

**UPS  
QUASAR  
5 ÷ 40 kVA**

**DT 0251-E06**

**Document : DT0251 PTX English**

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|-----------------|-------------|-------------------------|-------------------------|
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| 07              |             |                         |                         |

## INTRODUCTION

Present document defines technical specs of a three phase UPS named *QUASAR* covering the power range from 5 to 40 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.

*QUASAR 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 controlled, high frequency transformer less design.
- Internal battery
- Design standards IEC-EN62040-1, IEC-EN62040-2, IEC-EN62040-3
- IEC 950

Data communication protocol featuring:

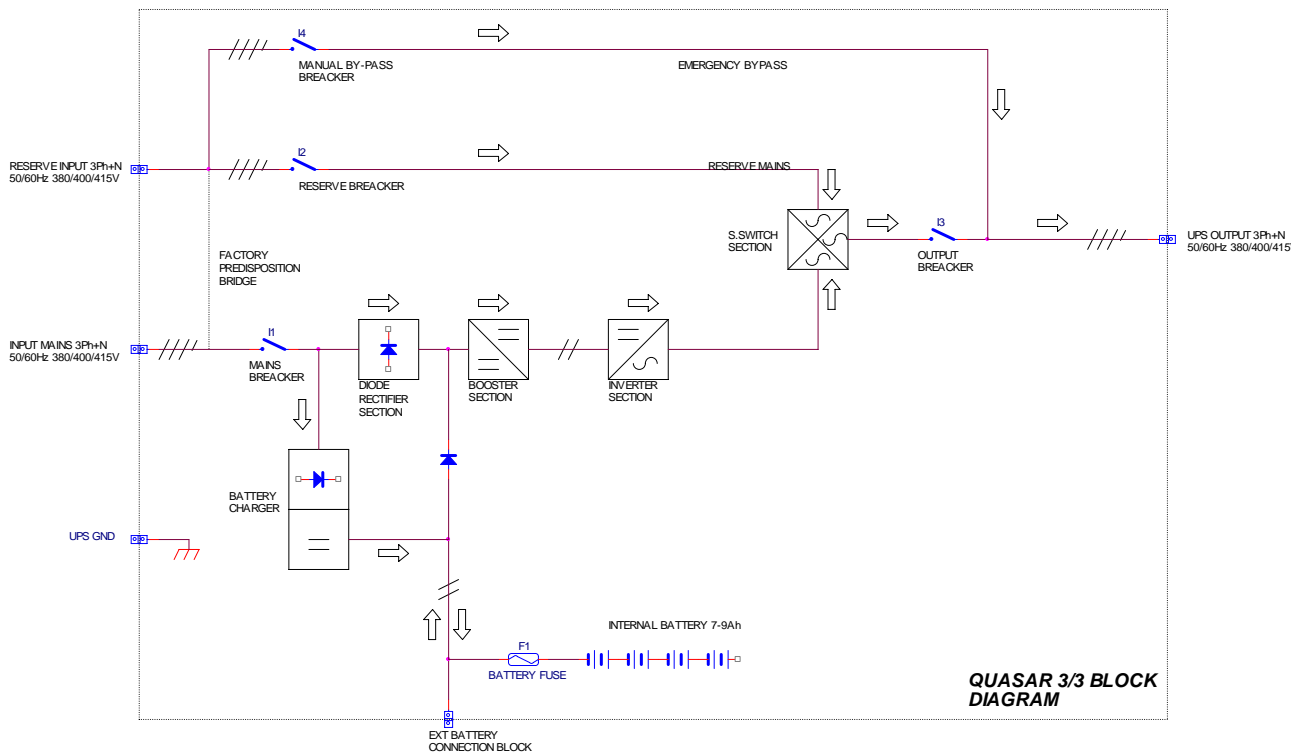
- User friendly front panel with integrated EPO
- Remote EPO available
- RS232 9 pins D type connector
- Software designed for most existing platforms (Windows, Novell, Unix, OS/2, MacOS)

Mechanical design according to Powertronix style guidelines and featuring:

- Bottom cable entry
- Gladding for armoured cabling
- No side access required
- Input protection to IP20
- Service access fully from the front

ONE LINE DIAGRAM:

On this page is given the key block of UPS



**Descriptions :**

1. Rectifier bridge
2. Booster IGBT (step-up)
3. Inverter Power IGBT
4. Static Switch
5. Manual By-Pass
6. Battery Charger
7. Internal Batteries (max 4 series 7-9Ah)

