



LOCAL AREA
NETWORKS
(LAN)



SERVERS



DATA
CENTERS



INDUSTRIAL
PLCS



CASH
REGISTERS



ELECTRO-
MEDICAL
DEVICES



EMERGENCY
DEVICES
(Lights/Alarms)



TELECOM-
MUNICATION
DEVICES



E-BUSINESS
(Servers Farms,
ISP/ASP/POP)

Multi Plus

10-20 kVA
single-phase

10-40 kVA
three-phase

Multi Plus 10-40 kVA



MULTI PLUS is ideal for the protection of critical information and telecommunications networks which cannot run the risk of being powered from a power quality electrical supply.

The **MULTI PLUS** series is available in 10-12-15-20 kVA three-phase and single-phase input and single-phase output models, and 10-12-15-20-30-40 kVA three-phase input and output models, with double conversion on-line technology according to the VFI-SS-111 classification, as defined by the IEC EN 62040-3 standard.

MULTI PLUS has been designed and manufactured using state-of-the-art technologies in order to deliver maximum protection for critical users, a zero impact on the mains power supply and a high operating efficiency. The high level of flexibility at the design stage means that there is full

compatibility both with three-phase power and with single-phase sources, thus eliminating any critical factors in the connection between UPS and system.

ZERO IMPACT SOURCE

The superior technology of a Multi Plus UPS allows it be used where the site mains power supply is limited in capacity, or has an on-site generator and/or loads that generate current harmonic problems.

Multi Plus is designed to have a zero-impact on its upstream power supply (mains or generator):

- Input current distortion < 3%
- Input power factor 0.99

- Power walk-in function to guarantee a progressive rectifier start-up
- Delayed switch-on function, to sequentially restart the UPS when installed as part of a parallel system.

Multi Plus also act as a filter and phase-shift protection device in respect to its upstream supply, providing protection from any harmonic components or reactive power generated by downstream loads.

BATTERY CARE SYSTEM

high operating efficiency up to 96% providing a 50% saving in energy usage per annum compared to traditional UPS products (92%). This exceptional performance can lead to a full initial investment recovery within three years.

BATTERY CARE SYSTEM

Battery management is one of the fundamentals of UPS management in order to ensure the system can perform in emergencies. The Multi Plus Battery Care System consists of a number of functions that together guarantee optimum battery performance.

Battery recharge: Multi Plus is suitable for use with sealed Valve Regulated (VRLA), AGM, GEL and open-vented lead acid batteries, in addition to Nickel-Cadmium. Depending on the battery type used, the recharging functions can include:

- One-level recharge, typical for the most commonly used VRLA AGM batteries
- Two voltage level recharge according the IU characteristic
- Charge blocking system to reduce consumption of the electrolyte and further extend the life of VRLA batteries.

Compensation of the recharge voltage according to temperature in order to avoid excessive battery charging currents and potential overheating problems.

Battery Test in order to detect battery performance deterioration or failure.

Protection against deep discharges: during extended low load discharges, the end-of-discharge voltage is increased as recommended by battery manufacturers, to prevent damage to the battery set.

Current Ripple: recharge current ripple (residual AC component) is one of the most common causes of poor battery performance and reduced operating life. Multi Plus, with its high-frequency battery-charger, produces negligible current ripple levels and therefore helps to extend operating life.

Wide voltage range: the rectifier can operate from a wide input range (up to 40% at half load), reducing battery usage and helping to extend their operational life.

