



**Meter-Treater, Inc.**

QUALITY SURGE PROTECTION DEVICES SINCE 1986

Utility Programs &  
Commercial, Industrial and Residential  
Surge Protection



Utility

Commercial



Industrial

Residential



Escaneado con CamS

# SPD Background Information

**Who sets the criteria for Surge Protection Devices (SPD's):**  
 IEEE: Sets the Design and Application Guide Lines  
 OSHA: Mandates NRTL Testing to Industry Standards and Qualifies NRTLs to Perform Certification.  
 NRTLs (Nationally Recognized Testing Laboratories): Test and Label SPDs per the ANSI/UL 1449 Standard. ANSI/UL1449: Establishes Testing and Safety Standards for SPD Qualification and Applicable Uses.  
 OSHA mandates that all certified NRTLs are equal in their ability to test and approve SPDs.  
 NFPA/NEC: The National Fire Protection Association/National Electric Code stipulates the how-to for SPD installations on premises wiring systems rated 1kV or less and specifies safety and inspection requirements.

**SPD Marking Requirements**  
 SPDs are required by the ANSI/UL 1449 Standard to be labeled with:

- SPD type: 1, 2, 3, 4, 5
- Electrical ratings that include operating voltage (volts).
- AC power frequency (Hz)
- SPD's number of phases and the voltage protection ratings (VPR), in volts, for each phase.
- For 2-port SPDs, ratings would also include the load current rating (amperes). For Type 1 & Type 2 SPDs only.
- The I<sub>n</sub> rating in amps or kA.
- The maximum continuous operating voltage rating (MCOV) in volts.
- The short-circuit current rating (SCCR) in amps or kA.

## Terms to Know

**I<sub>n</sub> Nominal discharge current - For Type 1 and Type 2 SPDs**  
 Nominal discharge current and the subsequent duty cycle test: The nominal discharge current value is selected by the manufacturer and can be 10 kA or 20 kA for a Type 1 SPD or 3 kA, 5 kA, 10 kA or 20 kA for Type 2 SPDs. The SPD is then subjected to a total of 15 impulses of the selected nominal discharge current. To pass this test, the SPD cannot create a shock or fire hazard during the test and nothing in the surge path can open at any time during or after the test. This includes all internal or external supplementary protective devices or overcurrent devices such as fuses or circuit breakers. The nominal discharge current level is required on the label of the SPD.

**Symmetrical Fault Current**  
 Short Circuit Current Ratings (SCCR) are shown in Tables within the ANSI/UL 1449 Standard. SCCR selection table - rms symmetrical current in amperes and ranges from 5,000 Amps up to 200,000 Amps. The SCCR is required on the label of the SPD.

**MCOV**  
 The SPDs Maximum Continuous Operating Voltage. Exceeding the MCOV will cause SPD failure.

**VPR**  
 Voltage Protection Ratings are issued by the NRTL testing the SPD for certification. VPRs are defined as the let through voltage at a specific test waveform level specified by the ANSI/UL 1449 Standard. The VPR indicates what the voltage will be at the load (output) side of the SPD.

**kA Ratings**  
 The kA rating of SPDs is their ability to handle induced surge energies in 1000ths of Amps. Surge Ratings and kA ratings mean the same thing.



# Table of Contents

- About Meter Treater..... 4 - 5
- What Is A Surge and What Causes a Surge?..... 6
- What Is Surge Protection?..... 7 - 8
- Types Of Surge Protection..... 9
- What Types of Facilities Can We Protect?..... 10
- What Types of Equipment Can be Protect?..... 11
- Utility Program..... 12 - 21
  - 400 Series..... 14
  - 575-1SL-A..... 15
  - 675-3PAL..... 16
  - CL320 Series..... 17
  - RCHW Series - Extrusion Case (Power - AC & DC)..... 18
  - RCHW Series - Polycase (Power - AC & DC)..... 19
  - MAP Series..... 20
  - MST Series..... 21
- Standard Electrical Configurations..... 22
- Products (Commercial, Industrial, Residential, Communication & Power)..... 23 - 42
  - DRM-K..... 24
  - SLT-HEB (Data/Signal)..... 25
  - SLT Series (Data/Signal)..... 26
  - SLT CAT5 POE (Data/Signal)..... 27
  - SLT CAT5e (Data/Signal)..... 28
  - SLT CAT6 DIN (Data/Signal)..... 29
  - SLT CAT6 POE (Data/Signal)..... 30
  - TLT Series (Telephony)..... 31
  - CLT Series (Audio/Video)..... 32
  - SST Series (Sepcialized)..... 33
  - MPT Series (Power - AC & DC)..... 34
  - BPT Series (Power - AC & DC)..... 35
  - MST Series (Power - AC & DC)..... 36
  - RPM Series (Power - AC & DC)..... 37
  - MAP Series (Power - AC & DC)..... 38
  - RCHW Series - Extrusion Case (Power - AC & DC)..... 39
  - RCHW Series - Polycase (Power - AC & DC)..... 40
  - HLP Series (Power - AC & DC)..... 41
  - TST Series (Power - AC & DC)..... 42
- Notes..... 43



## The Meter-Treater Story...

Founded by Ed Allina in 1986, Meter-Treater, Inc. engineered, patented and manufactured the first meterbased surge protection device. The meterbased SPD was solely conceived for power utilities to market to their residential customer base. Over the years MTI earned a reputation for producing quality products along with excellent customer service and program support.

Today, MTI manufactures hundreds of products, in full compliance with all applicable industry standards and guidelines, delivering cost-effective power quality solutions for commercial, industrial, residential and remote applications. Quality, American Made. Products are available for Power, Signal, Data, Telephony and Security systems.

Our customer base has expanded well beyond that of the power companies and we now produce hybrid and special design products engineered per specific customer requests. Many of our main stream products are contracted under private label agreements for unique and vertical markets.

When you have a need for surge protection as a product, design application, program or private labeled production, please, contact us with your specifics and allow us to become your solution partner as well as your solution provider.

Sincerely,  
*Stanley F. Allina*  
 Stanley F. Allina  
 President

### In-House (USA) Manufacturing Facility:

MTI operates an inclusive manufacturing facility with CNC machine shop, injection molding operations and electromechanical assembly capabilities. We exercise complete and total control over every aspect of our products from design through delivery. MTI is proud of the fact that the vast majority of its product offering is American Made under our own roof.



### Comprehensive, In-House, Testing Laboratory:

Customers evaluating surge protective devices (SPDs) have an open invitation (reservations required) to verify the performance of any of our products under their consideration. Our facility's test lab is equipped to confirm and verify our published product specifications. You can observe our engineering and technicians conduct testing per industry standards or you may have your own qualified personnel, with our supervision, conduct the tests. You can even bring competitive products along for a side-by-side comparison.



### Training:

Whether at our facility or a place of your choosing, MTI provides a number of different training courses from technical presentations to call center and customer service programs. Our technical presentations cover topics on protector, application, selection, installation and maintenance etc. MTI is a firm believer in an educated consumer.



### Customer Service & Technical Support:

MTI's Customer Service and Technical Representatives are available to assist you with all of your Surge Protection needs from problem identification to application solution. Our team will always provide you with the most technically suitable and cost-effective resolution for your application.

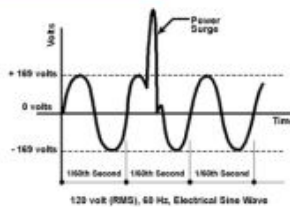


Lightning originates beyond human control, and its severity at the point of impact will depend upon many different parameters... It should be noted that it is neither practical nor economically prudent to protect against the direct effects of lightning

## What is a Surge?

A surge is a very short duration (micro seconds) event, imposing a significant overvoltage or impulse on the AC sine wave. The IEEE (Institute of Electrical and Electronic Engineers) defines a surge as a spike in voltage that typically lasts for less than 1/60th of a second. Surges are the most commonly occurring power quality anomaly and they are by far the most disruptive and destructive.

Surges increase the electrical stress on connected user equipment and appear in all applications involving electricity, no matter the source. The cumulative effect of repeated applications of small surges (or perhaps one large surge) may cause undesirable operation at best, and complete device failure at worst.



The graph above illustrates a transient spike in voltage lasting for less than 1/60th of a second.

## The Causes/Sources of Surges

Major causes of transients are ESD (electrostatic discharge), Utility Actions, Lightning and internal system/equipment operations.

- Although lightning maybe the most destructive surge source it is, by far, not the most prevalent source. Lightning surges can enter an electrical system by (a) Direct Coupling; (b) Inductive Coupling; (c) Resistive Coupling; or (d) Capacitive Coupling
- Utility operations for routine maintenance and service.
- Poor wiring or degrading conditions of the electrical distribution network within a facility.
- Load switching of capacitor banks by the power company.
- Accidents from sources such as auto crashes or wildlife getting into the distribution system.
- ESD or static electricity is created when walking across a carpet or other surfaces then discharging the voltage buildup to another point.

The simple act of turning on and off a standard electric light switch can generate surge voltages as high as 1000 volts during the building and collapsing of the electromagnetic field.

## What Is A Surge Protection Device?

A Surge Protective Device a product designed to minimize surge voltages. It lowers the deteriorating effects of cyclic surge voltages on equipment, increasing equipment longevity and reliability. SPDs can also lower the risks and damages associated with extreme events like lightning and distribution faults.

## How Does It All Work?

Because of performance, availability and low costs, the majority of surge protectors are designed around a component called an MOV (Metal Oxide Varistor). MOVs intercept surge energies, before they can cause damage to vulnerable equipment, by doing one or more of the following:

- Conducts when surge voltages reach the MOV's predetermined clamp level;
- Sends current where voltage is lower;
- Diverts, stores, and/or dissipates the energy of the surge;
- Divides the surge voltage among all of the wires; and
- Keeps voltages to safe levels for the protected equipment/system.



## Characteristics of Effective SPD's

### The Control of Transient Voltages

Surge Protective Devices must be able to control transient events to a level below the upset threshold (immunity level) of the system, or equipment they are protecting. SPDs have to be able to perform their design function and they must be capable of doing it repeatedly.

### The Ability to Withstand the Electrical Environment

Surge Protective Devices must be able to survive the operating environment they were designed to interface with and protect. They should be capable of providing years of useful service without degradation to their original performance characteristics.

### Complete Compatibility with Operating Systems

Properly designed and configured SPDs are required to interface with equipment and systems they protect without causing disruption or delays. The integrity and quality of the operating system should not be compromised in any way by the installation and operation of the SPD.

## What Makes a Device Credible?

Surge Protectors are one of the most tested and controlled products in the electrical industry. They are designed per IEEE guidelines, tested by an independent NRTL (Nationally Recognized Testing Laboratory) who has to be certified by OSHA and are to be installed per NFPA/NEC codes and practices.

## How to Select the Right SPD

- Pick a product that meets your needs in both Type and Category Location.
- Make sure the SPD will fit into the application/installation location (Right Tool for the Job).
- Buy only NRTL Labeled SPDs from a reputable source.
- Make sure the SPD has the proper label markings.
- Select SPDs with realistic kA, VPR, SCCR and  $I_n$  ratings to meet your application.
- Make sure the SPD has the right electrical configuration for your premise/system/equipment wiring.

## Notes/Misc.

- SPDs (Surge Protection Devices) are not Lightning Protectors.
- A single SPD cannot protect an entire residence or facility.
- SPDs are designed for and installed at specific ingress points.
- SPDs are most effective when applied in layers as primary and secondary devices for specific locations.
- To achieve maximum protection protect all ingress points (power, telephony, security, SATV/CATV, etc.).
- To obtain maximum surge performance reference the SPD to a good quality ground.

