Maintenance Bypass Switch MBS-HW

Datasheet

The MBSW is a manual maintenance bypass switch designed to isolate AC input and output to allow for routine UPS maintenance without load interruption. The purpose of the MBSW is to bypass the UPS and supply mains power to critical loads. Once the maintenance is complete, the loads are transferred back to the UPS and return to normal operation.

The make before break design guarantees no interruption to the loads since the switch is fitted with an electro-mechanical mechanism between itself and the UPS to prevent incorrect or accidental operation. The shaft in the contact is locked by a solenoid which is electrically coupled with the UPS 'load on bypass' relay, meaning the switch cannot be operated unless the load is manually transferred to bypass mode on the UPS front panel first.

Some key features

- Continuous power to equipment
- Eliminates operation downtime
- Make before break transfer topology
- Electro-mechanical switch to ensure safe operation

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Product Specifications

Single Phase Model

Model Number	UPS Power Rating	Current Rating	Dimensions (W x D x H) cm	Weight	Mount Type
MBS-HW10W	2KVA	10A	19 x 13 x 38	10KG	Wall
MBS-HW10R	2KVA	10A	44 x 39 x 14	7KG	Rack
MBS-HW15W	3KVA	15A	19 x 13 x 38	10KG	Wall
MBS-HW15R	3KVA	15A	44 x 39 x 14	7KG	Rack
MBS-HW32W	6KVA	32A	19 x 13 x 38	11KG	Wall
MBS-HW32R	6KVA	32A	44 x 39 x 14	8KG	Rack
MBS-HW63W	10KVA	63A	28 x 18 x 38	11KG	Wall
MBS-HW63R	10KVA	63A	44 x 39 x 14	8KG	Rack

Three Phase Model

Model Number	UPS Power Rating	Current Rating	Dimensions (W x D x H) cm	Weight	Mount Type
MBS-HW32W-3	20KVA	32A	30 x 21 x 40	18KG	Wall
MBS-HW63W-3	40KVA	63A	40 x 30 x 60	30KG	Wall
MBS-HW100W-3	60KVA	100A	38 x 35 x 60	33KG	Wall
MBS-HW150W-3	100KVA	150A	60 x 40 x 80	38KG	Wall
MBS-HW315W-3	200KVA	315A	80 x 50 x 60	42KG	Wall
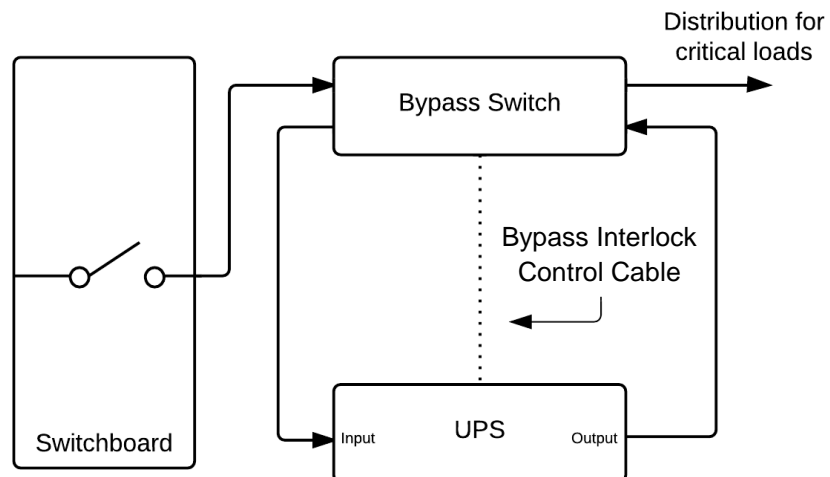
Installation and Operation

⚠️ **This switch must be installed and serviced by qualified personnel ONLY**

⚠️ **This switch has more than one live circuit. AC power may be present even if there is no power supplied from AC mains**

Description of UPS external bypass switch

The purpose of the MBSW is to isolate the UPS from loads and equipment whilst the UPS is under repair or maintenance.

The physical, external switch has 4 positions:

- **OFF**   AC power to both critical load equipment and UPS is switched off

- **UPS**   Normal operating position. AC mains are connected to the UPS which provides conditioned AC power to critical loads. In the case of AC mains failure, the UPS provides AC power to loads until the batteries become completely depleted or until the fault is resolved

- **TEST & BYPASS**   Power to critical load equipment is fed directly from the AC mains and AC mains are also supplying power to the UPS for testing

- **BYPASS**   Power to critical load equipment is fed directly from the AC mains and the power to the UPS is disconnected

Switching between UPS and TEST & BYPASS positions is make-before-break AND the connection is electrically interlocked thus preventing incorrect switching; switching between UPS and TEST & BYPASS positions is only possible when the UPS is in bypass mode.

