ИБП ABB Powervalue 11 RT (1-10 кВА) - технические спецификации. Юниджет

Постоянная ссылка на страницу: https://www.uni-jet.com/catalog/ibp/on-line-ibp/abb-powervalue-11-rt/

Technical Datasheet

PowerValue 11 RT
1-10 kVA

Classification IEC/EN 62040-3
VFI-SS-111

Working mode
on-line double conversion

Module power rating
1-10 kVA

Paralleling
up to 2 units (6-10 kVA)

Output power factor
0.9

Efficiency double conversion
up to 94%

Efficiency in ECO-MODE
up to 97%

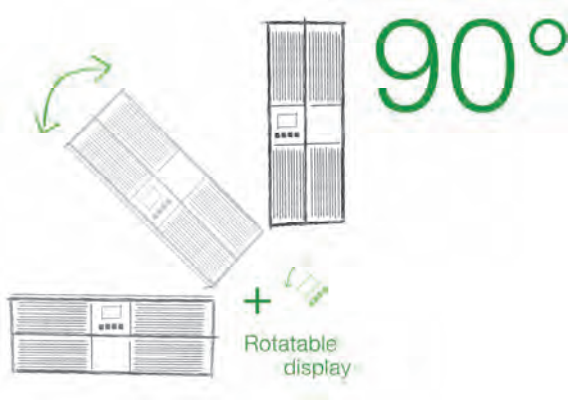
Maximum weight w/out batteries
28.1 kg

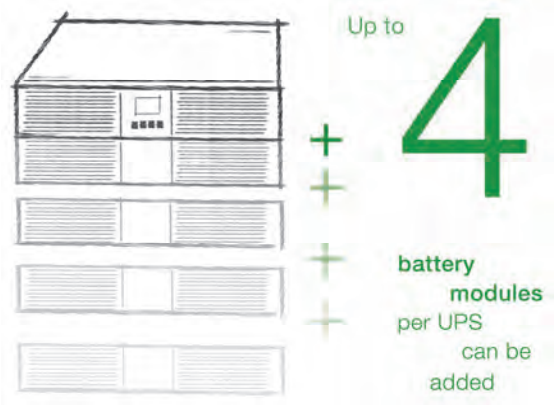
Input current distortion THDi
<5 %

Input power factor (PF)
0.99

Communication cards
SNMP / relay card

Mechanical configuration
Rack-Tower with rotatable display





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UPS features

Frequency conversion

Operating as a frequency converter, PowerValue 11 RT not only converts the power supply frequency (50 Hz to/from 60Hz), but it also protects the load from power disturbances and guarantees additional battery power in case of mains failure.
The operation and installation is simple and implies in correctly wiring the UPS and in selecting the frequency conversion mode in the LCD display.

- Input frequency range: 40-70Hz
- Output frequency: 50 or 60 Hz
- Output de-rating:
  PowerValue 11 RT 1-3kVA: 70%
  PowerValue 11 RT 6-10kVA: 80%

Cold start

PowerValue 11 RT 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 or configure this function through the LCD panel according to the following options:

- UPS will charge the batteries and the inverter will start automatically (default)
- 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.

Emergency power off (EPO)

Activating the emergency power off control of the UPS, the AC and the DC sources to the load are entirelly 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 by-pass-mode. To transfer the UPS to nverter-mode, the selection has to be made through the LCD display.

Fan speed control

The speed of PowerValue 11 RT 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 reducing the consumption of the batteries when there are small variations in the power supply.

Generator compatibility

Generators power are often routed through the UPS to supply power to the load during long power outages. The UPS acts as a power link that keeps critical systems operational until the generator synchronises with the UPS and picks up the load. With PowerValue 11 RT, the power of the generator should be dimensioned 1.3 times the UPS rated power.

Paralleling

PowerValue 11 RT 6 and 10 kVA UPSs can be installed in parallel to increase the total system power or to add redundancy to the system.
The UPSs are delivered with an in-built parallel board and paralleling cables. No additional hardware is required for this installation.

Design flexibility

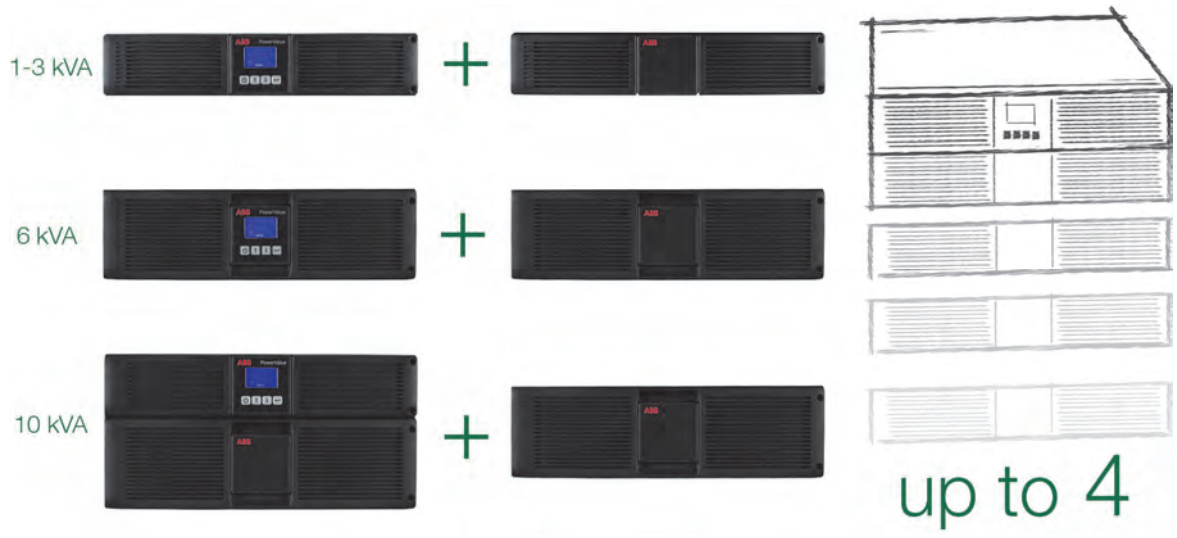
PowerValue 11 RT is extremely compact and is designed to be positioned in a tower format or rack-mounted. The display is rotatable and therefore easy adjustable to your configuration needs.

