

**UPS  
ALCOR  
20 ÷ 30 kVA**

**DT 0385-E03**

**Document: DT0385 PTX English**

<i>Revision</i>	<i>Date</i>	<i>Checked</i>	<i>Approved</i>
00	15-06-2007	15-06-2007 Ghezzi R.	15-06-2007 Gorlani A.
01	18-06-2007	18-06-2007 Ghezzi R.	18-06-2007 Gorlani A.
02	29-06-2007	29-06-2007 Ghezzi R.	29-06-2007 Gorlani A.
03	08-10-2008	08-10-2008 Passoni A.	08-10-2008 Gorlani A.

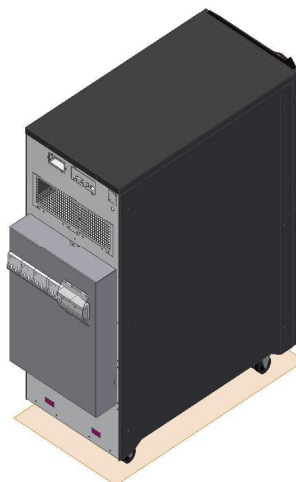
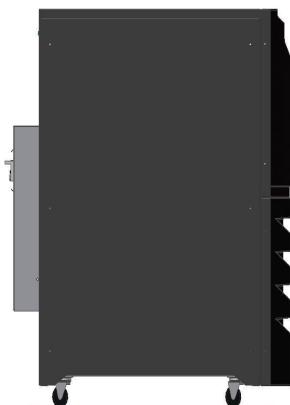
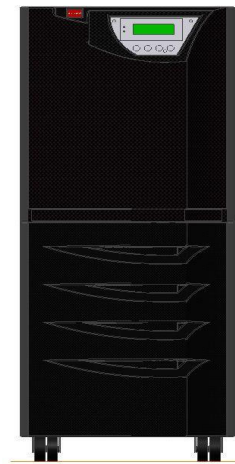
## INTRODUCTION

Present document defines technical specs of a three phase UPS named ALCOR covering the power range from 20 to 30 kVA ON-LINE DOUBLE CONVERSION Uninterruptible Power Supply Systems with forced ventilation cooling. These equipments are characterized by reduced size and high efficiency, thanks to the conversion topology, which doesn't need transformers between mains, inverter and load.

UPS belongs to the "double conversion" equipments family, with all advantages given by this topology and without any penalty in total efficiency.

All sizes have the same cubicle.

Following is shown the picture of the system :



