## Surge Protection

Surge Protection Devices and Lightning Arresters

Surge Protection Devices



### Product Description

Due to the evolution of electronics and microprocessors in the home, there is a continuous challenge to provide quality (clean) power for electronic loads such as appliances, computers/home office and entertainment systems. Surges caused by lightning, utility grid switching and other sources travel on current carrying conductors throughout the home, which can effect and destroy sensitive electronic loads.

Eaton offers a comprehensive family of surge products for use at service entrance and point-of-use locations. These products can help protect sensitive electronics against the damaging effects of surges.

# Application Description

#### **Two-Stage Protection**

Two stages of surge suppression are recommended to provide the best protection for electronic equipment. Two-stage surge suppression should be provided for all cables entering a home, including power, Internet, coaxial and telephone.

#### Service Entrance Surge Protection

Eaton's service entrance surge protection units provide premier surge protection for AC power at the service entrance. These products provide protection for residential electrical equipment by reducing power surges to an acceptable level for surge strips to handle at the point of use.

# *UL 1449 3rd Edition Type 1 and Type 2 Surge Protection*

Type 1 Surge Protective Device (SPD)— Permanently connected Type 1 SPDs are 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 are intended to be installed without an external overcurrent protective device. Type 1 devices are dual-rated for Type 2 applications as well, providing the highest ratings available for installation at the service entrance

- Eaton's CHSPT1 products provide Type 1 surge protection in accordance with UL 1449 3rd Edition. These units can be universally mounted outside any manufacturer's primary service equipment
- Type 2 Surge Protective Device—Permanently connected Type 2 SPDs are intended for installation on the load side of the service equipment overcurrent device, including SPDs located at the branch panel
  - CHSPT2 products provide Type 2 surge protection in accordance with UL 1449 3rd Edition. These units can be mounted outside of any manufacturer's loadcenter or inside an Eaton Surge/Surge Ready loadcenter. Eaton also offers accessories to the CHSPT2 line for

### Contents

Description	Page
Surge Protection Devices and Lightning Arresters	
Standards and Certifications	99
Product Selection	100

telephone and cable protection.

 Factory-Installed Surge Protection—Eaton's loadcenters with factoryinstalled surge protection include a CHSPT2ULTRA and a two-pole 15A circuit breaker. These loadcenters increase the effectiveness of surge protection due to reduced lead length. A modified deadfront allows for easy viewing of indicating lights for status indication



Surge Panel

 Surge Ready Loadcenter—The Surge-Ready loadcenter provides a mounting provision for the CHSPT2ULTRA. This loadcenter has a modified deadfront to allow for viewing of indicating lights.