Increasing the runtime

Battery modules are available to increase the system runtime.
The cables for connecting the battery modules to the UPS are integrated to the units and these can be easily pluged together to increase the system's runtime. To connect several battery modules to a group of UPSs in parallel, the battery modules should be firstly connected to each UPS.
Only after this procedure is done, the UPSs should be connected in parallel.
Long backup models are available in the range 1-3 kVA with 6A battery charger integrated in the UPS (no internal batteries).

Batteries

PowerValue can be configured with matching battery modules to satisfy extended runtime demands. Easily replaceable batteries increase availability and reduce Mean Time to Repair (MTTR).



UPS battery type

POWER (kVA)	Internal batteries	Charging current
1 kVA B	1 x 3 x 7.2Ah	1.5 A
1 kVA S	-	6 A
2 kVA B	1 x 4 x 9Ah	1.5 A
2 kVA S	-	6 A
3 kVA B	1 x 6 x 9Ah	1.5 A
3 kVA S	-	6 A
6 kVA	-	8 A
10 kVA	-	8 A

External battery type module

POWER (kVA)	Battery
1 kVA B	(2 x 3) x 7.2Ah
1 kVA S	(2 x 3) x 7.2Ah
2 kVA B	(2 x 4) x 7.2Ah
2 kVA S	(2 x 4) x 7.2Ah
3 kVA B	(2 x 6) x 7.2Ah
3 kVA S	(2 x 6) x 7.2Ah
6 kVA	(1 x 15) x 9Ah
10 kVA	(1 x 20) x 9Ah

Battery autonomy

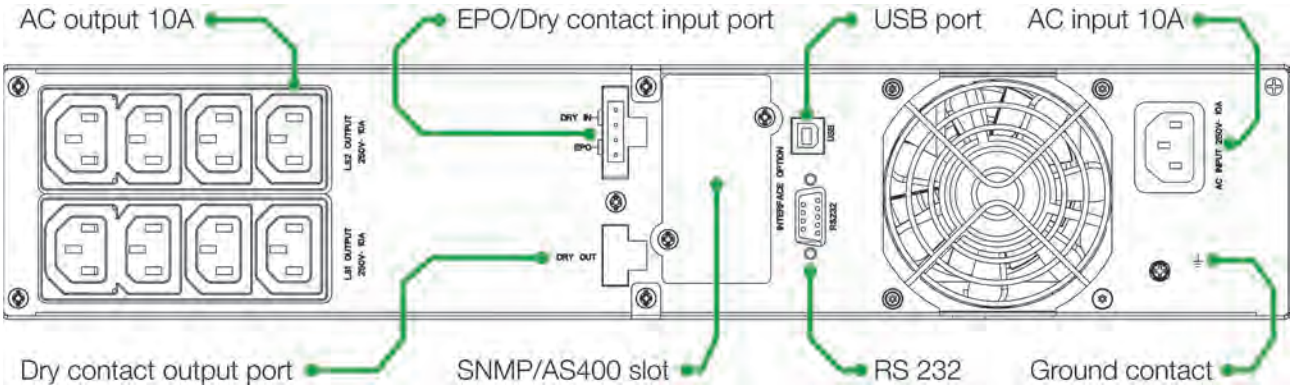
POWER	UPS internal batteries	UPS + 1 batt module	UPS + 2 batt module	UPS + 3 batt module	UPS + 4 batt module
1 kVA B	<4 / 4 / 8 / 20	16 / 24 / 40 / 85	32 / 48 / 76 / 170	52 / 71 / 119 / >180	68 / 97 / 166 / >180
1 kVA S	-	6 / 11 / 22 / 62	22 / 34 / 62 / 160	40 / 62 / 112 / >180	62 / 99 / 160 / >180
2 kVA B	4 / 6 / 11 / 23	12 / 18 / 29 / 66	22 / 31 / 54 / 115	32 / 49 / 78 / 174	45 / 63 / 105 / >180
2 kVA S	-	<5 / <5 / 11 / 34	11 / 17 / 34 / 99	22 / 34 / 62 / 160	34 / 53 / 99 / >180
3 kVA B	4 / 6 / 11 / 24	13 / 19 / 31 / 69	23 / 33 / 56 / 120	35 / 51 / 82 / >180	49 / 67 / 111 / >180
3 kVA S	-	<5 / 5 / 10 / 34	10 / 17 / 34 / 69	21 / 34 / 61 / 160	33 / 53 / 98 / >180
6 kVA	-	6 / 9 / 16 / 35	16 / 22 / 36 / 82	26 / 36 / 59 / 119	36 / 51 / 84 / 167
10 kVA	-	5 / 7 / 13 / 28	13 / 18 / 29 / 67	20 / 29 / 47 / 103	29 / 41 / 68 / 138

