LOCAL AREA NETWORKS (LAN) · SERVERS · DATA CENTERS · CASH REGISTERS · TELECOM-MUNICATION DEVICES · E-BUSINESS (Servers Farms, ISP/ASP/POP) · INDUSTRIAL PLCS · ELECTRO-MEDICAL DEVICES · EMERGENCY DEVICES (Lights/Alarms)

Multi Plus

10-20 kVA
single-phase

10-40 kVA
100-120 kVA
three-phase

ENERGY LEVELS 6

MULTI PLUS is ideal for the protection of critical information and telecommunications networks which cannot run the risk of being powered from a poor 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 and 100-120 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.

riello ups

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.

HIGH EFFICIENCY
High operating efficiency up to 96.5% 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. The efficiency values quoted were tested independently by TÜV Rheinland.

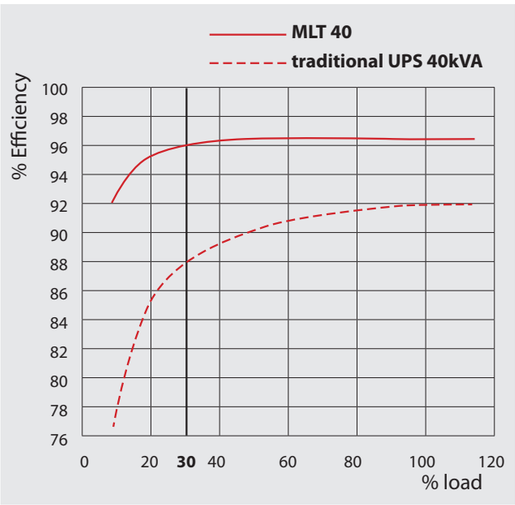
BATTERY CARE SYSTEM
Battery management is one of the fundamentals of UPS management in order to ensure the system can perform in emergencies. The **MULTI PLUS** Battery Care System consists of a number of functions that together guarantee optimum battery performance.
Battery recharge: MULTI PLUS is suitable 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.

Display MLT 10-20

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 cables 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 m² for 20kVA **Multi Plus**, batteries included

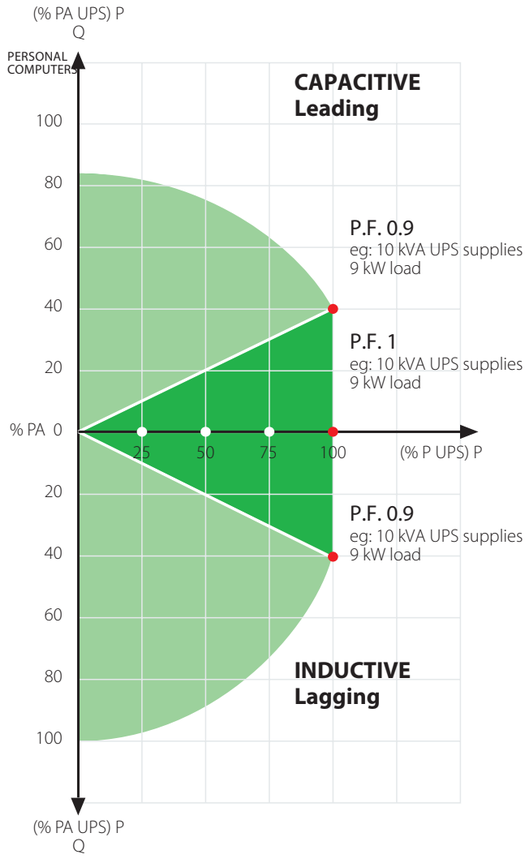


- The type of input stage guarantees a power factor close to 1 and a low current distortion without the addition of filters, which can be expensive and bulky
- Output power factor of 0.9 providing up to 15% more active power than a traditional UPS and more load expansion

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, for Windows 2008, Vista, 2003, XP; Mac OS X, Linux, Novell and most popular Unix operating systems
- Compatible with the TeleNetGuard remote service monitoring system
- 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

Multi Plus 10-40 /100-120 kVA

riello ups



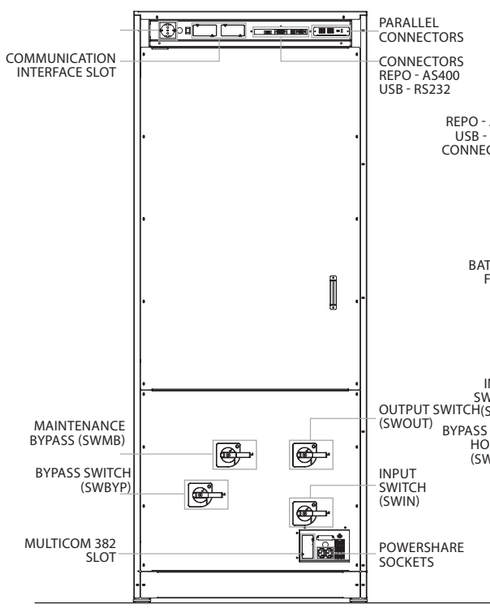
FLEXIBILITY

MULTI PLUS is suitable for use in a broad spectrum of applications, thanks to a variety of configurations, accessories and options providing flexibility and a choice of performance levels:

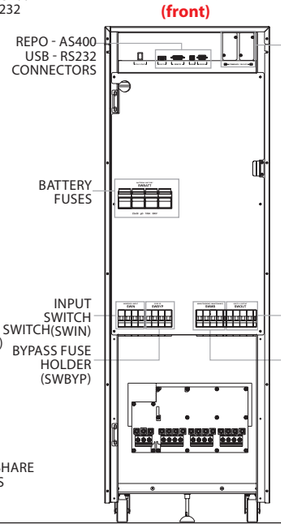
- Suitable for powering capacitive loads, such as blade servers, without any reduction in active power (0.9 Lead to 0.9 Lag)
- Multiple operating modes: on line, eco, smart mode and stand by off
- Frequency converter mode
- Configurable power share connections to ensure backup for the most critical loads or programmed to operate only when mains power fails
- Cold start facility that starts the ups even when it is not connected to the mains
- Mlt/mlm x version: in cabinet (1320x440x850 hwd) provides optimum solutions when medium or long term runtime is required
- Optional temperature sensor for external battery cabinets, to assist the recharge voltage compensation
- Additional battery chargers to optimise recharge times
- Optional dual input to mains power supply
- Isolation transformer options to vary neutral connectivity in the event of separate power sources or for galvanic isolation input and output
- Battery cabinets of various sizes and capacities to ensure prolonged runtime.

MLT/MLM 10-20

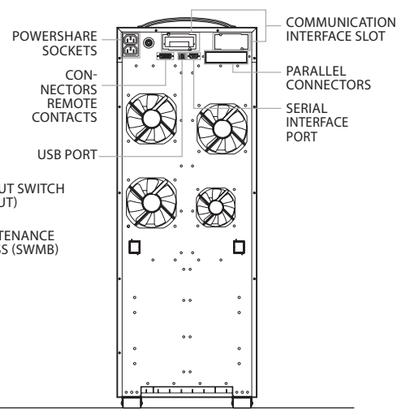
MLT 100 - 120 (front)



MLM 10 - 20 X
MLT 10 - 40 X
(front)



MLM 10 - 12 - 15 - 20
MLT 10 - 12 - 15 - 20
(rear)



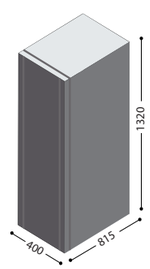
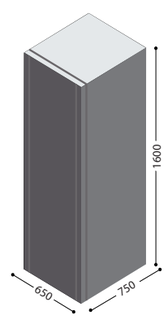
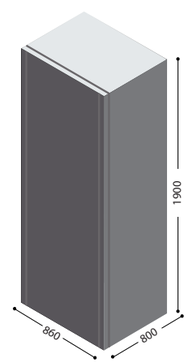
MODELS	MLM 10	MLM 12	MLM 15	MLM 20
INPUT				
Rated voltage	380-400-415 Vac three-phase with Neutral / 220-230-240 single-phase			
Rated frequency	50/60 Hz			
Frequency tolerance	40 ÷ 72 Hz			
Power factor at full load	0.99			
Current distortion	THDI ≤ 3%			
BY PASS				
Rated voltage	220-230-240 Vac			
Number of phases	1			
Voltage tolerance	180 ÷ 264 V (selectable)			
Rated frequency	50/60 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 (Kg)	180	182	190	195
Dimensions (hwd) (mm)	930 x 320 x 840 / 1320 x 440 x 850 (version MLM X)			
Communication	3 communication interface slots/RS232/USB			
Operating temperature	O°C / +40°C			
Relative humidity	90% non condensing			
Colour	Dark Grey RAL 7016			
Noise	< 52 dBA at 1 m			
Protection rating	IP20			
Efficiency Smart Mode	≥ 98% in Economy mode			
Compliance	European Directives: L V 2006/95/CE Low voltage directive EMC 2004/108/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			

Multi Plus 10-40 /100-120 kVA

MODELS	MLT 10	MLT 12	MLT 15	MLT 20	MLT 30 X	MLT 40 X	MLT 100	MLT 120
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							
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	50/60 Hz (selectable)							
Frequency tolerance	±5 (selectable)							
OUTPUT								
Rated power (kVA)	10	12	15	20	30	40	100	120
Active power (kW)	9	10.8	13.5	18	27	36	90	108
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 (Kg)	180	182	190	195	335	350	460 (*)	480 (*)
Dimensions (hwd) (mm)	930 x 320 x 840 1320 x 440 x 850 (MLT X version)				1320 x 440 x 850		1900 x 750 x 855	
Communication	3 communication interface slots /RS232/USB							
Operating temperature	O°C / +40°C							
Relative humidity	90% non condensing							
Colour	Dark Grey RAL 7016							
Noise	< 52 dBA at 1 m				< 48 dBA at 1 m		< 65 dBA at 1 m	
Protection rating	IP20							
Efficiency Smart Mode	up to 99%							
Compliance	European Directives: L V 2006/95/CE Low voltage directive EMC 2004/108/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							

(*) weight **without** batteries

Display MLT 30-120

BATTERY BOX MODELS	BB 480X-M5 BB 480X-M6 / BB 480-M7	BB 480-B1	BB 480Y-J8 / BB 480Y-J9 BB 480Y-K1 / BB 480Y-K2 AB 480Y-B0
MODEL	MLM 10 - 12 - 15 - 20 MLT 10 - 12 - 15 - 20 - 30 - 40		MLM 10 - 12 - 15 - 20 MLT 10 - 12 - 15 - 20 - 30 - 40 100 - 120
Dimensions (mm) h x w x d			

Multi Plus 10-40 /100-120 kVA