Multi Power

DATACENTER TRANSPORT

VFI TYPE
ONLINE

Modular

Hot swap battery

Lithium compatible

SmartGrid ready

USB plug

3:3 15-240 kW + redundancy

25-400 kW + redundancy

42-1008 kW + redundancy

HIGHLIGHTS

- **Utmost availability**
- **Ultimate scalability**
- **Unmatched power density**
- **Efficiency >96.6%**
- **Multiple controls**
- **Highly flexible**
- **Advanced comms**

The Riello UPS Multi Power (MPW and MPX) is the ultimate modular UPS for Data Centers and other CRITICAL LOADs.
The Multi Power is designed to protect any critical high-density computer and IT environment, whilst achieving maximum availability. The Multi Power grows along with the demands of the business without over-sizing the UPS - optimizing both the initial investment and the Total Cost of Ownership. As soon as demand increases, the Riello UPS Multi Power modular solution can expand its power capability, maintaining the highest levels of power protection, availability, redundancy and investment savings.
Digital technology has an increasingly strong influence on day-to-day activities in almost all sectors and applications such as healthcare, power generation, social networking, telecommunications, commerce and education.
Subsequently, any activities and equipment related to data storage, processing and transfer should be supplied from the most reliable power source. Multi Power ensures that a scalable, secure, high quality power supply is available for a variety of critical load applications. The new MPW and MPX Power Modules feature the very latest in UPS technology. With its three-level Neutral Point Clamped (NPC) inverter and Power Factor Corrected (PFC) input control, the Multi Power ensures the highest level of performance in terms of overall efficiency, input power factor and harmonic impact on the supply source.

ADVANCED TECHNOLOGY

To ensure the highest levels of power availability, only the most reliable, cutting edge power components and innovative control technologies have been used in the development of the MPW and MPX power modules and other major aspects of the system. The major power components and assemblies within the Multi Power have been specifically designed and tailor made in conjunction with the respective component manufacturers. This design work ensures that the Multi Power achieves the highest levels of power and performance. In order to optimise the overall performance of the finished product, Riello UPS' R&D team made the decision to specifically design certain power components, including the IGBT modules and associated packages.
Rather than using standard components that are readily available in the marketplace, the Multi Power hosts one single optimised and reliable power assembly which guarantees the best availability and overall efficiency.
The Power Module itself utilises a "wireless power principle" meaning that the power interconnection distances between the cards, power components and connectors are shorter. In this way we reduce any risk related to connection problems between the assemblies and also minimise the overall power losses.

SCALABILITY

Multi Power provides a comprehensive, easy to integrate power protection solution for Data Centers and any critical IT application matching the evolving demands of a networked environment. The end user can easily increase power, redundancy level and battery autonomy by simply adding additional UPS **Power Modules (PM)** and **Battery Units (BU)**. Three different cabinets are available to build the system: the **Power Cabinets (MPW and MPX type)** and the **Battery Cabinet (BTC)**.
The Power Cabinets can accommodate either 15 kW (MPX 15 PM), 25 kW (MPX 25 PM) or 42 kW Power Modules (MPW 42 PM).
The available UPS power and redundancy level can expand vertically from:

- 15 to 75 kW in one single Power Cabinet (MPX 130 PWC with MPX 15 PM)
- 25 to 125 kW in one single Power Cabinet (MPX 130 PWC with MPX 25 PM)
- 42 to 294 kW in one single Power Cabinet (MPW 300 PWC with MPW 42 PM).

Up to four complete Power Cabinets can be connected in parallel, increasing the capacity including redundancy respectively from:

- 75 up to 300 kW (with MPX 15 PM)
- 125 up to 500 kW (with MPX 25 PM)
- 294 up to 1176 kW (with MPW 42 PM)

The Battery Cabinet accommodates multiples of 4 Battery Units, with up to 36 units within a single frame with a maximum of 10 Battery Cabinets connected in parallel.
In addition, the Multi Power is available as optimised solution providing a Multi Power/Battery combination with the **Combo Cabinet (MPW and MPX type)**.
This solution can be utilised within extremely compact areas requiring a small footprint with maximum power density.
This modular and reliable solution is perfect for any small to medium business applications.
The user might decide to build the Combo solution using three different cabinets:

- MPX 75 CBC cabinet has three slots for PMs and three battery shelves and it can expand vertically from: 15 to 45 kW (with MPX 15 PM) or 25 to 75 kW (with MPX 25 PM);
- MPX 100 CBC cabinet has four slots for PMs and six battery shelves and it can expand vertically from: 15 to 60 kW (with MPX 15 PM) or 25 to 100 kW (with MPX 25 PM);
- MPW 130 CBC cabinet has three slots for PMs and five battery shelves and it can expand vertically from: 42 to 126 kW (with MPW 42 PM).