## REGULATIONS AND STANDARDS

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

Electromagnetic compatibility CE 2004/108

|                        |   |
|------------------------|---|
| CEI-EN 62040-1-1:      | Uninterruptible power systems (UPS)<br>Part 1-1: General and safety requirements for UPS<br>used in operator access area        |
| CEI EN 62040-1-2:      | Uninterruptible power systems (UPS)<br>Part 1-2: General and safety requirements for UPS<br>used in restricted access locations |
| CEI EN 62040-2:        | Uninterruptible power systems (UPS)<br>Part 2: Electromagnetic compatibility (EMC)<br>requirements                              |
| CEI EN 62040-3:        | Uninterruptible power systems (UPS)<br>Part 3: Method of specifying the performance and test<br>requirements                    |
| STANDARD CEI-EN 60950: | Information technology equipments   |

## GENERAL DATA

### QUASAR 5 ÷ 40 kVA

#### GENERAL

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|                       |  |
|-----------------------|--|
| Configuration         | On-Line Double Conversion                |
| Nominal Input Voltage | 3ph + N 380Vac 400Vac 415Vac             |
| Inverter              | H.F. Technology IGBT switching TrafoLess |
| S. Switch             | Electronic static switch                 |
| Cooling system        | Forced air                               |

#### MECHANICAL

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|                                     |                                 |
|-------------------------------------|---------------------------------|
| Housing                             | Dedicated UPS cabinet           |
| Colour                              | RAL7035                         |
| Grade of protection                 | IP20                            |
| Recommended distances for placement | See pages from 24 to 27         |
| Entry cables                        | Front from below                |
| Size                                | 530 x 950 x 1230 mm (h x l x p) |

#### ENVIRONMENTAL CONDITIONS

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|                                       |   |
|---------------------------------------|---|
| Operating temperature                 | 0-40° C   |
| Temperature recommended for batteries | +20 ÷ +30 °C  |
| Relative humidity                     | < 95% (without condensing)                                    |
| Maximum altitude                      | Until 1000 m usl (1% downgrading every 100m from 1000 a 2000) |
| Storage temperature                   | -20°+ 70°C (UPS) +20°C ÷ 30°C (battery)                       |

#### DISPLAY

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|                 |   |
|-----------------|---|
| LCD-Display     | Display LCD four lines x 20 characters end four function keys + local EPO |
| Bright alarms   | Led status green UPS OK/ Led status red ALARM                             |
| Acoustic alarms | Yes   |

#### COMMUNICATION

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|                                 |  |
|---------------------------------|--|
| RS232                           | 1 Serial standard  |
| Free contacts                   | N° 4 contact:<br>UPS in operation / UPS in bypass/mains present /battery end discharge |
| Battery end discharge SNMP SLOT | Yes  |
| Maintenance Software            | RS232  |
| Parallel communication          | RS232 Optic  |

## GENERAL DATA

### QUASAR 5 ÷ 40 kVA

#### BATTERY

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|   |                               |
|---|-------------------------------|
| Nominal voltage   | 384 VDC.                      |
| Floating voltage  | 432 VDC.                      |
| N° of elements  | 192                           |
| Periodic battery test   | Yes/ Programmable             |
| Type of internal battery                                      | 5Ah/7Ah/9Ah.                  |
| Variation allowed Vbatt.                                      | 320-500 Vdc                   |
| Max recharge battery Current                                  | 7 Amps                        |
| Current recharge  | 1-3-5-7A selectable           |
| Characteristics of recharge                                   | DIN 41773                     |
| Stability of Vdc of battery charge                            | +/- 1%                        |
| Alternating residual in continue tension<br>- (Vrms/Vb) x 100 | < 1%                          |
| Battery Pre-alarm   | Adjustable 350Vdc recommended |

#### WEIGHTS

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|                                 |                                     |
|---------------------------------|-------------------------------------|
| Weight UPS without Battery (Kg) | Until 30 kVA 240 Kg – 40 kVA 290 Kg |
| Weight UPS with Battery (Kg)    | Until 30 kVA 600 Kg – 40 kVA 650 Kg |

#### ENVIROMENT CONDITION

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|                         |   |
|-------------------------|---|
| Deletion noise radio    | IEC-EN62040-2 CLASS A                   |
| noise at 1m of distance | < 52 dBA until 30KVA - <63dBA per 40KVA |

#### OPTIONAL

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|                                       |  |
|---------------------------------------|--|
| Extension of battery                  | Separated cabinet for 30 minutes end 1 hours in all configuration                            |
| Transformer                           | For galvanic isolation (separated cabinet).  |
| Shutdown                              | Powershut Plus.  |
| Software for diagnostic               | Generex PTX.   |
| SNMP-Adapter                          | Link the UPS on the net.   |
| Remote panel                          | For indicate the status of the UPS at the distance   |
| Relays board                          |  |
| Relays contacts available on TagBlock | 250Vac/8A<br>Mains present<br>Inverter in function<br>Prealarm of battery<br>Load on reserve |

