacity set on screen.

Battery options · string length set on site

480 V DC nominal with 40 blocks of 12 V (360–600 V); 30 to 50 blocks (46–50 on request), with the output factor below for short strings. Battery neutral optional (±240 V).



1 Battery setting
Cell voltages for protection, alarm, equalising and floating charge, charging current, test time.

2 Charge management
Charge limit coefficient in C, temperature compensation, timed and forced equalising charge.

3 Battery test
Standard or deep test with mains normal, battery floating and load ≥ 15%.

12 V blocks per string (lead-acid)	30	32	34	36	38	40 (standard)	42	44	46	48	50
Output factor	0.75	0.8	0.8	0.9	0.9	1	1	1	1	1	1

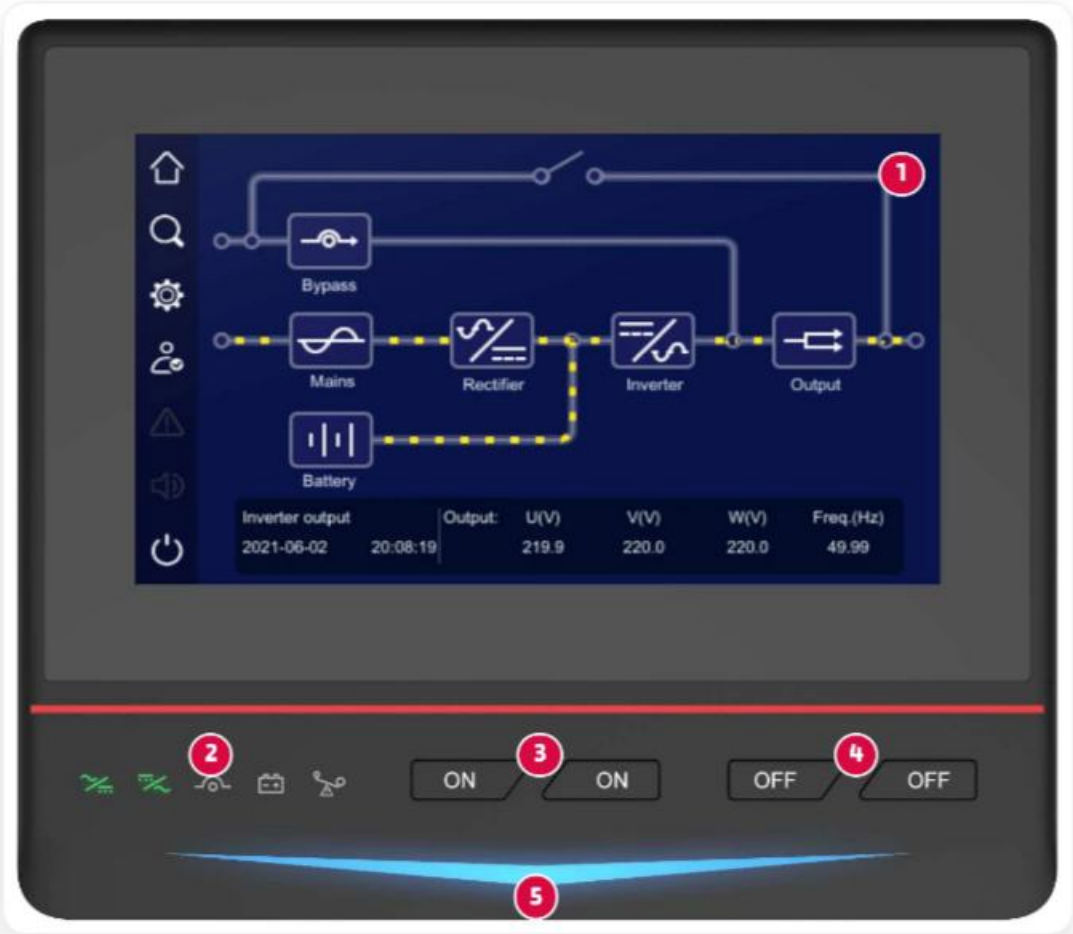
20 A
charging current per power module, three-stage charging

512 V
lithium nominal, 120–200 cells (standard 160), with the BMS card

0.05–0.5 C
charge limit, lead-acid

20–30 °C
best battery temperature

Operator panel · 7" touch screen



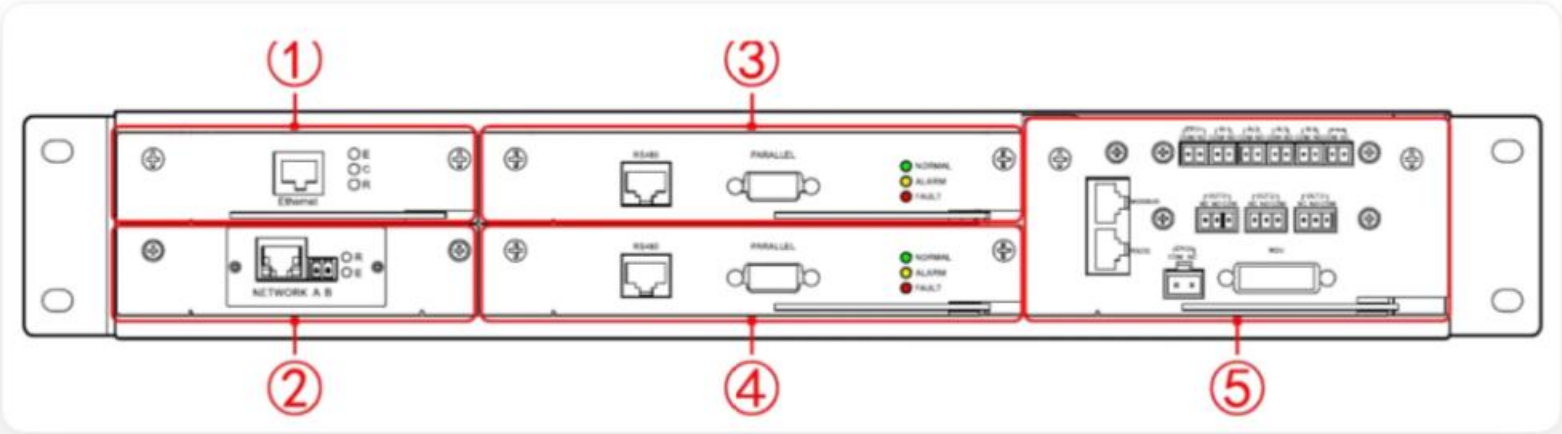
1. **Colour touch screen**
   Seven inches: live power flow, measurements, settings and records.
2. **Five status LEDs**
   AC/DC, DC/AC, bypass, battery, load: green when normal or active, red when abnormal.
3. **ON keys**
   Press both keys for 3 s to power on: no accidental switching.
4. **OFF keys**
   Press both keys for 3 s to power off.
5. **Status light bar**
   Blue normal operation, blue flashing battery mode, yellow abnormal with the UPS still running, red abnormal with the UPS stopped.

10
languages on the screen

3
password levels: user, technician and service engineer

Communication · and up to 8 UPS in parallel

System control box, from the user manual: all five cards are hot-swappable.



1 Expansion card
optional: dry contact or BMS

2 SNMP card
optional

3 System control card 1

4 System control card 2

5 Monitoring card
Modbus, RS232, EPO, dry contacts

Standard: Modbus (address 1–247, 2400–19200 baud) · RS232 for an external SNMP card · RS485 linking the displays of a parallel system · EPO1 NO and EPO2 NC · B-Temp input for the battery temperature kit.

8	**9.6 MW**	**≤ 5%**	**3**
UPS in parallel, up to	system power	current imbalance	buses in multi-bus mode

IST6 400–1200 · technical data

	400 kVA	500 kVA	600 kVA	800 kVA	1000 kVA	1200 kVA
CABINET						
Power modules (100 kVA)	4	5	6	8	10	12
Bypass module	3U	4.5U	4.5U	4.5U	4.5U	4.5U
INPUT						
System · voltage	3Ph+N+PE · 380 / 400 / 415 V; 138–485 V (full power 324–485 V, linear derating below)					
Frequency · PF · THDi	40–70 Hz · ≥ 0.99 · ≤ 3% at full load					
Bypass	304–438 V; synchronisation 50 / 60 ± 6 Hz; settable window					
BATTERY						
Lead-acid	480 V DC nominal (360–600 V), 30–50 × 12 V blocks, standard 40; neutral optional					
Lithium (with BMS card)	512 V DC nominal (384–640 V), 120–200 cells, standard 160					
Charging current	20 A × number of modules · cold start · shared battery					
OUTPUT						
System · voltage	3Ph+N+PE · 380 / 400 / 415 V ± 1%					
Power factor · THDv	settable 0.8–1.0 (default 1.0) · ≤ 1% linear, ≤ 3% non-linear					

IST6 400–1200 · technical data (continued)

	400 kVA	500 kVA	600 kVA	800 kVA	1000 kVA	1200 kVA
OUTPUT						
Frequency · phase error	tracks the bypass; 50 / 60 ± 0.1 Hz with mains abnormal · ≤ 1° balanced, ≤ 2° unbalanced					
Transfer	mains ↔ battery 0 ms · bypass ↔ inverter < 1 ms synchronised, < 15 ms not synchronised					
Inverter overload (PF ≥ 0.95)	≤ 105% continuous · 105–110% 60 min · 110–125% 10 min · 125–150% 1 min · > 150% to bypass					
Bypass overload	≤ 135% continuous · 135–150% 5 min · 150–200% 1 s · 200–300% 100 ms					
SYSTEM						
Efficiency · modes	97.2% (General) / 98.1% (PLUS) · ECO 99.2% · W-ECO 99% · energy storage, sleep, generator					
Parallel	up to 8 UPS, current imbalance ≤ 5% · BSC dual bus and multi-bus (3 buses)					
Communication	Modbus · RS232 · RS485 · 4 inputs / 3 outputs dry contact · options: SNMP, expansion, BMS					
Environment	0 … 40 °C · 0–95% RH · ≤ 2000 m · IP20 · < 80 dB · EMC category C3					
W × D × H (mm)	801 × 1000 × 2000	801 × 1000 × 2000	801 × 1000 × 2000	801 × 1000 × 2000	1201 × 1000 × 2000	1201 × 1000 × 2000
With distribution cabinet	—	—	—	1400 mm wide	1800 mm wide	1800 mm wide
Weight without modules	345 kg	434 kg	434 kg	435 kg	662 kg	662 kg

SAFETY SERVICES · EN 50171

CPSS7

10–200 kVA

The AEC double-conversion platform built for safety services, which keep their power when the building needs it most.

EN 50171
central power supply for safety services

8–160 kW
ten ratings in four frames

0 ms
transfer to battery in a blackout

THD < 1%
pure sine wave on linear loads



What a CPSS is · EN 50171

A central power supply system feeds the safety services of a building from one battery, during a fire, an earthquake or a blackout. It must comply with EN 50171.

