USA PRODUCT CATALOG

Surge protective devices
UL range



- UL range of SPDs
- Type 1 and Type 2 for main electrical distribution equipment and control panel applications
- Hard-wired and DIN rail versions

Surge protective devices (SPDs) are designed to protect against transient surge conditions. Lightning is well accepted as a powerful and destructive element to both physical structures and electrical power and communication systems. However, lightning comprises about 20% of the overall surge activity in a building. The remaining 80% comes from internally generated surge activity.

Professionally installed ABB SPDs provide superior protection and could prevent unnecessary downtime and costly repairs.

Table of contents

004	**Introduction**
005	**UL and IEC terminology**
006 – 009	**Types of SPDs**
010 – 011	**Typical SPD applications**
012	**Typical SPD locations**
013 – 026	**Type 1: OVRH series (hard-wired SPDs)**
027– 029	**Type 2: OVRH series (hard-wired SPDs)**
031 – 050	**Type 2: TPME and TPHE series (legacy GE hard-wired SPDs)**
051 – 062	**Type 1 open type: OVRT2 series (DIN rail SPDs)**
063 – 071	**Data and signal protection**

Surge protective devices Introduction

Surge protection devices (SPDs) 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 100 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).

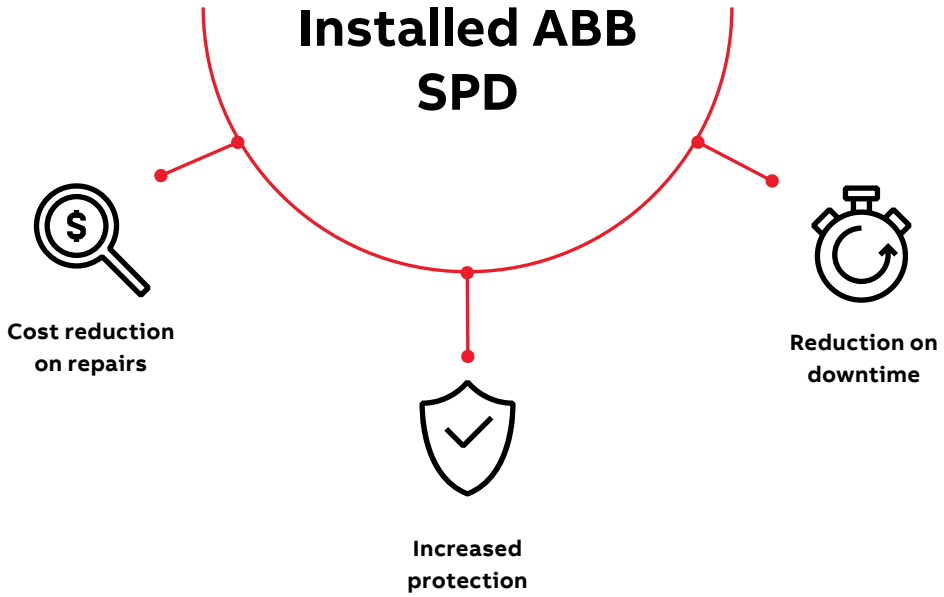
The most destructive transient voltage surges can be attributed to lightning and utility load switching; however, experts predict that these two events account for 20% of all transient surge activity.

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 40 kA.

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 ABB products provide superior protection against transient surges, helping to prevent unnecessary downtime and costly repairs.



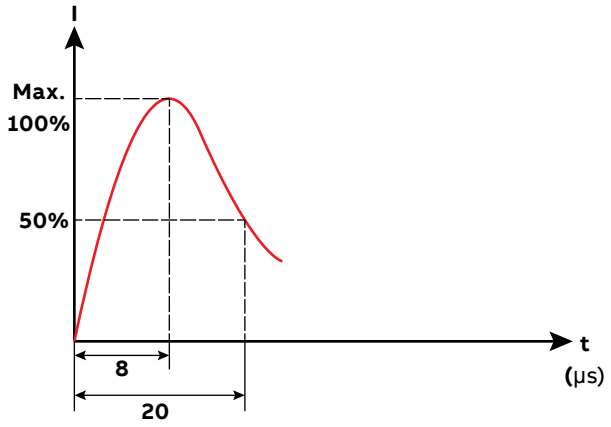
Surge protective devices
UL and IEC terminology

