

PRODUCT OVERVIEW CATALOG





SURGE PROTECTION DEVICE OR TRANSIENT VOLTAGE SURGE SUPPRESSION

UL 1449
3rd Edition
September 2009
COMPLIANT

Surge Protection Devices (SPD) or Transient Voltage Surge Suppressors (TVSS) are designed to protect against transient surge conditions. Transient surges can reach values of hundreds of thousands of volts or instantaneous current flow of tens of thousands of amperes, but typically last less than one hundred microseconds in duration.

Transient surges generated within a facility typically account for 80% of the surge activity. These internally generated transients can be caused by switching power supplies (computers), electronic ballasts (building lighting) and variable frequency drives (air handlers, elevators, etc). The most destructive transient voltage surges can be attributed to lightning and utility load switching; however, experts predict that these two events account for 20% of all transient surge activity.

Reliable data sources suggest that lightning strikes have current magnitudes in excess of 200,000 amps. Moreover, lightning strikes are not single strike events. Strikes typically consist of four to six "hits" and sometimes can be as high as 40kA. Therefore, SPDs must be appropriately sized to provide adequate protection during multiple surge events.

Large transient surge conditions can damage printed circuit board traces and puncture semiconductors causing immediate or intermittent equipment failures.

Continued exposure to surges can degrade printed circuit board traces or semiconductors resulting in seemingly random delayed equipment failures. Therefore, equipment failures cannot always be contributed to a single power quality event. Surge remnants on data lines can alter digital data and logic levels causing equipment failures and lockups.

Professionally installed Current Technology products provide superior protection against transient surges preventing unnecessary downtime and costly repairs.

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FACILITY-WIDE PROTECTION

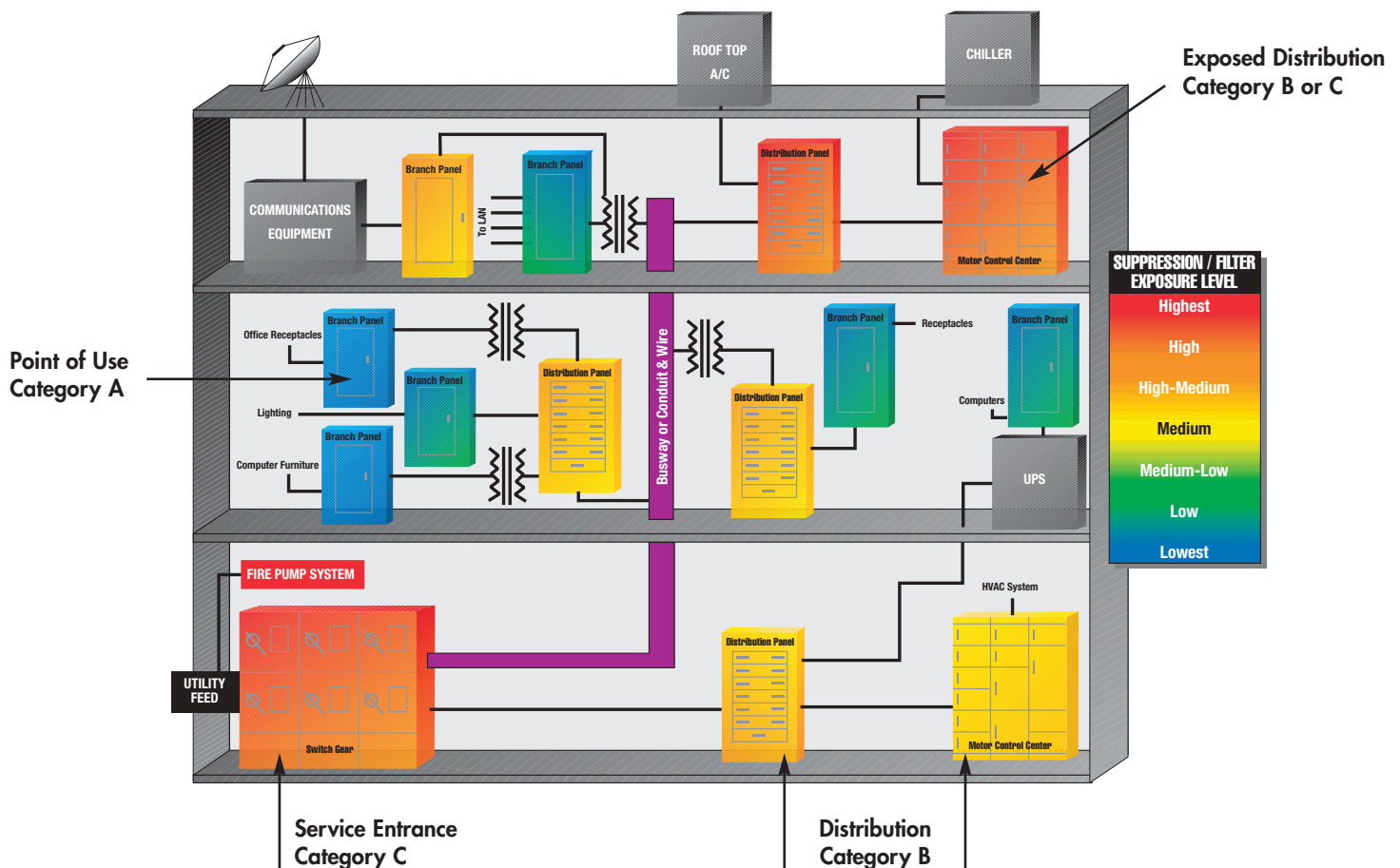
SURGE CURRENT CAPACITIES: HOW MUCH IS ENOUGH?