Emergency lighting
escape routes and exits lit during a blackout

Fire-fighting
automatic fire-fighting systems

Smoke extraction
fume and smoke extraction equipment

Alarm systems
fire alarms and evacuation signals

CO detection
carbon monoxide detection systems

Exit signs
safety signs that guide the exodus

10–12 years
expected life of the batteries used in the CPSS

120%
constant overload handled by the inverter

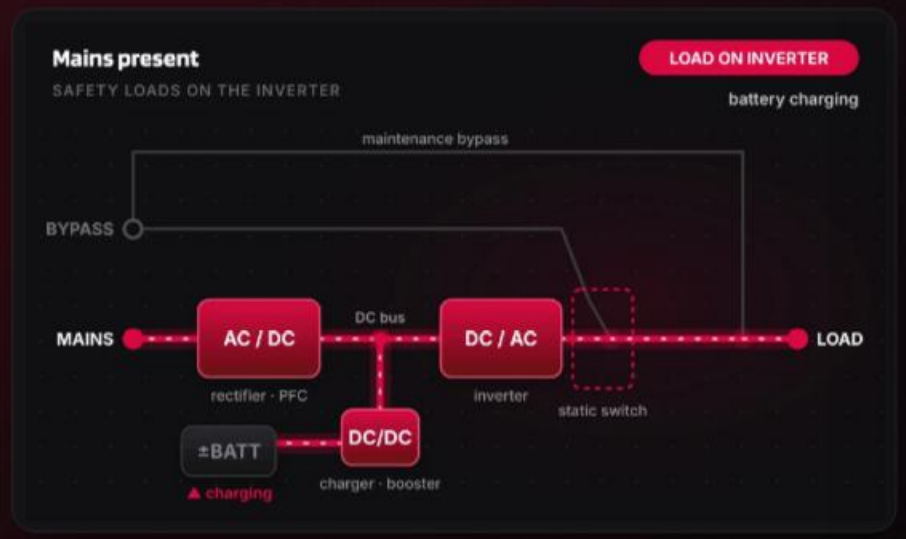
< 12 h
recharge from low battery

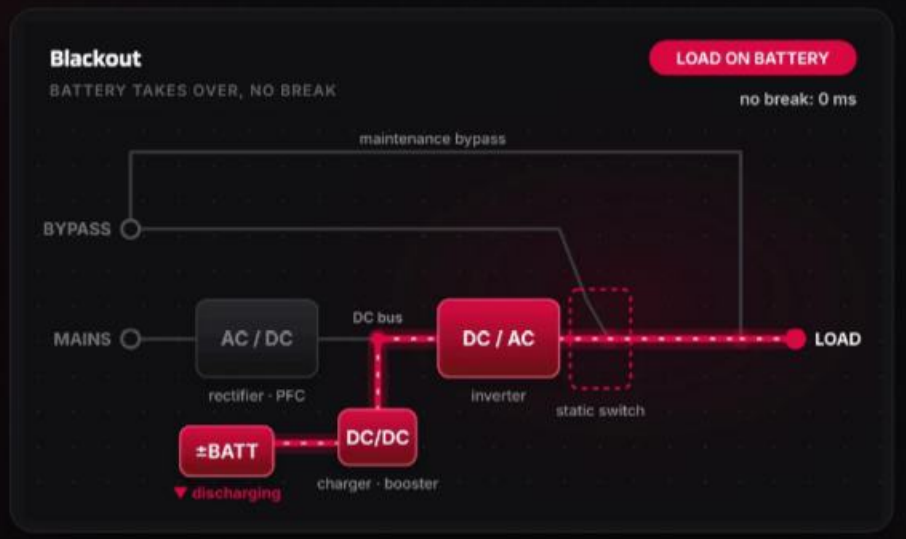
Heat and fire
casing: mechanical strength, resistant to heat and fire

- Where it is required: EN 50171 calls for a CPSS in crowded areas and public places: hospitals, schools, museums, cinemas and theatres, hotels, shopping centres, offices and workplaces, car parks and tunnels.

Operating principle · no break

CPSS7 is built on the AEC IST7 platform: three-level inverter and digital control, with ratings, overload and charging set for safety services.





Mains present

Load on inverter

safety loads on the inverter, battery charging

Blackout

Load on battery

battery takes over, no break: 0 ms

Overload or fault

Load on bypass

static bypass, < 1 ms synchronised

Service

UPS isolated

maintenance bypass: load stays on the mains

Models and range · four frames

Four frames for a single staircase or a whole hospital: CPSS7 10–40 kVA in two compact towers with internal or external batteries, CPSS7 60–200 kVA in two cabinets with external batteries.



Model	Output kW	W × D × H (mm)
CPSS7-10	8	250 × 806 × 880
CPSS7-20	16	250 × 806 × 880
CPSS7-30	24	300 × 842 × 1250
CPSS7-40	32	300 × 842 × 1250
CPSS7-60 · 80 · 100 · 120	48 · 64 · 80 · 96	400 × 960 × 1193
CPSS7-160 · 200	128 · 160	600 × 1000 × 1600

Output power factor 0.8 (kW = 0.8 × kVA).

40–70 Hz
input frequency range

3:3 · 3:1 · 1:1
10–40 kVA configurations

96%
efficiency in double conversion

< 65 dB
noise, 0–40 °C, 0–95% RH

CPSS7 · technical data

	CPSS7-10 · 20	CPSS7-30 · 40	CPSS7-60 … 120	CPSS7-160 · 200
MODEL				
Output power (kW)	8 · 16	24 · 32	48 · 64 · 80 · 96	128 · 160
Frame	Tower		Cabinet	
INPUT				
Voltage · frequency	80–280 V L-N / 138–485 V L-L · 40–70 Hz		380 / 400 / 415 V (138–485 V L-L) · 40–70 Hz	
Power factor · THDi	≥ 0.99 · ≤ 3%			
Configurations	3:3 · 3:1 · 1:1		3-4W + PE	
OUTPUT				
Voltage · frequency	L-N 220 / 230 / 240 V ± 1% · L-L 380 / 400 / 415 V ± 1% · 50 / 60 Hz ± 0.1%			
Power factor · waveform	0.8 · pure sine wave, THD < 1% linear			
Efficiency · overload	96% · constant up to 120%			

	CPSS7-10 · 20	CPSS7-30 · 40	CPSS7-60 … 120	CPSS7-160 · 200
BATTERY				
Voltage (V DC)	±96 … ±240 (10) · ±144 … ±240 (20)	±144 … ±240	±168 … ±288, external	
Charging current	1–10 A	1–20 A	1–30 A	1–40 A
Battery life · recharge	10–12 years · < 12 hours			
GENERAL				
W × D × H (mm)	250 × 806 × 880	300 × 842 × 1250	400 × 960 × 1193	600 × 1000 × 1600
Weight (kg)	64 · with internal batteries 95 (10 kVA), 137.6 (20 kVA)	102.5 · with internal batteries 249.7	153 · 163 · 165 · 167	294 · 296
Noise · temperature · humidity	< 65 dB · 0–40 °C · 0–95%			
Standards	CE · EN 50171 · EN 62040-1 · EN 62040-2 · EN 62040-3			

Sizing a CPSS · up to four in parallel

How AEC sizes a central power supply system, in three steps.



1 · Load

Safety loads in kW

Sum of lighting, fire-fighting and extraction loads, with their starting peaks: the 120% overload covers simultaneous starts.

2 · Autonomy

Duration required

Autonomy set by the fire-safety design of the building: AEC sizes batteries and cabinets on the OZ Power data.

3 · Site

Room and records

Ventilated battery room or cabinet, periodic function and duration tests, event records kept by the CPSS.

- Up to four CPSS7 in parallel: parallel kit (option) and parallel cables between the units.
- Redundant mode for continuity, or capacity mode for more power; unit ID 1–4 and parallel mode set from the screen of each unit.
- A unit with a fault leaves the parallel system by itself, with an audible and visual alarm; batteries can be shared, with the same battery settings on every unit.
- BB4 ... BB8: battery cabinets with fuses and Q1 disconnector, empty or with OZ Power batteries. Options: SNMP card, relay / RS485 card, parallel kit, battery temperature sensor.

LIFEPO4 · LITHIUM IRON PHOSPHATE

Lithium at AEC · three families



IST8

1–3 kVA

LFP lithium iron phosphate battery built into the UPS

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



All-in-One

10–40 kVA

1 cabinet UPS, distribution switches and lithium modules

10–40 kVA three-phase; 10 kVA also single-phase



L6 Lithium

40 · 50 · 100 Ah

LFP lithium iron phosphate cells

Hot-swap modules replaced online in minutes

L6 · LIFEPO4

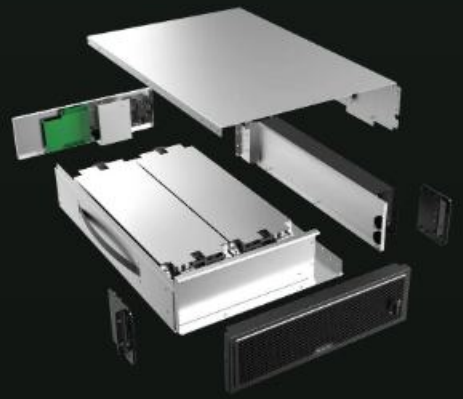
Lithium at AEC · from cell to system

3.2 V

01 · CELL

LFP · 3.2 V

5,000 cycles at 50% depth of discharge



02 · MODULE

40 · 50 · 100 Ah

57.6 V · 2.3 / 2.88 / 5.76 kWh



03 · CABINET

46 · 58 · 69 kWh

20 × 40 / 50 Ah (200 kW) or 12 × 100 Ah (60 kW)



04 · SYSTEM

1–15 cabinets

in parallel, for AEC IST7 and IST6 UPS from 6 to 1200 kVA

ENERGY STORAGE

L6 Lithium

40 · 50 · 100 Ah

L6 lithium cabinets beside the UPS



LFP
lithium iron phosphate cells

Hot-swap
modules replaced online in minutes

15
cabinets in parallel

69 kWh
per cabinet with 100 Ah modules

Key features · L6 lithium system

Lithium battery cabinets of 10 or 20 hot-swappable 50 Ah modules, a combiner for large systems and a three-layer battery management system, for the AEC IST6 modular UPS and lithium-ready AEC UPS.



DOOR OPEN · ONE MODULE PULLED OUT

Hot-swap modules
A 50 Ah module is replaced in about 5 minutes, with the load on.

Three-layer BMS
A BMS in every module, every cabinet and the system.

Isolated DC/DC
One converter per module, fire protection module by module.

Mixed-age modules
New modules beside old ones; current shared within 3%.

1 to 15 cabinets
A master and up to 14 slaves; a combiner joins up to 8.

10-inch touch screen
On the master: system, cabinets, modules and cells.

240 / ±240 / 480 V
DC output, three systems

≥ 95%
SOC accuracy

≤ 3%
current unbalance

6–1200 kVA
AEC UPS range

Models and range · 40 · 50 · 100 Ah

The same 600 mm cabinet takes 20 modules of 40 or 50 Ah for high power and short backup, or 12 modules of 100 Ah for long backup: the module is chosen by the backup time.





Module	40 Ah · 6C	50 Ah · 4C	100 Ah · 1C
Module energy	2.3 kWh	2.88 kWh	5.76 kWh
DC/DC output per module	10 kW	10 kW	5 kW
Module size W × D × H	223 × 665 × 152 mm	223 × 665 × 152 mm	440 × 665 × 132 mm
Modules per cabinet	20	10 or 20	12
Energy per cabinet	46 kWh	about 29 kWh · 58 kWh	69 kWh
Rated power per cabinet	200 kW	100 kW · 200 kW	60 kW
Typical backup	10 / 20 min	15 / 30 min	1 / 2 / 4 h
Ordering codes	on request	L6-MOD-50LI	on request

Which module? 40 Ah, 6C cells: high power, short backup. 50 Ah, 4C cells: more energy, short backup. 100 Ah, 1C cells: long backup, hours.

1. **Battery breakers**
2. **Cabinet BMS and communication module**
3. **Touch screen (master); lamps on each slave**
4. **Battery modules: 40 / 50 Ah in two columns, 100 Ah in one**

Cabinet layout · master + slave

The master cabinet with its touch screen beside a slave cabinet with its AEC panel, 600 mm wide and 2000 mm high.



1. **10-inch touch screen** — on the master: system, cabinets, modules and cells
2. **AEC panel with lamps** — on every slave: run, alarm and fault lamps
3. **AEC logo** — on the top frame of every cabinet
4. **Door handle with lock** — the modules, breakers and BMS behind the door
5. **Perforated front door** — air in at the front; out at the rear, or the top
6. **Slave cabinet** — up to 14 beside the master, bolted side by side
7. **Base** — anchored to the floor with expansion bolts

Indicators, slave cabinet

Lamp	Colour	When lit
Run	blue	system running normally
Alarm	yellow	a module in alarm or protection
Fault	red	system fault

600 × 850 — W × D, mm; 2000 mm high

985 ± 20 kg — with 20 × 50 Ah modules

IP20 — protection degree

< 65 dB — noise

L6 · 50 AH MODULE · L6-MOD-50LI

Battery modules · one converter, three modes

Every module has its own battery management unit and a bidirectional DC/DC converter. With the knob locked it is held in the cabinet and delivers its power; a faulty module leaves the system by itself.





1. **Front handle**
2. **Indicators: run, alarm, fault**
3. **ON/OFF knob: locks the module in**
4. **Fans**
5. **Output connector**
6. **Rear handle**

CHARGE

Mains normal, modules not full

The DC/DC steps the UPS charge voltage of 265, ±265 or 530 V down and charges at constant current, limited voltage.

SLEEP

Mains normal, modules full

No charge and no discharge until the voltage or the SOC falls below the setting: no float on the cells.