OUTSTANDING PERFORMANCES

- The advanced technologies deployed within the Multi Power guarantee full rated power even with unity power factor loads (kVA=kW) without any power downgrading even when operating at temperatures up to 40 °C.

Power Cabinet MPW 300 PWC (1-7x MPW 42 PM) x 4

Power Module 15 kW - MPX 15 PM
Power Module 25 kW - MPX 25 PM

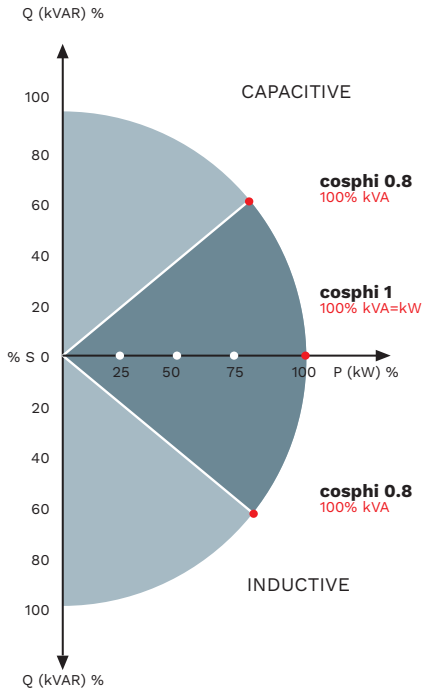
Power Module 42 kW - MPW 42 PM

Battery Unit Array - 4x BU

- High system efficiency whilst operating in ON LINE double conversion mode greater than 96.5%. Even when loaded at only 20%, the Multi Power still achieves an outstanding performance greater than 95%. This superior performance ensures extremely low losses at any load level whilst maintaining a true modular solution for any changing UPS environment in terms of power demands.
- Low input harmonic pollution, with near unity input power factor and an extremely wide input voltage operating range (+20/-40%), requiring only a minimum upstream power source rating and subsequent reduced investment costs.

MULTIPLE CONTROLS

The entire Multi Power solution was developed with particular care to ensure operational reliability and prevent any possible failures due to miscommunication between the component parts of the system. The Power Modules are not controlled by one unique microprocessor, but by three - each having different and specific duties. Likewise, the Power Cabinet features two separate microprocessors; one to regulate the overall UPS operations and a separate one to manage communication with the user. In addition, three dedicated communications bus manage and transmit the data. In terms of the monitoring and control of the overall system, all major components are continually temperature monitored within each of the Power Modules. In addition, up to four-temperature sensors are embedded within the Power Cabinet to ensure constant and efficient operation. The Power Module is equipped with three speed controlled fans to ensure there is no energy wasted as the load level applied to the system increases or decreases. At the same time each fan features a so-called third wire (the controller) which immediately warns the microprocessor in the event of a fault; in which case the microprocessor will increase the speed of the remaining operational fans in order to compensate for the cooling deficiency. The Battery Unit also contains dedicated internal protection and a sophisticated control system to monitor the status of each module. This makes it possible to check the voltage/current supplied by each single battery module and therefore identify and warn the user if one of them is defective or beginning to fail. This significantly reduces the risk of a battery pack failure causing a problem to the system by immediately warning the user



of the impending issue in order for the appropriate preventive actions to be taken before it is too late.

FLEXIBLE MODULARITY

Multi Power grows both vertically and horizontally from 1 to 20 Power Modules (MPX 15 PM/MPX 25 PM) or 1 to 28 Power Modules (MPW 42 PM) up to 1176 kW (including redundancy) as well as battery units (from 1 cabinet, up to 10), therefore the system is completely scalable in accordance with any business requirements. The Plug & Play modular concept simplifies any power or battery autonomy expansion process, rather than a complete Power Module or Battery unit replacement. The modular hot-swappable principle is further extended to all major elements of the system, resulting in convenient replacement of parts such as fans from within individual Power Modules rather than accessing major components within the cabinet. Furthermore, all Power Modules and critical components are easily accessible from the front of the

Combo Cabinet MPX 100 CBC (1-4 MPX 15 PM or MPX 25 PM) + 1-6 Battery shelves.

Combo Cabinet MPW 130 CBC (1-3x MPW 42 PM) + 1-5 Battery Shelves with front door air filter (optional available on all cabinet types).

Battery Cabinet (MPW 170 BTC) with open and closed door.

Combo Cabinet MPX 75 CBC (1-3 MPX 15 PM or MPX 25 PM) + 1-3 Battery shelves.

