External maintenance bypass with PDU

For PowerValue 11RT G2 6-10 kVA

Installation and user manual
SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS. This manual contains important instructions that should be followed during installation and maintenance of the PDU.

The PDU models that are covered in this manual are intended for installation in an environment within 0 to 50°C, free of conductive contaminant.

Certification standards

- Safety: EN 62040-1
- EMC: IEC/EN 62040-2
- Performance: IEC/EN 62040-3
- IEC 61000-4-2 (ESD): level 3.
- IEC 61000-4-3 (Radiated field): level 3.
- IEC 61000-4-4 (EFT): level 4.
- IEC 61000-4-5 (Fast transients): level 4.
- IEC 61000-4-6 (Electromagnetic field): level 3.
- IEC ©61000-4-8 (Conducted magnetic field): level 4.

Special symbols

The following are examples of symbols used on the PDU to alert you to the important information:

- **RISK OF ELECTRIC SHOCK** - Observe the warning associated with the risk of electric shock symbol.
- Important instructions that must always be followed.
- This symbol indicates that you should not discard waste electrical or electronic equipment (WEEE) in the trash. For proper disposal, contact your local recycling/reuse or hazardous waste center.
- Information, advice, help.
- Refer to the user manual.
Safety of persons

- Terminal blocks may be energized even if the system is disconnected from the AC power source.
- Dangerous voltage levels are present within the system
- The system must be properly grounded, always connect the earth wire first.

Product safety

- The PDU connection instructions and operation described in the manual must be followed in the indicated order.
- CAUTION - To reduce the risk of fire, the unit connects only to a circuit provided with branch circuit overcurrent protection for:
  - 63A rating, for 6kVA models,
  - 100A rating, for 10kVA models
- The upstream circuit breaker for Normal AC/Bypass AC must be easily accessible. The unit can be disconnected from AC power source by opening this circuit breaker.
- Disconnection and overcurrent protection devices shall be provided by others for permanently connected AC input (Normal AC/Bypass AC) and AC output circuits.
- Check that the indications on the rating label correspond with your AC powered system and the actual electrical consumption of all the equipment to be connected to the system
- For PLUGGABLE EQUIPMENT, the socket-outlet shall be installed near the equipment and shall be easily accessible
- Never install the system near liquids or in an excessively damp environment.
- Never let a foreign body penetrate inside the system.
- Never block the ventilation grates of the system.
- Never expose the system to direct sunlight or source of heat.
- If the system must be stored prior to installation, storage must be in a dry place.
- The admissible storage temperature range is -25°C to +60°C.

Special precautions

- This PDU is designed to work with UPS.
## Contents

1. INTRODUCTION .................................................................................................................. 1

   1.1 ENVIRONMENTAL PROTECTION ............................................................................. 1

2. PRESENTATION ..................................................................................................................... 2

3. INSTALLATION ....................................................................................................................... 3

   3.1 INSPECTING THE EQUIPMENT .................................................................................... 3
   3.2 UNPACKING THE UNIT ............................................................................................... 3
   3.3 CHECKING THE ACCESSORY KIT ............................................................................... 3
   3.4 INSTALL THE PDU ..................................................................................................... 4

4. AC POWER CABLES CONNECTION ................................................................................. 8

   4.1 AC SOURCE TO PDU ................................................................................................. 8

5. SERVICE OPERATION .......................................................................................................... 9

   5.1 HOW TO SWITCH PDU TO BYPASS MODE ............................................................. 9
   5.2 HOW TO DISCONNECT CABLES BETWEEN PDU AND UPS .................................... 9
   5.3 HOW TO SWITCH PDU TO NORMAL MODE .......................................................... 10

6. SPECIFICATIONS ................................................................................................................. 11
1. Introduction

This PDU allows service person to service or replace the UPS without interrupting the connected loads. Besides, it also allow you apply for below extension used:

- Terminal block connection design enable the PDU connect to other type UPS.
- Rotatable ‘rail kit’ design for easy service operation in a rack cabinet.
- Flexible position installation.