DISCHARGE

Mains failure

The DC/DC boosts the cells to 240, ±240 or 480 V and supplies the UPS, module by module.

40 and 100 Ah modules · 6C · 1C

The 40 Ah module uses 6C cells for high power and short backup, in the 223 mm drawer of the 50 Ah. The 100 Ah module uses 1C cells for one to four hours: 440 mm wide, 5 kW through its own DC/DC, 12 in a cabinet.







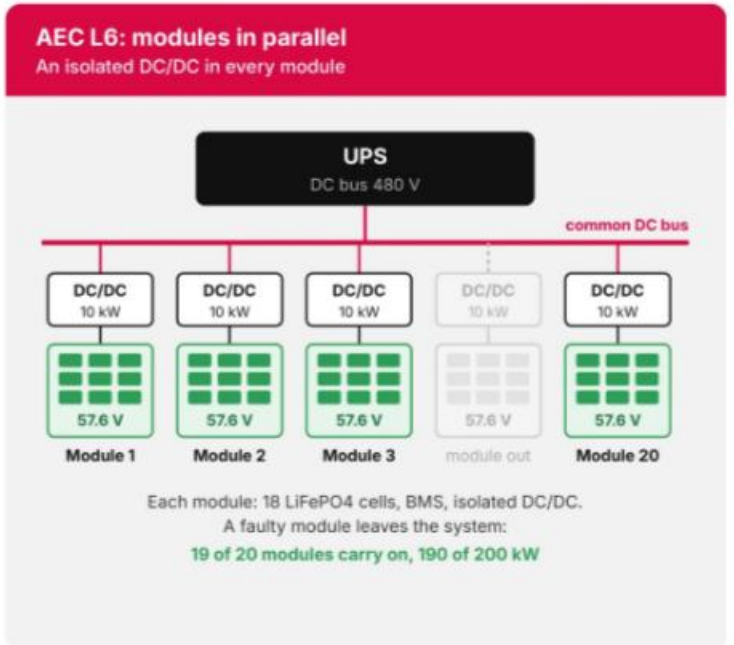
1. **Front handle**
2. **Indicators: run, alarm, fault**
3. **In-place switch**
   locks the module and starts its output
4. **Fan**
5. **Connector**
   power and signal
6. **Side handle**
7. **DC/DC module**
   bidirectional, isolated, 5 kW
8. **Battery cells**
   LFP, 3.2 V
9. **Sealing plate: front**
10. **Sealing plate: rear**

The 40 Ah module is built like the 50 Ah: same size, same cabinet slots.

DC/DC converter · modules in parallel

Two ways to build a lithium battery for a UPS: packs in series on one string, or AEC L6 modules in parallel, each with its own DC/DC converter.





95%

One unit fails

Series: the string opens, 0%. L6: 19 of 20 modules, 190 of 200 kW.

5%

Add capacity

Series: a full string. L6: one 10 kW module, 5% of a 200 kW cabinet.

100%

Mixed ages

Series: the weakest pack (here 80%) sets the string. L6: each module gives its own.

Illustrative examples for 50 Ah modules of 10 kW in a 20-module cabinet.

IST6 + L6 system · redundant twice

Pair an AEC IST6 modular UPS with an L6 lithium system and both halves are modular: power modules and battery modules are redundant and hot-swappable, in two cabinets side by side.



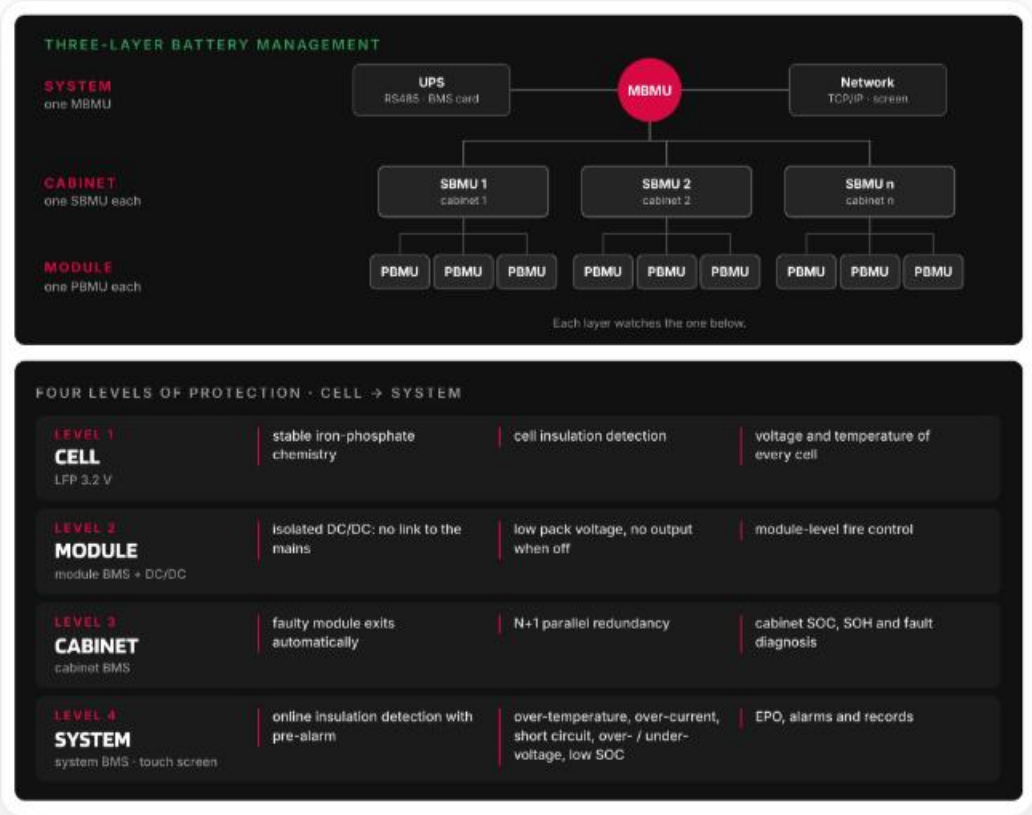
2 × hot-swap
power modules and battery modules, online

N + X
redundancy on the power and on the battery side

	Monolithic UPS + lead-acid string	IST6 + L6
Power conversion	one inverter: a fault stops the UPS or sends it to bypass	power modules in parallel, N+X: a faulty module leaves, the others carry the load
Service	UPS or battery work with the load at risk or on bypass	power and battery modules both swapped online, from the front
Battery life	about three sets in one UPS life	15-year life · 5,000 cycles at 50% DoD
Battery service	whole string; checked at least twice a year	one module at a time, load supplied
Monitoring	no health analysis, no early warning	every cell, module and cabinet; SOC and SOH

Safety and management · cell → system

Protection works at four levels, from the single cell to the whole system, watched by a three-layer BMS: a fault is found early and stays where it started.



Self-adaptive SOC

Discharge SOC balance between modules and cabinets: new modules beside old ones, current shared within 3%.

Capacity test, no outage

Battery capacity tested with no risk of power failure.

Alarms and data

Alarm convergence and data recording locate a problem quickly; voltage and temperature of every cell.

Cold start and self-start

Battery cold start; automatic restart when power returns.

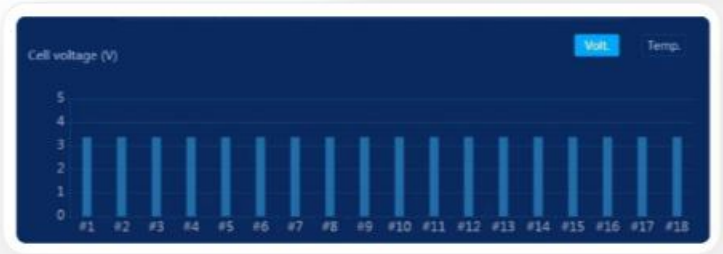
UN38.3
T.1–T.8 passed on the 50 Ah module

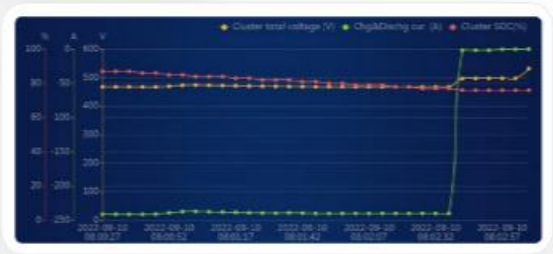
5,000
cycles at 50% DoD · 15-year life

Touch screen display · system to cell

The 10-inch touch screen of the master cabinet shows the system, each cabinet, each module and each cell, records charge and discharge and keeps the events.







10"
touch screen on the master cabinet

3
lamps on each slave: run, alarm, fault

3 layers
of BMS: module, cabinet, system

TCP/IP
and RS485 to the network and the UPS

- System home: work mode, system status, current, voltage and SOC at a glance.
- Cell data: the voltage of the 18 cells of one module, bar by bar; one tab switches to their temperature.
- Record: cluster voltage, current and SOC over time; event, data and fault records on the same menu.

Backup times · cabinets · modules

Cabinets and modules for each UPS power, at the start of life: 50 Ah modules for 15 or 30 minutes, 40 Ah for 10 or 20 minutes, 100 Ah for one to four hours.

50 Ah (L6-MOD-50LI) · 40 Ah on request

UPS kW	50 Ah 15 min · 40 Ah 10 min	50 Ah 30 min · 40 Ah 20 min
≤ 60	1 · 6	1 · 12
≤ 80	1 · 8	1 · 16
≤ 100	1 · 10	1 · 20
≤ 200	1 · 20	2 · 40
≤ 300	2 · 30	3 · 60
≤ 400	2 · 40	4 · 80
≤ 500	3 · 50	5 · 100
≤ 600	3 · 60	6 · 120
≤ 800	4 · 80	8 · 160

100 Ah · on request

UPS kW	1 h	2 h	4 h
≤ 6	1 · 2	1 · 3	1 · 5
≤ 10	1 · 2	1 · 4	1 · 8
≤ 15	1 · 3	1 · 6	1 · 12
≤ 20	1 · 4	1 · 8	2 · 16
≤ 40	1 · 8	2 · 16	–

UPS power in kW; cabinets · modules, from AEC sizing tables at initial capacity. –: not possible. Plan a 10% margin: actual backup = theoretical × 0.9. Modules per cabinet 20 (40 / 50 Ah) or 12 (100 Ah); DC/DC 10 or 5 kW per module.

Parallel and communication · up to 15 cabinets

Up to 20 modules in one cabinet; above that, a master and slave cabinets in parallel, up to fifteen, with a combiner cabinet joining their outputs.



15
cabinets in parallel

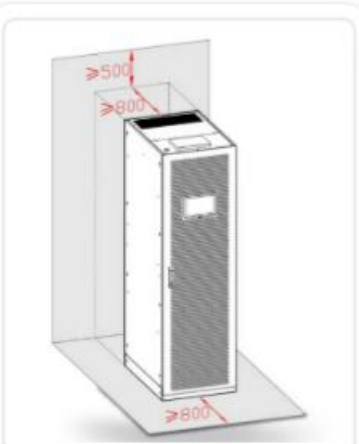
8
cabinets per combiner L6-C-4000

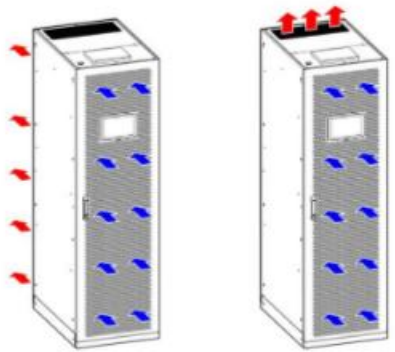
Communication module

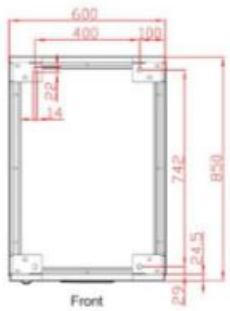
Port	Use
RS485	RJ45: communication with the UPS (Modbus)
LAN	RJ45: monitoring by a computer, cascade between cabinets
EPO	the external emergency switch, cascaded between the cabinets
CAN	reserved
AC IN · OUT	160–300 V AC auxiliary supply for the screen, BMS and fans

Installation · clearances and site

Clearances, airflow, floor fixing and site conditions; AEC engineers size the system and commission it with the UPS.