Installation

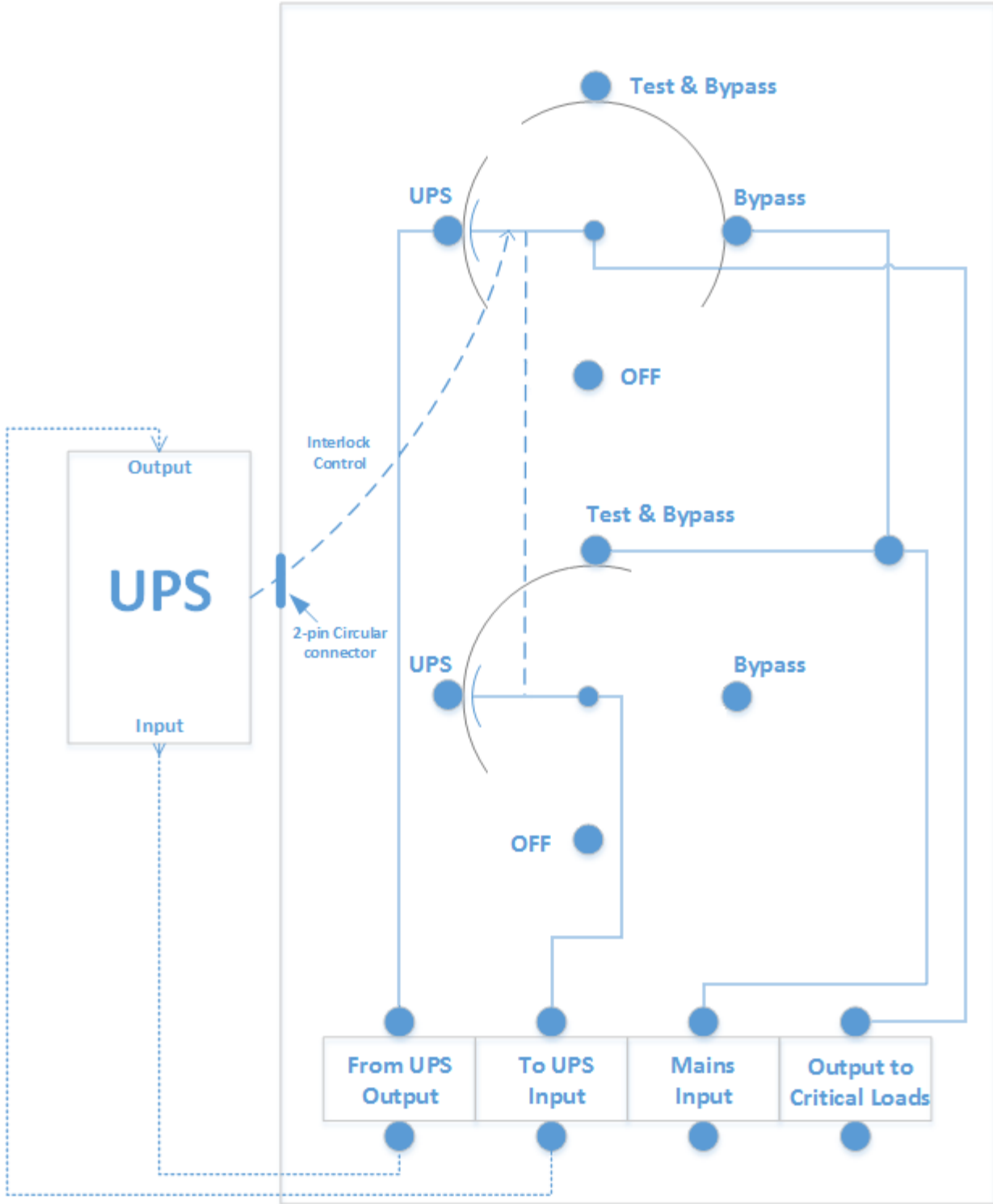The following 5 sets of power and control cables must be installed.

1. Power cable from mains supply to **Mains Input** terminals of the switch.
2. Power cable from **To UPS Input** terminals of the switch to the UPS input.
3. Power cable from UPS output to the **From UPS Output** terminals of the switch.
4. Power cable from **Output to Load** terminals of the switch to critical loads.
5. Interlock control cable between **Bypass Signal from UPS** connector on the switch and the **Bypass Signal** on the UPS (either a 2-pin round connector on the UPS or a 2-pin green connector on the AS400B card).