Power Cabinet MPX 130 PWC (1-5x MPX 15 PM or MPX 25 PM).

unit as standard. The system is equipped with a Manual Bypass change over switch and Backfeed control with a mechanical interlock contactor inbuilt, eliminating any maintenance-related downtime (inbuilt contactor is optional for MPX 130 PWC, MPX 75 CBC and MPX 100 CBC). Combination systems (Combo Cabinet) and Battery Cabinet are supplied with a battery switch and shunt trip to enable remote battery switch operation (battery switch not available for MPX 75 CBC). All these features ensure easy UPS expansion, operation and maintenance; minimizing downtime, decreasing the Mean Time to Repair (MTTR) and removing any possible risk to power continuity, when carried out by authorised service personnel. Flexibility is measured by the ease of both on site installation and the operations undertaken by the user. Input/Output/battery terminal bars are deployed enabling authorised installers to easily terminate the cables either from the top or the bottom of the system (for MPX 130 PWC and MPX 75 CBC bottom entry only). Mechanical supports and cable glands as well as the terminal bar positioning (in the centre of the cabinet) are purposely positioned to reduce the installation time and costs.
In addition, in terms of flexibility of the battery installation, whether a conventional or modular type system is implemented these can be arranged in two different configurations: centralised (common battery) or distributed (separate battery for each Power/Combo Cabinet). This will ensure the highest level of adaptability for any critical installation and/or economical driving factors.

TURNKEY SOLUTIONS

User may deploy Multi Power cabinets lining up four Cabinets one to each other and arranging locally for input and output cabling. Riello UPS offers as alternative a 500 kVA turn-key solution which consist in two Power Cabinets (MPW 300 PWC) and a Switching Cabinet to tie up the two. It includes AC input/output terminals for site power distribution connection, related joining flexible bars and communication links between Power Cabinets and Switching Cabinet. Switching Cabinet is also supplied with AC input/output/bypass lines breakers as well as with an integral wrap around maintenance bypass. Bypass line is protected with fuses to grant fault discrimination and load protection in case of short circuit downstream.
The breaker set enables to galvanically insulate the single Power Cabinets and to carry out specific maintenance.
Switching Cabinet cable entry is arranged so that user may decide either to access from the bottom front, rear side or top. This on hand solution simplify the installation activity and contribute to the overall TCO reduction minimizing, upfront, installation and operating costs.

ADVANCED COMMUNICATIONS

Users can benefit from the different communication systems developed specifically for IT personnel, facilities managers and service engineers.
The 7” LCD touch screen, communication slots, relay cards along with the dedicated service ports, all ensure that the UPS setup, control and monitoring is easy.
The Multi Power LCD touch screen has embedded the follow protocols:

- UDP to communicate with our shutdown software PowerShield[3]
- HTTP and HTTPS to monitor the UPS status using a standard web browser without any additional software.
- SMTP to send emails related to the UPS status, alarms and a power quality daily and weekly report.

In addition, with the network card NetMan 208, Multi Power can be integrated into any building management system and Data Center infrastructure (DCIM) with the protocols:

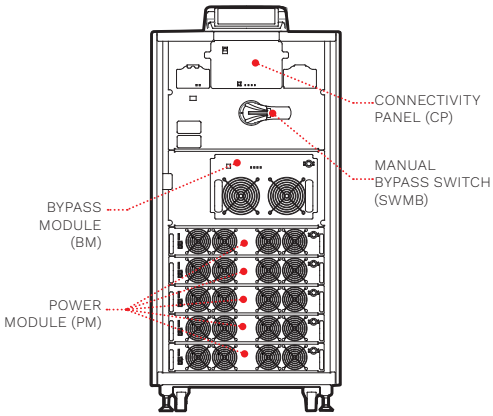
- SNMP v1, v2 and v3.
- Modbus/TCP.

Multi Power is compatible with the very latest operating systems including Windows 11, 10, 8, Server 2022, 2019, 2016 and previous versions, Windows Server Virtualization Hyper-V, macOS, Linux, Citrix XenServer and other Unix operating systems.

DETAILS

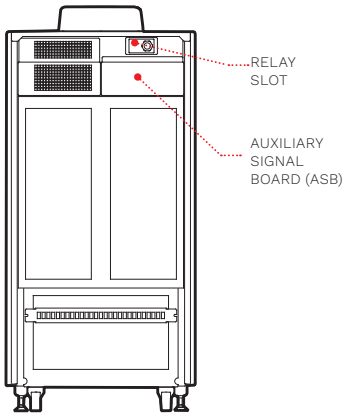
MPX 130 PWC

MPX Power Cabinet
15-75 kW or 25-125 kW
(front)