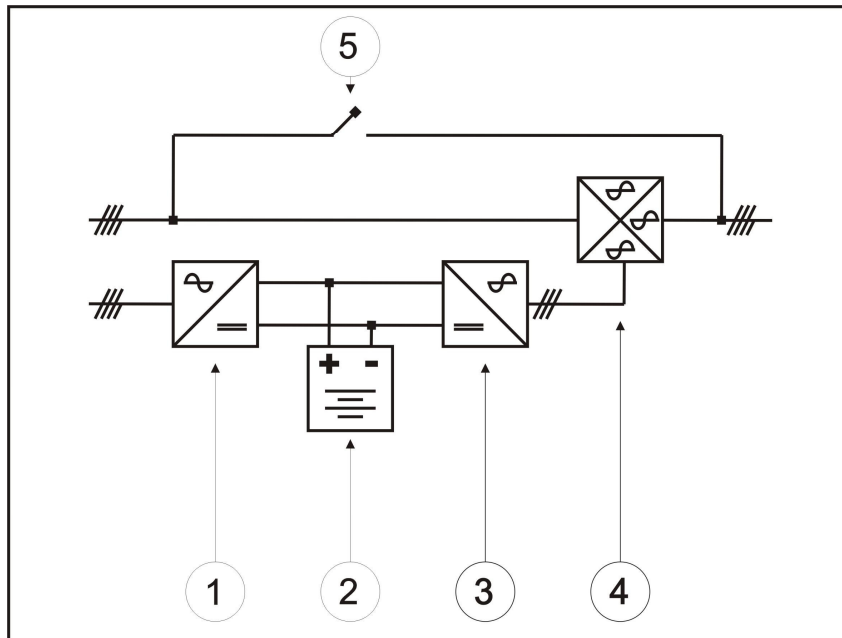
## GENERAL FEATURES

- Double conversion, digital control, trafoless power module with IGBT HF switching, Cabinet according to the Powertronix style.
- All the electronic mounted on the same removable power module.
- Cables inlet from the bottom.
- IP 20 protection degree.
- UPS control and signalling developed on the single board.
- Communications Boards on the rear of the UPS.
- Modem remote supervision available.
- UPS diagnostic and management on teleservice from the factory through SNMP adapter
- Control panel with LCD display, EPO integrated.
- Remote EPO facility.
- Connection to a PC available.
- RS 232 C serial port with DB9 connector.
- SNMP adapter available.
- Software development with the most popular operating systems (Windows, Novell, Unix, OS/2).
- Additional free contacts for main remote alarms.

Different options are available to increase behavioural level referred to power management and/or power quality as indicated in the following items:

- Connection to PC or local line available.
- Isolation of the load through transformer.
- More UPS in parallel possibility.
- Isolation of the inverter line and/or reserve line.

ONE LINE DIAGRAM:



*Descriptions:*

1. IGBT power input
2. Battery
3. Inverter power IGBT
4. Static Switch
5. Manual By-Pass

## REGULATIONS AND STANDARDS

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

Electromagnetic compatibility CEE 89/336

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

### ALCOR 20÷30 kVA

#### GENERAL

---

Configuration	On-Line Double conversion
Input	H.F. technology IGBT switching TrafoLess
Inverter	H.F. technology IGBT switching TrafoLess
S.Switch	Static Switch Relay technology
Cooling system	Air Forced

#### MECHANICALS CHARACTERISTICS

---

Lodging	Dedicated Cabinet
Colour	RAL 7016
Mechanical protection degree IP	IP 20
Positioning	Pictures on pages 13 and 14
Cables Input	Bottom on the rear
Mechanical Dimensions	900 x 390 x 900 mm (h x l x p)

#### AMBIENT CONDITIONS

---

Operating temp. range	0-40 °C
Batteries temp. range	+20 ÷ +30 °C
Relative Humidity	< 90% (without condensens)
Maximum installation height without derating	Until 1000m uls (1% derating every 100m started from 1000m up to 2000m)
Temperature range	-20°÷ + 70 °C (UPS) +20°÷ +30 °C (Batteries)

#### DISPLAY

---

LCD-Display	Display LCD 4 rows x 20 characters e 4 functions buttons + EPO local
Lighting Alarms	Led status green colour UPS OK/ Led status red alarm
Acoustics Alarms	Yes

#### COMMUNICATION

---

RS232	1 standard
Free contacts	N° 4 contacts : UPS run / UPS on bypass / Mains OK / Battery end discharge
SNMP SLOT	Yes
Maintenances Software	RS232
Parallel communications	RS232 Optic

## GENERAL DATA

### ALCOR 20÷30 kVA

#### BATTERIES

Nominal Voltages	720 VDC
Floating Voltage	810 VDC
N° of elements	360
Periodic battery test	Si / programmable
Internal batteries	5Ah/7Ah/9Ah

#### WEIGHTS

UPS without batteries (Kg)	65 Kg
UPS with batteries (Kg)	230 Kg

#### AMBIENT CONDITIONS

Exchanged Air	500 m <sup>3</sup> /h (massima )
Noise	58 dB (A)

#### OPTIONAL

Battery extension	Separate cabinet 2 x 60 x (5Ah/7Ah/9Ah)
Transformers	Galvanic insulation (Separate cabinet)
Shutdown	Powershut Plus
Software for diagnostics	Generex PTX
SNMP-Adapter	Connect the UPS to the net
Remote Panel	For indications about UPS status at distance

