Panduit 5 kVA 208 to 120 VAC Step-Down Transformer

User's Guide and Installation Manual V2.0

Model(s): UTFMRDU

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WARRANTY REGISTRATION
Visit: https://www.panduit.com/en/support/product-registration.html

Section 1: Important Safety Instructions

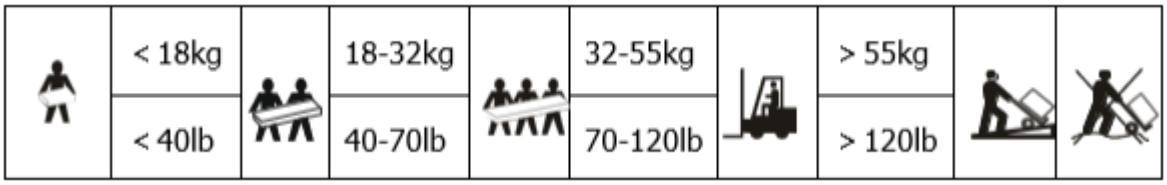
Please comply with all warnings and operating instructions. Save this manual for future reference. Carefully read and follow these instructions before installing the unit. Do not operate this unit before reading through all safety information and operating instructions carefully.

Dangerous voltages and high temperatures may exist inside the Step-Down Transformer. During the installation, operation, and maintenance of these units, please abide by the local safety rules and relative laws. Failure to do so may result in personnel injury or equipment damage. Safety instructions in this manual act as a supplement for the local safety rules. No liability is assumed for not following the safety rules.

Handling Instructions

CAUTION!
The Transformer is extremely heavy! Use caution during installation.

Before moving the Step-Down Transformer, be sure to use the original packaging materials to prevent or reduce the possibility of personal injury or damage to the product. Follow the lifting guidelines as shown in the figure below.



This product may expose you to chemicals including Nickel (Metallic), which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

Preparation

- Only install and operate the transformer indoors.
- Do not install the transformer in excessively humid environments.
- Do not install the transformer in excessive heat or in direct sunlight.
- Do not install the transformer in an area with dense or conductive particulates.
- Do not block ventilation holes in the transformer housing or front faceplate.
- It is recommended to mount the transformer unit near the bottom of the rack due to the physical weight of these units. Refer to Section 2: Mounting and Installation Instructions for suggestions.

Equipment Installation Location

- The transformer must be installed in an indoor environment with a temperature range from 0°C to 40°C.
- The transformer must be installed in an environment with a relative humidity from 0% to 95%, non-condensing.
- The transformer should be installed in an environment with an altitude of 1000 meters (3,281ft.) or lower with no derating.
- The transformer internal cooling is dependent on the system fan, so it should be kept in a good air ventilated area.

Equipment Connection

- The power input on the transformer must be connect only to a circuit provided with branch circuit overcurrent protection in accordance with the National Electrical Code, ANSI/NFPA 70 and the Canadian Electrical Code, Part I, C22.1.
- Branch circuit protection will be provided by building installation.
- The transformer may be installed and operated by a trained qualified layman.
- Only use the input cable supplied with the transformer.
- Input power is restricted to 208 VAC.
- WARNING: Do not use 240 VAC to power the transformer.
- Connect the transformer only to an earth-grounded outlet that is easily accessible and near the transformer unit.
- Attach protective grounding wire to the grounding screw located on the transformer rear panel. The recommended grounding-wire gauge is 10 mm^2
- Do not connect appliances or devices that would overload the transformer according to the rated load capacity.
- Use only UL, VDE, CE certified power cables to connect the loads to the transformer.

Maintenance Information

- The transformer contains no user-serviceable internal components and does not require routine maintenance.
- For other performance issues see Appendix A: Troubleshooting.

Storage Information

- When moving or storing the transformer, place it in an upright position in the original packaging and keep it in a dry environment.

Section 2: Mounting and Installation Instructions

Rack Mounting

- It is recommended to mount the transformer in a four-post rack.
- Mounting brackets and a rail kit are included with the transformer for four-post rack mounting.
- If the included hardware is not suitable for your rack, contact the rack manufacturer to obtain proper mounting accessories.
- It is recommended to mount the transformer near the bottom of the rack.
- Suggested positions for planning installation when used with the Panduit 5-10kVA UPS systems are shown in the image(s) below.

