

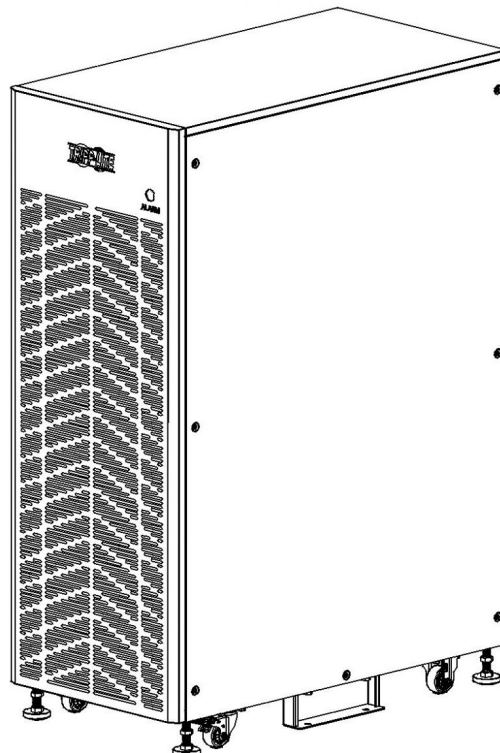


TRIPP-LITE S3MT-Series 3-Phase Input Isolation Transformer Owner's Manual

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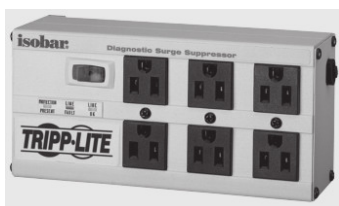
Owner's Manual
S3MT-Series 3-Phase
Input Transformers:
480V-208V
Models: S3MT-20K480V, S3MT-30K480V



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Introduction

Tripp Lite's S3MT-20K480V and S3MT-30K480V Input isolation transformers provide 480V (Delta) to 208V (Wye) step-down and isolation protection to the connected UPS and its load.

The transformer has input isolation to mitigate utility line surges and spikes while protecting the UPS. The transformer includes a built-in breaker at the transformer output side for protection. Two ball-bearing fans maintain quiet operation. An overheat sensing relay and switch combine with a warning light to provide over-temperature warning and overheating protection.

The UPS system's small footprint and quiet acoustic profile enable installations with minimal space and noise impact. All transformer models feature rugged stainless steel housings with front panels similar to the S3M-Series 208V 3-Phase UPS line.

UPS Model	Series Number	Capacity	Description
S3MT-20K480V	AG-0508	20kW	480V to 208V Input Isolation Transformer
S3MT-30K480V	AG-050C	30kW	480V to 208V Input Isolation Transformer

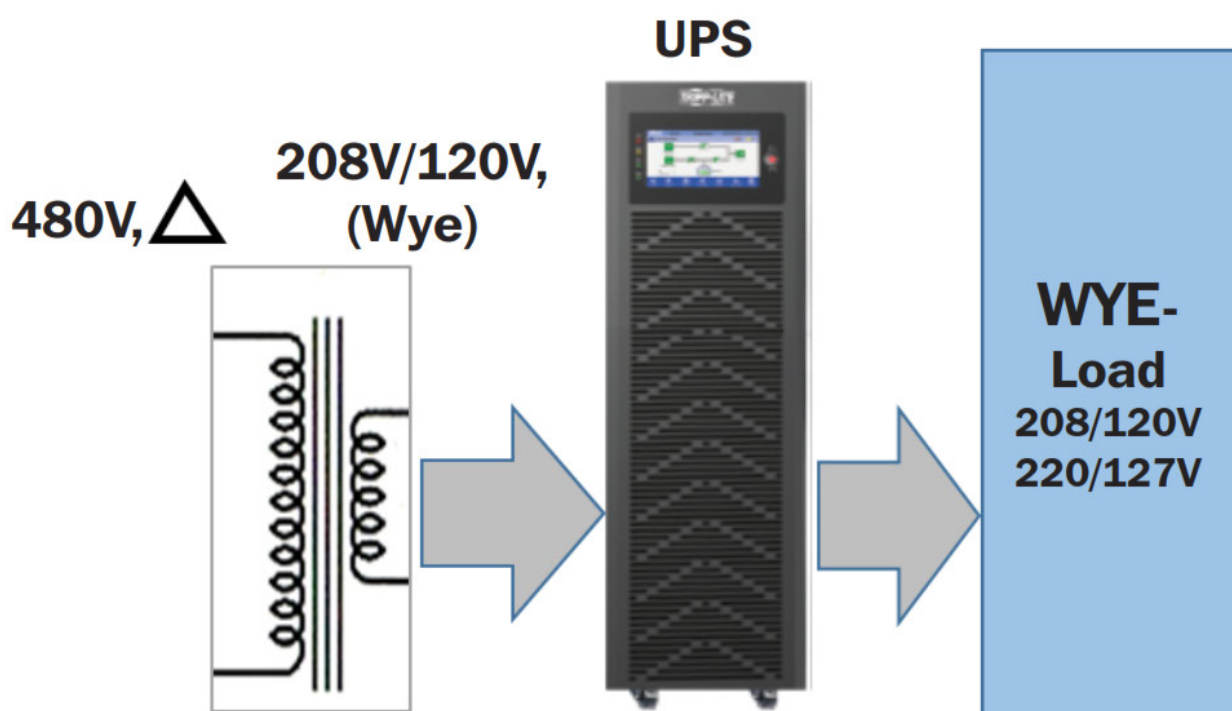
Typical applications

4-Wire (3Ph+N+PE) IT equipment loads in government, manufacturing, hospitals, industrial settings and corporate settings that have a 480V electrical feed and 208V/120V IT Loads.

