

**UPS
AURIGA
60 ÷ 100 kVA**

DT 0435-E02

Document : DT0435 PTX English

<i>Revision</i>	<i>Date</i>	<i>Checked</i>	<i>Approved</i>
02	09-06-2009	02-09-2009 M. Longoni	28-09-2009 R. Ghezzi

INTRODUCTION

Present document defines the technical specs of AURIGA UPS.

This family is available in three power ratings: 60kVA, 80kVA and 100 kVA.

It uses an ON-LINE DOUBLE CONVERSION topology and a forced ventilation cooling.

These equipments are characterized by reduced size: it is the same cubicle for all the three power ratings. A very high efficiency is reached thanks to the trafo-less design, which doesn't need transformers between mains, inverter and load.



GENERAL FEATURES

- Double conversion, digital controlled, high frequency transformer less design, IGBT power semiconductor technology
- Mechanical design according to Powertronix style guidelines and featuring
- Electronic power devices on single power module
- UPS control, monitor/communication-UPS, on single board.
- UPS communication board interface on UPS back side

DATA COMMUNICATION PROTOCOL

- User friendly front panel with integrated E.P.O.
- Remote E.P.O. (*optional*)
- RS232 9 pins D type connector
- Software compatible with most available OS (Windows, Novell, Unix, OS/2, MacOS) (*optional*)
- UPS Diagnostic & management software through RS232 port (*optional*)
- Diagnostic system UPS through modem (*optional*)
- SNMP card for network connectivity (*optional*)
- Remote panel through free contact (*optional*)

