



LOCAL AREA NETWORKS (LAN)



SERVERS



DATA CENTRES



CASH REGISTERS



TELECOMMUNICATIONS DEVICES



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



INDUSTRIAL PLCS



ELECTRO-MEDICAL DEVICES



EMERGENCY DEVICES (Lights/Alarms)

# Multi Sentry

**10-20 kVA**  
Single-phase

**10-120 kVA**  
Three-phase

## Highlights

- Complete power range from 10 up to 120 kVA
- Small footprint
- High efficiency up to 96.5%
- Zero impact source
- Advanced communication



The MULTI SENTRY series is ideal for protecting data centres and telecommunications systems, IT networks and critical systems. The MULTI SENTRY series is available in 10-12-15-20 kVA models with three-phase/single-phase input and single-phase output, and 10-12-15- 20-30-40-60-80-100-120 kVA models with three-phase input and output and On-Line double donversion technology, VFI-SS-111 classification (defined in IEC EN 62040-3).

MULTI SENTRY: designed and built using state of the art technology and components, and controlled by DSP (Digital Signal Processor) microprocessors, to provide maximum protection to the powered loads with no impact on downstream systems, and optimised energy savings. Its highly flexible design allows full compatibility with both three-phase and single-phase power supplies.

**Zero impact source**

MULTI SENTRY solves installation problems in systems where the power supply has limited power available, where the UPS is supported by a generator or where there are compatibility problems with loads that generate harmonic currents; MULTI SENTRY has a zero impact on its power source, whether this is the mains power supply or a generator:

- input current distortion < 3%
- Input power factor 0.99
- power walk-in function to provide a progressive rectifier start-up
- start-up delay function, to restart the rectifiers when mains power is restored if there are several UPS in the system.

In addition, MULTI SENTRY plays a filtering and power factor correction role in the power network upstream of the UPS, as it eliminates harmonic components and the reactive power, generated by the power utilities.

**High output**

State-of-the-art three-level NPC inverters are used to achieve an operating efficiency of 96.5%.

This technology halves (50%) the energy dissipated in a year by traditional UPS with a 92% efficient operation. Its exceptional performance makes it possible to recover the capital investment cost in less than three years of operation.

**Battery care system**

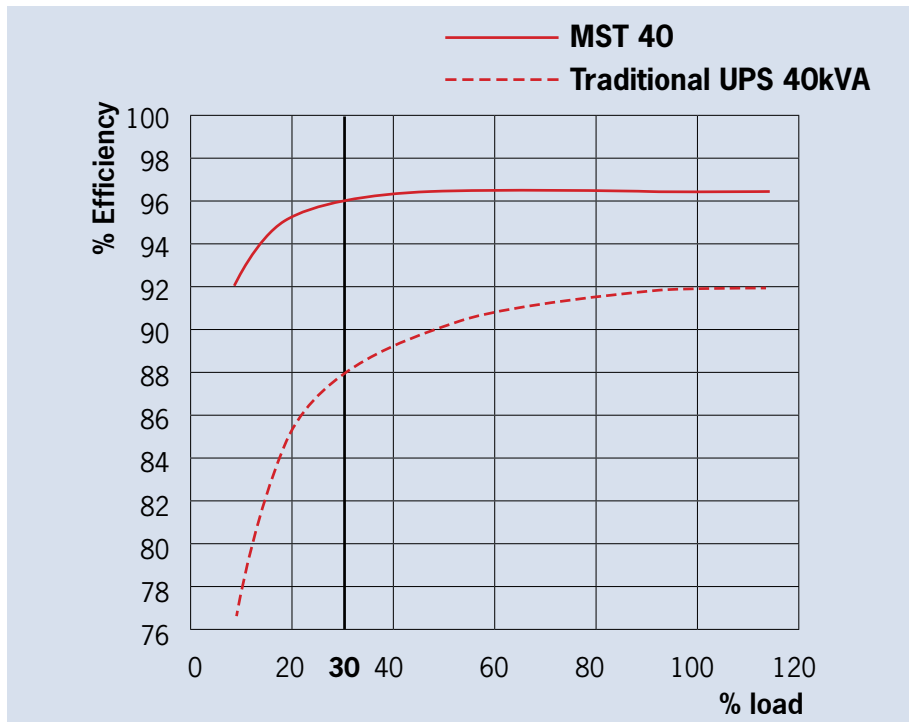
Proper battery care is critical to ensuring the correct operation of a UPS in emergency conditions.

The Riello UPS Battery Care System consists of a series of features and capabilities to optimise battery management and obtain their best performance and operating life.

