



Vertiv™ Edge Single Phase UPS 500 to 3000 VA

FAQs



1. What are the key features of Vertiv™ Edge Single Phase UPS?

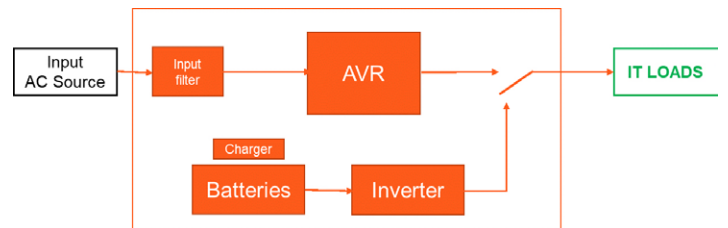
The key features as follows:

- **High efficiency up to 98%** in normal operation mode
- **High output power factor (0.9)**
- **Wide input voltage window** saving battery for outage availability
- **Color and graphical user friendly LCD display**
- **Programmable outlets** for load management during outages
- **Line interactive (VI) UPS technology for professional applications**
- Greater runtime capability with extended runtime capable solution⁽¹⁾
- Same **external battery cabinets (EBC) compatible with Liebert GXT5**
- **Features the automatic external battery cabinet detection**
- Multiple connection options including SNMP and USB
- **Flexibility** with 1U, 2U, 3U and tower form factor versions
- **3 years standard warranty** (batteries and electronics)
- **Railkits** included in the UPS
- UPS operation up to 40°C at full power, and up to 60°C⁽²⁾ ambient temperature with derating applied.

(1) Applicable for specific models

(2) Please check with technical support for further information

2. Explain the operational principle of the Line-interactive topology?



A. Normal - As long as input mains is stable, Input power is filtered and supplied continuously to the critical AC load AC load, while the UPS works in a very high efficiency mode (up to 98%). The battery charger maintains a float-charge on the battery.

B. Automatic Voltage Regulation (AVR) Boost / Buck - During input power source abnormalities (sags and swells), the AC output power is corrected by means of 2 x boost (sag correction) or buck (swell correction) taps. Operation of the compensation taps automatically maintains the proper output voltage for the connected critical equipment.

C. Recharge - Upon restoration of utility/mains AC power and complete or partial battery discharge, the unit automatically restarts and resumes supplying power to the critical AC load; and the battery charger recharges the battery.

D. Battery Mode- When the input power source exceeds the parameters defined in **Question 6**, the critical AC load is supplied power by the inverter with a pure sinewave waveform, which obtains its power from the battery. Typical detection and transfer time is 6-8 ms typical.

E. Battery Self-test – The UPS enters a cycle of approximately 10 seconds during which it tests the internal battery. The outlets are still temporarily powered by the internal battery. Please check user manual for more details.

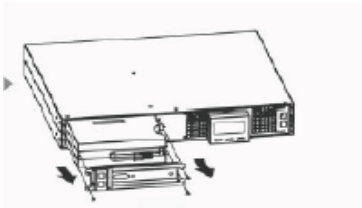


3. Does the Vertiv™ Edge Single Phase UPS include internal batteries?

Yes, Vertiv™ Edge Single Phase UPS includes internal batteries in all the UPS ratings. Moreover, up to six external battery cabinets can be connected to it for delivering long runtime.

4. Are the UPS battery modules hot-swappable?

Yes, internal battery modules & external battery modules of the UPS can be replaced without shutting down the UPS or connected load. Hence, this feature helps to reduce the downtime of the connected load.



Internal Battery Modules



External Battery Cabinets

5. Does the Vertiv™ Edge Single Phase UPS feature automatic battery cabinet detection?

Vertiv™ Edge Single Phase UPS features automatic battery detection. Use a dedicated cable and the UPS will automatically recognize when the EBC is connected.

This feature brings following benefits.

- No need of configuration at LCD about quantity of external battery cabinets.
- Make easier configuration for the user

6. What is the acceptable input supply range without discharging the batteries for Vertiv™ Edge Single Phase UPS?

The UPS shall incorporate a variable input voltage (line detection) window feature that shall operate at the values of the nominal output voltage as mentioned below without drawing power from the batteries.

230 VAC setting: single phase, 2-wire-plus-earth: 166-278 VAC (±10 VAC)

- Boost1 compensation: 166 VAC (±5%)
- Boost2 compensation: 207 VAC (±5%)
- Buck compensation: 278 VAC (±5%)

Please refer to user manual for the voltages 200 V, 208 V, 220 V, and 240 V.

