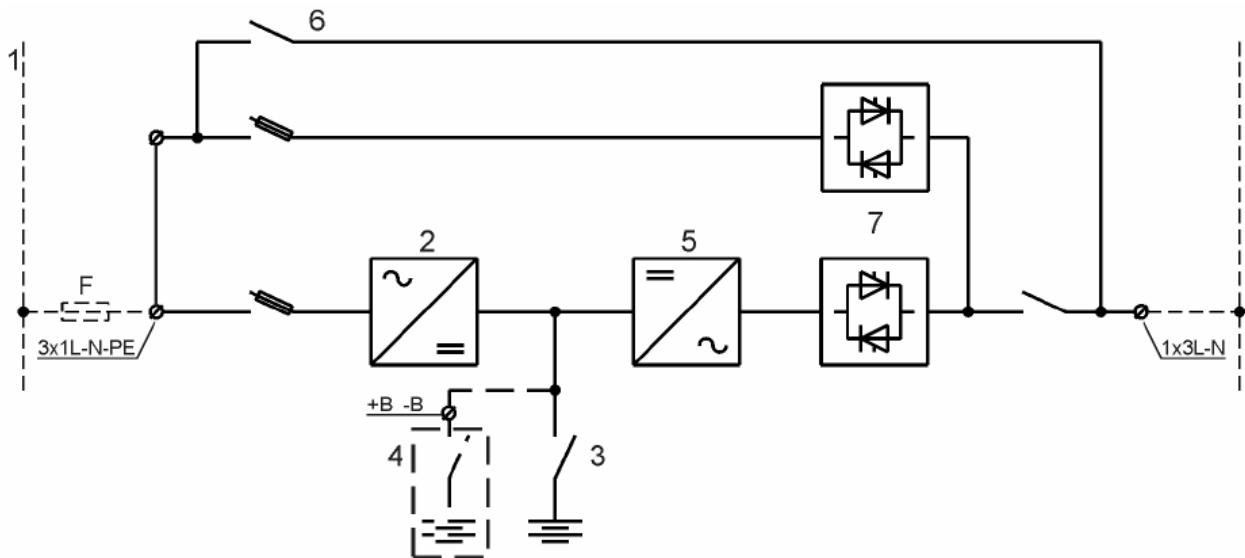


PREMIER 33L Series, 10:15:20kVA UPS System

General information:

| POWER (kVA) | | 10 | 15 | 20 |
|---|----------------------|---|-----------|-----------|
| UPS typology | | ON LINE - Double conversion ACTIVE – stand by operation (Optional) | | |
| Nominal output power (Cos Ø 0.8) | (kVA) | 10 | 15 | 20 |
| Nominal output power (Cos Ø 1.0) | (kW) | 8 | 12 | 16 |
| Efficiency AC ÷ AC (ECO mode) | (%) | >98 | >98 | >98 |
| Efficiency AC ÷ AC (ON LINE Double Conversion mode) | (%) | >92 | >92 | >92 |
| Heat dissipation at nominal load | W | 695 | 1040 | 1390 |
| | kcal /hour | 598 | 894 | 1195 |
| UPS ambient temperature | (°C) | 0 ~ +40 | | |
| BATTERY ambient temperature | (°C) | 0 ~ +25 | | |
| UPS storage temperature | (°C) | -10 ~ +70 | | |
| BATTERY storage temperature | (°C) | -10 ~ +60 | | |
| Relative humidity (non condensing) | (%) | From 20% to 80% | | |
| Altitude | (m) | <1000 (Above See Level) | | |
| Power de-rating for altitude > 1000m | | According to "IEC62040-3" | | |
| Ventilation | | FORCED | | |
| Requested cooling air volume | (m ³ /h) | 500 | 500 | 600 |
| Audible noise level (according EN 50091) | | <50db | <50 db | <50 db |
| Protection degree | | IP 20 | IP20 | IP20 |
| Standard battery type lead acid | (N° cells) | 2x180 | 2x180 | 2x180 |
| EMC compatibility | | According to "EN 50091-2" (CE Label) | | |
| Paint | | RAL 9001 | | |
| Dimensions | (mm) | W = 450, D = 650, H = 1200 | | |
| Accessibility | | Front and top | | |
| Installation | (cm) | 10 from wall | | |
| Weights (without battery – with battery) | (kg) | 90-250 | 100-260 | 100-260 |
| Static load (without battery – with battery) | (kg/m ²) | 310-854 | 340-890 | 340-890 |
| Input/output cable connection | | Bottom / Rear Side | | |
| Movement | | By wheels | | |
| Ambient storage and transportation conditions | | According to "IEC62040-3" | | |
| Design standard | | According to "EN50091" "IEC62040" "ISO 14001" | | |
| Free contact interface | | On request | | |
| Standard serial communication interface | | RS232 | | |