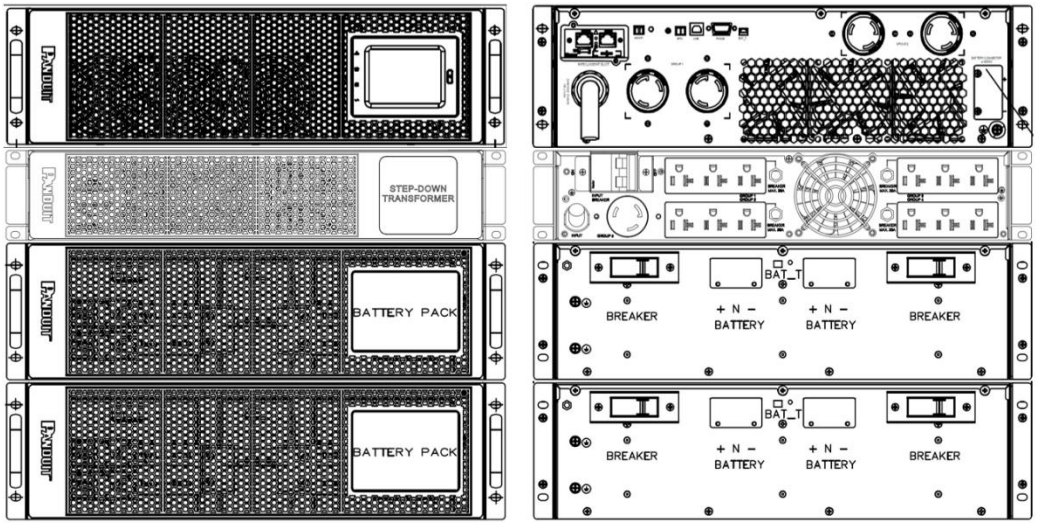


Figure 1 Transformer Location between the 5-10kVA Panduit UPS and UVP240 Battery Pack (Front view left. Rear view right.)

Four-Post Rack Mounting

The transformer units come with the hardware required for installation in a standard EIA or JIS seismic rated four-post rack with square or M5 threaded mounting holes. The rail assemblies adjust to mount in 19” racks with a front-to-rear distance of 460~1000 mm (18 to 39 inches).

1. Install the URMKIT2 rail kit:
   a. Install the front side of the rail kit with 3x Phillips Pan Head M5 screws (see figure below) on each rail. Do not tighten the screws.

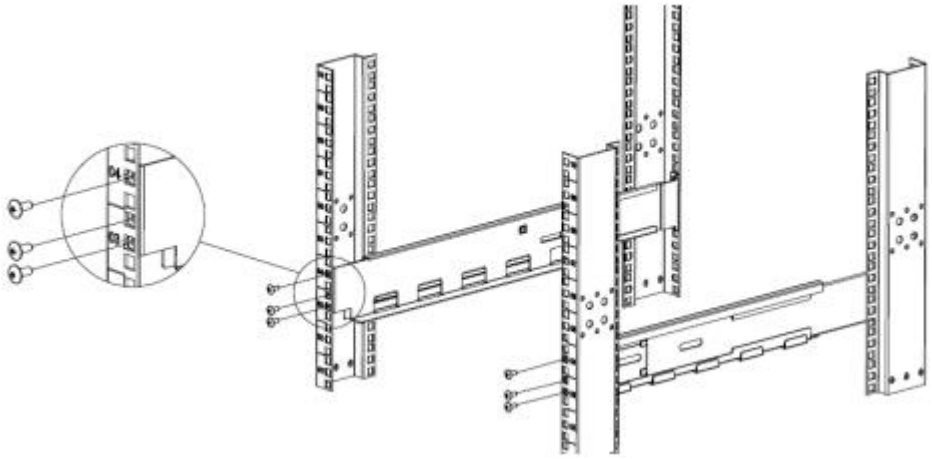


Figure 2 Mounting Rail Kit screw installation (front)

   b. Adjust the rail size according to the depth of the rack.
   c. Install the rear side of the rail kit with 3x Phillips Pan Head M5 screws (see figure below) on each rail.