Service Entrance		Secondary Distribution Panels			Point of Use
Category C		Category B			Category A
High Exposure	Medium Exposure	High Exposure	Medium Exposure	Low Exposure	Low Exposure
Select 2 300–200kA	TransGuard 300–200kA	Select 2 200–100kA	Select Compact 80–60kA	TransGuard 125–80kA	Select Compact 80–60kA
		TransGuard 200–100kA	TransGuard 150–100kA	CurrentGuard Plus 100–80kA	TransGuard 80–60kA
		CurrentGuard Plus 200–100kA	CurrentGuard Plus 150–100kA	EGPE2 100–80kA	CurrentGuard 80–40kA
					CurrentGuard Compact 50kA
					EGPE2 80–60kA

These recommendations are based on an average exposure, based on the Isokeraunic map of the U.S. Product recommendations may vary by geographic location or facility.

HOW MUCH PROTECTION DOES YOUR FACILITY REQUIRE?

IEEE C62.41 states that the best approach for total protection is using a cascaded approach by installing SPD devices at multiple locations throughout the electrical distribution system of a facility. When multiple protector units are deployed at the main and secondary panels in a cascaded strategy, a facility has the most versatile power quality protection system against internal and externally generated transient surges.



UL 1449 3RD EDITION

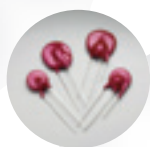
4 SPD TYPES CREATED

Type 1 is what we have historically referred to as a surge arrestor. Permanently connected SPD installed between the secondary of the service transformer and the line side of the service disconnect.

Type 2 is what we have historically referred to as a TVSS or SPD device. Permanently connected SPD installed on the load side of the main service disconnect

Type 3 Point of use SPDs, installed a minimum of 10m from the panel, cord connected, direct plug in, or receptacle types

Type 4 Components SPDs, including discrete components as well as component assemblies



Type 4



Type 3



Type 2



Type 1

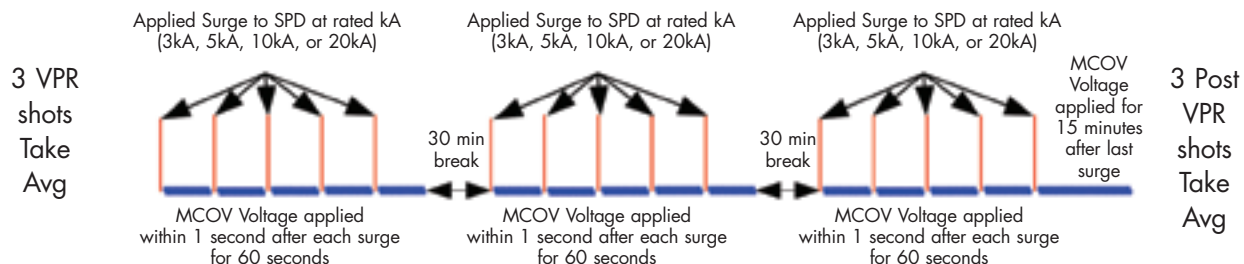
MEASURED LIMITING VOLTAGE TEST

SVR (suppressed voltage rating) 6kV 500A is being replaced with VPR (Voltage Protective Rating) 6kV 3kA.

I_n TEST OR NOMINAL DISCHARGE SURGE CURRENT TEST

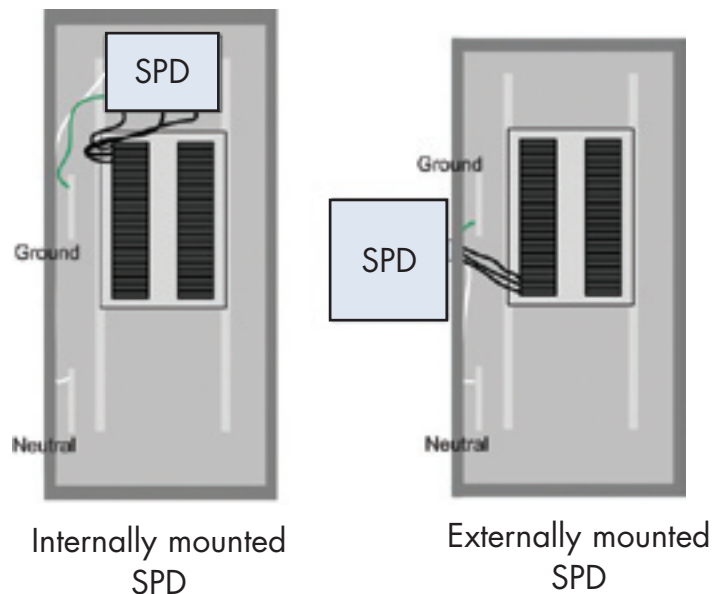
This is a new test designed to thermally stress the MOVs and the design of the SPD. The manufacturer must claim the surge rating kA level per mode of the protection device and the MCOV value per mode. Type 1 devices can be 10 or 20kA. Type 2 devices can be 3, 5, 10, or 20kA. During this test the unit is surged at the claimed kA level, 1 second after the surge the manufacturer's claimed MCOV voltage must be applied to the unit under test for 1 minute. This is repeated for a total of 5 surges, then the unit can rest for 30 minutes. After 30 minutes 5 more surges are applied, followed by another 30 minute rest, followed by a final set of 5 surges. Pre and post VPR shot clamping voltages can not deviate by more than +/- 10% for the test to be successful. The key to this test is that MCOV values are no longer determined based upon the value of the MOV used in the system. MCOV values are now a tested value that is determined and/or verified during this test. A graphical representation of this test is shown below.