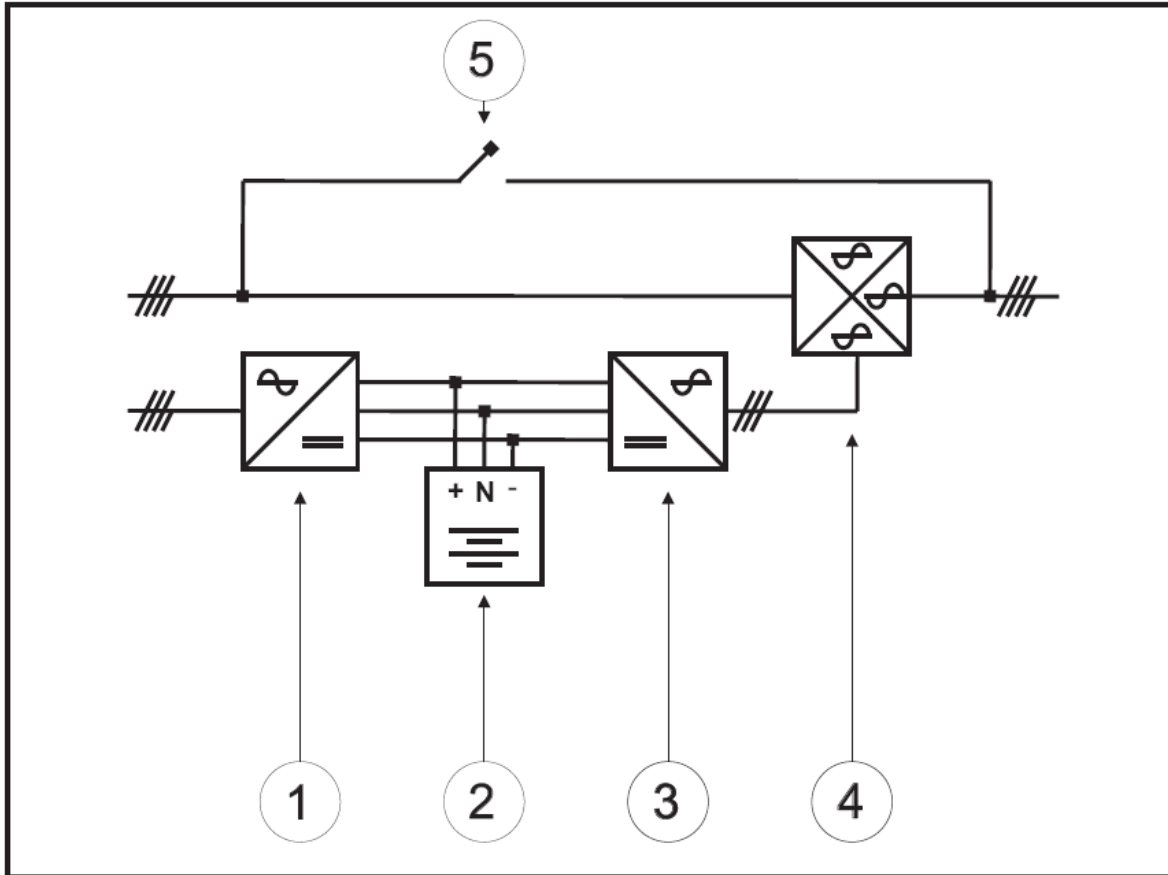
MECHANICAL DATA

- IP20 grade protection
- Service access from the front
- Bottom cable entry
- Predisposition for fixing armoured cabling

OPTIONS:

- Input or Output Galvanic isolation transformer
- Parallel Unit configuration
- Single transformer on Inverter line or reserve

AURIGA BLOCK DIAGRAM



1. IGBT Rectifier
2. Battery
3. Inverter Power IGBT
4. Static Switch
5. Manual By-Pass

REGULATIONS AND STANDARDS

This UPS is designed according to the following regulations and standards:

2006/95/CE Low Voltage

2004/108/CE EMC (Electromagnetic Compatibility)

CEI-EN 62040-1-1: Uninterruptible power systems (UPS)
Part 1-1: General and safety requirements for UPS used in
operator access area

CEI EN 62040-1-2: Uninterruptible power systems (UPS)
Part 1-2: General and safety requirements for UPS used in
restricted access locations

CEI EN 62040-2: Uninterruptible power systems (UPS)
Part 2: Electromagnetic compatibility (EMC) requirements

CEI EN 62040-3: Uninterruptible power systems (UPS)
Part 3: Method of specifying the performance and test
requirements

GENERAL DATA

AURIGA 60 ÷ 100 kVA

GENERAL

Configuration	On-Line Double Conversion
Nominal Input Voltage	3ph + N (380/400/415V)
Inverter	H.F. Technology IGBT switching TrafoLess
Static Switch	Electronic static switch + electromechanical contactor
Cooling system	Forced air

MECHANICAL DATA

Dimension	410 x 835 x 1510 mm (l x w x h)
Colour	RAL7016
