



3 109 53 Maintenance Bypass Switch

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1.1 Overview

Congratulations on your purchase of the LEGRAND maintenance bypass switch 3 109 53. This switch (MTBS) has been specifically designed to ensure seamless operation of your critical load during maintenance and testing or during the unlikely event of a UPS failure.



ATTENTION

It is necessary to read the whole manual carefully before doing any operation.



ATTENTION

The maintenance bypass switch 3 109 53 can only be used with the UPS Daker DK 1000 VA - 2000 VA - 3000 VA and Daker DK+ 1000 VA - 2000 VA - 3000 VA manufactured by LEGRAND.

The purpose of this manual is to provide necessary indications to install and use safely the maintenance bypass switch.

The reading of these instructions is essential but it cannot substitute the expertise of the technical personnel who must have had adequate preliminary training.

The MTBS has been built for the applications specified in this manual. **For no reason whatsoever it is allowed to use it for purposes other than those for which it has been designed.**

This manual must be kept in a safe, dry place and always be available for consultation. It is suggested to make a copy and to save it.

The manual is to be considered an integral part of the maintenance bypass switch and therefore must be kept for the equipment's useful life cycle.

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1 Introduction

1.2 Guarantee terms

The guarantee conditions may vary depending on the country where the maintenance bypass switch 3 109 53 is sold. Check with your local LEGRAND sale representative for validity and duration.

The Manufacturer declines all direct and indirect liabilities resulting from:

- failure to observe instructions included in this manual;
- use by personnel who have not read and thoroughly understood the content of this manual;
- use that does not comply with the specific standards used in the country where the equipment is installed;
- modifications made to the equipment, software, functioning logic unless they have been authorized by the Manufacturer in writing;
- repairs that have not been authorized by the LEGRAND Technical Assistance Centre;
- damage caused intentionally, through negligence, by acts of God, natural phenomena, fire or liquid infiltration.

2 Safety regulations



ATTENTION

It is necessary to read carefully these safety provisions and the entire manual before carrying out any operation.



DANGER

This product should be installed in compliance with installation rules, preferably by a qualified electrician. Incorrect installation and use can lead to risk of electric shock or fire.

Before carrying out the installation, read the instructions and take account of the product's specific mounting location.

Do not open up, dismantle, alter or modify the device except where specifically required to do so by the instructions. All Legrand products must be opened and repaired exclusively by personnel trained and approved by Legrand. Any unauthorized opening or repair completely cancels all liabilities and the rights to replacement and guarantees.

Use only Legrand brand accessories.



DANGER

The maintenance bypass switch 3 109 53 can only be installed with the UPS Daker DK 1000 VA - 2000 VA - 3000 VA and Daker DK+ 1000 VA - 2000 VA - 3000 VA completely SWITCHED OFF and UNPLUGGED FROM THE MAINS.

 **ATTENTION**

Inspect the maintenance bypass switch immediately after opening the packaging. If it appears damaged, do not install it but contact immediately the LEGRAND Technical Service Assistance.

 **ATTENTION**

The UPS, the maintenance bypass switch or the load equipment may be damaged if the installation and operating procedures are not followed.

 **ATTENTION**

- Do not connect the maintenance bypass switch to an ungrounded outlet or extension cords or adapters that eliminate the connection to ground.
- Do not use this equipment in dusty or corrosive environments or near any flammable objects.
- The power requirement for each load connected to the maintenance bypass switch must not exceed the individual outlet's load rating.
- The equipment is not designed for outdoor use. It can operated under a maximum ambient temperature of +40°C (+104°F).
- The equipment must be installed near a mains socket and it must be easily accessible.

 **ATTENTION**

In case of problems with the maintenance bypass switch, the manual must always be consulted to find out how to solve them.

If the problem persists, contact the LEGRAND Technical Service Assistance which will provide all the instructions on what to do.

