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

Master Plus

10-800 kVA
three/three-phase

10-100 kVA
three/single-phase

ENERGY LEVELS 6

ABSOLUTE PROTECTION

Master Plus is an on-line double conversion UPS (VFI SS 111 in accordance with IEC EN 62040-3) with a transformer isolated inverter. **Master Plus** has a compact foot print and high quality output to provide the ultimate power protection for "mission critical" applications: data processing, tele-communications, industrial processes, security and electro-medical systems.

The **Master Plus** range includes three-phase output models from 10 to 800kVA, and single-phase output models from 10-100kVA – all with a three phase input. Models from 10-200kVA are available with a 6 or 12 pulse rectifier.

From 100kVA to 400kVA **Master Plus** is available in a HIP (High Input Performance) format with an IGBT-based rectifier offering even lower input harmonic distortion (THDi) and unity input power factor.

From 500kVA to 800kVA **Master Plus** has a 12-pulse rectifier as standard.

EASY SOURCE

Master Plus technology removes the problems of over sizing upstream power sources, whilst improving load power factors and current harmonics. The UPS features the latest input-current absorption techniques including progressive rectifier start-up and the option to reduce battery charging currents. These features make **Master Plus** one of the most generator and environmentally friendly UPS available.

POWER CONTINUITY

Riello UPS has been researching and developing UPS technologies for critical applications, worldwide and for many years. Riello UPS solutions are flexible, offering the highest levels of availability, whilst achieving low total cost of ownership.

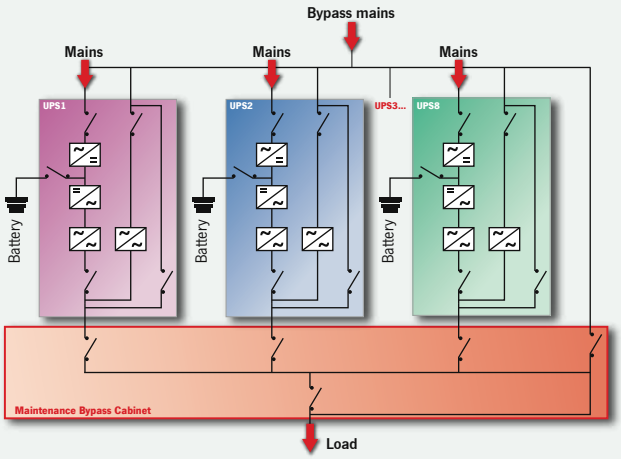
Riello UPS are designed to be resilient, with key component inbuilt redundancy. The UPS are designed for ease of installation and maintenance, with top entry cable cabinet options, and simple but secure access to connection terminals and communications interfaces.

MAXIMUM LEVELS OF RELIABILITY AND AVAILABILITY

Distributed or centralised parallel up to 8 units per backup (N+1) or power parallel. A parallel between models with different power levels is possible.
Hot System Expansion (HSE): HSE allows the insertion of a new UPS within an existing system, without the need to switch off the UPSs which are already operating or switch them to bypass mode.
This guarantees maximum load protection, even during maintenance and enlargement.
Maximum levels of availability also in the event of an interruption to the parallel bus cable: the system is "FAULT TOLERANT". It is not affected by faults with the connection cables and continues to power the load without a continuity solution, signalling the anomaly with an alarm.
High Efficiency Parallel System (HEPS): this is the system which optimises the efficiency of the system in parallel, according to the power required by the load at that moment. The N+1 redundancy is nevertheless guaranteed, but each UPS operating in parallel operates at the best possible load level in order to achieve the highest overall efficiency.