I_n NOMINAL DISCHARGE CURRENT TEST



DOES AN INTERNALLY MOUNTED SURGE PROTECTOR REALLY HAVE SHORTER LEAD LENGTHS?

For years, panel board manufacturers have been touting that their panel-integrated SPDs (Surge Protection Devices) outperform externally mounted SPDs because they have the shortest lead lengths. In fact, all SPD manufacturers suggest in their installation instructions to keep the lead length as short as possible. Extra lead length has a negative effect on the performance of the surge protective device by increasing clamping levels. Internally mounted SPDs are typically integrated at the top or bottom of a panel board. Due to space constraints within the panel, the Neutral and Ground busses for those panels are typically installed on the opposite end of the SPD. The clamping characteristics of the SPD are not isolated to how long the SPD's connection to the phase conductors are, but must also include how long the connections are to the Neutral and Ground. The clamping level of an SPD is determined by mode, which could be a Line to Neutral mode or a Line to Ground mode. So, the clamping level of an internally mounted SPD must take into account the length of the phase connection, but must also take into account how long the connection is to the Neutral and Ground. With the Neutral and Ground busses at the opposite end of the panel, the overall system lead length for an integrated SPD can in some cases be longer than a side mounted external SPD. The two installation diagrams below show the difference between the conductor lengths of an internally mounted and externally mounted SPD.



NOMINAL DISCHARGE SURGE CURRENT TEST (I_n)



Produces the new UL1449, 3rd Edition, Nominal Discharge Surge Current Test. This new test set developed by Current Technology engineers was developed to automate the newly created test created by UL. This tester has been reviewed by UL and has been accepted into UL's Data Acquisition Program (DAP) and allows Current Technology to independently evaluate products to UL1449 3rd Edition then submit samples and data to the Nationally Recognized Test Labs for Review. The addition of the I_n tester to the lab allows Current Technology to remain on the forefront of SPD product development.

MODULAR OPTIMUM PROTECTION *Select[®]2*

SELECT[®]2 OFFERS DOUBLE PROTECTION, SUPERIOR QUALITY

The innovative Select[®]2 provides outstanding performance in all power quality surge events including temporary over voltages.

The Select[®]2 product line combines selenium cells with the Current Technology patented Failure-Free Integrated Suppression Bus (ISB[®]) to deliver the industry's best surge suppression performance. The ISB[®] contains metal oxide varistors (MOVs), polypropylene capacitors and individual fuse protection, integrated with copper buss bar inside a thermoplastic polycarbonate rated UL 94V-0 housing.

To expand the protection capabilities and installation options, the Select[®]2 product line is listed to UL1449 3rd edition as a Type 1 SPD suitable for use in both Type 1 and Type 2 SPD applications. This means a device can be installed upstream of the main service entrance to provide protection for sophisticated service entrance switchgear and circuit breakers.



1 ISB (Reference page 7)

2 Selenium Cells

WHY SELENIUM?

- Selenium is the only technology that protects critical loads and downstream equipment from catastrophic overvoltages.
- Selenium provides additional protection to loads – lower clamping voltage than MOV only systems.
- Selenium conducts small routine transients – extending MOV life and ultimately the life of the unit.

SELENIUM: THE ONLY ACCEPTABLE SOLUTION FOR SERVICE ENTRANCE APPLICATIONS

Using a proprietary engineering process known as Seamless Technology[™], Current Technology combines selenium with MOVs, polypropylene capacitors and precise component geometry to deliver the industry's best suppression, highest tested single pulse surge current capacity ratings and – most importantly – longest product life. Current Technology's patented seamless technology is the industry's only power reliability design concept to take advantage of selenium's proven, long-lasting suppression capabilities, which safeguard today's busiest facilities with the most trusted and reliable protection available.

Patented seamless technology uses selenium cells combined with MOVs to provide superior bi-directional surge suppression. When coordinated as the "first line of defense" inside Select[®]2 suppression filter systems, selenium cells conduct routine, long duration surges, repetitive impulses and temporary over voltages, minimizing MOV wear and tear while protecting down stream equipment. The result: superior quality, maximum performance and dramatically extended product life.

SURGE FACT

Lightning has proven to be the most destructive environmental generator of power quality disturbances, yet only account for 20% of all transient surge activity. 80% of all transient surges are generated internally within a facility's electrical system.

Select²

20-Year
Best In Industry Warranty

VALUABLE TYPE 1 PROTECTION TO SWITCHGEAR

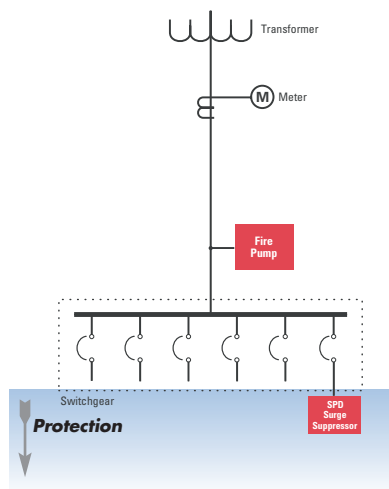
Surge suppression equipment is designed to protect sensitive electronic equipment from electrical transients. A surge suppressor is installed on the load side of the main service disconnect, providing limited protection to the switchgear – one of the most expensive elements of an electrical installation.

As a Type 1 SPD, the Select² may be installed in front of the main service disconnect, intercepting external surges before they flow through the main disconnect. In this way, the main disconnect and downstream breakers are protected from damage by transients that could otherwise cause them to trip, shutting off power to an entire electrical system, or leaving the system at risk to damage from additional transients.

WHY TYPE 1 LISTING?