Key Features

- Isolation protection to the UPS input, with stepped-down input from 480V (Delta) to 208V/120V (Wye)
- Circuit breaker and overheating protection
- 95% to 97.5% efficiency
- Wide input voltage and frequency operating range Voltage: -20% to +25% @ 100% load and 40-70 Hz
- Insulation class: 180°C material
- Reliability-tested according to ISTA-3B for vibration, shock, drop (tip test)
- UL and CSA TUV certifications
- Rugged stainless steel housing shipped ready for installation
- 2-year warranty

Typical Configuration



These 480V Input Transformers may be purchased separately or as part of kit model with a Tripp Lite S3M Series 3-Phase UPS:

Input Transformer Models		Maximum Constant Load	Compatible with 208V 3Ph UPS	Kit Models: UPS + Transformer	
				Kit Models	Kit Models Include
480V	S3MT-20K480V	20kW	10-20kW UPS	S3M20K-20K4T	S3MT-20K480V + S3M20K3B UPS
	S3MT-30K480V	30kW	20-30kW UPS	S3M25K-30K4T	S3MT-30K480V + S3M25K UPS
				S3M30K-30K4T	S3MT-30K480V + S3M30K UPS

Important Safety Warnings

SAVE THESE INSTRUCTIONS

This manual contains important instructions for models S3MT-20K480V and S3MT-30K480V that should be followed during installation and maintenance of the transformer and UPS.



CAUTION! Risk of electrical shock! Hazardous live parts inside this unit are energized from the transformer even when the breaker is turned off.



WARNING! The unit is intended for installation in a controlled environment.



CAUTION! A transformer can present a risk of electric shock and a high short circuit current. The following precaution should be observed when working on the transformer:

- Remove watches, rings or other metal objects.
- Use tools with insulated handles.

To reduce the risk of electric shock, disconnect the transformer and UPS from the mains supply before performing maintenance or service.

Servicing of the 3-phase transformer and UPS should be performed by Tripp Lite certified personnel with knowledge of the 3-phase transformer and UPS and all required precautions.

The transformer is extremely heavy. Caution should be taken in moving and positioning equipment. The instructions contained within this manual are important and should be closely followed at all times during installation and follow-up maintenance of the 3-phase transformer and UPS.



CAUTION!

The transformer has a dangerous level of heat. If the transformer's front-panel red LED indicator is on, the unit's outlets may have a dangerous level of heat.

All servicing on this equipment must be carried out by Tripp Lite-certified service personnel.

Before conducting any maintenance, repair, or shipment, first, ensure everything is turned off completely and disconnected.

Special Symbols – The following symbols are used on the transformer to warn you of precautions:



RISK OF ELECTRIC SHOCK – Observe the warning that the risk of electric shock is present.



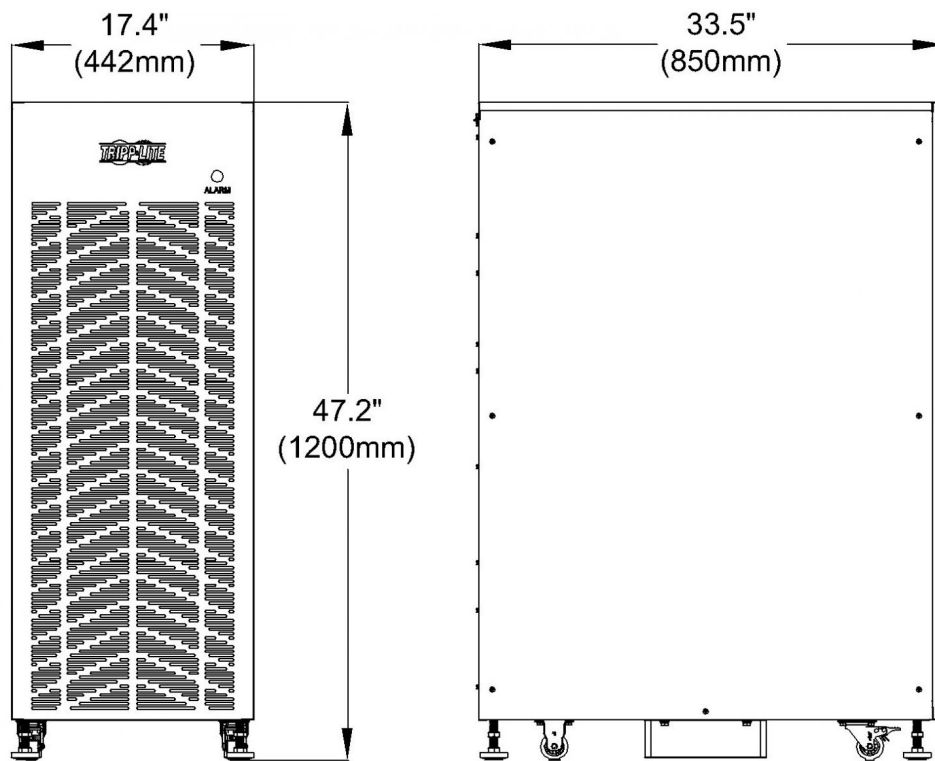
CAUTION – REFER TO THE OWNER'S MANUAL for information regarding important operating and maintenance instructions.



SAFE GROUNDING TERMINAL – Indicates THE primary safe ground.