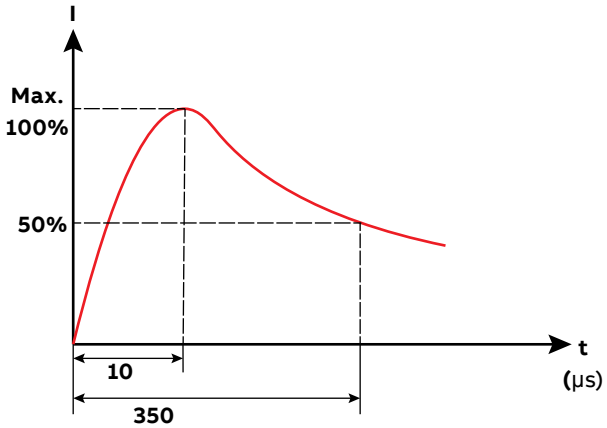
ABB SPDs are certified according to UL 1449 5th Edition and use different terminology than IEC certified units. The purpose is the same for both standards, but it is important to differentiate the terminology and the type of SPD.

IEC 61643-11 terminology	Equivalent UL 1449 terminology	Description
I_{imp}	No equivalent	The maximum surge current rating for an SPD when subjected to a 10 x 350 µs wave shape.
I_{max}	Single surge current rating	The maximum surge current rating for an SPD when subjected to an 8 x 20 µs wave shape.
I_n	I_N	Nominal surge discharge current for 8 x 20 µs wave shape.
I_{SCCR}	SCCR	Short-circuit current rating (withstand).
U_P	VPR	Voltage protection level or let-through voltage level of the SPD when subjected to a test surge.
U_C	MCOV	Maximum continuous operational voltage the SPD can be exposed to without failure.
U_N	Operational voltage	Nominal operational voltage or application voltage.

8 x 20 µs wave shape
- Used for IEC Class II test (EN Type 2)
- I_{max} is the surge current value designation for IEC
- I_n is also tested using this wave shape
- UL single surge current rating

10 x 350 µs wave shape (IEC only)
- Used in IEC 61643-11 / Class I tested SPD or EN 61643-11 Type 1
- SPD must survive 5 impulses increasing in magnitude to max I_{imp}
- I_{imp} is then the surge current value designation if SPD passes
- No equivalent test in UL standards





Surge protective devices
UL Type 1 SPDs

—
01
OVRHTP series
Type 1 SPD



—
01

UL Type 1 SPD (line side)

Type 1 SPDs are permanently connected devices that can be installed anywhere between the secondary of the utility service transformer and the main distribution disconnect.

A Type 1 SPD can also be installed anywhere on the load side of the main distribution and can be installed without the need for external over-current protection (does not require an upstream fuse or breaker).

Surge protective devices
UL Type 2 SPDs

—
01
TPHE series
Type 2 SPD



—
01

UL Type 2 SPD (load side)

Type 2 SPDs are permanently connected devices that must be installed on the load side of the main distribution disconnect.

Type 2 devices may or may not require external over-current protection (may or may not require an upstream fuse or breaker).

Surge protective devices

UL Type 3 SPDs

—
01
Surge bar (no ABB offering)



—
01

UL Type 3 SPD (cord-connected)

Type 3 SPDs are installed at a conductor length of 10 meters (30 feet) or more from the electrical panel they are protecting.

These devices are typically cord-connected, direct plug-in, receptacle-type SPDs installed at the load equipment being protected.

Surge protective devices
UL Type 4 SPDs

—
01
OVRT2U series
Type 2 SPD



—
01

UL Type 4 SPD

Type 4 SPDs are considered component SPDs.

Component SPDs typically consist of one or more Type 5 components assembled together. Type 4 SPDs are not intended to be used by themselves, and must be integrated into other systems.