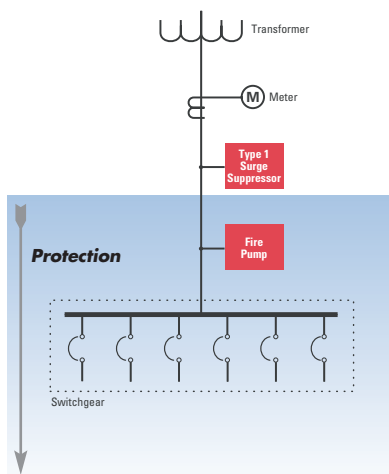
- Select² provides protection before the main service entrance, increasing protection for downstream loads.
- Select² allows greater installation flexibility.

Type 2 SPD Installation



SLc-80kA with
L3 monitoring option

Type 1 SPD Installation



SL2-300kA with
integral disconnect and
L3 monitoring option

Select²

kA/mode

- 100kA
- 150kA
- 200kA
- 250kA
- 300kA

Voltages

- 120/208 3-phase Wye
- 220/380 3-phase Wye
- 277/480 3-phase Wye
- 347/600 3-phase Wye
- 120/240 2-phase
- 120/240 Hi-Leg Delta
- 240 3-phase Delta
- 480 3-phase Delta
- 600 3-phase Delta

Options

Monitoring

- Standard Monitoring: Indicator Lights plus Form C Contacts, Audible Alarm w/LED
- Advanced Monitoring: Standard Monitoring plus Event Counter Display
- MasterMIND[®] Diagnostics Monitoring: Advanced Monitoring plus Enhanced Status Indicator Lights, Integral Multifunction Power Monitor/Analyzer

Enclosure

- Integral Disconnect
- Open Frame
- Stainless Steel Enclosure
- Bottom Feed

Select² Compact

kA/mode

- 60kA
- 80kA

Voltages

- 120/208 3-phase Wye
- 220/380 3-phase Wye
- 277/480 3-phase Wye
- 120/240 2-phase
- 120/240 Hi-Leg Delta
- 240 3-phase Delta
- 480 3-phase Delta

Options

Monitoring

- Standard Monitoring: Indicator Lights plus Form C Contacts, Audible Alarm w/LED
- Advanced Monitoring: Standard Monitoring plus Event Counter Display
- MasterMIND[®] Diagnostics Monitoring: Advanced Monitoring plus Enhanced Status Indicator Lights, Integral Multifunction Power Monitor/Analyzer

SUPERIOR PROTECTION **TransGuard®**

ELECTRICAL TRANSIENT SUPPRESSION FILTER SYSTEMS

Different from other transient disturbance products, Current Technology's TransGuard® suppression filter systems feature a powerful Failure-Free Integrated Suppression Bus (ISB®) suppression filter assembly, individually fused MOVs, improved current sharing and multiple options – precisely the protection today's facilities need from costly downtime and equipment damage resulting from routine or catastrophic electrical disturbances.

The result of an extensive design effort in Current Technology's research and development facility, Current Technology's dramatically different, improved suppression filter assembly enables TransGuard® models to provide unmatched performance and reliability.

MODULAR DESIGN

TYPE 1 SPD

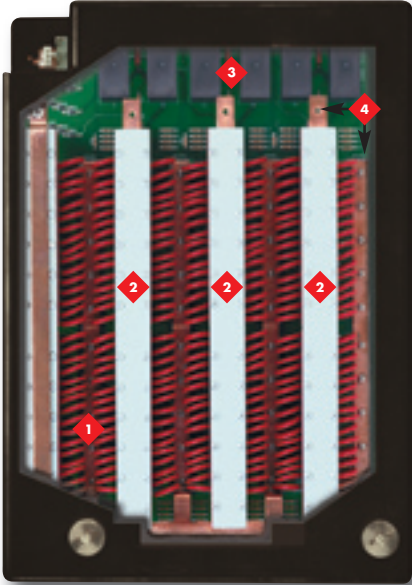
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TransGuard® suppression filter systems feature Current Technology's powerful Failure-Free ISB® suppression filter assembly, individually fused MOVs, improved current sharing and multiple product options.

FAILURE-FREE ISB®

Unlike printed circuit board based technologies, Current Technology's patented Failure-Free ISB® does not rely on printed circuit board traces to carry full current magnitude. Instead, cumulative surge current travels on copper bus bars to multiple MOV paths. Printed circuit board trace failures are eliminated while current sharing is enhanced by minimized impedance.



ISB® – Integrated Suppression Bus

MOV component of Select® and TransGuard® products.

- 1 **Individually Fused MOVs** – ensure seamless product performance in event of single MOV failure
- 2 **Internal fusing** for uninterrupted protection at higher surge current levels
 - Fuse array rated at 200 kAIC provides industry breakthrough technology
 - All paths and elements protected via fusing
 - Expanded safety and reliability via a fuse block array that prevents “cross-arcing” which may occur in designs without independently isolated fuses
- 3 **Heavy-duty filter capacitors** ensure industry's best high frequency noise and transient filtering
- 4 **Solid copper bus construction** – cumulative surge current is carried on copper bus bars, thereby eliminating reliance on PCB traces to conduct full magnitude current

TransGuard®

kA/mode

- 60kA
- 80kA
- 100kA
- 125kA
- 150kA
- 200kA
- 250kA
- 300kA

Voltages

- 120/208 3-phase Wye
- 220/380 3-phase Wye
- 277/480 3-phase Wye
- 347/600 3-phase Wye
- 120/240 2-phase
- 120/240 Hi-Leg Delta
- 240 3-phase Delta
- 480 3-phase Delta
- 600 3-phase Delta