**TYPE kVA**
**5**

| Configuration | Standard | 12 pulse | 12 pulse + Low THD |
|---------------|----------|----------|--------------------|
| Power factor  | 0.8      | 0.8      | 0.8                |

**INPUT**

|  |                              |      |     |
|--|------------------------------|------|-----|
| Input frequency                                | 50÷60Hz +/- 20%              |      |     |
| Number of phases                               | 3PH + N                      |      |     |
| Nominal voltage                                | 3ph + N 380/400/415 VAC ±10% |      |     |
| Reserve Nominal voltage                        | 3ph + N 380/400/415 VAC ±20% |      |     |
| Nominal frequency                              | 50/60 Hz                     |      |     |
| Frequency variation allowed                    | 40/70 Hz                     |      |     |
| Max Current absorbed (A)<br>(Vin = -20% 400V ) | 12.5                         |      |     |
| Input current distortion                       | <28%                         | <10% | <5% |
| Soft start                                     | 10 sec.                      |      |     |

**OUTPUT**

|  |  |  |  |
|--|--|--|--|
| Number of phases   | 3PH + N  |  |  |
| Output nominal voltage   | 3ph + N 380/400/415 VAC                              |  |  |
| Output nominal current (A)<br>(400Vnom.)                       | 7.21   |  |  |
| Static variation of the output voltage                         | ±1% (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)          |  |  |
| Dynamic variation of the output voltage<br>(0-100% load)       | ±5% (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)          |  |  |
| Output frequency   | 50/60 Hz   |  |  |
| Synchro tolerance  | +/- 1%, +/-4% selectable                             |  |  |
| Max Slew Rate whit the main present                            | ± 1 Hz for sec                                       |  |  |
| Precision of the output frequency with<br>internal oscillator  | ± 0,005 Hz   |  |  |
| Vout Waveform  | Sinusoidal (UPS Class 1 CEI/IEC 62040-3 par 5.3.1.2) |  |  |
| Output THD with linear load                                    | < 7%   |  |  |
| Output THD whit distorted load                                 | UPS Class 1 (CEI/IEC 62040-3 par 6.3.8.1)            |  |  |
| Efficiency according to load                                   | See chart PERFORMANCE/LOAD pag. 10                   |  |  |
| Maximum total losses (W) whit battery<br>charger in Charge MAX |  |  |  |
| Power consume whitout load (W)                                 |  |  |  |
| Admitted Inverter Overload                                     | 125% for 10 minutes; 150% per 5 seconds              |  |  |
| Autonomy with the internal battery                             | 18 ÷ 105 min.  |  |  |
| Symmetry of the tension  |  |  |  |
| Static whit balanced load                                      | < 1%   |  |  |
| Static whit unbalanced load 50%                                | < 3%   |  |  |
| Static whit unbalanced load 100%                               | < 5%   |  |  |
| Dynamic variation of 50% of load                               | < 3%   |  |  |
| Dynamic variation of 100% of load                              | < 4%   |  |  |



TYPE kVA

5

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**BYPASS**

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|                                    |         |                                  |              |
|------------------------------------|---------|----------------------------------|--------------|
| Nominal voltage                    | 3ph + N | 380/400/415 VAC                  | ±20%         |
|                                    | 1ph + N | 220/230/240 VAC                  | ±20%         |
| Tolerance of tension               |         | ±10%                             |              |
| Frequency                          |         | 50/60 Hz                         |              |
| Overload in current admitted       |         | 150% 30 minutes                  | 1000% 100ms. |
| Maximum temp of communication      |         |                                  |              |
| Inverter-Bypass                    |         | <1ms                             |              |
| Bypass – Inverter automatic return |         | <1ms                             |              |
| Overload / Failure                 |         | <5ms                             |              |
| Manual by pass                     |         | Available with mechanical blocks |              |

**TYPE kVA**
**10**

| Configuration | Standard | 12 pulse | 12 pulse + Low THD |
|---------------|----------|----------|--------------------|
| Power factor  | 0.8      | 0.8      | 0.8                |