Site

Indoors, ventilated, away from water, heat, dust and direct sun. 0–40 °C, best 20–30 °C; 5–95% RH non-condensing; up to 4000 m, derated above 2000 m.

Floor and anchoring

Concrete or other non-combustible floor; four Ø 14 mm holes, 400 mm across and 742 mm front to back; expansion bolts or a U-steel base.

Transport and storage

Modules shipped at 20–50% SOC; storage −10–45 °C, best 0–35 °C; idle modules charged every 1 to 6 months.

Start-up by AEC

Knobs locked, self-test about 10 s, voltage checked on the touch screen, breakers closed, then the UPS.

L6 Lithium · technical data

	L6-40	L6-50	L6-100
CABINET			
Nominal capacity	46 kWh	58 kWh	69 kWh
Max. modules per cabinet	20		12
Rated output power (discharge)	200 kW		60 kW
Rated output voltage (discharge)	240 / ±240 / 480 V DC (three output systems)		
Rated input voltage (charge)	265 / ±265 / 530 V DC		
Cell charge current	max. 40 A, default 20 A		
Discharge overload	125–135%: 1 min · 135–150%: 30 s · > 150%: 500 ms		
Current unbalance (module / cabinet)	≤ 3%		
Max. cabinets in parallel	15		
SOC · SOH	module SOC accuracy ≥ 95% · SOH estimate accuracy ≥ 90%		
Functions	discharge SOC balance, battery cold start, self-start after power recovery, EPO, module-level fire control, cell insulation detection		
Protection	over-temperature, over-current, short circuit, battery over- and under-voltage, low SOC		

	L6-40	L6-50	L6-100
MODULE			
Capacity · cell discharge rate	40 Ah · 6C	50 Ah · 4C	100 Ah · 1C
Rated voltage · energy	57.6 V · 2.3 kWh	57.6 V · 2.88 kWh	57.6 V · 5.76 kWh
Cell cycle life	5,000 cycles at 50% depth of discharge		
DC/DC output per module	10 kW		5 kW
Size (W × D × H)	223 × 665 × 152 mm		440 × 665 × 132 mm
Weight	36 ± 1 kg	37 ± 1 kg	52 ± 1 kg
GENERAL			
Communication	TCP/IP, RS485 (CAN reserved)		
Display	10-inch touch screen (master cabinet) · indicators (slave cabinet)		
Operating · storage temperature	0 … +40 °C · −10 … +45 °C		
Humidity · altitude	5–95% non-condensing · < 4000 m, derating above 2000 m (IEC 62040-3)		
Noise · protection	< 65 dB · IP20 · battery-side overvoltage level 2		
Cabinet size (W × D × H)	600 × 850 × 2000 mm		
Weight with full modules	965 ± 20 kg (M1: 955)	985 ± 20 kg (M1: 975)	810 ± 24 kg

Ordering codes · and how to size

L6 cabinets come with 10 or 20 modules of 50 Ah, or empty to be filled in stages; modules and the combiner are sold on their own. Systems with 40 Ah or 100 Ah modules on request.



L6-CAB-20X50LI · DOOR OPEN

Code	Description
L6-CAB-10×50LI	L6 lithium cabinet with 10 × 50 Ah modules, BMS and touch screen or lamps, about 29 kWh
L6-CAB-20×50LI	L6 lithium cabinet with 20 × 50 Ah modules, 58 kWh
L6-CAB-EMPTY	L6 cabinet without modules, for up to 20 × 50 Ah
L6-MOD-50LI	LiFePO4 module 50 Ah, 2.88 kWh, with its DC/DC converter
L6-COMBINER	Combiner cabinet L6-C-4000, for up to 8 L6 cabinets
On request	40 Ah and 100 Ah cabinets and modules · L6-C-2000 for up to 4 cabinets · networking device, blank panels, in-row rear frame

- UPS power (kW) and the backup time you need; module: 50 Ah for 15 or 30 minutes, 40 Ah for 10 or 20, 100 Ah for hours.
- Modules and cabinets from the Backup times tables, with the 10% margin; AEC confirms every system.

ENERGY STORAGE

Battery cabinets

9–100 Ah

Steel cabinets sized for every AEC UPS, from 1 kVA towers to 200 kVA three-phase systems.

10 models
tower, rack and floor-standing cabinets

9–100 Ah
12 V VRLA AGM batteries

±240 V
three-pole string with neutral

200 kW
largest UPS served by one cabinet



Battery cabinets · key features

Steel cabinets that extend the backup of every AEC UPS: supplied empty or complete with 12 V VRLA AGM batteries, fuses and internal cables, with an AEC wiring diagram for every configuration.


STEEL FRAME


ASSEMBLED AND WIRED

Q1 with DC fuses

3-pole switch-disconnector with fuses sized for the UPS; door-mounted rotary handle on BB6–BB8.

Neutral at the midpoint

One ± string per cabinet, matched to the IST7 split battery; BB8 holds two strings in parallel.

Empty or complete

Delivered with OZ Power 12 V VRLA AGM batteries, fuses and internal cables, or empty for batteries bought on site.

Wiring diagram for every set

Each configuration has its own AEC wiring diagram, supplied with the cabinet.

Built to the project

IP20 as standard, up to IP44, forced ventilation, Q1 auxiliary contacts and 2-pole versions on request.

IEC/EN 62040-1 · EN IEC 62485-2

CE marked, RAL 9005 steel like every AEC UPS, 3-year warranty on the cabinet.

Range overview · Battery cabinets BB5–BB8

One string per cabinet, with the neutral at its midpoint like the IST7 battery input; the BB8 holds two in parallel. The cabinet code is the model + the largest UPS it serves (BB7-160K): fuses and cables follow the power, the battery configuration does not change the code.

	BB5	BB6	BB7	BB8
W × D × H, mm	460 × 800 × 1400	800 × 800 × 1400	800 × 800 × 1900	1400 × 800 × 1900
Weight, empty	105 kg	140 kg	160 kg	250 kg
Blocks	30–40 × 24 / 40 Ah · 120 × 9 Ah	30–40 × 40 / 60 Ah	28–36 × 80 / 100 Ah	40 · 60 · 64 × 80 / 100 Ah
UPS power served	10–60 kW	10–120 kW	10–200 kW	10–200 kW
Largest set, filled	580 kg	≈ 800 kg	1275 kg	2215 kg
Battery shelves	4 + Q1 level	3 + Q1 level	4 + Q1 level	4 + Q1 level, 2 bays
Front	screwed panel	door, Q1 handle	door, Q1 handle	2 doors, Q1 handle
Q1 fuses	+, N, – · 50–125 A	+, – · 50–250 A	+, – · 50–400 A	+, – · 50–400 A
String	±180 … ±240 V	±180 … ±240 V	±168 … ±216 V	2 × ±120 … ±192 V
Base	102 mm plinth	95 mm feet	95 mm feet	95 mm feet







Empty or complete
With OZ Power blocks, fuses and internal cables, or empty for batteries bought on site.

A wiring diagram for every set
Each configuration has its own AEC wiring diagram, supplied with the cabinet.

IEC/EN 62040-1 · EN IEC 62485-2
CE marked, RAL 9005 like every AEC UPS, 3-year warranty on the cabinet.

Tower and rack · IST3 · IST3-J · IST9

Same colour and front style as the UPS they extend. Tower cabinets stand beside the IST3; rack cabinets fit the 19-inch rack under the IST3-J or IST9.











Cabinet	For UPS	Size · weight	Batteries	
BB1	IST3 1 kVA	145 × 360 × 225 mm · 4 kg	Max. 6 × 12 V 9 Ah	e.g. IST3-1-6X9: UPS + BB1 with 6 batteries
BB2	IST3 2–3 kVA	190 × 400 × 330 mm · 6 kg	Max. 12 × 12 V 9 Ah	e.g. IST3-2-12X9, IST3-3-12X9
BB3	IST3 6–10 kVA	230 × 502 × 553 mm · 15 kg	Max. 32 × 12 V 9 Ah	More BB3 per UPS for longer backup
BBJ	IST3-J 1–3 kVA	438 × 413 mm · 2U · 6 kg	Max. 8 × 12 V 9 Ah	Up to 3 BBJ per UPS
BBJ2	IST3-J 6–10 kVA · IST9 20 kVA	438 × 500 mm · 3U · 10 kg	Max. 16 × 12 V 9 Ah	Up to 8 BBJ2 (IST3-J), 10 BBJ2 (IST9 20 kVA)

Data from the AEC code list. Battery quantity per UPS is set by the UPS battery voltage: see the UPS sections.

BB4 battery cabinet · for IST7 10–40 kVA

A mobile cabinet in the same black body as the IST7 10–20 kVA, for up to 80 batteries of 12 V 9 Ah in four layers. The standard extension of every IST7 S model, and a 9 Ah cabinet for any UPS.





1. **Three-pole DC breaker**
2. **Terminal cover**
3. **Battery layers**
   4 layers, up to 20 batteries each
4. **DC fuse protection board**
5. **Optional second breaker**
6. **Terminal block**
7. **Earth (ground) terminal**
8. **Wheels**

255 × 755 × 880
W × D × H, mm

58 kg
weight, empty

80 × 12 V 9 Ah
4 layers of up to 20 batteries

10–40 kW
UPS power served

BB5 · 24 to 40 Ah · up to 60 kW

The narrowest AEC floor cabinet: only 460 mm wide, with a screwed front panel. Five levels: four battery shelves and the top level with the fused disconnect Q1, which also takes batteries in the 34–40 configurations.





X-RAY · THE STRINGS INSIDE

460 × 800 × 1400 mm
W × D × H, mm

105 kg
weight, empty

30–40 × 12 V
24 / 40 Ah blocks, or 120 × 9 Ah

60 kW
largest UPS, by code

460 mm wide
Fits beside an IST7 10–40 kVA, in a corridor or a narrow technical room: 0.37 m² of floor.

Fused on all three poles
+, N and – each on its own fuse: the string is isolated pole by pole.

Removable trays
Galvanised 25 mm trays slide out to load and check the blocks shelf by shelf.

Components · BB5 battery cabinet





1. **Disconnect Q1**
   3-pole DC fuse holder on the galvanised plate of the top level: fused on +, N and −. No external handle: each pole is a carrier opened by hand with the front panel off.
2. **Terminals X1 to the UPS**
   L+, M (N) and L− to the UPS battery input, PE beside them.
3. **Batteries**
   OZ Power 12 V VRLA AGM, 2 across × 4 deep a shelf as the AEC wiring diagram lays them; Bat. 1 is the negative end.
4. **Links and main cables**
   Short links block to block, jumpers shelf to shelf; + red, − black, N blue from Q1.
5. **Disconnect Q1**
   3-pole DC fuse holder on the galvanised plate of the top level: fused on +, N and −. No external handle: each pole is a carrier opened by hand with the front panel off.
6. **PE bonding point**
   To the UPS earth or the building earth.

With Q1 OFF the UPS terminals are isolated; the batteries and their cables up to Q1 stay live.

Battery layout · BB5 battery cabinet

One string with the neutral at its midpoint, as the IST7 split battery: + to N and N to − carry half the voltage each, so 36 blocks give 216 / 216 V, 432 V end to end. The X-ray colours the two halves.