Installation

Mechanical Data



Physical Requirements

Leave space around the cabinet for operation and ventilation (Figure 3-1):

1. Leave at least 20 in. (500 mm) space in the front for ventilation
2. Leave at least 20 in. (500 mm) space at the right and left for the operation
3. Leave at least 20 in. (500 mm) space at the back for ventilation

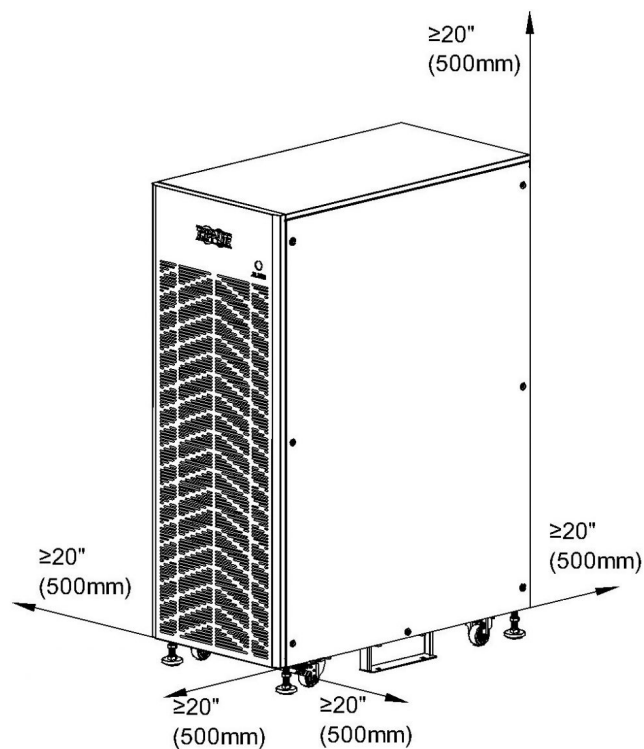


Figure 3-1

Package Inspection

1. Don't lean the transformer cabinet when removing it from the packaging.
2. Check the appearance to see if the transformer cabinet was damaged during transport. Do not power on the transformer cabinet if any damage is found. Contact the dealer immediately.
3. Check the accessories against the packing list and contact the dealer in case of missing parts.

Unpacking the UPS

1. Hold the sliding plate steady. Cut and remove the binding straps (Figure 3-2).
2. Remove the plastic bag and the outer carton (Figure 3-3).

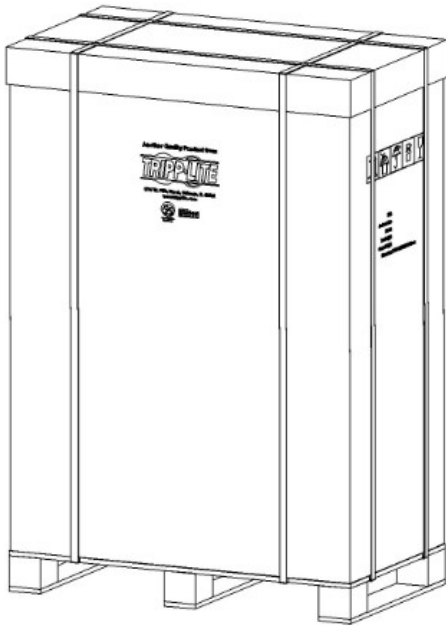


Figure 3-2

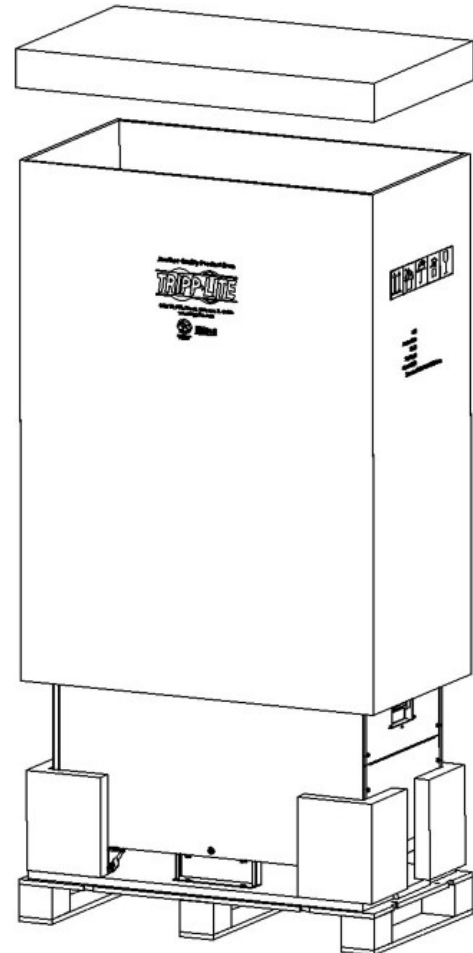


Figure 3-3

3. Remove the foam packing material and the beveled pallet(Figure 3-4).
4. Unfasten the screws and remove the sheet metal affixed to the cabinet (Figure 3-5).