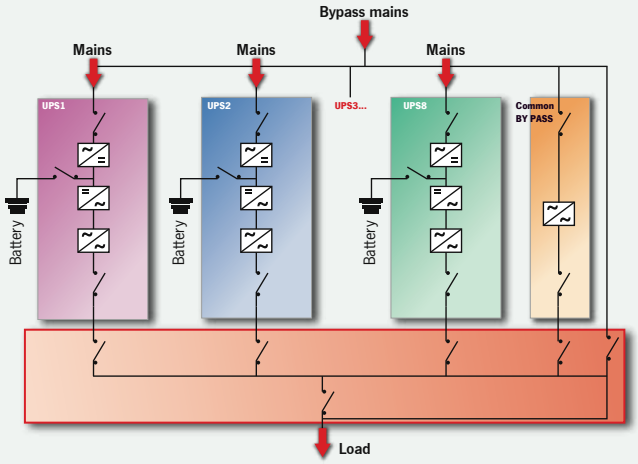
OPTIONS

- **UGS - UPS Group Synchroniser**
  Allows 2 or more UPS not in parallel to remain synchronised even during a power failure.
  The UGS also enables a RIELLO UPS to be synchronised with an independent power source, even of a different power rating.
- **PSJ - Parallel Systems Joiner**
  Connects two UPS groups operating in parallel configurations through a power coupling switch.
  The Slave UPS Group is permanently synchronised to the Master group. Should one of the UPS in one of the parallel groups fail, the PSJ will automatically connect the remaining UPS to the other group via an external bypass.



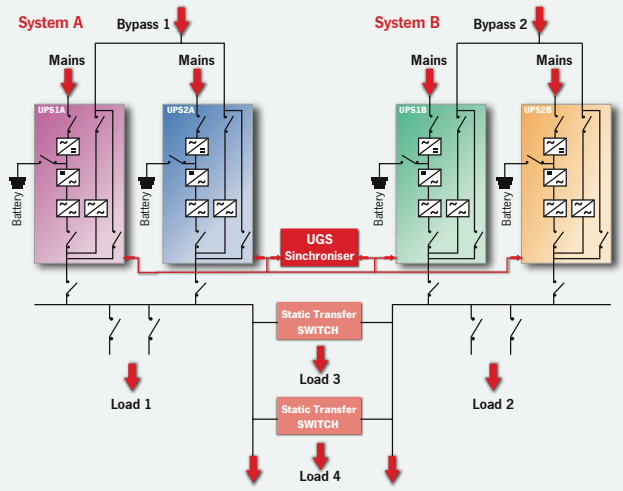
Parallel configuration of up to 8 units with distributed bypass

Parallel architecture which guarantees the redundancy of the power source. **+ Flexibility and modularity**



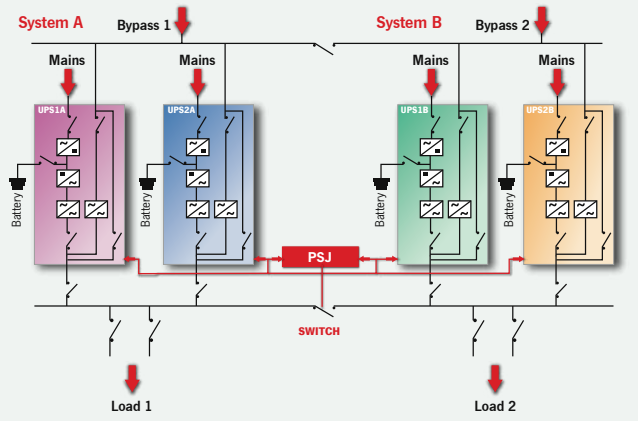
Parallel configuration of up to 8 units with common bypass

Parallel architecture which guarantees the redundancy of the power source, with autonomous bypass management. **+ Selectivity downstream faults in bypass mode**



Dynamic dual bus configuration

Solution which ensures redundancy until the distribution of the power supply to the loads **+ Downstream fault discrimination**