IP rating	IP20
Cable entry	Front - Bottom
Gladding cable	Yes

ENVIRONMENTAL CONDITIONS

Operating Temperature	0-40° C
Operating Battery Temperature	As suggested by the manufacturer (18 ÷ 25 °C)
Relative Humidity	< 95% (not condensing)
Output Power at difference Altitudes	100% until 1000 m usl (1% downgrading every 100m from 1000m to 2000m usl)
Storage Temperature	-20°+ 70°C (UPS); +18 ÷ 25°C (Batteries)

DISPLAY

LCD	Display LCD with four lines x 20 characters /each
Function key	Four functions Key (Menu / Left Arrow / Right Arrow / Esc) + Local EPO
Visual alarms	Led status green UPS OK/ Led status red ALARM
Acoustic alarms	Yes

COMMUNICATION

RS232	1 Serial (+ 1 optional)
Free contacts	4 <ul style="list-style-type: none"> • UPS in operation • UPS in bypass • Mains present • Battery end discharge
SNMP	1 (optional)
Maintenance Software	RS232
Parallel communication	Optical fibre

GENERAL DATA

AURIGA 60 ÷ 100 kVA

BATTERIES

60kVA - 80kVA - 100 KVA

Nominal voltage	720 VDC
Floating voltage	810 VDC
N° of elements	360
Battery location	External dedicated cabinet
Voltage Range	600-830 VDC
Max Recharge Current	25A on 60kVA - 10A on 80kVA - 20A on 100kVA
Recharge Current	Adjustable
Recharging Characteristics	DIN 41773
VDC battery charge Stability	+/- 1%
Alternating residual in DC Voltage - (Vrms/Vb) x 100	< 1%
Battery Pre-alarm	Adjustable (recommended: 630VDC)
Temperature Battery Compensation	Optional with external thermal sensor
Battery Test	Yes / Adjustable