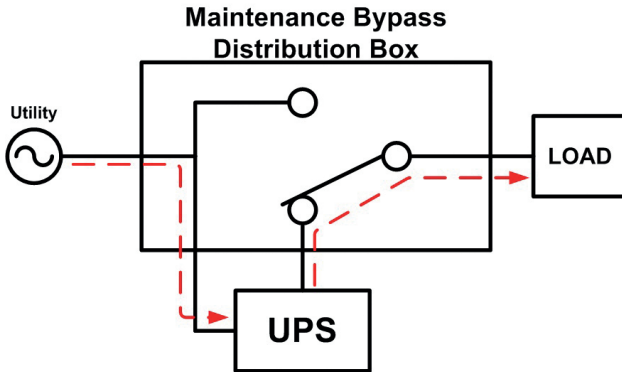
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3 Installation

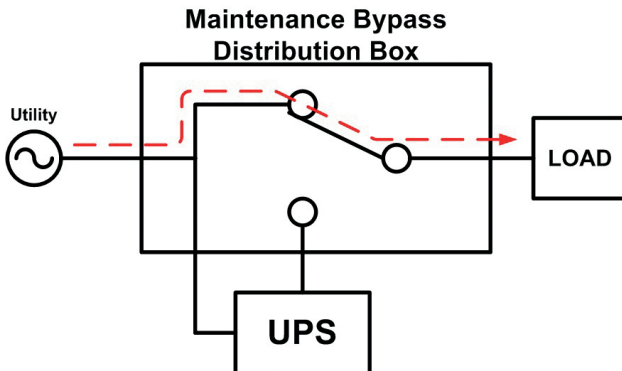
3.1 Introduction

There are two operation modes offered by the Maintenance Bypass Switch (MTBS).

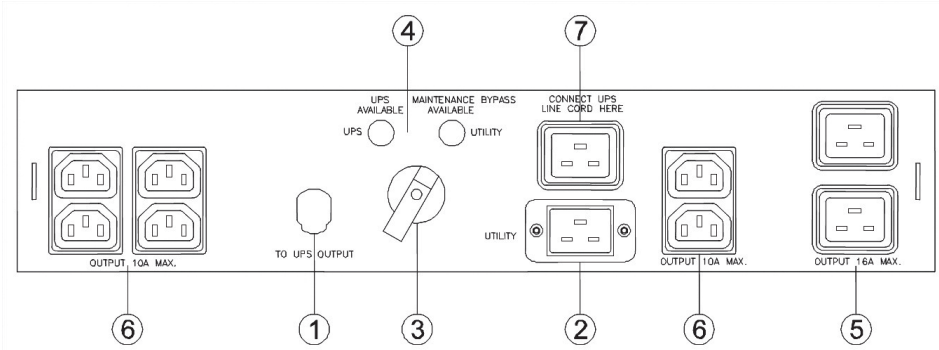
1 - UPS MODE (UPS available): when the MTBS works on UPS mode, the UPS supply directly the loads.



2 - UTILITY MODE (maintenance bypass): when the MTBS works on the UTILITY mode, the loads are supplied by the MTBS. The UPS can be turned off for maintenance or service operation without affecting the loads.



3.2 Front panel

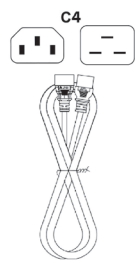
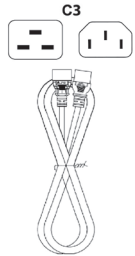
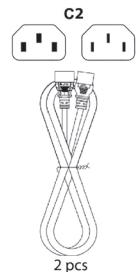
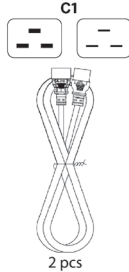
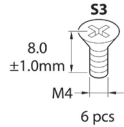
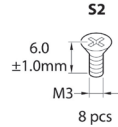
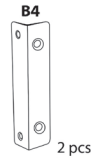
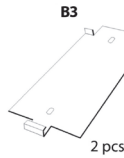
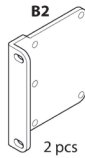
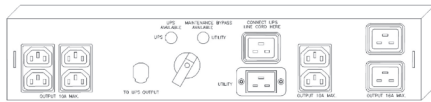
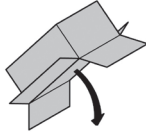


1. UPS output power cord: connect to the UPS output sockets
2. Input Socket: connect to the mains socket
3. CAM SWITCH: Maintenance Bypass Switch
4. Lamps: they indicate the presence of the UPS and of the mains
- 5-6. Load Sockets: connect to the loads
7. UPS Input Socket: connect to the UPS Input

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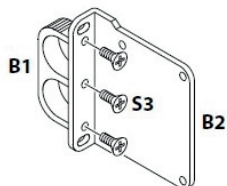
3 Installation