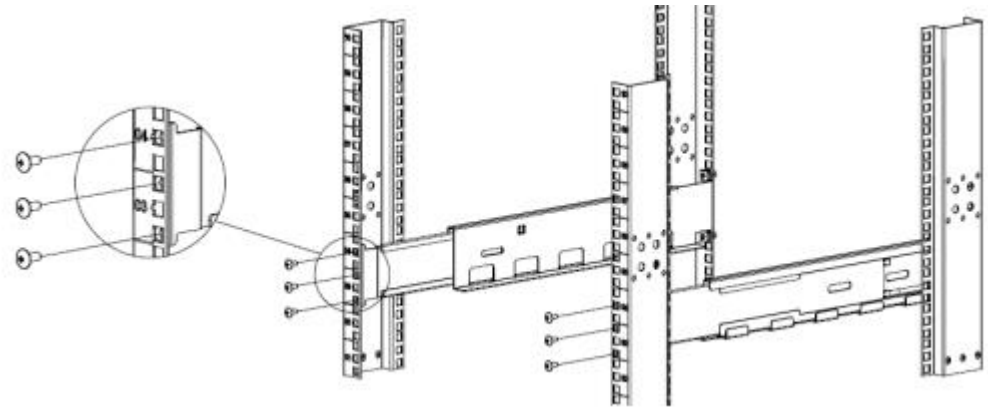


Figure 3 Mounting Rail Kit screw installation (rear)

d. Tighten all 12x screws to secure the left and right rails to the rack.
e. Install the 4x M5 cage nuts in the rack front equipment rail, with square holes. One in each of the first locations below the bottom rail kit screw and one in each of the first locations above the top rail kit screw (see figure below).

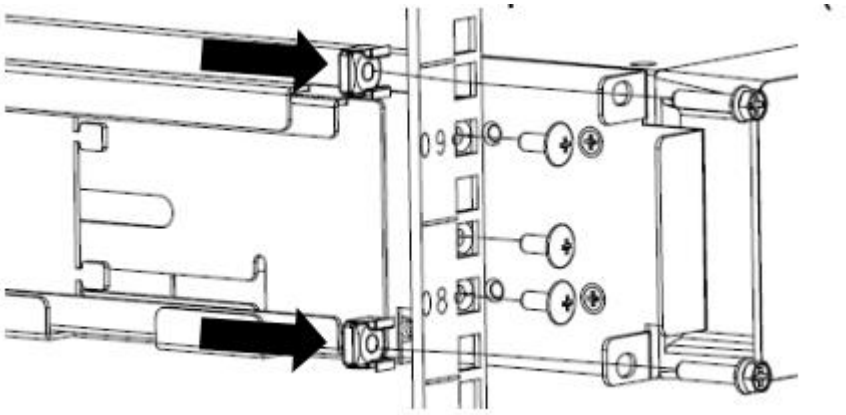


Figure 4 Mounting Rail Kit cage nut and screw placement.

2. Install the mounting brackets (included):

a. Remove the 2x Phillips Flat Head M4x8 screws from the front of each side of the transformer and retain.

b. Align the mounting brackets with the screw holes on each side of the transformer and secure with the previously removed Phillips Flat Head M4×8 screws (see figure below)

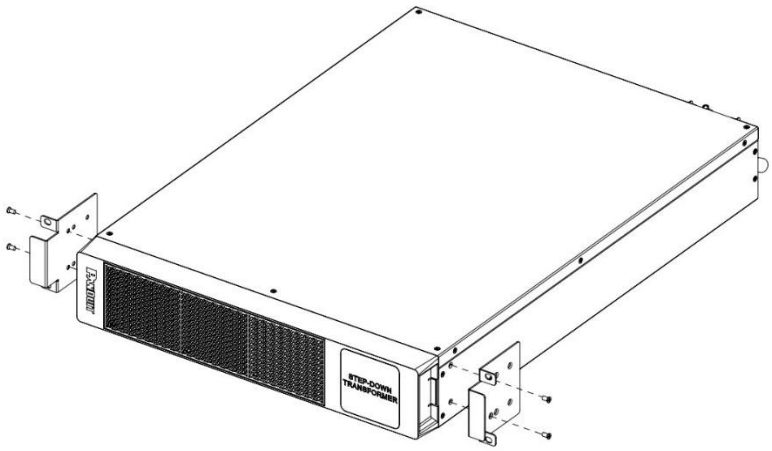


Figure 5 Mounting brackets attachment.

