

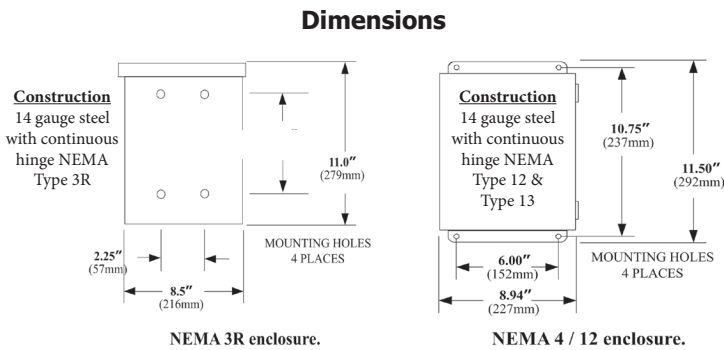
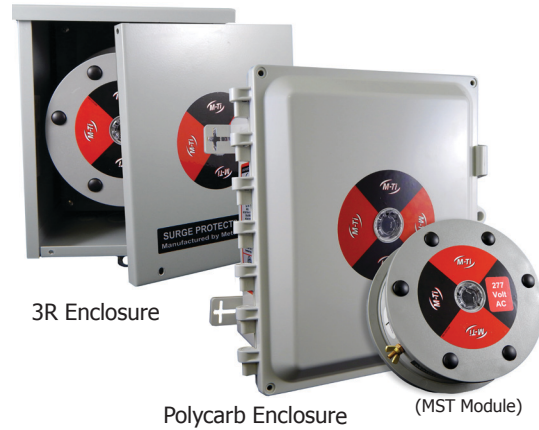


MST Series

Residential/Commercial/Industrial Surge Protection Device

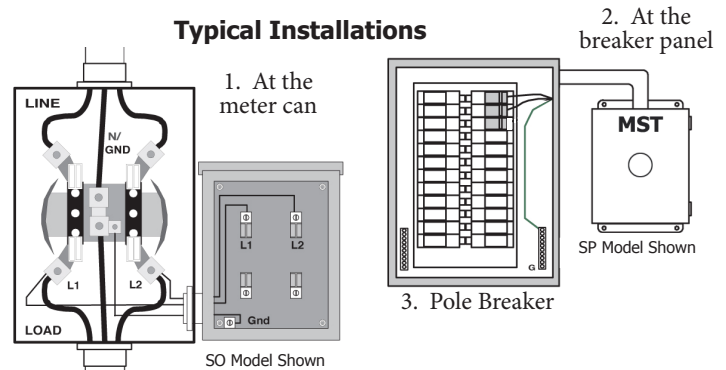
The **MST Series** is a modular, parallel installed, Surge Protection Device designed for commercial, industrial and residential applications. Models are available for all standard electrical services and provide up to 100kA of surge energy handling per phase. This rating is **10 times the energy handling of the IEEE's highest Category C location** rating of 10kA/20kV using an 8x20μs waveform. All models carry a 100Ka RMS symmetrical fault current rating making expensive disconnects and/or costly replacement fuses unnecessary.

MST units incorporate a **replaceable MT protection module** that is completely **self-contained with fusing and diagnostic circuitry**. The MT module can be **replaced in the field**, thereby eliminating the need to remove the entire unit from service. Replacement modules include the entire operating unit (all phases, all modes, the fuses and even the diagnostics) MST Modules are keyed to prevent the use of the wrong module for the application.



(Diagrams not drawn to scale)

Typical Installations



Product Specifications			
I_n	10/20 kA (nominal discharge current)	Operating Temperature	-40° to +140°F (-40° to +60°C)
Max Surge Current	100kA per Phase	Diagnostics	Red Status LED, SUNBRIGHT
Fusing	Coordinated Surge & Thermal	Safety Standards (Type 1 SPD)	UL 1449 (most current)
Short Circuit Current	100kA RMS Symmetrical Amps	Operating Frequency	50/60 Hz
Housing Rating	NEMA 3R, NEMA 4X, NEMA 12		