3.3 Package content

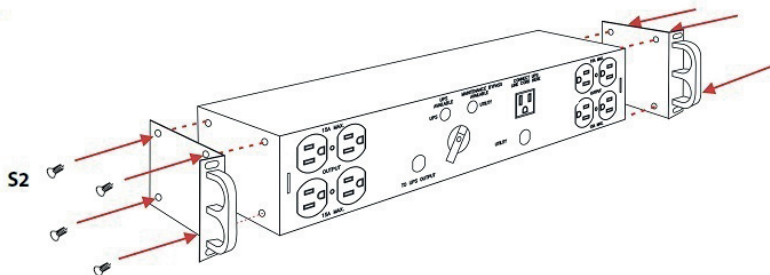


3.4 Rack Mount Configuration

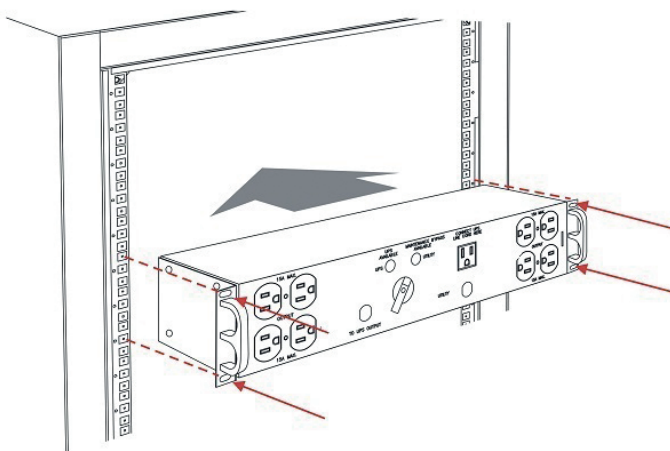
Step 1



Step 2



Step 3

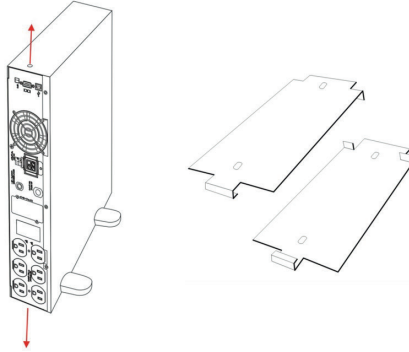


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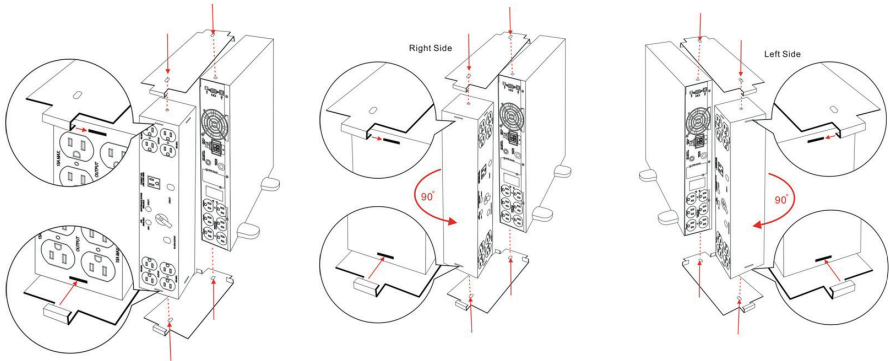
3 Installation

3.5 Tower Configuration

Step 1

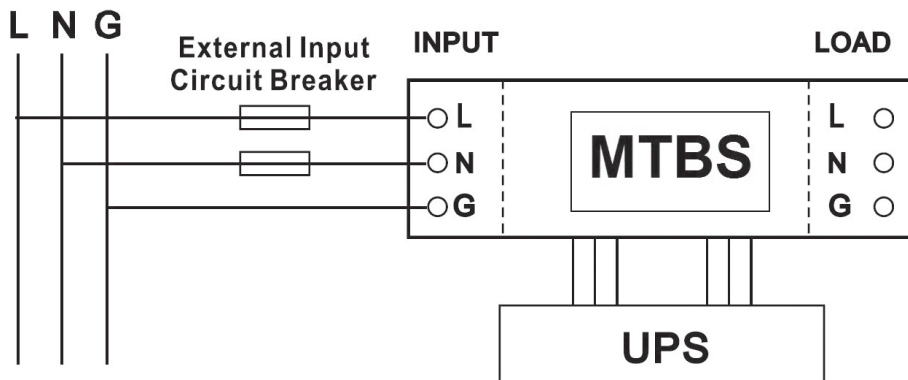


Step 2



3.6 Preliminary operations

1. Shut down the loads connected to the UPS and remove the output cable of the UPS.
2. Turn off the UPS and remove the input power cord of the UPS from the wall socket.
3. Install a utility circuit breaker of max 20 A – curve C for input wiring.