String voltage

Blocks	+ / N / − · string	Blocks per half
30	180 / 180 V · 360 V	15 + 15
32	192 / 192 V · 384 V	16 + 16
34	204 / 204 V · 408 V	17 + 17
36	216 / 216 V · 432 V	18 + 18
38	228 / 228 V · 456 V	19 + 19
40	240 / 240 V · 480 V	20 + 20

Supplied with AEC UPS

Batteries	Total kg	UPS kVA
30 · 32 · 34 × 24 Ah	340 · 356 · 372	10 · 20
36 · 38 · 40 × 24 Ah	388 · 400 · 420	10 · 20 · 30 · 40
30–38 × 40 Ah	480–580	10 · 20 · 30 · 40 · 60
100 × 9 Ah	355	IST3 10
120 × 9 Ah	405	IST7 10 · 20 · 30 · 40

Battery layout · BB5 battery cabinet



38 × 40 Ah

580 kg filled · IST7 10 · 20 · 30 · 40 · 60 kVA · 228 / 228 V · 456 V · OZ-1240, 197 × 166 × 170 mm, 11.5 kg a block



40 × 24 Ah

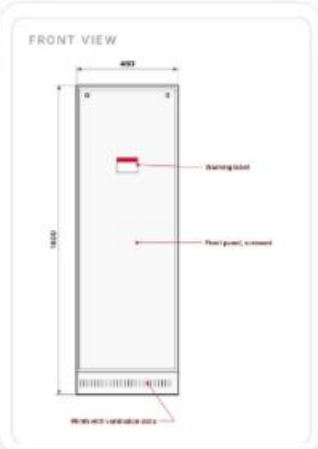
420 kg filled · IST7 10 · 20 · 30 · 40 kVA · 240 / 240 V · 480 V · OZ-1224, 166 × 175 × 125 mm, 7.0 kg a block

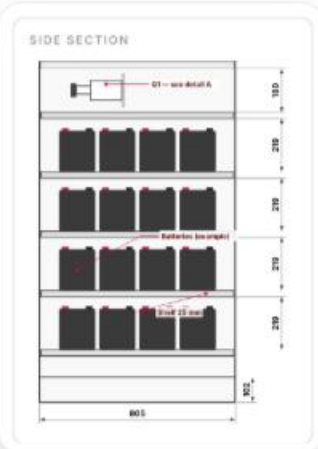


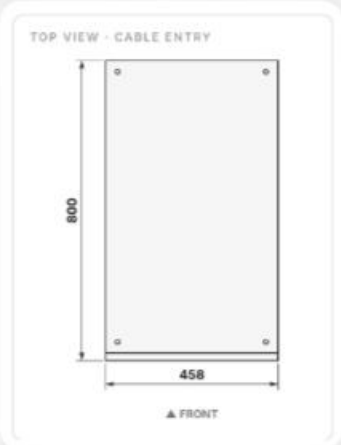
120 × 9 Ah

405 kg filled · IST7 10 · 20 · 30 · 40 kVA · 3 strings of 40 · 240 / 240 V · OZ-1209, 151 × 65 × 100 mm, 2.3 kg a block

Technical data · BB5 battery cabinet



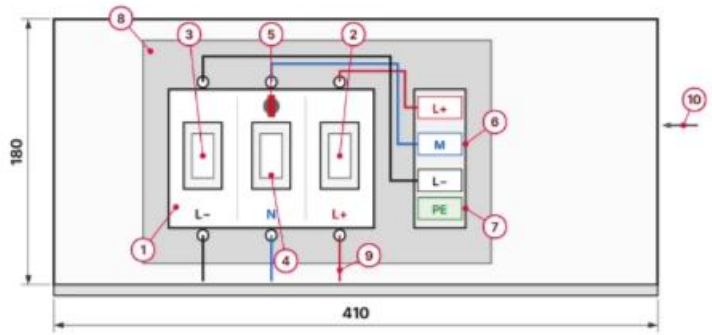




Size W × D × H	460 × 800 × 1400 mm
Weight, empty	105 kg
Levels	4 battery shelves of 219 mm + Q1 level of 180 mm
Internal frame	458 × 785 mm
Front	screwed steel panel
Base	102 mm plinth with ventilation slots
Disconnect Q1	3-pole fuse holder, fused on +, N and –
Fuses	50 / 63 / 100 / 125 A, by code

Technical data · BB5 battery cabinet

DETAIL A · Q1 COMPARTMENT



1. Q1 3-pole DC switch-disconnector
2. F1 fuse (+)
3. F2 fuse (−)
4. F3 fuse (N)
5. Q1 direct handle (operate with the front panel removed)
6. X1 terminals to UPS: L+ · M · L−
7. PE bonding point
8. Galvanised mounting plate
9. Main cables to the string
10. Cable entry: right side, top and bottom

Specifications

String voltage	±180 … ±240 V (30–40 blocks)
Cable entry	right side, top and bottom
Floor fixing	through the base; hole positions from AEC
Protection · colour	IP20 (IP21–IP44 on request) · RAL 9005
Typical UPS	IST7 10–60 kVA · IST3 10 kVA (100 × 9 Ah)

Technical data · BB5 battery cabinet

Codes

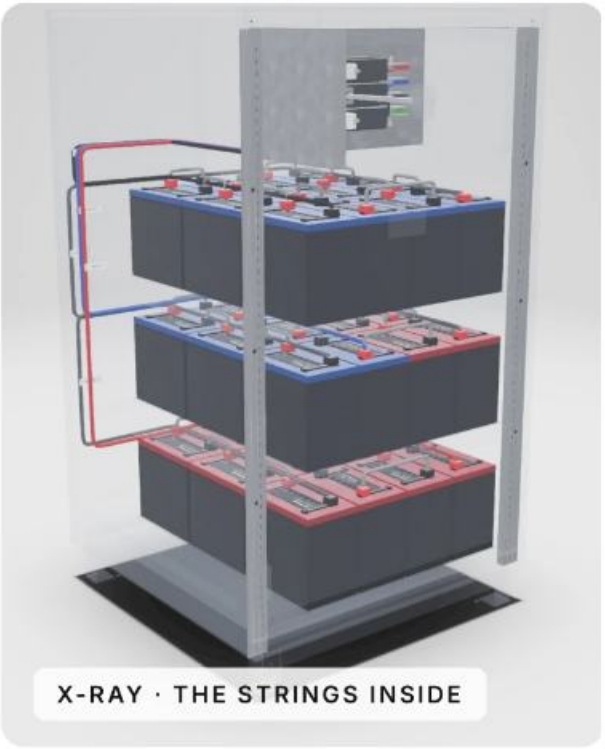
Code	For UPS	Fuses
BB5-11	single-phase UPS, 120 × 9 Ah	–
BB5-10K	up to 10 kW	50 A
BB5-20K	up to 20 kW	63 A
BB5-40K	up to 40 kW	100 A
BB5-60K	up to 60 kW	125 A

Drawings DOC-BB5-GA-001 · MD-001 (AEC, 10/10/2026), full size in Download · data: AEC user manual and code list · fuses and cables on request.

BB6 · 40 and 60 Ah · up to 120 kW

An 800 × 800 mm footprint, a hinged door with lock and the Q1 handle on the door: the disconnect is switched without opening the cabinet. Three battery shelves and the Q1 compartment on top, behind a clear screen.





X-RAY · THE STRINGS INSIDE

800 × 800 × 1400 mm
W × D × H, mm

140 kg
weight, empty

30–40 × 12 V
60 Ah blocks · 40 Ah layout available

120 kW
largest UPS, by code

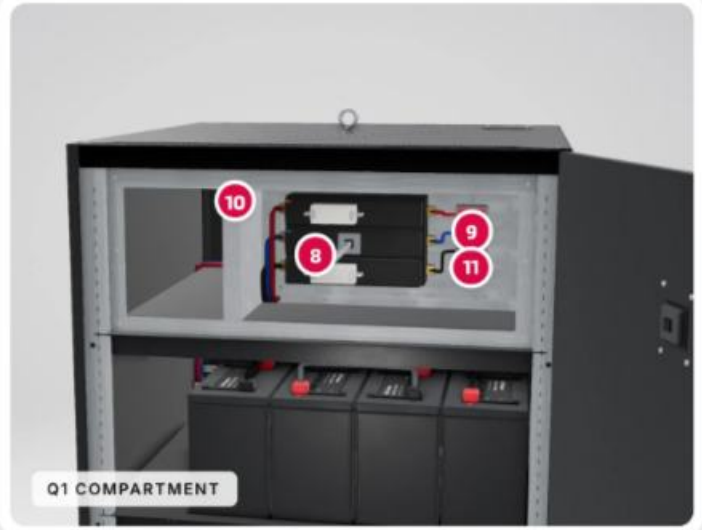
Q1 switched from outside
Rotary handle on the door, padlockable at OFF: no need to open the cabinet to isolate the UPS.

Clear Q1 screen
Polycarbonate screen over Q1, fuses and X1: checked at a glance, never touched by mistake.

2, 3 or 4 levels
Frames for the battery size: 12 blocks of 60 Ah a shelf, 40 Ah on the same layout.

Components · BB6 battery cabinet



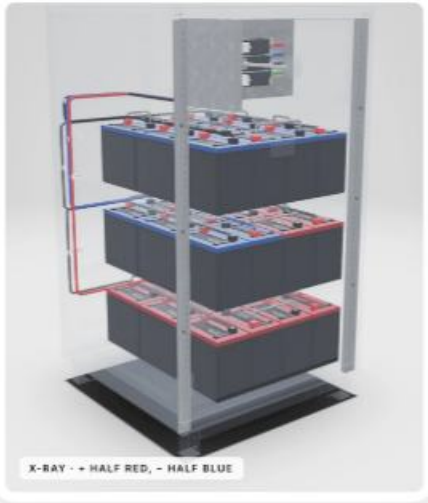


1. **Disconnect Q1**
   3-pole DC fuse switch-disconnector in the top compartment: fuses on + and −, the neutral switched, not fused. Turned from the door handle through a shaft.
2. **Batteries**
   OZ Power 12 V VRLA AGM, 4 across × 3 deep, turned a shelf as the AEC wiring diagram lays them; Bat. 1 is the negative end.
3. **Links and main cables**
   Short links block to block, jumpers shelf to shelf; + red, − black, N blue from Q1.
4. **Galvanised uprights**
   50 mm, holed for the shelf positions.
5. **Q1 rotary handle**
   On the door: lever down = OFF (O), a quarter turn clockwise = ON (I); padlockable.
6. **Door lock**
   Lever lock with key on the free edge.
7. **Door**
   Hinged steel door with lock, the AEC logo and the Q1 rotary handle.
8. **Q1 screen**
   Clear polycarbonate screen in a galvanised frame: Q1, fuses and X1 visible, never touchable. Open it only with Q1 OFF.
9. **Terminals X1 to the UPS**
   L+, M (N) and L− to the UPS battery input, PE beside them.
10. **Nameplate**
    Model, string voltage, blocks × strings, capacity, CE.
11. **PE bonding point**
    To the UPS earth or the building earth.

With Q1 OFF the UPS terminals are isolated; the batteries and their cables up to Q1 stay live.

Battery layout · BB6 battery cabinet

One string with the neutral at its midpoint, as the IST7 split battery: + to N and N to − carry half the voltage each, so 36 blocks give 216 / 216 V, 432 V end to end. The X-ray colours the two halves.





String voltage

Blocks	+ / N / − · string	Blocks per half
30	180 / 180 V · 360 V	15 + 15
32	192 / 192 V · 384 V	16 + 16
34	204 / 204 V · 408 V	17 + 17
36	216 / 216 V · 432 V	18 + 18
38	228 / 228 V · 456 V	19 + 19
40	240 / 240 V · 480 V	20 + 20

Supplied with AEC UPS

Batteries	Total kg	UPS kVA
30 × 60 Ah	660	10–100
32 × 60 Ah	695	10–100
34 × 60 Ah	730	10–100
36 × 60 Ah	760	10–100
40 × 60 Ah	≈ 800	10–100

Battery layout · BB6 battery cabinet



30 × 60 Ah

660 kg filled · IST7 10–100 kVA · 180 / 180 V · 360 V · OZ-1260, 230 × 138 × 216 mm, 16.5 kg a block



36 × 60 Ah

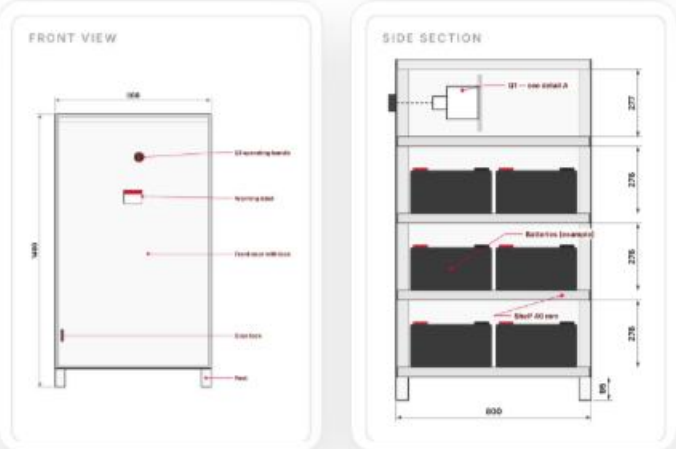
760 kg filled · IST7 10–100 kVA · 216 / 216 V · 432 V · OZ-1260, 230 × 138 × 216 mm, 16.5 kg a block



40 × 60 Ah

≈ 800 kg filled · IST7 10–100 kVA · 240 / 240 V · 480 V · OZ-1260, 230 × 138 × 216 mm, 16.5 kg a block