EMI/RFI Noise Filter	Total Calculated Joule Rating	Max. Peak Current	Protects	Outlets	Cord Length
s (Best) ②					
Up to 40 dB	2160 joules	144 kA	AC power/phone	Eight rotating outlets (for extra plug-in space)	6-feet
Up to 58 dB	2880 joules	192 kA	AC power/phone/coax cable/network	10 outlets (five fixed, five rotating for extra plug-in space)	6-feet
Up to 58 dB	4320 joules	288 kA	AC power/phone/coax cable/network	12 outlets (four fixed, eight rotating for extra plug-in space)	6-feet
(Better) <sup>2</sup>					
Up to 40 dB	1080 joules	72 kA	AC power	Seven outlets with sliding covers	6-feet
Up to 40 dB	1080 joules	72 kA	AC power/phone	Seven outlets with sliding covers	6-feet
Up to 40 dB	1080 joules	72 kA	AC power/coax cable	Seven outlets with sliding covers	6-feet
Up to 40 dB	2160 joules	144 kA	AC power/phone/coax cable	Eight outlets with sliding covers	6-feet
s (Good) ②					
Up to 40 dB	540 joules	36 kA	AC power	Seven outlets with sliding covers	6-feet
Up to 40 dB	540 joules	36 kA	AC power	One outlet	No cord/wallmount design
Up to 40 dB	540 joules	36 kA	AC power/coax cable	One outlet	No cord/wallmount design
Up to 40 dB	540 joules	36 kA	AC power/phone	One outlet	No cord/wallmount design
Up to 40 dB	540 joules	36 kA	AC power/coax cable	Six outlets	No cord/wallmount design
Up to 40 dB	540 joules	36 kA	AC power/phone	Six outlets	No cord/wallmount design
Up to 40 dB	540 joules	36 kA	AC power/phone/coax cable	Six outlets	No cord/wallmount design
n Series 2					
Up to 40 dB	1080 joules	72 kA	AC power	Seven outlets	6-feet
	Noise Filter   Up to 58 dB   Up to 58 dB   Up to 58 dB   Up to 58 dB   Up to 40 dB	Noise Filter Calculated Joule Rating   Up to 40 dB 2160 joules   Up to 58 dB 2880 joules   Up to 58 dB 4320 joules   Up to 58 dB 4320 joules   (Better) ②    Up to 40 dB 1080 joules   Up to 40 dB 2160 joules   Up to 40 dB 540 jo	Noise Filter Calculated Joule Rating Max. Peak Current   Wash of the search Selfer Search Selfer Search Sear	Noise FilterCalculated Joule RatingMax. Peak CurrentProtectsIp to 58 dB2160 joules144 kAAC power/phoneUp to 58 dB2880 joules192 kAAC power/phone/coax cable/networkUp to 58 dB4320 joules288 kAAC power/phone/coax cable/networkUp to 58 dB4320 joules288 kAAC power/phone/coax cable/networkUp to 58 dB4320 joules288 kAAC power/phone/coax cable/networkUp to 58 dB1080 joules72 kAAC powerUp to 40 dB1080 joules72 kAAC power/phoneUp to 40 dB1080 joules72 kAAC power/coax cableUp to 40 dB1080 joules72 kAAC power/coax cableUp to 40 dB1080 joules72 kAAC power/coax cableUp to 40 dB1080 joules72 kAAC power/phoneUp to 40 dB540 joules36 kAAC powerUp to 40 dB540 joules36 kAAC power/phoneUp to 40 dB540 joules <td>Noise FilterCalculated Joule RatingMax. Peak CurrentProtectsDutletsUp to 40 dB2160 joules144 kAAC power/phoneEight rotating outlets (for extra plug-in space)Up to 58 dB2880 joules192 kAAC power/phone/coax cable/network10 outlets (five rixed, five rotating for extra plug-in space)Up to 58 dB4320 joules288 kAAC power/phone/coax cable/network12 outlets (four fixed, eight rotating for extra plug-in space)(Better) @AC power/phone/coax cable/network12 outlets (four fixed, eight rotating for extra plug-in space)Up to 40 dB1080 joules72 kAAC power/phone/coax cableSeven outlets with sliding coversUp to 40 dB1080 joules72 kAAC power/phone/coax cableSeven outlets with sliding coversUp to 40 dB1080 joules72 kAAC power/phone/coax cableEight outlets with sliding coversUp to 40 dB1080 joules72 kAAC power/phone/coax cableEight outlets with sliding coversUp to 40 dB1080 joules36 kAAC power/phone/coax cableEight outlets with sliding coversUp to 40 dB540 joules36 kAAC power/phoneOne outletUp to 40 dB540 joules36 kAAC power/phoneOne outletUp to 40 dB540 joules36 kAAC power/phoneSix outletsUp to 40 dB540 joules36 kAAC power/phoneSix outletsUp to 40 dB540 joules36 kAAC power/phoneSix outlets<tr<tr><td< td=""></td<></tr<tr></td>	Noise FilterCalculated Joule RatingMax. Peak CurrentProtectsDutletsUp to 40 dB2160 joules144 kAAC power/phoneEight rotating outlets (for extra plug-in space)Up to 58 dB2880 joules192 kAAC power/phone/coax cable/network10 outlets (five rixed, five rotating for extra plug-in space)Up to 58 dB4320 joules288 kAAC power/phone/coax cable/network12 outlets (four fixed, eight rotating for extra plug-in space)(Better) @AC power/phone/coax cable/network12 outlets (four fixed, eight rotating for extra plug-in space)Up to 40 dB1080 joules72 kAAC power/phone/coax cableSeven outlets with sliding coversUp to 40 dB1080 joules72 kAAC power/phone/coax cableSeven outlets with sliding coversUp to 40 dB1080 joules72 kAAC power/phone/coax cableEight outlets with sliding coversUp to 40 dB1080 joules72 kAAC power/phone/coax cableEight outlets with sliding coversUp to 40 dB1080 joules36 kAAC power/phone/coax cableEight outlets with sliding coversUp to 40 dB540 joules36 kAAC power/phoneOne outletUp to 40 dB540 joules36 kAAC power/phoneOne outletUp to 40 dB540 joules36 kAAC power/phoneSix outletsUp to 40 dB540 joules36 kAAC power/phoneSix outletsUp to 40 dB540 joules36 kAAC power/phoneSix outlets <tr<tr><td< td=""></td<></tr<tr>

### Point-of-Use Surge Protection—330V Clamping Voltage, 125 Vac, 15A, 60 Hz, 1875W, UL/cUL Listed ①



#### Notes

① Product information is based on UL 1449 2nd Edition. Product is in transition at time of print. For updated ratings/product features, refer to www.eaton.com/surgetrap.

 $\ensuremath{\textcircled{2}}$   $\ensuremath{\textcircled{2}}$  For warranty details, go to www.eaton.com/surgetrap.