Model Number	Service Voltage	MCOV	L-N	L-G	N-G	L-L
MSTXXX-120-SP-0-XX	Split Phase 3 Wire + Gnd.	150Vac	600V	600V	600V	1200V
MSTXXX-120-3W-0-XX	3 Phase Wye, 4 Wire + Gnd.	150Vac	600V	600V	600V	1200V
MSTXXX-120-3H-0-XX	High Leg Delta, 4 Wire + Gnd.	150/320Vac	600/1000V	600/1000V	600V	1200/1800V
MSTXXX-240-3D-0-XX	3 Phase Delta, 3 Wire + Gnd.	320Vac	N/A	1000V	N/A	2000V
MSTXXX-220-3W-0-XX	3 Phase Wye, 4 Wire + Gnd.	320Vac	1000V	1000V	1000V	2000V
MSTXXX-230-3W-0-XX	3 Phase Wye, 4 Wire + Gnd.	320Vac	1000V	1000V	1000V	2000V
MSTXXX-277-3W-0-XX	3 Phase Wye, 4 Wire + Gnd.	320Vac	1000V	1000V	1000V	2000V
MSTXXX-480-3D-0-XX	3 Phase Delta, 3 Wire + Gnd.	520Vac	N/A	1800V	N/A	4000V

Replace XXX with desired kA rating per phase: 050 for 50 kA or 100 for 100 kA.
Then, replace XX with: 3R, 12, POL (4X Nonmetallic) or SS (Stainless) for desired NEMA Enclosure

All product dimensions provided are ± 0.125

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Website: www.metertreater.com

INSTALLATION INSTRUCTIONS FOR:

MST/XXX-120-SP-#-XX	Split Phase, 3 Wire + Gnd
MST/XXX-240-2P-0-XX	Single Phase, 2 Wire + Gnd
MST/XXX-120-3W-#-XX	3 Phase Wye, 4 Wire + Gnd
MST/XXX-120-3H-#-XX	High Leg, 4 Wire + Gnd
MST/XXX-240-3D-0-XX	3 Phase Delta, 3 Wire + Gnd
MST/XXX-220-3W-#-XX	3 Phase Wye, 4 Wire + Gnd
MST/XXX-230-3W-#-XX	3 Phase Wye, 4 Wire + Gnd
MST/XXX-240-3W-#-XX	3 Phase Wye, 4 Wire + Gnd
MST/XXX-277-3W-#-XX	3 Phase Wye, 4 Wire + Gnd
MST/XXX-480-2P-0-XX	Single Phase, 2 Wire + Gnd
MST/XXX-480-3D-0-XX	3 Phase Delta, 3 Wire + Gnd

Replace XXX with desired kA Rating. Replace # with F for optional Filtering. Replace XX for NEMA Enclosures 3R, 12 or SS (Stainless Steel).

The above MST Series incorporates the MT Series of protection modules. Keyed to prevent their misapplication, the MT Series of modules fit into their touch-safe assembly only if they are a safe match. Although it is possible to insert a higher voltage rated module into a lesser rated dead-front assembly, it is not possible, without severe physical alteration of the device, to insert a lesser rated module into a higher rated touch-safe assembly.

- Secondary Surge Arrestors listed to UL OWHX can be directly connected across the load side of the meter can or at the line-side of the main breaker.
- TVSS devices listed to UL 1449 may be fed from a 10Amp or 30Amp Breaker in a breaker or distribution panel.
- Optimize device performance by keeping connecting wires as short and as straight as possible. Plan the wiring path(s) prior to commencing any installation procedure. This will assist in keeping the wire lengths and inductance to a minimum.

SECURE ALL POWER FROM THE PANEL TO WHICH THE DEVICE IS BEING INSTALLED.

Mount the SPD using the four (4) mounting holes in the enclosure(s).

ENSURE ALL CONNECTIONS ARE CORRECT AND SECURE BEFORE ENERGIZING SPD.

UNIT DIAGNOSTICS

PHASE LED INDICATORS: When the SPD is securely connected and operating properly, the RED LED(S) will be illuminated. Replacement of the SPD is required if the RED LED(S) are not illuminated.

MAINTENANCE: Check the status of the LED indicator at intervals not to exceed 2 months. If the Phase Indicators are not illuminated the SPD requires replacement.

MOUNTING INFORMATION

NOTE: BEFORE STARTING THE INSTALLATION, MEASURE THE LINE VOLTAGE WITH AN AC VOLTMETER TO ENSURE THE CORRECT DEVICE HAS BEEN SELECTED FOR THE APPLICATION. L-N/G VOLTAGE SHOULD NOT EXCEED THE MAXIMUM CONTINUOUS OPERATING VOLTAGE (MCOV) LISTED ON THE SPD LABEL.