3. Install the transformer into the rack:

   a. After installing the mounting brackets onto the transformer, slide the transformer into the rack on the rail kit (see figure below).

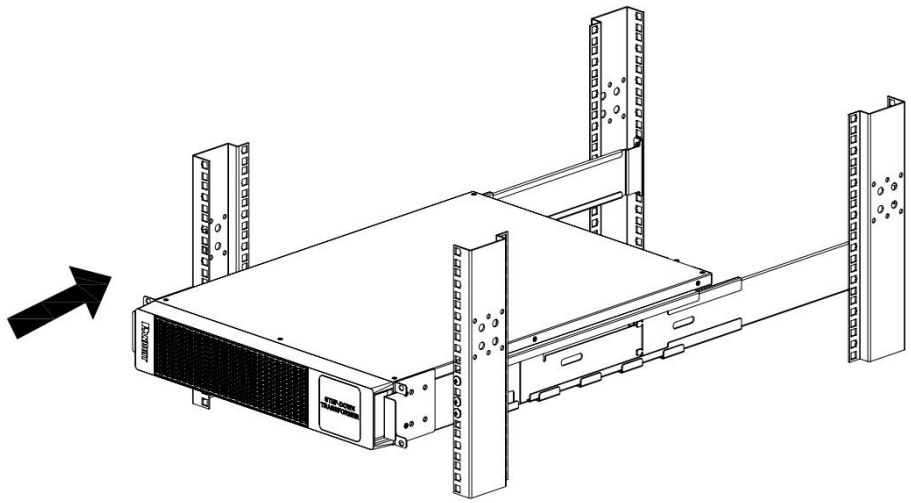


Figure 6 2 RU UPS or Transformer placement.

   b. Align the mounting brackets with the screw holes on the rack and secure the UPS with the supplied 4x Phillips Hex Head M5 screws (see figure below).

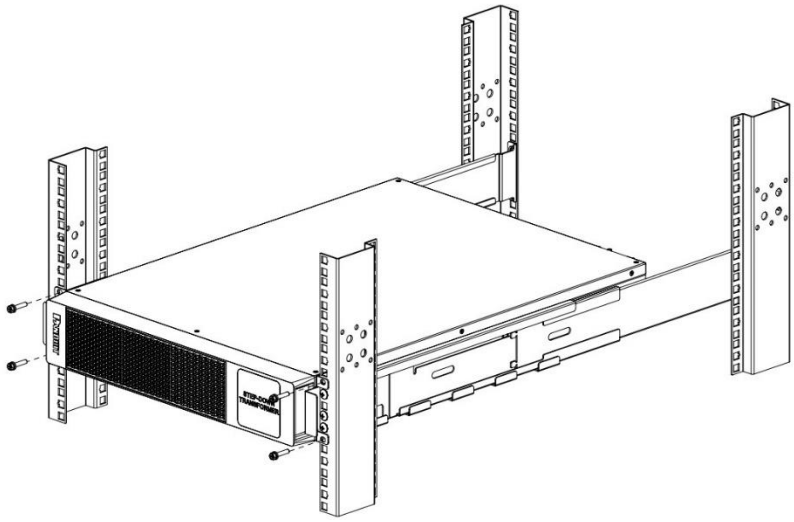


Figure 7 Four-post rack mounting ear screw installation.

Tower Mounting

- The transformer may be mounted in a tower orientation. It is not recommended to mount the transformer in the tower orientation without the use of the stabilizing tower mounting feet.
- Only the stabilizing tower mounting feet containing foam pads (included in the kit) are to be used.
- Do not mount the transformer in a tower configuration if the unit is positioned at an incline or decline.

1. Assembling the tower kit:

    a. Align to interlock two tower feet at a right angle and rotate to snap together (see figure below).