We recommend that you take the time to read this manual to take full advantage of the many features of your PDU.

1.1 Environmental protection

Products are developed according to an eco-design approach.

Substances

This product does not contain CFCs, HCFCs or asbestos.

Packing

To improve waste treatment and facilitate recycling, separate the various packing components.

- The cardboard we use comprises over 50% of recycled cardboard.
- Sacks and bags are made of polyethylene.
- Packing materials are recyclable and bear the appropriate identification symbol

<table>
<thead>
<tr>
<th>Materials</th>
<th>Abbreviations</th>
<th>Number in the symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyethylene terephthalat</td>
<td>PET</td>
<td>01</td>
</tr>
<tr>
<td>High-density polyethylene</td>
<td>HDPE</td>
<td>02</td>
</tr>
<tr>
<td>Polyvinyl chloride</td>
<td>PVC</td>
<td>03</td>
</tr>
<tr>
<td>Low-density polyethylene</td>
<td>LDPE</td>
<td>04</td>
</tr>
<tr>
<td>Polypropylene</td>
<td>PP</td>
<td>05</td>
</tr>
<tr>
<td>Polystyrene</td>
<td>PS</td>
<td>06</td>
</tr>
</tbody>
</table>

Follow all local regulations for the disposal of packing materials.
Product
The product is made up of recyclable materials. Dismantling and destruction must take place in compliance with all local regulations concerning waste. At the end of its service life, the product must be transported to a processing center for electrical and electronic waste.

2. Presentation

Front view:

Rear view:

1. Output Breaker
2. Output Breaker
3. Output socket group 1
4. Output socket group 2
5. Maintenance bypass switch
6. Maintenance switch cover
7. Input /Output terminal connected to power and load (4pole IPL, IPN, OPL, OPN. PE is screw)
8. Input switch
9. RJ11 (connect to UPS, only for RT UPS)
10. Input /Output terminal connected to UPS (4pole IPL, IPN, OPL, OPN. PE is screw)
3. Installation

The system may be installed in accordance with applicable safety regulations.

3.1 Inspecting the equipment

If any equipment has been damaged during shipment, keep the shipping cartons and packing materials for the carrier or place of purchase and file a claim for shipping damage. If you discover damage after acceptance, file a claim for concealed damage.

3.2 Unpacking the Unit

- Unpacking the unit in a low-temperature environment may cause condensation occurred in and on the cabinet. Do not install the unit until the inside and outside of the unit are absolutely dry (hazard of electric shock).

Note:

Discard or recycle the packaging in a responsible manner, or store it for future use.

Packing materials must be disposed in compliance with all local regulations concerning waste. Recycling symbols are printed on the packing materials to facilitate sorting.

3.3 Checking the accessory kit

Verify that the following additional items are included with the unit:

<table>
<thead>
<tr>
<th>Item</th>
<th>Included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cables for UPS's Input / Output</td>
<td>V</td>
</tr>
<tr>
<td>RJ11 cable</td>
<td>V</td>
</tr>
<tr>
<td>Cable locker</td>
<td>V</td>
</tr>
<tr>
<td>Ear bracket(For tower installation)</td>
<td>V</td>
</tr>
<tr>
<td>Rail kit(For rack installation)</td>
<td>V</td>
</tr>
<tr>
<td>User manual</td>
<td>V</td>
</tr>
</tbody>
</table>
3.4 Install the PDU

It is recommended to connect ‘Cables for UPS's Input / Output’ and ‘RJ11 cable’ to PDU’s side before install PDU to its final location.

1. Remove the cover of terminal blocks and connect ‘Cables for UPS's Input/Output’ to terminal blocks refer to the indication on rear panel.