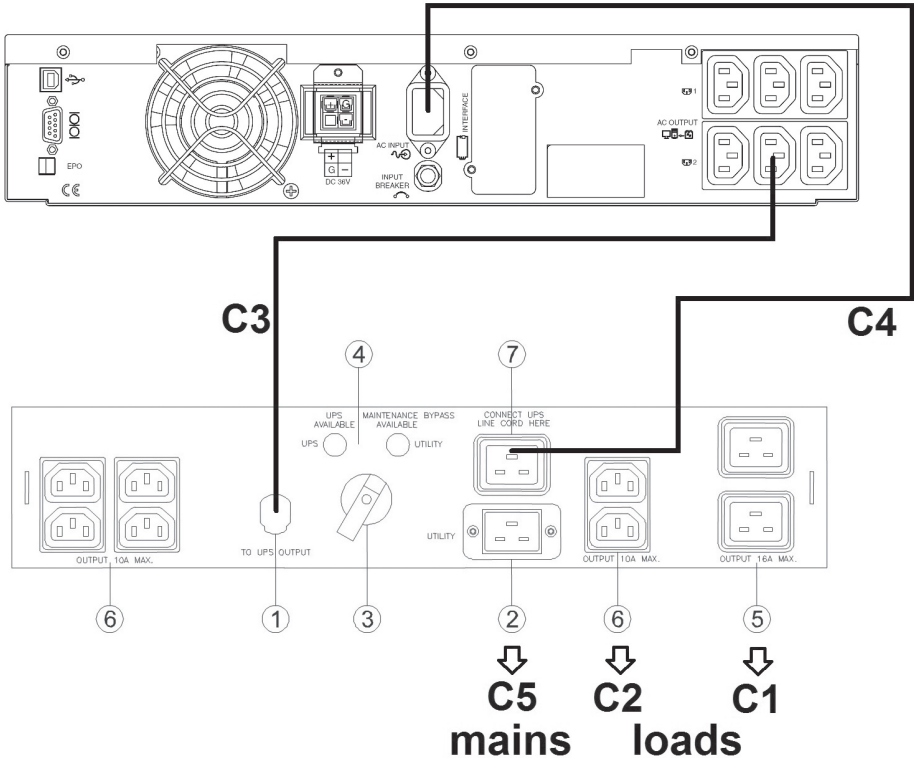
4. Make sure the CAM Switch (Maintenance Bypass Switch) is on "UTILITY" position.

After these steps, follow one of the next paragraphs according to the model of the UPS installed.