## Types Of Surge Protection



Type 1 – Permanently connected SPDs intended for installation between the secondary of the service transformer and the line side of the service equipment overcurrent device, as well as the load side, including watt-hour meter socket enclosures and Molded Case SPDs intended to be installed without an external overcurrent protective device.

Type 2 – Permanently connected SPDs intended for installation on the load side of the service equipment overcurrent device; including SPDs located at the branch panel and Molded Case SPDs.



Type 3 – Point of utilization SPDs, installed at a minimum conductor length of 10 meters (30 feet) from the electrical service panel to the point of utilization. For example, cord connected, direct plug-in, receptacle type and SPDs installed at the utilization equipment being protected. See marking in 80.3. The distance (10 meters) is exclusive of conductors provided with or used to attach SPDs.

Type 4 – Component Assemblies – Component assembly consisting of one or more Type 5 components together with a disconnect (integral or external) or a means of complying with limited current tests.



Type 5 – Discrete component surge suppressors, such as MOVs that may be mounted on a Printed Circuit Board (PCB), connected by its leads or provided within an enclosure with mounting means and wiring terminations.



## What Type Of Facilities Can We Protect?

Surge Protection Devices are used to protect a wide variety of equipment...

Surge Protection Devices are used to protect a wide variety of facilities...

- General Offices/Corporate Offices
- Medical Facilities
- Schools/Universities
- Banks
- Manufacturing Plants
- Data Centers
- Cell Sites/Telecom
- Correctional Institutions
- Military
- Gas/Convenience Stores
- Retail Stores
- Airports
- Residential Homes

- Financial Institutions
- Waste/Water Treatment Plants
- Irrigation
- Golf Courses
- Ski Resorts
- Restaurants
- Farms/Agriculture
- Utility Plants
- Hotels and Resorts
- Theme Parks
- Bottling Companies
- Food Processing Plants
- Printing Presses

and so much more!

- Computers
- Security Systems
- HVAC Systems
- Telecom Equipment
- Networks/Modems/Routers
- CNC Machines
- Ski Lifts/People Movers/Elevators
- Roller Coasters
- Medical Equipment
- Variable Frequency Drives

- POS Terminals
- Pumps, Motors & Compressors
- Water and Waste Treatment
- ATM Machines
- Weather Instrumentation
- UPS Backup Systems
- Sensors
- Programmable Logic Controllers
- CCTV
- CATV

## What Type Of Equipment Can We Protect?





# Utility Programs

Meter-Treater offers a variety of valuable services as a part of our utility program. These services can play a key role in your marketing and sales campaigns.

## Marketing Materials

You need marketing materials...well look no further! Meter-Treater offers assistance with marketing materials at your disposal. Everything including but not limited to flyers, banners, post cards, brochures, door hangers and more. We can also provide you with web-based marketing such as web banners, digital ads, email marketing campaigns and anything else you need. You can use the materials as is or we can create something completely customized just for you.

## Training

Education is the key to success for any Residential Surge Program. We offer training courses at your location or our facility for technical sales, field installation, customer service and marketing strategies.

## Websites

If you are looking for an easy way to generate revenue by offering point-of-use surge protection, we can help! Meter-Treater can create and maintain an e-commerce website customized just for your company. We offer all the benefits of an e-commerce website at a fraction of the cost.

#8058

## Type 1

Type 1 surge protection is used to protect the motor-based, larger appliances and devices in a home. Some of the items it will protect are listed below:

- Washer/Dyer
- HVAC Units
- Refrigerator
- Dishwasher
- Stove/Range
- Ceiling Fans
- Garage Openers

While Type 1 surge protectors offer a first tier of protections, smaller electronics require a second layer with Type 3 SPD's.



## Type 3

Type 3 surge protection devices (plug in devices) are used as a secondary source of protection for the items that are not protected by type 1 surge protectors. Here are some of the items that a type 3 surge protector will protect.



- Televisions
- Telephones
- Computers
- Printers

# M-TI 400 Series

Meter Based Surge Protection Device

The **400-1SL-A Meter Based SPD** stops surges right at the electric meter, before they can enter your home or business.

Units are equipped with **SUNBRIGHT® diagnostics** with 1000 MCD LEDs that are fully visible in the brightest sunlight allowing fast and accurate readings in the field.

Units contain **"Smart Sensing Technology"** that distinguishes between surges and overcurrent events. The product complies with all current and proposed safety requirements. The 400-1SL is a Type 1 Surge Protection Device (SPD) that is listed to **ANSI/UL 1449**.

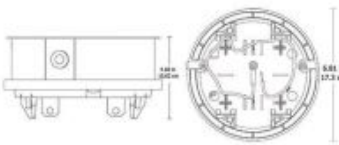
The integration of design, performance and safety features in the METER TREATER makes it an ideal choice for Utility Power Quality Programs. A **15 Year Product Warranty** and concurrent Extended Warranty for downstream white appliances are included.



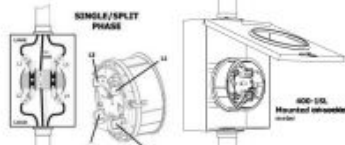
Rated for 260 Amp (320 Max) Continuous Service



### Dimensions



### Typical Installations



(Diagrams not drawn to scale)

Product Specifications	
Applied Voltage	120/240 Vac
Max Surge Current	1:20kA (50kA per phase)
Max Load Current	300 Amps (260 Amps Continuous) attached in HQ4D L&G 250 Amps (200 Amps Continuous) attached in HQ14 L&G
MCOV	150 Volts
Short Circuit Current	10k RMS Symmetrical Amps
Housing Rating	3R (UL 414) with UV inhibitors
Product Weight	2.5 lbs.
Product Dimensions	4.18" x 6.81" (1.40" install depth)
Connection Method	Meter Base 4 or 5 Jaw Blades
Surge Technology	MOV Blocks
Operating Temperature	-40 to +140 F (-40 to +60 C) 10% RH
Operating Frequency	50/60 Hz

Product Specifications	
Diagnostics*	Red Status LED, SUNBRIGHT
Safety Standards (Type 1 SPD)	UL 1449 (max current)
VFR (Suppressed Voltage)*	500 volts (Rv25kV, 6kV/3kA)
I <sub>n</sub> (nominal discharge current)	20 kA

Available Models/Options	
400-1SL-A	4 Jaws (Standard)
400-1SL-A-5L	5P Jaws for 120/200 Networks
5P Jaw kit	Kit with single jaw blade and hardware to modify a standard unit.

\*Concurrent extended warranty is only applicable for customers participating in a utility residential surge protection program and for those utilities requesting the extended warranty.  
\* Two Red LEDs - one monitors each phase.

# M-TI 575-1SL-A

Meter Based Surge Protection Device

The **575-1SL-A Meter Based SPD** stops surges right at the electric meter, before they can enter your home or business.

Units are equipped with **SUNBRIGHT® diagnostics** with 1000 MCD LEDs that are fully visible in the brightest sunlight allowing fast and accurate readings in the field.

Units contain **"Smart Sensing Technology"** that distinguishes between surges and overcurrent events. The product complies with all current and proposed safety requirements. The 575-1SL-A is a Type 1 Surge Protection Device (SPD) that is listed to **ANSI/UL 1449**.

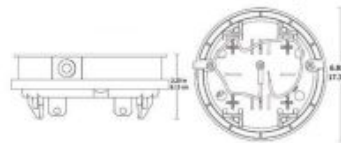
The integration of design, performance and safety features in the METER TREATER makes it an ideal choice for Utility Power Quality Programs. A **15 Year Product Warranty** and concurrent Extended Warranty for downstream white appliances are included.



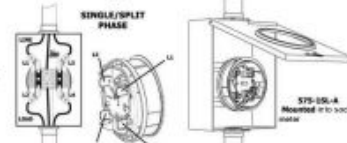
Rated for 240 Amp (320 Max) Continuous Service



### Dimensions



### Typical Installations



Product Specifications			
Applied Voltage	120/240 Vac (120V L-G)	Diagnostics*	Red Status LED, SUNBRIGHT
Max Surge Current	1:20kA (50kA per phase)	Safety Standards (Type 1 SPD)	UL 1449 (max current)
Max Load Current	300 Amps (260 Amps Continuous) attached in HQ4D L&G 250 Amps (200 Amps Continuous) attached in HQ14 L&G	VFR (Suppressed Voltage)	500 Volts (Rv25kV, 6kV/3kA)
MCOV	150 Volts	I <sub>n</sub> (nominal discharge current)	20 kA
Short Circuit Current	10k RMS Symmetrical Amps	Connection Method	Meter Base 4 or 5 Jaw Blades
Housing Rating	3R (UL 414) with UV inhibitors	Surge Technology	MOV Blocks
Product Weight	1.4 lbs.	Operating Temperature	-40 to +140 F (-40 to +60 C) 10% RH
Product Dimensions	3.7" x 6.81" (1.5" install depth)	Operating Frequency	50/60 Hz

Available Models/Options	
575-1SL-A	4 Jaws (Standard)
575-1SL-A-5L	5P Jaws for 120/200 Networks
5P Jaw kit	Kit with single jaw blade and hardware to modify a standard unit.

\*Concurrent extended warranty is only applicable for customers participating in a utility residential surge protection program and for those utilities requesting the extended warranty.  
\*Single Red LED monitors both phases.



# M-TI 675-3PAL

Meter Based Surge Protection Device

The **675-3PAL Meter Based SPD** built above the current industry standards, stops surges right at the electric meter, before they can enter your home or business.

Units are equipped with **SUNBRIGHTS diagnostics** with 1000 MCD LEDs that are fully visible in the brightest sunlight allowing fast and accurate readings in the field.

Units contain **"Smart Sensing Technology"** that distinguishes between surges and overcurrent events. The product complies with all current and proposed safety requirements. The 675-3PAL is a Type 1 Surge Protection Device (SPD) that is Listed to **ANSI / UL 1449**.

The integration of design, performance and safety features in the METER TREATER makes it an ideal choice for Utility Power Quality Programs. **A 15 Year Product Warranty** and concurrent Extended Warranty for downstream white appliances are included!

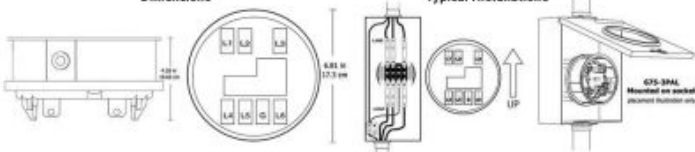


Rated for 200 Amp (200 Max) Continuous Service

Freebtek

### Dimensions

### Typical Installations



(Diagrams not drawn to scale)

#### Product Specifications

Applied Voltage	200 Vac MAX	Connection Method	Meter Base 7 Jaw Blades
Max Surge Current	100kA (50kA per phase)	Surge Technology	MOV
Max Load Current	200 Amps (200 Amps Continuous) attained in HQ-58 I&G	Operating Temperature	-40 to +140 F (-40 to +60 C) 10% +
MCOV	270 Volts	Operating Frequency	50/60 Hz
Short Circuit Current	10k/25k RMS Symmetrical Amper	Diagnostics	Red Status LED, SUNBRIGHT
Housing Rating	3R (UL 414) with UV inhibitors	Safety Standards (Type 1 SPD)	UL 1449 & UL 414 (most current)
Product Weight	3.0 lbs.	VPR (Suppressed Voltage)	3200 Volts (8k20us, 6W/3kA)
Product Dimensions	4.18" x 6.81" (2.45" installed depth)	I <sub>n</sub> (nominal discharge current)	20 kA

#### Available Models/Options

675-3PAL	7 Jaw (Standard)
----------	------------------

\*Concurrent extended warranty is only applicable for residential customers participating in a utility residential surge protection program and for those utilities requesting the extended warranty.

