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PowerValue™ 11 and 31

Technical Specifications

**1phase UPS System
On-line, double conversion VFI
7.5-20 kVA**

Specifications are subject to change without notice

CONTENTS

8.1	GENERAL DATA.....	3
8.2	RECTIFIER DATA	4
8.3	BATTERY DATA	4
8.4	INVERTER DATA.....	4
8.5	CONTROL PANEL DISPLAY (LED).....	5
8.6	OPTIONALS.....	5
8.7	ON REQUEST	5
8.8	MECHANICAL CHARACTERISTICS.....	6
8.9	BLOCK DIAGRAM POWERVALUE™	7

8.1 GENERAL DATA

Output Rated Power	kVA	7.5	10	12	15	20
Output Power Factor		0.7				
Topology		On-Line, Double Conversion, VFI, with static and maintenance bypass				
Technology		Third Generation, Transformerless				
Double Conversion AC-AC efficiency with batt.fully charged						
100%/75%/50%/25% Linear Load (cosp=0.8ind)	%	93.5/93.5/92/89	93.5/93.5/92/89	94/94/92.5/90	94/94/92.5/90	94.5/94.5/93/91
100%/75%/50%/25% Linear Load (Resistive cosp=1)	%	93/93/91.5/88.5	93/93/91.5/88.5	93.5/93.5/92/89.5	93.5/93.5/92/89.5	94/94/92/90
100%/75%/50%/25% Non-linear Load (IEC/EN 62040-1-1)	%	92/92/91/88	92/92/91/88	93/93/91.5/89	93/93/91.5/89	93/93/91/90
Eco-mode efficiency (load on by-pass) at 100% load	%	98	98	98	98	98
Output Short Capability (RMS)	A	Inverter : 2.0 x In during 250 ms Bypass : 10.0 x In during 10 ms				
Heat Dissipation With 100% Load (cosp=0.8ind)	W	380	500	550	700	800
Heat Dissipation With 100% Load (Resistive cosp=1)	W	400	550	600	750	960
Heat Dissipation With 100% Non-linear Load (IEC/EN 62040-1-1)	W	460	600	650	800	1120
Airflow (25° - 30°C) with Non-linear load (IEC/EN 62040-1-1)	m ³ /h	110	110	110	150	200
Audible Noise with 100%/50% Load	dBA	50/47	50/47	50/47	53/49	53/49
Ambient Temperature for UPS	°C	0 – 40				
Ambient Temperature for Batteries (recommended)	°C	20 – 25				
Storage Temperature of UPS	°C	-25 - +70				
Battery Storage Time at Ambient Temperature		Max. 6 months				
Cooling		Fan-assisted				
Relative Air-humidity		Max. 95% (non-condensing)				
Standards						
1. Safety		IEC/EN 62040-1-1, IEC/EN 60950-1				
2. Electromagnetic Compatibility		IEC/EN 61000-6-4 (product standard IEC/EN 62040-2 limit A (C2 UPS)) IEC/EN 61000-6-2 (product standard IEC/EN 62040-2 Criterion A (C2 UPS)) IEC/EN 61000-4-2, IEC/EN 61000-4-3, IEC/EN 61000-4-4, IEC/EN 61000-4-5, IEC/EN 61000-4-6				
3. Performance		IEC/EN 62040-3				
Transportation Palette		Provided with UPS				
Packaging		Cardboard (standard)				
Accessibility		Rear side access for Cabinet A, front side access for Cabinet B-C				
Positioning		Min. 10cm rear space (required for fan)				
Input and Output Power Cabling		From bottom rear (Cabinet A) and bottom front (Cabinets B and C)				
Dry Port (Volt-free contacts) standard		For remote signalling and automatic computer shutdown				
Smart Port (RS 232) standard		For monitoring and integration in network management				

8.2 RECTIFIER DATA

Input Voltage PowerValue 11: 7.5 -12kVA	V	1x220V+N, 1x230V+N, 1x240V+N				
Input Voltage PowerValue 31: 7.5 - 20kVA	V	3x380/220V+N, 3x400V/230V+N, 3x415/240V+N				
Input Voltage Window (referred to 3x400/230V)	V (%)	For Loads: <100%(-23%,+15%) <80%(-30%,+15%) <60%(-40%,+15%)				
Input Frequency Window	Hz	35 – 70				
Input Power Factor		Models with single-phase input: 0.98 (at 100% Load) Models with three-phase input: 0.95 (at 100% Load), 0.98 (optional)				
Input Current Form		Models with single-phase input THDi 12-14% at 100% load Models with three-phase input THDi < 25% at 100% load; THDi 12-14% (optional)				
Inrush Current		Limited by soft start				
Model	kVA	7.5	10	12	15	20
Input Power with rated output power and charged battery	kW	5.6	7.4	9.4	11.1	14.8
Max. Input Power with rated output power and discharged battery	kW	6.1	8.1	10.3	12.1	16.2

