

**UPS  
AURIGA HP  
120 ÷ 200 kVA**

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## INTRODUCTION

Present document defines technical specification of a three phase UPS family powered from 120 to 200KVA. Its topology is On Line Double Conversion, Trafoless with forced air and liquid cooling.

This product family is distinguished by high efficiency and small footprint. Such target is reached thanks to its conversion technology which doesn't require any transformer among input, inverter and load.

All sizes share the same cabinet in dimensions.

## GENERAL FEATURES

- Double conversion
- Transformer less technology
- Input PFC power section provides true sine-wave current thanks to IGBT semiconductor technology
- Output Inverter high efficiency power section features low distortion output voltage based on IGBT topology
- Liquid system cooling
- Digital control
- Whole power electronics on single power module IGBT
- High working frequency
- Mechanical design according to Powertronix style
- Parallel communication via fiber optics
- EPO both local and remote

## UPS TOPOLOGY

- Input Three Phase – Output Three Phase
- Stand alone
- Hot stand-by parallel
- Redundant parallel up to 8 units

## MECHANICAL FEATURES

- Protection level IP20
- Service access to control electronic, from front
- Connection cables from UPS front

### COMMUNICATION FEATURES

- RS232 serial communication (SQP protocol)
- RS485 serial communication (MODBUS)
- Ethernet connection (SNMP, HTTP, MODBUS)
- Managing software developed for most common platforms (Windows, Novell, Unix, OS/2)
- UPS monitor via modem
- Dry contacts for signal and alarms
- UPS Teleservice and online configuration from company service department

### UPS USER INTERFACE

LCD display 4 rows x 20 columns and 4 function buttons + local EPO

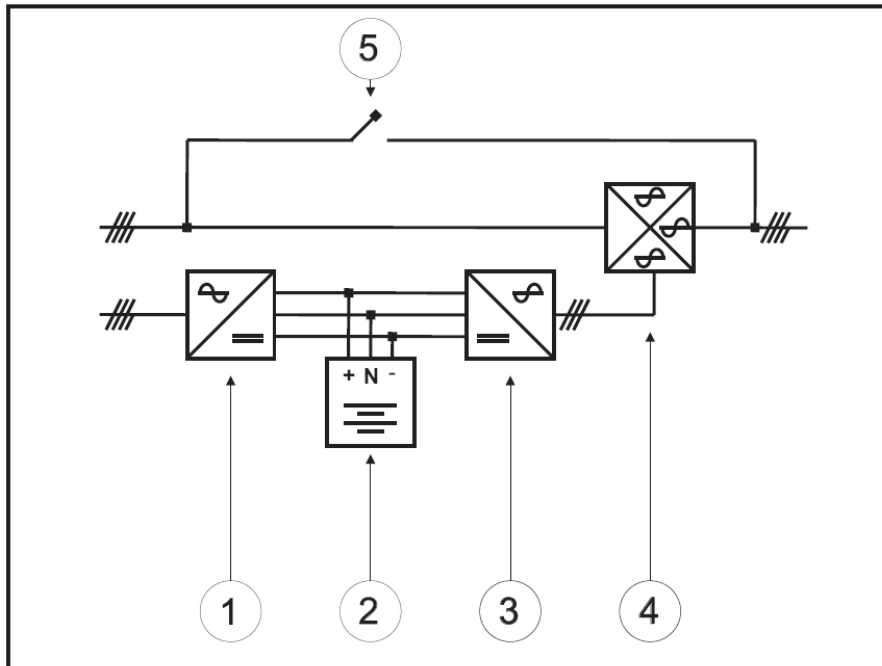
Available measures:

Input voltages	[V]	phase-neutral and phase-phase
Input currents	[A]	
Reserve Voltages	[V]	phase-neutral and phase-phase
Output voltages	[V]	phase-neutral and phase-phase
Output currents	[A]	
Output power	[kVA]	L1, L2, L3
Frequencies		
Input	[Hz]	
Reserve	[Hz]	
Output	[Hz]	
Battery voltage	[V]	
Battery current	[A]	
Temperature		
PFC	[°C]	
Inverter	[°C]	
Ext Battery	[°C]	

### REMOTE PANEL

- UPS normal operation
- UPS Bypass operation
- Mains present
- Battery low

## BLOCK DIAGRAM



### **Description:**

1. IGBT input rectifier
2. Battery
3. IGBT output inverter
4. Static Switch
5. Maintenance By-Pass

## APPLICABLE REGULATIONS

EN 62040-1-1	Uninterruptible Power Supply (UPS) Part 1-1: General and safety requirements for UPS used in operator access areas
EN 62040-1-2	Uninterruptible Power Supply (UPS) Part 1-2: General and safety requirements for UPS used in restricted access locations.
EN 62040-2	Uninterruptible Power Supply (UPS) Part 2: Electromagnetic compatibility (EMC) requirements
EN 62040-3	Uninterruptible Power Supply (UPS): Method of specifying the performance and test requirements

## AURIGA 120 ÷ 200 kVA

### GLOBAL

#### 120-160-200 KVA

Topology	On-Line Double Conversion
Inverter	IGBT high frequency switching transformer less
Static Switch	Electronic Static Switch + Contactor
Cooling system	Forced air and liquid