**INPUT**

|  |                              |      |     |
|--|------------------------------|------|-----|
| Input frequency                                | 50÷60Hz +/- 20%              |      |     |
| Number of phases                               | 3PH + N                      |      |     |
| Nominal voltage                                | 3ph + N 380/400/415 VAC ±10% |      |     |
| Reserve Nominal voltage                        | 3ph + N 380/400/415 VAC ±20% |      |     |
| Nominal frequency                              | 50/60 Hz                     |      |     |
| Frequency variation allowed                    | 40/70 Hz                     |      |     |
| Max Current absorbed (A)<br>(Vin = -20% 400V ) | 18.5                         |      |     |
| Input current distortion                       | <28%                         | <10% | <5% |
| Soft start                                     | 10 sec.                      |      |     |

**OUTPUT**

|  |  |  |  |
|--|--|--|--|
| Number of phases   | 3PH + N  |  |  |
| Output nominal voltage   | 3ph + N 380/400/415 VAC                              |  |  |
| Output nominal current (A)<br>(400Vnom.)                       | 15   |  |  |
| Static variation of the output voltage                         | ±1% (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)          |  |  |
| Dynamic variation of the output voltage<br>(0-100% load)       | ±5% (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)          |  |  |
| Output frequency   | 50/60 Hz   |  |  |
| Synchro tolerance  | +/- 1%, +/-4% selectable                             |  |  |
| Max Slew Rate whit the main present                            | ± 1 Hz for sec                                       |  |  |
| Precision of the output frequency with<br>internal oscillator  | ± 0,005 Hz   |  |  |
| Vout Waveform  | Sinusoidal (UPS Class 1 CEI/IEC 62040-3 par 5.3.1.2) |  |  |
| Output THD with linear load                                    | < 7%   |  |  |
| Output THD whit distorted load                                 | UPS Class 1 (CEI/IEC 62040-3 par 6.3.8.1)            |  |  |
| Efficiency according to load                                   | See chart PERFORMANCE/LOAD pag. 10                   |  |  |
| Maximum total losses (W) whit battery<br>charger in Charge MAX |  |  |  |
| Power consume whitout load (W)                                 |  |  |  |
| Admitted Inverter Overload                                     | 125% for 10 minutes; 150% per 5 seconds              |  |  |
| Autonomy with the internal battery                             | 18 ÷ 105 min.  |  |  |
| Symmetry of the tension  |  |  |  |
| Static whit balanced load                                      | < 1%   |  |  |
| Static whit unbalanced load 50%                                | < 3%   |  |  |
| Static whit unbalanced load 100%                               | < 5%   |  |  |
| Dynamic variation of 50% of load                               | < 3%   |  |  |
| Dynamic variation of 100% of load                              | < 4%   |  |  |

TYPE kVA

10

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**BYPASS**

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|                                    |         |                 |                                  |
|------------------------------------|---------|-----------------|----------------------------------|
| Nominal voltage                    | 3ph + N | 380/400/415 VAC | ±20%                             |
|                                    | 1ph + N | 220/230/240 VAC | ±20%                             |
| Tolerance of tension               |         |                 | ±10%                             |
| Frequency                          |         |                 | 50/60 Hz                         |
| Overload in current admitted       |         |                 | 150% 30 minutes 1000% 100ms.     |
| Maximum temp of communication      |         |                 |                                  |
| Inverter-Bypass                    |         |                 | <1ms                             |
| Bypass – Inverter automatic return |         |                 | <1ms                             |
| Overload / Failure                 |         |                 | <5ms                             |
| Manual by pass                     |         |                 | Available with mechanical blocks |

**TYPE kVA**
**15**

| Configuration | Standard | 12 pulse | 12 pulse + Low THD |
|---------------|----------|----------|--------------------|
| Power factor  | 0.8      | 0.8      | 0.8                |

**INPUT**

|  |                              |      |     |
|--|------------------------------|------|-----|
| Input frequency                                | 50÷60Hz +/- 20%              |      |     |
| Number of phases                               | 3PH + N                      |      |     |
| Nominal voltage                                | 3ph + N 380/400/415 VAC ±10% |      |     |
| Reserve Nominal voltage                        | 3ph + N 380/400/415 VAC ±20% |      |     |
| Nominal frequency                              | 50/60 Hz                     |      |     |
| Frequency variation allowed                    | 40/70 Hz                     |      |     |
| Max Current absorbed (A)<br>(Vin = -20% 400V ) |                              |      |     |
| Input current distortion                       | <28%                         | <10% | <5% |
| Soft start                                     | 10 sec.                      |      |     |