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

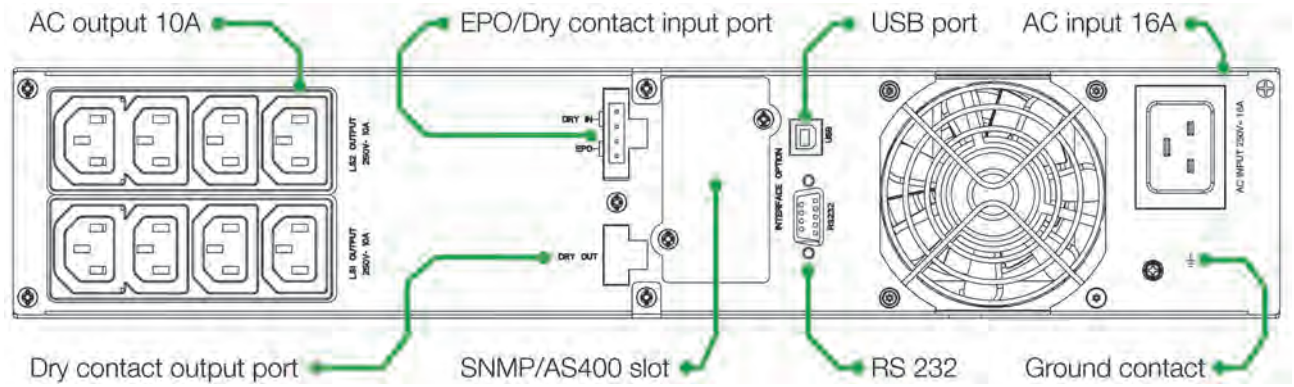
Given runtimes are estimates and valid at 20 degrees Celsius.
Actual runtime of the system will depend, among many variables, on the age of the batteries and environmental conditions