# M-TI CL320 SERIES

Meter Based Surge Protection Device

The **CL320 Series Meter Based SPD** is for use in 320 Amp continuous meter sockets and stops surges right at the electric meter, before they can enter your home or business. Suppressing power surges since 1967.

Units are equipped with **SUNBRIGHTS diagnostics** with 1000 MCD LEDs that are fully visible in the brightest sunlight allowing fast and accurate readings in the field.

Units contain **"Smart Sensing Technology"** that distinguishes between surges and overcurrent events. The product complies with all current and proposed safety requirements. The CL320 is a Type 1 Surge Protection Device (SPD) that is Listed to **ANSI / UL 1449**.

The integration of design, performance and safety features in the METER TREATER makes it an ideal choice for Utility Power Quality Programs. **A 15 Year Product Warranty** and concurrent Extended Warranty for downstream white appliances are included!

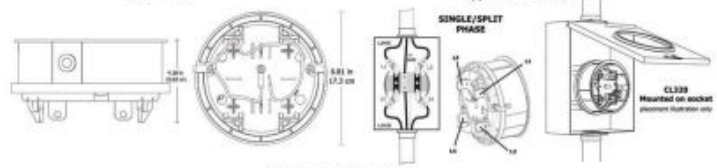


Rated for 320 Amp (400 Max) Continuous Service

Freebtek

### Dimensions

### Typical Installations



(Diagrams not drawn to scale)

#### Product Specifications

Applied Voltage	120/240 Vac
Max Surge Current	100kA (50kA per phase)
Max Load Current	400 Amps (300 Amps Continuous)
MCOV	180 Volts
Short Circuit Current	10k/25k RMS Symmetrical Amps
Housing Rating	3R (UL 414) with UV inhibitors
Product Weight	3.0 lbs.
Product Dimensions	4.18" x 6.81" (2.45" installed depth)
Connection Method	4 Heavy-Duty Machined Jaw Blades
Surge Technology	MOV
Operating Temperature	-40 to +140 F (-40 to +60 C) 10% +
Operating Frequency	50/60 Hz

#### Product Specifications

Diagnostics	Red Status LED, SUNBRIGHT
Safety Standards (Type 1 SPD)	UL 1449 (most current)
VPR (Suppressed Voltage)	660 Volts (8k20us, 6W/3kA)
I <sub>n</sub> (nominal discharge current)	20 kA

#### Available Models/Options

CL320	4 Jaw (Standard)
CL320-1	Longer Groundable

\*Concurrent extended warranty is only applicable for residential customers participating in a utility residential surge protection program and for those utilities requesting the extended warranty.

# M-TI RCHW Series

Extrusion Case

Residential/Commercial  
Hardwired Surge  
Protection Device

The RCHW Series provides high-energy surge protection and optional RF filtering for Residential, Commercial, Industrial and Remote Site applications.

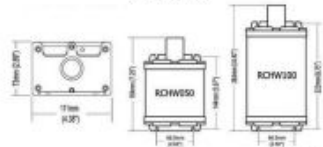
These hardwired units provide superior control over transients by delivering low clamping voltages combined with high surge energy handling capabilities. All RCHW models are Type 1 or Type 2 Surge Protection Devices that are listed to ANSI/UL 1449.

They are configured for quick and easy parallel installation and require little maintenance while in service. The high energy handling capabilities of the RCHW Series is due to the utilization of large diameter MOV technology.

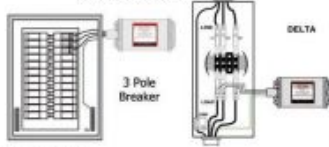
The RCHW Series is available for all standard service voltages and phase configurations and can be equipped with several specialized diagnostic options. All Models have a 100kA RMS symmetrical fault current rating suitable for IEEE category C locations, and are available with surge ratings of 50kA and 100kA per phase. (200kA is also available)† (please contact factory)



### Dimensions



### Typical Installations



(Diagrams not drawn to scale)

Product Specifications		Mechanical/Environmental Specifications	
Max Surge Current	100kA per Phase (see JOC)	Diagnosis	Red Status LED, SUNSHINE
Fusing	Coordinated Surge & Thermal	Safety Standards (Type 1 SPD)	ANSI/UL 1449 (most current)
Short Circuit Current	100kA RMS Symmetrical	I <sub>n</sub>	20kA
Housing Rating	NEMA, 1, 2, 3, 3X, 4X, 12 & 19	Flexible (Close) option available	J/FLEXDIB
Enclosure	Extruded aluminum with plastic end caps		

†Special orders options and 200kA models, please contact the manufacturer for details.

Model Number	Service Voltage	MCOV	L-N	L-G	N-G	L-L
RCHWxxx120-10-E-1	120 Volt Single Ø	150Vac	600V	600V	600V	N/A
RCHWxxx120-99-E-1	120/240 Volt Split Ø	150Vac	600V	600V	600V	1,000V
RCHWxxx120-99-E-1	120/208 Volt 3Ø Wye	150Vac	600V	600V	600V	1,000V
RCHWxxx120-3H-Q-1	120/240 Volt 3Ø Delta	150/330Vac	600/1000V	600/1000V	600V	1,000/1800V
RCHWxxx240-3C-Q-1	240 Volt 3Ø Delta	330Vac	N/A	1000V	N/A	3000V
RCHWxxx220-99-E-1	220/980 Volt 3Ø Wye	330Vac	1000V	1000V	1000V	3000V
RCHWxxx230-99-E-1	230/400 Volt 3Ø Wye	330Vac	1000V	1000V	1000V	3000V
RCHWxxx240-99-E-1	240/415 Volt 3Ø Wye	330Vac	1000V	1000V	1000V	3000V
RCHWxxx277-99-E-1	277/480 Volt 3Ø Wye	330Vac	1000V	1000V	1000V	3000V
RCHWxxx480-3C-Q-1	480 Volt 3Ø Delta	550Vac	N/A	1800V	N/A	4000V

1. Replace xxx with: 050 for 50kA or 100 for 100kA (200 for 200kA per phase) Surge Ratings. 2. Replace # with: F if filtering is required (available option on WYE Models only).  
3. Options: A&C for Dry Contact, A&E for Audio Alarm, A&F for Flash Voltage Kit. 4. Add: -F to the end of the Model Number for the optional NEMA 4X Non-Hazardous location.

# M-TI RCHW Series

Polycase

Residential/Commercial/Light  
Industrial Surge  
Protection Device

The RCHW/POL Series provides high-energy surge protection and optional RF filtering for Residential, Commercial, Industrial and Remote Site applications.

These hardwired units provide superior control over transients by delivering low clamping voltages combined with high surge energy handling capabilities. All RCHW/POL models are Type 1 or Type 2 Surge Protection Devices that are listed to ANSI/UL 1449.

They are configured for quick and easy parallel installation and require little maintenance while in service. The superior energy handling capabilities of the RCHW/POL Series is due to the utilization of large diameter MOV technology.

The RCHW/POL Series is available for all service voltages and phase configurations and can be equipped with several specialized diagnostic options. All Models have a 100kA RMS symmetrical fault current rating suitable for IEEE category C locations and are available with surge ratings of 50kA or 100kA per phase.

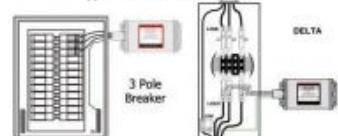


Models Shown: RCHW100V120-3W-C-1/POL (right)  
RCHW050V120-SP-W-1/POL (left)

### Dimensions



### Typical Installations



(Diagrams not drawn to scale)

Product Specifications		Mechanical/Environmental Specifications	
I <sub>n</sub>	20 kA	Diagnosis	Red Status LED, SUNSHINE
Max Surge Current	50kA to 100kA per Phase	Safety Standards (Type 1 SPD)	ANSI/UL 1449
Fusing	Coordinated Surge & Thermal	Housing Ratings	NEMA 4X Poly-case - Standard
Short Circuit Current	100kA RMS Symmetrical		

†Special order is required for 200kA or dry contacts. Please contact the manufacturer for details.

Model Number	Service Voltage	MCOV	L-N	L-G	N-G	L-L
RCHWxxx120-10-E-1/POL	120 Volt Single Ø	150Vac	600V	600V	600V	N/A
RCHWxxx120-99-E-1/POL	120/240 Volt Split Ø	150Vac	600V	600V	600V	1,000V
RCHWxxx120-99-E-1/POL	120/208 Volt 3Ø Wye	150Vac	600V	600V	600V	1,000V
RCHWxxx120-3H-Q-1/POL	120/240 Volt 3Ø Delta	150/330Vac	600/1000V	600/1000V	600V	1,000/1800V
RCHWxxx240-3C-Q-1/POL	240 Volt 3Ø Delta	330Vac	N/A	1000V	N/A	3000V
RCHWxxx220-99-E-1/POL	220/980 Volt 3Ø Wye	330Vac	1000V	1000V	1000V	3000V
RCHWxxx230-99-E-1/POL	230/400 Volt 3Ø Wye	330Vac	1000V	1000V	1000V	3000V
RCHWxxx240-99-E-1/POL	240/415 Volt 3Ø Wye	330Vac	1000V	1000V	1000V	3000V
RCHWxxx277-99-E-1/POL	277/480 Volt 3Ø Wye	330Vac	1000V	1000V	1000V	3000V
RCHWxxx480-3C-Q-1/POL	480 Volt 3Ø Delta	550Vac	N/A	1800V	N/A	4000V

1. Replace xxx with: 050 for 50kA or 100 for 100kA per phase Surge Ratings. 2. Replace # with: F if filtering is required (available option on WYE Models only).  
3. Options: A&C for Dry Contact, A&E for Audio Alarm, A&F for Flash Voltage Kit. 4. Add: -C to the end of the Model Number for the On-Road Mount.

# M-TI MAP Series

Universal - Residential/  
Commercial/Light Industrial  
Surge Protection Device

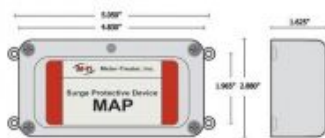
Meter Treater's **MAP Series** represents a new era in surge protection with our "one size fits all" application flexibility. All units contain short circuit and thermal fusing, and our **"Smart Sensing Technology"** that distinguishes between surges and overcurrent events.

This new suppressor package meets the current industry standards and stops surges right at the electric meter before they can enter a facility. The MAP Series is a Type 1 or Type 2 Surge Protection Device (SPD) that is listed to **ANSI/UL 1449**.

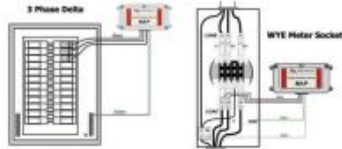
The inventive design, performance and universal application features of the MAP makes it the ideal choice for Commercial and Light Industrial applications.



