



Single phase UL UPS systems

A cost-effective solution for
maximum power protection



- 1-10 kVA UL UPS
- High operating efficiency, regardless of loading
- Configurable in tower or rack-mount format
- Electronically rotatable display



Disclaimer

Terms and Conditions

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Technical

The information in this catalogue regarding UPS autonomy refers to a typical operation scenario. Refer to the product datasheet for a complete overview of the battery runtime.

The technical specifications in this document are subject to change without notice at the sole discretion of ABB Inc.

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ABB PowerValue UL UPS

Online single-phase UPS for critical infrastructure

ABB's PowerValue RT G2 UL series are double-conversion online UPS systems that guarantee up to 40 kW of clean, reliable power for critical single-phase applications. Systems are ideal for advanced IT applications and small to mid-sized server rooms, as well as process control automation for medical, renewable energy and transportation environments.

PowerValue RT G2 UL systems condition incoming power to eliminate spikes, swells, sags, noise, and harmonics. Featuring voltage and frequency independent (VFI) topology, PowerValue RT G2 UL saves costs by minimizing energy losses with its double conversion efficiency of up to 91 percent (up to 97% in ECO mode).

Systems can be used as a standalone UPS device or installed into a standard 19" rack configuration, with connectivity options available for each. The system's runtime is fully scalable with a range of battery solutions that extends the system autonomy to suit individual customer requirements. A full set of connectivity options are also available.

This complete portfolio of single-phase UPS features key tangible benefits to end users that make the difference in an extremely competitive market environment. PowerValue RT G2 UL systems respond to the latest and most stringent international safety, environmental and cyber security standards; best-in-class quality and reliability are guaranteed.

Simple to install and maintain, and inexpensive to run, its compact, online UPS footprint provides stable, regulated, transient-free, pure sine wave AC power with extremely tight output voltage regulation.

PowerValue UL UPS

1-10 kVA



Flexible offering
Range of accessories



Easy battery replacement
Change your battery quickly



High altitude performance
Up to 4000 m (13,123 feet) operation



**Output pf up to 1 (1-8 kVA)
and 0.9 (10 kVA) = kW**



Rotating LCD
As easy as pressing a button



ABB PowerValue UL online UPS

Product highlights



	PowerValue 11 RT G2 UL 1 - 3 kVA	PowerValue RT G2 UL 5 - 10 kVA
Classification	UL 1778 5th / CSA-C22.2 No. 107.3, IEC/ EN 62040-3	UL 1778 5th / CSA-C22.2 No. 107.3, IEC/ EN 62040-3
Working mode	On-line double conversion	On-line double conversion
Output power factor	Up to 1.0	Up to 1.0
Efficiency double conversion	Up to 90%	Up to 91%
Efficiency in ECO-MODE	Up to 96%	Up to 97%
Maximum weight	60lbs/27.5kgs	50lbs/22.5kgs
Input current distortion THDi	<5%	<4%
Input power factor (PF)	>0.99	>0.99
Communication cards	SNMP / ModBus / AS400 relay card	SNMP / ModBus / AS400 relay card
Mechanical configuration	Rack-Tower with electronically rotatable display by 90 degrees	Rack-Tower with electronically rotatable display by 90 degrees
Paralleling	Not available with 11 RT G2 UL	Up to 4 units
Extended battery	Up to 6 external battery modules (EBM)	Up to 4 external battery modules (EBM)



High reliability

- Reliable double conversion topology protects load from all input disturbances
 - Batteries can be added or replaced easily
 - Reduced recovery time from discharge
 - Redundant parallel operation available
- 5-10 kVA units - PowerValue RT G2 UL

Low cost of ownership

- Scalable runtime
- High operating efficiency, regardless of loading
- Reduced installation and upgrading costs
- Compact design

Flexible design

- Configurable in tower or rack-mount format
- Electronically rotatable display by 90 degrees
- UPS can be connected with parallel battery modules for extended runtime
- Full set of accessories and connectivity options

Efficient service concept

- Easy set up and maintenance (plug and play)
- User-friendly display



High
reliability



Low cost of
ownership



Flexible
design



Efficient
service concept



Compact
design



Tower and
rack convertible



Extended
battery



Increased
runtime

ABB PowerValue UL online UPS

Product Features

Frequency conversion

Operating as a frequency converter, PowerValue RT G2 UL converts the power supply frequency (50 Hz to/from 60Hz). It additionally protects the load from power disturbances and guarantees additional battery power in case of mains failure. The UPS employs trouble-free operation and installation with easy system wiring and selection of frequency conversion mode with the LCD display.