Rear view

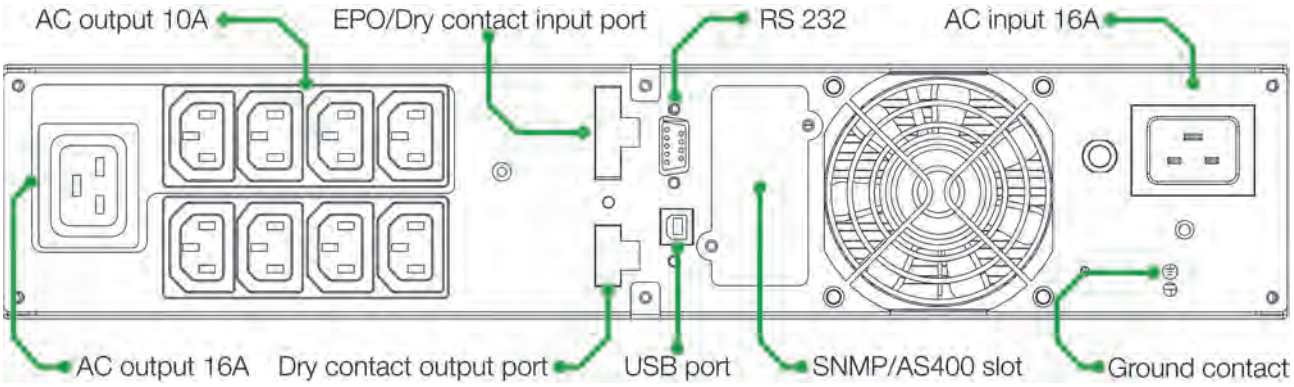
1 kVA B, 1 kVA S, 2 kVA B



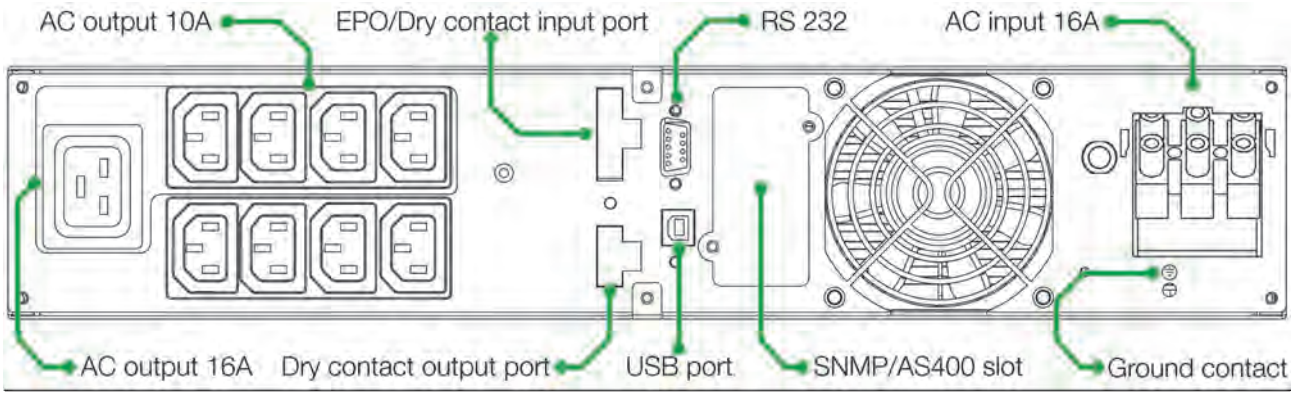
2 kVA S



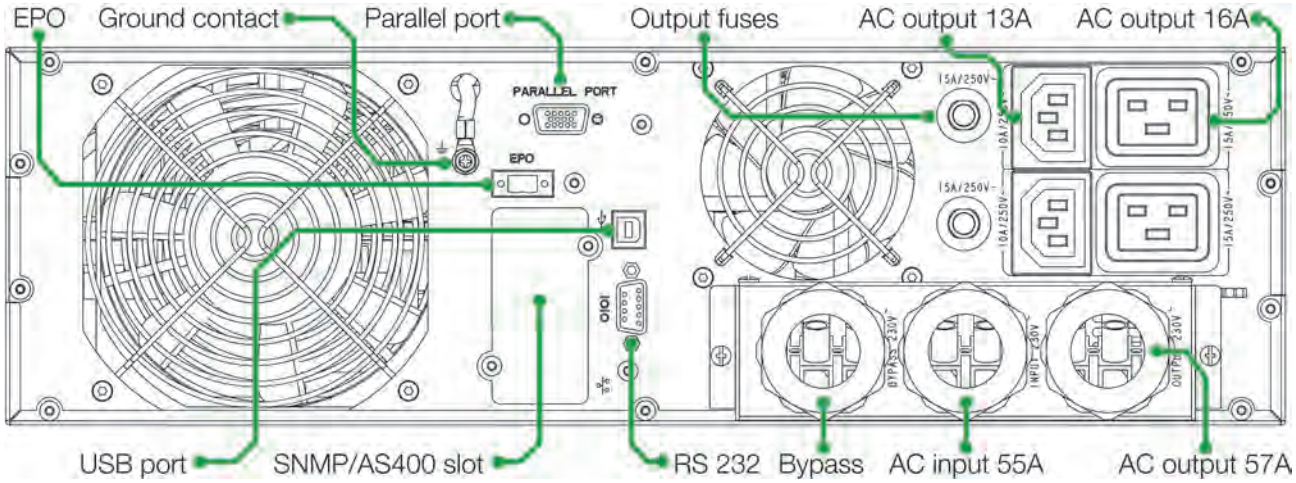
3 kVA B



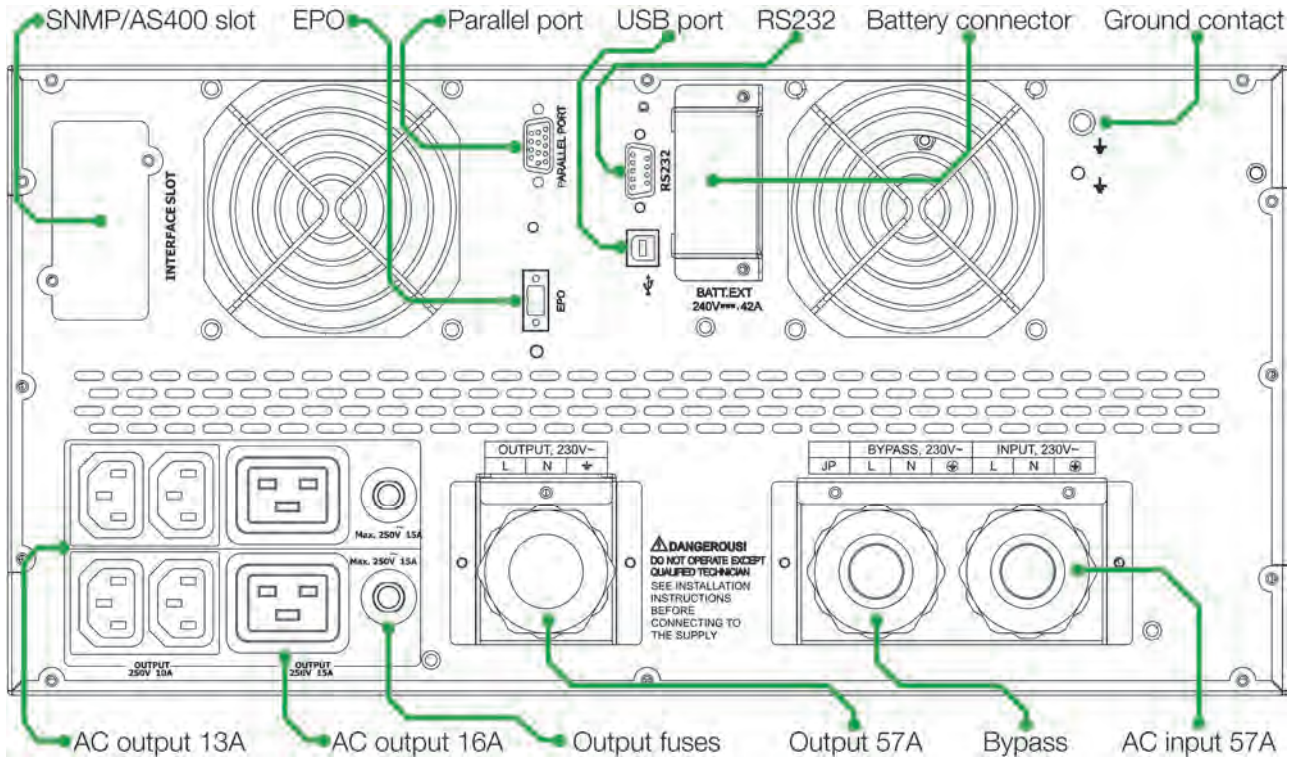
3 kVA S



6 kVA


EPO
Ground contact
Parallel port
Output fuses
AC output 13A
AC output 16A
PARALLEL PORT
EPO
USB port
SNMP/AS400 slot
RS 232
Bypass
AC input 55A
AC output 57A

10 kVA


SNMP/AS400 slot
EPO
Parallel port
USB port
RS232
Battery connector
Ground contact
INTERFACE SLOT
PARALLEL PORT
RS232
EPO
BATT.EXT
OUTPUT, 230V~
BYPASS, 230V~
INPUT, 230V~
DANGEROUS!
DO NOT OPERATE EXCEPT QUALIFIED TECHNICIAN
SEE INSTALLATION INSTRUCTIONS BEFORE CONNECTING TO THE SUPPLY
AC output 13A
AC output 16A
Output fuses
Output 57A
Bypass
AC input 57A

Connectors / Sockets

	Output socket				Input socket				Battery socket			
	Qty	Type	Current	Drawing	Qty	Type	Current	Drawing	Qty	Type	Current	Drawing
1 kVA B 1 kVA S	8	IEC-320C13	10 A		1	IEC-320C14	10 A		1	PP45	45 A	
2 kVA B	8	IEC-320C13	10 A		1	IEC-320C14	10 A		1	PP45	45 A	
2 kVA S	8	IEC-320C13	10 A		1	IEC-320C20	16 A		1	PP45	45 A	
3 kVA B	8 1	IEC-320C13 IEC-320C19	10 A 16 A		1	IEC-320C20	16 A		1	PP45	45 A	
3 kVA S	8 1	IEC-320C13 IEC-320C19	10 A 16 A		1	Terminals Cable gland	20 A		1	PP45	45 A	
6 kVA	2 2 1	IEC-320C13 IEC-320C19 Terminals Cable gland	13 A 16 A 57 A		1	Terminals Cable gland	55 A		1	PP45	45 A	
10 kVA	4 2 1	IEC-320C13 IEC-320C19 Terminals Cable gland	13 A 16 A 57 A		1	Terminals Cable gland	57 A		1	PP45	45 A	

Options

Rack mounting kit

Rack rails, screws and metallic plates for easy installation of the UPS to a standard 19’ rack.