Options

Monitoring

- Standard Monitoring: Indicator Lights Plus Form C Contacts, Audible Alarm w/LED
- Advanced Monitoring: Standard Monitoring plus Event Counter Display
- MasterMIND® Diagnostics Monitoring: Advanced Monitoring plus Enhanced Status Indicator Lights, Integral Multifunction Power Monitor/Analyzer

Enclosure

- Integral Disconnect
- Open Frame
- Stainless Steel Enclosure
- Bottom Feed

SURGE FACT

SUIT UP OR SHUT DOWN

In the United States between five and ten times a day, an arc flash explosion occurs in electric equipment resulting in the victim having to be sent to a special burn center. Of these burn victims, at least one will die as a result of injuries received.⁽²⁾

During the life of a switchboard, internally installed SPDs require routine service or replacement. The critical nature of a service entrance switchboard means that it cannot be shutdown for maintenance work. This means that service personnel must work on “hot” equipment exposing them to a high level potential arc flash hazard. Therefore, compliance with OSHA regulations defined in NFPA 70E is required, including the use of PPE (personal protection equipment).

Electrical industry technical organizations like IEEE, highly recommend the installation of SPDs external to any switchboard using suitable disconnection means to eliminate the need to work on “hot” equipment and potential arc flash exposure. For more, reference IEEE Emerald Book, section 8.4.2.5.

The only way to effectively eradicate arc flash incidents is by reducing or eliminating the opportunity for exposure to “live” gear.

⁽²⁾ These statistics were compiled by CapSchell, Inc., a research and consulting firm specializing in preventing workplace injuries or deaths.



STANDARD PROTECTION **CurrentGuard™**

Innovative Design Ensures Dependable Operation

The CurrentGuard™ product line delivers worry-free performance in reliable, innovative design packages. Our Innovative Z-Path System™ ensures equal current sharing among MOVs, suppressing transients before they reach sensitive loads resulting in maximum performance and increased reliability. An enhanced built-in EMI/RFI filter eliminates high-frequency noise and low level transients for best-in-class design and performance. Each product is designed and tested at a nationally recognized third party independent laboratory to withstand single-pulse surge currents in accordance with ANSI/IEEE recommendations. Available in all standard voltage configurations with six surge ratings, CurrentGuard™ and CurrentGuard™ Plus are the ideal choices for main-stream surge protection requirements.

CurrentGuard™ Plus

FEATURES

TYPE 1 SPD

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CurrentGuard™ Plus

kA/mode

- 60kA
- 80kA
- 100kA
- 150kA
- 200kA

Voltages

- 120/208 3-phase Wye
- 220/380 3-phase Wye
- 277/480 3-phase Wye
- 347/600 3-phase Wye
- 120/240 2-phase
- 120/240 Hi-Leg Delta
- 240 3-phase Delta
- 480 3-phase Delta
- 600 3-phase Delta

Standard Monitoring Features

- Status Indicator Lights (one per phase)
- Service Indicator Light
- Form C Contacts (NO/NC)
- Audible Alarm with Silence Button
- Surge Counter

PLUS

- Individually fused MOVs provide superior protection and continuous operation
- 200kAIC short circuit current rating allows direct bus connection without the need of an upstream over-current protection device

PLUS

- Includes best-in-class UL 1283 enhanced EMI/RFI filter

PLUS

- All modes of protection (L-N, L-G, N-G & L-L)
- Surge event counter – standard
- DTS-2 compatible for “pro-active” field testing
- NEMA 4 steel enclosure
- 15-Year standard product warranty

CurrentGuard™

FEATURES

TYPE 1 SPD

- Each mode protected by surge rated over-current fuse
- 200kAIC short circuit current rating allows direct bus connection without the need of an upstream over-current protection device
- UL 1283 EMI/RFI filter
- All modes of protection (L-N, L-G, N-G & L-L)
- DTS-2 compatible for “pro-active” field testing
- NEMA 4 steel enclosure
- 10-Year standard product warranty

CurrentGuard™

kA/mode

- 40kA
- 60kA
- 80kA
- 100kA
- 150kA
- 200kA

Voltages

- 120/208 3-phase Wye
- 220/380 3-phase Wye
- 277/480 3-phase Wye
- 347/600 3-phase Wye
- 120/240 2-phase
- 120/240 Hi-Leg Delta
- 240 3-phase Delta
- 480 3-phase Delta
- 600 3-phase Delta

Standard Monitoring Features

- Status Indicator Lights (one per phase)
- Service Indicator Light
- Form C Contacts (NO/NC)
- Audible Alarm with Silence Button

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CurrentGuard™ FM

TYPE 1 SPD

FEATURES – UL 1449 3RD EDITION TYPE 1 SPD

- 200kAIC short circuit current rating allows direct bus connection without the need of an upstream over-current protection device
- Component level fusing, individually fused MOVs for added safety
- UL 1283 EMI/RFI filter
- All modes of protection (L-N, L-G, N-G & L-L)
- DTS-2 compatible for “pro-active” field testing
- NEMA 1 steel enclosure
- Flush-mount plate available
- Compact footprint – *Ideal externally mounted panelboard surge device*
- 10-Year standard product warranty



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SURGE FACT

Although the old wives' tale states, “Lightning doesn't strike twice,” in reality, as many as 40 return strikes have been recorded (McCann) with visible current surges of more than 500kA, but typical surges reaching 20-40kA.