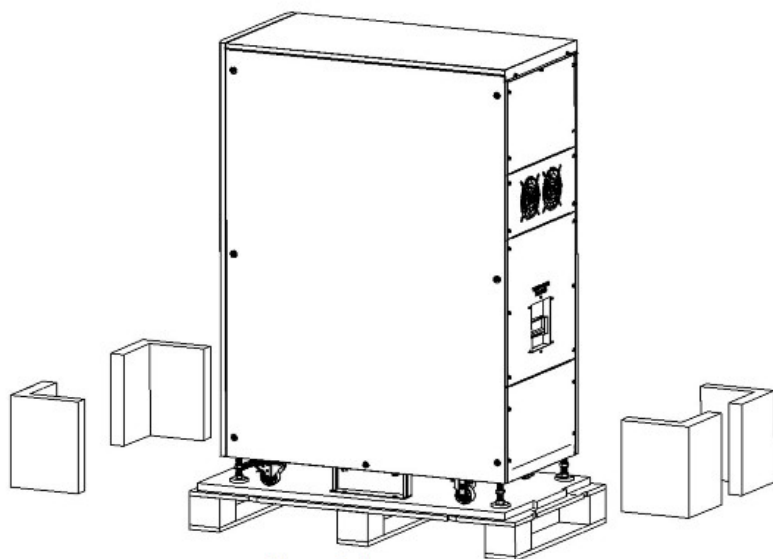
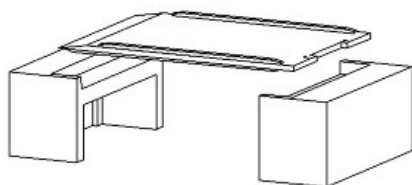