**OUTPUT**

|  |  |  |  |
|--|--|--|--|
| Number of phases   | 3PH + N  |  |  |
| Output nominal voltage   | 3ph + N 380/400/415 VAC                              |  |  |
| Output nominal current (A)<br>(400Vnom.)                       | 28.9   |  |  |
| Static variation of the output voltage                         | ±1% (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)          |  |  |
| Dynamic variation of the output voltage<br>(0-100% load)       | ±5% (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)          |  |  |
| Output frequency   | 50/60 Hz   |  |  |
| Synchro tolerance  | +/- 1%, +/-4% selectable                             |  |  |
| Max Slew Rate whit the main present                            | ± 1 Hz for sec                                       |  |  |
| Precision of the output frequency with<br>internal oscillator  | ± 0,005 Hz   |  |  |
| Vout Waveform  | Sinusoidal (UPS Class 1 CEI/IEC 62040-3 par 5.3.1.2) |  |  |
| Output THD with linear load                                    | < 7%   |  |  |
| Output THD whit distorted load                                 | UPS Class 1 (CEI/IEC 62040-3 par 6.3.8.1)            |  |  |
| Efficiency according to load                                   | See chart PERFORMANCE/LOAD pag. 10                   |  |  |
| Maximum total losses (W) whit battery<br>charger in Charge MAX |  |  |  |
| Power consume whitout load (W)                                 |  |  |  |
| Admitted Inverter Overload                                     | 125% for 10 minutes; 150% per 5 seconds              |  |  |
| Autonomy with the internal battery                             | 18 ÷ 105 min.  |  |  |
| Symmetry of the tension  |  |  |  |
| Static whit balanced load                                      | < 1%   |  |  |
| Static whit unbalanced load 50%                                | < 3%   |  |  |
| Static whit unbalanced load 100%                               | < 5%   |  |  |
| Dynamic variation of 50% of load                               | < 3%   |  |  |
| Dynamic variation of 100% of load                              | < 4%   |  |  |

TYPE kVA

15

**BYPASS**

|                                    |         |                 |                                  |
|------------------------------------|---------|-----------------|----------------------------------|
| Nominal voltage                    | 3ph + N | 380/400/415 VAC | ±20%                             |
|                                    | 1ph + N | 220/230/240 VAC | ±20%                             |
| Tolerance of tension               |         |                 | ±10%                             |
| Frequency                          |         |                 | 50/60 Hz                         |
| Overload in current admitted       |         |                 | 150% 30 minutes 1000% 100ms.     |
| Maximum temp of communication      |         |                 |                                  |
| Inverter-Bypass                    |         |                 | <1ms                             |
| Bypass – Inverter automatic return |         |                 | <1ms                             |
| Overload / Failure                 |         |                 | <5ms                             |
| Manual by pass                     |         |                 | Available with mechanical blocks |

**TYPE kVA**
**20**

| Configuration | Standard | 12 pulse | 12 pulse + Low THD |
|---------------|----------|----------|--------------------|
| Power factor  | 0.8      | 0.8      | 0.8                |

**INPUT**

|  |                              |      |     |
|--|------------------------------|------|-----|
| Input frequency                                | 50÷60Hz +/- 20%              |      |     |
| Number of phases                               | 3PH + N                      |      |     |
| Nominal voltage                                | 3ph + N 380/400/415 VAC ±10% |      |     |
| Reserve Nominal voltage                        | 3ph + N 380/400/415 VAC ±20% |      |     |
| Nominal frequency                              | 50/60 Hz                     |      |     |
| Frequency variation allowed                    | 40/70 Hz                     |      |     |
| Max Current absorbed (A)<br>(Vin = -20% 400V ) |                              |      |     |
| Input current distortion                       | <28%                         | <10% | <5% |
| Soft start                                     | 10 sec.                      |      |     |

**OUTPUT**

|  |  |  |  |
|--|--|--|--|
| Number of phases   | 3PH + N  |  |  |
| Output nominal voltage   | 3ph + N 380/400/415 VAC                              |  |  |
| Output nominal current (A)<br>(400Vnom.)                       | 28.8   |  |  |
| Static variation of the output voltage                         | ±1% (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)          |  |  |
| Dynamic variation of the output voltage<br>(0-100% load)       | ±5% (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)          |  |  |
| Output frequency   | 50/60 Hz   |  |  |
| Synchro tolerance  | +/- 1%, +/-4% selectable                             |  |  |
| Max Slew Rate whit the main present                            | ± 1 Hz for sec                                       |  |  |
| Precision of the output frequency with<br>internal oscillator  | ± 0,005 Hz   |  |  |
| Vout Waveform  | Sinusoidal (UPS Class 1 CEI/IEC 62040-3 par 5.3.1.2) |  |  |
| Output THD with linear load                                    | < 7%   |  |  |
| Output THD whit distorted load                                 | UPS Class 1 (CEI/IEC 62040-3 par 6.3.8.1)            |  |  |
| Efficiency according to load                                   | See chart PERFORMANCE/LOAD pag. 10                   |  |  |
| Maximum total losses (W) whit battery<br>charger in Charge MAX |  |  |  |
| Power consume whitout load (W)                                 |  |  |  |
| Admitted Inverter Overload                                     | 125% for 10 minutes; 150% per 5 seconds              |  |  |
| Autonomy with the internal battery                             | 18 ÷ 105 min.  |  |  |
| Symmetry of the tension  |  |  |  |
| Static whit balanced load                                      | < 1%   |  |  |
| Static whit unbalanced load 50%                                | < 3%   |  |  |
| Static whit unbalanced load 100%                               | < 5%   |  |  |
| Dynamic variation of 50% of load                               | < 3%   |  |  |
| Dynamic variation of 100% of load                              | < 4%   |  |  |