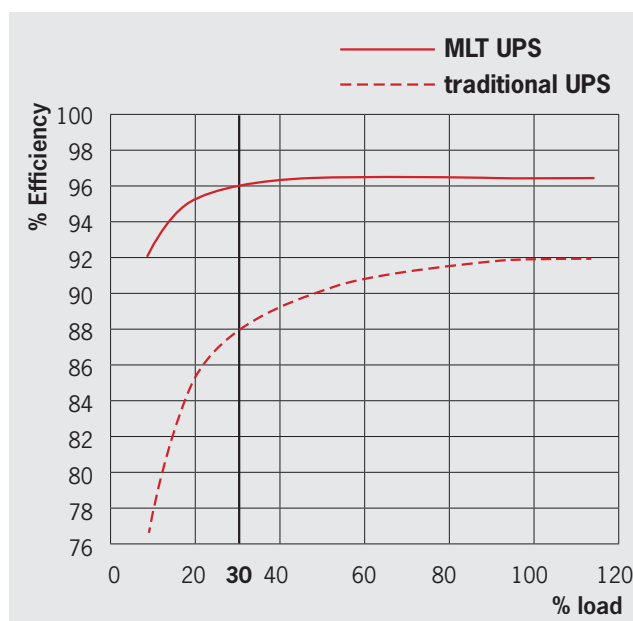
MAXIMUM RELIABILITY AND AVAILABILITY

Connect up to 6 units in parallel or N+1 redundancy, even of different power ratings. The UPS continue to operate in parallel even if one of the interconnecting communication cable is disconnected (closed loop).

LOW MANAGEMENT COST

The high performance components and technology used by Multi Plus means that the UPS achieves exceptional performance and efficiency levels, from a very small footprint and overall compact dimensions:

- the lowest footprint in this category, only 0.26 sq. m. for 20kVA Multi Plus, batteries included
- the type of input stage guarantees a power factor close to 1 and a low current distortion without the addition of filters, which can be expensive and bulky
- output power factor of 0.9 providing up to 15% more active power than a traditional UPS and more load expansion



Multi Plus 10-40 kVA

MLT 30-40 Connections

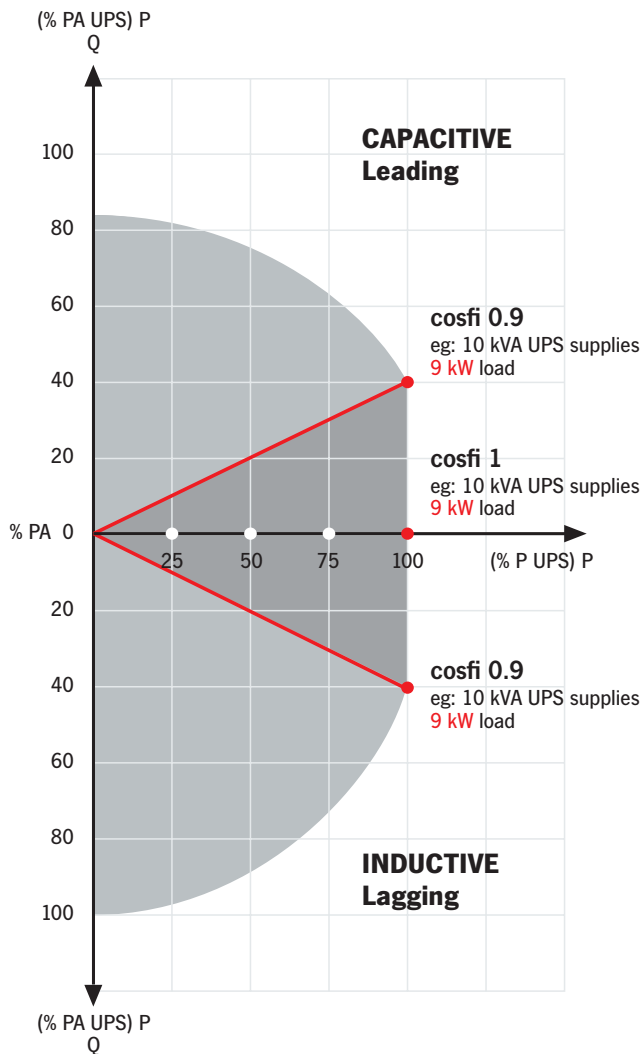


ADVANCED COMMUNICATION

Multi Plus is equipped with a graphic display that provides information, measures, states and alarms regarding the UPS in 5 different languages