Network interface card

Enables real-time monitoring of your UPS system via a standard web browser.
ABB’s monitoring devices provide real-time visibility of the condition of your power equipment and help in solving problems before they become critical.

Models

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

Sensors

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

Relay interface card

Provides contact closures for remote monitoring of alarm conditions of PowerValue 11 RT systems.
The card is user-installable, hot-swappable and enables advanced communication between the UPS and the computer

Models

- AS400

Maintenance bypass PDU 16 A (for PowerValue 11 RT 1-3 kVA only)

It provides maintenance bypass capability plus serves as an output Power Distribution Unit; it allows service continuity during UPS maintenance or upgrade with no load interruptions.

Technical specifications

GENERAL DATA	1 kVA (B/S)	2 kVA (B/S)	3 kVA (B/S)	6 kVA	10 kVA
Photograph (front view with open doors)					
Apparent power	1 kVA	2 kVA	3 kVA	6 kVA	10 kVA
Active power	0.9 kW	1.8 kW	2.7 kW	5.4 kW	9 kW
UPS type	On-line, transformer-free				
Parallel capability	Up to 2 frames (6-10 kVA)				
Battery	Included (1-3kVA B) / not included (1-3kVA S; 6-10kVA)				
Performance classification	VFI-SS-111				
MECHANICAL					
Dimensions (width×height×depth) [mm]	438x86.5x436		438x86.5x608	438x129x594	438x215x594
Weight (with batteries)	16.2 kg (B) 8.4 kg (S)	19.7 kg (B) 9.3 kg (S)	28.6 kg (B) 13.0 kg (S)	20.1 kg	28.1 kg
ACOUSTIC NOISE (acc. To IEC 62040-3)					
in normal mode (at <=25°C) at 100 / 50 % Load	<45 dBA	<50 dBA	<50 dBA	<55 dBA	<55 dBA
in battery mode (at <=25°C) at 100 / 50 % Load	<45 dBA	<50 dBA	<50 dBA	<55 dBA	<55 dBA
SAFETY					
Access	Operator				
Degree of protection against hazards and water ingress: IP 20					
ELECTROMAGNETIC COMPATIBILITY					
Compliant to IEC 62040-2					
Category Emission / Immunity	C1 (1-3kVA); C3(6-10KVA)				
ENVIRONMENTAL					
Storage temperature range	-15°C – +60°C				
Operative temperature range	0°C – +40°C				
Storage (models with batteries)	0°C – +35°C				
Relative humidity	≤ 95% (non-condensing)				
Max. altitude without de-rating	1000m (above 1000m, 1% de-rating every 100m according to IEC/EN 62040-3)				
ADDITIONAL AND USUAL INFORMATION					
Input connection	3 wires, 1 phase + N + PE				
Output connection	3 wires, 1 phase + N + PE				
Cable entry	Rear				
Battery cable entry	Front (1-6kVA) / rear (10kVA)				
Accessibility	Front only				
Air outlet	Back				
OPTIONS					
Battery cabinets					
SNMP cards					
Relay card with potential-free contacts (customer outputs)					
Maintenance bypass PDU 16A (1-3kVA)					
Rack mounting kits (1-3kVA / 6-10kVA)					
INCLUDED (DEFAULT)					
Parallel Kit (parallel board pre-installed, parallel cable provided with each unit)					
Single or dual input feed capability (6-10kVA) – No additional hardware needed					
Sea freight packaging (carton box)					
Back-feed protection	Internal (1-3kVA); See manual for 6-10kVA				

INPUT CHARACTERISTICS	1 kVA (B/S)	2 kVA (B/S)	3 kVA (B/S)	6 kVA	10 kVA
Rated voltage (steady-state, r.m.s)	120-276 VAC (de-rating to 50% at 120V)				
Nominal voltage	208 VAC / 220 VAC / 230 VAC / 240 VAC				
Tolerance, referred to 230V	-23% / +20% at <100% load, -33% / +20% at <80% load, -43% / +20% at <60% load, -48% / +20% at <40% load				
Frequency, rated	50 Hz / 60 Hz (selectable)				
Frequency tolerance	45 Hz – 55 Hz (50 Hz system) / 54 Hz – 66 Hz (60 Hz system)				
Current (r.m.s), rated (with battery charged and input 230V)	4.5 A	9 A	13 A	26 A	45 A
Current (r.m.s), maximum (with charging batt. and input 230V)	5 A (B) 5.3 A (S)	9.5 A (B) 9.9 A (S)	14 A (B) 14.9 A (S)	33 A	52 A
Total harmonic distortion (THDi)	≤5% (IEC 61000-3-4)				
Power factor	0.99 @ 100% load				
Rated short-time withstand current (I_{cw})	3 kA for 1.5 cycles (1-3kVA) 6 kA for 1.5 cycles (6-10kVA)				
AC POWER DISTRIBUTION SYSTEM: TN-S AND TT					
Phases required	1				
Neutral required	Yes				
ADDITIONAL AND USUAL INFORMATION					
Connection	3 wires, 1 phase + N + PE				
Cable entry	Rear				
Walk In/Soft Start	Yes (Power supply needed only for first start-up)				