TYPE kVA

20

**BYPASS**

|                                    |         |                                  |              |
|------------------------------------|---------|----------------------------------|--------------|
| Nominal voltage                    | 3ph + N | 380/400/415 VAC                  | ±20%         |
|                                    | 1ph + N | 220/230/240 VAC                  | ±20%         |
| Tolerance of tension               |         | ±10%                             |              |
| Frequency                          |         | 50/60 Hz                         |              |
| Overload in current admitted       |         | 150% 30 minutes                  | 1000% 100ms. |
| Maximum temp of communication      |         |                                  |              |
| Inverter-Bypass                    |         | <1ms                             |              |
| Bypass – Inverter automatic return |         | <1ms                             |              |
| Overload / Failure                 |         | <5ms                             |              |
| Manual by pass                     |         | Available with mechanical blocks |              |

**TYPE kVA**
**25**

| Configuration | Standard | 12 pulse | 12 pulse + Low THD |
|---------------|----------|----------|--------------------|
| Power factor  | 0.8      | 0.8      | 0.8                |

**INPUT**

|  |                              |      |     |
|--|------------------------------|------|-----|
| Input frequency                                | 50÷60Hz +/- 20%              |      |     |
| Number of phases                               | 3PH + N                      |      |     |
| Nominal voltage                                | 3ph + N 380/400/415 VAC ±10% |      |     |
| Reserve Nominal voltage                        | 3ph + N 380/400/415 VAC ±20% |      |     |
| Nominal frequency                              | 50/60 Hz                     |      |     |
| Frequency variation allowed                    | 40/70 Hz                     |      |     |
| Max Current absorbed (A)<br>(Vin = -20% 400V ) |                              |      |     |
| Input current distortion                       | <28%                         | <10% | <5% |
| Soft start                                     | 10 sec.                      |      |     |

**OUTPUT**

|  |  |  |  |
|--|--|--|--|
| Number of phases   | 3PH + N  |  |  |
| Output nominal voltage   | 3ph + N 380/400/415 VAC                              |  |  |
| Output nominal current (A)<br>(400Vnom.)                       | 36   |  |  |
| Static variation of the output voltage                         | ±1% (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)          |  |  |
| Dynamic variation of the output voltage<br>(0-100% load)       | ±5% (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)          |  |  |
| Output frequency   | 50/60 Hz   |  |  |
| Synchro tolerance  | +/- 1%, +/-4% selectable                             |  |  |
| Max Slew Rate whit the main present                            | ± 1 Hz for sec                                       |  |  |
| Precision of the output frequency with<br>internal oscillator  | ± 0,005 Hz   |  |  |
| Vout Waveform  | Sinusoidal (UPS Class 1 CEI/IEC 62040-3 par 5.3.1.2) |  |  |
| Output THD with linear load                                    | < 7%   |  |  |
| Output THD whit distorted load                                 | UPS Class 1 (CEI/IEC 62040-3 par 6.3.8.1)            |  |  |
| Efficiency according to load                                   | See chart PERFORMANCE/LOAD pag. 10                   |  |  |
| Maximum total losses (W) whit battery<br>charger in Charge MAX |  |  |  |
| Power consume whitout load (W)                                 |  |  |  |
| Admitted Inverter Overload                                     | 125% for 10 minutes; 150% per 5 seconds              |  |  |
| Autonomy with the internal battery                             | 18 ÷ 105 min.  |  |  |
| Symmetry of the tension  |  |  |  |
| Static whit balanced load                                      | < 1%   |  |  |
| Static whit unbalanced load 50%                                | < 3%   |  |  |
| Static whit unbalanced load 100%                               | < 5%   |  |  |
| Dynamic variation of 50% of load                               | < 3%   |  |  |
| Dynamic variation of 100% of load                              | < 4%   |  |  |