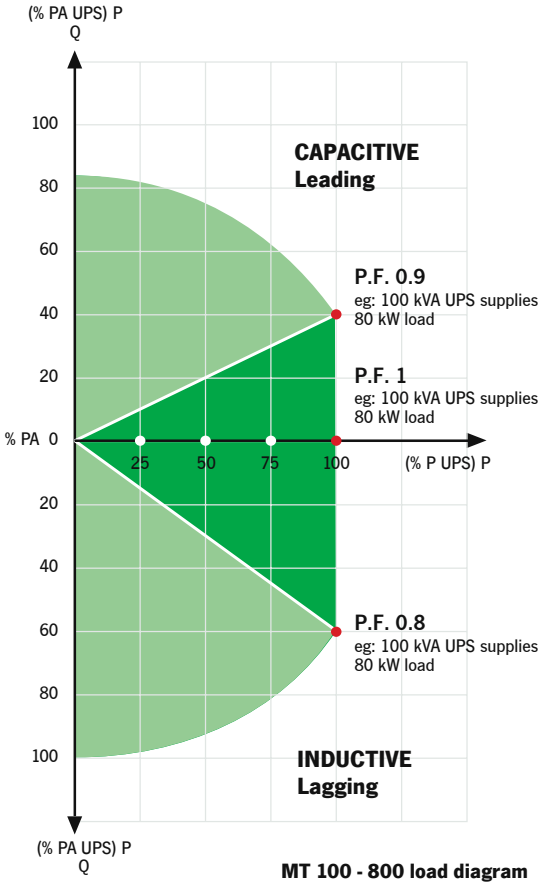


Dual bus system configuration

Solution which guarantees the redundancy of the power supply even during maintenance **+ High levels of availability and redundancy**

FLEXIBILITY

Master Plus is suitable for a wide range of applications including IT and the most demanding industrial environments. The UPS is suitable for power capacitive loads such as blade servers, without any reduction in active power, from 0.9 leading to 0.8 lagging. With a broad range of accessories and options, complex configurations and system architectures can be achieved to guarantee maximum power availability and the option to add new UPS without interruption to existing users. Using the Riello UPS Group Synchroniser (UGS) and Parallel Systems Joiner (PSJ) sophisticated inter group parallel and redundant systems can be achieved to provide the highest possible levels of resilience and availability.



MT 100 - 800 load diagram

BATTERY CARE SYSTEM: MAXIMUM LIFETIME POTENTIAL

Traditionally, when a mains supply is present the UPS charges its batteries. Battery power is used for the inverter should the input supply fail. Efficient battery management and care is therefore essential to the overall performance of the UPS in an emergency.
The Master Plus Battery Care System consists of a range of features designed to provide optimum performance and enhanced operating life:

- Dual level charging regime to optimise recharge currents and lower recharge times
- Temperature compensation and deep discharge protection to reduce overall battery aging
- Charge blocking system to reduce electrolyte consumption and lengthen the life of VRLA batteries
- Predictive battery testing to spot potential battery deterioration and failure

Master Plus is also compatible with different battery technologies: open-vented lead acid and AGM and Gel VRLA, NiCd.

EASE OF INSTALLATION

Master Plus is compact with a foot print of only 0.64 m^2 for a 200kVA system. Front access to internal assemblies and top panel ventilation make space allocation within confined data processing or plant rooms easy. Master Plus can be placed against a wall as there is no requirement for rear or side panel access for maintenance or ventilation.

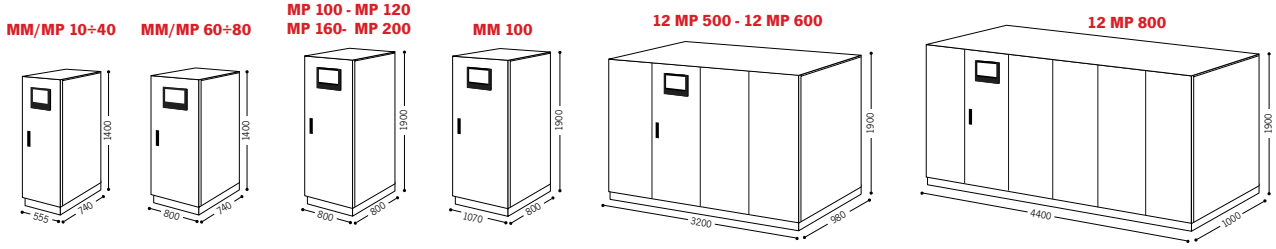
SPECIFIC SOLUTIONS

The UPS can be adapted to your requirements.
Please contact TEC to discuss specific applications and options.