CurrentGuard™ Flush Mount

kA/mode

- 40kA
- 60kA

Voltages

- 120/208 3-phase Wye
- 220/380 3-phase Wye
- 277/480 3-phase Wye
- 120/240 2-phase
- 120/240 Hi-Leg Delta
- 240 3-phase Delta

Standard Monitoring Features

- Status Indicator Lights (one per phase)

Optional Monitoring Features

- M –
- Status Indicator Lights
 - Audible Alarm
 - Alarm Silence
 - Dry Relay Contacts
- MC –
- Status Indicator Lights
 - Audible Alarm
 - Alarm Silence
 - Dry Relay Contacts
 - Surge Counter

CurrentGuard™ Compact

TYPE 1 SPD

RUGGED AND COMPACT

CurrentGuard™ Compact incorporates the same best-in-class features of the CurrentGuard™ series of products in a rugged, compact enclosure. Pre-wired and measuring only 6"W x 6"H x 4"D CurrentGuard™ Compact easily installs in applications with minimum space requirements.



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FEATURES

- Ideal for in-wall recess panel applications
- Surge rated component-level fusing
- UL 1283 EMI/RFI filter
- All modes of protection (L-N, L-G, N-G & L-L)
- Ultra compact weather-proof NEMA 4 steel enclosure
- Flush-mount plate available
- Small footprint and pigtail connection
- DTS-2 compatible for “pro-active” testing
- 10-Year standard product warranty

CurrentGuard™ Compact

kA/mode

- 50kA

Voltages*

- 120/240 2-phase
- 120/208 3-phase Wye
- 277/480 3-phase Wye
- 120/240 High Leg

Standard Monitoring Features

- Status Indicator Lights (one per phase)

Optional Monitoring Features

- M –
- Status Indicator Lights
 - Audible Alarm
 - Alarm Silence
 - Dry Relay Contacts

*Consult factory for additional voltage configurations

PANELBOARD APPLICATIONS **EGPE2®**

ELECTRONIC PANELBOARD EXTENSIONS

Panelboard Extensions are ideal for retrofitting and upgrading existing electric panelboards. Designed for quick and easy installation, the EGPE2® complies to UL 1283 filtering and UL 1449, 3rd Edition suppression with the Failure-Free Integrated Suppression Bus (ISB®) technology to provide permanent surge protection. Unlike printed circuit board based designs, the ISB's break-through technology does not rely on printed circuit board traces to carry full surge current magnitude. Instead, cumulative surge current travels on copper bus bars to multiple metal oxide varistor (MOV) paths. Printed circuit board trace failures are eliminated and current sharing is enhanced. Integral to the ISB® is MOV fusing rated at 200 kAIC. This internal fusing ensures uninterrupted protection at rated surge current levels and protects all paths and elements. The fuse block array increases safety and reliability by preventing the cross-arcing possible in designs without independently isolated fuses.

APPLICATIONS

Designed for easy field-installation in:

- branch panels with upstream protection
- branch panels with sensitive electronic loads
- branch panels without upstream protection

FEATURES

- Provides electronic grade power filtering for existing lighting and appliance distribution panels
- Extends equipment life by reducing equipment degrading high-frequency line noise and transients
- Easily mounts with most major brands of low-voltage (less than 600V) lighting and appliance panelboards
- Compatible with MasterMIND® and MasterTEST®
- Provides direct-bus connection capability to reduce wiring lead lengths, minimizing installation impedances and improving clamping voltages
- Offers space-saving design that fits within a standard 6-inch deep wall and conserves horizontal wall space
- Removable end-plates allow installation above or below panelboards.
- Available in surface-or flush-mount configurations

TYPE 1 SPD



EGPE2

kA/mode

- 60kA
- 80kA
- 100kA

Voltages

- 120/208 3-phase Wye
- 220/380 3-phase Wye
- 277/480 3-phase Wye
- 347/600 3-phase Wye
- 120/240 2-phase
- 120/240 Hi-Leg Delta
- 240 3-phase Delta
- 480 3-phase Delta
- 600 3-phase Delta

Options

Monitoring

- Standard Monitoring: Indicator Lights plus Form C Contacts, Audible Alarm w/LED
- Advanced Monitoring: Standard Monitoring plus Event Counter Display, Audible Alarm w/ LED
- MasterMIND® Diagnostics Monitoring: Advanced Monitoring plus Enhanced Status Indicator Lights, Integral Multifunction Power Monitor/Analyzer

Enclosure

- Surface mount option
- Flush mount option

INTERCONNECT SYSTEMS



SPD CONNECTION SYSTEM

HIGH-PERFORMANCE INTERCONNECT SYSTEM

Installing SPD units using standard off-the-shelf cable can increase the clamping voltage unless the cable length is kept short.

Current Technology's High Performance Interconnect (HPI™) SPD Connection System (patent pending) provides the lowest possible impedance connection improving SPD performance.

The HPI™ – SPD Connection System has 25% of the typical impedance of regular cable and allows the installer to increase the interconnection cable length by up to 4 times, while maintaining acceptable clamping voltage levels, ensuring maximum SPD unit performance.

Using the HPI™ – SPD Connection System adds more location flexibility within the electrical room and significantly reduces the installation time.



Wire Gauge	Nominal Length*
6 AWG	5 – 30 ft.
10 AWG	5 – 30 ft.

*Lengths in 5 ft. increments

WHAT IS THE HPI™ SPD CONNECTION SYSTEM?

The HPI™ – SPD Connection System (patent pending) is a dual shielded, triple insulated multi-core power conductor specially constructed to minimize interconnection impedance for SPD installations.

The HPI™ – SPD Connection System (patent pending) is a UL approved connection means for use with Current Technology SPD Products only.

The ground & neutral shielded design of the HPI™ – SPD Connection System provides the installer with a pre-manufactured SPD termination, significantly reducing the total time to install the SPD protection unit.