2. Install back the cover of terminal blocks and insert ‘RJ11 cable’.

3.4.1 Tower position installing:

Assume that you already purchased our UPS and fix the UPS in tower position.

1. Our UPS provided 2 positions to install the PDU, needed additional space is as below. It is recommended to select ‘Left position’ as your final installation according to the configuration length of ‘Cables for UPS's Input / Output’ and ‘RJ11 cable’.

Left position

Top position
2. Install ‘Ear bracket’ to PDU, then assemble PDU to UPS by M4 screws. Below pictures are examples of ‘Left position’ installation.

3.4.2 Rack position installing:
This PDU is flexible position installing in a rack cabinet as below.
It is recommended to select ‘Position 1’ as your final installation according to the configuration length of ‘Cables for UPS's Input / Output’ and ‘RJ11 cable’.

◆ Position 1(Rear of rack)

◆ Position 2(Front of rack)
1. Install ‘Rail kit’ to rack cabinet by M5 screws and washers.

2. Slide PDU into ‘rail kit’ and make sure lock PDU by the 2 clips.

3.4.3 Cables connect to UPS:

1. Connect ‘Cables for UPS's Input/ Output’ to UPS’s terminal blocks refer to below indication.
2. Insert ‘RJ11 cable’ to ‘PDU PORT’ on the rear of UPS.
4. AC Power cables connection

Recommended protective devices and cable cross-sections

Recommended upstream protection

<table>
<thead>
<tr>
<th>Model</th>
<th>PDU 6K</th>
<th>PDU 10K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input L, N, G</td>
<td>6mm² (8AWG)</td>
<td>10mm² (6AWG)</td>
</tr>
<tr>
<td>Min conductor cross section</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output L, N, G</td>
<td>6mm² (8AWG)</td>
<td>10mm² (6AWG)</td>
</tr>
<tr>
<td>Min conductor cross section</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.1 AC source to PDU

High leakage current:
Earth connection essential before connecting supply.
Common input/output sources connection

Before carrying out any connection, check that the upstream protection devices (Normal AC source) are open "O" (Off).

1. Remove the cover of terminal block.

2. Connect the AC cable to terminal blocks refer to the indication on panel.

3. Install back the cover of terminal block.

4. You can also select ‘Output socket group’ as the load connection, this PDU provide ‘Cable locker’ for reliable connection of the outlet.
5. Service operation

5.1 How to switch PDU to BYPASS mode

1. Remove the ‘Maintenance switch cover’, the UPS will turn to bypass mode automatically.

![Diagram of maintenance switch cover](image1)

2. Rotate the maintenance switch to ‘BYPASS’ position.

![Diagram of maintenance switch](image2)

Note: After switched to ‘BYPASS’ position, this PDU provide a mothed of preventing ‘BYPASS’ switch back to ‘UPS’ with an unconscious operation. Please refer to ‘Maintenance switch cover’ installing as above.

3. Turn the PDU’s ‘Input switch’ to ‘OFF’ position.

4. After these operations, the PDU will power the load directly via maintenance switch.
   Note: please make sure the UPS is turned to bypass mode before rotate the maintenance switch to bypass position.

5.2 How to disconnect cables between PDU and UPS

This is to disconnecting ‘Cables for UPS’s Input / Output’ and ‘RJ11 cable’.

The pictures as below are examples of ‘Rack position’ only.

1. Unlock the clips and push out PDU from rack cabinet, then rotate the PDU as below.
2. Disconnecting ‘Cables for UPS's Input / Output’ and ‘RJ11 cable’ as well as other cables connected on UPS.
3. Remove out the UPS for service or replacement.
Note: Don’t let the PDU suffer any strong stress during its rotation position.