OUTPUT CHARACTERISTICS	1 kVA (B/S)	2 kVA (B/S)	3 kVA (B/S)	6 kVA	10 kVA
Rated power:	0.9 kW	1.8 kW	2.7 kW	5.4 kW	9 kW
AC POWER DISTRIBUTION SYSTEM: TN-S AND TT					
Available phases	1				
Neutral available	Yes				
Rated voltage (steady state, r.m.s.)	208 / 220 / 230 / 240 VAC (no de-rating)				
Variation in normal mode / battery mode	± 1%				
TOTAL HARMONIC DISTORTION (THDU), 100% LOAD, NORMAL MODE:					
Linear	< 2%				
Non-linear (acc. to IEC 62040-3)	< 5%				
TOTAL HARMONIC DISTORTION (THDU), 100% LOAD, BATTERY MODE:					
Linear	< 2%				
Non-linear (acc. to IEC 62040-3)	< 5%				
Voltage unbalance and phase displacement, 100% load unbalance	N/A				
VOLTAGE TRANSIENT AND RECOVERY TIME, 100% STEP LOAD:					
Linear	20 ms				
Non-linear (acc. to IEC 62040-3)	100 ms				
Transfer normal mode --> battery mode	0 ms				
Frequency (steady-state), rated	50 / 60 Hz (selectable)				
Variation in normal and battery mode	± 10%				

Variation in free-running	± 0.05 Hz				
Max synch phase error (referred to a 360° cycle)	≤3°				
Max slew-rate	1 Hz/s				
Nominal current (In), r.m.s. rated	4.5 A	9 A	13 A	26 A	45 A
Overload on inverter	0.1s @150% load; 1.5s @125% load; 12s @110% load (1-3kVA) 0.1s @150%load; 30s @125%load; 120s @110%load (6-10kVA)				
Fault clearing capability normal mode and battery mode (100ms)	1.5 x In	1.5 x In	1.5 x In	1.5 x In	1.5 x In
Crest factor (Load supported)	3 : 1				
Load power factor, rated	0.9				
Displacement (permissible lead-lag range)	0.5 lead – 0.5 lag				
AC / AC EFFICIENCY IN NORMAL MODE, LINEAR LOAD:					
100% load	88.3%	89.6%	92.5%	90.9%	93.0%
75% load	87.7%	88.2%	91.6%	93.0%	94.6%
50% load	84.6%	86.5%	90.6%	93.5%	94.5%
25% load	76.2%	80.6%	88.8%	93.3%	94.4%
Eco-mode efficiency, linear load	≥95%	≥95%	≥95%	≥97%	≥97%
BYPASS—AUTOMATIC: STATIC SWITCH					
Transfer time: inverter to by-pass / bypass to inverter / inverter to eco-mode / eco-mode à inv.	<4 ms / <4 ms / <4 ms / <10 ms				
Fault clearing capability (bypass mode) for 20 ms	26.6 x In[1)] (120A)	22.2 x In[1)] (200A)	15.3 x In[1)] (200A)	15.3 x In[1)] (400A)	13.3 x In[1)] (600A)
Overload on bypass mode	Continuously @ <130% load 1 minute @ 130-180% load Immediate @ >180% load				
Bypass - maintenance	Yes, standard				
Bypass protection fuse or circuit breaker rating	External fusing according to section *Cables and Fuses*				

BATTERY CHARACTERISTICS	1 kVA (B/S)	2 kVA (B/S)	3 kVA (B/S)	6 kVA	10 kVA
Technology	VRLA, vented lead-acid				
Number of 12 V blocks (fixed)	3 (B) - (S)	4 (B) - (S)	6 (B) - (S)	-	-
Battery charger max. current charger capability	1.5 A (B) 6A (S)	1.5 A (B) 6A (S)	1.5 A (B) 6A (S)	8 A	8 A
Battery charger max. power charger capability	60 W (B) 216 W (S)	75 W (B) 288 W (S)	125 W (B) 432 W (S)	1440 W	1920 W
Floating voltage (VRLA)	2.275 VDC/cell				
End of discharge voltage (VRLA)	Load dependent ~1.6 VDC/cell				
r.m.s. ripple current (% of the battery capacity)	±1%				
Temperature compensation	Yes				
Battery test	Automatic and periodic battery test (selectable)				

1) With recommended fuses, see section Cables and Fuses

USER INTERFACE – COMMUNICATION

STANDARD ITEMS

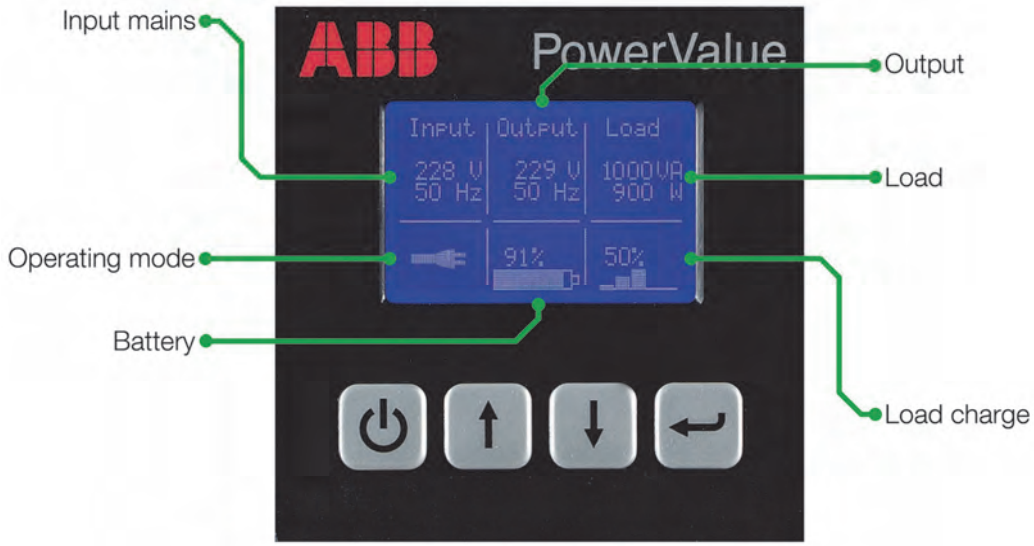
RS232 on Sub-D9 port	For service and for SNMP box
Input sockets	IEC 320 C13 (1-3kVA)
SNMP/AS400 slot	For integration of optional SNMP and relay card
Display	Dot matrix 128x64 LCD display