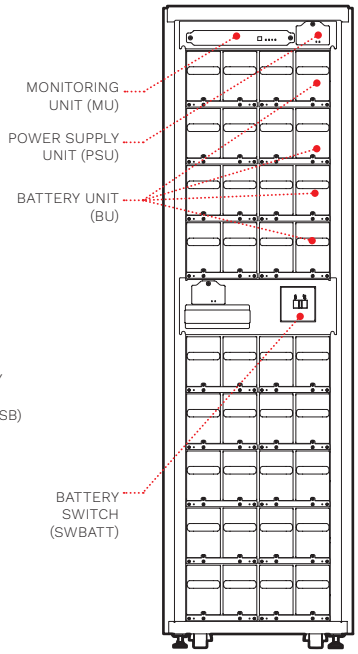
MPX 130 PWC

MPX Power Cabinet
15-75 kW or 25-125 kW
(rear)



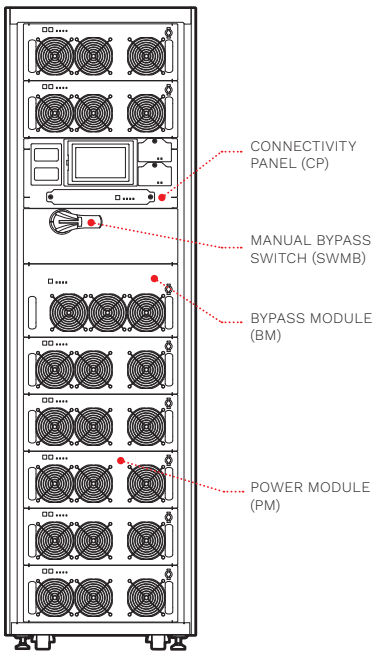
MPW 170 BTC

MPW Battery Cabinet
(front)



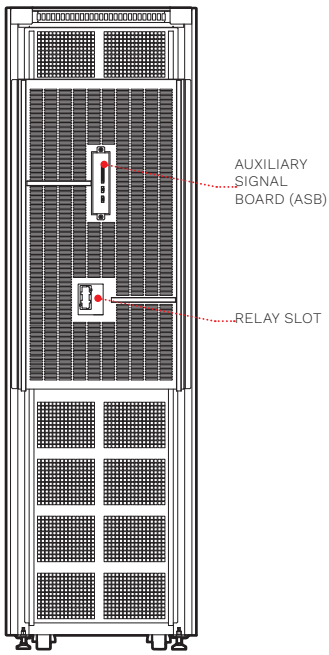
MPW 300 PWC

MPW Power Cabinet
42-294 kW
(front)



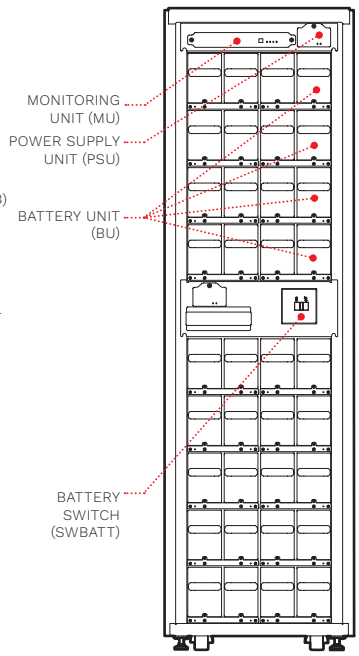
MPW 300 PWC

MPW Power Cabinet
42-294 kW
(rear)



MPW 170 BTC

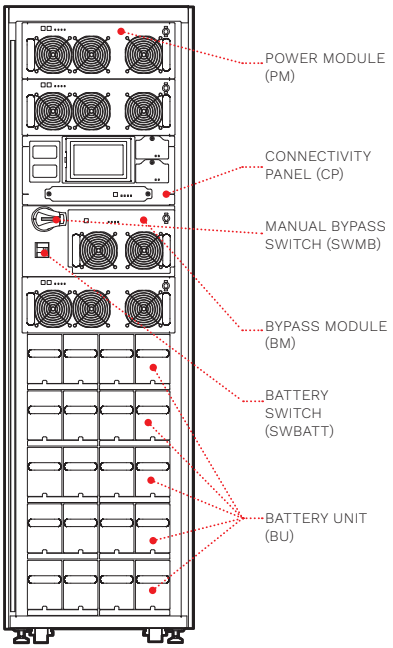
MPW Battery Cabinet
(front)



