



AEC UPS ITALY **CRITICAL POWER**





ALL-IN-ONE LITHIUM UPS



1:1

3:1

3:3

Power from 10kVA up to 20kVA



kW = kVA

97%
Efficiency

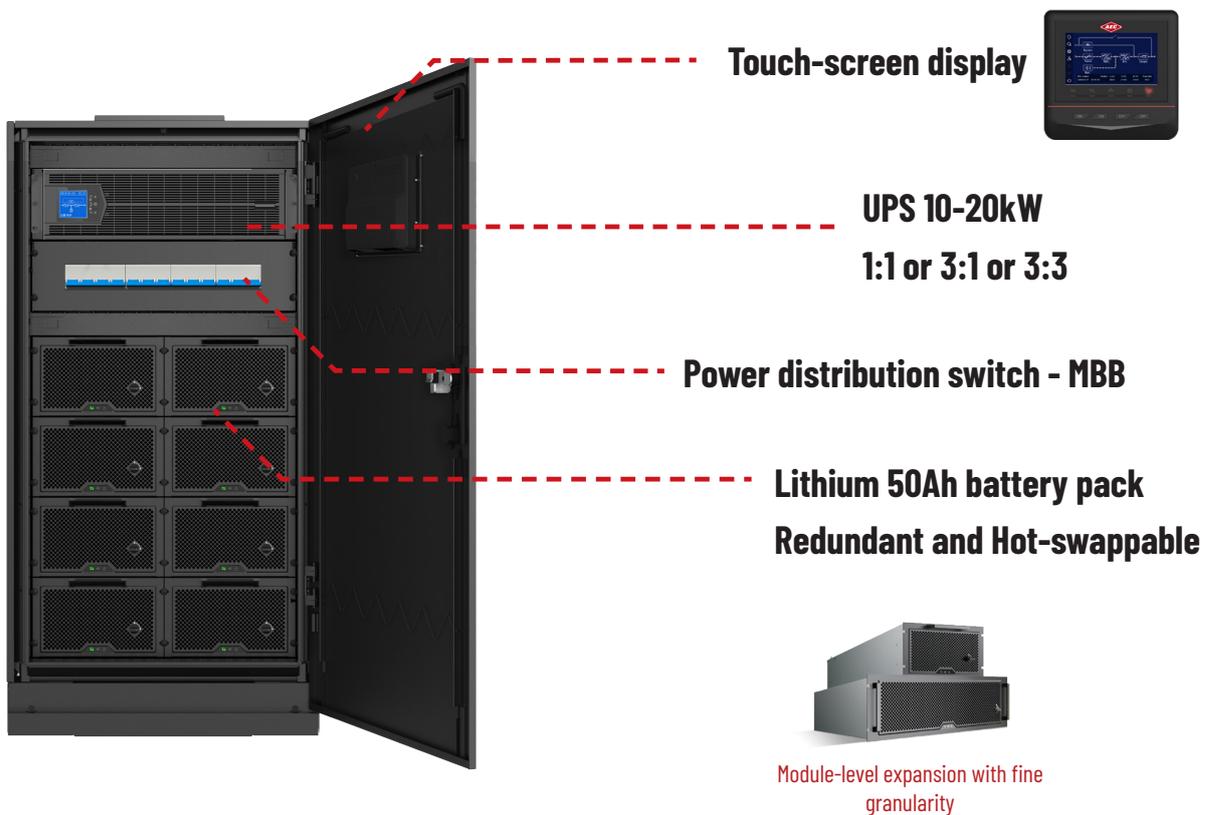
ALL-IN-ONE UPS WITH HOT-SWAPPABLE LITHIUM BATTERY UPS ONLINE THREE-PHASE OR SINGLE PHASE

The **ALL-IN-ONE UPS + LITHIUM BATTERY MODULES** (10-20KVA) are AEC's revolutionary UPS System with powers starting from 10kVA up to 20kVA. The integrated UPS adopts the most innovative **3-level IGBT** technologies, ensuring efficiency up to 97% and a unitary output power factor.