1. When mounting the MST SERIES SPD, use the four mounting holes.

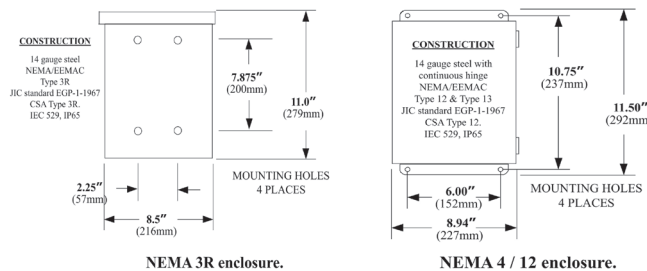
2. Place the SPD as close as possible to the connection point in the NEMA enclosure. Keeping the lead length short will increase the performance of the unit.

NOTE: Cable penetrations may be made from any side, including the back to facilitate locating the device. Observe the open area of the blackplane inside the enclosure for guidance before creating access holes.

NOTE: The 3R enclosure has internal mounting holes that may be accessed by first removing the module and touch-safe cover. The 3R enclosure must be oriented with the supplied knockouts down to allow for proper weather resistance.

NOTE: IF YOU CHOOSE TO MOUNT THE MST UNIT, OBSERVE ALL SAFETY PROCEDURES APPLICABLE FOR A LIVE METER SOCKET OR ELECTRICAL PANEL.

NOTE: SPlicing WIRES TO GAIN EXTRA LEAD LENGTH IS NOT ADVISABLE AS THE EXTRA LEAD LENGTH WILL DEGRADE THE PERFORMANCE OF THE DEVICE.



RED LED IS A FUNCTIONALITY/POWER INDICATOR

When all SPD wires are connected properly, and power is applied, the unit is operating normally, the red LED indicator will be ON.

WORKING NEAR EXPOSED LIVE CONDUCTORS IS HAZARDOUS. POWER SHOULD BE SECURED OR APPROPRIATE ELECTRICAL SAFETY EQUIPMENT SHOULD BE USED TO THE GREATEST EXTENT POSSIBLE BEFORE CONNECTING.

MT Series - Replacement Module Instructions

- Open door on the MST enclosure and remove the MT Protections Module.
- Insert the replacement MT Module.
- Connect Ground wire to ground buss in the equipment panel or meter can.
- Close door on the MST enclosure.

WARRANTY INFORMATION

Meter-Treater, Inc. (MTI) warrants all MST Series models to be free from defects, and will at our option repair or replace the product should it fail within fifteen (15) (residential installations) years from the first date of shipment. This warranty is limited to defects in workmanship or materials, and does not cover customer damage, abuse or unauthorized modification. If this product fails or does not perform as warranted, your sole recourse shall be repair or replacement as described above. Under no condition shall MTI be liable for any damages incurred by the use of this product. Damages include, but are not limited to, the following: lost profits, lost savings and incidental or consequential damages arising from the use of or inability to use this product. MTI specifically disclaims all other warranties, expressed or implied, and the installation or use of this product shall be deemed an acceptance of these terms by the user.

WARRANTY RETURNS

All warranty and non-warranty repairs must be returned freight prepaid and insured to MTI. All returns must have a Return Authorization (RA) number on the outside of the shipping container. This number may be obtained from MTI Warranty Department (800) 342-6890. Products returned without an RA number will not be accepted.

IF UNIT(S) ARE RECEIVED DAMAGED, NOTIFY THE SHIPPING COMPANY IMMEDIATELY. RETAIN ALL SHIPPING CONTAINERS AND PACKING MATERIALS FOR INSPECTION.

Please Note:
There are no user serviceable parts inside.



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MT-MSTINSTALL-9/2016

MST Series

USER MANUAL AND INSTALLATION GUIDE (ALL MODELS)



SURGE PROTECTION DEVICES FOR
AC POWER APPLICATIONS

120
Volt
AC

240
Volt
AC

277
Volt
AC

480
Volt
AC

The MST Series is built to ETL Listed 1449 4th Edition Type 1 and Type 2.

MT Modules incorporated in the MST Series are ETL Listed to UL 1449 4th Edition as a Recognized Component.