DETAILS

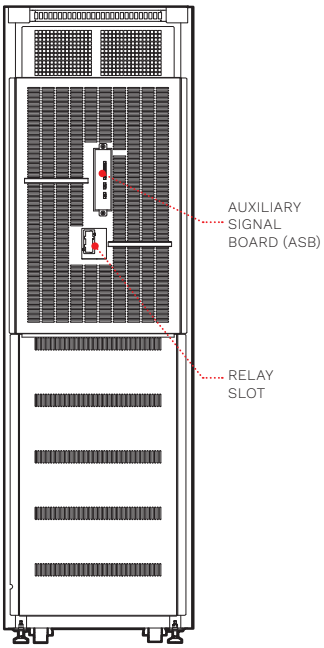
MPW 130 CBC

MPW Combo Cabinet
42-126 kW
(front)



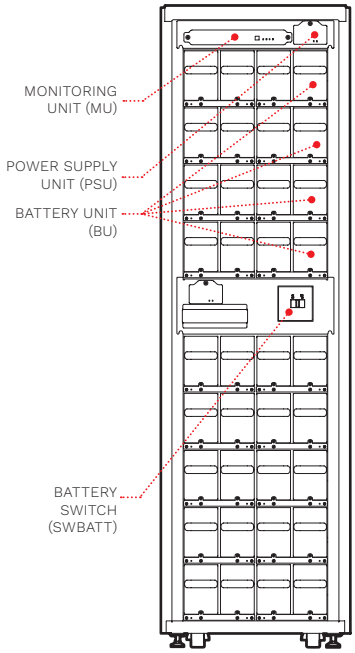
MPW 130 CBC

MPW Combo Cabinet
42-126 kW
(rear)



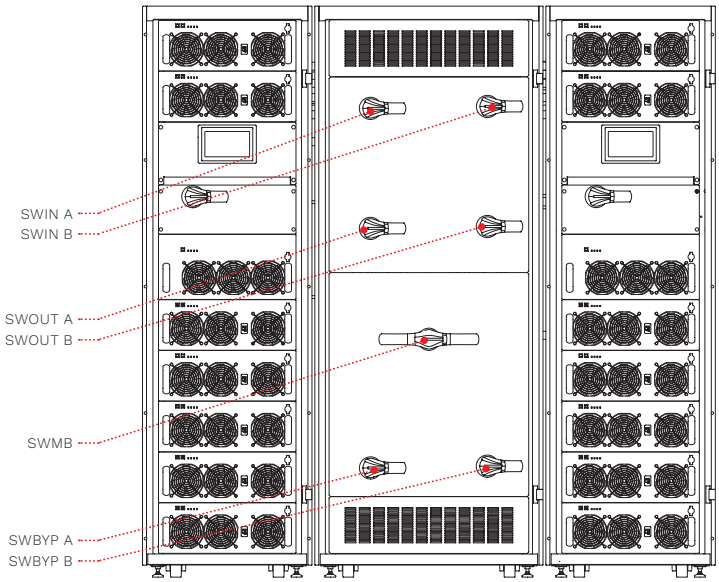
MPW 170 BTC

MPW Battery Cabinet
(front)



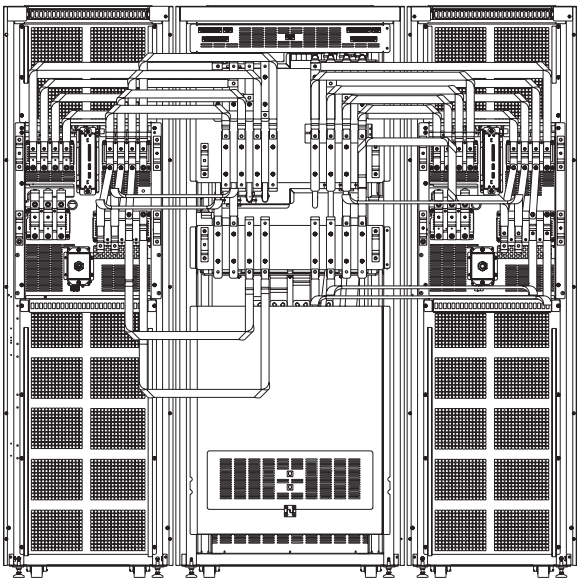
MPW Switching Cabinet 500
+ 2x MPW 300 PWC
(front without doors)

MPW 300 PWC A **MPW 300 PWC B**



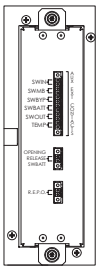
MPW Switching Cabinet 500
+ 2x MPW 300 PWC
(rear without panels)

MPW 300 PWC A **MPW 300 PWC B**

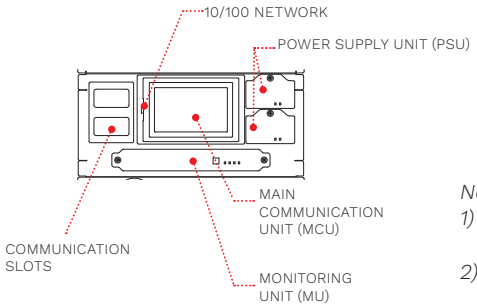


DETAILS

Auxiliary Signal Board (ASB)