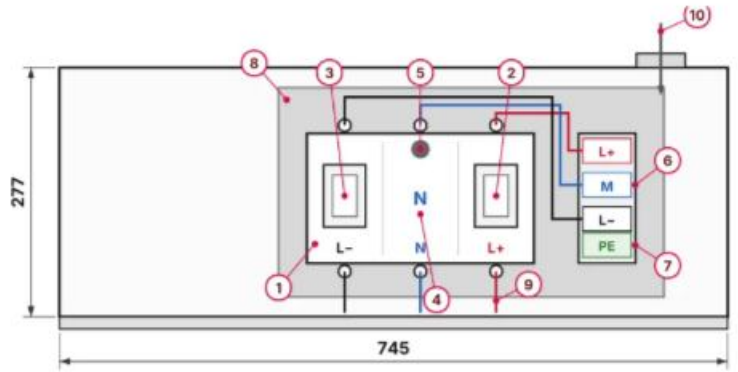
Technical data · BB6 battery cabinet



Size W × D × H	800 × 800 × 1400 mm
Weight, empty	140 kg
Levels	3 battery shelves of 276 mm + Q1 level of 277 mm
Internal frame	745 × 760 mm; frames with 2, 3 or 4 levels
Door	hinged, lock, Q1 rotary handle
Base	steel feet 95 mm, open base
Disconnect Q1	3-pole fuse switch-disconnector; fuses on + and −, N switched
Fuses	NH, 50 … 250 A, by code

Technical data · BB6 battery cabinet

DETAIL A · Q1 COMPARTMENT



1. Q1 3-pole DC switch-disconnector
2. F1 fuse (+)
3. F2 fuse (−)
4. N pole (switched, not fused)
5. Handle shaft to door
6. X1 terminals to UPS: L+ · M · L−
7. PE bonding point
8. Galvanised mounting plate
9. Main cables to the string
10. Cable entry: gland plate 100 × 100 (top)

Specifications

String voltage	±180 … ±240 V (30–40 blocks)
Cable entry	roof gland plate 100 × 100 mm; open base
Floor fixing	Ø12 mm holes at 610 × 665 mm
Protection · colour	IP20 (IP21–IP44 on request) · RAL 9005
Typical UPS	IST7 10–100 kVA

Technical data · BB6 battery cabinet

Codes

Code	For UPS	Fuses
BB6-10K	up to 10 kW	50 A
BB6-20K	up to 20 kW	63 A
BB6-40K	up to 40 kW	100 A
BB6-60K	up to 60 kW	125 A
BB6-80K	up to 80 kW	160 A
BB6-100K	up to 100 kW	250 A
BB6-120K	up to 120 kW	250 A

Drawings DOC-BB6-GA-001 · MD-001 (AEC, 10/10/2026), full size in Download · data: AEC user manual and code list · fuses and cables on request.

BB7 · 80 and 100 Ah · up to 200 kW

The BB6 footprint, 1900 mm high, for the large 80 and 100 Ah blocks: four battery shelves and the Q1 level, which takes 2 or 4 more blocks in the 34 and 36 configurations. Up to 36 × 100 Ah in 0.64 m² of floor.





X-RAY · THE STRINGS INSIDE

800 × 800 × 1900 mm
W × D × H, mm

160 kg
weight, empty

28–36 × 12 V
80 / 100 Ah blocks

200 kW
largest UPS, by code

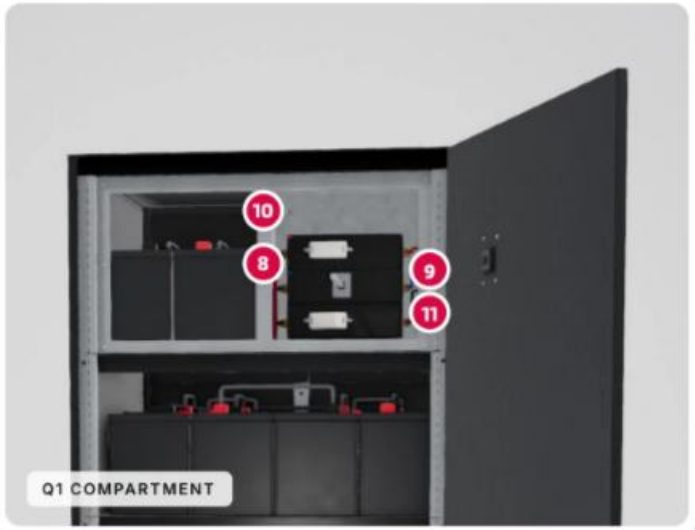
43 kWh in 0.64 m²
36 × 12 V 100 Ah, the largest single string in one AEC cabinet.

Q1 switched from outside
Rotary handle on the door, padlockable at OFF; Q1 behind a clear screen.

Fuses up to 400 A
One cabinet, codes from 10 to 200 kW: fuses and cables follow the UPS.

Components · BB7 battery cabinet





1. **Disconnect Q1**
   3-pole DC fuse switch-disconnector in the top compartment: fuses on + and −, the neutral switched, not fused. Turned from the door handle through a shaft.
2. **Batteries**
   OZ Power 12 V VRLA AGM, 4 across × 2 deep, turned a shelf as the AEC wiring diagram lays them; Bat. 1 is the negative end.
3. **Links and main cables**
   Short links block to block, jumpers shelf to shelf; + red, − black, N blue from Q1.
4. **Galvanised uprights**
   50 mm, holed for the shelf positions.
5. **Q1 rotary handle**
   On the door: lever down = OFF (O), a quarter turn clockwise = ON (I); padlockable.
6. **Door lock**
   Lever lock with key on the free edge.
7. **Door**
   Hinged steel door with lock, the AEC logo and the Q1 rotary handle.
8. **Q1 screen**
   Clear polycarbonate screen in a galvanised frame: Q1, fuses and X1 visible, never touchable. Open it only with Q1 OFF.
9. **Terminals X1 to the UPS**
   L+, M (N) and L− to the UPS battery input, PE beside them.
10. **Nameplate**
    Model, string voltage, blocks × strings, capacity, CE.
11. **PE bonding point**
    To the UPS earth or the building earth.

With Q1 OFF the UPS terminals are isolated; the batteries and their cables up to Q1 stay live.

Battery layout · BB7 battery cabinet

One string with the neutral at its midpoint, as the IST7 split battery: + to N and N to − carry half the voltage each, so 36 blocks give 216 / 216 V, 432 V end to end. The X-ray colours the two halves.



X-RAY · + HALF RED, − HALF BLUE



THE SAME, DOOR OPEN

String voltage

Blocks	+ / N / − · string	Blocks per half
28	168 / 168 V · 336 V	14 + 14
30	180 / 180 V · 360 V	15 + 15
32	192 / 192 V · 384 V	16 + 16
34	204 / 204 V · 408 V	17 + 17
36	216 / 216 V · 432 V	18 + 18

Supplied with AEC UPS

Batteries	Total kg	UPS kVA
30 · 32 · 34 · 36 × 80 Ah	870 · 930 · 960 · 1005	10–160
30 · 32 · 34 · 36 × 100 Ah	1095 · 1155 · 1215 · 1275	10–160

Battery layout · BB7 battery cabinet



30 × 80 Ah

870 kg filled · IST7 10–160 kVA · 180 / 180 V · 360 V · OZ-1280, 260 × 169 × 216 mm, 22.0 kg a block



34 × 80 Ah

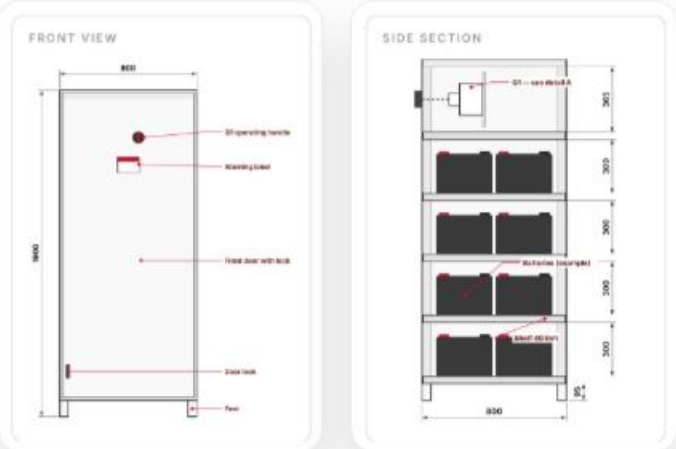
960 kg filled · IST7 10–160 kVA · 204 / 204 V · 408 V · OZ-1280, 260 × 169 × 216 mm, 22.0 kg a block



36 × 100 Ah

1275 kg filled · IST7 10–160 kVA · 216 / 216 V · 432 V · OZ-12100, 328 × 172 × 220 mm, 28.5 kg a block

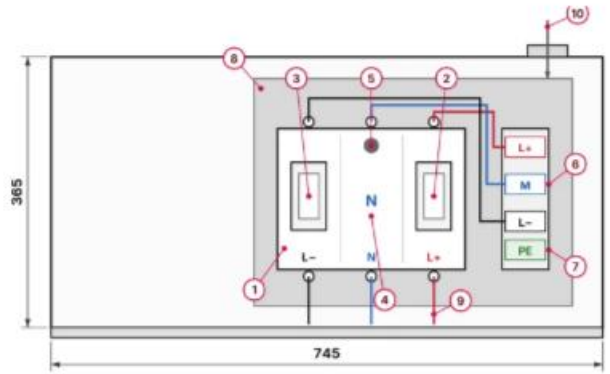
Technical data · BB7 battery cabinet



Size W × D × H	800 × 800 × 1900 mm
Weight, empty	160 kg
Levels	4 battery shelves of 300 mm + Q1 level of 365 mm
Internal frame	745 × 760 mm; frames with 2 to 5 levels
Door	hinged, lock, Q1 rotary handle
Base	steel feet 95 mm, open base
Disconnect Q1	3-pole fuse switch-disconnector; fuses on + and −, N switched
Fuses	NH, 50 … 400 A, by code

Technical data · BB7 battery cabinet

DETAIL A · Q1 COMPARTMENT



1. Q1 3-pole DC switch-disconnector
2. F1 fuse (+)
3. F2 fuse (−)
4. N pole (switched, not fused)
5. Handle shaft to door
6. X1 terminals to UPS: L+ · M · L−
7. PE bonding point
8. Galvanised mounting plate
9. Main cables to the string
10. Cable entry: gland plate 100 × 100 (top)

Specifications

String voltage	±168 … ±216 V (28–36 blocks)
Cable entry	roof gland plate 100 × 100 mm; open base
Floor fixing	4 × Ø9 mm, centres 685 × 700 mm
Protection · colour	IP20 (IP21–IP44 on request) · RAL 9005
Typical UPS	IST7 10–160 kVA (codes up to 200 kW)

Technical data · BB7 battery cabinet

Codes

Code	For UPS	Fuses
BB7-10K	up to 10 kW	50 A
BB7-20K	up to 20 kW	63 A
BB7-40K	up to 40 kW	100 A
BB7-60K	up to 60 kW	125 A
BB7-80K	up to 80 kW	160 A
BB7-100K	up to 100 kW	250 A
BB7-120K	up to 120 kW	250 A
BB7-160K	up to 160 kW	400 A
BB7-200K	up to 200 kW	400 A

Drawings DOC-BB7-GA-001 · MD-001 (AEC, 10/10/2026), full size in Download · data: AEC user manual and code list · fuses and cables on request.

BB8 · Two strings · up to 200 kW

Two bays, two doors, 1400 mm wide: two identical strings in parallel at Q1, each with its own +, N and – cables. Up to 64 × 100 Ah, the largest AEC battery cabinet, with Q1 and its handle in the right bay.





