

# Master Switch STS

## THREE-PHASE



DATACENTER



E-MEDICAL



INDUSTRY



TRANSPORT



Service  
1st start



**3:3** 100-800 A  
Static Transfer Switch

## HIGHLIGHTS

- **High reliability**
- **Hot Replacement function**
- **3 or 4 poles version**
- **Advanced communications**

Installing a Master Switch static transfer switch provides additional resilience and protection from the disruption that can be caused by the failure of a single power source. The result is the absolute protection of industrial utilities and critical information technology against power supply and load faults.

### OPERATING PRINCIPLE

Master Switch guarantees a source of redundant power, allowing the load to be switched between two alternative and independent power sources. Switching can be automatic (when a supply source falls outside of acceptable tolerances) or manually done by an operator from the front panel or remotely.

### PROTECTION AGAINST POWER SUPPLY FAULTS

If one of the two power sources falls outside tolerance levels, Master Switch will transfer the consumers to the second power source (switching is instantaneous if the two sources are in phase).

### PROTECTION AGAINST ENVIRONMENTAL DISTURBANCES

In the event of an overload, the user can decide the level of intervention of the internal protection devices in order to block the power supply. In the extreme case of a downstream short circuit, Master Switch disconnects the load in order to avoid jeopardising the operation of the other loads (i.e. in the event of poor selectivity of the protection devices).

## TOTAL MICROPROCESSOR CONTROL

Microprocessor control logic ensures:

- Fast and safe switching between power sources;
- Monitoring of all parameters via LCD display;
- Constant monitoring of SCR operation
- Advanced remote diagnostics (RS232 and TCP/IP).

## REDUNDANT DESIGN

Power is supplied to the internal logic by two physically separate supply circuits that are fully independent and that can be replaced in “hot replacement” mode without causing power supply interruptions to the load. In the event that the power supplied by both sources fails, full system operation is guaranteed by the “Power Supply back up” function, which provides auxiliary power supply to the circuits from an external, independent power source. Master Switch is equipped with a dual redundant ventilation system known as: “fan redundancy plus”. Thanks to this feature and in the unlikely event that two fans fail at the same time, those remaining would still be able to dissipate the heat generated at nominal load and with an ambient temperature of up to 40° C. Also the fans can be replaced in “hot replacement” mode, ensuring continuity during the replacement operation.

## SUPERIOR PROTECTION

In the event of an output short circuit, Master Switch blocks the transfer between the two power sources, eliminating the risk of propagating the short circuit and its effects to the other loads. A backfeed control circuit ensures the automatic intervention of the protection devices when a return of power to one of the two Master Switch inputs is detected.

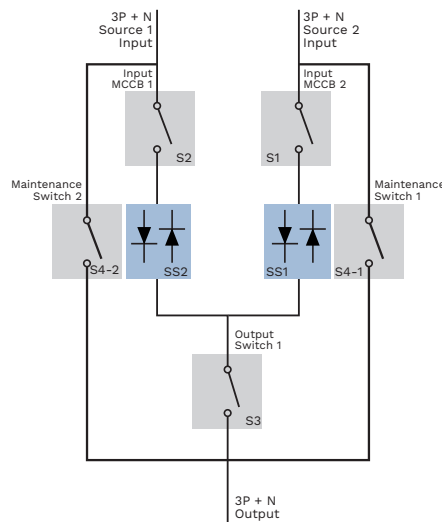
## ACCESSIBILITY

The layout of the moving components and parts is designed to ensure easy frontal access:

- power cable connections that are easily accessed with entry from below;
- boards housed in a dedicated area for rapid diagnosis / replacement;
- all parts subject to monitoring, maintenance and/or replacement.

## ADVANCED COMMUNICATIONS

Master Switch provides information, measurements, statuses and alarms via the LCD display. The STS is compatible with PowerShield<sup>3</sup> supervision and shutdown software for Windows operating systems 11, 10, 8, Server 2022, 2019, 2016 and previous versions, Windows Server Virtualization Hyper-V, macOS, Linux, Citrix XenServer and other Unix operating systems.