7. List out all available models and its internal and extended runtime capability?

Model Number	Rating	Internal batteries	Battery config. (UPS)	Form factor	Extended runtime capability and EBC
EDGE-750IMT	750 VA / 630 W	Yes	2 x 12 V x 9 Ahr (24 V DC)	Tower	No
EDGE-1000IMT	1000 VA / 900 W	Yes	2 x 12 V x 9 Ahr (24 V DC)	Tower	No
EDGE-1500IMT	1500 VA / 1350 W	Yes	4 x 12 V x 9 Ahr (48 V DC)	Tower	No
EDGE-500IRM1U	500 VA / 300 W	Yes	2 x 6 V x 9 Ahr (12 V DC)	Rack	No
EDGE-1000IRM1U	1000 VA / 900 W	Yes	4 x 6 V x 9 Ahr (24 V DC)	Rack	No
EDGE-1500IRM1U	1500 VA / 1350 W	Yes	6 x 6 V x 9 Ahr (36 V DC)	Rack	No
EDGE-1500IRT 2UXL	1500 VA / 1350 W	Yes	4 x 12 V x 9 Ahr (48 V DC)	Tower/ Rack	Yes (GXT5-48VBATT)
EDGE-2200IRT 2UXL	2200 VA / 1980 W	Yes	6 x 12 V x 9 Ahr (72 V DC)	Tower/ Rack	Yes (GXT5-72VBATT)
EDGE-3000IRT 2UXL	3000 VA / 2700 W	Yes	6 x 12 V x 9 Ahr (72 V DC)	Tower/ Rack	Yes (GXT5-72VBATT)
EDGE-3000IRT 3UXL	3000 VA / 2700 W	Yes	6 x 12 V x 9 Ahr (72 V DC)	Tower/ Rack	Yes (GXT5-72VBATT)

8. How many IntelliSlot™ ports are available for remote monitoring?

The Vertiv™ Edge Single Phase UPS supports one IntelliSlot communication port. An interface card can be installed during any state of UPS operation (On, Standby or Off states). Available optional cards are described below:

Web Card (IS-UNITY-SNMP)

The optional Vertiv Web Card enables the remote monitoring of the UPS via SNMP. It also provides notifications via email and SMS. For SMS facility requires additional SMS gateway.

Dry-contacts (relay) Card (IS-RELAY)

The optional Vertiv Dry-contacts (relay) card provides contact closure for remote monitoring of alarm conditions in the UPS, delivering signals for On Battery, Bypass Active, Low Battery, UPS Fault and On UPS. The contacts are rated for 24VDC at 1A.

9. What is the input power factor of Vertiv™ Edge Single Phase UPS?

The input power factor of the Vertiv™ Edge Single Phase UPS is same as source PF in line mode.

10. What is the output supply voltage & it's stability of Vertiv™ Edge Single Phase UPS?

500-3000 VA: 230 VAC default (user configurable: 200 V, 208 V, 220 V, 230 V, 240 V), 50/60Hz, single phase, 2-wire-plus-earth

Note: Power derating in VA and Watts shall be applied when output is programmed at 200 V or 208 V nominal output voltage

Steady state voltage stability is $\pm 1\%$ in battery mode operation and steady state.

11. What is the efficiency at different modes of operation for all the variants?

The UPS will perform with the efficiencies as below, assuming full load, nominal input voltage and batteries fully charged:

- 500 VA: 97% AC –AC at full rated linear load (94% Boost1 / 95% Buck)
- 750 VA: 98% AC –AC at full rated linear load (95% Boost1 / 95% Buck)
- 1000 VA: 98% AC –AC at full rated linear load (95% Boost1 / 96% Buck)
- 1500 VA: 98% AC –AC at full rated linear load (95% Boost1 / 96% Buck)
- 2200 VA: 98% AC –AC at full rated linear load (96% Boost1 / 96% Buck)
- 3000 VA: 98.5% AC –AC at full rated linear load (96% Boost1 / 96% Buck)

12. What standards does the Vertiv™ Edge Single Phase UPS comply with?

The UPS is designed in accordance with applicable sections of the current revision of the following documents.

- CE compliance mark
- IEC62040-1:2017
- EN62040-1:2019
- IEC62040-2:2006+AC:2006
- EN61000-3-2:2014
- EN61000-3-3:2013
- IEC61000-4-2:2009
- IEC61000-4-3:2006
- IEC61000-4-4:2012
- IEC61000-4-5:2014
- IEC61000-4-6:2014

- IEC61000-2-2:2002
- IEC61000-4-11:2004
- ISTA 2A Procedure
- RoHS Compliant
- CB test

13. What is the overload capacity of Vertiv™ Edge Single Phase UPS?

The overload limits are as follows:

<105% Continuous; 106% to 125% - 60 seconds; 126% to 150% - 50 seconds; 151% to 200% - 2 seconds; >201% - immediate shutdown

14. Does Vertiv™ Edge Single Phase UPS has a cold start features?

Yes, it has a cold start feature in which the load can be powered up by using batteries when the mains supply is not available.