## ALCOR 20÷30 kVA

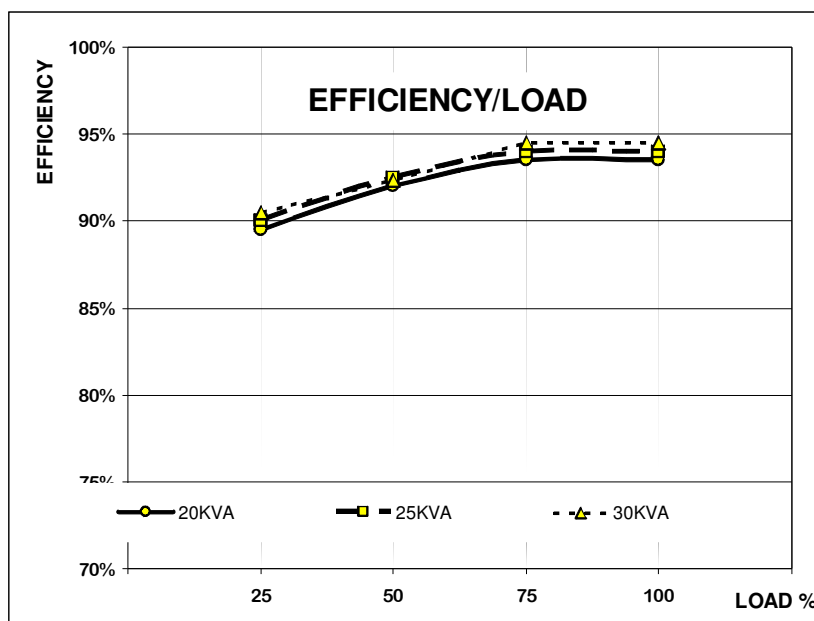
TYPE KVA	20	25	30
	20	25	30
Power kVA			
Power factor	Cos φ 0,8	Cos φ 0,8	Cos φ 0,8
<b>INPUT</b>			
N° of phases	3 Ph+N 1Ph+N	3 Ph+N 1Ph+N	3 Ph+N 1Ph+N
Nominal input voltage	3ph + N 380/400/415 VAC ±10% 1ph + N 220/230/240 VAC ±10%		
Nominal voltage (reserve line)	3ph + N 1ph + N	380/400/415 VAC 220/230/240 VAC	±20% ±20%
Nominal Frequency	50/60 Hz		
Admitted variation	40/70 Hz		
Max current absorbed (Vin = -20% 400V )	46A	46A	46A
Cos φ Power factor	1	1	1
Input distortion	<3%	<3%	<3%
Soft start	20 sec.		
Max battery recharge current	14	9	4.5
<b>OUTPUT</b>			
Number of phases	3 Ph+N 1Ph+N		
Nominal output voltage	3ph + N 380/400/415 VAC 1ph + N 220/230/240 VAC		
Nominal output current (A) (400V nom.)	29	37	44
Output voltage static variation	±1% (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)		
Output voltage dynamic variation (0-100% load)	±5% (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)		
Output frequency	50/60 Hz		
Tolerance of mains voltage synchronization	±1% / ±2% / ±5% / ±10%		
Max Slew Rate with mains present	± 1 Hz for sec		
Output frequency accuracy with internal electric oscillator	± 0,005 Hz		
Output wave form	Sinus wave (UPS Class 1 CEI/IEC 62040-3 par 5.3.1.2)		
Output THD with linear load	<3%	<3%	<3%
Output THD with non linear load	UPS Class 1 (CEI/IEC 62040-3 par 6.3.8.1)		
Efficiency according to the load	Diagram on page 10		
Total max losses (W) B.Ch MAX current	300W		
No load consumption (W)	300W	300W	300W
Admitted Overload	OVRD <125% Pn 10min OVRD >125% Pn 5sec.		



## ALCOR 20÷30 kVA

TYPE KVA	20	25	30
<b>BYPASS</b>			
Nominal voltage	3ph + N	380/400/415 VAC	±20%
	1ph + N	220/230/240 VAC	±20%
Voltage tolerance	±10%		
Frequency	50/60 Hz		
Current Overload admitted	10 I <sub>n</sub> per 100 ms.		
Commutation time (max)			
Inverter-Bypass			<1ms
Bypass – Inverter and automatic return			<1ms
Overload / Failure			<5ms
By pass manual	According to the rotary switch		

### Efficiency / Load Diagram



Normal mode configuration

## UPS CONFIGURATIONS

All the sizes are available in the following configurations :

- Single phase input / single phase output
- Three phases input / single phase output
- Three phases input / three phases output
- Stand alone
- Hot stand-by
- Parallel mode or power parallel

The parallel configuration is type bypass distributed.