## OPTIONS

### SOFTWARE

PowerShield<sup>3</sup>

### ACCESSORIES

NETMAN 208\*

MULTICOM 302\*

MULTICOM 352\*

MULTICOM 411\*

MULTICOM 421\*

### PRODUCT ACCESSORIES (ALL EX-WORK)

“No neutral on input” kit

Power Supply Back-up

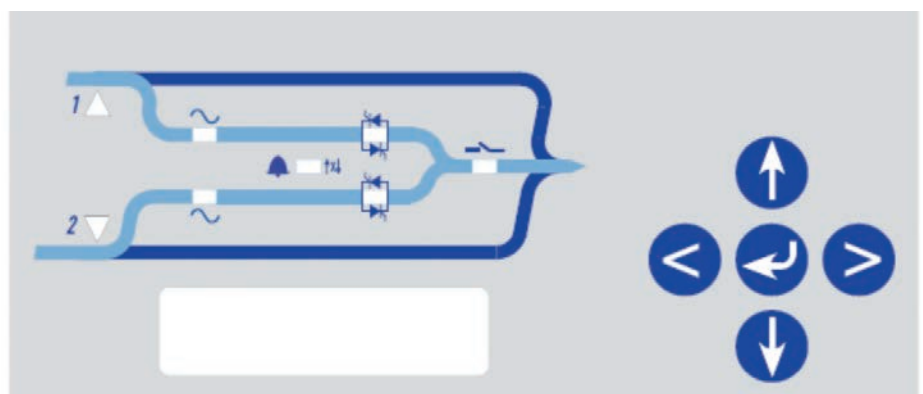
RS232 Duplexer

Top Entry Cabinet

\*Communication card adapter needed.

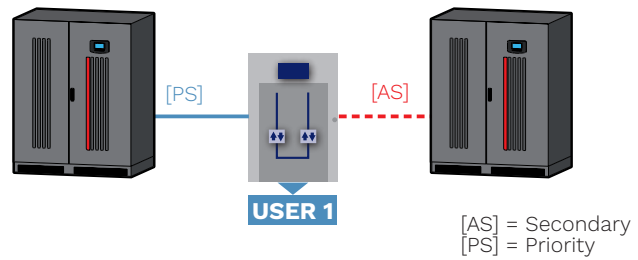
| LEDs | FUNCTION                          |
|------|-----------------------------------|
| L1   | S1 Priority Source                |
| L2   | S2 Priority Source                |
| L3   | S1 Present                        |
| L4   | S2 Present                        |
| L5   | Static transfer switch SS1 closed |
| L6   | Static transfer switch SS2 closed |
| L7   | Alarm indicator                   |
| L8   | Output selector ON/OFF            |

**5 function keys and LCD operation**



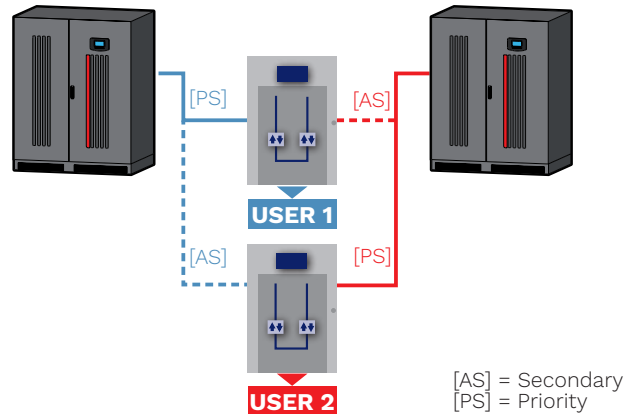
## MASTER SWITCH IN REDUNDANT MODE

The secondary power source [AS], although highly reliable, only powers the load in the event of a failure with the priority power source [PS], ensuring maximum redundancy and power quality to the loads.



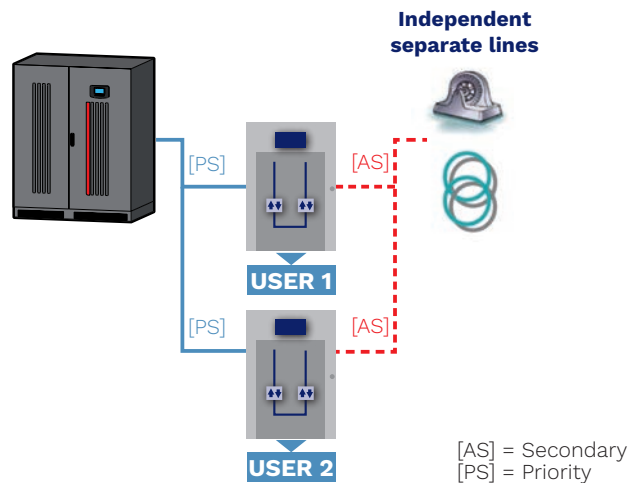
## MASTER SWITCH IN CROSS FEEDING MODE

The two sources power critical loads using Master Switches configured to selected one of the two power sources as the priority source [PS]. In case of a failure in one of two sources, the other will be able to supply power to all the loads connected to the system.



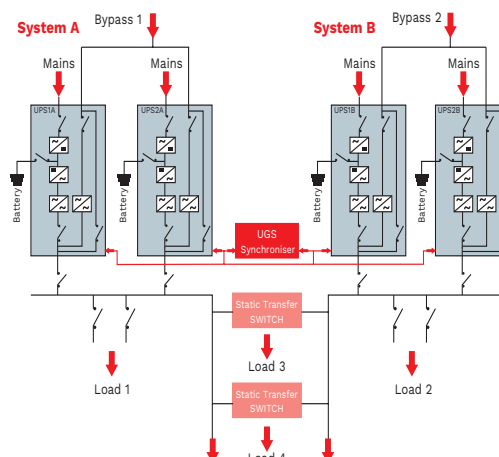
## MASTER SWITCH IN BACK-UP MODE

Master Switches power utilities via the priority energy source [PS]; the secondary energy source [AS] is made up of independent, separate power sources and to make up for any faults in the priority power source [PS].