### Dimensions



### Typical Installations



(Diagrams not drawn to scale)

### Product Specifications

$I_n$	10/20 kA (nominal discharge current)
Max Surge Current	120kA (10kA per phase)
Max Load Current	up to 800 Amps Continuous
Fusing	Thermal and Short Circuit Fusing
Short Circuit Current**	100kA RMS Symmetrical Amps
Diagnostics	Fiber Optics

### Mechanical/Environmental Specifications

Enclosure	Polycarbonate
Safety Standards (Type 1 SPD)	UL 1449 (max current)
Operating Frequency	50/60 Hz

\* No external fusing required. \*\* Required by ANSI/UL 1449

### VPR

Model Number	Service Voltage	MCOV	L - N	L - G	N - G	L - L
MAPSD120-1P-D-2	120/240 Single	150	600	600	1,200	-
MAPSD120-3P-D-2	120/240 Split	150	600	1,000	600	1,200
MAPSD120-3W-D-2	120/208 Wye	150	600	1,000	600	1,200
MAPSD120-3H-D-2	120/240 Highleg	150	600/1000	1,000/1800	600	1,200/1800
MAPSD240-2P-D-2	240 Delta	320	-	1000	-	3000
MAPSD240-2P-D-1	240 volt Two Phase	320	-	1000	-	3000
MAPSD277-3W-D-2	277/480 Wye	320	1000	2000	1000	2000
MAPSD480-3C-D-2	480 Delta	550	-	1800	-	4000
MAP100V120-1P-D-1	120 volt Single Phase	150	600	600	1,200	-

# M-TI MST Series

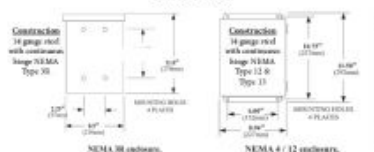
Residential/Commercial/Industrial  
Surge Protection Device

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.

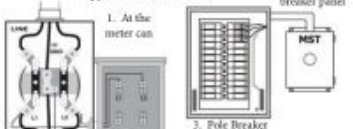


### Dimensions



(Diagrams not drawn to scale)

### Typical Installations



(Diagrams not drawn to scale)

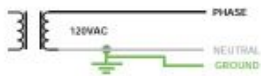
### Product Specifications

$I_n$	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, S/NBR GHT
Fusing	Coordinated Surge & Thermal	Safety Standards (Type 1 SPD)	UL 1449 (max current)
Short Circuit Current	100kA RMS Symmetrical Amps	Operating Frequency	50/60 Hz
Housing Rating	NEMA 3R, NEMA 4, 4X, NEMA 12		

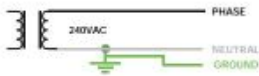
Model Number	Service Voltage	VPR
MST00X120-SP-D-XX	Split Phase 3 Wire + Gnd	600 volts
MST00X120-3W-D-XX	3 Phase Wye, 4 Wire + Gnd.	600 volts
MST00X120-3H-D-XX	High Leg Delta, 4 Wire + Gnd.	600/1000 volts
MST00X240-3C-D-XX	3 Phase Delta, 3 Wire + Gnd.	1000 volts
MST00X240-3W-D-XX	3 Phase Wye, 4 Wire + Gnd.	1000 volts
MST00X277-3W-D-XX	3 Phase Wye, 4 Wire + Gnd.	1000 volts
MST00X480-3C-D-XX	3 Phase Delta, 3 Wire + Gnd.	1500 volts

Replace XXX with desired kA rating per phase: 002 for 20 kA or 100 for 100 kA. Also, replace XX with: 3R, 12, 12C, 14X (for metal) or 35 (35kVdc) for listed NEMA enclosures.

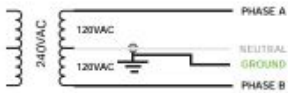
# Standard Electrical Configurations



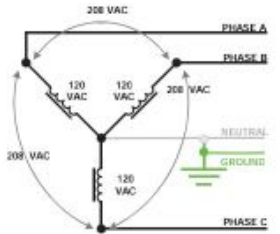
120Vac, Single Phase, 2 Wire + Ground



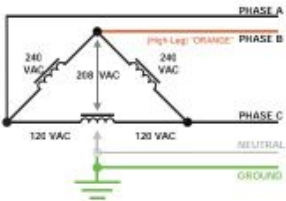
240Vac, Single Phase, 2 Wire + Ground



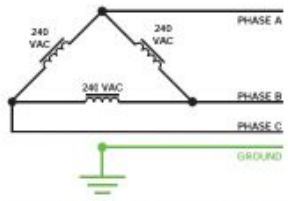
120/240Vac, Split Phase, 3 Wire + Ground



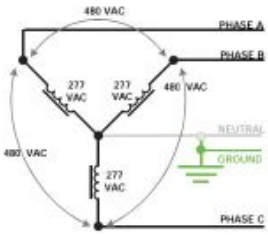
120/208Vac, Three Phase Wye, 4 Wire + Ground



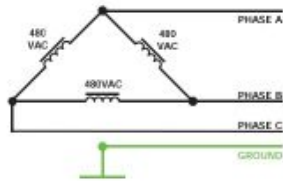
120/240Vac, Three Phase Delta, 4 Wire + Ground



240Vac, Three Phase Delta, 3 Wire + Ground



277/480Vac, Three Phase Wye, 4 Wire + Ground



480Vac, Three Phase Delta, 3 Wire + Ground



# Products

**MATCH PRODUCTS TO YOUR APPLICATION**  
Look for these icons on each spec page to help match the product with your needs



Commercial



Communication



Industrial



Power



Residential

# M-TI DRM-K Series



Din Rail Mounting Kit

Simple in design yet **multi-functional** in its application, the **DRM-K Series** is the ideal platform on which to mount your auxiliary and optional din rail equipment. The **DRM-K** product is shipped unassembled to allow for maximum on-site installation versatility.

Following the fully illustrated assembly instructions the User custom configures the **DRM-K** assembly to optimize the interface between their equipment and available space.

**NOTE: Mounting Hardware for Rack Brackets to Cabinets/ Wall/ Surface is not provided.**

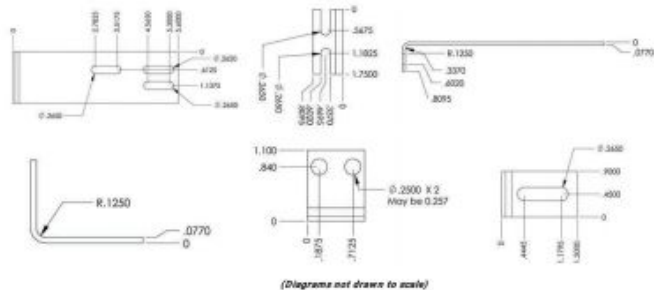
**Optional Item(s): Ground (Bus) Assembly**



**Model Shown:** DRM-K19



- Model# : DRM-K19 Material List**
- Two Rack Brackets (Black Steel)
  - Two Rail Brackets (Black Steel)
  - One Size Din Rail 17.25 inches Long
  - Six 1/4" Rhilgon Flat Head (Black)
  - Six 1/4" Nut (Black)
  - Six 1/4" Washer (Black)
- (Fits standard 1/2" Equipment Racks)



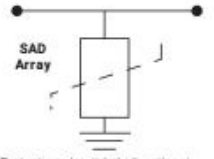
# M-TI SLT-HEB Series



High Energy Surge Protection Device for Sensors

The **SLT-HEB Series** of protectors is available as either a 4, 5, 6, or 10 Wire SPD (surge protective device) unit that will interface directly, in series, with 4 or 5 pin M12/Euro/DC Micro Connectors. Models are **unidirectional** due to connector configuration; where the male connector equates Line Side (unprotected) and the female equates the Load Side (protected). Circuit performance is bidirectional.

Unit is housed in a ported aluminum case with either Zytel plastic or aluminum end caps. An external ground stud is provided in addition to the two (2) grounded mounting brackets that are bolted to the case.



(Diagrams not drawn to scale)

Electrical Specifications	
Max. Surge Current	8kA or 10kA
Max. Operating Voltage	30 Volts DC
Max. Operating Frequency	15 MHz
Max. Clamp Voltage	54.4 volts @ 300 Amps/450 Volts
Surge Technology	High Energy Silicon Avalanche Diode Array (SAD)
Energy Rating/Wire	400.5 Joules
Response Time	< 1 Picosecond
UL Flammability Class	V-0 V-0
Labels & Certifications	UL Listed, CE - European Declaration of Conformity
Connectors	4 or 5 Pin Rigid M12 Connectors, M16 & Female (DC Mod - Euro)
Enclosure	Aluminum Extrusion Zytel or Aluminum End Caps
Max. Operating Temp.	-40 to + 125 C
Warranty	10 Year Product Warranty

Product Dimensions	
4.50" L x 4.75" W x 2.25" H (Includes mounting bracket)	
Model Number	Wires
S,BA-EB-04-1EC-MFX	4 Wires (1 Connector)
S,TH-EB-05-1EC-MFX	5 Wires (1 Connector)
S,BA-EB-08-1EC-MFX	8 Wires (2 Connectors)
S,BA-EB-10-2EC-MFX	10 Wires (2 Connectors)

# M-TI SLT Series



Data/Signal  
Surge Protection Device

Transient Voltage Surge Suppressor for standard low speed data (10.5VHz max), communication and signal line protocols. Units provide protection against Transient Voltages that exceed the nominal operating voltage of incoming data. Each line is protected against surge current impulses up to 10kA.

The SLT device works in series with the communication lines being protected diverting harmful transient energy while maintaining a tight clamp at the peak voltage. Units are designed to operate in a wide temperature range and are configured for single EIA (Electronic Industries Association) protocols.

The built in floating ground connection allows the device to provide protection at remote locations without creating a ground loop noise problem.

- Solid state fail-safe design
- Low shunt capacitance to reduce signal loss
- Performance tested to verify compliance



(Other Case Styles Available)



Product Specifications	
Max. Surge Current	10kA per wire
Max. Operating Voltage	1.5 - 270 V DC
Response Time	< 5 nanoseconds
Series Resistance	5.3 Ohms (nominal)
Clamp Voltage	7.5V - 250V available
Enclosure	Plastic (UL Rated 94 V0)
Max. Operating Temp.	-40 to +85 C
Warranty	15 Year Product Warranty

Dimensions & Weight	
Case A:	4.375" x 2.875" x 1.2" (50.8) 10 Wire MAX
Case B:	2.875" x 2.1" x 1.2" (25.8) 4 Wire MAX
Case M:	3.94" x 1.4" x 2.28" (10.0) - Small 3.94" x 2.8" x 2.28" (1.0) - Large

Model Number	Circuit Case	Wires	Shield	Polarity	Protocol	Interface
SLT/	XZ	-XX	X	-X	XXX	-XX
Signal Line Tester	Replace X with A = 5AD Analog C = 5AA (Command) I = 10A (Industrial) S = 50K State	Replace XX with 02 = 2 wires 04 = 4 wires 06 = 6 wires 10 = 10 wires	Replace X with 0 = No Shield S = Shield	Replace X with B = Bipolar Protection U = Unipolar protection	Replace XXX with CL1 = 30V CL2 = 55V CC1 = 20V CC2 = 130V CC3 = 125V CC4 = 18V CC5 = 140V SL1 = 25V SL2 = 70V SL3 = 270V SL4 = 45V SL5 = 50V	Replace XX with TS = Terminal Strip Screw RJ = RJ45 Jacks Consult factory for additional interface options.
COMMERCIAL UNITS Use for MOV & SPD Technology	Replace Z with	Case A has a 10 wire MAX Case B has a 4 wire MAX				
INDUSTRIAL UNITS Use for Gas Tube & SPD Technology	A = Large Case B = Small Case M = DIN Rail Case	Case M Large has a 10 wire MAX. Case M Small has a 4 wire MAX.			Other protocols available, contact factory	

NOTE: Installation is accomplished by simply inserting the Protector in series with the communication cable(s) and connecting the grounds as required. PROTOCOLS: CL = Closed Loop, DC = DC, SL = Signal Line.