Block diagram:



Description

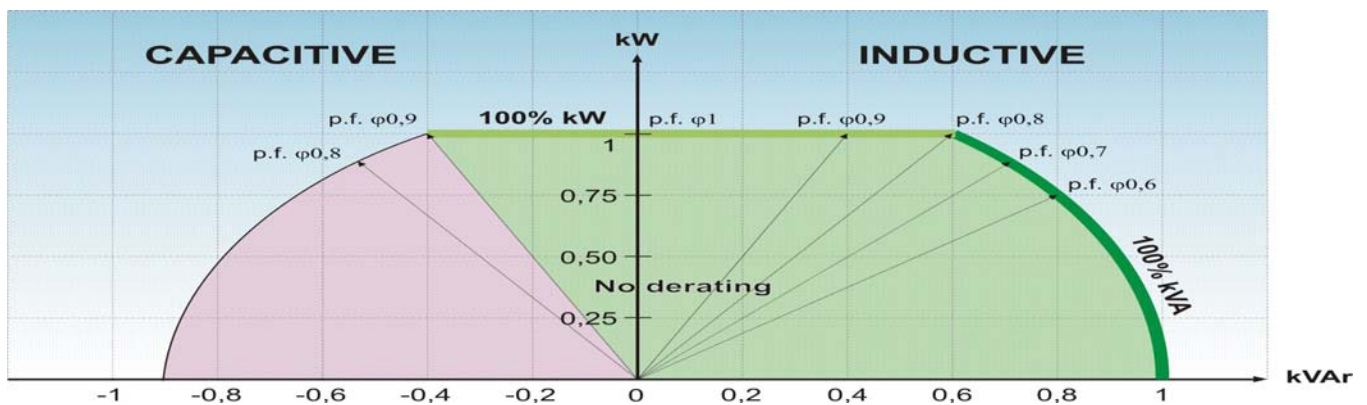
- The UPS is designed following the criteria of low environmental impact.
- The quantity of the raw material used on the magnetic components and the number of semiconductors is minimised by the means of advanced design criteria.
- The high overall efficiency minimises the power consumption.
- The ECO mode is available as a standard.
- The expected battery life time is maximised by the advanced digital battery charger.
- The UPS is designed in a full modular structure. Starting from a very high reliability basis (by the use of a preliminary test and burn in of each module) and a very low repairing time (the faulty module can be substituted in the field and repaired in the factory).
- The UPS is equipped by a built-in advanced self-diagnostic program indicating the problems and suggesting to the service engineers how to repair the faults.
- Additional digital loops are included controlling:
 - o the DC components on the output voltage (Anti Saturation Loop "ASL")
 - o the short-circuit current (Soft Short Recovery Loop "SSRL")
 - o the high crest factor load current (Current Boost Gain "CGB")

Rectifier and Battery charger:

| POWER (kVA) | 10 | 15 | 20 |
|---|-------------------|-------|-------|
| Input configuration | 3 Phase + Neutral | | |
| Nominal Input Voltage(Ph-N) (Vac) | 230 (+10% -20%) | | |
| Input Frequency (Hz) | 50 ~ 60 +/- 5 | | |
| Input Power Factor | >0.99 | >0.99 | >0.99 |
| Harmonic current distortion rejected into the mains (%) | <4 | <4 | <4 |
| DC Output Voltage Accuracy (%) | +/- 1 | | |
| DC Output Voltage Ripple (% rms) | 1 | | |
| Battery Recharging Characteristic | IU (DIN 41773) | | |
| Temperature Battery Voltage Compensation | On Request | | |
| Maximum Recharging Current @ nominal load (A) | 2x6 | 2x10 | 2x6 |
| AC-DC converter type | IGBT | | |
| Input protection | Fuses | | |
| Inrush input current (A) | | | |
| Earth leakage current (mA) | | | |
| Nominal Current Absorbed from Mains (@ nominal load and Battery charged) (A) | 12 | 19 | 23 |
| Maximum Current Absorbed from Mains (@ nom. load and max. recharging current, Uin = -20%) (A) | 24 | 36 | 36 |