## Surge Protection

Surge Protection Devices and Lightning Arresters

Surge Protection Devices



### Product Description

Due to the evolution of electronics and microprocessors in the home, there is a continuous challenge to provide quality (clean) power for electronic loads such as appliances, computers/home office and entertainment systems. Surges caused by lightning, utility grid switching and other sources travel on current carrying conductors throughout the home, which can effect and destroy sensitive electronic loads.

Eaton offers a comprehensive family of surge products for use at service entrance and point-of-use locations. These products can help protect sensitive electronics against the damaging effects of surges.

# Application Description

#### **Two-Stage Protection**

Two stages of surge suppression are recommended to provide the best protection for electronic equipment. Two-stage surge suppression should be provided for all cables entering a home, including power, Internet, coaxial and telephone.

#### Service Entrance Surge Protection

Eaton's service entrance surge protection units provide premier surge protection for AC power at the service entrance. These products provide protection for residential electrical equipment by reducing power surges to an acceptable level for surge strips to handle at the point of use.

# *UL 1449 3rd Edition Type 1 and Type 2 Surge Protection*

Type 1 Surge Protective Device (SPD)— Permanently connected Type 1 SPDs are 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 are intended to be installed without an external overcurrent protective device. Type 1 devices are dual-rated for Type 2 applications as well, providing the highest ratings available for installation at the service entrance

- Eaton's CHSPT1 products provide Type 1 surge protection in accordance with UL 1449 3rd Edition. These units can be universally mounted outside any manufacturer's primary service equipment
- Type 2 Surge Protective Device—Permanently connected Type 2 SPDs are intended for installation on the load side of the service equipment overcurrent device, including SPDs located at the branch panel
  - CHSPT2 products provide Type 2 surge protection in accordance with UL 1449 3rd Edition. These units can be mounted outside of any manufacturer's loadcenter or inside an Eaton Surge/Surge Ready loadcenter. Eaton also offers accessories to the CHSPT2 line for

### Contents

Description	Page
Surge Protection Devices and Lightning Arresters	
Standards and Certifications	99
Product Selection	100

telephone and cable protection.

 Factory-Installed Surge Protection—Eaton's loadcenters with factoryinstalled surge protection include a CHSPT2ULTRA and a two-pole 15A circuit breaker. These loadcenters increase the effectiveness of surge protection due to reduced lead length. A modified deadfront allows for easy viewing of indicating lights for status indication



Surge Panel

 Surge Ready Loadcenter—The Surge-Ready loadcenter provides a mounting provision for the CHSPT2ULTRA. This loadcenter has a modified deadfront to allow for viewing of indicating lights.