It is possible to have maximum n°8 unit in parallel.

The communications between the unit of the parallel system is ring type by optical fibres.

## UPS USER INTERFACE

LCD display 4 rows x 20 characters and 4 functions buttons + local EPO

The display is divided in the following 6 menus :

MENU	N°	NOTE
UPS Status and alarms	1	Default menu
Measurements	2	It show all the measure of the UPS
Command UPS	3	ON-OFF inverter, switching load, battery test
Panel setup	4	Date-Time setting, battery test setting display languages setting
Historical events	5	It store the last 1024 events happens with date and time
Service Mode	6	Only for service dept.

Measures:

- *Input mains voltages*
- *Output voltages*
- *Output frequency*
- *Battery voltage*
- *Battery autonomy*
- *Input currents*
- *Output currents*
- *Output power kVA*
- *Battery current (with sign)*
- *Cooling system temperature*

## UPS REMOTE PANEL

The signals transferred are the following :

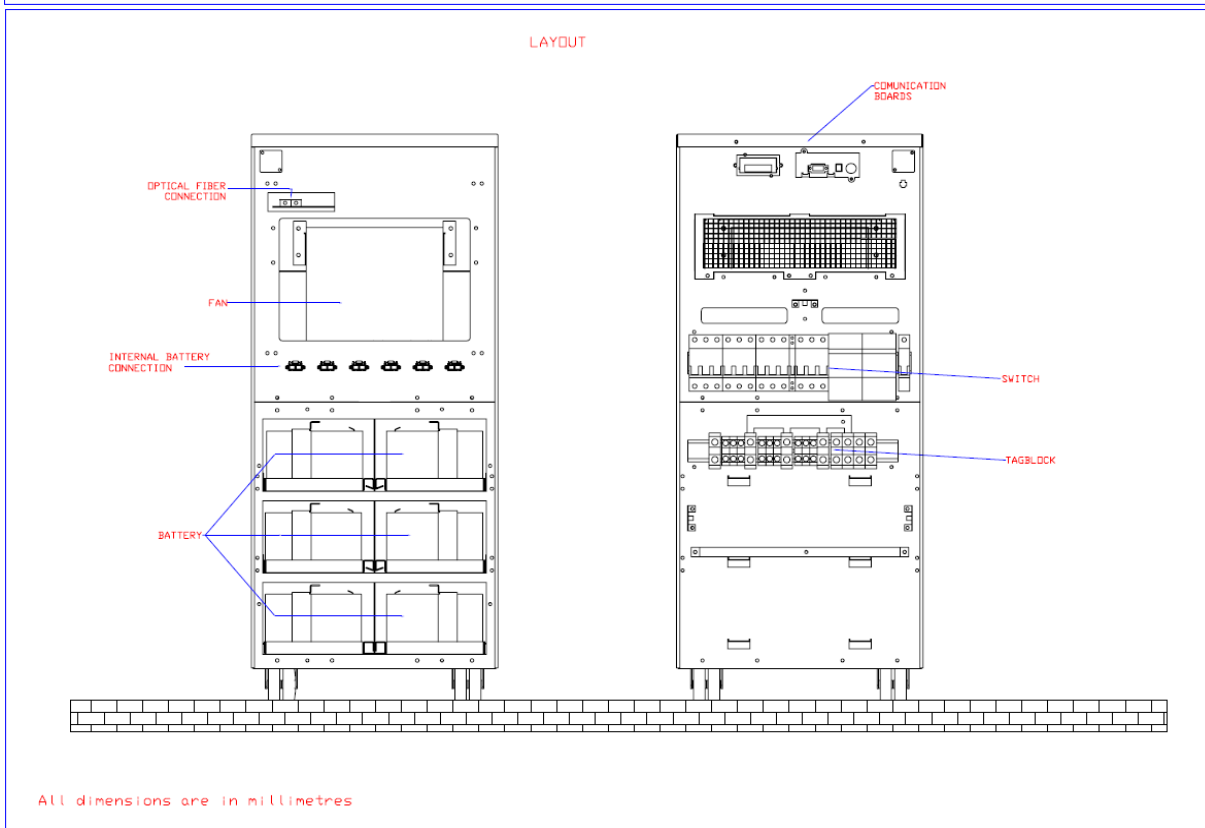
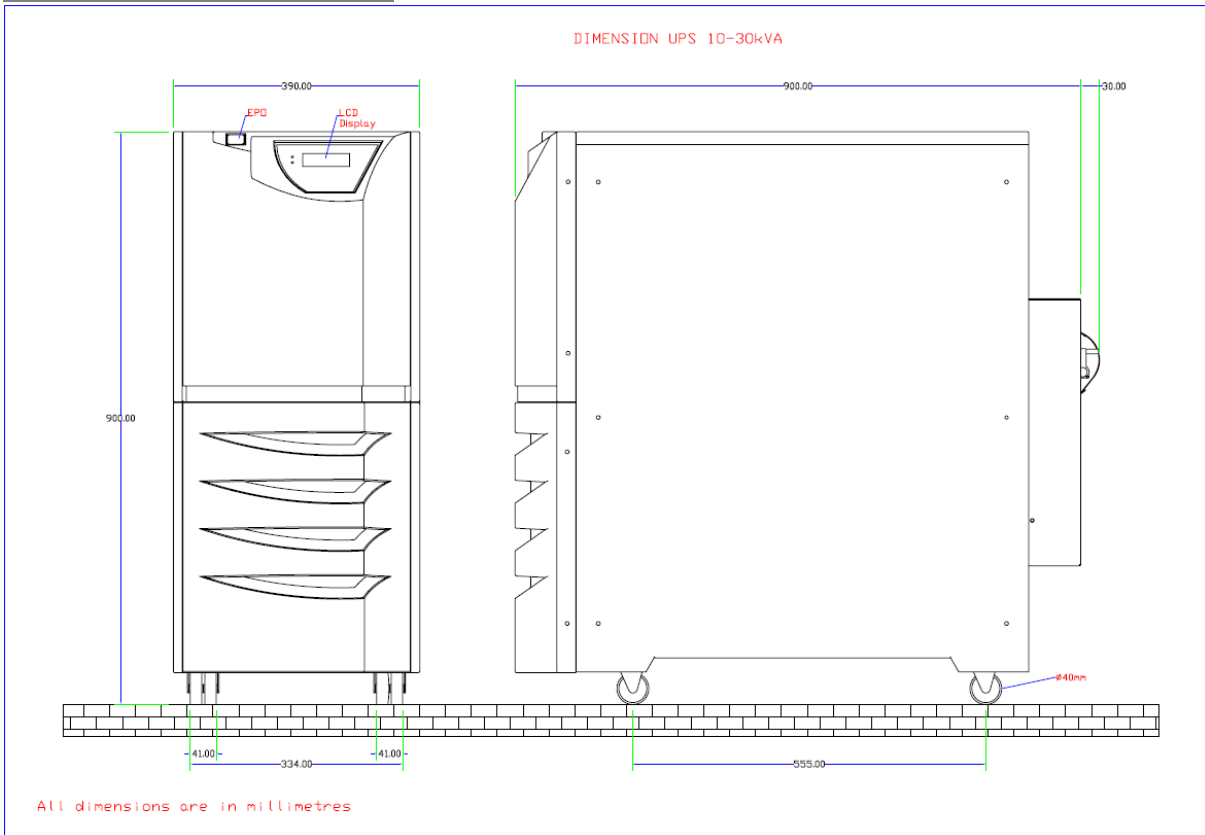
- *Inverter Run*
- *On automatic Bypass*
- *Mains Present*
- *Battery Law*

Serial Interface:

CS121 SNMP ADAPTER per il collegamento in rete dell'UPS.

RS 232 port to be connected to a local PC, which has to be equipped with UPSMAN software.

### DIMENSIONS AND POSITIONING



**DIMENSIONS AND POSITIONING**