Connectivity Panel (CP)

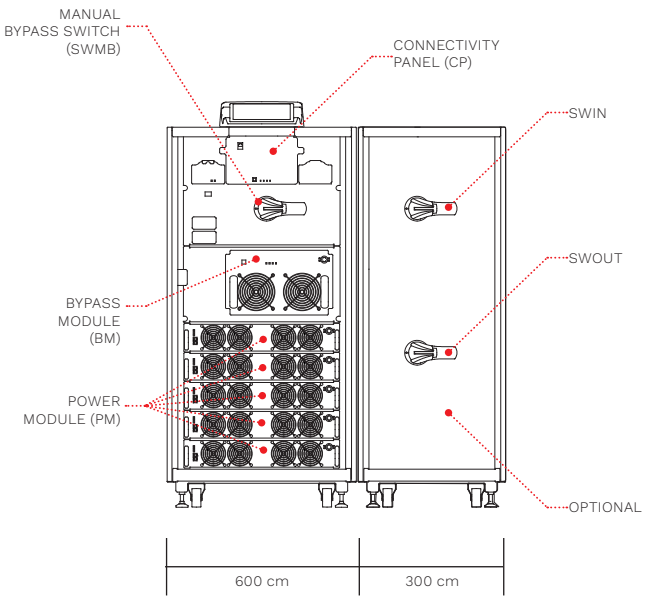


Note:
1) On MPX 130 PWC connectivity panel layout is different.
2) Second PSU on MPX 130 PWC is optional.

OPTION DETAILS

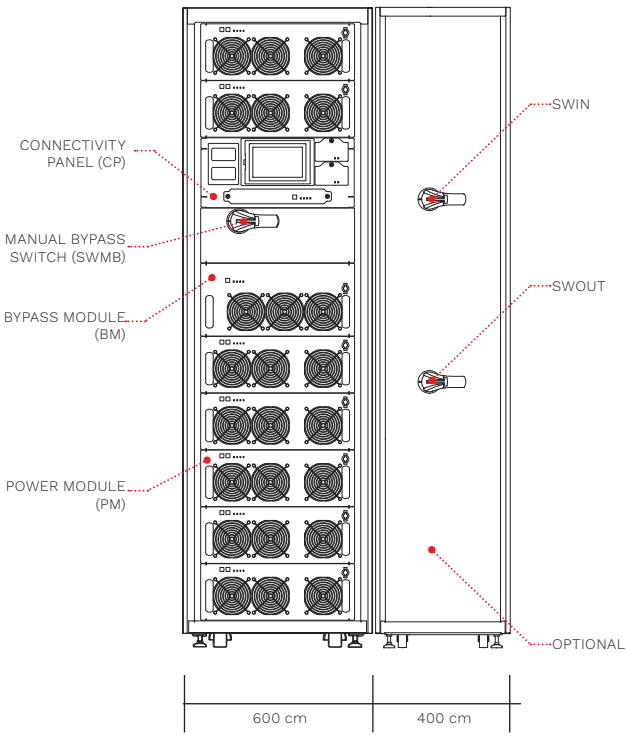
MPX 130 PWC

MPX Power Cabinet
15-75 kW or 25-125 kW
(front)

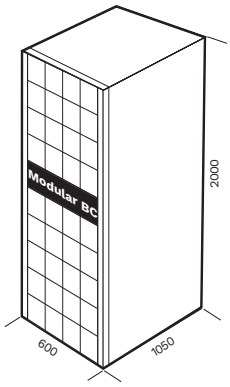
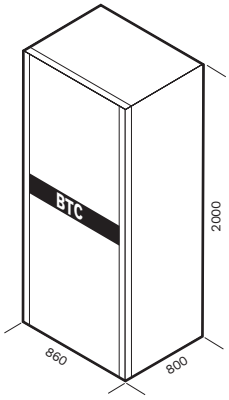


MPW 300 PWC

MPW Power Cabinet
42-294 kW
(front)



BATTERY CABINETS

MODELS	MPW BATTERY CABINET / MPW 170 BTC (MODULAR BATTERY CABINET)	BTC 2000 480V BB V6 3T / BTC 2000 480V BB V7 3T BTC 2000 480V BB V8 3T / BTC 2000 480V BB V9 3T BTC 2000 480V AB V9 3T (CONVENTIONAL BATTERY CABINET)
UPS MODELS	Select the Battery configuration according Multi Power range	
Dimensions [mm]		

