Multi Sentry

DATACENTER · E-MEDICAL · EMERGENCY · INDUSTRY · TRANSPORT

3:3 160-200 kVA/kW

VFI TYPE
ONLINE

Tower

Energy Share

Service 1st start

SmartGrid ready

Supercaps UPS

USB plug

HIGHLIGHTS

- **Range 160-200 kVA**
- **High efficiency up to 96.2%**
- **Zero impact**
- **Flexibility of use**
- **Advanced communications**

The Multi Sentry series is ideal for protecting Data Centers and telecommunications systems, IT networks and critical systems in general, where the risks connected with poor energy supply can compromise the continuity of activities and services. The Multi Sentry series is available in 160-200 kVA models with three-phase input and output and ON LINE double conversion technology in accordance with VFI-SS-111 classification (as set out in standard IEC EN 62040-3). Multi Sentry is designed and built using state-of-the-art technology and components. It has a fully controlled IGBT rectifier to minimise the impact on the grid. It is controlled by a DSP (Digital Signal Processor) microprocessor, to provide maximum protection to the powered loads with no impact on downstream systems and optimised energy savings.

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 up to <2.5%;
- Input power factor 0.99;
- Power walk-in function that ensures 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 reactive power generated by the power utilities.

HIGH EFFICIENCY

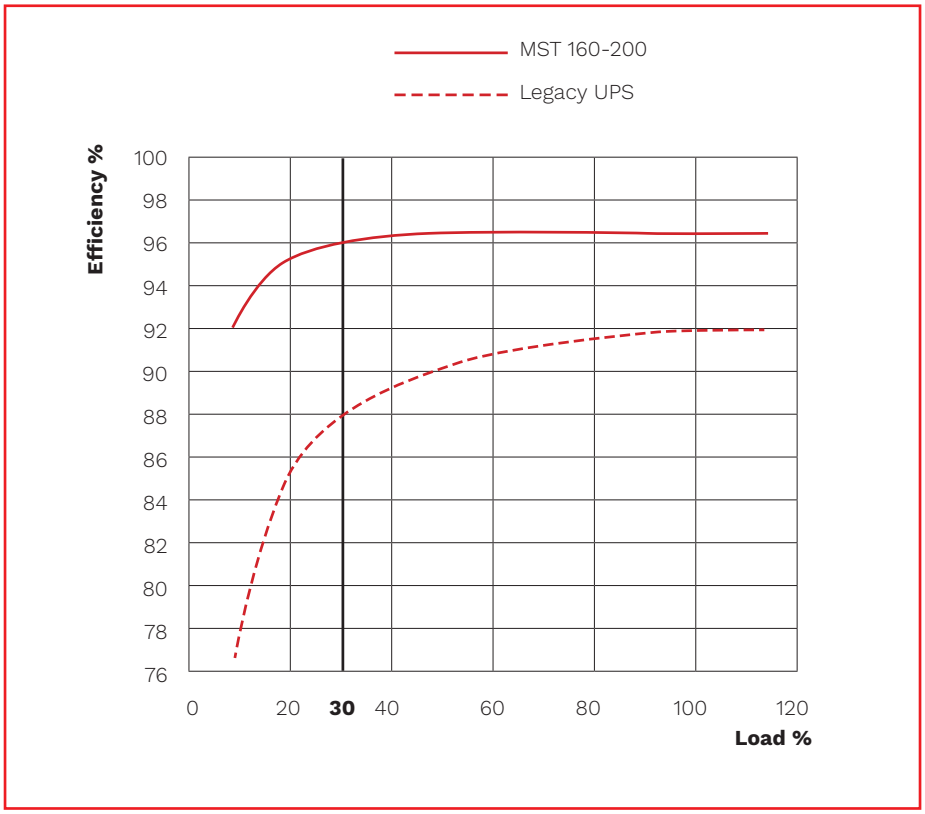
State-of-the-art three-level NPC inverters are used across the power range (160-200 kVA) to achieve an operating efficiency of 96.2%. This technology halves (50%) the energy dissipated in a year by traditional UPS, with an efficiency level of 92%. Its exceptional performance makes it possible to recover the capital investment cost in less than three years of operation.

BATTERY CARE SYSTEM

Proper battery care is critical to ensuring correct UPS operation in emergency conditions. The Riello UPS battery care system consists of a series of features and capabilities to optimise battery management and obtain the best performance and operating life possible.
Battery recharging: 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 widely available VRLA AGM batteries;
- Two-level voltage recharge according to IU specification;
- Charge blocking system to reduce electrolyte consumption and lengthen the life of VRLA batteries.

Recharge voltage compensation based on temperature in order to prevent excessive battery charges or overheating.
Battery tests to diagnose in advance any reduction in performance or problems with the batteries.
Deep discharge protection: during extended low-load discharges, the end-of-discharge voltage is increased - as recommended by battery manufacturers - to prevent damage or reduced battery performance.
Ripple current: recharge ripple current (residual AC component) is one of the main causes of reduced 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 extend battery life.