# M-TI SLT CAT5 POE



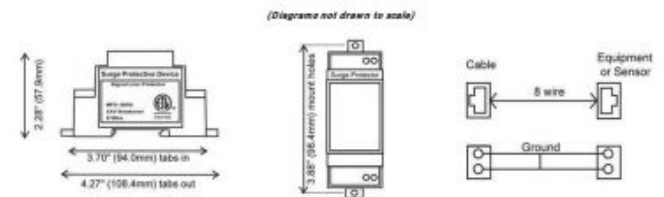
Ethernet  
Surge Protection Device

The SLT Series CAT5 POE utilizes State-of-the-Art Avalanche Diode Technology to provide fast clamping and high energy handling capability.

Unit provides protection against Transient Voltages that exceed the nominal operating voltage of incoming data. Each line is protected against surge impulses up to 100A.

The SLT device works in series with the communication lines being protected, diverting harmful transient energies, while maintaining a tight clamp at the peak voltage. Units are designed to operate in a wide temperature range and are configured for 10/100 Ethernet data or similar protocol.

- Protects POE data lines with  $\leq 100\text{Mbps}$  &  $\leq 100\text{MHz}$
- Solid state fail-safe design
- Low shunt capacitance to reduce signal loss
- RJ45 (female to female) Connection Method
- Performance tested to verify compliance



Electrical Specifications	
Maximum Peak Surge Current	1000 Amps
Peak Pulse Power	1500 Watts Min.
Minimum Clamping Voltage at 1pp of 145 Amps	92 Volts
Line - Load Sensitive	No
Response Time	< 1 Nanosecond
Breakover Voltage (Line - Ground)	68 Volts
Maximum Nominal Operating Frequency	100MHz
Operating Frequency with Attenuation < 3db	0-107MHz
Data Transfer Rate	10/100Mbps
Capacitance L-G	0.47nF
Number of Protected Lines	8
Series Resistance	< 1 Ohm
Power Over Ethernet (PoE)	IEEE Std. 802.3 at 2000

Mechanical Specifications	
Weight	60 grams (2.1 Ounces)
Connector Type	8P8C (RJ45)
Mounting	20mm DIN or panel mount via 2 integrated tabs that accept up to #6 sized screws
Enclosure	Polyarbonate UL94 V-0

Environmental Specifications	
Operating Temperature	-34°C to 74°C (-30°F to 165°F)
Relative Humidity	95% noncondensing

NOTE: Installation is accomplished by simply inserting the Protector in series with the communication cable(s) and connecting the grounds as required.

# M-TI SLT CAT5e



10/100  
Surge Protection Device

The SLT Series CAT5e utilizes State-of-the-Art Avalanche Diode Technology to provide fast clamping and high energy handling capability.

Unit provides protection against Transient Voltages that exceed the nominal operating voltage of incoming data. Each line is protected against surge impulses up to 500A.

The SLT device works in series with the communication lines being protected; diverting harmful transient energies, while maintaining a tight clamp at the peak voltage. Units are designed to operate in a wide temperature range and are configured for 10/100 Ethernet data or similar protocol.

- Protects CAT5e data lines with  $\leq 100\text{Mbps}$  &  $\leq 100\text{MHz}$
- Solid state fail-safe design
- Low shunt capacitance to reduce signal loss
- RJ45 (female to female) Connection Method
- Performance tested to verify compliance

Model Shown: SLT-SM-060-60L3-RJ45E



# M-TI SLT CAT6 DIN



10/100/1000  
Surge Protection Device

The SLT Series CAT6 DIN utilizes State-of-the-Art Avalanche Diode Technology to provide fast clamping and high energy handling capability.

Unit provides protection against Transient Voltages that exceed the nominal operating voltage of incoming data. Each line is protected against surge impulses up to 200A.

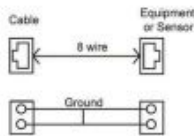
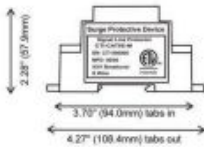
The SLT device works in series with the communication lines being protected; diverting harmful transient energies, while maintaining a tight clamp at the peak voltage. Units are designed to operate in a wide temperature range and are configured for 10/100/1000 Ethernet data or similar protocol.

- Protects CAT6 data lines with  $\leq 100\text{Mbps}$  &  $\leq 250\text{MHz}$
- Solid state fail-safe design
- Low shunt capacitance to reduce signal loss
- RJ45 (female to female) Connection Method
- Performance tested to verify compliance

Model Shown: SLT-SM-060-60L3-RJ45E



(Diagrams not drawn to scale)



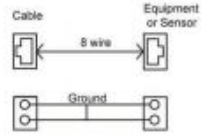
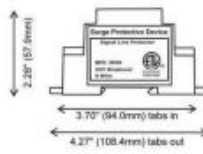
Electrical Specifications	
Maximum Peak Surge Current	300 Amps
Peak Pulse Power	1500 Watts Min.
Maximum Clamping Voltage at 100 Amps	14.5 Volts
Line - Load Sensitive	No
Response Time	< 1 nanosecond
Breakover Voltage (Line - Ground)	10 Volts
Maximum Nominal Op. Frequency	100MHz
Operating Frequency with Attenuation < 3dB	0-38MHz
Data Transfer Rate	10/100Mbps
Capacitance L - G	0.41nF
Number of Protected Lines	8
Series Resistance	< 1 Ohm
Power Over Ethernet (PoE)	No

Mechanical Specifications	
Weight	60 grams (2.1 Ounces)
Connector Type	8P8C (RJ45)
Mounting	35mm DIN or panel mount via 2 integrated tabs that accept up to #6 basic screws
Enclosure	Polycarbonate UL94 V-0

Environmental Specifications	
Operating Temperature	-34°C to 74°C (-30°F to 165°F)
Relative Humidity	95% noncondensing

**NOTE:** Installation is accomplished by simply inserting the Protector in series with the communication cable(s) and connecting the grounds as required.

(Diagrams not drawn to scale)



Electrical Specifications	
Maximum Peak Surge Current	300 Amps
Peak Pulse Power	1500 Watts Min.
Maximum Clamping Voltage at 100 Amps	14.5 Volts
Line - Load Sensitive	No
Response Time	< 1 nanosecond
Breakover Voltage (Line - Ground)	10 Volts
Attenuation Worst Case Margin	1 Tab @ 2500Hz
ISEXT	> 40dB
Data Transfer Rate	10/100/1000Mbps
Power Sum NEXT	33dB @ 2470Hz
Return Loss	28dB @ 213.5MHz
ACR	Worst Case 16.6dB
Power Sum ACR	Worst Case 14.0dB
ARC IF	26.8dB @ 720MHz
ISACRIF	24.3dB @ 720MHz

Mechanical Specifications	
Weight	50 grams (1.7 Ounces)
Connector Type	8P8C (RJ45)
Mounting	DIN Rail
Enclosure	ABS

Environmental Specifications	
Operating Temperature	-34°C to 74°C (-30°F to 165°F)
Relative Humidity	95% noncondensing

**NOTE:** Installation is accomplished by simply inserting the Protector in series with the communication cable(s) and connecting the grounds as required. 85 volts obtained with a 300 ft long cable.

# M-TI SLT CAT6 POE

10/100/1000  
Surge Protection Device

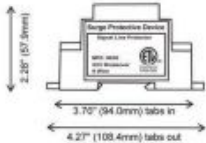
The SLT Series CAT6 POE utilizes State-of-the-Art Avalanche Diode Technology to provide fast clamping and high energy handling capability. Unit provides protection against Transient voltages that exceed the nominal operating voltage of incoming data. Each line is protected against surge impulses up to 400V.

The SLT device works in series with the communication lines being protected, diverting harmful transient energies, while maintaining a tight clamp at the peak voltage. Unit is designed to operate in a wide temperature range and are configured for 10/100/1000 Ethernet data or similar protocol.

- Protects CAT6 data lines with  $\leq 1000\text{Mbps}$  &  $\leq 250\text{MHz}$
- Solid state fail-safe design
- Low shunt capacitance to reduce signal loss
- RJ45 (Female to Female) Connection Method
- Performance tested to verify compliance



Model Shown: SLT-SM-CBC-BCL3-RJFDE



(Diagrams not drawn to scale)

Electrical Specifications	
Maximum Peak Surge Current @ 100us	5000 Amps
Peak Pulse Power	7000 Watts Min.
Maximum Clamping Voltage at Ipp of 16.5 Amps	92 Volts
Line - Load Sensitivity	Nil
Response Time	< 1 Nanosecond
Breakover Voltage (Line - Ground)	68 Volts
Attenuation Margin	20dB @ 176kHz
NEXT	> 40dB
Data Transfer Rate	10/100/1000Mbps
Power Sum NEXT	47.8dB @ 149kHz
Return Loss	34.8dB @ 38kHz
ACR	Version Case 17.0dB
Power Sum ACR	Version Case 14.9dB
ASCR @	27.4dB @ 149kHz
PSACR	> 38dB

Mechanical Specifications	
Weight	60 grams (2.1 Ounces)
Connector Type	6P6C (RJ45)
Mounting	35mm D-h or panel mount via 2 integrated tabs that accept up to #6 sized screws
Enclosure	Polycarbonate

Environmental Specifications	
Operating Temperature	-34°C to 74°C (-30°F to 165°F)
Relative Humidity	95% noncondensing

**NOTE:** Installation is accomplished by simply inserting the Protector in series with the communication cable(s) and connecting the grounds as required.

# M-TI TLT Series

Telephony Lines  
Surge Protection Device

The TLT Series is a Secondary Transient Voltage Surge Suppressor for Telephony line protocols. Units provide protection against Transient voltages that exceed the nominal operating voltage of Dial-Up, Dedicated/Leased and T1 Lines.

Each line is protected against surge current impulses up to 1.9kA/Wire. The TLT Series protects in series with the telephone lines to be protected, diverting harmful transient energies to ground while maintaining cable clamping thresholds above normal service voltages. Units can be configured for all standard telephony applications by varying circuit components and/or derates.

The SC housing for the TLT Series is designed for indoor and outdoor installation. All other housings are for indoor use only.

- Solid state fail-safe design
- Low shunt capacitance to reduce signal loss
- Performance tested to verify compliance



Product Specifications	
Max. Circuits Protected	5 Pairs (10 Wires)
Max. Operating Voltage	56 - 190 Volts
Response Time	< 5 - 15 nanoseconds
Clamp Voltage	Between 100 and 270 volts
Enclosure	Indoor (SA & SB) Outdoor (SC)
Max. Operating Temp.	-40 to +85 C
Warranty	15 Year Product Warranty

Dimensions & Weight	
Case G:	4.27" x 3.225" x 2.645" [108.4 x 82.0 x 67.1 mm]
Case A:	4.471" x 2.982" x 1.765" [113.1 x 75.7 x 44.8 mm]
Case B:	2.994" x 2.125" x 1.115" [76.0 x 53.9 x 28.3 mm]

ETL Listed to UL974A Standard. (Secondary Protector for Telephone Lines)

Model Number	Clamp Voltage	Application	Max. Operating Voltage
TLT190-100-ULU-ZZ	270 Volts	Dial-up Line	240 Volts
TLT190-100-UT1-ZZ	220 Volts	E1/T1	190 Volts
TLT190-100-ULU-ZZ	170 Volts	Leased Line	80 Volts
TLT190-100-ULU-ZZ	270 Volts	Dial-up Line	240 Volts
TLT190-100-UT1-ZZ	220 Volts	E1/T1	190 Volts
TLT190-100-ULU-ZZ	170 Volts	Leased Line	80 Volts
TLT190-100-ULU-ZZ	270 Volts	Dial-up Line	240 Volts
TLT190-100-UT1-ZZ	220 Volts	E1/T1	190 Volts
TLT190-100-ULU-ZZ	170 Volts	Leased Line	80 Volts

Replace XX with number of wires to be protected: 02 = 2 wires, 04 = 4 wires, 06 = 6 wires, 08 = 8 wires, 10 = 10 wires.  
Replace ZZ with: SC for outdoor, and (female to female) - 10 for Terminal Strip-Only.  
Modeler Jockey: only 5 wires for case A & B. Case G only 6 wires.