All-In-One can be configured in **1\1 or 3\1 or 3\3** input\output mode directly from the display. The All-In-One Cabinet is on wheels and it includes an online UPS upto 20kW, a **distribution module** with manual maintenance bypass and **up to 8 slots for Hot-swappable Lithium battery modules 50Ah.**

UPS RACK 19" THREE-PHASE

UPS + LITHIUM BATTERIES | ALL-IN-ONE SOLUTION



UPS CONFIGURATIONS

- UPS Online double-conversion 10kVA or 20kVA;
- UPS input and output configurable from display in single-phase and \ or three-phase (1:1, 3:1, 3:3);
- ECO-Mode mode configurable from on-site display;
- Two Displays: 1 LCD and 1 computerized Touch-Screen;
- Configuration for input, output, bypass, batteries, communications, language and operating modes via display from UPS or TOUCH-SCREEN;
- Output power factor equal to 1;
- AC \ AC efficiency up to 97%;
- Innovative three-level IGBT technology integrated in the inverter section;
- Maintenance Bypass integrated.

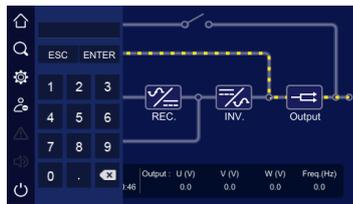
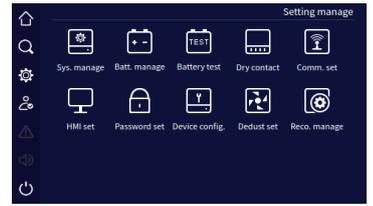
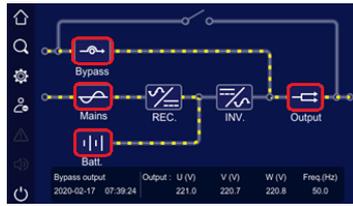
HOT-SWAPPABLE LITHIUM MODULES

- Maximum 8 x Lithium-Ion Hot-swappable 50Ah ;
200 Minutes autonomy on 6kW
120 Minutes autonomy on 10kW
- 15 Years lifespan and over 3000 cycles DoD 50%;
- Electrical and physical double isolation;
- From 0% charge to 100% charge in 2 Hours;
- Module fire protection;
- Modular parallel design, 100% hot-swappable independent and redundant modules;
- Preventive Failure alarm and module exit automatically;
- Advanced BMC communication to allow mixing old and new Lithium-Ion Modules.

DISPLAY | TOUCH-SCREEN COMPUTERIZED



Display 4.9" Inches



Safe and reliable

Electrical and physical double isolation

- Port zero voltage, no risk of short circuit shock

Two-level fire linkage

- Module fire protection
- Can quickly, accurately and effectively detect and extinguish the fire source will extinguish the fire in the initial stage.

Failure module exit automatically

- Modular parallel design, failure module exit automatically, will not affect the system. Other modules can work normally.

Smart and Intelligent technology

Module design, plug and play

- 5mins maintenance, reduce the OPEX cost

Flexible for expansion

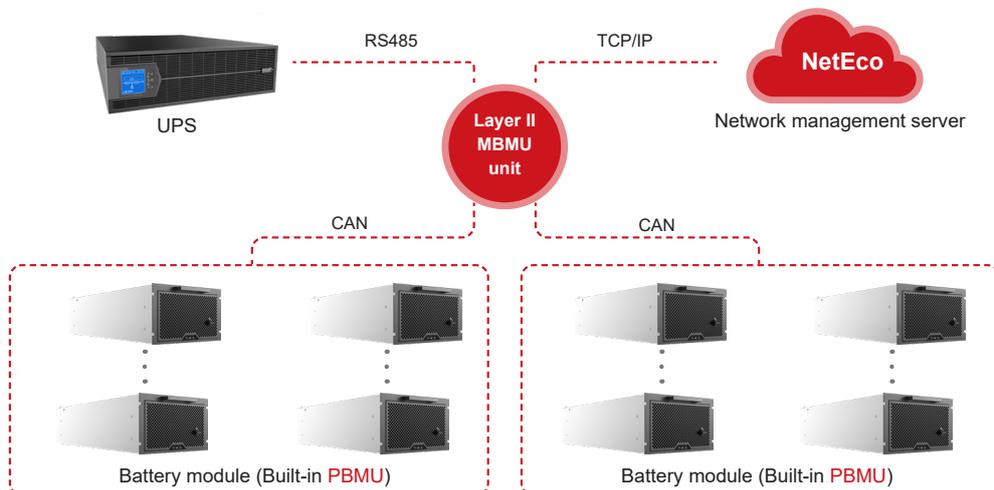
- Module design, can expand the capacity of modules or cabinets.
- Reduce the CAPEX cost

Smart battery test

- Parallel design, the battery can test the capacity separately. No need to cut off the power supply, improve the reliability

Featured Two-layer BMS Architecture

The adopted two-layer BMS architecture (PBMU/MBMU) ensures the reliability of lithium-ion battery system from cell, module and system layers.