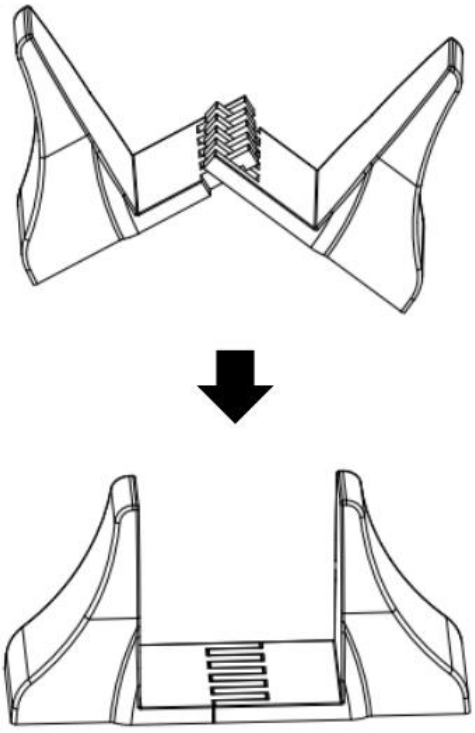


Figure 8 Tower Mounting Foot Assembly

Section 3 – Transformer Overview and Features

The Panduit UPS Step-Down Transformer unit (UTFMRDU) converts 208 VAC input from an AC mains source (utility, UPS, or generator) to 120 VAC output. The 2 ft (0.6 m) input cord is equipped with a NEMA L6-30P 208 VAC 30A plug. The unit is equipped with 12 NEMA 5-20R 120 VAC outlets that support NEMA 5-15P and 5-20P plugs. The unit has one NEMA L6-30R outlet for 208 VAC output. The transformer unit supports rack mounting using the 2 RU four-post rail kit (included). The transformer unit also supports tower mounting using the tower mounting kit (included).

Key Features

- Step-down isolation transformer that transforms 208 VAC input voltage to 120 VAC Output voltage.
- Operable at 60 Hz and 50 Hz.
- One NEMA L6-30P input plug.
- One manually resettable 25A input breaker.
- Twelve NEMA 5-20R outlets.
- Four manually resettable 20 A breakers for the 5-20R outlet groups.
- One NEMA L6-30R pass-through outlet (208 VAC).
- Up to 5000W / 5 kVA of rated power handling capacity
- Maximum capacity for each outlet group (1-4) is 1500 W/1.5 KVA
- Included four-post rack mounting rail kit.
- Included tower mounting kit.

Step-Down Transformer Physical Features and Accessories

The following sections provide an overview of physical features on the Step-Down Transformer unit.

Physical Features

Step-Down Transformer Front Panel

The Step-Down Transformer front panel is a 2 RU form factor designed to conform with the Panduit 5-10 KVA UPS product line. The front panel contains air flow vents and a moniker denoting the identity of the unit. The molded faceplate is removeable via push-in tabs on the sides.

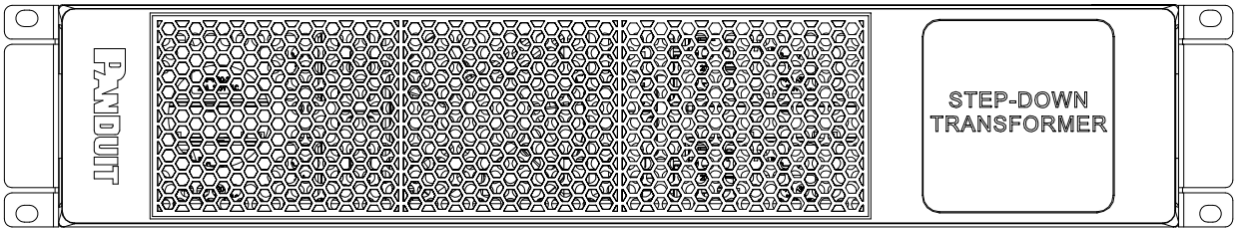


Figure 11: Step-Down Transformer Front Panel

Air Flow Vents

The air flow vents are critical to the operation of the Step-Down Transformer unit. These vents must remain clean and clear of all objects that may restrict the air flow through the unit.

Step-Down Transformer Rear Panel

The rear panel of the Step-Down Transformer contains the NEMA L6-30P input plug, 120 V NEMA 5-20R outlets, a NEMA L6-30R pass-through outlet, breaker reset switches for the 120 V outlets, and a toggle 25A / thermal input breaker.