- Advanced, multi-platform communication for all operating systems and network environments: PowerShield³ monitoring and shut-down software included, with SNMP agent, for Windows 9x, ME, NT 4.0, 2000, XP, Vista and 2003 server; Mac OS X, Linux, Novell and most popular Unix operating systems
- Compatible with TeleNetGuard for the remote assistance service
- RS232 or USB serial port
- 3 slots for the installation of optional communication accessories such as network adapters and volt-free contacts
- REPO (Remote Emergency Power Off) with which to power down the UPS through a remote emergency pushbutton
- Input for connection of the auxiliary contact of an external manual bypass
- Input for synchronisation from an external source
- Graphic mimic panel display for remote connection





FLEXIBILITY

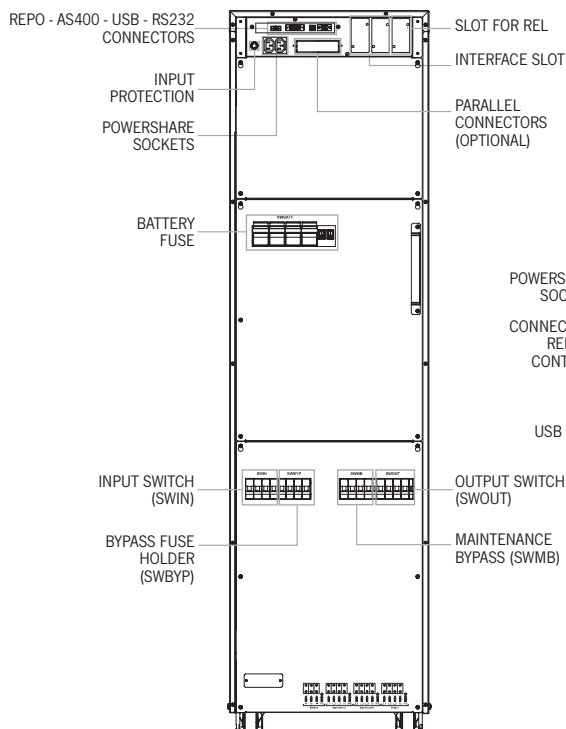
Multi Plus can be used for a range of applications thanks to its ease of configuration, flexibility, accessories and performance levels:

- suitable for powering capacitive loads such as blade servers, without any reduction of the active power, from 0.9 leading to 0.9 lagging
- modes of operation: On Line, Eco, Smart Active and Stand-By Off
- frequency converter mode
- PowerShare sockets that can be configured in order to maintain the back-up time for the most critical loads or to be activated only when the mains power supply fails
- Cold-start to enable power up with no electrical supply available
- battery cabinets of various dimensions and capacity, for longer back-up times
- option to connect a temperature sensor for external battery cabinets, for recharge voltage compensation
- additional battery chargers to optimise recharge times
- optional dual input supply
- Isolation transformer options for galvanic isolation and neutral configuration