MAXIMUM RELIABILITY AND AVAILABILITY

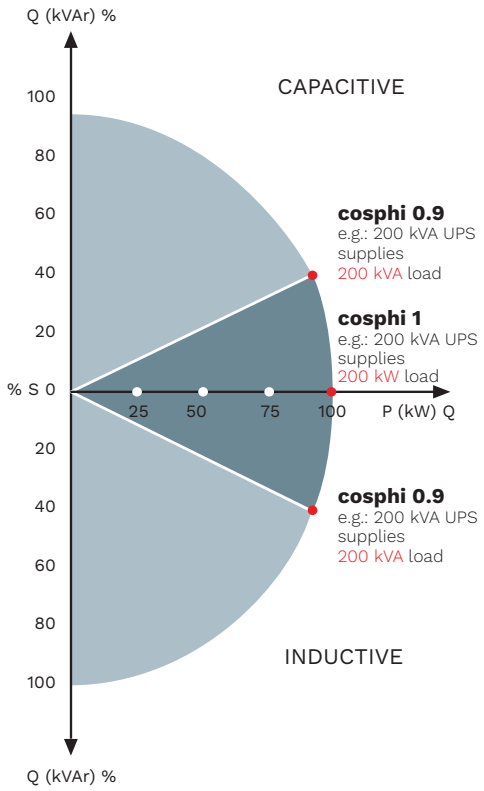
Distributed parallel configuration of up to 8 units per redundant (N+1) or power parallel system. The UPS continue to operate in parallel even if the connection cable is interrupted (Closed Loop).

LOW RUNNING COSTS

A combination of advanced technology high performance components allows Multi Sentry to provide exceptional performance and efficiency:

- The type of input stage (IGBT rectifier) ensures an input power factor close to 1 with low current distortion, avoiding the need for bulky and expensive filters;
- Unity output power factor for MST 160-200 make it suitable to any Data Center application ensuring full power availability no matter what the utilities power factor range (typically from 0.9 lagging to 0.9 leading);

- More active power than a traditional UPS, guaranteeing a greater margin when sizing UPS for potential future load increases;
- Smart ventilation principle on MST 160-200 manages the number of operating fans and their speed according to room temperature and load level. This preserves the life span of the fans and at the same time we reduce noise level and overall power consumption for unnecessary UPS ventilation.



FLEXIBILITY

With its flexible configuration, performance, accessories and options, 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 STANDBY OFF operating Modes - compatible with centralised power systems (CPSS) applications;
- Frequency Converter Mode;
- Configurable EnergyShare sockets (as standard) to preserve runtime for the most critical loads or to be activated only when mains power fails;
- Cold Start to switch on the UPS even when there is no mains power present;
- Optional temperature sensor for external battery cabinets, to assist recharge voltage compensation;
- High power battery chargers to optimise charge time in the event of long runtimes;
- Optional dual input mains power supply;
- Isolation transformers for modifying the neutral earthing (separate power sources), or for galvanic isolation between the input and output;
- Different sized battery cabinets and capacities, for extended runtimes;
- MST 160-200 could be equipped with a side mounted top entry cabinet to arrange UPS cabling from the top.

ADVANCED COMMUNICATIONS

Multi Sentry is equipped with a backlit graphic display (240x128 pixels) providing UPS information, measurements, operating states and alarms in different languages. It can also display waveforms and voltage/current forms.

The default screen displays UPS status, graphically indicating the status of the various assemblies (rectifier, batteries, inverter, bypass).

- Advanced multi-platform communications for all operating systems and network environments: PowerShield[3] monitoring and shutdown software included for Windows operating systems 11, 10, 8, Hyper-V, Server 2022, 2019, 2016 and previous versions, Windows Server Virtualization Hyper-V, macOS, Linux, Citrix XenServer and other Unix operating systems;
- Compatible with VMware infrastructures to perform graceful shutdown of hosts and clusters; to perform Vmotion and prioritised shutdown of VM thanks to NetMan 208 Network card;
- Compatible with Nutanix and Syneto infrastructures to perform graceful shutdown of hosts; to perform prioritised shutdown of VM thanks to NetMan 208 Network card;
- Compatible with RielloConnect (remote monitoring service);
- RS232 port and USB ports;
- 3 slots for the installation of optional communications accessories such as network adapters, potential free contacts, etc.;
- R.E.P.O. 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 display panel for remote connection.

Multi Sentry MST 160-200.

Multi Sentry MST 160-200 with top cable entry.