# M-TI CLT Series

Coaxial Line Surge Protection Device

The **CLT Series** provides Bidirectional Transient Voltage Surge Suppression for Coaxial Applications. Units provide protection against Transient voltages that exceed normal operating voltages. Devices can protect against surge current impulses up to 20kA/wire.

Models are available to protect CATV, SATV, CCTV, Digital Modems, Ethernet ThinNet (10 Base 2) and Arcnet. Consult factory for special applications.

The CLT Series installs in series with the coaxial lines and diverts harmful transient energies away from sensitive system components. Units operate over a wide range of temperatures and interface with standard coaxial protocols. Normal data range is to 100 Mbps and insertion losses as low as -0.8dB at 2.4 GHz.



Product Specifications	
Max. Surge Current	20kA per wire
Interface	Bi-directional
Response Time	Typically < 1 picosecond
Series Resistance	< 0.1 Ohm
Normal Data Rate	100 Mbps
Enclosure	Plastic
Max. Operating Temp.	-40 to +85 C
Warranty	15 Year Product Warranty

Dimensions	
Case M:	3.12" x 1.44" x 2.23"

Mechanical Specifications	
Mounting:	Series devices suitable for DIN rail or wall mounting
ETL Listed to UL477A Standard. (w/selected Surge Protector)	

Model Number	Application & Voltages	Connector	Case Style	Mounting (Standard)
CLT/	-XXX	-X	-X	-X
	Replace XXX with:	Replace X with:	Replace X with:	Replace X with:
Coaxial Line Protector	CTV = 35V Cable TV TVC = 75V Cable TV CCTV = 10V video VCC = 75V Video SNT = 18V/10 Base 2 ARC = 30V Arcnet NTV = 75V Satellite	1 = F Type 2 = BNC	M = Din Rail Case	0 = Din Rail Wall Mount
	<b>NOTE: Bold items are Gas Tube (only).</b>	Consult factory for gender options.		

# M-TI SST Series

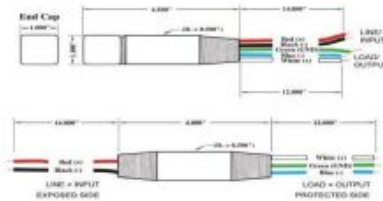
4-20mA Loop Surge Protection Device

**Transient Voltage Surge Suppression for discrete signaling 4-20mA protocols.** Units provide protection against any Transient Voltage that exceeds the normal signaling voltage. Each line is **protected against surge current impulses up to 10kA.**

The **SST Series** is configured to **work in series or parallel** with the measurement/control lines being protected, diverting harmful transient energies while maintaining a tight clamp at the peak voltage. SST Signaling units **protect 1 circuit consisting of 2 wires** (1 pair) plus ground.

Units are designed to operate in a wide temperature range and are ideal for the protection of 4-20mA current loop transducers, and analog instrument/control applications.

Consult the factory with any special package and circuit performance requirements.



Available Wire Sizes: 14 AWG, 16 AWG (Standard), 18 AWG and 20 AWG  
Available Ground Wire Sizes: 16 AWG (Standard) and 18 AWG

Product Specifications	
Max. Surge Current	10 kA per Wire
Max. Operating Voltage	24 or 48 VDC
Response Time	< 1 nanosecond
Series Resistance	5.1 Ohms per Wire/Line
Modes of Protection	L-L and L-G
Enclosure	Stainless Steel 316L 1/2" NPT
Max. Operating Temp.	-55 to +85 C
Connection Method	#16 AWG Tinned Copper Wires
Warranty	15 Year Product Warranty

Dimensions	
Case CA:	4.5" x 1" x 1" (End Cap)
Case FT:	4.0" x 1"

Model Number	Clamp Voltage	Application	Max. Operating Voltage
SST/CP-000-UCL1-W/CA	24V Capped	4 - 20mA loop	24 Vdc
SST/CP-000-UCL2-W/CA	48V Capped	4 - 20mA loop	48 Vdc
SST/CP-000-UCL1-W/FT	24V Feed Through	4 - 20mA loop	24 Vdc
SST/CP-000-UCL2-W/FT	48V Feed Through	4 - 20mA loop	48 Vdc

# M-TI MPT Series

Commercial & Industrial Surge Protection Devices

The **MPT Series** is a 100% modular Surge Protection System providing high-energy protection and optional RF filtering for Commercial, Industrial and Remote Site applications. These units provide superior control over transients by delivering low clamping voltages combined with high surge energy handling capabilities. They are configured for quick and easy panel installation.

On-board diagnostics include a front panel display equipped with LED indicators that continuously monitor the operational status of the entire unit. An Audible Alarm is standard with switch positions for test, disable and enable. A Surge Counter and a set of NO/NC dry contacts are also standard. Internal filtering and a remote monitor are available options.

All Models are rated for Type 1 or Type 2 service locations and are available with surge ratings from 100kA to 300kA per phase.

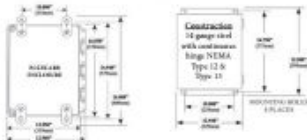


Steel Constructed Hinge Enclosure

Polycarb Enclosure

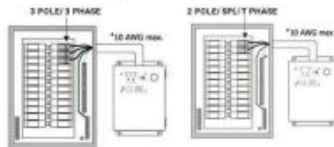


### Dimensions



(Diagrams not drawn to scale)

### Typical Installations



Product Specifications	
$I_n$	10/30 kA
Surge Current Ratings	100/300/300kA per Phase
Fusing	Coordinated Surge & Thermal
Short Circuit Current	100kA RMS Symmetrical
Enclosure Ratings	NEVA 3R, NEMA 4, 4X & NEVA 12

Mechanical/Environmental Specifications	
Safety Standards	UL 1449 (most current)
Operating Frequency	50/60 Hz
Diagnostics	LEDs, Audible Alarm, Surge Counter
Operating Temperature	-4C to +140 F (-4C to +60 C)

Model Number	Service Voltage	MCOV	VPR			
			L - N	L - G	N - G	L - L
MPT000120-10-E-1	120 Volt Single Ø	150Vdc	700V	700V	700V	N/A
MPT000120-30-E-1	120/240 Volt Split Ø	150Vdc	700V	700V	700V	1500V
MPT000120-30-E-1	120/208 Volt 3Ø Wye	150Vdc	700V	700V	700V	1500V
MPT000120-30-H-1	120/240 Volt 3Ø H1 Delta	150/315Vdc	700/1000V	700/1000V	700V	1500/1800V
MPT000240-30-G-1	240 Volt, 3Ø Delta	300Vdc	N/A	1000V	N/A	2000V
MPT000240-30-E-1	240/480 Volt, 3Ø Wye	300Vdc	1000V	1000V	1000V	2000V
MPT000240-30-E-1	240/480 Volt, 3Ø Wye	300Vdc	1000V	1000V	1000V	2000V
MPT000240-30-E-1	240/415 Volt, 3Ø Wye	300Vdc	1000V	1000V	1000V	2000V
MPT000277-30-E-1	277/480 Volt, 3Ø Wye	300Vdc	1000V	1000V	1000V	2000V
MPT000480-30-G-1	480 Volt, 3Ø Delta	500Vdc	N/A	1800V	N/A	4000V

1. Replace XXX with desired kA rating per phase: 100 for 100kA or 200 for 200kA or 300 for 300kA. 2. Replace # with: F if filtering is required (available option on WYE Models only). 3. Add: RVU at the end of the Model Number for the Remote Monitoring option. 4. ENCLOSURE HOUSING OPTIONS: Add: RD, to the end of the Model Number for NEMA 4X Non-Hazardous or DS for NEMA 4X Stainless Steel or WPP for Weatherproof.

# M-TI BPT Series

Commercial/Industrial Panel Surge Protection Device

The **BPT Series** is a Transient Protection System that provides heavy-duty surge protection and filtering for industrial and commercial sites against the harmful effects of transient energies induced on AC power lines. The BPT's unique construction allows it to deliver low clamping voltages while safely handling large surge currents. Configured for panel installation, units install quickly and easily. All enclosures suitable for Type 1 or Type 2 service panel applications.

On-board diagnostics include a panel display equipped with LED indicators that continuously monitor the operational status of the entire unit. An Audible Alarm is standard with switch positions for test, disable and enable. A Surge Counter and a set of NO/NC dry contacts are also standard. A Remote Monitor and/or Filter are available as options.

Weather Resistant models available in a NEMA 4X housing with internal diagnostics for harsh environments. Audible Alarm and Surge Counter are not included with the NEMA 3R model.

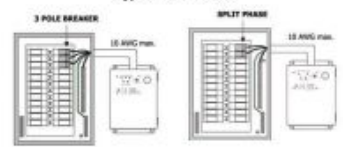


### Dimensions



(Diagrams not drawn to scale)

### Typical Installations



Product Specifications	
$I_n$	10/30 kA
Max Surge Current	300kA per Phase
Fusing	Coordinated Surge & Thermal
Short Circuit Current	100kA RMS Symmetrical Amps
Enclosure Ratings	NEVA 3R, NEMA 4, 4X & NEVA 12

Mechanical/Environmental Specifications	
Diagnostics	LED, Audible Alarm, Surge Counter
Safety Standards	UL 1449 (most current)
Operating Frequency	50/60 Hz

Model Number	Service Voltage	MCOV	VPR			
			L - N	L - G	N - G	L - L
BPT000120-10-E-1	120 Volt Single Ø	150Vdc	600V	600V	700V	N/A
BPT000120-30-E-1	120/240 Volt Split Ø	150Vdc	600V	600V	700V	1500V
BPT000120-30-E-1	120/208 Volt 3Ø Wye	150Vdc	600V	600V	700V	1500V
BPT000120-30-H-1	120/240 Volt 3Ø H1 Delta	150/315Vdc	600/1000V	600/1000V	700V	1500/1800V
BPT000240-30-G-1	240 Volt, 3Ø Delta	300Vdc	N/A	1000V	N/A	2000V
BPT000240-30-E-1	240/480 Volt, 3Ø Wye	300Vdc	1000V	1000V	1000V	2000V
BPT000240-30-E-1	240/480 Volt, 3Ø Wye	300Vdc	1000V	1000V	1000V	2000V
BPT000240-30-E-1	240/415 Volt, 3Ø Wye	300Vdc	1000V	1000V	1000V	2000V
BPT000277-30-E-1	277/480 Volt, 3Ø Wye	300Vdc	1000V	1000V	1000V	2000V
BPT000480-30-G-1	480 Volt, 3Ø Delta	500Vdc	N/A	1800V	N/A	4000V

1. Replace XXX with desired kA rating per phase: 100 for 100kA or 200 for 200kA or 300 for 300kA. 2. Replace # with: F if filtering is required (available option on WYE Models only). 3. Add: RVU at the end of the Model Number for the Remote Monitoring option. 4. ENCLOSURE HOUSING OPTIONS: Add: RD, to the end of the Model Number for NEMA 4X Non-Hazardous or DS for NEMA 4X Stainless Steel or WPP for Weatherproof.