5.3 How to switch PDU to NORMAL mode
1. Check if the input/output/RJ11 cables are connected well, and then Switch on the PDU input switch, the ups will turn to bypass mode.
2. Rotate the maintenance switch to normal position, screw the maintenance switch cover to PDU.
3. Press on button on ups LCD panel, the ups will turn to line mode.
6. Specifications

1. Power Module model list

<table>
<thead>
<tr>
<th>Model</th>
<th>Power Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDU 6K</td>
<td>6000VA / 6000W</td>
</tr>
<tr>
<td>PDU 10K</td>
<td>10000VA / 10000W</td>
</tr>
</tbody>
</table>

2. Weights and dimensions

<table>
<thead>
<tr>
<th>Description</th>
<th>Weights (kg)</th>
<th>Dimensions (mm) W x H x D</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDU 6K</td>
<td>2.4</td>
<td>426<em>84.5</em>80</td>
</tr>
<tr>
<td>PDU 10K</td>
<td>2.4</td>
<td>426<em>84.5</em>80</td>
</tr>
</tbody>
</table>

3. Electrical input—refer to the ups input spec

4. Electrical output—refer to the ups output spec

<table>
<thead>
<tr>
<th>Output socket 1</th>
<th>10A &amp; 16A</th>
<th>Programmable output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output socket 1</td>
<td>10A &amp; 16A</td>
<td>Normal output</td>
</tr>
</tbody>
</table>

5. Electrical output connections

<table>
<thead>
<tr>
<th>Model</th>
<th>Output connection</th>
<th>Output cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>6K/6KS</td>
<td>Hardwired</td>
<td>Not provided</td>
</tr>
<tr>
<td>10K/10KS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8. Environmental and safety

<table>
<thead>
<tr>
<th>Certifications</th>
<th>EN 62040-1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IEC/EN 62040-2: Cat. C2</td>
</tr>
<tr>
<td></td>
<td>IEC/EN 62040-3</td>
</tr>
<tr>
<td></td>
<td>EN 60950-1</td>
</tr>
<tr>
<td>EMC (Emissions)*</td>
<td>IEC 61000-3-2 (-3-12)</td>
</tr>
<tr>
<td></td>
<td>IEC 61000-3-3 (-3-11)</td>
</tr>
<tr>
<td>EMC (Immunity)</td>
<td>IEC 61000-2-2</td>
</tr>
<tr>
<td></td>
<td>IEC 61000-4-2, Level 4</td>
</tr>
<tr>
<td></td>
<td>IEC 61000-4-3, Level 3</td>
</tr>
<tr>
<td></td>
<td>IEC 61000-4-4, Level 4 (also on signal ports) IEC 61000-4-5, Level 4, Criteria B</td>
</tr>
<tr>
<td></td>
<td>IEC 61000-4-6, Level 3</td>
</tr>
<tr>
<td></td>
<td>IEC 61000-4-8, Level 4</td>
</tr>
<tr>
<td></td>
<td>IEC 61000-4-11</td>
</tr>
</tbody>
</table>

* for output cable < 10m.
<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency markings</td>
<td>CE</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0~40°C full load no derating</td>
</tr>
<tr>
<td></td>
<td>40~50°C output power derating to 50% load, Charger current derating 50%</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-15 to 40°C (32 to 104°F) with batteries</td>
</tr>
<tr>
<td></td>
<td>-25 to 60°C (5 to 140°F) without batteries</td>
</tr>
<tr>
<td>Transit temperature</td>
<td>-25 to 55°C (-13 to 130°F)</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>0 to 95% no condensing</td>
</tr>
<tr>
<td>Operating altitude</td>
<td>Up to 3,000 meters (9,843 ft) above sea level with 10% derating per 1000m</td>
</tr>
<tr>
<td>Transit altitude</td>
<td>Up to 10,000 meters (32,808 ft) above sea level</td>
</tr>
<tr>
<td>Audible noise</td>
<td>&lt; 50 dBA at 1 meter typical for 6kVA models</td>
</tr>
<tr>
<td></td>
<td>&lt; 55 dBA at 1 meter typical for 10kVA models</td>
</tr>
</tbody>
</table>