WEIGHT

60kVA - 80kVA - 100 kVA

Weight (Kg)	220 Kg / 250 Kg / 270 Kg
-------------	--------------------------

ENVIRONMENT CONDITION

Radio noise suppression	IEC-EN62040-2 CLASSE A
Noise at 1m distance	60 dB (A)
Air flux	500m ³ /h 60KVA - 1000m ³ /h(max) 100KVA

OPTIONAL

Battery	In separated cabinet
Transformer	In separated cabinet
Shutdown	Powershut Plus.
Software for UPS diagnostic	Generex Powertronix
SNMP Adapter	Yes
Remote panel	Yes
Extra Relay card	Yes

kVA

60

INPUT

Number of phases	3Ph + N
Nominal voltage	380/400/415 VAC $\pm 20\%$
Reserve Nominal voltage	380/400/415 VAC $\pm 10\%$
Nominal frequency	50/60 Hz
Frequency range	40/70 Hz
Max Current (A)	94.6A
($V_{in} = -20\%$ 400V)	
Current Harmonic Distortion	<5%
Cos ϕ	0.98
Soft start	30 sec.

OUTPUT

Power	48kW
Number of phases	3Ph + N 1Ph + N
Nominal voltage	380/400/415 VAC or 220/230/240 VAC
Nominal current (A)	87A
(400Vnom.)	
Nominal Frequency	50/60 Hz
Synchro tolerance	+/- 1%, +/- 2%, +/-5%, +/-10% (selectable)
Max Slew Rate with main present	± 1 Hz / sec
Frequency Precision with internal oscillator	$\pm 0,005$ Hz
Static Voltage Variation (0-100% Load)	$\pm 1\%$ (UPS Class 1 CEI/IEC 62040-3 ch. 5.3.1)
Dynamic Voltage Variation (0-100% Load)	$\pm 5\%$ (UPS Class 1 CEI/IEC 62040-3 ch. 5.3.1)
Unbalanced Load drop Voltage	$\pm 3\%$
Phase to Phase Variation	120° $\pm 1\%$ (Balanced Load) 120° $\pm 3\%$ (Unbalanced Load)
THD with linear load	< 3%
THD with not linear load (according to CEI62040-3)	<7%
Crest Factor	Compatible with CEI-62040-3
Inverter Overload	125% for 10 minutes; 150% for 5 seconds
Efficiency	See pictures 1 and 2 at page 12
Maximum total losses (W)	4459W
Maximum losses without load (W)	700W

kVA

80

INPUT

Input frequency	50+60Hz
Number of phases	3Ph + N
Nominal voltage	380/400/415 VAC $\pm 20\%$
Reserve Nominal voltage	380/400/415 VAC $\pm 10\%$
Nominal frequency	50/60 Hz
Frequency variation allowed	40/70 Hz
Max Current absorbed (A) ($V_{in} = -20\% 400V$)	125A
Current Harmonic Distortion	<5%
Cos ϕ	0.98
Soft start	30 sec.

OUTPUT

Power	64kW
Number of phases	3Ph + N 1Ph + N
Nominal voltage	380/400/415 VAC or 220/230/240 VAC
Output nominal current (A) (400Vnom.)	115.5
Output frequency	50/60 Hz
Synchro tolerance	+/- 1%, +/- 2%, +/-5%, +/-10% selectable
Max Slew Rate with main present	± 1 Hz for sec
Frequency Precision with internal oscillator	$\pm 0,005$ Hz
Static Voltage Variation (0-100% Load)	$\pm 1\%$ (UPS Classe 1 CEI/IEC 62040-3 par 5.3.1)
Dynamic Voltage Variation (0-100% Load)	$\pm 5\%$ (UPS Classe 1 CEI/IEC 62040-3 par 5.3.1)
Unbalanced Load drop Voltage	$\pm 3\%$
Phase to Phase Variation	120° $\pm 1\%$ (Balanced Load) 120° $\pm 3\%$ Unbalanced Load)
THD with linear load	< 3%
THD with not linear load (according to CEI62040-3)	<7%
Crest Factor	Compatible with CEI-62040-3
Inverter Overload	125% for 10 minutes; 150% per 5 seconds
Efficiency	See pictures 1 and 2 at page 12
Maximum total losses (W)	5189W
Maximum losses without load (W)	750W