Description

- The input rectifier is designed to minimise the harmonics rejected into the input mains.
- The technology is based on a full bridge 6-IGBT matrix, fully digitally controlled.
- Large input mains variations are allowed.
- The battery charger function is included on the same converter.
- The converter is designed to recharge the battery for long time autonomies.



Inverter:

| POWER (kVA) | 10 | 15 | 20 |
|---|--|------------|-----------|
| Inverter Bridge | IGBT (transformerless) | | |
| Nominal Output Power (Cos Ø 0.8) (kVA) | 10 | 15 | 20 |
| Nominal Output Power (Cos Ø 1.0) (kW) | 8 | 12 | 16 |
| Permissible range of load power factor | See Above | | |
| Nominal Output Voltage(Ph-N) (Vac) | 220-230-240 (On request) | | |
| Output configuration | Three Phase + Neutral | | |
| Output Voltage Stability - Static - Dynamic (Step Load 0~100%~0) - Output Volt. Recovery Time (after step load) - IEC 62040-3 | +/- 1% rms +/- 2% rms Within 10 ms Classification 1 | | |
| Output Voltage Unbalance - Possible load unbalance - Voltage stability - Angle displacement tolerance | 100% - 0% - 0% +/-2% rms +/-1 deg. | | |
| Output Frequency (Hz) | 50 – 60 | | |
| Output Frequency Stability (Hz) - Internal Quartz Oscillator - Inverter Sync. with Mains | +/- 0.001 +/- 2 (Other on request) | | |
| Nominal Output Current (@ 230Vac output) (A) - PF Ø 0.8 - PF Ø 1.0 | 15 12 | 22.5 18 | 30 24 |
| Overload Capability (%) | 125% for 10 minutes 200% for 100 ms | | |
| Short Circuit Current (A) | 24 | 36 | 48 |
| Short Circuit Characteristic | Elect. short circuit protection, current limited at 2 times nominal current. Automatic stop after 5 seconds | | |
| Selectivity | Within ½ cycle (Fuse gl 20% In) | | |
| Output Waveform | Sinusoidal | | |
| Output Harmonic Distortion (%) - Linear Load - Non Linear Load (Crest factor 3:1) - IEC 62040-3 | <1 <5 Fully compliant | | |
| Crest Factor (Non-linear load) | 3:1 | | |

Description

- The Inverter design is based on a full bridge 6-IGBT matrix, fully digitally controlled.
- The output voltage stability and the dynamic response are optimised. Nested voltage and current mode loops are implemented the DC components on the output voltage is controlled by a separate loop (Anti Saturation Loop "ASL").
- The output voltage total harmonic distortion is kept very low with both linear and non-linear (switching) load (Current Boost Gain "CBG").
- The selectivity in case of short-circuit is very high and the recovery of the voltage is digitally controlled (Soft Short Recovery Loop "SSRL").
- The inverter is designed to minimise the battery stress during the discharge.
- ECO mode available: load on by-pass and inverter on, the load transfer time is less than 5ms.