ADVANCED COMMUNICATION

- Compatible with TeleNetGuard for remote maintenance
- Advanced, multi-platform communication for all operating systems and network environments: PowerShield^3 monitoring and shut-down software included, for Windows 2008, Vista, 2003, XP; Mac OS X, Linux, Novell and most popular Unix operating systems. The UPS is supplied with a cable for direct connection to the PC (Plug and Play)
- Double RS232 serial port
- Installation slot for an Emergency Power Off (EPO) interface to allow the UPS to be switched off remotely in an emergency.
- Generator interface: enables desynchronisation of the UPS output from a generator supply which may be subject to phase and frequency variations. The interface also enables more economic use of the battery charger.

Dimensions (mm)



	new	new	new	new	new	new	new	new
MODELS	**MM 10***	**MM 15***	**MM 20***	**MM 30**	**MM 40**	**MM 60**	**MM 80**	**MM 100**
POWER (kVA)	10	15	20	30	40	60	80	100
INPUT								
Nominal voltage	380 - 400 - 415 Vac three-phase							
Voltage tolerance	400 V + 20% /- 25%							
Frequency	45 ÷ 65 Hz							
Soft start	0 ÷ 100% in 30'' (selectable)							
Permitted frequency tolerance	± 2% (selectable from ± 1% to ± 5% from the front panel)							
Standard features	Back Feed protection; separable bypass line							
BATTERIES								
Type	Lead, flooded and VRLA AGM / GEL; NiCd							
AC ripple	< 1%							
Temperature compensation	-0.5 Vx°C							
Typical charging current	0.2 x C10							
OUTPUT								
Rated power (kVA)	10	15	20	30	40	60	80	100
Active power (kW)	9	13,5	18	27	36	54	72	90
Number of phases	1							
Nominal voltage	220 - 230 - 240 Vac single-phase							
Static stability	± 1%							
Dynamic stability	± 5% in 10 ms							
Voltage distortion	< 1% with linear load / < 3% with no-linear load							
Crest factor (Ipeak/Irms)	3:1							
Frequency stability on battery mode	0.05%							
Frequency	50 or 60 Hz (selectable)							
Overload	110% for 60'; 125% for 10'; 150% for 1'							
ENVIRONMENTAL								
Weight (kg)	200	220	230	290	340	440	520	650
Dimensions (hwd) (mm)	1400 x 555 x 740					1400 x 800 x 740		1400 x 555 x 740
Remote signalling	Voltage-free contacts							
Remote commands	EPO and bypass							
Communication	double RS232 + remote contacts + 2 communication interface slots							
Operating temperature	0°C / +40°C							
Relative humidity	< 95% non condensing							
Colour	Light grey RAL 7035							
Noise	54		62		62			63
Protection rating	IP20							
Efficiency Smart Mode	Up to 98%							
Compliance	European Directives: L V 2006/95/CE; EMC 2004/108/EC; Safety IEC EN 62040-1; EMC IEC EN 62040-2 C2							
Classification according to IEC 62040-3	(Voltage Frequency Independent) VFI - SS - 111							