### MECHANICAL

#### 120-160-200 KVA

Case	Metal
Color	RAL7016
Protection level	IP20
Installation spaces	Refer to page 9
Plant wiring	Front low
Wiring lock	Present
Dimensions	1800 x 800 x 837 mm (h x l x p)

### ENVIRONMENT

#### 120-160-200 KVA

Working temperature	0-40°C
Battery recommended temperature	+20 ÷ +30 °C
Relative humidity	< 95% (no moisture)
Top altitude	Up to 1000 m sml (1% derating every 100 among 1000 and 2000)
Warehouse temperature	-5°+ 70°C -20°+ 70°C (UPS without liquid) +20°C ÷ 30°C (Battery)

### DISPLAY

#### 120-160-200 KVA

LCD-Display	Display LCD 4 rows x 20 columns and 4 function buttons + local EPO
Visible and sound alarms	Green LED (UPS OK) / Red LED (UPS alarm)
System alarms in the operator's room	Present

### COMMUNICATION

#### 120-160-200 KVA

RS232	1 standard + 1 optional
RS485	1 optional
Dry contacts	250Vac/8A UPS normal mode / UPS on bypass / Mains present / Battery low
Ethernet connection	Optional
Service software	Via RS232
Parallel communication	Via fiber optics

### WEIGHT

#### 120-160-200 KVA

Weight (Kg)	460 Kg / 510 Kg / 560 Kg
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### MORE FEATURES

#### 120-160-200 KVA

EMC class	IEC-EN62040-2 CLASS A
Noise level	65 dB (A)
Air flow rate	700 to 1300m <sup>3</sup> /h load dependent

**ELECTRICAL**
**120-160-200 KVA**

Configuration	Standard
Power factor	Cos $\varphi$ 0,8

**ELECTRICAL INPUT**

Phase N°	3PH+N
Nominal mains values	3ph + N 380/400/415 VAC $\pm 20\%$
Nominal reserve values	3ph + N 380/400/415 VAC $\pm 20\%$
Nominal frequency	50/60 Hz
Accepted frequency	40/70 Hz
Max input current	3PH+N @ 400V 195A – 260A – 325A
Input current distortion (THD)	<3%
Power factor	Cos $\varphi$ 0.99
Soft start	30 sec.

**ELECTRICAL OUTPUT**

Phase n°	3PH+N
Nominal output voltage (Sine-waveform)	3PH+N 380/400/415Vac
Nominal output current	3PH+N @ 400V: 139A - 185A - 230A
Nominal frequency	50/60 Hz
Accepted frequency range for output synchronization	+/- 1% or +/- 2% or +/-5% or +/-10% selectable
Max Slew Rate with mains present	$\pm 1$ Hz per sec
Output frequency accuracy when using internal clock	$\pm 0,005$ Hz
Static output voltage stability (0 to 100% load transition)	$\pm 1\%$ (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)
Dynamic output voltage stability (0 to 100% load transition)	$\pm 5\%$ (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)
Output phase voltage unbalance (100% unbalanced load)	$\pm 3\%$
Voltage phase shift	120° $\pm 1\%$ (balanced load) 120° $\pm 3\%$ (100% unbalanced load)
Output voltage distortion (THD) (linear load)	< 3%
Output voltage distortion (THD) (unbalanced load as CEI62040-3)	<7%
Crest factor	Within CEI-62040-3
Accepted inverter overload	125% for 10min; 150% for 5sec
Efficiency	Refer to graph 1 on page 8
Total max loses	9616W – 11427W – 12575W
No load UPS absorption	850 w – 950w – 1050w

**AUTOMATIC BYPASS**
**120-160-200 KVA**

Nominal working voltage	3PH+N	380/400/415Vac	±20%
Standard accepted voltage range			±10%
Nominal working frequency		50/60 Hz	
Accepted current overload		150% for 30min or 1000% for 100msec	
Max switching time			
	Inverter to Bypass:		<1ms
	Bypass to Inverter:		0ms
	Overload or Failure:		<5ms
	Manual By Pass		Available with mechanical security lock

**BATTERY**
**120-160-200 KVA**

Nominal voltage	720 VDC
Charging voltage	810 VDC
N° of elements	360
Battery accommodation	External cabinet
Admitted voltage range	600-830 Vdc
Max charging current	50A - 65A - 80A
Charging current limit	Programmable
Charging profile	DIN 41773
Charging voltage stability	+/- 1%
AC voltage component	Vrms / Vb < 1%
Battery low threshold	Programmable (640Vdc suggested)
Charging profile adjustable for temperature compensation	Available through optional temperature sensor
Battery test	Available / Programmable

**OPTIONAL**
**120-160-200 KVA**

Isolation transformer	External cabinet
Voltage adjusting transformer	External cabinet
Monitoring software	UPS Manager
Ethernet card	UPS net connection
Remote panel	Up to 100m away
Second dry contacts board	250Vac/8A UPS normal mode UPS on bypass Mains present Battery low

**Graph 1**  
**Load/efficiency in “On Line” mode**