# M-TI MST Series

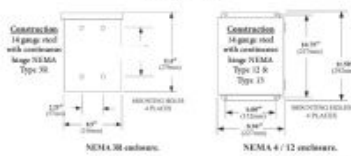
Residential/Commercial/Industrial Surge Protection Device

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/20kA using an 8/20µs waveform. All models carry a 100kA RMS symmetrical fault current rating making expensive disconnects and/or costly replacement fuses unnecessary.

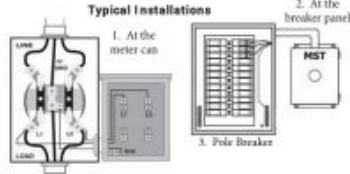
MST units incorporate a **replaceable MT protection module** that is completely **self-contained with fusing and diagnostic circuitry**. The MT module can be **replaced in the field**, thereby eliminating the need to service the entire unit from service. Replacement modules include the entire operating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



### Dimensions



### Typical Installations



(Diagrams not drawn to scale)

### Product Specifications

Surge Current Rating	10/100 kA (nominal discharge current)	Operating Temperature	-40 to +140 F (-40 to +60 C)
Max Surge Current	100kA per Phase	Diagnostics	Red Status LED, SUNBER GH1
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 4, 4X, NEMA 12		

Model Number	Service Voltage	VPR
MST00X120-SP-Q-0X	Split Phase 3 Wire + Gnd	600 Volts
MST00X120-SW-Q-0X	3 Phase Wye, 4 Wire + Gnd.	600 Volts
MST00X120-3C-Q-0X	High Leg Delta, 4 Wire + Gnd.	600/1000 Volts
MST00X120-3W-Q-0X	3 Phase Delta, 3 Wire + Gnd.	1000 Volts
MST00X220-SW-Q-0X	3 Phase Wye, 4 Wire + Gnd.	1000 Volts
MST00X220-SW-Q-0X	3 Phase Wye, 4 Wire + Gnd.	1000 Volts
MST00X277-SW-Q-0X	3 Phase Wye, 4 Wire + Gnd.	1000 Volts
MST00X480-3C-Q-0X	3 Phase Delta, 3 Wire + Gnd.	1500 Volts

Replace XXX with desired kA rating per phase: 010 for 10 kA or 100 for 100 kA. Then, replace XX with: 3R, 12, 12C, 14X (horizontal) or 12C (vertical) for desired NEMA housing.

# M-TI RPM Series

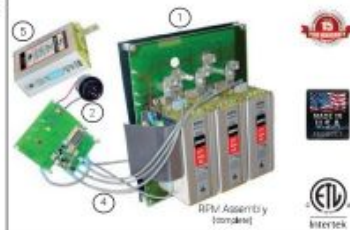
Modular Kit Assembly Commercial & Industrial Surge Protection Devices

**RPM Modules** are Surge Protection Devices capable of providing **heavy-duty surge protection and filtering for industrial and commercial sites** against the harmful effects of transient energies induced on AC power lines.

The RPM's unique construction allows it to deliver **low clamping voltages** while safely handling large surge currents. It can be incorporated into an CEM or VLR protection design and provided the end enclosure is used it will maintain its Recognized status as a SPD device. One module per phase is required.

**Configured for parallel installation**, units cost nothing to maintain and are **easy to upgrade while in service**. All modules have a 100kA rms symmetrical fault current rating. The surge suppression function of the RPM is provided by large diameter MOV and "smart sensing" technology. Each module is capable of providing L-N, L-G and W-G protection modes.

On-board **LED Indicators** continuously **monitor the operational status** of each protection mode (5-10 VDC Supply Required). Additional safety features include color-coded sites and keyed mounting by voltage application. Filtering & Remote monitor options available.



### Product Specifications

Surge Current Ratings	100, 200, 300kA per phase
Short Circuit Rating	100kA RMS Symmetrical Amps
Fusing	Coordinated Surge and Thermal
Operating Frequency	50/60 Hz
Operating Temperature	-40 to +140 F (-40 to +60 C)
Diagnostics	LED, Surge Center, Alarm
Safety Standards (Type 4 SPD)	UL 1449 (most current)
Warranty	15 Year Product Warranty

### Dimensions & Weight

<b>RPM Module:</b>	8.582" x 4.256" x 2.784" (3.235 lb)
<b>RPM Assembly:</b>	12.25" x 10.25" x 5.487" (5.434 lb)

### RPM Assembly Parts

- 1 - Mounting Board
- 2 - Front Panel Diagnostics
- 3 - Power Supply
- 4 - Cable Assembly
- 5 - RPM Modules

Model Number	RPM Modules		VPR		
	Service Voltage	MCOV	L - N	L - G	N - G
RPM00X120-W-#-1	120 Volt, Single Phase	150 Vac	600V	600V	500V
RPM00X140-D-0-1	240 Volt, Single Phase	300 Vac	N/A	1000V	N/A
RPM00X220-W-#-1	220 Volt, Single Phase	300 Vac	1000V	1000V	1000V
RPM00X230-W-#-1	230 Volt, Single Phase	300 Vac	1000V	1000V	1000V
RPM00X240-W-#-1	240 Volt, Single Phase	300 Vac	1000V	1000V	1000V
RPM00X277-W-#-1	277 Volt, Single Phase	300 Vac	1000V	1000V	1000V
RPM00X480-D-0-1	480 Volt, Single Phase	500 Vac	N/A	1600V	N/A
RPM KIT Assembly					
RPM0100X120-1Q-W-1/1	120 Volt, Single Phase	150 Vac	700V	700V	700V
RPM0100X120-3P-W-1/1	120/240 Volt, Split Phase	150 Vac	700V	700V	700V
RPM0100X120-3W-W-1/1	120/240 Volt, 3 Phase Wye	150 Vac	700V	700V	700V
RPM0100X120-3W-D-1/1	120/240 Volt, 3 Phase HL Delta	150/200 Vac	700V/1000V	700V/1000V	700V
RPM0100X140-3C-D-1/1	240 Volt, 3 Phase Delta	300 Vac	N/A	1000V	N/A
RPM0100X220-3W-W-1/1	220/240 Volt, 3 Phase Wye	300 Vac	1000V	1000V	1000V
RPM0100X230-3W-W-1/1	230/240 Volt, 3 Phase Wye	300 Vac	1000V	1000V	1000V
RPM0100X240-3W-W-1/1	240/240 Volt, 3 Phase Wye	300 Vac	1000V	1000V	1000V
RPM0100X277-3W-W-1/1	277/480 Volt, 3 Phase Wye	300 Vac	1000V	1000V	1000V
RPM0100X480-3C-D-1/1	480 Volt, 3 Phase Delta	500 Vac	N/A	1600V	N/A

**RPM MODULE NOTE:** Replace 00X with desired kA rating, per phase: 100 for 10kA, 200 for 20kA or 300 for 30kA. Replace # with # if filtering is required (VPR Models Only).  
**RPM KIT NOTE:** Replace 00X with desired kA rating, per phase: 100 for 10kA, 200 for 20kA or 300 for 30kA. Replace # with # if filtering is required (VPR Models Only). Place an #/0 at the end of the part number for the Remote Monitoring option.

# M-TI MAP Series

Universal - Residential/  
Commercial/Light Industrial  
Surge Protection Device

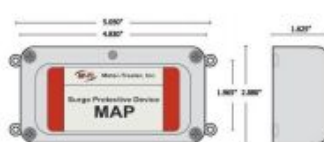
Meter Treater's **MAP Series** represents a new era in surge protection with our "one size fits all" application flexibility. All units contain short circuit and thermal fusing and our "Smart Sensing Technology" that distinguishes between surges and overcurrent events.

The new suppressor package meets the current industry standards and stops surges right at the electric meter before they can enter a facility. The MAP Series is a Type 1 or Type 2 Surge Protection Device (SPD) that is listed to **ANSI/UL 1449**.

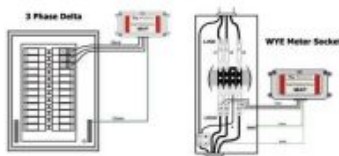
The inventive design, performance and universal application features of the MAP makes it the ideal choice for Commercial and Light Industrial applications.



### Dimensions



### Typical Installations



(Diagrams not drawn to scale)

### Product Specifications

I <sub>n</sub>	10/20 kA (nominal discharge current)
Max Surge Current	150kA (50kA per Phase)
Max Load Current	up to 800 Amps Continuous
Fusing*	Thermal and Short Circuit Fusing
Short Circuit Current**	100kA RMS Symmetrical Amps
Diagnostics	Fiber Optics

### Mechanical/Environmental Specifications

Enclosure	Polycarbonate
Safety Standards (Type 1 SPD)	UL 1449 (most current)
Operating Frequency	50/60 Hz

\*No external fusing required. \*\*Required by ANSI/UL 1449

Model Number	Service Voltage	MCOV	VPR			
			L - N	L - G	N - G	L - L
MAR90100-1-G-2	120/240 Single	150	600	600	1200	-
MAR90100-SF-G-2	120/240 Split	150	600	1200	600	1200
MAR90100-3W-0-2	120/208 Wye	150	600	1200	600	1200
MAR90100-3H-0-2	120/240 Highleg	150	600/1000	1200/1800	600	1200/1800
MAR90140-3C-0-2	240 Delta	300	-	1000	-	2000
MAR90140-2F-0-1	240 180° Two Phase	300	-	1000	-	2000
MAR90177-3W-0-2	277/480 Wye	300	1000	3000	1000	3000
MAR90140-3C-0-2	480 Delta	600	-	1800	-	4000
MAR100100-1-G-1	120 Volt Single Phase	150	600	600	1200	-

# M-TI RCHW Series

Residential/Commercial  
Extrusion Case  
Hardwired Surge  
Protection Device

The **RCHW Series** provides high-energy surge protection and optional **RF filtering** for Residential, Commercial, Industrial and Remote Site applications.

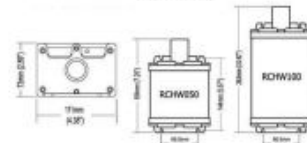
These hardwired units provide superior control over transients by delivering low clamping voltages combined with high surge energy handling capabilities. All RCHW models are Type 1 or Type 2 Surge Protection Devices that are listed to **ANSI/UL 1449**.

They are configured for **quick and easy parallel installation** and require little maintenance while in service. The high energy handling capabilities of the RCHW Series is due to the utilization of large diameter MOV technology.

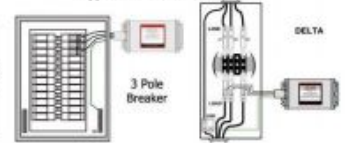
The RCHW Series is available for all standard service voltages and phase configurations and can be equipped with several special test diagnostic options. All models have a 100kA RMS symmetrical fault current rating suitable for IEEE category C locations, and are available with surge ratings of 60kA and 100kA per phase. 200kA is also available (please contact factory).