Figure 3-4

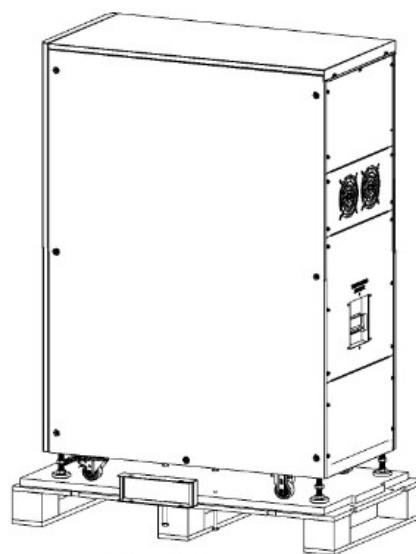


Figure 3-5

5. Slowly slide the unit from the pallet (Figures 3-6A and 3-6B).

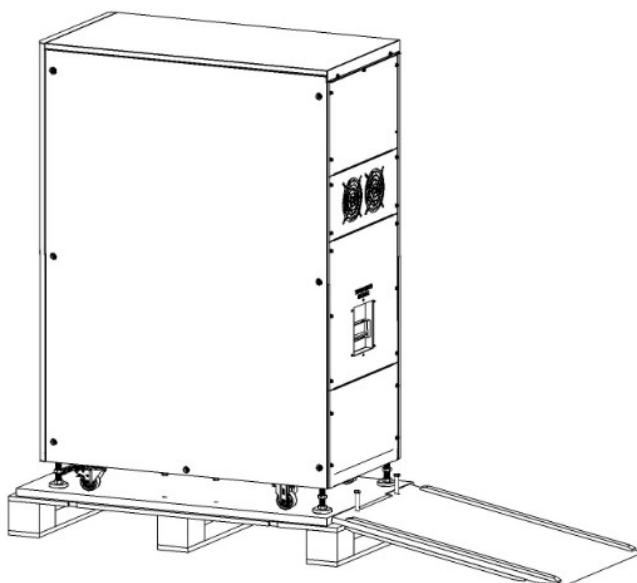


Figure 3-6A

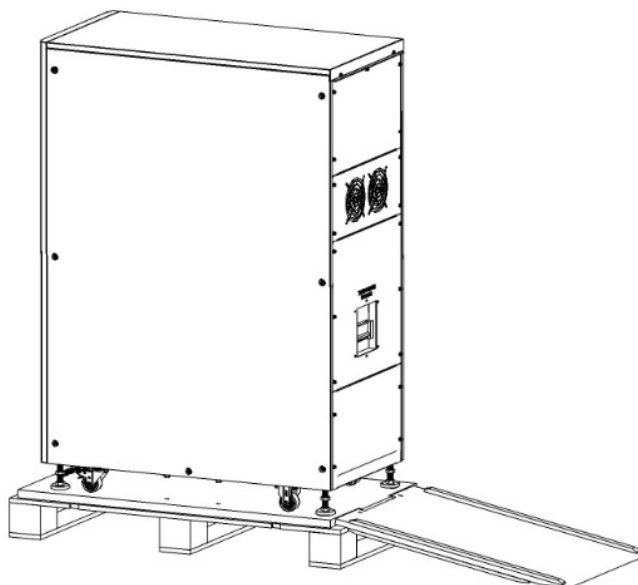
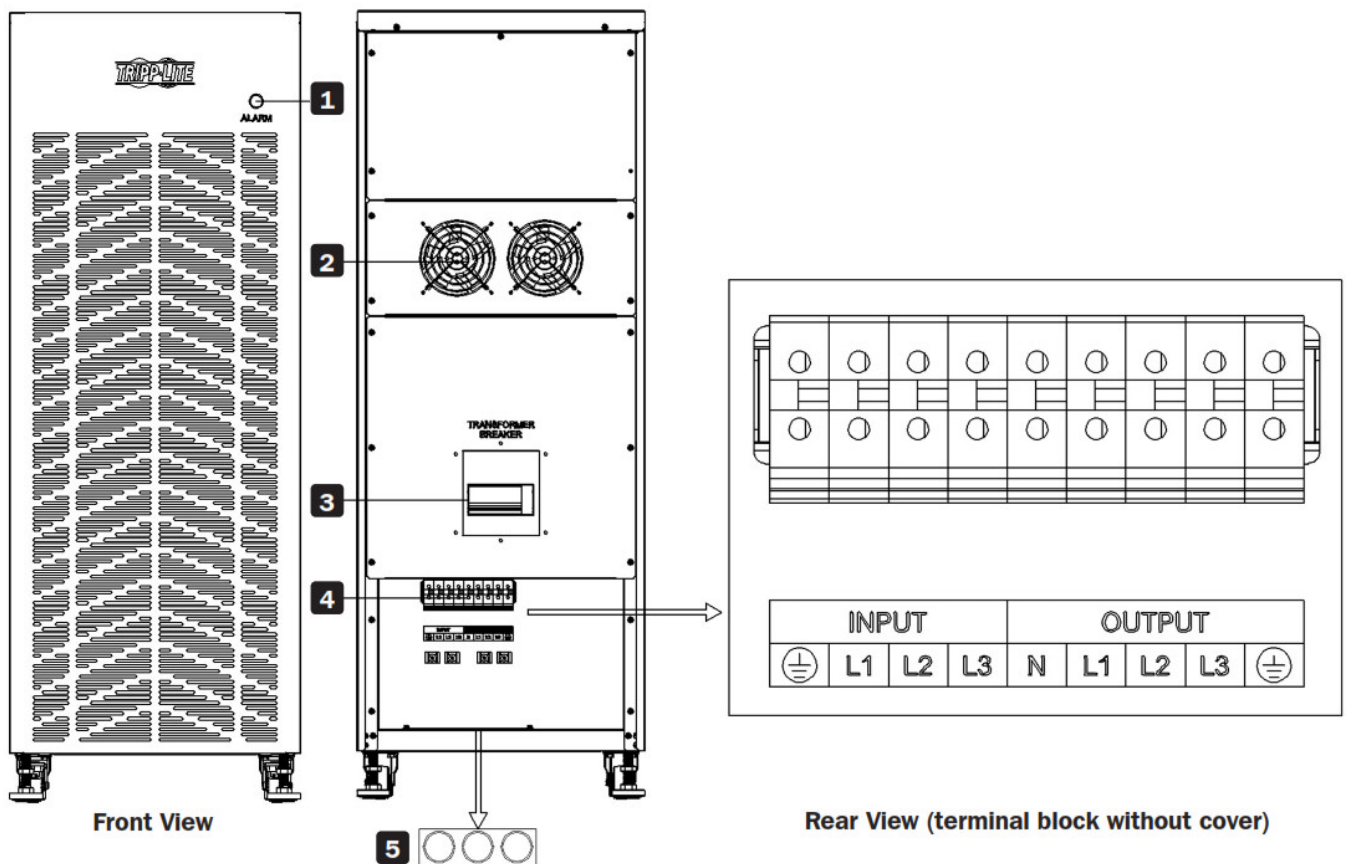


Figure 3-6B

Package Contents

Contents	TL P/N	S3MT-20K480V	S3MT-30K480V
Input Transformer		1	1
Owners Manual	933D03	1	1

Cabinet Overview



1. Over-Temperature Alarm LED
2. Cooling Fans
3. Breaker with Trip
4. Cabling Terminals
5. Bottom Entry Knockouts (for Power Cable Entry and Exit)

Power Cables

The cable design shall comply with the voltages and currents provided in this section, and in accordance with local electrical codes.



WARNING!

UPON STARTUP, ENSURE YOU ARE AWARE OF THE LOCATION AND OPERATION OF THE EXTERNAL ISOLATORS CONNECTED TO THE UPS INPUT/BYPASS SUPPLY OF THE UTILITY DISTRIBUTION PANEL. ENSURE THESE SUPPLIES ARE ELECTRICALLY ISOLATED AND POST ANY NECESSARY WARNING SIGNS TO PREVENT INADVERTENT OPERATION.

Cable Sizes

UPS Model	Cable Sizes (THHW wiring at 75°C)							
	AC Input		AC Output		Neutral		Grounding	
	Gauge	Torque	Gauge	Torque	Gauge	Torque	Gauge	Torque
S3MT-20K480V	10 AWG Max. 4 AWG	6.5 N•m	4 AWG Max. 4 AWG	6.5 N•m	4 AWG Max. 4 AWG	6.5 N•m	4 AWG Max. 4 AWG	6.5 N • ri n
S3MT-30K480V	6 AWG Max. 3 AWG	6.5 N•m	3 AWG Max. 3 AWG	6.5 N•m	3 AWG Max. 3 AWG	6.5 N•m	3 AWG Max. 3 AWG	6.5 N•m

Transformer-to-UPS Connection Line Diagram

Connections are shown below for the cabinet with a built-in input isolator transformer, breakers, and the red over-temperature LED.