OPTIONAL ITEMS

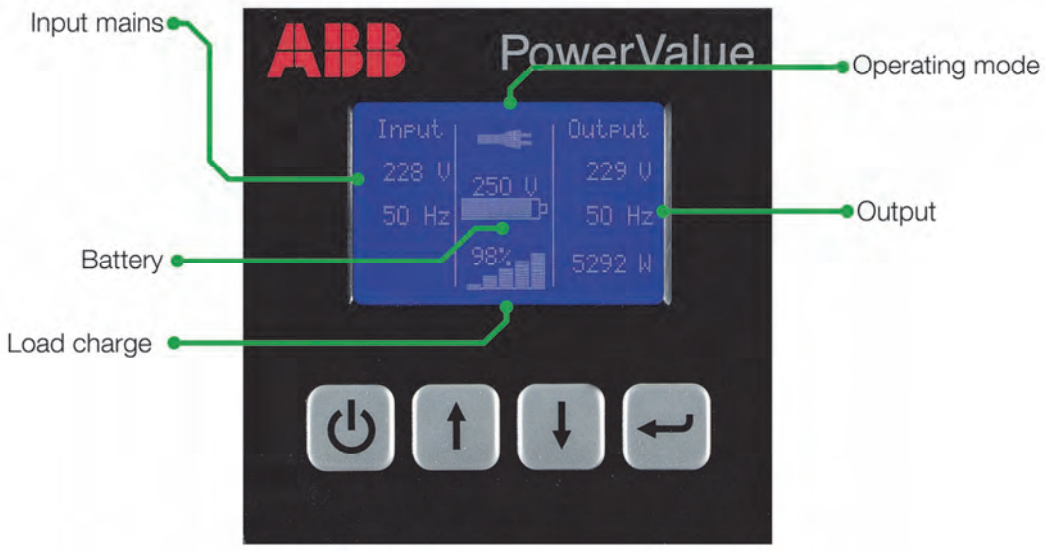
SNMP card	For monitoring and integration in network management
Relay card	For additional signal-monitoring and control

