

# Maxpro LH

**10-120 KVA PF 0.9**

 Uninterruptible Power Supply (UPS)



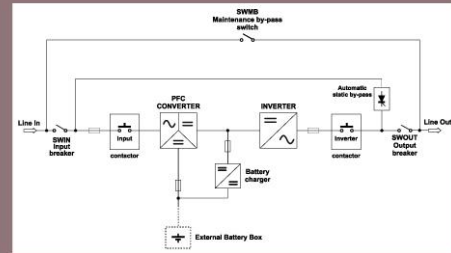
 **SHATRONIX**  
ENERGY SYSTEMS

## Technology

**Rectifier :** IGBT high frequency with PFC control  
Independent digital average current mode  
on each phase.

**Inverter :**  
IGBT high frequency with DSP+  $\mu$ P digital control

**Battery Charger :**  
Analogue switching current mode under control of  $\mu$ P  
(PWM regulation of charging voltage & current)



Block diagram

## Low Total Cost of Ownership(TCO)

- Zero impact source solution
- Input power factor  $\geq 0.99$
- Low input THDi  $< 3\%$
- Efficiency 95.4%\*
- Efficiency in standby mode 99.2%\*
- Extremely small foot print (100KVA=0.425 m<sup>2</sup>,220 kgm)
- Backfeed protection
- \* depending on model

## Operating Modes :

- True online double conversion
- ECO mode
- Frequency converter
- SMART active mode

## Battery Care System (BCS)

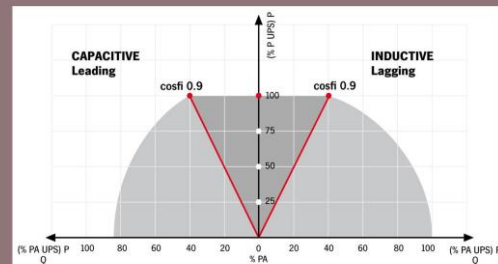
- High battery recharge capacity
- Permits use of variety of battery types
- VRLA & open vented batteries for extended backup times

## Shutdown software :

Various versions of shutdown software available

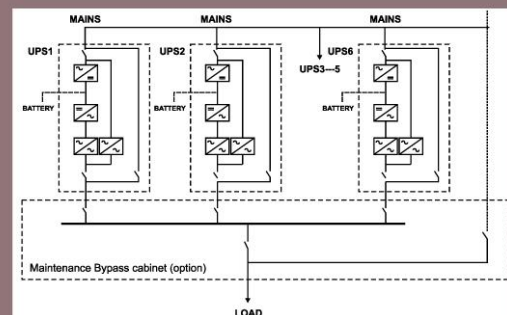
## Applications :

- Data centers
- IT networks
- Telecommunications
- Medical applications and hospitals
- e-business
- Industrial processes



*m<sub>axpro</sub> LH*

designed to supply full rated output power  
at pf 0.9 lag to 0.9 lead for latest IT servers'  
generations without derating



Parallel and redundant systems extended  
up to 6 units

**Specifications :****Input :**

Nominal voltage	380-400-415 Vac Three-Phase plus neutral
Voltage Range	320 to 480 V at 100% of the load 240 to 480 V at 50% of the load
Nominal frequency	50 or 60Hz
Input frequency tolerance	40 to 72Hz
Total Harmonic distortion (THDi) and power factor with full load*	THDi 2,5 % , 0,99 PF
Rectifier progressive start-up (Power Walk-in duration)	Programmable from 1 to 125 seconds in steps of 1 second (standard disable)
Adjustable delay for the rectifier start up (Power Walk-in start delay)	Programmable from 1 to 120 seconds in steps of 1second. (3 seconds by default)

\*for 120 KVA THDi < 3 %

**Output :**

Nominal voltage	380/400/415 Vac Three-Phase plus neutral
Nominal frequency	50 / 60Hz
Static stability	± 0,5%
Dynamic stability	± 3% (1) (resistive load) EN62040-3 class performance 1 distorting load
Recovery Time within ± 1%	20ms In compliance with standard EN 62040-3, class 1
Crest factor (I <sub>peak</sub> /I <sub>rms</sub> as per EN 62040-3)	3:1
Voltage distortion with linear and distorting load (EN 62040-3)**	≤ 1% with linear load ≤ 3% with distorting load
Inverter frequency stability without by-pass supply synchronisation	0,01%
R <sub>tae</sub> of Frequency variation	1Hz/sec (adjustable from 0,5 to 2)
Voltage phase Dissymmetry with balanced and unbalanced loads	± 1% / ± 2%
Voltage phase shift with balanced and unbalanced loads	120 ± 1 °
Inverter Overload	>103% ÷ ≤110% 10 min. >110% ÷ ≤133% 1 min. >133% ÷ ≤150% 5 sec. >150% ÷ ≤200% 0,5 sec. >200% 0,2 sec.
Short circuit current	1,5 x I <sub>n</sub> for t ≥ 500 ms
Efficiency on battery-operation***	95 %

(1) @ Mains / battery / mains @ resistive load 0% / 100% / 0%

\*\* 100 KVA ≤ 3,5% with distorting load

\*\* 120 KVA ≤ 2% with linear load  
≤ 4% with distorting load

\*\*\* 120 KVA ≥ 93 %

Specifications subject to change with prior notice



#### Reference Standards

The UPS meets the VFI-SS-111 classification (according to EN 62040-3) and complies with the following specific standards for UPS:

- IEC EN62040-1: Static uninterruptible power supplies (UPS): general and safety provisions;
- IEC EN 62040-2: Electromagnetic compatibility (EMC) requirements category C2
- EN 62040-3: Methods of specification of performances and test provisions;

The **Maxpro LH** series also satisfies the following general standards, where applicable:

- IEC 60529: Degree of protection provided by enclosures;
- IEC 60664: Insulation for low-voltage equipment;
- IEC 60755: General Requirements for Residual Current Operated Protective Devices;
- IEC 60950: General safety provisions for "Information Technology" equipment;
- IEC 61000-2-2: Electromagnetic compatibility immunity;
- IEC 61000-4-2: Electrostatic discharge immunity test;
- IEC 61000-4-3: Radio frequencies, electromagnetic immunity test;
- IEC 61000-4-4 : Transitory overvoltage immunity test;
- IEC 61000-4-5 : Overvoltage immunity test;
- IEC 61000-4-11: Voltage dips, short interruptions and voltage variations immunity test.
- IEC 61000-3-12: Harmonic current emissions (for equipment with rated current  $> 16 \text{ A} \leq 75$ )



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