OPTIONS

SOFTWARE
PowerShield[3]
PowerNetGuard

ACCESSORIES
NETMAN 208
MULTICOM 302
MULTICOM 352
MULTICOM 372
MULTICOM 384
MULTICOM 411
MULTICOM 421
MULTI I/O
MULTIPANEL
MBB 400 A 4P

PRODUCT ACCESSORIES
Battery temperature sensor
Parallel Kit
Powerful battery charger
Programmable relay board MULTICOM 392
IP rating IP30/IP31
Top cable entry
Eyebolts kit

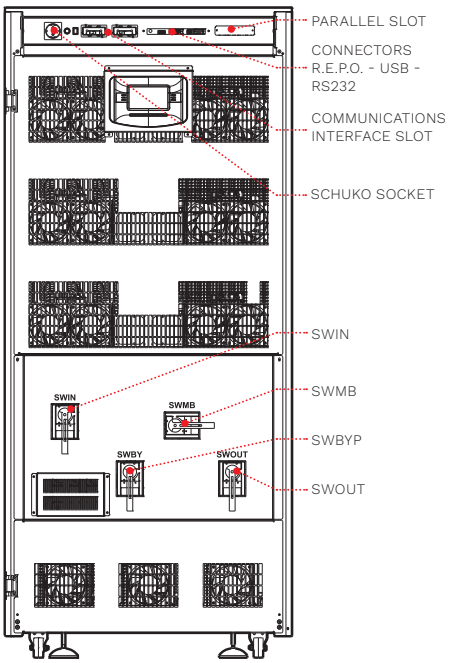
BATTERY CABINET

MODELS	BTC 1900 480V BB V6 3T BTC 1900 480V BB V7 3T BTC 1900 480V BB V8 3T BTC 1900 480V BB V9 3T BTC 1900 480V AB V9 3T
UPS MODELS	up to 200 kVA[1]
Dimensions WxDxH [mm]	860x800x1900 *BTC 1900 480V BB V6 3T* *BTC 1900 480V BB V7 3T* *Not available for MST 160-200* *(when connected individually)*

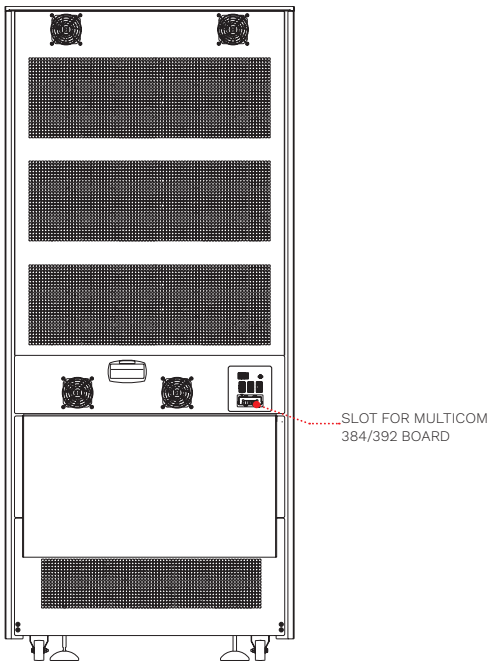
[1] *According with battery cabinet fuse associated.*

DETAILS

MST 160-200 (front)



MST 160-200 (rear)



MODELS	MST 160	MST 200
INPUT		
Rated voltage [V]	380 / 400 / 415 three-phase + N	
Rated frequency [Hz]	50 / 60	
Voltage tolerance [V]	400 ±20% @ full load[1]	
Frequency tolerance [Hz]	40 - 72	
Power factor @ full load	0.99	
Current distortion	THDI ≤3%	THDI ≤2.5%
BYPASS		
Rated voltage [V]	380 / 400 / 415 three-phase + N	
Number of phases	3 + N	
Voltage tolerance (ph-N) [V]	180 / 264 (selectable)	
Rated frequency [Hz]	50 or 60 (selectable)	
Frequency tolerance	±5% (selectable)	
Bypass overload	125% for 60 min, 150% for 10 min	
OUTPUT		
Nominal power [kVA]	160	200
Active power [kW]	160	200
Power factor	1	
Number of phases	3 + N	
Rated voltage [V]	380 / 400 / 415 three-phase + N (selectable)	
Static variation	±1%	
Dynamic variation	±3%	
Crest factor [lpeack/lrms]	3:1	
Voltage distortion	≤1% with resistive linear load / ≤3% with non-linear load	
Frequency [Hz]	50 / 60	
Frequency stability during battery operation	0.01%	
BATTERIES		
Type	VRLA AGM/GEL/NiCd/Li-ion/Supercaps	
Recharge time	6 h	
OVERALL SPECIFICATIONS		
Weight without batteries [kg]	450	460
Dimensions (WxDxH) [mm]	840x1035x1900	
Communications	3 slots for communications interface / USB / RS232	
Ambient temperature for the UPS	0 °C - +40 °C	
Recommended temperature for battery life	+20 °C - +25 °C	
Range of relative humidity	5-95% non-condensing	
Colour	RAL 7016	
Noise level at 1 m [dBA±2] (SMART ACTIVE)	<50	
IP rating	IP20	
SMART ACTIVE efficiency	up to 99%	
Standards	European directives: LV 2014/35/EU low voltage Directive EMC 2014/30/EU electromagnetic compatibility Directive Standards: Safety IEC EN 62040-1; EMC IEC EN 62040-2; RoHS compliant Classification in accordance with IEC EN 62040-3 (Voltage Frequency Independent) VFI - SS - 111	
Moving the UPS	castors	

[1] *For wider tolerance conditions apply.*

The information in this document is subject to change without notice. Riello UPS assumes no responsibility for any errors that may appear in this document.

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