By-pass:

| | |
|--------------------------------------|--|
| Automatic Static By-Pass Protection | Electronic Thyristor Switch Fuses |
| Nominal Voltage (Vac) | 220 - 230 - 240 +/-10% |
| Nominal Frequency (Hz) | 50 ~ 60 +/-5Hz |
| Transfer mode | Without interruption |
| Transfer Inverter ÷ Static By-Pass | In case of : -Static Switch test -Inverter failure -Input inv. Volt. out of limit -Output volt. out of limit |
| Retransfer Static By-Pass ÷ Inverter | Automatic – Block on bypass after 6 commutations within 2 min. - Reset by front panel or by remote command |
| Overload Capability | -200% Continuously -1000% For 1 Cycle |
| Manual By-Pass | Standard: - Electronically controlled - No break |
| Back-feed protection | Included as standard |

Description

- The back feed protection minimises the danger caused by the inverter voltage feed back in case of by-pass fault.
- The manual by-pass is included as standard. The electronic control avoids the risks of power interruption during transfer from inverter to manual by-pass and vice-versa.

Parallel:

| | |
|--|----------------------------------|
| Automatic Parallel Redundant Configuration | Up to four by an additional card |
| Parallel Configuration | Redundant N-1 on N |
| Connection Type | CAN Bus Loop |
| Share Accuracy | 10% max unbalance |
| Maximum Distance between two Units | 100m |
| Overload Capability | N x 200% Continuously |
| Automatic By-Pass | On each unit |
| Manual By-Pass | On each unit (common as option) |

Description

- The parallel control is fully digital and acts on both active and reactive power on each output phase.
- The loop connection permits disconnection of one of the units from the parallel string allowing the normal operation of the remaining units.
- The CAN bus communication allows connection of the units by a DB9 standard connector.

Alarms, Controls and Signals:

LOCAL ON THE "SYSTEM CONTROL PANEL":

- Synoptic diagram showing: power flow, circuit breaker status and alarms
- Battery test indicator
- LCD display
- Keyboard

REMOTE ON PC (using special test software):

- All the local indications, alarms and measures
- Battery test functions
- Basic troubleshooting

FREE CONTACTS (using an additional card):

- Eight signals are available on free contacts

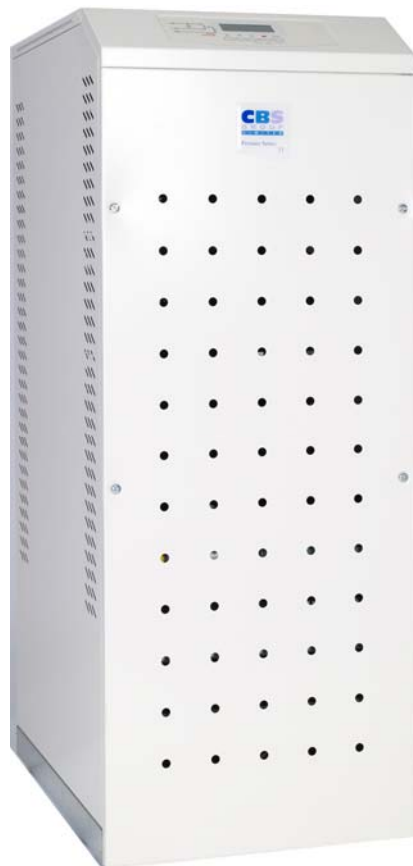
REMOTE ON GPCC (general purpose communication card):

- All the local indications, alarms and measures are available on the following standards:
 1. SNMP
 2. MODBUS
 3. GPRS/GSM Modem
 4. WEB Server

OPTIONS

1. BATTERY TEMPERATURE VOLTAGE COMPENSATION
2. INSULATION TRANSFORMER
3. FREE CONTACTS CARD
4. GPCC CARD
5. PARALLEL CARD

- ◇ Online double conversion technology, <5ms eco-mode
- ◇ 32-bit DSP implementing full digital control
- ◇ Digitally controlled transformerless IGBT Bridge, minimises the harmonics reinjected into the mains reducing the harmonic distortion of the current to less than 4%
- ◇ Power factor correction technology resulting in a power factor of greater than 0.99
- ◇ Lightweight, small size, on wheels
- ◇ Up to 30 minutes autonomy with the internal batteries
- ◇ Integrated advanced self-diagnostic program
- ◇ Step-by-step procedures described on the LCD display for ease of use
- ◇ Results of electrical measurement, alarm, work condition, event log and battery state are displayed real time on the LCD front panel
- ◇ Mimic flow display to show the operating status of the UPS
- ◇ Battery test included as standard
- ◇ Parallel redundant configurations of up to four units



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