* Also available with internal batteries

N.B.: Consult us for the availability

	new	new	new	new	new	new	new
MODELS	**MP 10***	**MP 15***	**MP 20***	**MP 30**	**MP 40**	**MP 60**	**MP 80**
POWER (kVA)	10	15	20	30	40	60	80
INPUT							
Nominal voltage	380 - 400 - 415 Vac three-phase						
Voltage tolerance	400 V + 20% /- 25%						
Frequency	45 ÷ 65 Hz						
Soft start	0 ÷ 100% in 30'' (selectable)						
Permitted frequency tolerance	± 2% (selectable from ± 1% to ± 5% from the front panel)						
Standard features	Back Feed protection; separable bypass line						
BATTERIES							
Type	Lead, flooded and VRLA AGM / GEL; NiCd						
AC ripple	< 1%						
Temperature compensation	-0.5 Vx°C						
Typical charging current	0.2 x C10						
OUTPUT							
Rated power (kVA)	10	15	20	30	40	60	80
Active power (kW)	9	13,5	18	27	36	54	72
Number of phases	3 + N						
Nominal voltage	380 - 400 - 415 Vac three-phase + N						
Static stability	± 1%						
Dynamic stability	± 5% in 10 ms						
Voltage distortion	< 1% with linear load / < 3% with no-linear load						
Crest factor (Ipeak/Irms)	3:1						
Frequency stability on battery mode	0.05%						
Frequency	50 or 60 Hz (selectable)						
Overload	110% for 60'; 125% for 10'; 150% for 1'						
ENVIRONMENTAL							
Weight (kg) without batteries	210 *	220 *	230	280	330	450	600
Dimensions (hwd) (mm)	1400 x 555 x 740					1400 x 800 x 740	
Remote signalling	Voltage-free contacts						
Remote commands	EPO and bypass						
Communication	double RS232 + remote contacts + 2 communication interface slots						
Operating temperature	0°C / +40°C						
Relative humidity	< 95% non condensing						
Colour	Light grey RAL 7035						
Noise	54		60		62		
Protection rating	IP20						
Efficiency Smart Mode	Up to 98%						
Compliance	European Directives: L V 2006/95/CE; EMC 2004/108/EC; Safety IEC EN 62040-1; EMC IEC EN 62040-2 C2						
Classification according to IEC 62040-3	(Voltage Frequency Independent) VFI - SS - 111						

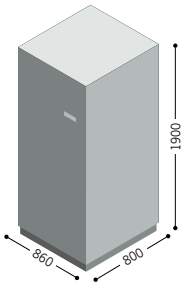
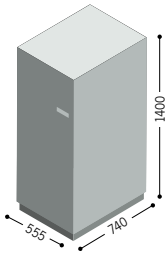
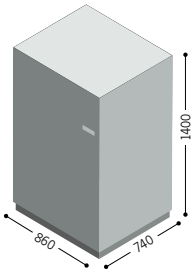
* Also available with internal batteries

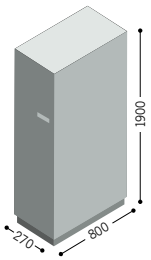
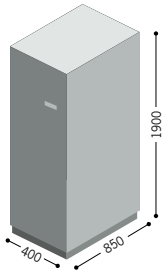
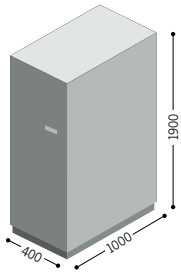
N.B.: Consult us for the availability

MODELS	MP 100	MP 120	MP 160	MP 200
POWER (kVA)	100	120	160	200
INPUT				
Nominal voltage	380 - 400 - 415 Vac three-phase			
Voltage tolerance	400 V + 20% /- 25%			
Frequency	45 ÷ 65 Hz			
Soft start	0 ÷ 100% in 30'' (selectable)			
Permitted frequency tolerance	± 2% (selectable from ± 1% to ± 5% from the front panel)			
Standard features	Back Feed protection; separable bypass line			
BATTERIES				
Type	Lead, flooded and VRLA AGM / GEL; NiCd			
AC ripple	< 1%			
Temperature compensation	-0.5 Vx°C			
Typical charging current	0.2 x C10			
OUTPUT				
Rated power (kVA)	100	120	160	200
Active power (kW)	80	96	128	160
Number of phases	3 + N			
Nominal voltage	380 - 400 - 415 Vac three-phase + N			
Static stability	± 1%			
Dynamic stability	± 5% in 10 ms			
Voltage distortion	< 1% with linear load / < 3% with no-linear load			
Crest factor (Ipeak/Irms)	3:1			
Frequency stability on battery mode	0.05%			
Frequency	50 or 60 Hz (selectable)			
Overload	110% for 60'; 125% for 10'; 150% for 1'			
ENVIRONMENTAL				
Weight (kg)	640	650	770	810
Dimensions (hwd) (mm)	1900 x 800 x 800			
Remote signalling	Voltage-free contacts			
Remote commands	EPO and bypass			
Communication	double RS232 + remote contacts + 2 communication interface slots			
Operating temperature	0°C / +40°C			
Relative humidity	< 95% non condensing			
Colour	Light grey RAL 7035			
Noise	63 ÷ 68 dBA at 1 m			
Protection rating	IP20			
Efficiency Smart Mode	Up to 98%			
Compliance	European Directives: L V 2006/95/CE; EMC 2004/108/EC; Safety IEC EN 62040-1; EMC IEC EN 62040-2 C2			
Classification according to IEC 62040-3	(Voltage Frequency Independent) VFI - SS - 111			