Battery charging: MULTI SENTRY is suitable for use with hermetically sealed lead-acid (VRLA), AGM and GEL batteries and Open Vent and Nickel Cadmium batteries.

Depending on the battery type, different charging methods are available.

- One-level voltage recharge, typically used for VRLA AGM batteries
- Two-level voltage recharge according to IU characteristic
- Charge block system to reduce electrolytic consumption and further extend the life of VRLA batteries.



Recharge voltage compensation as a function of temperature in order to prevent excessive battery charges or overheating.

Battery tests to quickly diagnose any reduction in performance or problems with the batteries.

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

Ripple current: recharge ripple (residual AC component) current is one of the most important causes of a reduction in reliability and battery life.

Using a high frequency battery charger, MULTI SENTRY reduces this value to negligible levels, prolonging battery life and maintaining high performance over a long period of time.

Wide voltage range: the rectifier is designed to operate within a wide input voltage range (up to - 40% at half load), reducing the need for battery discharge and thus helping to battery extend life.

**Maximum reliability and availability**

Connect up to 6 units in redundant (N+1) or parallel configuration. The UPS continues to operate in parallel even in the event of an interruption in the connection cable (closed loop).



### Low management cost

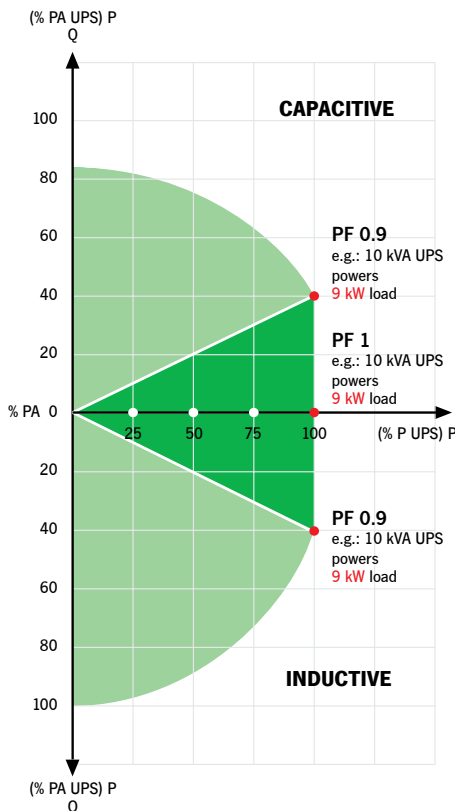
Advanced technology and use of high performance components, allows MULTI SENTRY to provide exceptional performance and a compact size.

- smallest overall footprint is only 0.26sqm for MULTI SENTRY 20kVA with batteries
- an input power factor close to 1 with low current distortion, avoiding the need for bulky and expensive filters
- output power factor of 0.9 providing up to 15% more active power than a traditional UPS, guaranteeing a greater margin when UPS sizing for potential load increases.

### Flexibility

With its flexible configuration, accessories, options and performance MULTI SENTRY is suitable for use in a wide range of applications,

- suitable for powering capacitive loads, such as Blade servers, without any reduction in active power from 0.9 lead to 0.9 lag
- On-line, Eco, Smart Active and Stand By Off operating modes - compatible with centralised power systems (CSS) applications.
- frequency converter mode (50 / 60Hz)



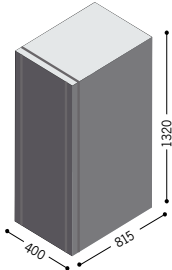
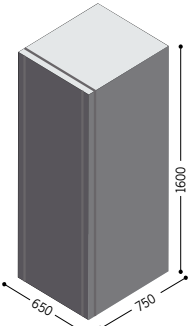
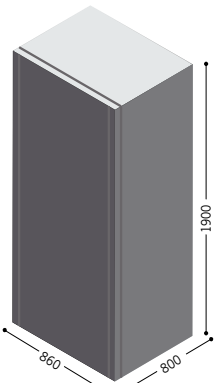
- configurable Power Share sockets to switch-off less critical loads on mains failure or turn-on those programmed to operate only when mains power fails
- Cold Start to switch on the UPS even when there is no mains power present
- MST/MSM version: cabinet (1320x440x850mm HLW) for optimised solutions when medium to long-term runtimes are required.
- optional temperature sensor for external battery cabinets, to assist recharge voltage compensation
- additional battery chargers to optimise charge time
- optional dual input to mains power supply
- isolation transformers for neutral separation (separate power sources) or galvanic isolation between the input and output
- different sized battery cabinets and capacities, for extended runtimes.