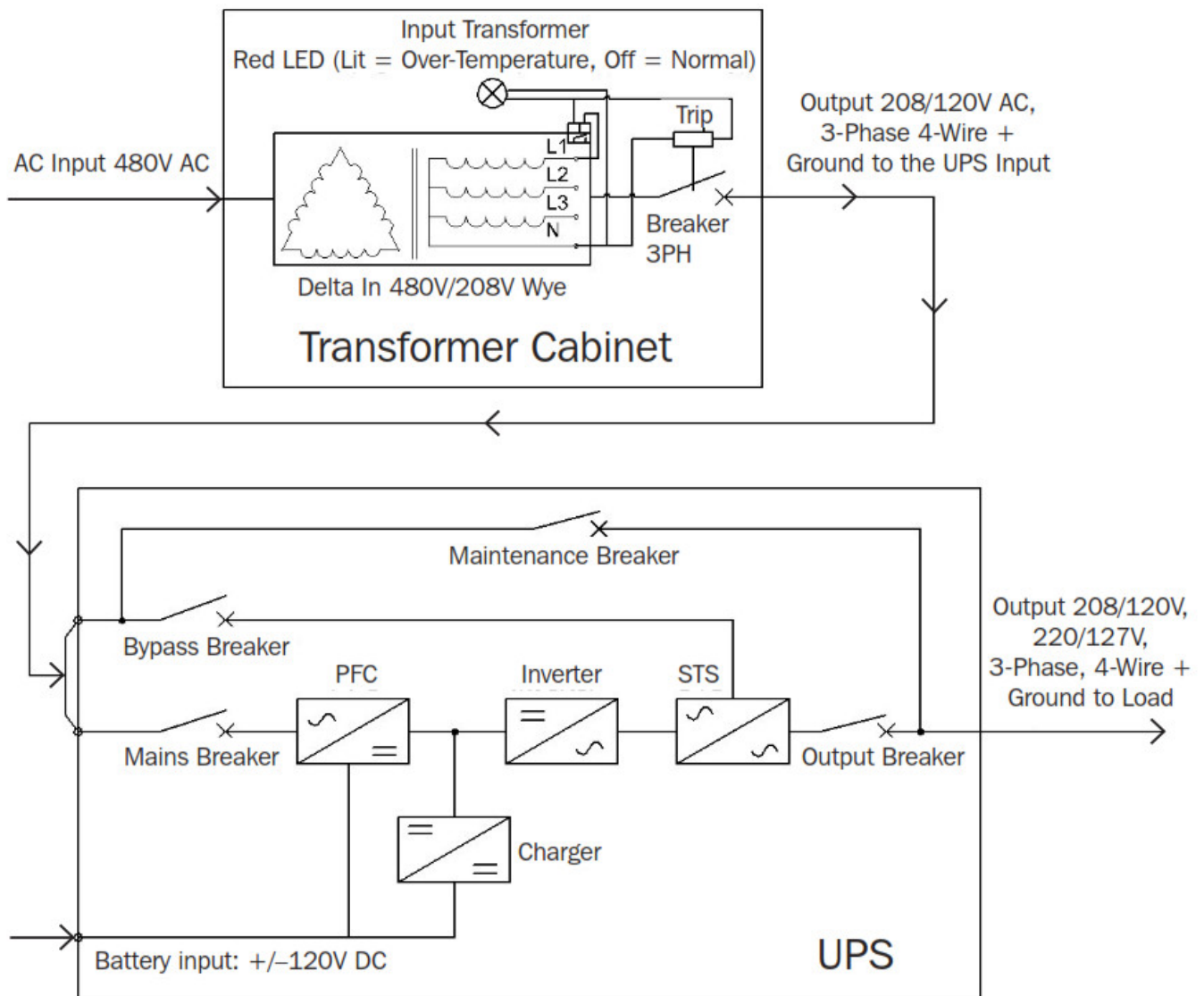


Figure 3-7: Connection Line Diagram for S3MT-20K480V / S3MT-30K480V

Transformer-to-UPS Connections



WARNING: The transformer output neutral is not bonded to chassis ground. Please provide a means to connect the transformer chassis ground to the transformer output neutral.
Note: The transformer chassis ground must be connected to earth ground.



IMPORTANT: You may view and/or download this manual from the tripplite.com website to view the cable connections in colors.

Connection for S3MT-20K480V to S3M20K3B UPS

Transformer input is Delta 3-Wire (3Ph + Ground). The transformer output is Wye 4-Wire (3Ph + N + Ground).

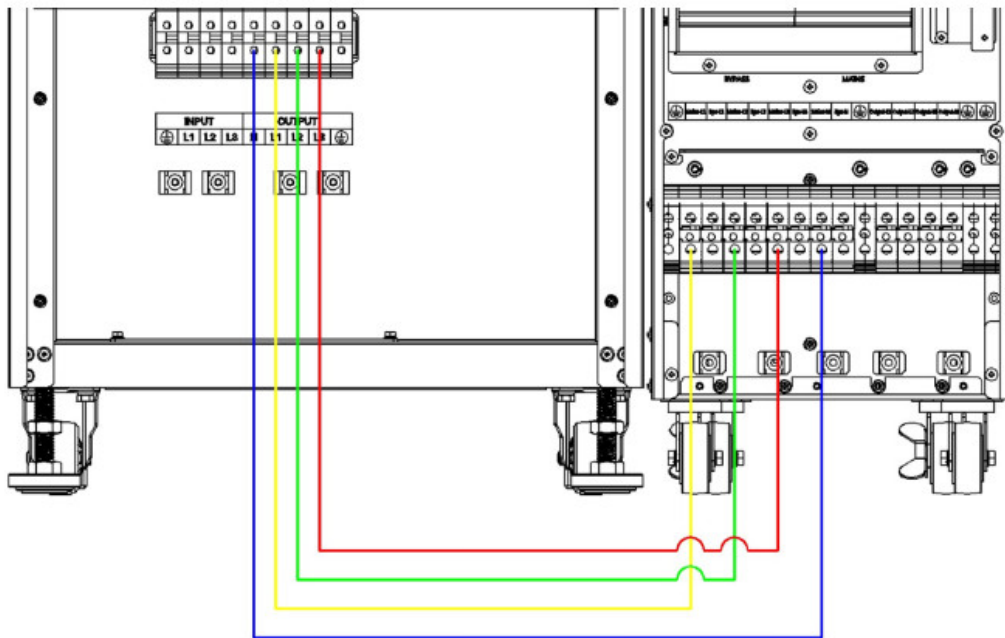


Figure 3-8: Transformer cabinet (Rear view) UPS (Rear view)

Connection for S3MT-30K480V to S3M25Kor S3M30K UPS

Transformer input is Delta 3-Wire (3Ph + Ground). The transformer output is Wye 4-Wire (3Ph + N + Ground).