GENERAL

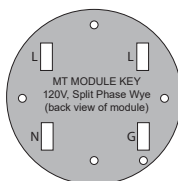
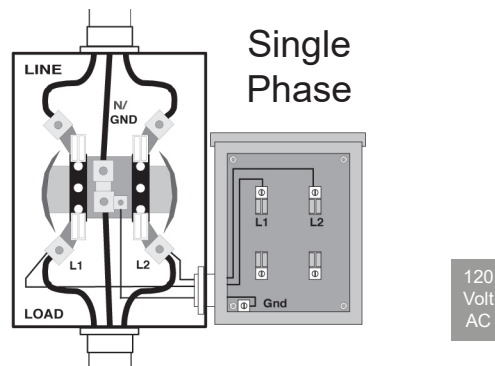
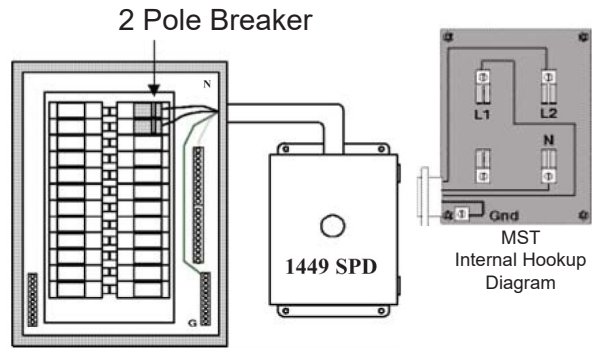
1. This document provides detailed information on how to install and operate the MST Series of Surge Protection Devices (SPD)
2. Locate a position to mount the SPD that will minimize the length of connecting wires required. SPD's should be located as close as possible to the AC panel or service area as possible. Mount the units using the mounting holes provided on the enclosure as shown by the illustrations in these instructions.
3. The MST Series of protectors are installed and connected in parallel ("shunt") across the AC supply to be protected. Connecting wires do not carry the supply current, only the short duration currents associated with the suppression of a transient event.
4. Identified or indicated leads/wires must be connected exactly with respect to the AC Power feeding the SPD. Failure to do so may result in damage to the device or post a danger to personnel.
5. Incorrect installation may significantly impair the performance of the Surge Protection Device. It is particularly important that all installation procedures and guidelines be followed exactly.
6. Installation of this device should only be performed by a qualified licensed installer.
7. Before starting any installation procedures, verify service voltages with an AC voltmeter to ensure that the correct SPD model has been selected.
8. Check to ensure that all connections are correct and secure before energizing.
9. Keep this manual in a safe, dry place for future reference.

NOTE

The MST units incorporate the MT Series modules. These modules are keyed to prevent misapplication. The MT Series modules fit into their touch-safe assembly only if they are a safe match. While it would be possible to insert a higher voltage module into a lesser rated unit, it will not be possible to insert a lesser rated module into a higher rated unit.

120/240 VAC, Split Phase, 3 Wire + Ground

1. Open door on the MST enclosure and remove the MT Protection Module.
2. Remove the touch-safe cover by removing the 4 corner fasteners. Be sure to note orientation.
3. Mount the device in your predetermined location next to the panel or equipment to be protected.
4. Connect the Ground wire to the lug marked Ground in the MST unit.
5. Connect the Neutral wire to the lug marked Neutral in the MST unit.
6. Connect the Phase wire(s) to L1 and L2 lugs in the MST unit.
7. Replace the touch-safe cover (ENSURE CORRECT ORIENTATION) and secure with fasteners.
8. Re-insert the MT Module and close the door or replace cover.
9. Connect Ground wire to ground buss in the equipment or bond to neutral/ground in the meter can.
10. Connect Neutral wire to neutral buss in the equipment panel.
11. Connect Phase wire(s) to breaker(s) or load side of meter.
12. Turn on breakers (as required). LED should now be illuminated.

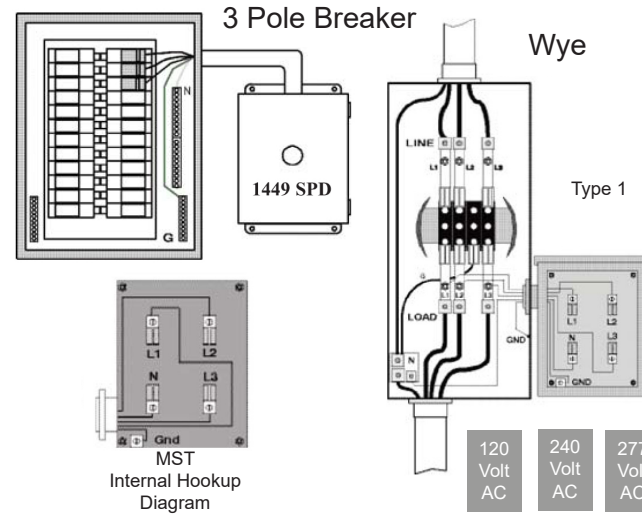


The key locations vary by service voltage. The key layouts come out of the base of the module and interface with their appropriate dead front.