Input Power Cord (INPUT)

The Step-Down transformer input cord is equipped with a NEMA L6-30P 208 VAC 30A plug with a length of 0.6 meters.

WARNING: Do not power the Transformer unit with 240 VAC.

Input Breaker

The Step-Down transformer input cord is equipped with an input breaker rated at 25A. The input breaker has a manual reset switch. Outlet groups will be disabled when this switch is opened. The input breaker is closed (ON) when the indicator on the breaker is orange and opened (OFF) when the indicator is green. There are additional markings on the rear panel to denote the ON and OFF positions.

Chassis Ground Connection Point (⏚)

The Step-Down Transformer rear panel contains a chassis ground connection, labeled with a ground symbol. For safety and proper grounding procedures, this grounding connection point must be connected to the rack/cabinet ground.

Output Receptacles (denoted as GROUP1, GROUP2, GROUP3, GROUP4)

The Step-Down Transformer has four groups of 120 VAC NEMA 5-20R power output connectors, labeled: GROUP 1, GROUP 2, GROUP 3, and GROUP 4. Each of these

outlet groups contains three outlets and are protected by a 20A breaker. The breaker is resettable via a manual push button.

Outlet GROUP 1 and GROUP 2 are paired and may share up to 3000 VA load (1500 VA each). Outlet GROUP 3 and GROUP 4 are paired and may share up to a 3000 VA load (1500 VA each). The Step-Down Transformer also contains a pass-through 208 V NEMA L6-30R outlet group, labeled GROUP 5. Total rated capacity of the Transformer is 5000 VA distributed between these outlet groups.

Cooling Fan

The transformer is equipped with a cooling fan that will run when the unit is powered up. The fan is critical in preventing the transformer coil from overheating, which may cause damage to the equipment.

WARNING: Do not use the transformer if the fan is blocked or has malfunctioned.

UTFMRDU

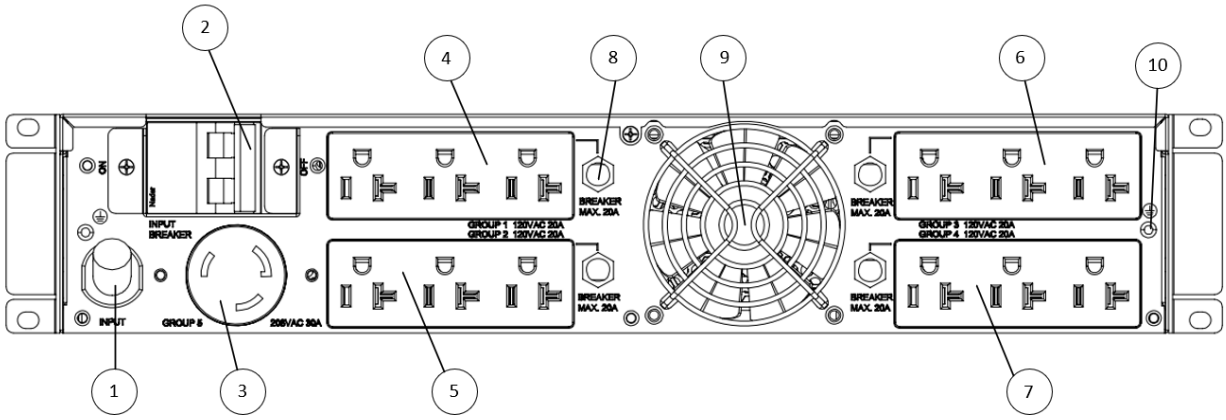


Figure 12: UTFMRDU Rear Panel

1. Input Cord	2. Input Breaker	3. L6-30R Output (Group 5)	4. NEMA 5-20R Group 1 Output (120 VAC)
5. NEMA 5-20R Group 2 Output (120 VAC)	6. NEMA 5-20R Group 3 Output (120 VAC)	7. NEMA 5-20R Group 4 Output (120 VAC)	8. Output Breaker (20 A, push button reset)
9. System Cooling Fan	10. Ground Attachment Screw		

