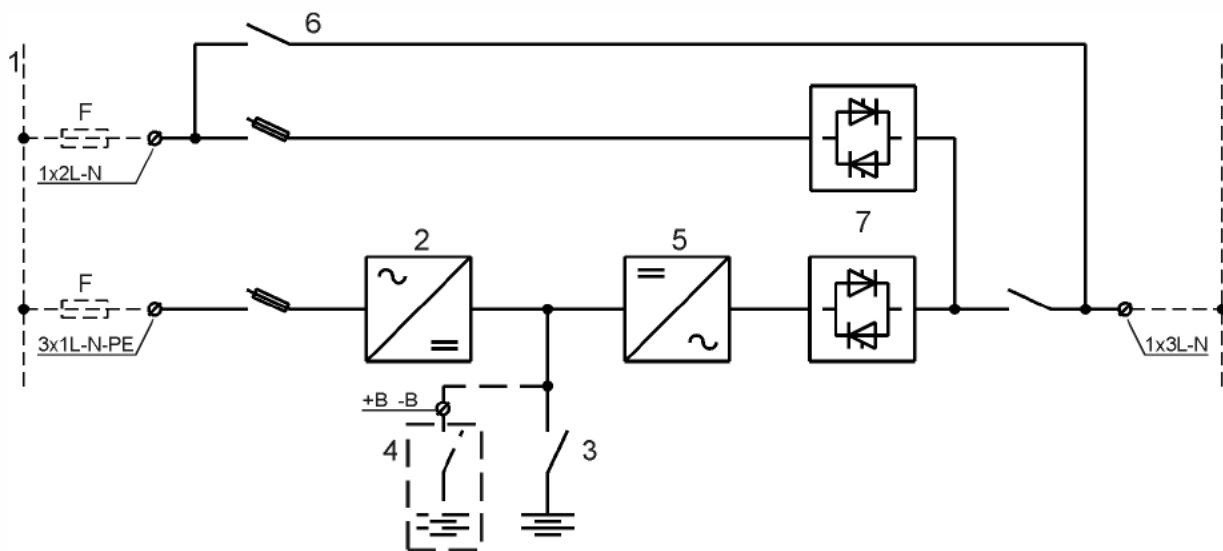


PREMIER 31L Series, 10:15:20kVA UPS System

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)	(%)	<95		
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)		<52 db	<52 db	<52 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 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 repair 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 engineer 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:

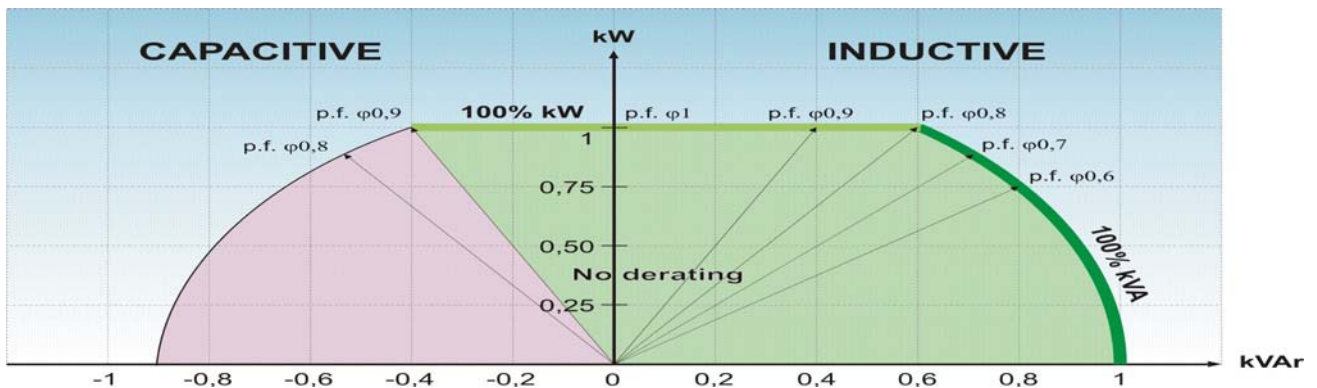
POWER (kVA)	10	15	20
Input configuration	3 Phase + Neutral		
Nominal Input Voltage(Ph-N) (Vac)	230 (+10% -20%)		
Input Frequency (Hz)	50 ~ 60 +/- 5		
Input Power Factor	>0.99	>0.99	>0.99
Harmonic current distortion rejected into the mains (%)	<4	<4	<4
DC Output Voltage Accuracy (%)	+/- 1		
DC Output Voltage Ripple (% rms)	2		
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 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	(Vac)	220-230-240 (On request)		
Output configuration		Single-phase		
Output Voltage Stability		+/- 1% rms +/- 2% rms Within 10 ms Classification 1		
Output Frequency	(Hz)	50 – 60		
Output Frequency Stability	(Hz)	+/- 0.001 +/- 2 (Other on request)		
Nominal Output Current (@ 230Vac output)	(A)			
- PF Ø 0.8		43	65	87
- PF Ø 1.0		35	52	70
Overload Capability	(%)	125% for 10 Minutes 200% for 100 ms		
Short Circuit Current	(A)	70	104	140
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	(%)	<2 <5 Fully compliant		
Crest Factor (Non-linear load)		3:1		



Description

- The Inverter design is based on IGBT high-frequency bridge, 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 a standard. The electronic control avoids the risks of power interruption in case of 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