ACCURATE MONITORING FROM DISPLAY

Easy and simple to operate

Intelligent current equalization

- Can be used with new and old batteries
- Can be used with lithium-ion batteries from different suppliers

Intelligent voltage equalization

- Intelligent voltage equalization module, no barrel effect
- Prolong the backup time, improve battery utilization

Fault recording, early warning

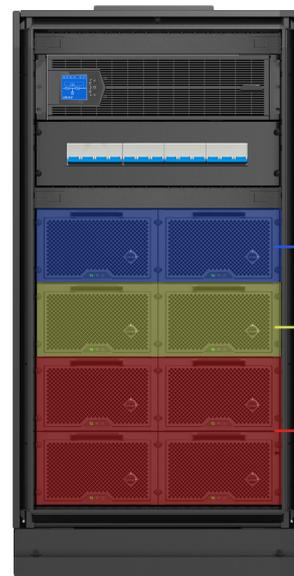
- Fault recording, early warning, accurate and quick fault location, reduce the OPEX cost

Adaptive SOC management

- Intelligent charge and discharge management, avoid over charge and over discharge
- Detects the battery internal temperature. Improve the safety and reduce the OPEX cost

Multi-Password management

- Access to the menu via different password levels (User, Technician and Manufacturer);
- Large memory up to 10,000 events downloadable via the USB port integrated in the UPS;



Phase I
old battery
SOH=88%

Phase II
old battery
SOH=91%

Phase III
new battery
SOH=95%

More flexible mixing of old and new batteries

Communications and alarms

- Alarms from dry contact card 5 or 12 Input\Output available alarms (optional);
- SNMP Network Card for remote monitoring and controlling (optional).

Excellence performance Lithium-Ion

- **Higher energy density:** Li-ion batteries lithium have a higher energy density than to lead-acid batteries, which means they can store more energy in a smaller space.
- **Lighter:** Li-ion batteries are lighter compared to lead-acid batteries, which makes them easier to transport and install.
- **Longer life:** lithium-ion batteries have longer life than lead-acid batteries e can be used for longer periods without the need to replace them.
- **Higher efficiency:** Lithium-ion batteries have higher efficiency than lead-acid batteries, which means they can provide more energy for each unit of weight.
- **Life cycles:** Li-ion batteries have a cycle longer life than lead-acid batteries, i.e can be downloaded and reloaded for a greater number of times before losing their capacity.



LITHIUM VS LEAD ACID COMPARISON TABLE

1. Example UPS = 20kVA Load = 20kW Autonomy = 60 Minutes

	LEAD ACID VRLA SOLUTION:	LITHIUM SOLUTION:
	UPS IST7 20kVA - 20kW BB7 + 32 Batteries x 12V 80Ah	ALL-IN-ONE 20kW with 8 x Lithium 50Ah
1. Total Weight	50 Kg + 650 Kg	400 Kg
2. Total piece to install	2 Units = UPS + Battery Cabinet	1 Unit
3. Dimensions	260x780x900 cm + 800x800x1400 cm	600x860x1200 cm
4. Cycles discharge	300 Cycles DoD 30%	3000 Cycles DoD 50%
5. Life-span of batteries	10 Years	15 Years
6. Time to recharge 100%	8 Hours	2 Hours
7. Working temperature	20-25°	0-50°
8. Warranty	2 Years	5 Years
9. Time to install full system	2 People 2-4 Hours	1 Person 30-60 Minutes
10. Battery replacements needed in 15 years	2-3 Times x 600Kg of batteries	0
12. Estimated Total Cost in 15 Years	65.000 Euro	40.000 Euro