### Dimensions



### Typical Installations



(Diagrams not drawn to scale)

### Product Specifications

Max Surge Current	100kA per Phase (see PDI)	Diagnostics	Red Status LED, SUB-BRIGHT
Fusing	Coordinated Surge & Thermal	Safety Standards (Type 1 SPD)	ANSI/UL 1449 (most current)
Short Circuit Current	100kA RMS Symmetrical	I <sub>n</sub>	30kA
Mounting Rating	NEMA 1, 2, 3, 3X, 4X, 12 & 13	Flexible Fibow option available	PLEXELB
Enclosure	Extruded aluminum with plastic end caps		

Special orders options and 200kA models, please contact the manufacturer for details

Model Number	Service Voltage	MCOV	L-N	L-G	N-G	L-L
RD-Minow/25-12-S-1	120 Volt Single Ø	150Vdc	600V	600V	600V	N/A
RD-Minow/25-SF-S-1	120/240 Volt Split Ø	150Vdc	600V	600V	600V	1200V
RD-Minow/25-3W-S-1	120/208 Volt 3Ø Wye	150Vdc	600V	600V	600V	1200V
RD-Minow/25-3H-S-1	120/240 Volt 3Ø Delta	150Vdc/30Vdc	600/1000V	600/1000V	600V	1200/1800V
RD-Minow/40-3C-S-1	240 Volt 3Ø Delta	300Vdc	N/A	1000V	N/A	2000V
RD-Minow/25-3W-S-1	270/480 Volt 3Ø Wye	300Vdc	1000V	1000V	1000V	3000V
RD-Minow/25-3W-S-1	280/480 Volt 3Ø Wye	300Vdc	1000V	1000V	1000V	3000V
RD-Minow/40-3W-S-1	240/415 Volt 3Ø Wye	300Vdc	1000V	1000V	1000V	3000V
RD-Minow/277-3W-S-1	277/480 Volt 3Ø Wye	300Vdc	1000V	1000V	1000V	3000V
RD-Minow/480-3C-S-1	480 Volt 3Ø Delta	600Vdc	N/A	1800V	N/A	4000V

1. Replace xxx with: 05C for 50kA or with 10C for 100kA (200 for 200kA per phase) Surge Ratings. 2. Replace # with: F if filtering is required (available option on WYE Models only).  
3. Options: Add FOC for Dry Contacts, Add JAW for Audible Alarm, Add PNI for Plug-In Mounting. 4. Add: PDI to the end of the Model Number for the optional DIN-Rail Mounting Housing.

# M-TI RCHW Series

Residential/Commercial/Light Industrial Surge Protection Device

Polycase

The RCHWPL Series provides high-energy surge protection and optional **RF filtering** for Residential, Commercial, Industrial and Remote Site applications.

These hardened units provide superior control over transients by delivering low damping voltages combined with high surge energy handling capabilities. All RCHWPL models are Type 1 or Type 2 Surge Protection Devices that are listed to **ANSI/UL 1449**.

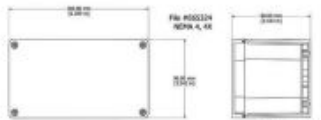
They are configured for **quick and easy parallel installation** and require little maintenance while in service. The superior energy handling capabilities of the RCHWPL Series is due to the utilization of large diameter MOV technology.

The RCHWPL Series is available for all service voltages and these configurations can be equipped with several specialized diagnostic options. All models have a 100kA RMS symmetrical fault current rating suitable for all IEEE category C locations and are available with surge ratings of 50kA or 100kA per phase.

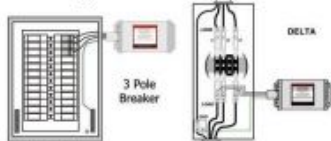


**Models Shown:** RCHW100/120-SW-D-1/POL (right)  
RCHW050/120-SF-A-1/POL (left)

### Dimensions



### Typical Installations



(Diagrams not drawn to scale)

Product Specifications	
$I_n$	20 kA
Max Surge Current	50kA to 100kA per Phase
Fusing	Coordinated Surge & Thermal
Short Circuit Current	100kA RMS Symmetrical

Special order is required for 300kA or dry contacts. Please contact the manufacturer for details.

Mechanical/Environmental Specifications	
Diagnosis	Red Status LED, SUNBRIGHT
Safety Standards (Type 1 SPD)	ANSI/UL 1449
Housing Rating	NEVA 4K Polycarb - Standard

Model Number	Service Voltage	MCOV	L-N	L-G	N-G	L-L
RCHWx120-10-S-1/POL	120 Volt Single D	150Vdc	600V	450V	600V	N/A
RCHWx120-SF-A-1/POL	120/140 Volt Split @	150Vdc	600V	600V	600V	1200V
RCHWx120-SW-D-1/POL	120/108 Volt 3Ø Wye	150Vdc	600V	600V	600V	1200V
RCHWx120-SW-C-1/POL	120/140 Volt 3Ø Delta	150Vdc/150V	600/1000V	450/1000V	600V	1200V/1800V
RCHWx140-30-D-1/POL	240 Volt 3Ø Delta	30Vdc	N/A	1000V	N/A	2000V
RCHWx120-30-S-1/POL	230/380 Volt 3Ø Wye	30Vdc	1000V	1000V	1000V	2000V
RCHWx120-30-S-1/POL	230/400 Volt 3Ø Wye	30Vdc	1000V	1000V	1000V	2000V
RCHWx140-30-S-1/POL	240/415 Volt 3Ø Wye	30Vdc	1000V	1000V	1000V	2000V
RCHWx277-310-A-1/POL	277/480 Volt 3Ø Wye	100Vdc	1000V	1000V	1000V	2000V
RCHWx480-30-D-1/POL	480 Volt 3Ø Delta	30Vdc	N/A	1800V	N/A	4000V

1. Replace xxx with: 03 for 50kA or 100 for 100kA per phase Surge Ratings.  
2. Options: Add -T3 to the end of the model number for Terminal Block option.

3. Replace # with: F if filtering is required (available option on WPL Models only).  
4. Add: -CR to the end of the model number for the CR-Flat Mount.

# M-TI HLP Series

Highway Lighting Protection Surge Protection Device

The HLP Series is a Type 4 SPD designed to protect equipment from surges.

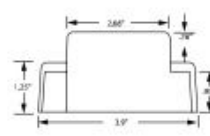
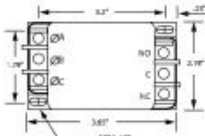
- Features include:**
- Listed to ANSI/UL 1449
  - Solid State 20mm MOV Design
  - Line-to-Ground Protection
  - LED Status Diagnostics
  - Weather Resistant
  - Dry contacts available
  - No Follow Current

**Applications:**  
Traffic Signs, Highway Lighting, Parking Lighting, Interior Lighting, Security Systems, Fire Alarms

A 5 Year Product Warranty is included.

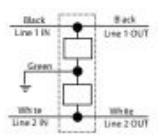


### Dimensions



(Diagrams not drawn to scale)

### Wiring Diagram



Product Specifications	HLP020-120-3L-0-AS1006	HLP020-240-3L-0-AS1006	HLP020-480-3L-0-AS1006
Operating Voltage	120 Vdc	150	150
UCDV	110 VAC	275 VAC	192 VAC
Continuous Current	20 A	20 A	20 A
Max Surge Current	20kA (40kA available)	20kA (40kA available)	20kA (40kA available)
Clamp Voltage V <sub>CL</sub>	L-G 700, N-G 700, L-N 1300	L-G 1000, N-G 1000, L-N 1800	L-G 1800, N-G 1800, L-N 3000
SCCR	5kA	5kA	5kA
$I_n$	20A	20A	20A
Surge Technology	MOV	MOV	MOV
Response Time	5 nanoseconds	5 nanoseconds	5 nanoseconds

- Options:**
- Replace 020 with 040 for 40kA Surge Rating
  - Replace S with P for Parallel Connection
  - Replace 06 with 0L for Ground Lug
  - Replace 1006 with TB for Terminal Block Connection
  - Replace 1006 with 1414 for 14 AWG Wire and Ground
  - Replace 1006 with 1410 for 14 AWG Wire and 10 AWG Ground
  - Replace 1006 with 1406 for 14 AWG Wire and 6 AWG Ground
  - Replace 1006 with 1010 for 10 AWG Wire and 10 AWG Ground
  - Replace -0- with -F- for Internal Fusing (Type 1 locations)\*

Length	Gauge	Color	Connection
22"	6	Green	Ground
12"	10	Black	Line 1 (In/Out)
12"	10	White	Line 2 (In/Out)

\*Fusing does not disconnect load.

**M-TI TST Series**

Commercial & Light Industrial Surge Protection Devices

The **TST Series** of SPDs (surge protection devices) are designed to **protect sensitive electronic equipment** from the harmful effects of transients.

Models are configured for both parallel or series installation and can be either DIN rail or wall mounted. Units are rated as **Type 2 SPDs with component assembly** making the TST Series the ideal choice for incorporation into control cabinets for sensitive microelectronic based equipment.

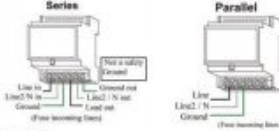
TST units are self-contained in rugged plastic enclosures and use twenty millimeter (**20mm**) MOVs as their key suppression elements. Units are not line load sensitive and interface with the incoming power cables via screw terminals (barrier strips).

Small Terminals are capable of handling #14 to #10 AWG Wire. Large Terminals are capable of handling #6 to #20 AWG Wire.



**Dimensions**

**Typical Installations**



(Diagrams not drawn to scale)

Product Specifications	
Rating	5kA
Max. Surge Current	10 +40kA/Phase (depending on model)
Fusing	Internal (Thermal)
Short-Circuit Current	5kA Symmetrical w/external breaker
Short-Circuit Current	100kA Symmetrical w/external T-Fuse
Diagnostics	LED

Mechanical/Environmental Specifications	
Enclosure	Plastic (UL94-V0) PC carbonate
Safety Standards (Type 2 SPD)	ANSI/UL 1449 (most current)
Operating Frequency	50/60 Hz
Max. Operating Temp.	-40° to +85° C

Model Number	Service Voltage	Current Rating	Surge Rating	Case Size	VPR		
					LT - N	LT - G	N - G
TST02G/100-100-1/15A	100 Volts	15 Amp	20 kA	Small	600	600	600
TST02G/250-100-1/30A	250 Volts	30 Amp	20 kA	Small	1000	1000	1000
TST02G/100-100-1/30A	100 Volts	30 Amp	20 kA	Small	600	600	600
TST04G/100-100-1/15A	100 Volts	15 Amp	40 kA	Large	600	600	600
TST04G/250-100-1/15A	250 Volts	15 Amp	40 kA	Large	800	800	800
TST04G/100-100-1/30A	100 Volts	30 Amp	40 kA	Large	600	600	600
TST04G/250-100-1/30A	250 Volts	30 Amp	40 kA	Large	800	800	800
TST04G/150-100-1/30A	150 Volts	30 Amp	40 kA	Large	800	800	800
					LT-N	LT-G	LT-L2
TST02G/004-2PQ-1/15A	24 Volts	15 Amp	10 kA	Small	200	200	200
TST02G/048-2PQ-1/15A	48 Volts	15 Amp	10 kA	Small	200	200	200
TST02G/004-2PQ-1/30A	24 Volts	30 Amp	20 kA	Large	200	200	200
TST02G/048-2PQ-1/30A	48 Volts	30 Amp	40 kA	Large	200	200	200

ATL Listed 120V + Low Voltage



**Notes/Questions/Scribble**

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---



**Meter-Treater, Inc.**

QUALITY SURGE PROTECTION DEVICES SINCE 1986

1349 South Killian Drive • Lake Park, FL 33403

Phone: 561.845.2007 • Sales: 800.638.3788 • Fax: 561.848.2372

sale@metertreater.com • www.metertreater.com

The terms, specifications and applicable industry standards described in this catalog were in effect at the time of printing. Meter-Treater reserves the right to change, update or delete the contents of this catalog as it deems necessary or as industry requirements dictate and without notice.

MET-CATALOG-3-2016

Escaneado con CamS