- Input frequency range:
 - 1-3 kVA: 45-66Hz
 - 5-10 kVA: 46-64Hz
- Output frequency: 50 or 60 Hz
- Output de-rating:
 - 1-3 kVA: 60%
 - 5-10 kVA: 80%

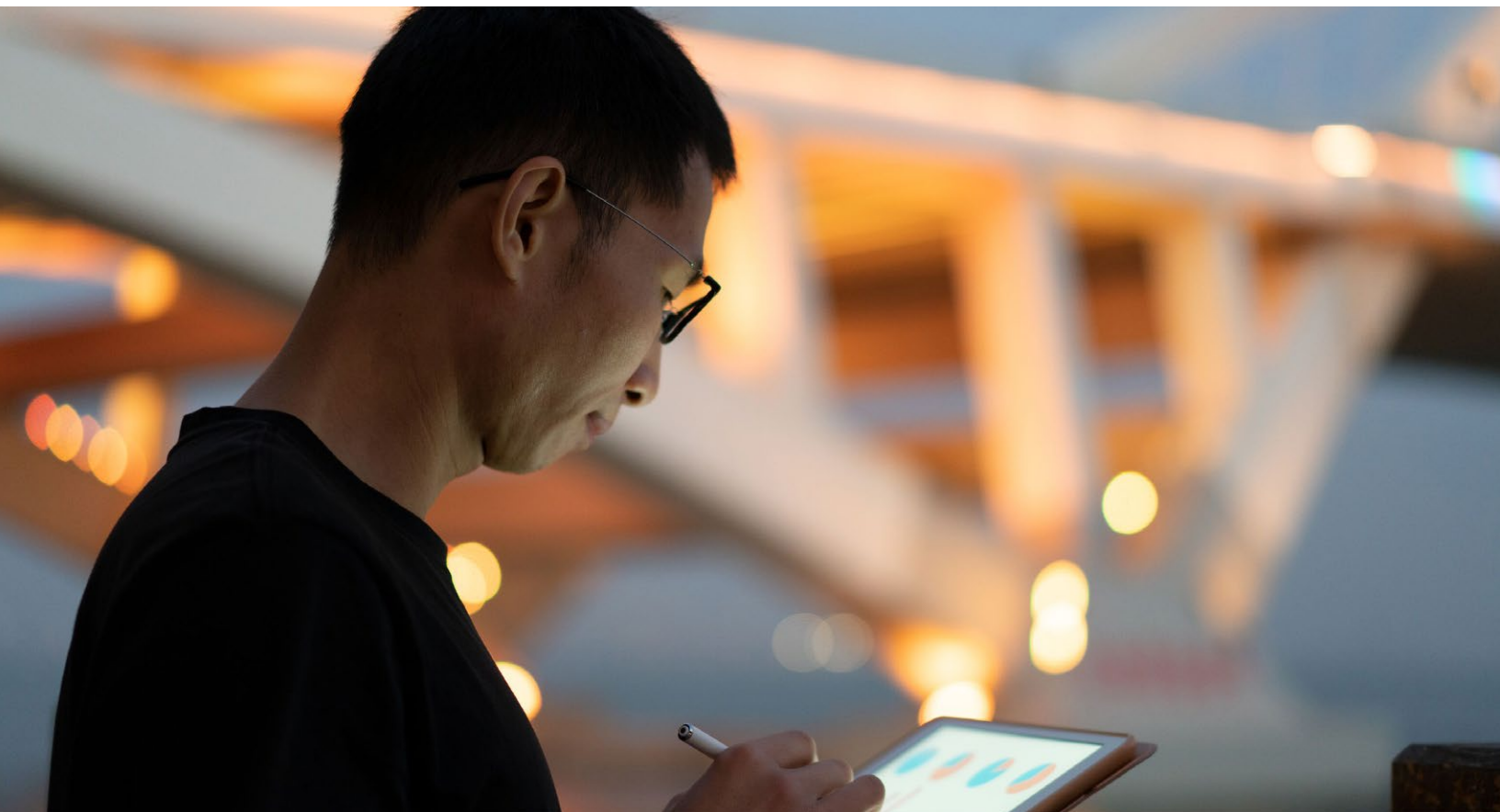
PowerValue RT G2 UL can be started without being connected to the mains power supply (start up from the batteries).