kVA

100

INPUT

Input frequency	50÷60Hz
Number of phases	3Ph + N
Nominal voltage	380/400/415 VAC ±20%
Reserve Nominal voltage	380/400/415 VAC ±10%
Nominal frequency	50/60 Hz
Frequency variation allowed	40/70 Hz
Max Current absorbed (A) (Vin = -20% 400V)	155A
Current Harmonic Distortion	<5%
Cos φ	0.98
Soft start	30 sec.

OUTPUT

Power	80kW
Number of phases	3Ph + N 1Ph + N
Nominal voltage	380/400/415 VAC or 220/230/240 VAC
Output nominal current (A) (400Vnom.)	144.5A
Output frequency	50/60 Hz
Synchro tolerance	+/- 1%, +/- 2%, +/-5%, +/-10% selectable
Max Slew Rate with main present	± 1 Hz for sec
Frequency Precision with internal oscillator	± 0,005 Hz
Static Voltage Variation (0-100% Load)	±1% (UPS Classe 1 CEI/IEC 62040-3 par 5.3.1)
Dynamic Voltage Variation (0-100% Load)	±5% (UPS Classe 1 CEI/IEC 62040-3 par 5.3.1)
Unbalanced Load drop Voltage	±3%
Phase to Phase Variation	120° ±1% (Balanced Load) 120° ±3% Unbalanced Load)
THD with linear load	< 3%
THD with not linear load (according to CEI62040-3)	<7%
Crest Factor	Compatible with CEI-62040-3
Inverter Overload	125% for 10 minutes; 150% per 5 seconds
Efficiency	See pictures 1 and 2 at page 12
Maximum total losses (W)	6021W
Maximum losses without load (W)	790W