- Type 1 component assembly is a Type 4 SPD that, once installed inside another piece of equipment, would be tested as a Type 1 SPD (would not require external over-current protection).
- Type 2 component assembly is a Type 4 SPD that, once installed inside another piece of equipment, would be tested as a Type 2 SPD (would require external over-current protection).

Surge protection devices
Typical SPD applications



Wastewater
Wastewater treatment facilities are using additional technologies to monitor and ensure clean water efficiently.

Surge protection devices are necessary to provide confidence and reliability in today's personnel-restricted environments.



Renewable energy
Today's technologies are rapidly developing innovative ways to harvest electricity.

Surge protection devices provide protection against lighting and power quality anomalies caused by switching on the grid.



Healthcare
Almost every piece of modern medical equipment depends on electrical power.

The more sophisticated the technology, the more susceptible it is to the devastating effects of transient surge events.



Education
Most school systems use state-of-the-art multimedia outlets, which result in more computers in the classrooms.

Surge protection devices help to ensure these computers stay up and running, keeping growing minds energized.

Surge protection devices
Typical SPD applications



Commercial / retail
Companies are now installing efficient ballasts, dimmers and integrated renewable energy systems.

Surge protection devices help protect these new technologies, which are more susceptible to power quality events.



Manufacturing / industrial
Improvements to manufacturing devices have migrated manufacturers to human machine combinations to maximize the manufacturing output capacities of facilities.

Surge protection devices protect this equipment from damage caused by large variations in the current and voltage, thus helping to optimize uptime in manufacturing production.



Information / data management
Data centers typically require an enormous amount of power equipment from transfer switches to multiple remote power panels providing power to processing equipment.

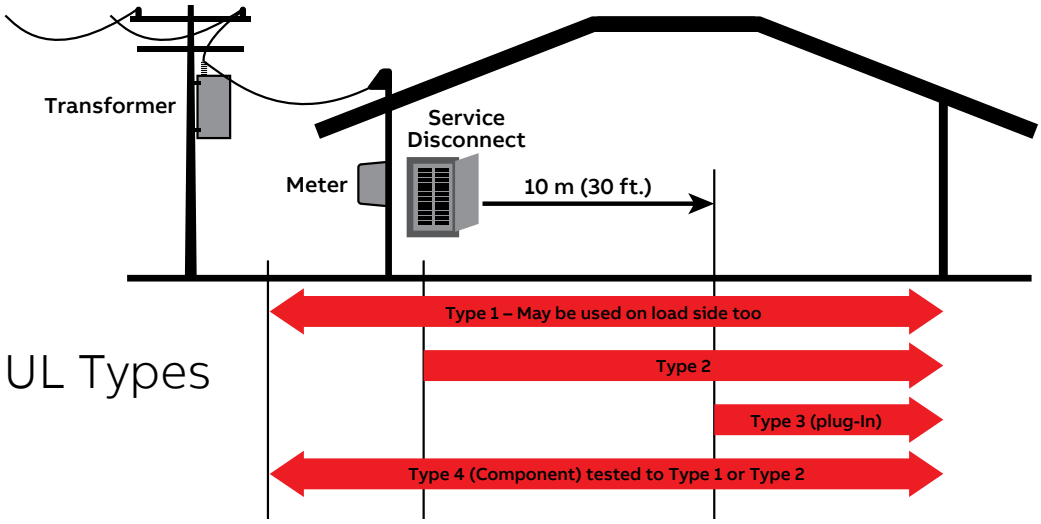
Surge protection devices can help to protect this equipment from costly downtime.



Transportation
Air traffic controls, radar systems, weather stations, electronic highway signs and outside security cameras are among a handful of the critical loads that require protection from the devastating effects of transient surge events.