8.3 BATTERY DATA

Maximum Battery Charger Current (standard)	6 A				
Battery Charging Curve	IU (DIN 41773)				
Temperature Controlled Battery Charger	No				
Battery Charger Ripple	< 1%				
Battery Test	Automatic and periodic (adjustable)				
Battery Type	Lead-acid, Maintenance-free and NiCd				
Variable Number of 12V Battery Blocks	PowerValue (11 and 31) 7.5kVA: 22-50 blocks PowerValue (11 and 31) 10kVA: 26-50 blocks PowerValue (11) 12kVA: 30-48 blocks PowerValue (31) 15-20kVA: 32-50 blocks				

8.4 INVERTER DATA

Output Rated Power	kVA	7.5	10	12	15	20
Output Rated Voltage	V	1x220V, 1x230V, 1x240V				
Output Power Factor		0.7				
Output Voltage Stability						
- Static	%	< +/- 1				
- Dynamic (with load Step 0-100%, 100-0%)	%	< +/- 4				
Output Voltage Distortion						
- With Linear Load	%	+ / - 1				
- With Non-linear Load (IEC/EN62040-3)	%	< +/- 3				
Output waveform		sinewave				
Output Frequency	Hz	50 or 60				
Output Frequency Tolerance						
- Free-running, Quartz Oscillator	%	+ / - 0.1				
- Synchronized with mains (adjustable)	%	+ / - 4				
Overload Capability	%	125 during 10min. and 150 during 1 min..				
Crest - Factor		3 : 1				

8.5 CONTROL PANEL DISPLAY (LED)

The user-friendly PMD consists of three parts the MIMIC DIAGRAM, CONTROL KEYS and LCD that provides the necessary monitoring information about the UPS.

MIMIC DIAGRAM

The mimic diagram serves to give the general status of the UPS. The LED-indicators show the power flow status and in the event of mains failure or load transfer from inverter to bypass and vice-versa the corresponding LED-indicators will change colour from green (normal) to red (warning). The LED's LINE 1 (rectifier) and LINE 2 (bypass) indicate the availability of the mains power supply. The LED's INVERTER and BYPASS if green indicate which of the two are supplying power to the critical load. When the LED-indicator BATTERY is lit it means that the battery due to mains failure is supplying the load. The LED-indicator ALARM is a visual indication of any internal or external alarm condition. At the same time the audible alarm will be activated.

PUSHBUTTONS

The pushbuttons serve to manage the UPS by performing commands. The 2xON/OFF pushbuttons serve to start-up or shutdown the UPS if pressed simultaneously. The pushbuttons UP and DOWN allow working through the PMD-menu. The RESET pushbutton serves to cancel the audible alarm in the event of a disturbance. If the alarm condition was only transient the LED-indicator ALARM would also extinguish otherwise it will remain on (red).

DISPLAY

The 2 x 20 character LCD simplifies the communication with the UPS. The menu driven LCD enables the access to the EVENT REGISTER, or to monitor the input and output U, I, f, P, Autonomy Time and other Measurement's, to perform commands like start-up and shut-down of INVERTER or load transfer from INVERTER to BYPASS and vice-versa and finally it serves for the DIAGNOSIS (SERVICE MODE) for adjustments and testing.



Power Management Display (PMD) of **PowerValue™**

8.6 OPTIONALS

Remote Signalling Panel (RSP)	For UPS-Status indication
Wavemon Software	For automatic shut-down and monitoring
SNMP – Card/Adapter	For network management and remote monitoring
Input Filter for THDI 12-14%	Only for three-phase input models

8.7 ON REQUEST

Input or Output Isolation Transformer	For special voltages or for galvanic isolation
Customized UPS- and Battery Frames	On request (for OEM-Projects only)

8.8 MECHANICAL CHARACTERISTICS

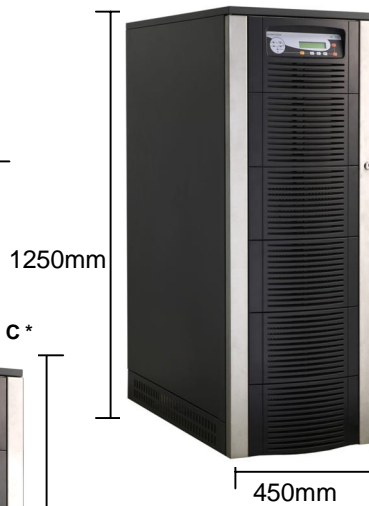
MODEL	kVA	7.5	10	12	15	20
Dimensions (WxHxD) Cabinet A	mm	340x820x800				Not available
Dimensions (WxHxD) Cabinet B	mm	450x1250x860				
Dimensions (WxHxD) Cabinet C	mm	550x1650x890				
Protection Degree		IP 20				
Ventilation		Fan assisted				
Colour		RAL 9011				
Foot Print	m ²	0.25		0.37		