Inside view

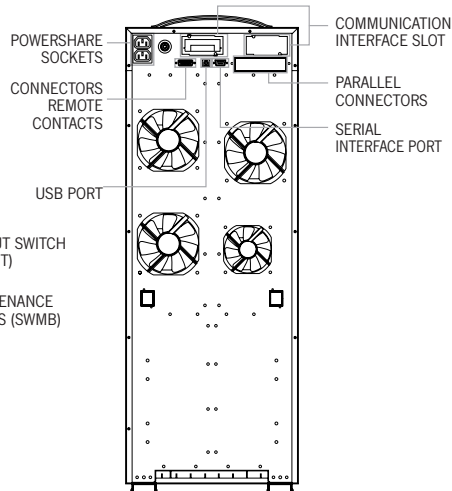


MLT 30 - 40



MLM 10 - 12 - 15 - 20

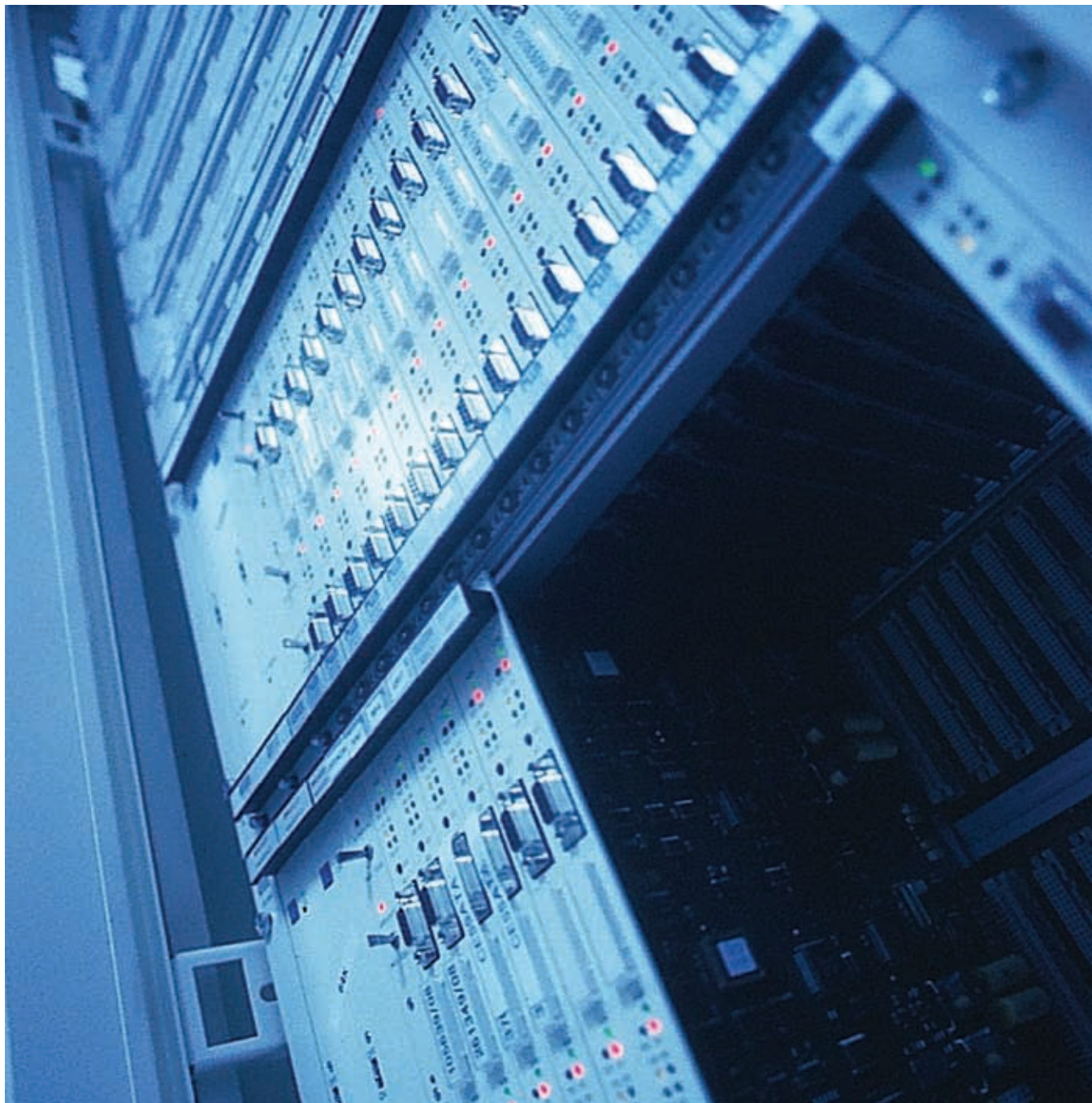
MLT 10 - 12 - 15 - 20



TECHNICAL DETAILS

MODELS	MLT 10	MLT 12	MLT 15	MLT 20	MLT 30	MLT 40
INPUT						
Rated voltage	380-400-415 Vac three-phase with Neutral					
Rated frequency	50/60 Hz					
Frequency tolerance	40 ÷ 72 Hz					
Power factor at full load	0.99 Pf					
Current distortion	THDI ≤ 3%					
BY PASS						
Rated voltage	380-400-415 Vac three-phase with Neutral					
Number of phases	3 + N					
Voltage tolerance	180 ÷ 264 V (selectable)					
Rated frequency	50 or 60 Hz (selectable)					
Frequency tolerance	±5 (selectable)					
OUTPUT						
Rated power (kVA)	10	12	15	20	30	40
Active power (kW)	9	10.8	13.5	18	27	36
Output power factor	0.9					
Number of phases	3 + N					
Rated voltage (V)	380-400-415 Vac (selectable)					
Static variation	± 1%					
Dynamic variation	± 3%					
Crest factor (Ipeak/Irms)	3 : 1					
Voltage distortion	≤ 1% with linear load / ≤ 3% with non-linear load					
Frequency	50/60 Hz					
Frequency stability on battery mode	0.01%					
Overload at pF 0.8	115% unlimited, 125% for 10 minutes, 150% for 1 minute, 168% for 5 seconds					
BATTERIES						
Type	VRLA AGM/GEL					
Recharge time	6 h					
ENVIRONMENTAL						
Weight with internal batteries	180 Kg	182 Kg	190 Kg	195 Kg	480 Kg	490 Kg
Dimensions (hwd) (mm)	930 x 320 x 840				1600 x 440 x 850	
Communication	3 communication interface slots/RS232/USB					
Operating temperature	0°C - 40°C					
Relative humidity	90% non condensing					
Colour	RAL 7016					
Noise	< 52 dBA a 1 m				< 48 dBA a 1 m	
Protection rating	IP20					
Efficiency	until 96.5% in On-line mode, until 99% in Economy mode					
Compliance	European Directives: L V 73/23/EC and 93/68/EC Low voltage directive EMC 2004/108/EC and 89/336/EC Electromagnetic compatibility directive Standards: Safety IEC EN 62040-1; EMC IEC EN 62040-2 C2 Classification according to IEC 62040-3 (Voltage Frequency Independent) VFI - SS - 111					