MODELS	12 MP 500	12 MP 600	12 MP 800
POWER (kVA)	500	600	800
INPUT			
Nominal voltage	380 - 400 - 415 Vac three-phase		
Voltage tolerance	400 V ± 20%		
Frequency	45 ÷ 65 Hz		
Power factor	> 0.93 in HC version		
Current distortion	< 3% in HC version		
Soft start	0 ÷ 100% in 30'' (selectable)		
Permitted frequency tolerance	± 2% (selectable from ± 1% to ± 5% from the front panel)		
Standard features	Back Feed protection; separable bypass line		
BATTERIES			
Type	Lead, flooded and VRLA AGM / GEL; NiCd		
AC ripple	< 1%		
Temperature compensation	-0.5 Vx°C		
Typical charging current	0.2 x C10		
OUTPUT			
Rated power (kVA)	500	600	800
Active power (kW)	400	480	640
Number of phases	3 + N		
Nominal voltage	380 - 400 - 415 Vac three-phase + N		
Static stability	± 1%		
Dynamic stability	± 5% in 10 ms		
Voltage distortion	< 1% with linear load / < 3% with no-linear load		
Crest factor (Ipeak/Irms)	3:1		
Frequency stability on battery mode	0.05%		
Frequency	50 or 60 Hz (selectable)		
Overload	110% for 60'; 125% for 10'; 150% for 1'		
ENVIRONMENTAL			
Weight (kg)	3600	4000	5300
Dimensions (hwd) (mm)	1900 x 3200 x 1000		1900 x 4400 x 1000
Remote signalling	Voltage-free contacts		
Remote commands	EPO and bypass		
Communication	double RS232 + remote contacts + 2 communication interface slots		
Operating temperature	0°C / +40°C		
Relative humidity	< 95% non condensing		
Colour	Light grey RAL 7035		
Noise	< 75 dBA at 1 m		< 78 dBA at 1 m
Protection rating	IP20		
Efficiency Smart Mode	Up to 98%		
Compliance	European Directives: L V 2006/95/CE; EMC 2004/108/EC; Safety IEC EN 62040-1; EMC IEC EN 62040-2 C2		
Classification according to IEC 62040-3	(Voltage Frequency Independent) VFI - SS - 111		

OPTIONS	
Isolation transformer module	Interface for generator
UPS Group Syncroniser (see UGS)	Closed Loop parallel kit option (to be ordered with the UPS)
Hot connection device (see PSJ)	Empty or full battery cabinets for prolonged runtime

BATTERY BOX MODELS	BB 396-J8 / BB 396-J9 BB 396-K1 / BB 396-K2	AB 480-A0 / BB 480-J8 BB 480-J9 / BB 480-K1 BB 480-K2	BB 384-38C	384-65D / 384-80D 384-100D / 384-120D
UPS MODELS	MP 100-200 MM 100	12MP 500-800 MP 100-400 HIP	MP 10-60	MP 10-80
Dimensions (mm) **h** x **w** x **d**				

CABINETS WITH TOP CABLE ENTRY	TE 270	TE 400 C	TE 400 L
UPS MODELS	MP 100-200 / MM 100	MP 100 HIP / MP 250 HIP	12 MP 500-800 / MP 300-400 HIP
Dimensions (mm) **h** x **w** x **d**			

ISOLATION TRANSFORMER MODULE	TI 10 T / TI 15 T TI 20 T / TI 30 T TI 40 T	TI 60 T / TI 80 T	TI 100 T / TI 120 T TI 160 T	TI 200 T / TI 250 T	TI 300 T / TI 400 T TI 500 T / TI 600 T
Dimensions (mm) **h** x **w** x **d**