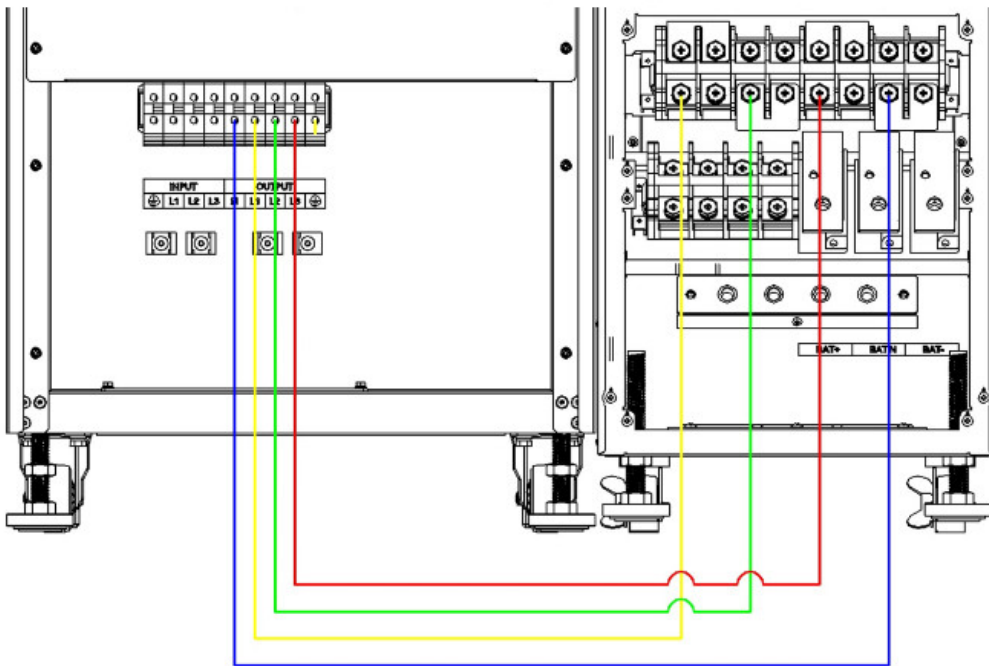


Figure 3-9: Transformer cabinet (Rear view) UPS (Rear view)

Operation



WARNING: It is not advised to connect two UPS in parallel when using individual transformers for each UPS.

Over-Temperature Protection

Over-Temperature Red Warning LED

The transformer includes a warning LED light on the top portion of the front panel. The light turns ON when the transformer reaches a temperature of $160^{\circ}\text{C} \pm 5^{\circ}\text{C}$, i.e. a range of 155°C to 165°C (311°F to 329°F). The light

turns OFF when the transformer cools to a temperature of 125°C \pm 5°C, i.e. a range of 120°C to 130°C (248°F to 266°F).

Over-Temperature Protection Relay and Thermal Switch

The transformer includes an over-temperature protection relay and thermal switch to protect the transformer from overheating. At temperatures of 160°C \pm 5°C, i.e. a range of 155°C to 165°C (311°F to 329°F), an over-temperature protection relay and the thermal switch will activate and will open the output beaker of the transformer. Once the transformer temperature has cooled down and the warning LED light has turned OFF, you may manually re-activate (close) the output breaker to restart normal operation.

Specifications

Models	S3MT-20K480V	S3MT30K480V
Description	3-Phase 20k Input Isolation Transformer, Delta 480V/208V Wye	3-Phase 30k Input Isolation Transformer, Delta 480V/208V Wye
Transformer Type	Dry-Type	
Input		
Input Voltage	480V	
Input Voltage Operational Range and De-Rating	-45%, -20%. +25% at 40 % load +25% at 100% load	
Input Amps	35A 51A	
Input Connections	3-Wire (L1, L2, L3 + PE)	
Input Configuration	Delta	
Input Connection Type	Terminal Block	
Rated AC Input Frequency	50/60 Hz	
Frequency Range and Derating	40-70 Hz	
Voltage Selection	No	
Voltage Drop: Ratio Output, No Load to Full Load	s 3%	
Inrush Current	s300A (10 ms) s1010A (10 ms)	
Input Isolation	Yes	
Output		
VA Rating	20kVA 30kVA	
Transformer Output Voltage	208/120V, (3-Phase, 4-Wire)	
Output Amps	75A	83A
Transformer Output Breaker Rating	80A	125A

Output Watts Detailed	20,000W	30,000W
Output Connections	4-Wire (L1. L2 L3. +N. +PE)	
Output Connection Type	Terminal Block	
Output Configuration	Wye	
Input Tranfonner, Output Isolation	Yes	
Operation		
Over-Temperature Warning LED Light (Red)	Turns ON at 160°C ±5°C, i.e. a range of 155°C to 165°C (311T to 329°F) Tams OFF at 125°C -±5°C, i.e. a range of 248T to 266°F (120°C to 130°C)	
Over-Temperature Protection Reset Device	Transformer output turns OFF at temperatures of 160°C ±5°C. i.e. a range of 155°C to 165°C (311°F to 329T). The transformer output breaker can be turned ON manually when the warning light turns OFF.	
Insulation Class	180°C	
Temperature Rise	125°C	
Full Load Efficiency	95.%	95.%
Half Load Efficiency	9630%	98.%
Physical Info		
Unit Height	47.2 in. (1200 mm)	
Unit Width	17.4 in. (442 mm)	
Unit Depth	33.5 in. (850 mm)	
Unit Weight	430 lb. (195 kg) 617 lb. (280 kg)	