OPTIONS

SOFTWARE
PowerShield³
PowerNetGuard

ACCESSORIES
NETMAN 208
MULTICOM 302
MULTICOM 352
MULTICOM 372
MULTICOM 384
MULTICOM 411
MULTICOM 421
MULTI I/O
MULTIPANEL

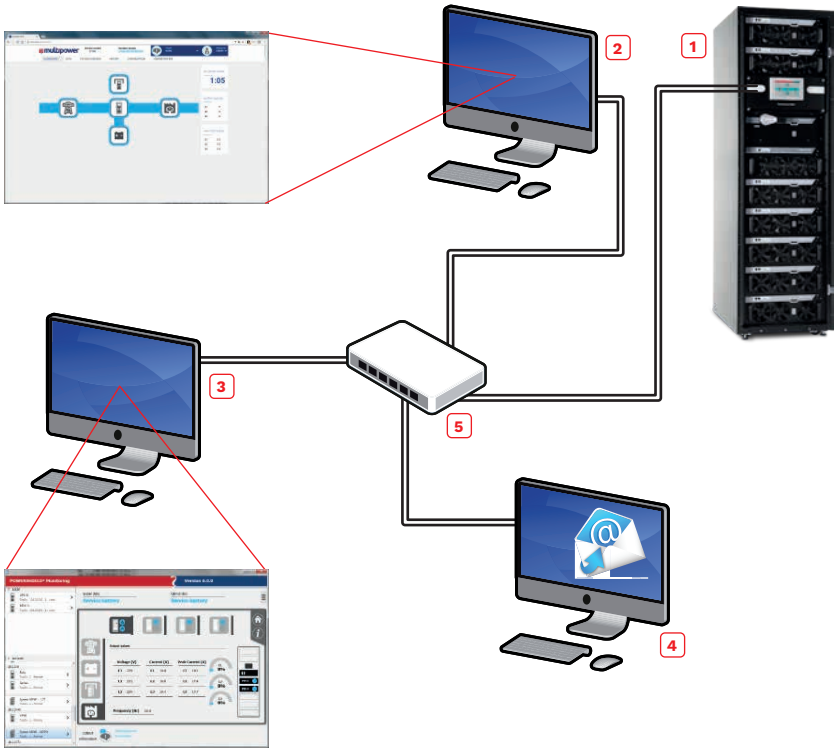
PRODUCT ACCESSORIES
Battery temperature sensor
On front door air filter
Parallel Kit
IP21 Protection Kit
Programmable relay board MULTICOM 392
Switching Cabinet
Cold Start
Seismic kit (MPX 130 PWC)
ENERGYMANAGER

MODEL	Multi Power - from 15 to 294 kW[1]				
INPUT					
Rated voltage [V]	380 / 400 / 415 three-phase + neutral				
Rated frequency [Hz]	50 / 60				
Voltage tolerance [V]	400 ±20% @ full load[2]				
Frequency tolerance [Hz]	40 - 72				
Power factor	0.99				
THDI	<3%				
BYPASS					
Nominal power [kW]	252 / 126 (According to system power configuration)				
Rated voltage [V]	380 / 400 / 415 three-phase + neutral				
Voltage tolerance [V]	from 180 (adjustable 180-200) to 264 (adjustable 250-264) referring to Neutral				
Rated frequency [Hz]	50 or 60				
Frequency tolerance	±5% (selectable)				
Overload	125% for 10 min; 150% for 1 min				
BATTERIES	**Modular Type (MPW 170 BTC)**		**Conventional Type**		
Battery arrangement (parallel systems)	Separate/common				
Layout	Modular type made up by Battery Unit (named BU)		Free Standing Battery cabinet / Shelf		
Battery features	VRLA batteries lined up inside BU; Constant voltage and current measuring at BU level; Battery status monitoring via Multi Power LCD display		Conventional battery Blocks VRLA Type		
Cabinet layout description	9x Battery shelves		1x (20 + 20) Blocks		
Dimensions (WxDxH) [mm]	600x1050x2000		860x800x2000		
Weight [kg] (without PM[3]/BU[4])	280		250		
OUTPUT					
Rated voltage [V]	380[2] / 400 / 415 three-phase + neutral				
Rated frequency [Hz]	50 or 60				
Voltage stability	±1%				
Dynamic stability	EN62040-3 class performance 1 non linear load				
OVERALL SPECIFICATIONS					
Cabinet type	**MPX 130 PWC Power Cabinet**	**MPW 300 PWC Power Cabinet**	**MPX 75 CBC Combo Cabinet**	**MPX 100 CBC Combo Cabinet**	**MPW 130 CBC Combo Cabinet**
Power Module nominal power [kW] (Named PM)	MPX 15 PM MPX 25 PM	MPW 42 PM	MPX 15 PM MPX 25 PM	MPX 15 PM MPX 25 PM	MPW 42 PM
Solution nominal Power [kW]	75 / 125	294	45 / 75	60 / 100	126
Output power factor [pf]	1	1	1	1	1
Parallelable (up to)	4	4	4	4	4
Cabinet layout description	5x MPX 15 PM 5x MPX 25 PM	7x MPW 42 PM	3x MPX 15 PM 3x MPX 25 PM +3x Battery shelves	4x MPX 15 PM 4x MPX 25 PM +6x Battery shelves	3x MPW 42 PM 5x Battery shelves
Dimensions [WxDxH] [mm]	600x1050x1200	600x1050x2000	600x1050x1600	600x1050x2000	600x1050x2000
Weight [kg] (without PM[3]/BU[4])	145	300	190	350	340
System Noise Level at 1 m [dBA±2]	<65	<68	<63	<64	<64
ECO Mode Efficiency	up to 99%				
Cabinet IP rating	IP20 finger proof (either with cabinet doors open or close)				
Cable input	Rear side either top or bottom				
Colour	RAL 9005				
Ambient temp. for the UPS	0 °C - +40 °C				
Recommended temperature for battery life	+20 °C - +25 °C				
Range of relative humidity	5-95% non-condensing				
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 - category C2; RoHS compliant Classification in accordance with IEC 62040-3 (Voltage Frequency Indipendent) VFI - SS - 111				
Moving UPS cabinet types	Castors (any cabinet type is shipped without PM and BU)				