Surge protection devices

Typical locations for SPDs



SPD location	Recommended SPD		Protected equipment examples	
Service entrance/main distribution (1,000 amps and higher)				
The point of entry for utility power. A unit installed here protects the facility from a large external event, such as lightning or grid switching.	OVRHTP 400 OVRHTP 300 OVRHTP 240 OVRHTP 200		• Electrical switchgear • Switchboard • Distribution • Motor control centers	• Emergency power backup • Transfer switch • UPS system
Sub-distribution	**Mid-level distribution (1,000 – 400 amps)**	**Panelboard (400 – 100 amps)**		
Closer to the critical load. A unit installed here protects from internally generated surges and isolates critical equipment from faults.	OVRHTP 120...240 OVRHTP 120...160	OVRHT3D OVRHS3U	• Emergency power backup • Transfer switches • Control boxes • Switchgear • Generators • Computer servers • Telephone systems • Fax machines	• Building management systems • Surveillance equipment • Security systems • HVAC • Fire alarm panels • Copiers
Equipment-level protection (100 amps and below)				
Installing surge protection at panel distribution extends unit longevity by absorbing mini surges that reduce equipment life.	OVRHTP 60...80 OVRHMSU OVRHT3D OVRHR		• X-ray • CAT-scan • Life support equipment • Medical instrumentation • Computer servers • Elevators	• Parking lot lighting • Printers • Communication systems • Motors • Pumps • Drives

Type 1: OVRH series (hard-wired SPDs)

014 **Product overview**

015 – 020 **OVRHTP series**

019 **OVRHT3D series**

020 **OVRHR series**

021 – 026 **Dimensions**

OVRH series
Product range overview






Name	OVRHTP (60, 120, 160, 200, 400)	OVRHMSU	OVRHT3D	OVRHR
Connection ampacity	4000 and below	24 A	400 A and below	100 A and below
SPD type	Type 1 and Type 2	Type 4 for Type 2	Type 1	Type 1
Certifications	UL 1449	UL 1449	UL 1449	UL 1449
Surge ratings	60, 80, 100, 120, 160, 200, 240, 300, 400 kA per phase	50 kA per phase	50 kA per phase	36 kA per phase
LEDs	Yes	Yes	Yes	Yes
Dry relay contacts	Standard	Not available	Not available	Not available
EMI filter	Optional	Yes	Not available	Not available
Surge counter	Optional	Not available	Not available	Not available
Warranty	10 years	5 years	3 years	1 year

OVRHTP series

OVRHTP (60 to 200 kA)

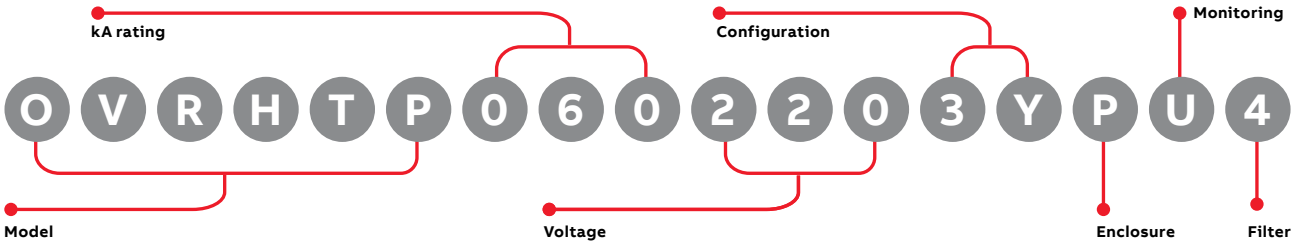


Product features

- UL Listed 1449 5th edition for Type 1 and Type 2 SPD applications
- Thermally protected MOVs provide superior protection and continuous operation
- 200 kAIC short circuit current rating allows direct bus connection without the need for an upstream over-current protection device
- UL 1283 EMI/RF filter available as an option
- Compact and lightweight design
- 10-year standard warranty

c UL us LISTED

RoHS Compliant



kA rating	Suffix
60 kA per phase, 30 kA per mode	060
80 kA per phase, 40 kA per mode	080
100 kA per phase, 50 kA per mode	100
120 kA per phase, 60 kA per mode	120
160 kA per phase, 80 kA per mode	160
200 kA per phase, 100 kA per mode	200