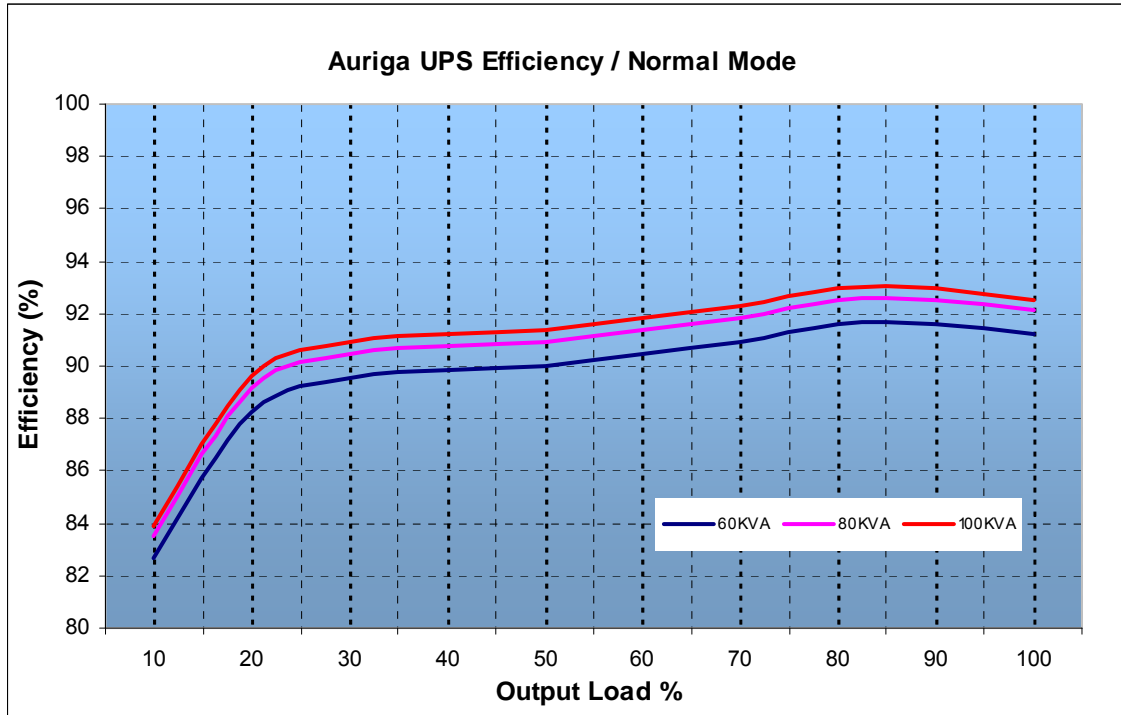
kVA

60kVA – 80kVA - 100KVA

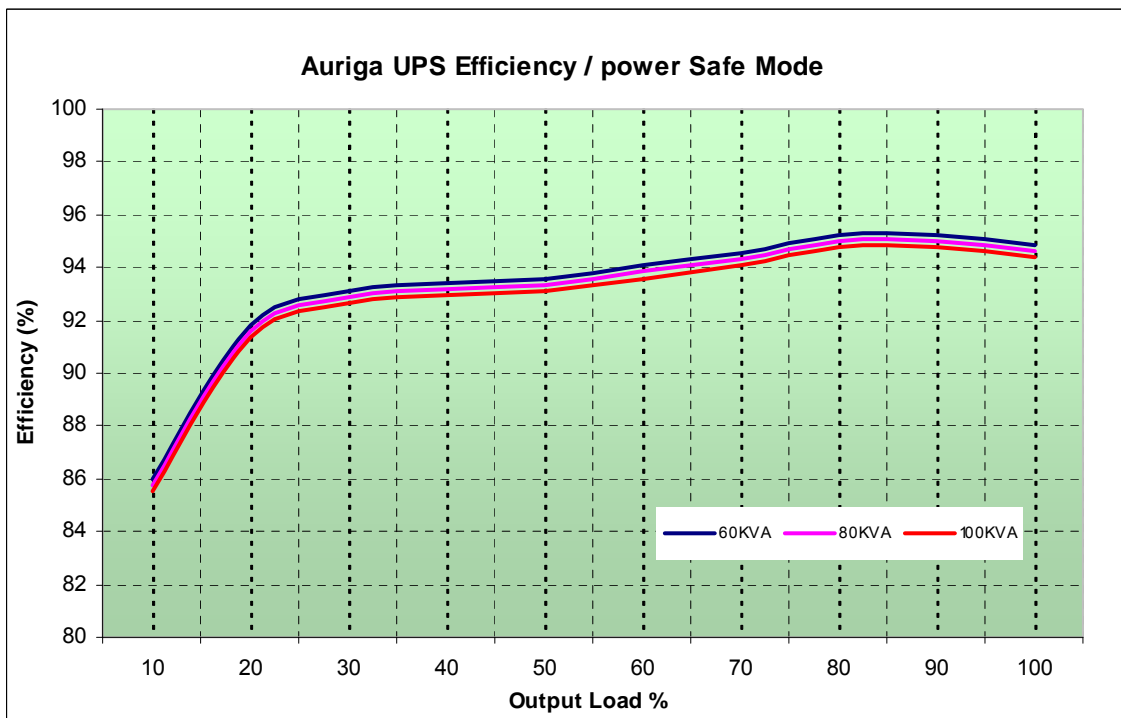
BYPASS

Nominal voltage	3ph + N	380/400/415 VAC	±20%
	1ph + N	220/230/240 VAC	±20%
Reserve Enable Window Tolerance		±10%	
Frequency		50/60 Hz	
Admitted Current Overload		150% 30 minutes	1000% 100ms.
Maximum switching time			
• Inverter-Bypass			• <1ms
• Bypass – Inverter automatic return			• 0ms
• Overload / Failure			• <5ms
Manual by pass			Available with mechanical blocks

Picture 1: Efficiency with UPS in “On Line Double Conversion”



Picture 2: Efficiency with UPS in “Power Safe” mode



UPS CONFIGURATION

AURIGA UPS can work in following configurations:

- Three phase input / Three or Single phase output
- Hot stand-by
- Parallel (type bypass distributed, maximum n°8 units, ring type by optical fibres)
(available only in Three phase/Three phase mode)

UPS USER INTERFACE

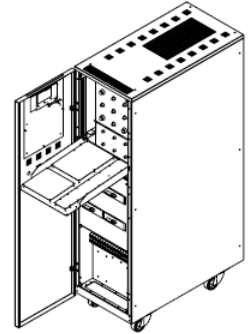
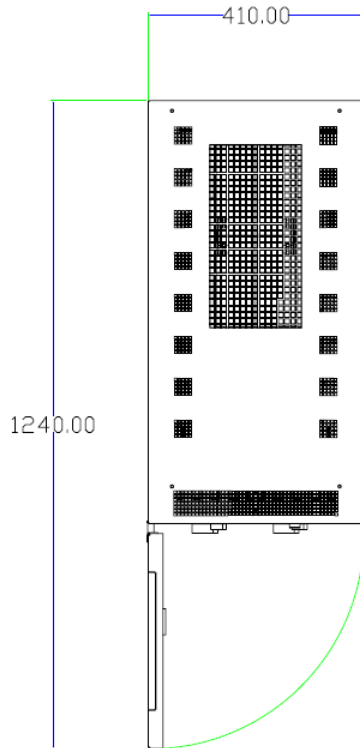
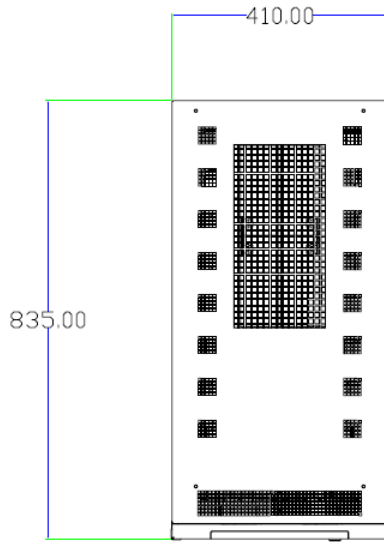
LCD display: 4 rows x 20 characters/each

Buttons: 4 functions buttons + local EPO

Available data:

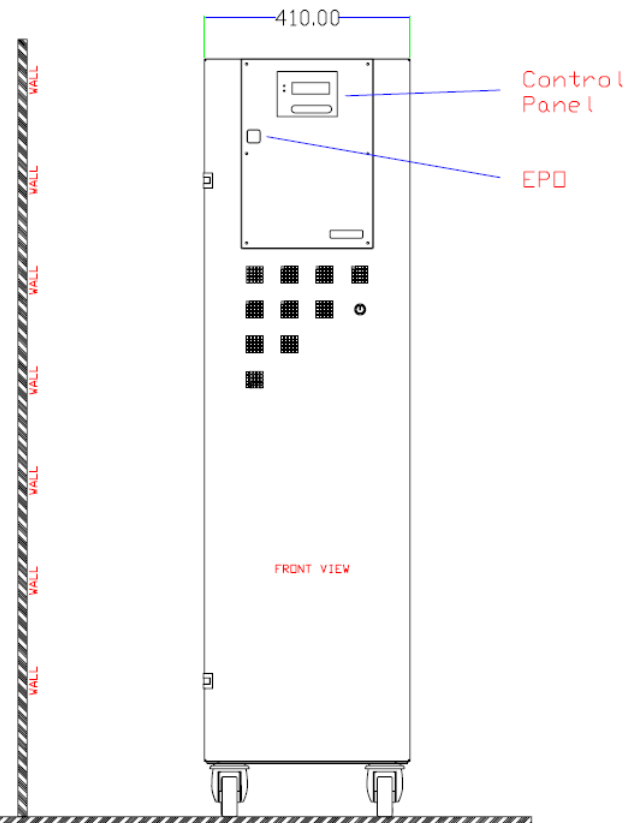
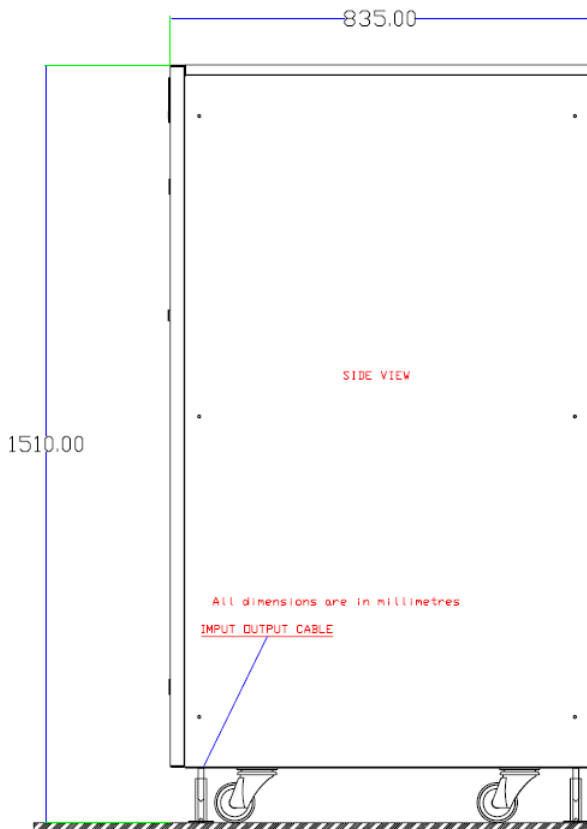
- Input Voltage [V] Ph-N/ Ph-Ph
- Input Current [A]
- Reserve Voltage [V] Ph-N/ Ph-Ph
- Output Voltage [V] Ph-N/ Ph-Ph
- Output Current [A]
- Output Power [kVA] L1, L2, L3
- Mains Frequency [Hz]
- Reserve Frequency [Hz]
- Output frequency [Hz]
- Battery Voltage [V]
- Battery Current [A]
- Temperature:
 - PFC [°C]
 - Inverter [°C]
 - Ext.Batteries [°C]