EMI/RFI Noise Filter	Total Calculated Joule Rating	Max. Peak Current	Protects	Outlets	Cord Length
s (Best) ②					
Up to 40 dB	2160 joules	144 kA	AC power/phone	Eight rotating outlets (for extra plug-in space)	6-feet
Up to 58 dB	2880 joules	192 kA	AC power/phone/coax cable/network	10 outlets (five fixed, five rotating for extra plug-in space)	6-feet
Up to 58 dB	4320 joules	288 kA	AC power/phone/coax cable/network	12 outlets (four fixed, eight rotating for extra plug-in space)	6-feet
(Better) 2					
Up to 40 dB	1080 joules	72 kA	AC power	Seven outlets with sliding covers	6-feet
Up to 40 dB	1080 joules	72 kA	AC power/phone	Seven outlets with sliding covers	6-feet
Up to 40 dB	1080 joules	72 kA	AC power/coax cable	Seven outlets with sliding covers	6-feet
Up to 40 dB	2160 joules	144 kA	AC power/phone/coax cable	Eight outlets with sliding covers	6-feet
s (Good) ②					
Up to 40 dB	540 joules	36 kA	AC power	Seven outlets with sliding covers	6-feet
Up to 40 dB	540 joules	36 kA	AC power	One outlet	No cord/wallmount design
Up to 40 dB	540 joules	36 kA	AC power/coax cable	One outlet	No cord/wallmount design
Up to 40 dB	540 joules	36 kA	AC power/phone	One outlet	No cord/wallmount design
Up to 40 dB	540 joules	36 kA	AC power/coax cable	Six outlets	No cord/wallmount design
Up to 40 dB	540 joules	36 kA	AC power/phone	Six outlets	No cord/wallmount design
Up to 40 dB	540 joules	36 kA	AC power/phone/coax cable	Six outlets	No cord/wallmount design
n Series 2					
Up to 40 dB	1080 joules	72 kA	AC power	Seven outlets	6-feet
	Noise Filter   Up to 58 dB   Up to 58 dB   Up to 58 dB   Up to 58 dB   Up to 40 dB	Noise Filter Calculated Joule Rating   Up to 40 dB 2160 joules   Up to 58 dB 2880 joules   Up to 58 dB 4320 joules   Up to 58 dB 4320 joules   (Better) ②    Up to 40 dB 1080 joules   Up to 40 dB 2160 joules   Up to 40 dB 540 jo	Noise Filter Calculated Joule Rating Max. Peak Current   Wash of the search Selfer Search Selfer Search Sear	Noise FilterCalculated Joule RatingMax. Peak CurrentProtectsIp to 58 dB2160 joules144 kAAC power/phoneUp to 58 dB2880 joules192 kAAC power/phone/coax cable/networkUp to 58 dB4320 joules288 kAAC power/phone/coax cable/networkUp to 58 dB4320 joules288 kAAC power/phone/coax cable/networkUp to 58 dB4320 joules288 kAAC power/phone/coax cable/networkUp to 58 dB1080 joules72 kAAC powerUp to 40 dB1080 joules72 kAAC power/phoneUp to 40 dB1080 joules72 kAAC power/coax cableUp to 40 dB1080 joules72 kAAC power/coax cableUp to 40 dB1080 joules72 kAAC power/coax cableUp to 40 dB1080 joules72 kAAC power/phoneUp to 40 dB540 joules36 kAAC powerUp to 40 dB540 joules36 kAAC power/phoneUp to 40 dB540 joules <td>Noise FilterCalculated Joule RatingMax. Peak CurrentProtectsDutletsUp to 40 dB2160 joules144 kAAC power/phoneEight rotating outlets (for extra plug-in space)Up to 58 dB2880 joules192 kAAC power/phone/coax cable/network10 outlets (five rixed, five rotating for extra plug-in space)Up to 58 dB4320 joules288 kAAC power/phone/coax cable/network12 outlets (four fixed, eight rotating for extra plug-in space)(Better) @AC power/phone/coax cable/network12 outlets (four fixed, eight rotating for extra plug-in space)Up to 40 dB1080 joules72 kAAC power/phone/coax cableSeven outlets with sliding coversUp to 40 dB1080 joules72 kAAC power/phone/coax cableSeven outlets with sliding coversUp to 40 dB1080 joules72 kAAC power/phone/coax cableEight outlets with sliding coversUp to 40 dB1080 joules72 kAAC power/phone/coax cableEight outlets with sliding coversUp to 40 dB1080 joules36 kAAC power/phone/coax cableEight outlets with sliding coversUp to 40 dB540 joules36 kAAC power/phoneOne outletUp to 40 dB540 joules36 kAAC power/phoneOne outletUp to 40 dB540 joules36 kAAC power/phoneSix outletsUp to 40 dB540 joules36 kAAC power/phoneSix outletsUp to 40 dB540 joules36 kAAC power/phoneSix outlets<tr<tr><td< td=""></td<></tr<tr></td>	Noise FilterCalculated Joule RatingMax. Peak CurrentProtectsDutletsUp to 40 dB2160 joules144 kAAC power/phoneEight rotating outlets (for extra plug-in space)Up to 58 dB2880 joules192 kAAC power/phone/coax cable/network10 outlets (five rixed, five rotating for extra plug-in space)Up to 58 dB4320 joules288 kAAC power/phone/coax cable/network12 outlets (four fixed, eight rotating for extra plug-in space)(Better) @AC power/phone/coax cable/network12 outlets (four fixed, eight rotating for extra plug-in space)Up to 40 dB1080 joules72 kAAC power/phone/coax cableSeven outlets with sliding coversUp to 40 dB1080 joules72 kAAC power/phone/coax cableSeven outlets with sliding coversUp to 40 dB1080 joules72 kAAC power/phone/coax cableEight outlets with sliding coversUp to 40 dB1080 joules72 kAAC power/phone/coax cableEight outlets with sliding coversUp to 40 dB1080 joules36 kAAC power/phone/coax cableEight outlets with sliding coversUp to 40 dB540 joules36 kAAC power/phoneOne outletUp to 40 dB540 joules36 kAAC power/phoneOne outletUp to 40 dB540 joules36 kAAC power/phoneSix outletsUp to 40 dB540 joules36 kAAC power/phoneSix outletsUp to 40 dB540 joules36 kAAC power/phoneSix outlets <tr<tr><td< td=""></td<></tr<tr>

### Point-of-Use Surge Protection—330V Clamping Voltage, 125 Vac, 15A, 60 Hz, 1875W, UL/cUL Listed ①



#### Notes

① Product information is based on UL 1449 2nd Edition. Product is in transition at time of print. For updated ratings/product features, refer to www.eaton.com/surgetrap.

 $\ensuremath{\textcircled{2}}$   $\ensuremath{\textcircled{2}}$  For warranty details, go to www.eaton.com/surgetrap.