X-RAY · THE STRINGS INSIDE

1400 × 800 × 1900 mm
W × D × H, mm

250 kg
weight, empty

40–64 × 12 V
80 / 100 Ah, two strings

200 kW
largest UPS, by code

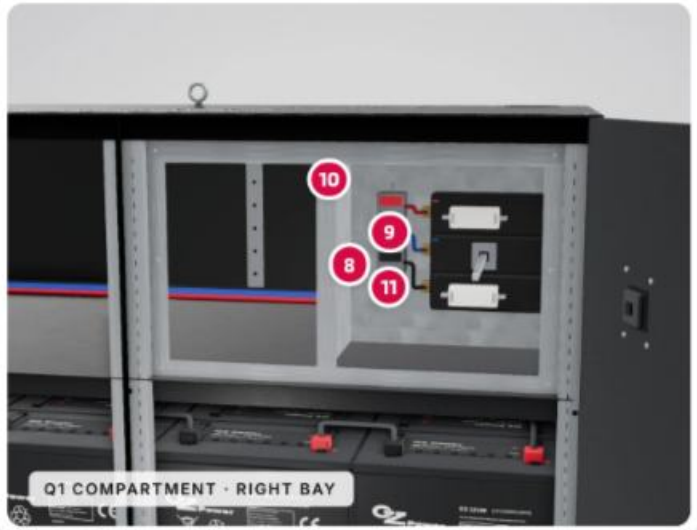
77 kWh in one cabinet
64 × 12 V 100 Ah in two strings of 32: the longest runtimes at 200 kW.

Two strings in parallel
Each string has its own cables to Q1 and is measured on its own.

Two doors, two bays
String A on shelves 4–3, string B on 2–1; Q1 and the handle in the right bay.

Components · BB8 battery cabinet





1. **Disconnect Q1**
   3-pole DC fuse switch-disconnector in the right bay: fuses on + and −, the neutral switched, not fused. Both strings meet at Q1.
2. **Batteries**
   OZ Power 12 V VRLA AGM, 4 across × 4 deep a shelf as the AEC wiring diagram lays them; Bat. 1 is the negative end.
3. **Links and main cables**
   Short links block to block, jumpers shelf to shelf; + red, − black, N blue from Q1.
4. **Galvanised uprights**
   50 mm (60 mm in the middle), holed for the shelf positions.
5. **Q1 rotary handle**
   On the door: lever down = OFF (O), a quarter turn clockwise = ON (I); padlockable.
6. **Door lock**
   One lever lock with key per door.
7. **Doors**
   Two hinged steel doors with lock: the AEC logo on the left one, the Q1 rotary handle on the right one.
8. **Q1 screen**
   Clear polycarbonate screen in a galvanised frame: Q1, fuses and X1 visible, never touchable. Open it only with Q1 OFF.
9. **Terminals X1 to the UPS**
   L+, M (N) and L− to the UPS battery input, PE beside them.
10. **Nameplate**
    Model, string voltage, blocks × strings, capacity, CE.
11. **PE bonding point**
    To the UPS earth or the building earth.

With Q1 OFF the UPS terminals are isolated; the batteries and their cables up to Q1 stay live.

Battery layout · BB8 battery cabinet

Two identical strings, A and B, each with the neutral at its midpoint: + to N and N to − carry half the voltage each. They meet in parallel at Q1, each on its own +, N and − cables: measure each string on its own.





String voltage

Blocks	Each string	Strings
40 = 2 × 20	120 / 120 V · 240 V	A + B
60 = 2 × 30	180 / 180 V · 360 V	A + B
64 = 2 × 32	192 / 192 V · 384 V	A + B

Supplied with AEC UPS

Batteries	Total kg	UPS kVA
40 × 80 Ah	1195	10–40
60 × 80 Ah	1650	10–200
64 × 80 Ah	1735	60–200
40 × 100 Ah	1495	10–40
60 × 100 Ah	2095	10–200
64 × 100 Ah	2215	60–200

Battery layout · BB8 battery cabinet



40 × 100 Ah

1495 kg filled · IST7 10–200 kVA · 2 strings of 20 · 120 / 120 V · OZ-12100, 328 × 172 × 220 mm, 28.5 kg a block



60 × 80 Ah

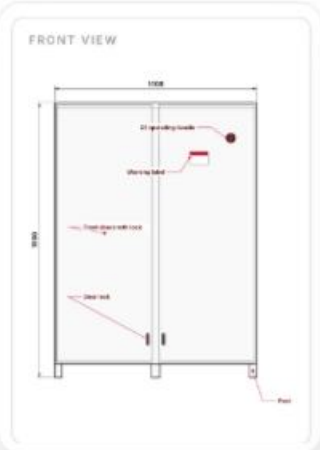
1650 kg filled · IST7 10–200 kVA · 2 strings of 30 · 180 / 180 V · OZ-1280, 260 × 169 × 216 mm, 22.0 kg a block

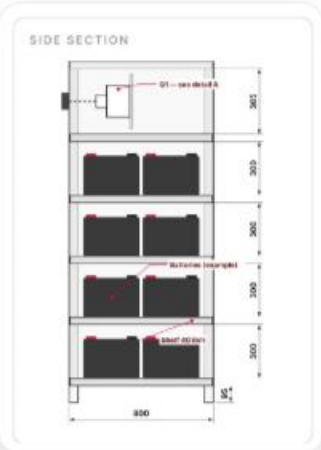


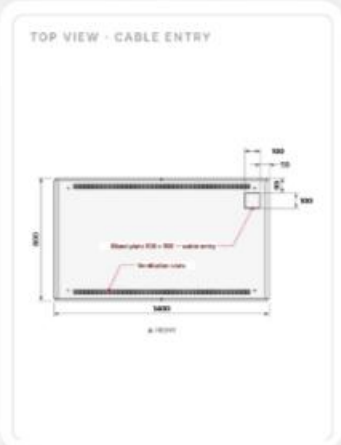
64 × 100 Ah

2215 kg filled · IST7 60–200 kVA · 2 strings of 32 · 192 / 192 V · OZ-12100, 328 × 172 × 220 mm, 28.5 kg a block

Technical data · BB8 battery cabinet



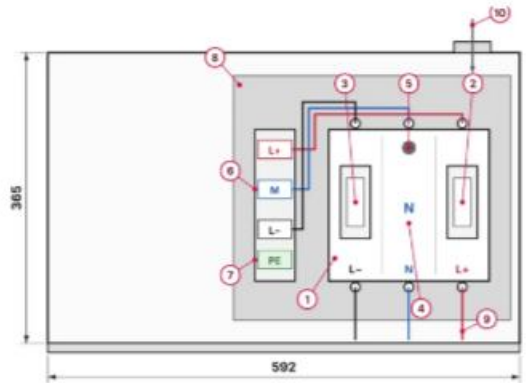




Size W × D × H	1400 × 800 × 1900 mm
Weight, empty	250 kg
Levels	4 battery shelves of 300 mm + Q1 level of 365 mm
Internal frame	1345 × 760 mm, two bays
Doors	two hinged doors with lock; Q1 handle on the right
Base	steel feet 95 mm, open base
Disconnect Q1	right bay; fuses on + and –, N switched
Fuses	NH00 / NH1 / NH2, 50 … 400 A, by code

Technical data · BB8 battery cabinet

DETAIL A · Q1 COMPARTMENT (RIGHT BAY)



1. Q1 3-pole DC switch-disconnector
2. F1 fuse (+)
3. F2 fuse (−)
4. N pole (switched, not fused)
5. Handle shaft to door
6. X1 terminals to UPS: L+ · M · L−
7. PE bonding point
8. Galvanised mounting plate
9. Main cables to the string
10. Cable entry: gland plate 100 × 100 (top)

Specifications

String voltage	±120 … ±192 V, each string
Cable entry	roof gland plate 100 × 100 mm; open base
Floor fixing	through the feet; hole positions from AEC
Protection · colour	IP20 (IP21–IP44 on request) · RAL 9005
Typical UPS	IST7 10–200 kVA

Technical data · BB8 battery cabinet

Codes

Code	For UPS	Fuses
BB8-10K	up to 10 kW	50 A
BB8-20K	up to 20 kW	63 A
BB8-40K	up to 40 kW	100 A
BB8-60K	up to 60 kW	125 A
BB8-80K	up to 80 kW	160 A
BB8-100K	up to 100 kW	250 A
BB8-120K	up to 120 kW	250 A
BB8-160K	up to 160 kW	400 A
BB8-200K	up to 200 kW	400 A

Drawings DOC-BB8-GA-001 · MD-001 (AEC, 10/10/2026), full size in Download · data: AEC user manual and code list · fuses and cables on request.

Installation and safety · Battery cabinets BB5–BB8

From the AEC BB5–BB8 user manuals (10/10/2026). The cabinet holds a DC string of up to 480 V: installation and service by qualified electricians only.

1

Keep Q1 OFF

Open Q1 (BB5: the three fuse carriers) before loading the blocks and keep it open for the whole installation.

2

Load from the bottom

Bottom shelf first, as the AEC wiring diagram places each block: terminals oriented as drawn, covers fitted.

3

Link the blocks

Short links – to + along each shelf, jumpers J1, J2 … shelf to shelf, tightened to the battery torque.

4

Connect N, then –, then +

Main cables from Q1: N blue to the midpoint, – black to Bat. 1, + red to the last block, last of all.

5

Bond PE

PE to the UPS earth or the building earth: same section as the phase cables up to 16 mm², 16 mm² up to 35 mm², half above.

6

Check before ON

Measure + / N and N / – at X1 (each string on its own in the BB8) before Q1 is closed.

The room

Temperature	20–25 °C is best, 0–40 °C allowed: battery life halves about every 8 °C above 25 °C.
Clearances	BB6–BB8: 100 mm free at the sides and behind for the ventilation slots; the door's swing in front.
Ventilation	Battery room ventilation to EN IEC 62485-2, for the hydrogen a VRLA string can release on charge.
Floor	Check the floor load: up to 2215 kg on 1.12 m² (BB8, 64 × 100 Ah).
Cables	Section by the fuse, from the user manual: e.g. 250 A → 120 mm² copper, PE 60 mm². Cable entry from the roof gland plate or the open base (BB6–BB8), the right side (BB5).

BB7-160K · How to read the code: Model + the largest UPS power the cabinet serves, in kW: the fuses and the cables follow it. The battery configuration does not change the code: order the cabinet, then the blocks (OZ Power, Ah and quantity), or the complete set with the UPS.

Battery cabinets · technical data

	BB5	BB6	BB7	BB8
MECHANICAL				
W × D × H (mm)	460 × 800 × 1400	800 × 800 × 1400	800 × 800 × 1900	1400 × 800 × 1900
Weight, empty	110 kg	140 kg	160 kg	250 kg
Front	screwed panel	door with lock	door with lock	two doors with lock
Battery levels	4 + Q1 level	3 + Q1 level	4 + Q1 level	4 in two bays + Q1
Internal frame	458 × 785 mm, 5 levels	745 × 765 mm, 2–4 levels	745 × 765 mm, 2–5 levels	1350 × 765 mm, 2–5 levels
Cable entry	right side, top and bottom	top gland 100 × 100 · bottom		
Floor fixing	through the base	through the feet	4 × Ø9, centres 685 × 700	through the feet
BATTERIES				
Battery	12 V 24 / 40 Ah · 9 Ah	12 V 60 Ah	12 V 80 / 100 Ah	12 V 80 / 100 Ah
Configurations	30–40 · 100 / 120 × 9 Ah	30–40	28–36	40 · 60 · 64 (×2 strings)
String voltage	±180 … ±240 V	±180 … ±240 V	±168 … ±216 V	±120 … ±192 V

	BB5	BB6	BB7	BB8
ELECTRICAL				
Disconnect Q1 (3-pole)	fuses on +, N, –	fuses on + and –		
Fuses F1 / F2	32–125 A	63–160 A	63–400 A	63–400 A
UPS power (code)	10–60 kW	10–100 kW	10–200 kW	10–200 kW
Float · max. charge (per battery)	13.5–13.7 V · 14.4 V			
GENERAL				
Colour	RAL 9005			
Protection	IP20 · IP21–IP44 option			
Standards	IEC/EN 62040-1 · EN IEC 62485-2 · CE			
Warranty (cabinet)	3 years			

ENERGY STORAGE

OZ Power VRLA

9–200 Ah

Sealed, maintenance-free valve-regulated batteries from 9 to 200 Ah: the energy behind every AEC UPS and battery cabinet.