TYPE kVA

25

**BYPASS**

|                                    |         |                                  |              |
|------------------------------------|---------|----------------------------------|--------------|
| Nominal voltage                    | 3ph + N | 380/400/415 VAC                  | ±20%         |
|                                    | 1ph + N | 220/230/240 VAC                  | ±20%         |
| Tolerance of tension               |         | ±10%                             |              |
| Frequency                          |         | 50/60 Hz                         |              |
| Overload in current admitted       |         | 150% 30 minutes                  | 1000% 100ms. |
| Maximum temp of communication      |         |                                  |              |
| Inverter-Bypass                    |         | <1ms                             |              |
| Bypass – Inverter automatic return |         | <1ms                             |              |
| Overload / Failure                 |         | <5ms                             |              |
| Manual by pass                     |         | Available with mechanical blocks |              |

**TYPE kVA**
**30**

| Configuration | Standard | 12 pulse | 12 pulse + Low THD |
|---------------|----------|----------|--------------------|
| Power factor  | 0.8      | 0.8      | 0.8                |

**INPUT**

|  |                              |      |     |
|--|------------------------------|------|-----|
| Input frequency                                | 50÷60Hz +/- 20%              |      |     |
| Number of phases                               | 3PH + N                      |      |     |
| Nominal voltage                                | 3ph + N 380/400/415 VAC ±10% |      |     |
| Reserve Nominal voltage                        | 3ph + N 380/400/415 VAC ±20% |      |     |
| Nominal frequency                              | 50/60 Hz                     |      |     |
| Frequency variation allowed                    | 40/70 Hz                     |      |     |
| Max Current absorbed (A)<br>(Vin = -20% 400V ) |                              |      |     |
| Input current distortion                       | <28%                         | <10% | <5% |
| Soft start                                     | 10 sec.                      |      |     |

**OUTPUT**

|  |  |  |  |
|--|--|--|--|
| Number of phases   | 3PH + N  |  |  |
| Output nominal voltage   | 3ph + N 380/400/415 VAC                              |  |  |
| Output nominal current (A)<br>(400Vnom.)                       | 43.4   |  |  |
| Static variation of the output voltage                         | ±1% (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)          |  |  |
| Dynamic variation of the output voltage<br>(0-100% load)       | ±5% (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)          |  |  |
| Output frequency   | 50/60 Hz   |  |  |
| Synchro tolerance  | +/- 1%, +/-4% selectable                             |  |  |
| Max Slew Rate whit the main present                            | ± 1 Hz for sec                                       |  |  |
| Precision of the output frequency with<br>internal oscillator  | ± 0,005 Hz   |  |  |
| Vout Waveform  | Sinusoidal (UPS Class 1 CEI/IEC 62040-3 par 5.3.1.2) |  |  |
| Output THD with linear load                                    | < 7%   |  |  |
| Output THD whit distorted load                                 | UPS Class 1 (CEI/IEC 62040-3 par 6.3.8.1)            |  |  |
| Efficiency according to load                                   | See chart PERFORMANCE/LOAD pag. 10                   |  |  |
| Maximum total losses (W) whit battery<br>charger in Charge MAX |  |  |  |
| Power consume whitout load (W)                                 |  |  |  |
| Admitted Inverter Overload                                     | 125% for 10 minutes; 150% per 5 seconds              |  |  |
| Autonomy with the internal battery                             | 18 ÷ 105 min.  |  |  |
| Symmetry of the tension  |  |  |  |
| Static whit balanced load                                      | < 1%   |  |  |
| Static whit unbalanced load 50%                                | < 3%   |  |  |
| Static whit unbalanced load 100%                               | < 5%   |  |  |
| Dynamic variation of 50% of load                               | < 3%   |  |  |
| Dynamic variation of 100% of load                              | < 4%   |  |  |

TYPE kVA

30

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**BYPASS**

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|                                    |         |                                  |              |
|------------------------------------|---------|----------------------------------|--------------|
| Nominal voltage                    | 3ph + N | 380/400/415 VAC                  | ±20%         |
|                                    | 1ph + N | 220/230/240 VAC                  | ±20%         |
| Tolerance of tension               |         | ±10%                             |              |
| Frequency                          |         | 50/60 Hz                         |              |
| Overload in current admitted       |         | 150% 30 minutes                  | 1000% 100ms. |
| Maximum temp of communication      |         |                                  |              |
| Inverter-Bypass                    |         | <1ms                             |              |
| Bypass – Inverter automatic return |         | <1ms                             |              |
| Overload / Failure                 |         | <5ms                             |              |
| Manual by pass                     |         | Available with mechanical blocks |              |