Specifications

Model		UTFMRDU
General		
Capacity (VA/Watts)		5000VA / 5000W
Cooling		Fan cooled
Rack Height Dimension		2 RU
Installation Type		Rack / Tower
INPUT		
Nominal Input Voltage		208 Vac
Input Phase		2W+PE (L1, L2, PE)
Max Input Current		24 A
Input Frequency		50 / 60 Hz
Maximum Input Power		5000VA / 5000W
Input Connection		NEMA L6-30P
Input Cable Length		0.6m
OUTPUT		
Nominal Output Voltage	Group 5	208 VAC (L1,L2,PE)
	Groups 1-4	120 VAC (L,N,PE)
Output Frequency		50 / 60 Hz
Maximum Output Power (Total distributed)		5000VA / 5000W
Maximum Output Power per Outlet Group	Group1	1500VA / 1500W
	Group2	1500VA / 1500W
	Group3	1500VA / 1500W
	Group4	1500VA / 1500W
Output Connection(s)		(1) L6-30R, (12) 5-20R
Output Protection		(4) 20A breaker
Efficiency		>93%
PHYSICAL		
Dimension WxDxH (mm)		440 x 621.5 x 86.5 (2 RU)
Net Weight (kg)		44.5 kg
Packaging Dimensions WxDxH (mm)		805 x 555 x 202
Net Weight w/Packaging (kg)		53 kg
ENVIRONMENTAL		
Operating temperature		0 ℃ ~ 40 ℃ (no derating)
Storage temperature		-25 ℃ ~ 55 ℃
Relative humidity		0 ~ 95% (non-condensing)

Operating elevation	0 - 1000 meters >1000 meters requires derating
Noise level	45dB
CONFORMANCE	
Safety	cUL: UL 1778 5th Edition, CSA C22.2 NO.107.3-14
FCC	FCC Part 15 Subpart B Class A, ANSI C63.4-2014
Transportation	ISTA Procedure 2A
Environment	ROHS 2.0

Appendix A: Troubleshooting

If the transformer is not properly functioning, it may be related to improper installation, wiring, or operation. Follow the troubleshooting procedures below as a first pass analysis of the problem.

No.	Problem	Possible reason	Solution
1	The mains source is connected but the transformer will not power ON. (No voltage at the output.)	Input power source is not providing power. Input voltage and/or frequency is too low or too high. The input breaker of the transformer is not turned ON.	Use a multimeter to measure the source voltage and frequency connected to the transformer input to ensure it is within the operational input range. Check that the transformer input breaker is turned ON.
2	The source is connected and powered but the fan is not functional.	Input voltage is insufficient. The fan may have jammed or malfunctioned.	Verify input voltage is within nominal range. Power off unit and clear obstructions if possible. If fan has malfunctioned, do not use transformer and contact customer support for repair or replacement options.
3	The output breaker does not reset once tripped.	The output breaker may have malfunctioned.	Disable power to the transformer. Let the unit cool if hot. Reset the output breaker. Power the transformer back on and power is present at the outlets. If problem persists, contact Panduit customer support for repair or replacement options.
4	The input breaker has tripped.	The transformer may be overloaded. The transformer coil has overheated.	Reduce the load on the transformer outlets. Verify that the fan is running and there is nothing obstructing the front and rear ventilation. Let the unit cool down. Manually switch the input breaker switch back on.

If the troubleshooting procedures do not solve the problem, contact Panduit Customer Support at cs@panduit.com or 1-800-777-3300 with the following information.

- Product SKU and serial number.
- Detailed explanation of the fault.

Appendix B: What's Included: Step-Down Transformer (UTFMRDU)

Step-Down Transformer Box

- 5 kVA Step-Down Transformer [UTFMRDU] (1 unit)
- 2U Step-Down Transformer Front Faceplate (1 piece)
- Tower Mount Kit (4 pieces)
- Rack Mounting Brackets (2 pieces)
- Safety Warning Sheet (1 sheet)
- Rack Rail Mounting Kit [URMKIT2] (1 kit)
    - Left Slide Rail (1 rail mechanism)
    - Right Slide Rail (1 rail mechanism)
    - Phillips Pan Head M5x12 Screw (12 screws)
    - Phillips Hex Head M5x25 Screw (4 screws)
    - M5 Cage Nut (4 cage nuts)
    - Rail Installation Sheet (1 sheet)

Warranty Information

Visit https://www.panduit.com/en/legal-information/panduit-limited-product-warranty.html