Dimensions of PowerValue™ 11 and 31 Line

PowerValue™: cabinet A



PowerValue™: cabinet B



PowerValue™: cabinet C *



Rating (kVA)	Standard battery configuration	Max. runtime* (min.) 100% load	Cabinet Type
7,5	50 x 9Ah	30	A
10	50 x 7Ah	15	A
12	48 x 9Ah	15	A
15	50 x 7Ah	9	A
7,5	2 x 50 x 7Ah	56	B
10	3 x 38 x 9Ah	60	B
12	3 x 46 x 9Ah	60	B
15	3 x 48 x 9Ah	45	B
20	3 x 46 x 9Ah	30	B
15	2 x 32 x 28Ah	60	C
20	2 x 36 x 28Ah	60	C

*Runtime calculated @ output power factor=0.7

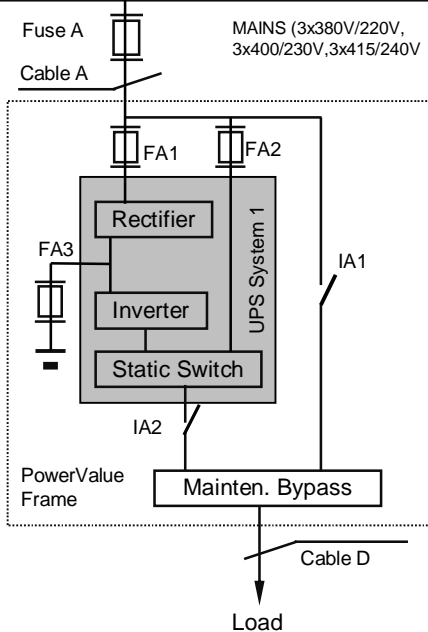
For other battery configurations please refer to the Weight & Dimensions Sheet

NOTE: if battery block number are below a total of 30 blocks 7Ah batteries are allowed

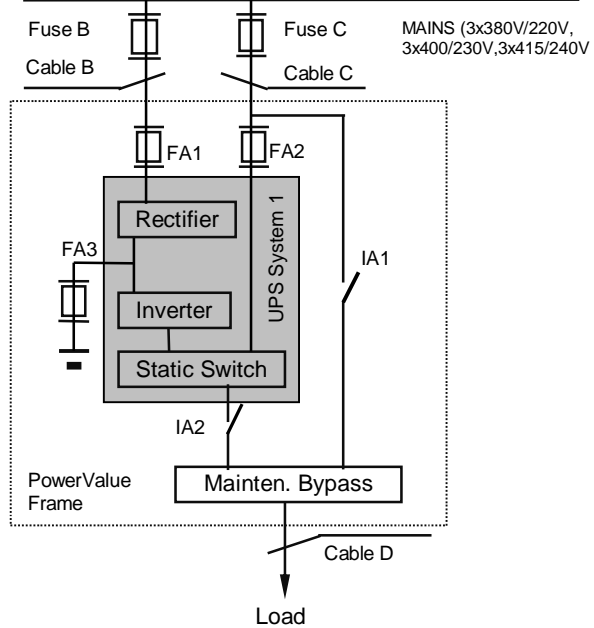
*Please note that cabinet C is for non-standard autonomies requests

8.9 BLOCK DIAGRAM POWERVALUE™

STANDARD VERSION (SINGLE INPUT FEED)



VERSION ON REQUEST (DUAL INPUT FEED)



Cable Sections and Fuse Ratings recommended by European standards.
Alternatively, local standards to be respected

Power(kVA) (1ph/1ph)	SINGLE FEED		DUAL INPUT FEED				Cable D mm2
	Fuse A (Agl/CB)	Cable A mm2	Fuse B (Agl/CB)	Cable B mm2	Fuse C (Agl/CB)	Cable C mm2	
7.5	1x40A	3 x 6	1x40A	3 x 6	1 x 40A	3 x 6	3 x 6
10	1x63A	3 x 10	1x63A	3 x 10	1x 63A	3 x 10	3 x 10
12	1x63A	3 x 10	1x63A	3 x 10	1 x 80A	3 x 16	3 x 16

Power(kVA) (3ph/1ph)	SINGLE FEED		DUAL INPUT FEED				Cable D mm2
	Fuse A (Agl/CB)	Cable A mm2	Fuse B (Agl/CB)	Cable B mm2	Fuse C (Agl/CB)	Cable C mm2	
7.5	3 x 40A	5 x 6	3 x 25A	5 x 2.5	1 x 40A	3 x 6	3 x 6
10	3 x 63A	5 x 10	3 x 25A	5 x 2.5	1x 63A	3 x 10	3 x 10
15	3 x 80A	5 x 16	3 x 40A	5 x 6	1 x 80A	3 x 16	3 x 16
20	3 x 100A	5 x 25	3 x 40A	5 x 6	1 x 100A	3 x 25	3 x 25

DUAL INPUT FEED VERSION IS AVAILABLE ON REQUEST.