BENEFITS

- Maximizes SPD unit performance
- Allows the SPD unit to be installed outside of the switchgear
- Interconnect cable length can be increased up to 4 times
- Increases installation location options
- Simplifies installation and reduces installation time
- Improves installation quality
- Removes hazards of internal SPD installations
- Supplied pre-terminated at the SPD end

SURGE FACT

According to power quality experts, while lightning is the most obvious source of failed equipment, temporary over voltages and swells will be the most destructive power quality events seen within the next 10 years.

INTEGRATED MONITORING

Integrated Monitoring Solutions

Current Technology offers several types of integrated monitoring solutions for Select®2, Select® Compact, TransGuard® and Panelboard extension products. Monitoring systems range from standard base monitoring with phase protection status indicator lights, to the MasterMIND® diagnostic monitoring, which provides real-time data on product performance and power quality of the electrical distribution system.

MONITORING

A base unit is equipped with phase protection status indicator lights, audible alarm and dry relay contacts. Enhanced monitoring capabilities are available through these options:

Monitoring Options

Advanced Monitoring	M2 ¹
MasterMIND® Diagnostic Monitoring	L3 ¹
MasterTEST® Hand-Held Tester	MT ²
DTS-2 Diagnostic Test Set	DTS ²

¹Add Suffix

²Stand-alone option: must be ordered as a separate item.

Monitoring Features

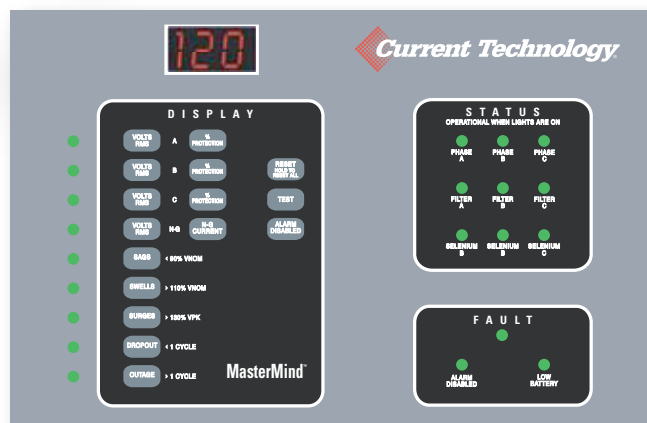
	Advanced MasterMIND®		
	Base	M2	L3
% Protection Available			•
Surge Counter		•	•
Sag Counter			•
Swell Counter			•
Outage Counter			•
All-Phase Voltage Display			•
N-G Voltage Display			•
N-G Current Display			•
Audible Alarm	•	•	•
Dry Contacts for Remote Monitoring	•	•	•
Phase Status Indicator LEDs	•	•	•

MasterMIND®

MONITORING OPTIONS FOR SELECT®2, SELECT® COMPACT, TRANSGUARD® AND PANELBOARD PRODUCTS

The Current Technology® MasterMIND® Monitoring System is an optional, multifunction power monitor for Select®2, Select® Compact, TransGuard®, panelboard extension suppression filter systems. A robust, full-featured system, MasterMIND® provides real-time data on product performance and distribution system power quality. A touchpad-operated data display with multicolor LED indicators and audible alarm communicates information to the operator. MasterMIND® helps validate product performance, electrical system reliability and power quality.

- Provides real-time system data
- Operates via convenient, touch-pad controls
- MasterMIND® can be remote-mounted



L3 MasterMIND® Diagnostic Monitoring

DIAGNOSTIC TOOLS

Current Technology's portable diagnostic test sets are ideal for verifying SPD devices functionality and proper installation prior to start-up and commissioning, as well as ensuring the smooth operation of products that have been installed for several years. Startup testing is imperative to ensure that the SPD device has been installed properly. Improperly installed SPD devices can have a reduced life or can fail destructively when power is first applied.

MasterTEST®

HAND-HELD TESTER FOR SELECT®2, SELECT® COMPACT, TRANSGUARD® AND EGPE2®

The Current Technology® MasterTEST® unit is an economical, hand-held device that performs off-line evaluation of the Current Technology Select®2, Select® Compact, TransGuard® and Panelboard extension suppression filter systems and helps validate neutral-to-ground integrity. MasterTEST® examines and reports these critical conditions on its large LCD display.

- Easy to operate
- Senses percentage of protection available
- Monitors neutral-to-ground voltage and current
- Checks RFI/EMI filter capacitors
- Checks selenium elements (*Select®2 and Select® Compact products only*)



DTS-2

DIAGNOSTIC TEST SET

Current Technology's portable DTS-2 Diagnostic Test Set provides facility engineers, equipment technicians and other end users with easy, active testing of on-site product performance as well as distribution system voltage monitoring. Conveniently lightweight, the DTS-2 easily connects to any Current Technology suppression filter system to immediately deliver quantitative, diagnostic measurement of all modes of suppression filter system performance and effectiveness.

- Monitors RMS voltage of connected suppression filter systems to permit troubleshooting of RMS under voltages or overvoltages
- Provides establishment of benchmark clamping voltages for future comparisons
- Benchmark clamping voltages are recorded on the Diagnostic Signature Card at the factory prior to shipment and packaged inside the suppression filter system enclosure
- Real-time testing identifies potential problems before protected loads are affected



HIGH ENERGY TEST LAB

ADVANCED LABORATORY ENVIRONMENT

Current Technology owns and operates one of the most complete testing laboratories in the SPD industry. The Current Technology engineering team understands all applicable industry standards and applies that knowledge to the product development and testing of our advanced SPD systems. The engineering team has undergone extensive training to receive certification as an official UL test lab under UL's Data Acquisition Program and ETL's Supervised Applicant Testing Program. Being part of the UL and ETL test programs results in quicker turnaround and reduced cost associated with developing new products, passing savings on to the customer.