### Advanced communication

MULTI SENTRY is equipped with a back-lit graphic display (240x128 pixels) providing UPS information, measurements, status, and alarms in different languages and displays wave forms and voltage/current. The default screen displays the status of the UPS graphically indicating the status of the various assemblies (rectifier, batteries, inverter, bypass).

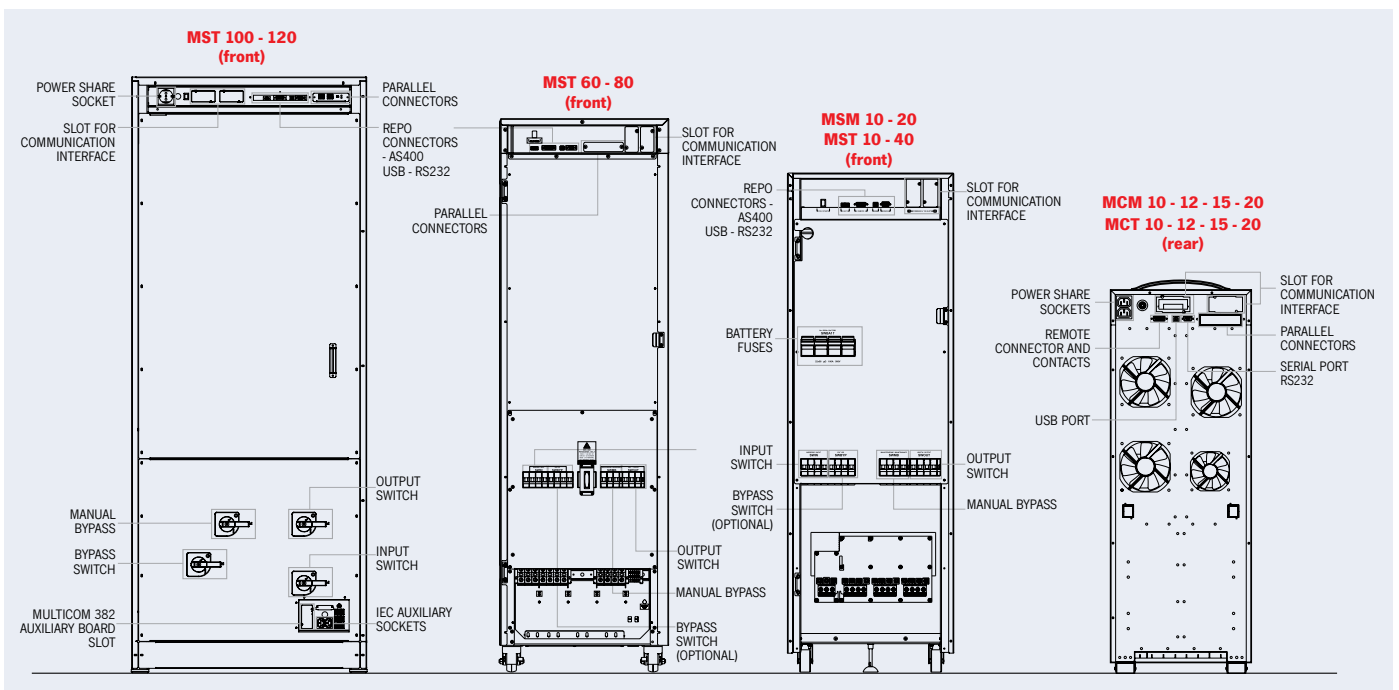
- Advanced multi-platform, communication for all operating systems and networks: PowerShield<sup>3</sup> supervision and shutdown software for Windows operating systems 7, 2008, Vista, 2003, XP, Linux Mac OS X, Sun Solaris, Linux, Novell and other Unix operating systems.
- Compatible with the Riello TeleNetGuard service
- RS232 serial port or USB
- 3 slots for the installation of optional communications accessories including network adapters and volt free contacts
- REPO Remote Emergency Power Off for switching off the UPS via a remote emergency button
- Input for the connection of the auxiliary contact of an external manual bypass
- Input for synchronisation from an external source
- Graphic mimic panel display for remote connection.