DISPLAY & MIMIC DIAGRAM

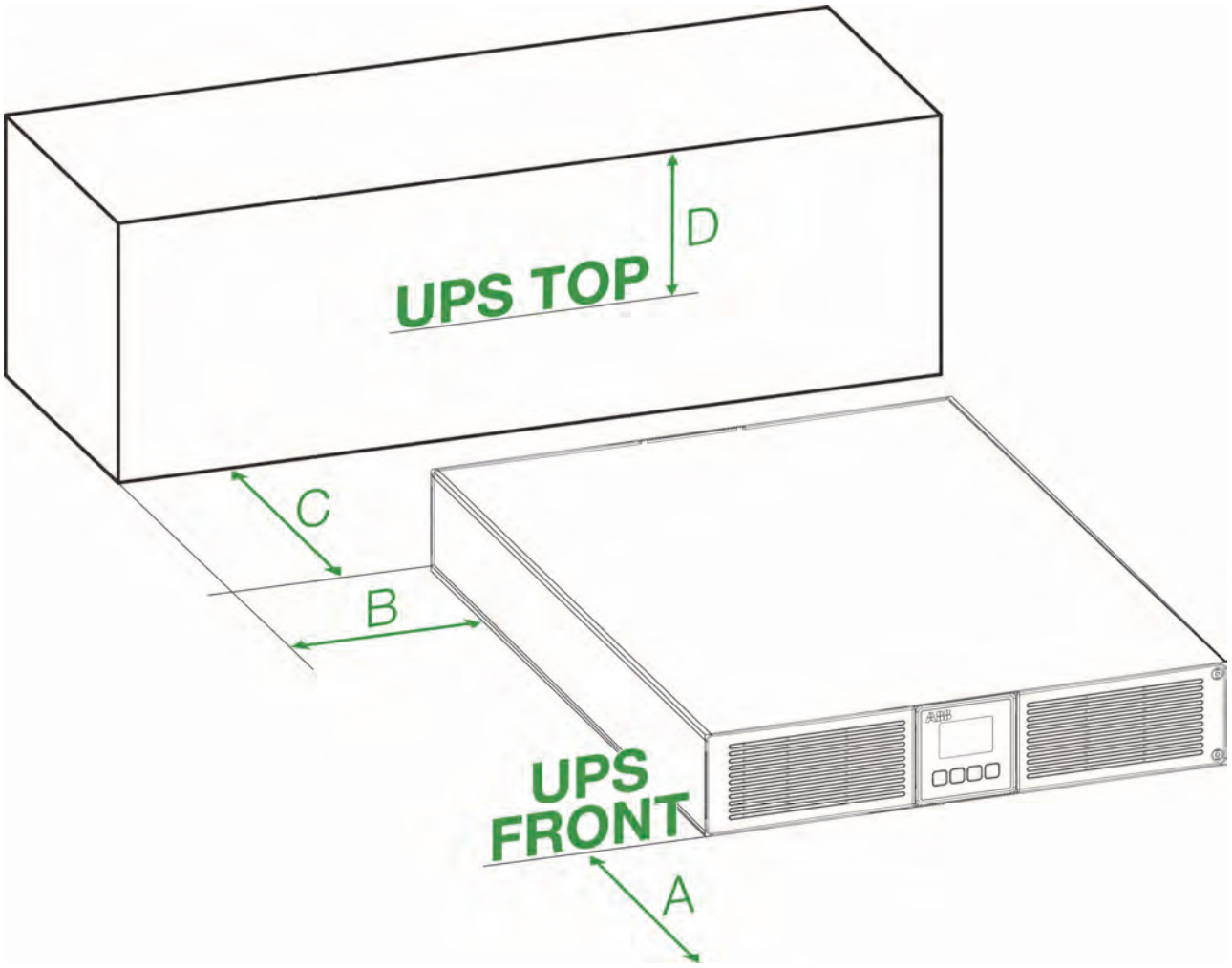
1-3 kVA



6-10 kVA



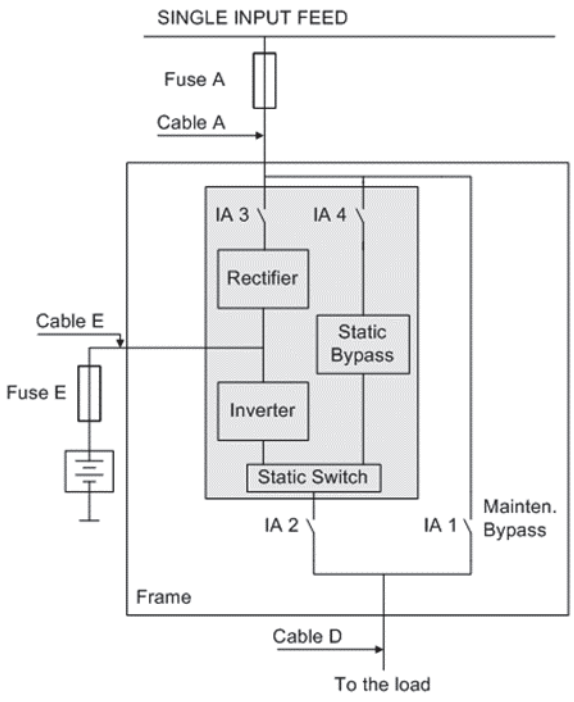
CLEARANCES	1 kVA (B/S)	2 kVA (B/S)	3 kVA (B/S)	6 kVA	10 kVA
MINIMUM CLEARANCES FOR SINGLE UPS					
A	25 cm	25 cm	25 cm	50 cm	50 cm
B	0 cm	0 cm	0 cm	0 cm	0 cm
C	25 cm	25 cm	25 cm	50 cm	50 cm
D	0 cm	0 cm	0 cm	0 cm	0 cm
MINIMUM CLEARANCES FOR UPS PLUS OTHER CABINETS IN ROW					
A	25 cm	25 cm	25 cm	50 cm	50 cm
B	0 cm	0 cm	0 cm	0 cm	0 cm
C	25 cm	25 cm	25 cm	50 cm	50 cm
D	0 cm	0 cm	0 cm	0 cm	0 cm

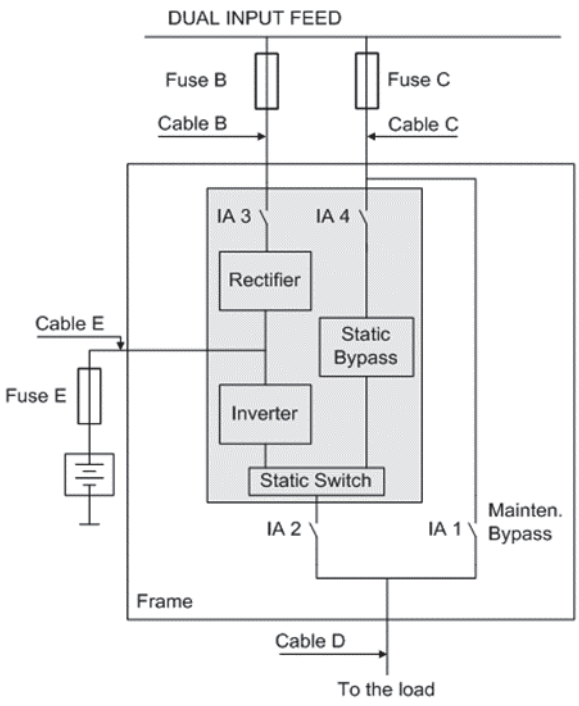


HEAT DISSIPATION	1 kVA (B/S)	2 kVA (B/S)	2 kVA (B/S)	6 kVA	10 kVA
Air-flow	From front to back				
Heat dissipation with 100% linear load	184.33 W	342.85 W	368.18 W	667.41 W	1000 W
Heat dissipation with 100% non-lin. load (acc. to 62040-3)	184.33 W	342.85 W	368.18 W	667.41 W	1000 W
Air-flow (25° - 30°) with 100% non-linear load	18.000 m^3/h	34.285 m^3/h	37.000 m^3/h	75.000 m^3/h	111.000 m^3/h
Heat Dissipation without load	48 W	54 W	50 W	73 W	98 W

CABLE & FUSE

Cable sections and fuse ratings recommended according to (IEC 60950-1)





RATINGS	1 kVA (B/S)	2 kVA (B/S)	3 kVA (B/S)	6 kVA	10 kVA
SINGLE INPUT FEED					
Input fuse A-Type: gL or CB	1 x 10 A	1 x 16 A	1 x 20 A	1 x 60 A	1 x 80 A
Input cable A	3 x 2.5 mm^2	3 x 2.5 mm^2	3 x 2.5 mm^2	3 x 10 mm^2	3 x 16 mm^2
Output cable D	3 x 2.5 mm^2	3 x 2.5 mm^2	3 x 2.5 mm^2	3 x 10 mm^2	3 x 16 mm^2
Battery fuse E-Type: gR or CB	2 x 32 A	2 x 50 A	2 x 50 A	2 x 60 A	2 x 80 A
Battery cable E	3 x 6 mm^2	3 x 10 mm^2	3 x 10 mm^2	3 x 10 mm^2	3 x 16 mm^2
DUAL INPUT FEED (STANDARD VERSION)					
Input fuse B-Type: gL or CB	-	-	-	1 x 60 A	1 x 80 A
Input Cable B	-	-	-	3 x 10 mm^2	3 x 16 mm^2
Input fuse C-Type: gR or CB	-	-	-	1 x 60 A	1 x 80 A
Input cable C	-	-	-	3 x 10 mm^2	3 x 16 mm^2
Output cable D	-	-	-	3 x 10 mm^2	3 x 16 mm^2
Battery fuse E-Type: gR or CB	-	-	-	2 x 60 A	2 x 80 A
Battery cable E	-	-	-	3 x 10 mm^2	3 x 16 mm^2

Contact us

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