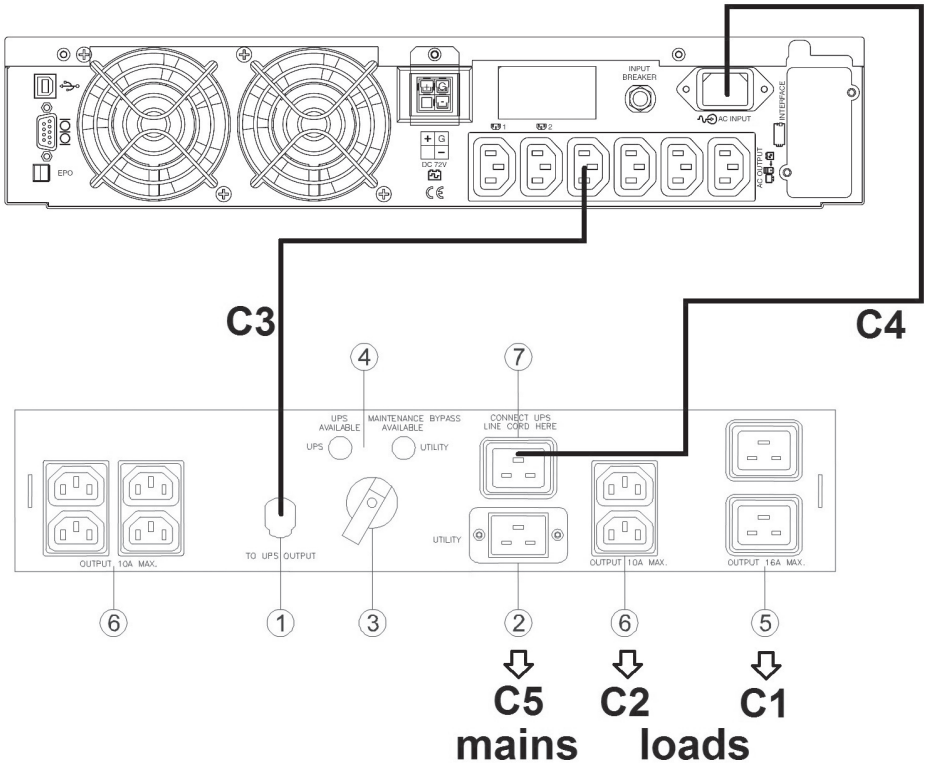
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3 Installation

3.6.1 Procedure for Daker DK 1000-2000 VA



- C1 = cable IEC320 C19-20**
- C2 = cable IEC320 C15-C16**
- C3 = cable IEC320 C19-C16**
- C4 = cable IEC320 C20-C15**
- C5 = power cord Schuko - IEC320 C19**



- C1 = cable IEC320 C19-20**
- C2 = cable IEC320 C15-C16**
- C3 = cable IEC320 C19-C16**
- C4 = cable IEC320 C20-C15**
- C5 = power cord Schuko - IEC320 C19**

1. Plug the input power cord C5 to the input socket of the MTBS [2] and then to the mains socket. The orange lamp of the MTBS [4] will light up.



DANGER

Hazardous voltages are now present in the MTBS.

2. Connect the cable C4 to the input socket of the UPS and to the UPS Input Socket of the MTBS [7].



DANGER

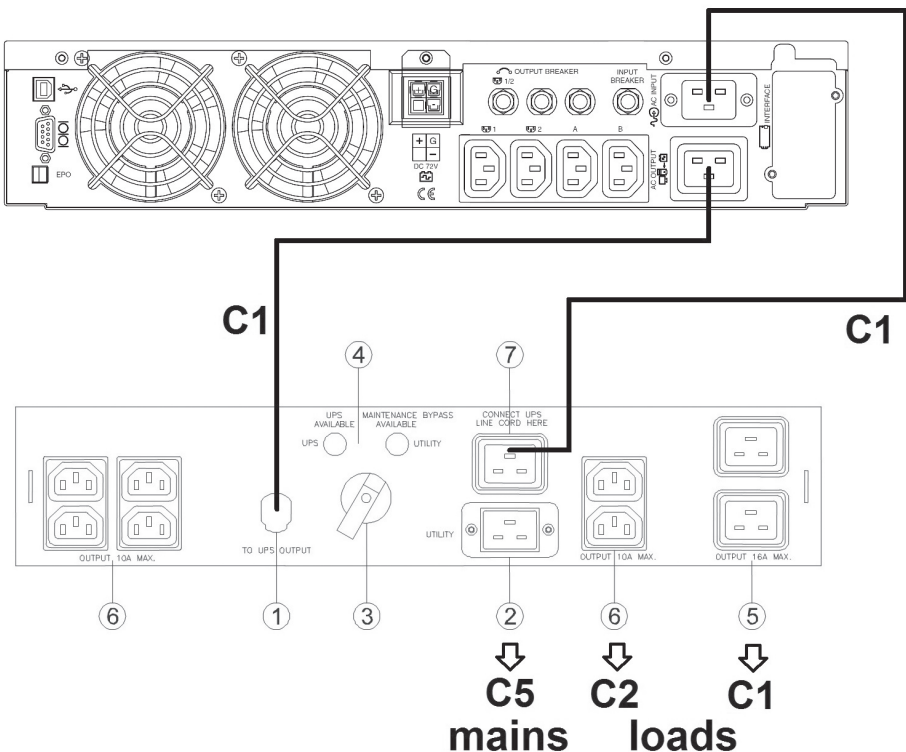
Hazardous voltages are now present in the UPS.