HIGH POWER LIGHTNING GENERATOR



These generators produce up to 100kV/200kA, 8x20 μ s lightning-type impulses. All Current Technology products are tested using the HPL generator to verify surge ratings of units.

MEDIUM CURRENT FAULT GENERATOR



These generators produce the UL 1449 Medium Current Fault voltages and currents. Voltages ranging from 120V to 600V, and currents 100A, 500A and 1000A can be produced in all combinations. All products have undergone review and testing through this new lab. The in-house lab enables Current Technology the ability to pre-test, re-design if necessary, and test for certification in a relatively short amount of time.

LIMITED CURRENT FAULT GENERATOR



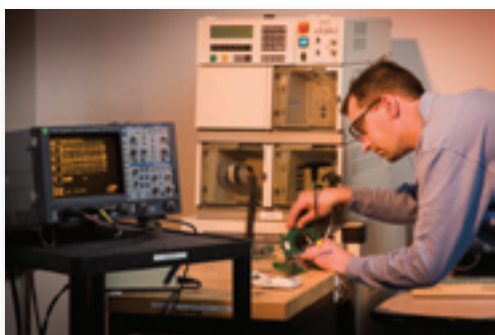
These generators produce the UL 1449 Limited Current Fault voltages and currents. Voltages ranging from 120V to 600V, at a current of 10A can be produced in all combinations. All Current Technology products have undergone review and testing through this new lab.

THREE KEYTEK SURGE GENERATORS



These generators produce the Industry Standard 8x20 μ s 6kV/500A impulses (and up to 20kV/10kA). They provide the Measured Limiting Voltage (MLV) and the Voltage Protective Rating (VPR) of the units. This is the test equipment “workhorse” of the SPD industry. Typically this device will be used non-stop for weeks during launch of a new product series.

LECROY OSCILLOSCOPES



Current Technology has three high-speed LeCroy Digital Storage Oscilloscopes. These capture to electronic and paper file all the required test shots for certification. Networking of these files allows for easy access and storage of the certification information.

TESTING TO STANDARDS

The Current Technology test laboratory is designed and manufactured in compliance with the following industry regulatory agency standards and guidelines:

Underwriters Laboratories – UL 1449 and UL 1283 Benchmark standards for surge suppression safety and performance. Current Technology products are UL 1449 3rd Edition compliant.

ANSI / IEEE C62.41 – 2002 and C62.45 – 2002 American National Standards Institute/Institute of Electrical and Electronic Engineers standards for establishment of surge withstand capabilities. Current Technology products are extensively tested in all modes utilizing a 1.2x50 msec 20KV open circuit voltage, 8x20 msec short circuit current Category C3 bi-wave.

CSA C22.2 No. 8 M-1986 (Reaffirmed 2004) Canadian Standards Association’s guidelines for compliance with general Canadian Electrical Code requirements for bonding and grounding/protective grounding of electrical equipment and surge/transient voltage suppressors.



MASTERPLAN® FACILITY-WIDE PROTECTION

MORE POWER, MORE PROTECTION, INCREASED WARRANTY...

Standard Warranty

Current Technology warrants products to meet all applicable industry standards and specifications and be free from defects in materials and/or workmanship. Should there be any failure of the product to meet these requirements, Current Technology shall either repair or replace the defective product.

Current Technology shall have no liability under this warranty for any problems or defects directly or indirectly caused by the misuse of the product, alteration of the product, accidents, or improper installation, application, operation or repair of the product.

Current Technology's standard product warranty periods are provided below.

MasterPLAN® Warranty Upgrade

Current Technology also offers the upgraded warranty MasterPLAN®. IEEE recommends for premium site protection a cascaded installation of surge protection devices throughout the electrical distribution system of a facility. If a Select®2 – 200kA or greater unit is used on the service entrance of a facility, all Current Technology products installed downstream of that service entrance will have their respective warranty periods upgraded to 20 years. In order to qualify for the MasterPLAN® warranty upgrade, all Current Technology products must be purchased at the same time, installed at the same time, and be installed electrically downstream of the service entrance Select®2 unit.

WARRANTY PERIOD

	Standard	MasterPlan®
Select®2	20 Years	—
Select® Compact	15 Years	20 Years
HPI®	15 Years	20 Years
TransGuard®	15 Years	20 Years
CurrentGuard™ Plus	15 Years	20 Years
CurrentGuard™	10 Years	20 Years
CurrentGuard™ Compact	10 Years	20 Years
Electronic Grade Panelboards – EGPE2®	10 Years	20 Years
TransEnd®	5 Years	20 Years
Monitoring & Diagnostic Tools	5 Years	20 Years

Signature MasterPLAN®
20-Year Warranty
Facility-Wide Protection

SURGE FACT

A usual lightning strike can last between 50 ms to 100 ms with most of the damaging energy occurring below 1 MHz (< 1.0 ms rise times).

WORLDWIDE SALES AND SERVICE

Our customers are supported by our worldwide network of more than 175 factory-trained representatives serving the protection needs of commercial, industrial, communications, government, military, education, retail, healthcare and transportation industries. Engineers and end-users with zero tolerance for downtime, data corruption or equipment damage resulting from routine or catastrophic electrical disturbances have made Current Technology the #1 name in surge suppression.



ABOUT THOMAS & BETTS POWER SOLUTIONS

Thomas & Betts Power Solutions., is the leading designer, manufacturer and provider of power quality and reliability products and services marketed under the brand names Cyberex®, United Power®, Current Technology®, and Joslyn®. Thomas & Betts Power Solutions, LLC., is a wholly owned subsidiary of Thomas & Betts (NYSE: TNB).

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