Models	S3MT-20K480V	S3MT-30K480V
Floor Loading	519 (ke/m2)	745 (kg/m2)
Unit Carton Height	55.6 in. (1411 mm)	55.6 in. (1411 mm)
Unit Carton Width	22 2 in (563 mm)	22.2 tn. (563 mm)
Unit Carton Depth	38.2 in. (970 mm)	38.2 in. (970 mm)
Unit Carton Weight	485 lb. (220 kg)	712 lb. (323 kg)
Tip. n-Tell Label Included on Overpack Box	Yes	
Environment		
Audible Noise at 1 m	65 dB max.	

RH Humidity. Non-Condensing	95%
Online Thermal Dissipation Full Load (BTU/hr)	3413 4915
Storage Temperature	5-F to 140°F (-15C to 60T)
Operating Temperature	32T to 104°F (Oct to 40°C)
Operating Elevation	<1000 m for nominal power (over 1000 m, the power de-rating ts 1% per 100 m)
Mechanical	
Transformer Windings	Aluminum
Cabinet Material	Cold Rolled Galvanized Steel (SGCC)
Cabinet Color	FtAL 9011
Fan (Type/Qty)	2x Ball Bearing. 120 mm (288 total CFM)
Reliability	
Vibration	ISTA – 3B
Shock	ISTA – 3B
Drop	ISTA. 3B (Tip Test)
Agency Approvals	
Approving Agency	SUVs
Agency Standard Tested	UL 1778 5th Edition
Canadian Approvals	CSA 22.2.107.3-14
CE Approvals	WA
EMI Approvals	WA
RoHS/REACH	Yes Yes

Storage

Before storing the isolation transformer, ensure all connections have been disconnected and all breakers are turned OFF. Replace all input or output access covers to avoid damaging any contacts.

The transformer must be stored in a clean, secure environment with temperatures between 5°F to 140°F (-15°C to 60°C) and relative humidity less than 90% (non-condensing).

Store the transformer in its original shipping container, if possible.



WARNING: The transformer(s) is/are very heavy. Before storing the transformer, make sure to take into account the floor loading (kg/m²) requirements listed in section 5. Specifications under “Physical Info” to store safely.

Warranty and Regulatory Compliance

Limited Warranty

Seller warrants this product, if used in accordance with all applicable instructions, to be free from original defects in material and workmanship for a period of 2 years from the date of initial purchase. If the product should prove defective in material or workmanship within that period, Seller will repair or replace the product, in its sole discretion. Service under this Warranty includes parts only. International customers should contact Tripp Lite support at intlservice@tripplite.com. Continental USA customers should contact Tripp Lite Customer Service at 773-869-1234 or visit tripplite.com/support/help

THIS WARRANTY DOES NOT APPLY TO NORMAL WEAR OR TO DAMAGE RESULTING FROM ACCIDENT, MISUSE, ABUSE OR NEGLIGENCE. SELLER MAKES NO EXPRESS WARRANTIES OTHER THAN THE WARRANTY EXPRESSLY SET FORTH HEREIN. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ALL IMPLIED WARRANTIES, INCLUDING ALL WARRANTIES OF MERCHANTABILITY OR FITNESS, ARE LIMITED IN DURATION TO THE WARRANTY PERIOD SET FORTH ABOVE;

AND THIS WARRANTY EXPRESSLY EXCLUDES ALL INCIDENTAL AND CONSEQUENTIAL DAMAGES. (Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This Warranty gives you specific legal rights, and you may have other rights, which vary from jurisdiction to jurisdiction.)

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WARNING: The individual user should take care to determine prior to use whether this device is suitable, adequate, or safe for the use intended. Since individual applications are subject to great variation, the manufacturer makes no representation or warranty as to the suitability or fitness of these devices for any specific application.

Product Registration

Visit tripplite.com/warranty today to register your new Tripp Lite product. You will be automatically entered into a drawing for a chance to win a FREE Tripp Lite product!*

* No purchase necessary. Void where prohibited. Some restrictions apply. See website for details.

WEEE Compliance Information for Tripp Lite Customers and Recyclers (European Union)



Under the Waste Electrical and Electronic Equipment (WEEE) Directive and implementing regulations, when customers buy new electrical and electronic equipment from Tripp Lite they are entitled to:

- Send old equipment for recycling on a one-for-one, like-for-like basis (this varies depending on the country)
- Send the new equipment back for recycling when this ultimately becomes waste

Use of this equipment in life support applications where the failure of this equipment can reasonably be expected to cause the failure of the life support


equipment or to significantly affect its safety or effectiveness is not recommended.

Tripp Lite has a policy of continuous improvement. Specifications are subject to change without notice. Photos and illustrations may differ slightly from actual products.



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Documents / Resources

	<p>TRIPP-LITE S3MT-Series 3-Phase Input Isolation Transformer [pdf] Owner's Manual S3MT-20K480V, S3MT-30K480V, S3MT-Series, 3-Phase Input Isolation Transformer</p>
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References

- [Eaton - Power and Connectivity Solutions](#)
- [Help Center | Eaton](#)
- [Help Center | Eaton](#)
- [Product Registration | Eaton](#)