[1] *Including Redundancy*
[2] *For wider tolerance conditions apply.*
[3] *PM = Power Module (either referring to MPX 15 PM, MPX 25 PM or MPW 42 PM)*
[4] *BU = Battery Unit*

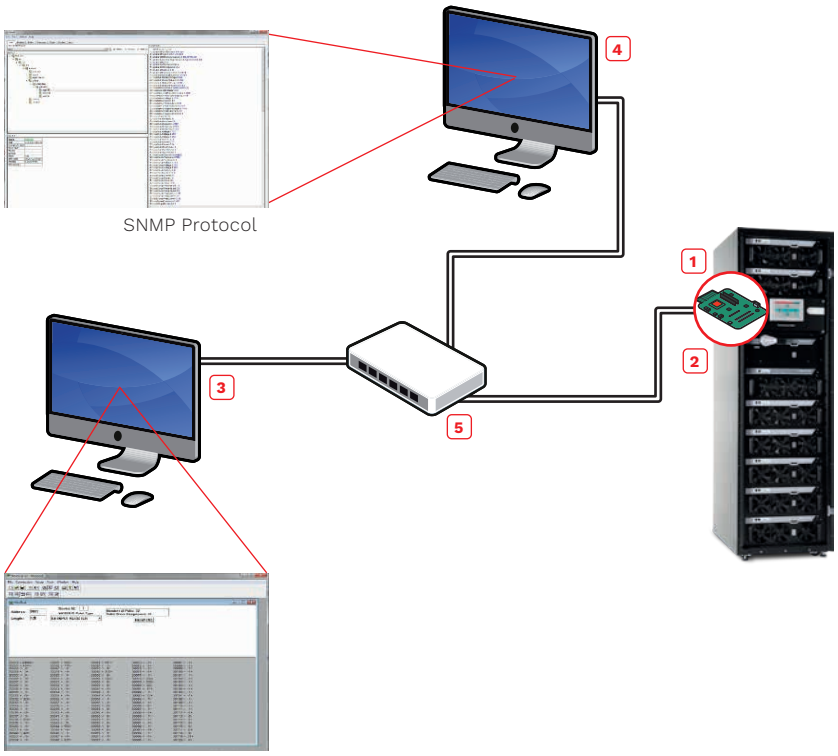
NOTE: All performances quoted in a single row refer to any UPS system configuration from one to seven modules running in parallel unless specified differently.

MULTI POWER EMBEDDED PROTOCOLS



1	MPW / MPX
2	Web Browser
3	PowerShield³
4	Mail Server
5	Ethernet Switch
═	Ethernet

MULTI POWER PROTOCOLS ADDING NETMAN 208 CARD



SNMP Protocol

Modbus/TCP Protocol

1	MPW / MPX
2	NetMan 208 board
3	Modbus/TCP Manager
4	SNMP Manager
5	Ethernet Switch
═	Ethernet

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.

RPS SpA - Riello Power Solutions - Member of the Riello Elettronica Group
Viale Europa, 7 - 37045 Legnago (Verona) - ITALY - Tel: +39 0442 635811
www.riello-ups.com