15. How does the Vertiv Edge protect the servers and networking equipment in edge applications?

a. With the **surge ratings of 624 Joules** connected between L-N, L-G, N-G, the Vertiv™ Edge Single Phase UPS can protect your critical infrastructure from almost all common power events. The UPS shall be complied with EN61000-4-5; Line to Line: Level 2; Line to Earth: Level 3 standards.

b. With a **0.9 output power factor**, Vertiv™ Edge Single Phase UPS provides enough power to protect the most critical IT loads.

c. With **advanced AVR design** with 2 x Boost / 1 x buck taps, Vertiv™ Edge Single Phase UPS provides more accurate & stable output voltage to the critical load. It also protects the battery by smoothing out spikes, sags and brownouts without the UPS going on battery. Saves and extends battery life.

d. With the ability to add **up to six (6) extended run time cabinets** and with standard **autodetect features** for self-configuration of the battery cabinets, Vertiv™ Edge Single Phase UPS can provide enough runtime to keep those critical IT loads available as needed.

f. With **green mode of operation**, Vertiv™ Edge Single Phase UPS provides optimum energy savings. In battery mode and with very small loads, the UPS will shutdown automatically to protect batteries.

g. With **hot swappable internal batteries**, Vertiv™ Edge Single Phase UPS does not require shutdown to change/replace batteries and thus ensures maximum uptime of the critical loads.

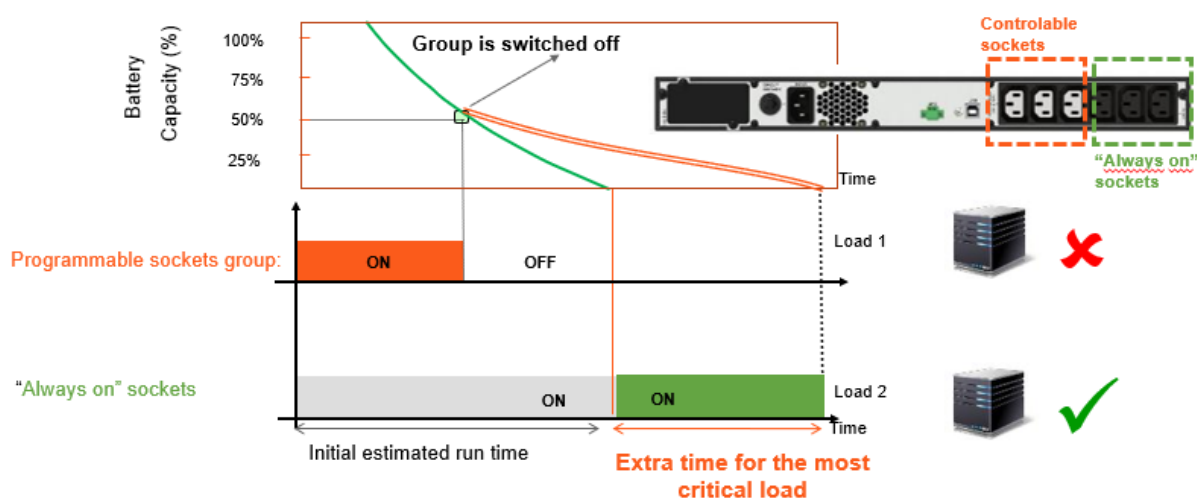
16. What is output voltage distortion during battery mode?

- $\leq 2\%$ Total Harmonic Distortion (THD) typical into a 100% linear load (230V output).
- $< 3\%$ THD typical into a 100% non-linear (RCD) load. In both cases, those values before the battery low alarm.

17. How many programmable sockets are provided for the Vertiv™ Edge Single Phase UPS and explain its functionality?

Each UPS variant has two groups of output sockets. One group of sockets are programmable and controllable, and second group sockets are "always on". Controllable sockets bring several advantage for a more efficient energy usage:

- Battery energy is reserved for most critical loads (extra runtime).
- If "lower priority" loads are disconnected, less battery cycling occurs, and battery life may be extended.



Tower models



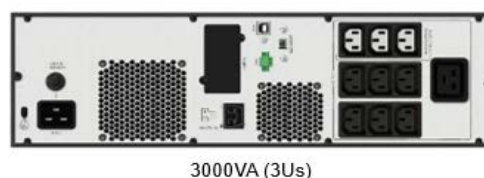
Rack (1U) models:



Rack / Tower (2Us) models:



Rack / Tower (3Us) models:



For more details on Programmable outlets, please check our [Vertiv.com](https://www.vertiv.com) webpage or contact your local Vertiv representative to get them.