This feature is specially useful in the following situations:

- To start up and operate the unit even throughout a power outage.
- To help identify, during an unsuccessful system start-up, if the malfunction is on the power supply. Eg. If the UPS starts up on battery and does not transfer to online or bypass mode, it is most probable that there is a mains failure.

Automatic load start-up

After a power outage, the UPS transfers to battery. If the batteries are completely discharged and the system shuts down, with the automatic load start up feature, the UPS will restart automatically once the mains power is



recovered. The operator can enable, disable this function through the LCD panel according to the following options:

- UPS will charge the batteries and the inverter will start automatically
- UPS will charge the batteries and start immediately on bypass. In this case, the operator has to start the inverter manually.
- UPS will charge the batteries and no output power will be seen either on bypass or on inverter. In this case, the operator has to start the inverter manually.

Paralleling

The PowerValue RT G2 UL 5 - 10 kVA UPS can be installed in parallel to increase the total system power or to add redundancy to the system. The UPS is delivered with an in-built parallel board and paralleling cables. No additional hardware is required for this installation.

Emergency power off (EPO)

Activating the emergency power off control of the UPS, the AC and the DC sources to the load are entirely disconnected.

Operation: To recover the UPS's normal status, the EPO connector has to be set back to its original configuration (Normally closed through a jumper in the UPS rear panel). After this, the EPO status has to be cleared through the LCD menu and the UPS will recover its operation in bypass mode. To transfer the UPS to inverter mode, the selection has to be made through the LCD display.

Fan speed control

The speed of fans vary with the load level and with the ambient temperature to minimize the power consumption while keeping the UPS in a safe working temperature.



Wide input voltage and frequency range

With higher input tolerances, the UPS works longer on bypass or normal mode. This helps to reduce battery consumption when small voltage variations are experienced by the mains power system.

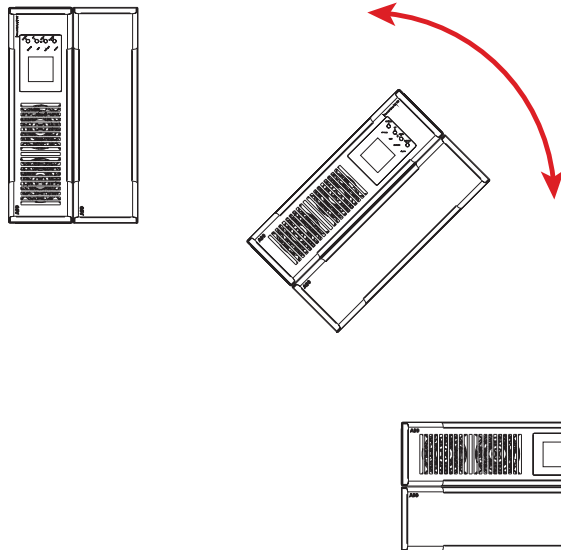
Generator compatibility

Generators are often used with UPS systems to provide emergency backup during extended utility power outages. The PowerValue RT G2 UPS acts as a bridge, maintaining uninterrupted power to critical loads until the generator can be started up and transferred online.

Design flexibility

PowerValue RT G2 UL is extremely compact and is designed to be positioned in a tower format or rackmounted. The display is electronically rotatable and therefore easy adjustable to your configuration needs.

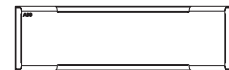
Rotatable display (90°)
1-10 kVA units



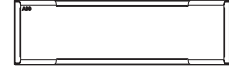
Increasing the runtime

Battery modules are available to increase the system runtime.

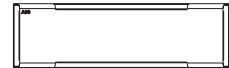
The DC cables that connect the battery modules to the UPS are provided with each module. Up to 4 battery modules can be attached to each UPS to increase system runtime. Note that when connecting battery modules to paralleled UPS systems (5-10kVA only), the battery modules should first be connected to each UPS before placing the UPS systems in parallel.