9–200 Ah
seven 12 V models

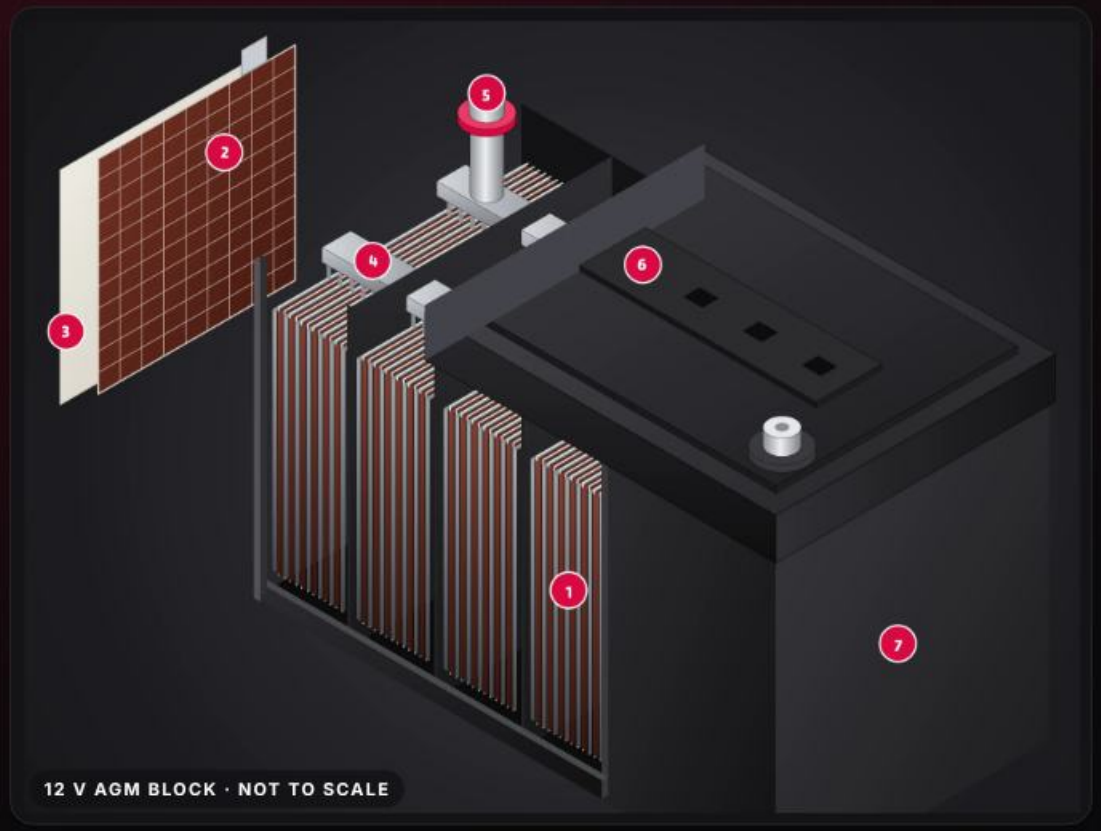
–20…60 °C
discharge temperature range

2000 A
max. 5 s discharge, 200 Ah

< 3%
self-discharge per month

Battery technology · inside the block

Six cells in series, each a stack of thin pressed plates on pure-lead grids, separated by absorbent glass mat and sealed under a one-way valve.



12 V AGM BLOCK · NOT TO SCALE

1. **Thin pressed plates**
   More plate surface in the same block for high-rate UPS discharges.
2. **Pure-lead grid**
   Low corrosion, long float life, low self-discharge.
3. **AGM glass mat**
   Holds all the electrolyte: no free acid.
4. **Cell connections**
   Internal resistance down to 3.5 mΩ (200 Ah).
5. **Terminals**
   Insert terminals M5 to M8, + marked in red.
6. **Safety valve**
   Opens only on overpressure: 99% of the gas recombines inside the cell.
7. **ABS case**
   UL94-HB container, flame-retardant UL94-V0 on request.

Models and range · seven 12 V blocks

From the 9 Ah block inside every single-phase UPS to the 200 Ah block for long backup: same technology, same quality.



OZ Power 12 V	9 Ah	24 Ah	40 Ah	60 Ah	80 Ah	100 Ah	200 Ah
Series	general purpose	general purpose	long life	long life	long life	long life	long life
Rating	C20	C20	C10	C10 · 55 Ah	C10	C10	C10
Design life (float)	6–8 years	6–8 years	12 years	12 years	12 years	12 years	12 years

Battery life halves about every 8 °C above 25 °C. C10 = capacity at 10 h to 1.80 V/cell; C20 = 20 h to 1.75 V/cell.

100%
of design life at 25 °C

≈ 43%
of design life at 35 °C

≈ 19%
of design life at 45 °C

OZ Power VRLA · technical data

	9 Ah	24 Ah	40 Ah	60 Ah	80 Ah	100 Ah	200 Ah
OZ POWER 12 V							
Capacity C10 · C20	8.4 · 9.0 Ah	22.4 · 24.0 Ah	40.0 · 42.4 Ah	55.0 · 58.2 Ah	80.0 · 84.8 Ah	100 · 106 Ah	200 · 212 Ah
Capacity C3 · C5	6.8 · 7.7 Ah	18.0 · 20.4 Ah	30.0 · 34.0 Ah	41.4 · 46.8 Ah	60.0 · 68.0 Ah	75.0 · 85.0 Ah	150 · 170 Ah
L × W × H (mm)	151 × 65 × 94	166 × 175 × 125	197 × 166 × 170	230 × 138 × 211	260 × 169 × 211	328 × 172 × 215	522 × 240 × 219
Total height (mm)	100	125	170	216	216	220	224
Weight (approx.)	2.3 kg	7.0 kg	11.5 kg	16.5 kg	22.0 kg	28.5 kg	58.0 kg
Internal resistance	≤ 22 mΩ	≤ 16 mΩ	≤ 10 mΩ	≤ 6.0 mΩ	≤ 6.0 mΩ	≤ 5.5 mΩ	≤ 3.5 mΩ
Terminal	F2	F13 (M5)	F11 (M6)	F11 (M6)	F11 (M6)	F12 (M8)	F10 (M8)
Max. discharge (5 s)	90 A	240 A	400 A	550 A	800 A	1000 A	2000 A
Short-circuit current	450 A	850 A	920 A	1160 A	1840 A	2150 A	3430 A
Max. charge current	2.7 A	7.2 A	12.0 A	16.5 A	24.0 A	30.0 A	60.0 A
Design life (float)	6–8 years	6–8 years	12 years	12 years	12 years	12 years	12 years
Used in	IST3 · IST3-J · IST9 · IST7 · BB1–BB5 · BBJ · BBJ2	BB5	BB5	BB6	BB7 · BB8	BB7 · BB8	on request

Battery sizing · backup time calculation

Battery data sheets give constant power per block. Divide the UPS load by the inverter efficiency and the number of blocks, then read the time in the tables.

1

Power per block

P block = P load ÷ (efficiency × number of blocks). The DC efficiency of the UPS comes from its data sheet.

2

Read the table

Find P block in the constant power table, in the row of the UPS end voltage: the column gives the backup time.

3

Choose the battery

Pick the capacity, and if needed a second string, that reaches the backup time required. AEC checks every calculation.

15 kW

UPS load · example: 15 kW on 32 blocks

95%

assumed DC → AC efficiency

493 W

per 12 V block, 32 blocks

Backup time per battery, same load

12 V 9 Ah	12 V 24 Ah	12 V 40 Ah	12 V 60 Ah	12 V 80 Ah	12 V 100 Ah	12 V 200 Ah
below 5–10 min: not suitable for this load	≈ 11 min	≈ 24 min	≈ 38 min	≈ 62 min	≈ 84 min	≈ 3.8 h

Example only: 15 kW load, 95% efficiency assumed, one string of 32 blocks, 25 °C, end voltage 1.75 V/cell, new batteries; times interpolated in the constant power tables of this catalogue. Real backup depends on the UPS, the temperature and battery age.

SNMP card · network monitoring

The SNMP card gives every AEC UPS its own web page and an SNMP agent, sends alarms by e-mail and reads the room sensor.



SNMP CARD



SNMP CARD, SLOT TYPE

- Web monitoring and control of one UPS, HTTP and HTTPS
- SNMP v1 / v2c (community) and v3 (MD5 / SHA, DES / AES)
- Traps v1 / v2 / v3, standard UPS-MIB, MIB download
- E-mail alarms, event and data logs, scheduled tasks
- NTP time synchronisation, three user levels
- RS485 port to the UPS, COM port for the room sensor

SNMP card, slot type

For the intelligent slot of the three-phase and modular UPS.

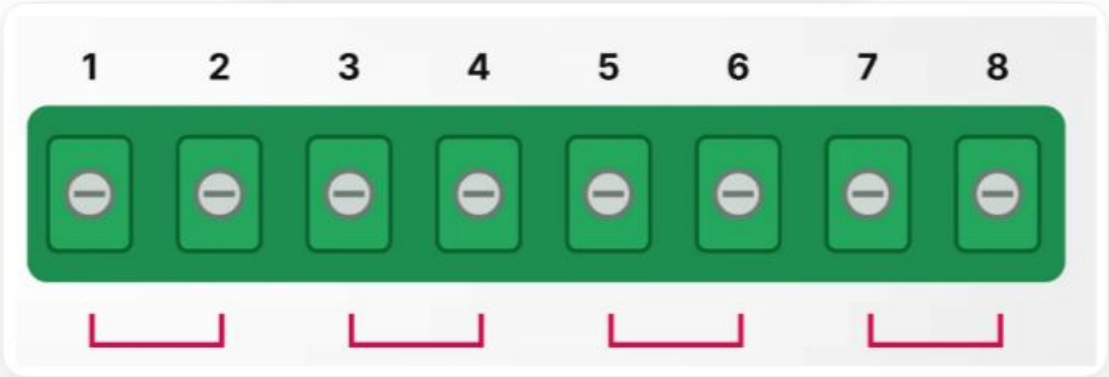
Temperature and humidity sensor

Connects to the SNMP card with an RJ45 data cable; powered by the card: no extra supply.

Dry contacts and cards · AEC accessories

Dry contacts and RS485 bring the UPS into the building management system; option cards add contacts, protocols and battery links where the project needs them.





1·2 **Mains abnormal**

3·4 **Battery under-voltage**

5·6 **UPS failure**

7·8 **RS485 A / B**

RS485 + dry-contact card

IST9 · IST7 10–40: 3 output contacts (mains, battery, inverter or bypass status), 2 inputs (battery temperature for compensated charging, battery breaker or remote ON / OFF) and one RS485.

Dry-contact expansion card

IST7 60–200 · IST6: three more inputs and two more outputs, each assigned from the display.

BMS card

IST7 60–200 · IST6: communication with lithium battery systems such as the AEC L6, with charge and discharge disable inputs.

Modbus RTU

IST7 · IST7-T · IST6: RS485 Modbus as standard; address and baud rate set on the display.

Which accessory · for which series

Accessory	IST3	IST3-J	IST8	AIO	IST9	IST7 10–40	IST7 60–200	IST7-T	IST6
SNMP card	●	●	●	●	●	●	●	●	●
Temperature · humidity sensor	●	●	●	●	●	●	●	●	●
RS485 + dry contacts, single-phase	●	●	●	–	–	–	–	–	–
RS485 + dry contacts, three-phase	–	–	–	–	●	●	–	–	–
Dry-contact expansion · BMS card	–	–	–	–	–	–	●	–	●
Parallel kit	–	–	–	–	●	●	●	●	–
Maintenance bypass	●	●	●	–	●	–	–	–	–
Battery temperature sensor	–	–	–	–	●	–	●	●	●
Battery trip kit	–	–	–	–	–	–	●	●	●
Class C surge protection	–	–	–	–	–	–	●	●	●

Parallel kit

PAR-IST9 · PAR-IST7-60/200: parallel card and cable with CAN communication between units: N+1 redundancy or more power with identical UPS.

Maintenance bypass

MBYP-3K · MBYP-6K: external rack bypass for IST3, IST3-J and IST8 (max. 3 / 10 kVA). IST9: rack distribution module with input, bypass, output and maintenance breakers.

Battery protection

Battery temperature kit with probe for compensated charging; 24 V DC trip of the external battery breaker; class C surge protection with switch.

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incentive programme with annual bonuses.

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contribution to the partner's promotional costs.

Certified organisation, tested products

ISO 9001 Quality	**ISO 14001** Environment	**ISO 45001** Health and safety	**IEC/EN 62040-1** UPS · safety	**IEC/EN 62040-2** UPS · electromagnetic compatibility	**IEC/EN 62040-3** UPS · performance and test methods	**EN 50171** Central power supply systems (CPSS)

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Your company only, with its own users, protected by strong passwords.

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