The keying is the same, by voltage, for both NEMA 3R and 12 enclosures.

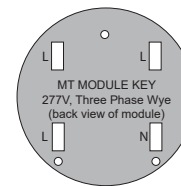
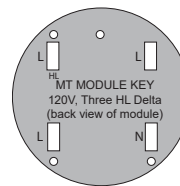
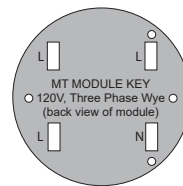
120/240 VAC, High Leg Delta, 4 Wire + Ground 120/208 or 277/480 VAC, Three Phase Wye, 4 Wire + Ground

1. Open door on the MST enclosure and remove the MT Protection Module. Remove the green pigtail wire to completely disconnect the MT Module.
2. Remove the touch-safe cover by removing the 4 corner fasteners. Be sure to note orientation.
3. Mount the device in your predetermined location next to the panel or equipment to be protected.
4. Connect the Ground wire to the lug marked Ground in the MST unit.
5. Connect the Neutral wire to the lug marked Neutral in the MST unit.
6. Connect the Phase wire(s) to L1, L2 and L3 lugs in the MST unit. For a High Leg Delta, connect the HIGH 240V leg to the L2 lug.
7. Replace the touch-safe cover (ENSURE CORRECT ORIENTATION) and secure with fasteners.
8. Connect the green pigtail wire to the MT Module.
9. Re-insert the MT Module and close the door or replace cover.
10. Connect Ground wire to ground buss in the equipment or bond to neutral/ground in the meter can.
11. Connect Neutral (white) wire to neutral buss in the equipment panel.
12. Connect Phase wire(s) to breaker(s) or load side of meter. For a High Leg Delta, connect Phase wire from L2 to High Leg.
13. Turn on breakers (as required). LED should now be illuminated.



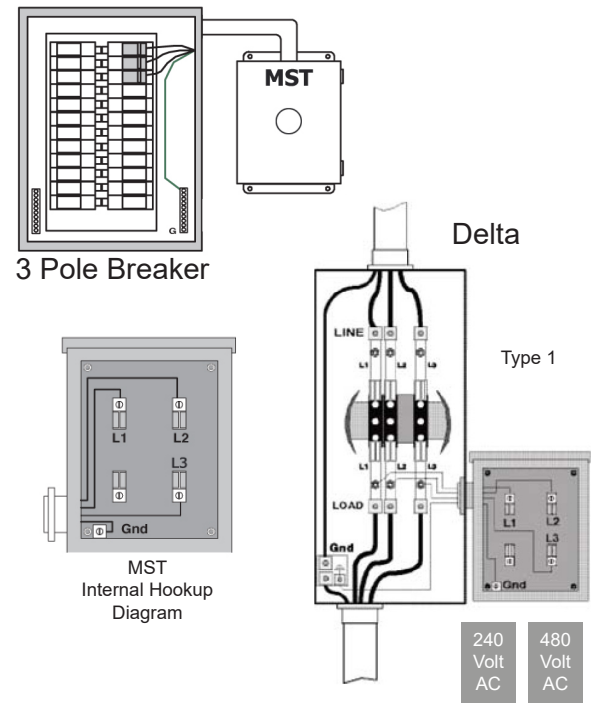
The key locations vary by service voltage. The key layouts come out of the base of the module and interface with their appropriate dead front.

The keying is the same, by voltage, for both NEMA 3R and 12 enclosures.



240 or 480 VAC, Three Phase Delta, 3 Wire + Ground

1. Open door on the MST enclosure and remove the MT Protection Module.
2. Remove the touch-safe cover by removing the 4 corner fasteners. Be sure to note orientation.
3. Mount the device in your predetermined location next to the panel or equipment to be protected.
4. Connect the Ground wire to the lug marked Ground in the MST unit.
5. Connect the Phase wire(s) to L1, L2 and L3 lugs in the MST unit.
6. Replace the touch-safe cover (ENSURE CORRECT ORIENTATION) and secure with fasteners.
7. Re-insert the MT Module and close the door or replace cover.
8. Connect Ground wire to ground buss in the equipment or bond to neutral/ground in the meter can.
9. Connect Phase wire(s) to breaker(s) or load side of meter.
10. Turn on breakers (as required). LED should now be illuminated.



The key locations vary by service voltage. The key layouts come out of the base of the module and interface with their appropriate dead front.

The keying is the same, by voltage, for both NEMA 3R and 12 enclosures.