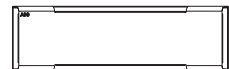
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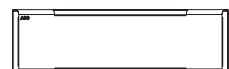


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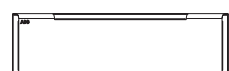


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Up to 4 battery modules can be added
5 - 10 kVA units



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Up to 6 battery modules can be added
1 - 3 kVA units

ABB PowerValue UL online UPS

Options and connectivity

Rack mounting kits

Rail kits are included with 5-10 kVA models, and optional with 1-3 kVA models. Kits ensure easy installation of the UPS and external battery modules to a standard 19" rack.

Network interface cards

They enable real-time monitoring of your UPS system via a standard web browser or by using the included monitoring software. ABB's monitoring devices provide real-time visibility of the condition of your power equipment and help in solving problems before they become critical.

Supported models

- SNMP adapter (for 1-10 kVA)
- WebPro ModBus (for 1 -10 kVA)
- Environmental Monitoring Probe (for 1-3 kVA)

Third party adapters can be installed as well (for 1-3 kVA)

- CS141 slot / box Basic
- CS141 slot / box Advanced
- CS141 slot / box ModBus

Sensors

Temperature sensors, humidity sensors and alarm buzzers support monitoring of the environmental condition and enable an efficient alarm identification.

Relay interface card

Provides contact closures for remote monitoring of alarm conditions of PowerValue RT G2 UL systems. The card is user-installable, hot-swappable and enables advanced communication between the UPS and the computer.

Models

- AS400

External maintenance bypass switch (EMBS)

It provides maintenance bypass capability and serves as an output Power Distribution Unit. It allows service continuity during UPS maintenance or upgrade with no load interruptions. EMBS capability is offered only on 5-10 kVA models.



**Monitoring software**

It is an advanced UPS management software suite to allow remote control and monitoring of UPS equipped with network interface cards in a LAN or Internet environment. It can manage single or multiple units and prevent data loss from power outage by programming a safe system shutdown.

The software is included with the SNMP adapter.

**Isolation Transformer (ISO TX)**

To complement your PowerValue RT G2 UL UPS an isolation transformer is offered as an optional system feature. The ISO TX transforms the output voltage of the UPS to different voltage options and provides a galvanic isolation between the output and load of the UPS. Additionally, isolation of the UPS from the load source can prevent risks of electrical shock while testing and performing maintenance to the system.



ABB PowerValue RT G UL

Battery autonomy

PowerValue 11 RT G2 UL

Battery characteristics	1 kVA	1.5 kVA	2 kVA	3 kVA
Technology	VRLA, vented lead-acid	VRLA, vented lead-acid	VRLA, vented lead-acid	VRLA, vented lead-acid
Number of 12 V blocks (fixed)	3	4	6	6
Battery charger max. current capability	6A	6A	6A	6A
Battery charger max. power charger capability	246 W	328 W	493 W	493 W
Floating voltage (VRLA)	2.28 VDC/cell	2.28 VDC/cell	2.28 VDC/cell	2.28 VDC/cell
End of discharge voltage (VRLA)	Load dependent, 1.67 VDC/cell@100% Load			
Temperature compensation	Yes	Yes	Yes	Yes
Battery test	Automatic and periodic battery test (selectable)	Automatic and periodic battery test (selectable)	Automatic and periodic battery test (selectable)	Automatic and periodic battery test (selectable)

Battery autonomy

Power	UPS internal batteries	UPS +1 batt module	UPS + 2 batt module	UPS + 3 batt module	UPS + 4 batt module	UPS + 5 batt module	UPS + 6 batt module
1 kVA	6/10/18/43	31/45/76/164	61/87/140/288	92/129/205/413	124/172/270/539	147/209/345/758	175/251/417/936
1.5 kVA	5/8/15/37	26/40/66/143	51/76/122/254	79/114/179/365	106/153/237/476	129/182/299/643	160/224/377/839
2 kVA	6/10/18/46	31/46/77/171	61/88/142/301	93/131/207/431	125/174/273/561	147/209/350/784	175/251/421/958
3 kVA	3/5/10/27	17/27/47/108	36/53/89/194	55/81/133/281	76/109/177/368	92/133/217/462	113/164/262/551