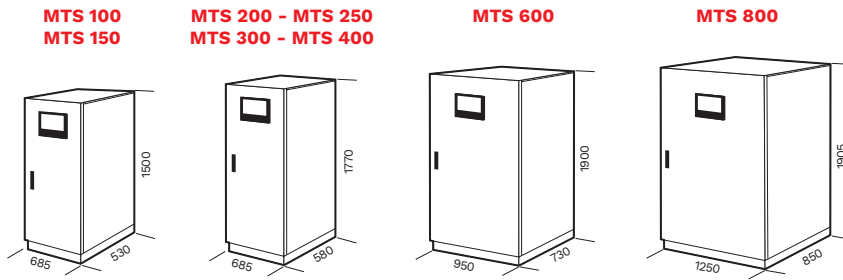


## DYNAMIC DUAL BUS CONFIGURATION

The Riello UPS solution guarantees maximum reliability and ensures continuity of power supply under all operating conditions thanks to the UGS option that keeps the two systems, A and B, perfectly synchronised. The flexibility of the UGS system ensures synchronism between the sources even when one of the two systems is not a Riello UPS model, but made by another manufacturer, or when the input sources are not from uninterruptible power supplies.



## DIMENSIONS



| MODELS                            | MTS 100   | MTS 150 | MTS 200      | MTS 250 | MTS 300 | MTS 400 | MTS 600          | MTS 800           |  |
|-----------------------------------|---|---------|--------------|---------|---------|---------|------------------|-------------------|--|
| <b>OPERATING SPECIFICATIONS</b>   |   |         |              |         |         |         |                  |                   |  |
| Nominal Current [A]               | 100   | 150     | 200          | 250     | 300     | 400     | 600              | 800               |  |
| Transfer type                     | "Break Before Make" (no overlapping sources)                    |         |              |         |         |         |                  |                   |  |
| Available transfer methods        | Automatic / Manual / Remote                                     |         |              |         |         |         |                  |                   |  |
| Transfer time [ms]                | <4 (S1/S2 synchronised) 10 (S1/S2 non synchronised)             |         |              |         |         |         |                  |                   |  |
| <b>INPUT</b>                      |   |         |              |         |         |         |                  |                   |  |
| Rated voltage - sources S1/S2 [V] | 380 / 400 / 415 three-phase + N                                 |         |              |         |         |         |                  |                   |  |
| Voltage tolerance [V]             | 180 / 264 (selectable)  |         |              |         |         |         |                  |                   |  |
| Switched input phases             | 3 ph+N (four poles version) - 3 ph (three poles version)        |         |              |         |         |         |                  |                   |  |
| Rated frequency [Hz]              | 50 / 60   |         |              |         |         |         |                  |                   |  |
| Input frequency tolerance range   | ±10% (selectable)   |         |              |         |         |         |                  |                   |  |
| Distribution compatibility        | IT, TT, TNS, TNC  |         |              |         |         |         |                  |                   |  |
| <b>OVERALL SPECIFICATIONS</b>     |   |         |              |         |         |         |                  |                   |  |
| Weight [kg] three poles version   | 145   | 165     | 195          | 205     | 230     | 240     | 340              | 515               |  |
| Weight [kg] four poles version    | 175   | 190     | 205          | 235     | 240     | 255     | 375              | 560               |  |
| Dimensions (WxDxH) [mm]           | 685x530x1500  |         | 685x580x1770 |         |         |         | 950x730<br>x1900 | 1250x850<br>x1905 |  |
| Communications                    | RS232 / Relay contacts port                                     |         |              |         |         |         |                  |                   |  |
| Ambient temperature               | 0 °C - +40 °C   |         |              |         |         |         |                  |                   |  |
| Range of relative humidity        | 5-95% non-condensing  |         |              |         |         |         |                  |                   |  |
| Colour                            | RAL 7016  |         |              |         |         |         |                  |                   |  |
| Noise level at 1 m [dBA ±2]       | <55   |         |              |         |         |         | <60              | <62               |  |
| IP rating                         | IP20  |         |              |         |         |         |                  |                   |  |
| Efficiency @ full load            | > 99%   |         |              |         |         |         |                  |                   |  |
| Standards                         | EN 62310-1 (safety) EN 62310-2 (electro-magnetic compatibility) |         |              |         |         |         |                  |                   |  |
| Moving the STS                    | Pallet jack   |         |              |         |         |         |                  |                   |  |

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