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3 Installation

3. Connect the cable C3 to the UPS output power cord of the MTBS [1] and to the output socket of the UPS.
4. Make sure the loads comply with the voltage and current of the UPS and the mains. If so, connect the loads to the load sockets of the MTBS [5-6] using the cables C2 and C1 or those provided with the UPS. The loads are now supplied directly from the mains through the MTBS.
5. Turn on the UPS following the instructions of its user manual. When the UPS is on, the green lamp of the MTBS [4] will light up.
6. Rotate the CAM Switch (Maintenance Bypass Switch) to "UPS" position.

3.6.2 Procedure for Daker DK 3000 VA



- C1** = cable IEC320 C19-20
C2 = cable IEC320 C15-C16
C5 = power cord Schuko - IEC320 C19

1. Plug the input power cord C5 to the input socket of the MTBS [2] and then to the mains socket. The orange lamp of the MTBS [4] will light up.

**DANGER**

Hazardous voltages are now present in the MTBS.

2. Connect the cable C1 to the input socket of the UPS and to the UPS Input Socket of the MTBS [7].

**DANGER**

Hazardous voltages are now present in the UPS.

3. Connect the cable C1 to the UPS output power cord of the MTBS [1] and to the output socket of the UPS.
4. Make sure the loads comply with the voltage and current of the UPS and the mains. If so, connect the loads to the load sockets of the MTBS [5-6] using the cables C2 or those provided with the UPS. The loads are now supplied directly from the mains through the MTBS.
5. Turn on the UPS following the instructions of its user manual. When the UPS is on, the green lamp of the MTBS [4] will light up.
6. Rotate the CAM Switch (Maintenance Bypass Switch) to "UPS" position.

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4 Operations

Make sure to switch the operating modes according to the following procedures:

1. UPS MODE → UTILITY MODE (Maintenance bypass)

- Step 1: Make sure the orange lamp of the MTBS is lit. If not, refer to the troubleshooting section.
- Step 2: Rotate the CAM Switch (Maintenance Bypass Switch) from "UPS" position to "UTILITY" position. At this stage the loads connected are supplied directly by the mains.
- Step 3: Turn off the UPS.
- Step 4: Remove the connection between the UPS and the MTBS.
- Step 5: The maintenance or replacement of the UPS may now proceed.

2. UTILITY MODE (Maintenance bypass) → UPS MODE

- Step 1: Connect the input and output of the UPS to the MTBS, then turn on the UPS following the instructions of its user manual.
- Step 2: Make sure that the green lamp of the MTBS is lit. If not, refer to the troubleshooting section.
- Step 3: Rotate the CAM Switch (Maintenance Bypass Switch) from "UTILITY" position to "UPS" position. At this stage the loads connected are supplied by the UPS.

If the MTBS does not operate normally, consult the following table.

If the problem cannot be solved, contact the LEGRAND Technical Service Assistance.

PROBLEM	SOURCE OF THE PROBLEM	SOLUTION
Orange lamp is not lit	No mains	Verify if the external circuit breaker has tripped. In this case, reset it. Otherwise contact a qualified electrician.
	The input power cord connected to the input socket of the MTBS [2] is not connected properly to the mains socket	Connect it to the mains socket
Green lamp of the UPS is not lit	UPS has no output	Refer to the user manual of the UPS
	The input and output of the UPS are not connected to the MTBS properly	Connect them to the MTBS properly
The external circuit breaker has tripped	Overcurrent in the MTBS load sockets [5-6]	Reduce the number of loads connected

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6 Technical specifications

3 109 53	
General characteristics	
Net Weight (kg)	2.7
Dimensions: WxDxH (mm)	87 × 77 × 440
Ambient specifications	
Operating temperature range	+32°F to +104°F (0°C to +40°C)
Operating relative humidity range	20%-80% non-condensing
Storage temperature range	-4°F to 104°F (-20°C to +40°C)
Operating altitude:	up to 6560 ft (2000m)
Electrical specifications	
Rating	230Vac - 3 kVA
Frequency	50 Hz - 60 Hz
Rated current	16 A max
Transfer Time	< 6 ms
Directives and Standards	
Safety	LVD 2014/35/EU EN 60950-1



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