PowerValue RT G2 UL

Battery characteristics	5 kVA	6 kVA	8 kVA	10 kVA
Technology	VRLA, vented lead-acid	VRLA, vented lead-acid	VRLA, vented lead-acid	VRLA, vented lead-acid
Number of 12 V blocks (fixed)	20/10AH	20/10AH	20/10AH	20/10AH
Battery system voltage	±120V	±120V	±120V	±120V
Battery charger max. current capability	8A	8A	8A	8A
Battery charger max. power charger capability	+/-1128 W	+/-1128 W	+/-1128 W	+/-1128 W
Floating voltage (VRLA)	2.28 VDC/cell	2.28 VDC/cell	2.28 VDC/cell	2.28 VDC/cell
End of discharge voltage (VRLA)	Load dependent, 1.6 VDC/cell@100% Load	Load dependent, 1.6 VDC/cell@100% Load	Load dependent, 1.6 VDC/cell@100% Load	Load dependent, 1.6 VDC/cell@100% Load
Temperature compensation	No	No	No	No
Battery test	Automatic and periodic battery test (selectable)	Automatic and periodic battery test (selectable)	Automatic and periodic battery test (selectable)	Automatic and periodic battery test (selectable)

Battery autonomy

Power	UPS +1 batt module	UPS + 2 batt module	UPS + 3 batt module	UPS + 4 batt module
5kVA	14/20/35/78	35/51/78/169	56/78/132/277	78/114/169/404
6kVA	11/16/27/61	27/42/61/147	48/61/103/221	61/86/147/311
8kVA	7/11/19/48	19/27/48/103	31/48/73/161	48/61/103/221
10kVA	6/9/16/42	16/24/42/86	27/42/61/147	42/56/86/180

Battery autonomy in minutes at 100 / 75 / 50 / 25% load

Given runtimes are estimates and valid at 20 degrees Celsius. Actual runtime of the system will depend, among many variables, on the age of the batteries and environmental conditions.

PowerValue 11 RT G2 UL

Technical specifications

General Data	1 kVA	1.5 kVA	2 kVA	3 kVA
Output rated power	1 kW	1.45 kW	1.93 kW	2.88 kW
Topology	Online double conversion			
Parallel configuration	No	No	No	No
Inbuilt batteries	Yes	Yes	Yes	Yes
Input				
Nominal input voltage	100 / 110 / 115 / 120 / 125 VAC			
Acceptance voltage	50-150VAC (de-rating to 60% @60V)			
Input current thdi	< 5 % with full resistive load			
Frequency range	45 Hz – 55 Hz for 50 Hz systems; 54 Hz – 66 Hz for 60 Hz systems			
Power factor	≥0.99 @ 100% load			
Output				
Rated output voltage	100 / 110 / 115 / 120 / 125 VAC			
Voltage tolerance	± 1%			
Voltage distortion	< 2%			
Overload capacity (linear load) on inverter	1.5 s: 140% load; 30 s: 130% load; 300 s: 110% load (line mode) 1.5 s: 140% load; 10 s: 130% load; 120 s: 110% load (battery mode)			
Nominal frequency	50 or 60 Hz			
Crest factor	3:1 (load supported)			
Efficiency				
Overall system efficiency	Up to 90%			
In eco-mode	Up to 96%			
Environment				
Protection rating	IP20			
Storage temperature range	UPS: – 4°F to +122°F (-20°C to +50°C); 32°F to 95°F (0°C to 35°C)			
Operating temperture range	32°F to 104°F (0°C to 40°C)			
Relative humidity	0% to 95%			
Altitude (above sea level)	1000 m without derating			
Batteries				
Type	VRLA (value regulated lead-acid)			
Internal batteries	1x3 x 9Ah	1x4 x 9Ah	1x6 x 9Ah	1x6 x 9Ah
Charging current	1/2 (default)/4/6A			
Battery autonomy				
UPS internal batteries	6/10/18/43	5/8/15/37	6/10/18/46	3/5/10/27
UPS + 1 battery module	31/45/76/164	26/40/66/143	31/46/77/171	17/27/47/108
UPS + 2 battery module	61/87/140/288	51/76/122/254	61/88/142/301	36/53/89/194
UPS + 3 battery module	92/129/205/413	79/114/179/365	93/131/207/431	55/81/133/281
UPS + 4 battery module	124/172/270/539	106/153/237/476	125/174/273/561	76/109/177/368
UPS + 5 battery module	147/209/345/758	129/182/299/643	147/209/350/784	92/133/217/462
UPS + 6 battery module	175/251/417/936	160/224/377/839	175/251/421/958	113/164/262/551
Battery autonomy in minutes at 100/ 75/ 50 /25% load. Given runtimes are estimates and valid in 20 degrees Celsius. Actual runtime of the system will depend, among many variables, on the age of the batteries and environmental conditions.				
Communications				
User interface	LCD			
Communications cards	SNMP; Modbus; AS400; environmental monitoring sensors			
Standards				
Safety	UL 1778 5th / CSA-C22.2 No. 107.2			
EMC	FCC part 15 class A			
Performance	IEC/EN 62040-3			
Manufacturing	ISO 9001:2015; ISO 14001:2015; OHSAS 18001			
Weight, dimensions				
Weight (w/o batteries)	31.7 lbs / 14.4 kg	43 lbs / 19.5 kg	49.6 lbs / 22.5 kg	60.6 lbs / 27.5 kg
Dimensions w x h x d	17.2" x 3.4" x 16.1"	17.2" x 3.4" x 20"	17.2" x 3.4" x 24.8"	17.2" x 3.4" x 24.8"
	438 x 88 x 410 mm	438 x 88 x 510 mm	438 x 88 x 630 mm	438 x 88 x 630 mm