MODELS	BB 1320 480-T4 / BB 1320 480-T5 BB 1320 480-T2 / AB 1320 480-T5	BB 1600 480-S5 / AB 1600 480-S5	BB 1900 480-V6 / BB 1900 480-V7 / BB 1900 480-V8 BB 1900 480-V9 / AB 1900 480-V9
MODELS UPS	up to 60 kVA	up to 80 kVA	up to 120 kVA
Dimensions (mm)			



Details



MODELS	MCM/MSM 10	MCM/MSM 12	MCM/MSM 15	MCM/MSM 20
<b>INPUT</b>				
Nominal voltage	380-400-415 Vac three-phase with neutral / 220-230-240 single-phase			
Nominal frequency	50 or 60 Hz			
Frequency tolerance	40 ÷ 72 Hz			
Power factor at full load	0.99			
Current distortion	THDI ≤ 3%			
<b>BY PASS</b>				
Nominal voltage	220-230-240 Vac			
Number of phases	1			
Voltage tolerance	180 ÷ 264 V (selectable)			
Nominal frequency	50 or 60 Hz (selectable)			
Frequency tolerance	±5 (selectable)			
<b>OUTPUT</b>				
Nominal power (kVA)	10	12	15	20
Active power (kW)	8	9.6	12	16
Power factor	0.8			
Number of phases	1			
Nominal voltage (V)	220-230-240 Vac (selectable)			
Static variation	± 1%			
Dynamic variation	± 3%			
Crest factor (I <sub>peak</sub> /I <sub>rms</sub> )	3 : 1			
Voltage distortion	< 1% with linear load / < 3% with non-linear load			
Frequency	50 or 60 Hz			
Frequency stability during battery operation	0.01%			
Overload at Pf 0.8	110% for 10 minutes, 133% for 1 minute, 150% for 5 seconds			
<b>BATTERIES</b>				
Type	VRLA AGM/GEL			
Charging time	6 hours			
<b>INFO FOR INSTALLATION</b>				
Weight without internal batteries (kg) (MCM/MSM)	80/105	82/110	90/115	95/120
Dimensions (hwd) (mm)	930 x 320 x 840 (MCM version) 1320 x 440 x 850 (MSM version)			
Communication	3 slot for communications interface /RS232/USB			
Ambient temperature	0°C / +40°C			
Relative humidity	90% non-condensing			
Colour	Dark grey RAL 7016			
Noise level	< 52 dBA a 1 m			
Protection level	IP20			
Smart Active Output	up to 98%			
Regulations	Directive EMC 2004/108/CE 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	MCT/MST 10	MCT/MST 12	MCT/MST 15	MCT/MST 20	MST 30	MST 40	MST 60	MST 80	MST 100	MST 120
<b>INPUT</b>										
Nominal voltage	380-400-415 Vac three-phase with neutral									
Nominal frequency	50 or 60 Hz									
Frequency tolerance	40 ÷ 72 Hz									
Power factor at full load	0.99									
Current distortion	THDI ≤ 3%									
<b>BY PASS</b>										
Nominal voltage	380-400-415 Vac three-phase with neutral									
Number of phases	3 + N									
Voltage tolerance	180 ÷ 264 V (selectable)									
Nominal frequency	50 or 60 Hz (selectable)									
Frequency tolerance	±5 (selectable)									
<b>OUTPUT</b>										
Nominal power (kVA)	10	12	15	20	30	40	60	80	100	120
Active power (kW)	9	10.8	13.5	18	27	36	54	72	90	108
Power factor	0.9									
Number of phases	3 + N									
Nominal voltage (V)	380-400-415 Vac (selectable)									
Static variation	± 1%									
Dynamic variation	± 3%									
Crest factor (I <sub>peak</sub> /I <sub>rms</sub> )	3 : 1									
Voltage distortion	≤ 1% with linear load / ≤ 3% with non-linear load									
Frequency	50 or 60 Hz									
Frequency stability during battery operation	0.01%									
Overload at Pf 0.8	115% unlimited, 125% for 10 minutes, 150% for 1 minute, 168% for 5 seconds									
<b>BATTERIES</b>										
Type	VRLA AGM/GEL									
Charging time	6 hours									
<b>INFO FOR INSTALLATION</b>										
Weight without internal batteries (kg) (MCT/MST)	80/105	82/110	90/115	90/115	135	145	190	200	370	380
Dimensions (hwd) (mm)	930 x 320 x 840 (versione MCT) 1320 x 440 x 850 (versione MST)				1320 x 440 x 850		1600 x 500 x 850		1900 x 750 x 855	
Communication	3 slot for communications interface /RS232/USB									
Ambient temperature	0°C / +40°C									
Relative humidity	90% non-condensing									
Colour	Dark grey RAL 7016									
Noise level	< 52 dBA a 1 m				< 48 dBA a 1 m		< 52 dBA a 1 m		< 65 dBA a 1 m	
Protection level	IP20									
Smart Active Output	up to 99%									
Regulations	European directives L V 2006/95/CE Low Voltage Directive EMC 2004/108/CE 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									