**TYPE kVA**
**40**

| Configuration | Standard | 12 pulse | 12 pulse + Low THD |
|---------------|----------|----------|--------------------|
| Power factor  | 0.8      | 0.8      | 0.8                |

**INPUT**

|  |                              |      |     |
|--|------------------------------|------|-----|
| Input frequency                                | 50÷60Hz +/- 20%              |      |     |
| Number of phases                               | 3PH + N                      |      |     |
| Nominal voltage                                | 3ph + N 380/400/415 VAC ±10% |      |     |
| Reserve Nominal voltage                        | 3ph + N 380/400/415 VAC ±20% |      |     |
| Nominal frequency                              | 50/60 Hz                     |      |     |
| Frequency variation allowed                    | 40/70 Hz                     |      |     |
| Max Current absorbed (A)<br>(Vin = -20% 400V ) |                              |      |     |
| Input current distortion                       | <28%                         | <10% | <5% |
| Soft start                                     | 10 sec.                      |      |     |

**OUTPUT**

|  |  |  |  |
|--|--|--|--|
| Number of phases   | 3PH + N  |  |  |
| Output nominal voltage   | 3ph + N 380/400/415 VAC                              |  |  |
| Output nominal current (A)<br>(400Vnom.)                       | 57.73  |  |  |
| Static variation of the output voltage                         | ±1% (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)          |  |  |
| Dynamic variation of the output voltage<br>(0-100% load)       | ±5% (UPS Class 1 CEI/IEC 62040-3 par 5.3.1)          |  |  |
| Output frequency   | 50/60 Hz   |  |  |
| Synchro tolerance  | +/- 1%, +/-4% selectable                             |  |  |
| Max Slew Rate whit the main present                            | ± 1 Hz for sec                                       |  |  |
| Precision of the output frequency with<br>internal oscillator  | ± 0,005 Hz   |  |  |
| Vout Waveform  | Sinusoidal (UPS Class 1 CEI/IEC 62040-3 par 5.3.1.2) |  |  |
| Output THD with linear load                                    | < 7%   |  |  |
| Output THD whit distorted load                                 | UPS Class 1 (CEI/IEC 62040-3 par 6.3.8.1)            |  |  |
| Efficiency according to load                                   | See chart PERFORMANCE/LOAD pag. 10                   |  |  |
| Maximum total losses (W) whit battery<br>charger in Charge MAX |  |  |  |
| Power consume whitout load (W)                                 |  |  |  |
| Admitted Inverter Overload                                     | 125% for 10 minutes; 150% per 5 seconds              |  |  |
| Autonomy with the internal battery                             | 18 ÷ 105 min.  |  |  |
| Symmetry of the tension  |  |  |  |
| Static whit balanced load                                      | < 1%   |  |  |
| Static whit unbalanced load 50%                                | < 3%   |  |  |
| Static whit unbalanced load 100%                               | < 5%   |  |  |
| Dynamic variation of 50% of load                               | < 3%   |  |  |
| Dynamic variation of 100% of load                              | < 4%   |  |  |

TYPE kVA

40

**BYPASS**

|                                    |         |                 |                                  |
|------------------------------------|---------|-----------------|----------------------------------|
| Nominal voltage                    | 3ph + N | 380/400/415 VAC | ±20%                             |
|                                    | 1ph + N | 220/230/240 VAC | ±20%                             |
| Tolerance of tension               |         |                 | ±10%                             |
| Frequency                          |         |                 | 50/60 Hz                         |
| Overload in current admitted       |         |                 | 150% 30 minutes 1000% 100ms.     |
| Maximum temp of communication      |         |                 |                                  |
| Inverter-Bypass                    |         |                 | <1ms                             |
| Bypass – Inverter automatic return |         |                 | <1ms                             |
| Overload / Failure                 |         |                 | <5ms                             |
| Manual by pass                     |         |                 | Available with mechanical blocks |

## UPS CONFIGURATIONS

All the sizes are available in the following configurations :

- 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

Measures :

- |                        |                             |
|------------------------|-----------------------------|
| - Input Voltage        | - Input Currents            |
| - Output Voltage       | - Output Currents           |
| - Input Frequency      | - Output Frequency          |
| - Battery Voltage      | - Battery Current with sign |
| - Battery back-up time |                             |

## UPS REMOTE PANEL

The signals transferred are the following :

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

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.

DIMENSION AND POSITONING