Physical Appereances

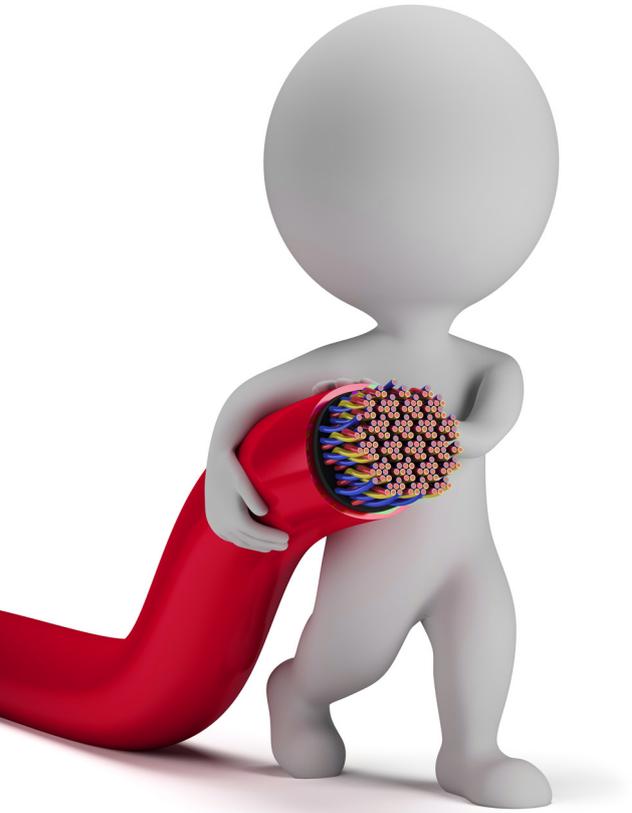


BATTERY AUTONOMY CONFIGURATION TABLE

50Ah battery module | 15 Years life span

Battery module (mins) \ UPS capacity (kW)	1	2	3	4	5	6	7	8
6	25	50	75	100	125	150	175	200
10	15	30	45	60	75	90	105	120
20	/	15	22	30	37	45	52	60

TECHNICAL SPECIFICATIONS			
MODELS	ALL-IN-ONE		
UPS INPUT			
CONFIGURATIONS	1:1 3:1 3:3 INPUT - OUTPUT		
VOLTAGE (VAC)	80-280 (L-N) or 138-485 (L-L)		
FREQUENCY (HZ)	40-70		
POWER FACTOR	≥0.99		
THDI	<3%		
UPS OUTPUT			
POWER (KVA)	10	15	20
MAX. AC/AC EFFICIENCY	97,00%		
POWER FACTOR	1		
VOLTAGE (VAC)	220/230/240±1% (L-N) or 380/400/415±1% (L-L)(configurable)		
FREQUENCY (HZ)	50/60±0.1		
THD	THD <2% (linear loads), THD < 4% (non-linear loads)		
SWITCHING TIME (MS)	0		
ECO MODE	Yes		
OVERLOAD	115%~130% Overload for 15mins, 130%~150% Overload for 1min, more than 150% Overload for 200ms		
LITHIUM-ION BATTERY MODULES			
BATTERY TYPE	LITHIUM-ION MODULES L6-50-4C-240-X		
	HOT-SWAPPABLE MODULES		
BATTERY NUMBER	Maximum 8 LITHIUM MODULES		
BATTERY RATED VOLTAGE (V)	57.6		
BATTERY CAPACITY (AH)	50		
MAX. ENERGY (KWH)	2.8		
DC/DC RATED OUTPUT POWER (KW)	10		
RATED OUTPUT VOLTAGE (V)	240/±240/480		
SOC ACCURACY	≥95%		
HUMIDITY	0 ~ 95%		
DIMENSIONS (L×W×H) MM	UPS	438×500×130(3U)	
	Distribution Box	438×500×130(3U)	
	Lithium Battery Module	223×665×153	
	FULL UPS SYSTEM	600×860×1200	
WEIGHT (KG)	UPS	20	
	Distribution Box	8	
	Lithium Battery Module	38±2	
	FULL UPS SYSTEM	120 *Without built-in UPS and batteries.	
CERTIFICATIONS			
STANDARDS	CE (Reference standards: Safety IEC EN 62040-1; EMC IEC EN 62040-2; Classification IEC EN 62040-3)		



**We have been guaranteeing continuity
and reliability since 1968**

WE ARE BEHIND THE POWER...

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AEC is more than just a company, AEC is a family, we are a team of professionals with passion for innovation and new technologies
We are AEC!

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