Reference Technical Datasheet for additional specifications

PowerValue RT G2 UL

Technical specifications

General Data		5 kVA	6 kVA	8 kVA	10 kVA
Output rated power		5 kW	6 kW	8 kW	9 kW
Topology		Online double conversion			
Parallel configuration		Up to four units - 40 kVA			
External Maintenance Bypass switch		Optional			
Battery		Not included in UPS - units allow up to four external battery modules (EBMs)			
Input					
Nominal input voltage		120/208, 120/240, 100/200, 110/220, 115/230, 127/220 VAC			
Acceptance voltage		88-155VAC (L-N)/	88-155VAC (L-N)/	88-155VAC (L-N)/	88-155VAC (L-N)/
		152-269VAC (L-L)	152-269VAC (L-L)	152-269VAC (L-L)	152-269VAC (L-L)
Input current thdi		< 4 % @ 100% R Load			
Frequency range		46 Hz – 54 Hz for 50 Hz systems; 56 Hz – 64 Hz for 60 Hz systems			
Power factor		≥0.99 @ 100% load			
Output					
Rated output voltage		100/200(derating 90%), 120/208(default), 120/240, 110/220, 115/230, 127/220 VAC			
Voltage tolerance		± 1%			
Voltage distortion		< 2%			
Overload capacity (linear load) on inverter		200ms: > 150% load; 10s: 130-150% load; 5min: 110-130% load; 30min: 100-110% load (Line Mode) 200ms: > 150% load; 10s: 130-150% load; 30s: 110-130% load; 3min: 100-110% load (Battery Mode)			
Nominal frequency		50 or 60 Hz			
Crest factor		3:1 (load supported)			
Efficiency					
Overall system efficiency		Up to 91%			
In eco-mode		Up to 97%			
Environment					
Protective rating		IP20			
Storage temperature range		-15°C – +60°C/5°F-140°F			
Operative tempertive range		0°C – +40°C/32°F-104°F			
Storage (models with batteries)		0°C – +35°C/32°F-104°F			
Relative humidity		≤ 95% (non-condensing)			
Max altitude without de-rating		1000m/3281 ft. without de-rating, up to 4000m/13,123 ft., 1% de-rating every 100m/328 ft.			
Communications					
User interface		LCD			
Communications cards		SNMP; Modbus; AS400; environmental monitoring sensors			
Standards					
Safety		UL 1778 5th / CSA-C22.2 No. 107.2			
EMC		FCC part 15 class A			
Performance		IEC/EN 62040-3			
Manufacturing		ISO 9001:2015; ISO 14001:2015; OHSAS 18001			
Weight, dimensions					
Weight (w/o batteries)		47 lbs / 21 kg	47 lbs / 21 kg	50 lbs / 22.5 kg	50 lbs / 22.5 kg
Dimensions w x h x d		25" x 5.25" x 17.3" 635 x 131 x 438 mm	25" x 5.25" x 17.3" 635 x 131 x 438 mm	25" x 5.25" x 17.3" 635 x 131 x 438 mm	25" x 5.25" x 17.3" 635 x 131 x 438 mm

Reference Technical Datasheet for additional specifications



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