UPS DIMENSIONING



All dimensions are in millimetres

FOOT PRINT

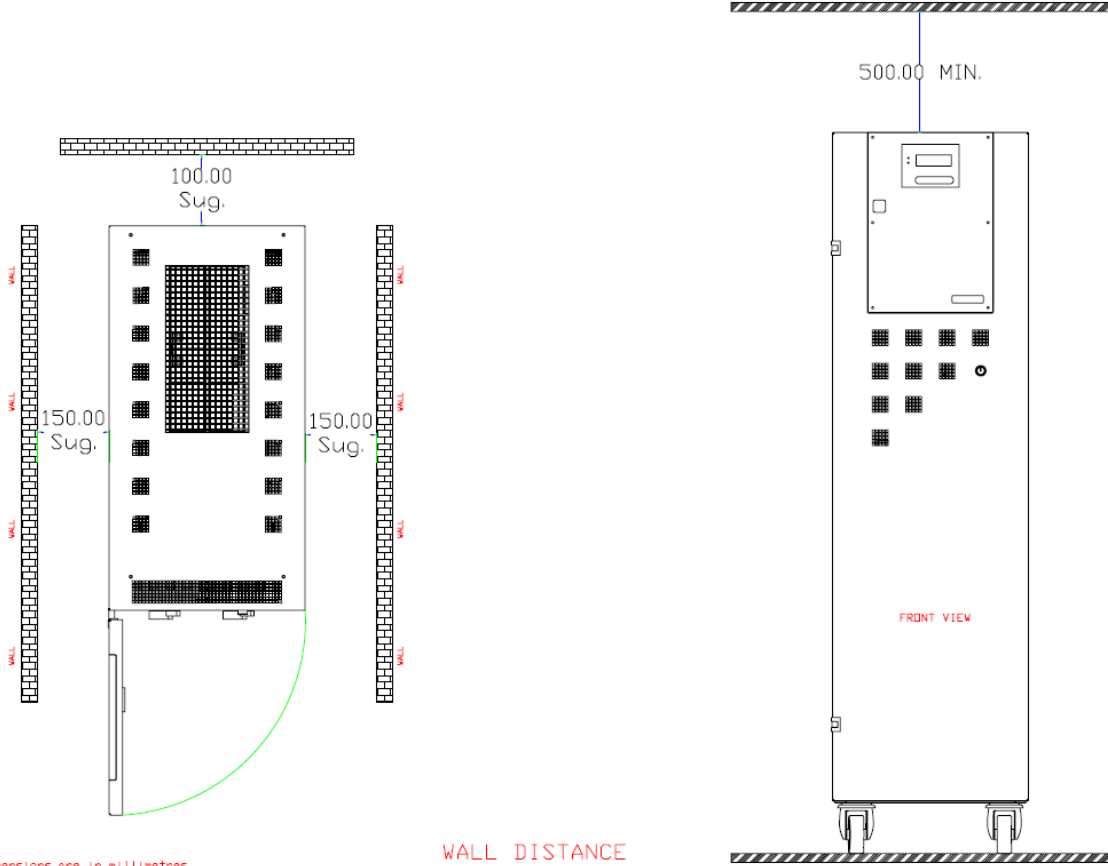


All dimensions are in millimetres

DIMENSION UPS 60-100kVA

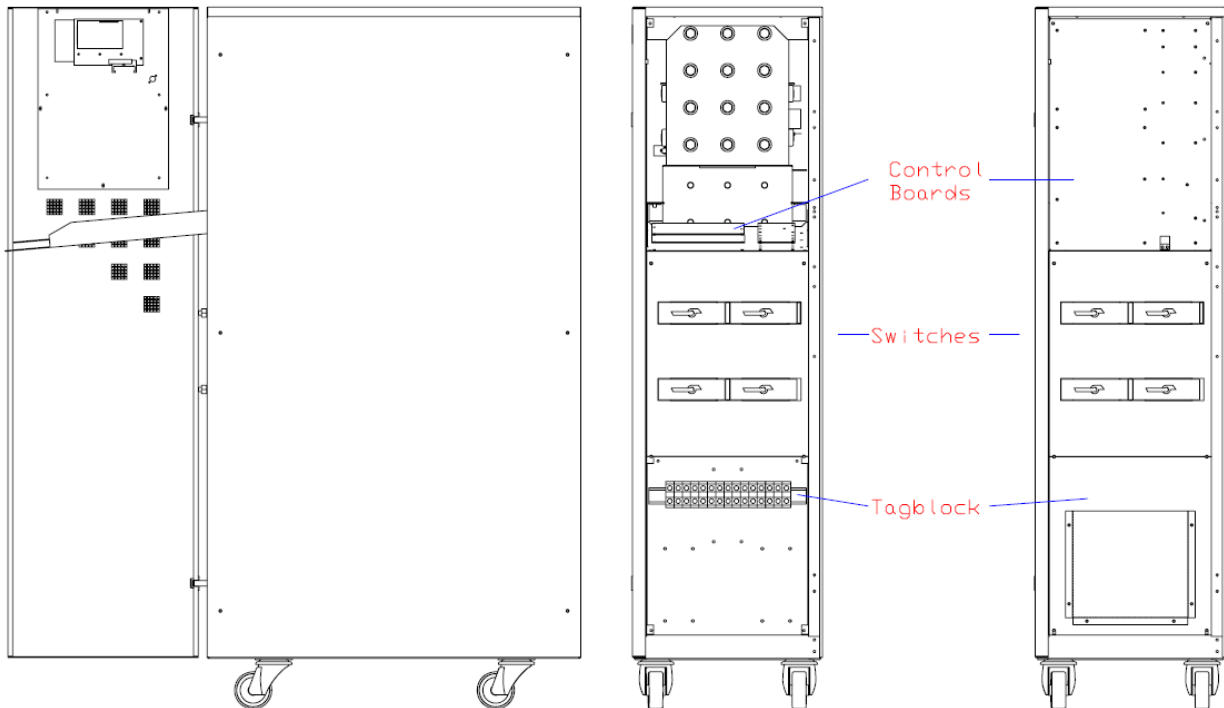
Powertronix spa reserves the right to modify this document without any notice

UPS POSITIONING



All dimensions are in millimetres

WALL DISTANCE



LAYOUT