NOTE: the interlock control cable supplied with the switch is 1.8m, if required the cable can be extended or replaced with a longer cable.
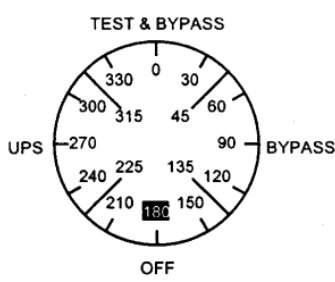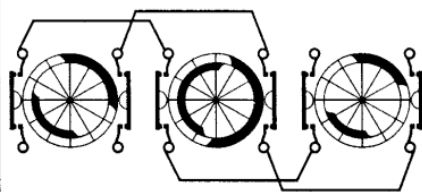
Operation of MBSW

- Switching from **UPS** to **TEST & BYPASS**

  - Ensure the UPS is in bypass mode and the **BYPASS** LED is on. If the UPS is in **ON-LINE** mode, it should be switched to **BYPASS** mode using the following procedure:

    1. On the UPS front panel, press and hold the **FUNC** button for 2 seconds. The LCD display should show **O/Power Factor Volt Set** .

    2. Press the **FUNC** button 5 times (until the LCD shows **Manual Bypass**) then press **ENTER** and a message on the LCD should show **Bypass OFF** .

    3. Press the **FUNC** button to toggle the LCD to show **Bypass ON** and press **ENTER**. The UPS will switch to **BYPASS** mode, the **ON-LINE** LED should turn off and the **BYPASS** LED should turn on.

  - After the UPS is in **BYPASS** mode, the **BYPASS** switch can be turned from the **UPS** position to the **TEST & BYPASS** position. At this point the AC mains are simultaneously supply both the critical loads and the UPS.

- Switching from **TEST & BYPASS** to **BYPASS** (and vice versa)

  - Switching between these two positions is unrestricted. Once the switch is turned to **BYPASS** the UPS input will be disconnected and the loads continue to be powered by the AC mains supply.

- Switching from **TEST & BYPASS** to **UPS** position

  - Ensure the UPS is in **BYPASS** mode and the **BYPASS** LED is on. If the UPS is in **ON-LINE** mode, follow the steps above to transfer it to **BYPASS** mode.

  - To switch from **BYPASS** mode to **ON-LINE** mode on the UPS, follow the steps below:

    1. On the UPS front panel, press and hold the **FUNC** button for 2 seconds; the LCD display should show **O/P Volt Set** .

    2. Press the **FUNC** button 5 times (until the LCD shows **Manual Bypass**) then press **ENTER** and the display should read **Bypass ON** .

    3. Press the **FUNC** button to toggle the LCD display to show **Bypass OFF** and press **ENTER**. The UPS will switch from **BYPASS** mode to **ON-LINE** mode after a short delay. The **BYPASS** LED should turn off and the **ON-LINE** LED should come on.

  - The critical load is now connected to and protected by the UPS.

- Switching between **OFF** and **UPS** positions, and between **OFF** and **BYPASS** positions

  - Switching between **OFF** and **UPS** positions on the switch and the **OFF** and **BYPASS** positions is unrestricted.

NOTE: when in the **OFF** position, the AC power to both the critical load/s and the UPS is switched off

External Maintenance Bypass Switch Hardwired

Escutcheon Plate

TEST & BYPASS dial (0, 30, 45, 60, 90 BYPASS, 120, 135, 150, 180 OFF, 210, 225, 240, UPS 270, 300, 315, 330)

| Switching Angle | 90 |
| Total switching Angle | 360 |

	LINE	N			UPS	UPS						
	1	3	5	7	9	11	13	15	17	19	21	23
	2	4	6	8	10	12	14	16	18	20	22	24
	UPS	UPS			load	load						

	Angle	2	4	6	8	10	12
OFF	180						
	195						
	210						
	225						
	240						
	255						
UPS	270	■	■			■	■
	285	■	■			■	■
	300	■	■	■	■	■	■
	315	■	■	■	■	■	■
	330	■	■	■	■	■	■
	345	■	■	■	■	■	■
TEST & BYPASS	0	■	■	■	■		
	15			■	■		
	30			■	■		
	45			■	■		
	60			■	■		
	75			■	■		
BYPASS	90			■	■		
	105						
	120						
	135						
	150						
	165						

Look	600
Mounting	VE-V
Escutcheon Plate	
Handle	G251
Latch. Mech.	E304
Stop	----------
Stop degree	
No. of Stages	3
Master data	1
Reference	WATERS
Date	2009-08-04 23:52
Modify Date	
Cust. NO.	
Company	

Pcs. Optional Extras

V140 TO INTERLOCK BETWEEN UPS
AND UPS & TEST POSITIONS
FREE TO TURN BETWEEN ALL OTHER
POSITIONS

Jumpers

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1●—●    3●—●    4○    2○
5○—○    7○      8●    6●
9○      11○     12●   10●
13○     15○     16○   14○
17○     19○     20○   18○
21○     23○     24○   22○
25○     27○     28○   26○
29○     31○     32○   30○
33○     35○     36○   34○
37○     39○     40○   38○
41○     43○     44○   42○
45○     47○     48○   46○
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