MODELS	MLM 10	MLM 12	MLM 15	MLM 20
INPUT				
Rated voltage	380-400-415 Vac three-phase with Neutral / 220-230-240 monofase			
Rated frequency	50/60 Hz			
Frequency tolerance	40 ÷ 72 Hz			
Power factor at full load	0.99 Pf			
Current distortion	THDI ≤ 3%			
BY PASS				
Rated voltage	220-230-240 Vac			
Number of phases	1			
Voltage tolerance	180 ÷ 264 V (selectable)			
Rated frequency	50 or 60 Hz (selectable)			
Frequency tolerance	±5 (selectable)			
OUTPUT				
Rated power (kVA)	10	12	15	20
Active power (kW)	8	9.6	12	16
Output power factor	0.8			
Number of phases	1			
Rated voltage (V)	220-230-240 Vac (selectable)			
Static variation	± 1%			
Dynamic variation	± 3%			
Crest factor (Ipeak/ Irms)	3 : 1			
Voltage distortion	≤ 1% with linear load / ≤ 3% with non-linear load			
Frequency	50/60 Hz			
Frequency stability on battery mode	0.01%			
Overload at pF 0.8	110% for 10 minutes, 133% for 1 minute, 150% for 5 seconds			
BATTERIES				
Type	VRLA AGM/GEL			
Recharge time	6 h			
ENVIRONMENTAL				
Weight with internal batteries	180 Kg	182 Kg	190 Kg	195 Kg
Dimensions (hwd) (mm)	930 x 320 x 840			
Communication	3 communication interface slots/RS232/USB			
Operating temperature	0°C - 40°C			
Relative humidity	90% non condensing			
Colour	RAL 7016			
Noise	< 52 dBA at 1 m			
Protection rating	IP20			
Efficiency	≥ 94% in On-line mode, ≥ 98% in Economy mode			
Compliance	European Directives: L V 73/23/EC and 93/68/EC Low voltage directive EMC 2004/108/EC and 89/336/EC Electromagnetic compatibility directive Standards: Safety IEC EN 62040-1; EMC IEC EN 62040-2 C2 Classification according to IEC 62040-3 (Voltage Frequency Independent) VFI - SS - 111			



BATTERY BOX MODELS	BB 480-A5 BB 480-M5	BB 480-B1	BB 480-B2	AB480-B0
MODEL	MLM 10 - 12 - 15 - 20 MLT 10 - 12 - 15 - 20	MLM 10 - 12 - 15 - 20 MLT 10 - 12 - 15 - 20 - 30 - 40		
Dimensions (mm) h x w x d	