Voltage and configuration (must choose one)	Suffix
120 V, 1-phase, 2-wire + ground	1201P
127 V, 1-phase, 2-wire + ground	1271P
220 V, 1-phase, 2-wire + ground	2201P
230 V, 1-phase, 2-wire + ground	2301P
240 V, 1-phase, 2-wire + ground	2401P
277 V, 1-phase, 2-wire + ground	2771P
240/120 V, 2-phase, 3-wire + ground	1202S
480/240 V, 2-phase, 3-wire + ground	2402S
240Δ /120 V, 3-phase high-leg , 4-wire + ground	1203H
208Y/120 V, 3-phase Wye, 4-wire + ground	1203Y
380Y/220 V, 3-phase Wye, 4-wire + ground	2203Y
400Y/230 V, 3-phase Wye, 4-wire + ground	2303Y
415Y/240 V, 3-phase Wye, 4-wire + ground	2403Y
480Y/277 V, 3-phase Wye, 4-wire + ground	2773Y
600Y/347 V, 3-phase Wye, 4-wire + ground	3473Y
208 V, 3-phase Delta, 3-wire + ground	2083D
240 V, 3-phase Delta, 3-wire + ground	2403D
415 V, 3-phase Delta, 3-wire + ground	4153D

Voltage and configuration (must choose one)	Suffix
480 V, 3-phase Delta, 3-wire + ground	4803D
600 V, 3-phase Delta, 3-wire + ground	6003D
1-phase, 2-wire + ground (for TNC grounding systems)	2301PI
1-phase, 2-wire + ground (for TNS grounding systems)	2301PJ
1-phase, 2-wire + ground (for IT grounding systems)	2301PK
1-phase, 2-wire + ground (for TT grounding systems)	2301P

Enclosure option	Suffix
Fiberglass-reinforced polyester, NEMA 4X	P
Powder-coated metal NEMA 4	4
Stainless steel NEMA 4X	S

Monitoring option (must choose one)	Suffix
Status indicator LED lights (one per phase)	B
Status indicator LED lights (one per phase), dry relay contacts, audible alarm with silence button, fault light	U
Status indicator LED lights (one per phase), surge counter, dry relay contacts, audible alarm with silence button, fault light	UE

(only available in 120, 160, 200 kA per phase)

Filter option	Suffix
4 UF filter	4
UL 1283 filter making device a Type 2	4T2
No filter	0

Product specifications

Electrical	
60 kA per phase, 30 kA per mode	
80 kA per phase, 40 kA per mode	
100 kA per phase, 50 kA per mode	
120 kA per phase, 60 kA per mode	
160 kA per phase, 80 kA per mode	
200 kA per phase, 100 kA per mode	
Maximum surge current rating	XX kA per phase, XX kA per mode
Nominal discharge current rating (L-N)	20 kA Earthing and Delta systems 10 kA
Operating frequency	47–63 Hz
Connection method	Pre-wired with 36 inches of #10 AWG conductor
Modes of protection	All modes (L-N, L-G, N-G, L-L)
Fault rating (SCCR)	200 kAIC — no upstream over-current protection device (breaker or fuse) required
Application	ANSI/IEEE C62.41.1 locations A, B and C ideal for distribution panels, branch panels and critical loads

Mechanical		
Installation location		Indoor or outdoor
Mounting method		Dual mounting flanges
Operating environment	-40 °F to 149 °F (-40 °C to +65 °C)	5%–95% non-condensing humidity
Altitude		0–12,000 ft (3.66 km)
Product design		Individual thermally fused MOV technology

EMI/RFI filter attenuation	
Mil Standard 220B	Up to 40 dB from 10 kHz to 100 MHz

Regulatory	
cULus 1449 5th Edition	VZCA: E316636 Type 1
UL 1283 with filter option	Yes
UL96A compliant	Yes
IEEE C62.41.2, C62.45	Yes
NFPA 70 (NEC), Article 285	Yes
RoHs compliant	Yes
Listed by	UL

Warranty	**10 years**

OVRHTP series

OVRHTP (240 to 400 kA)

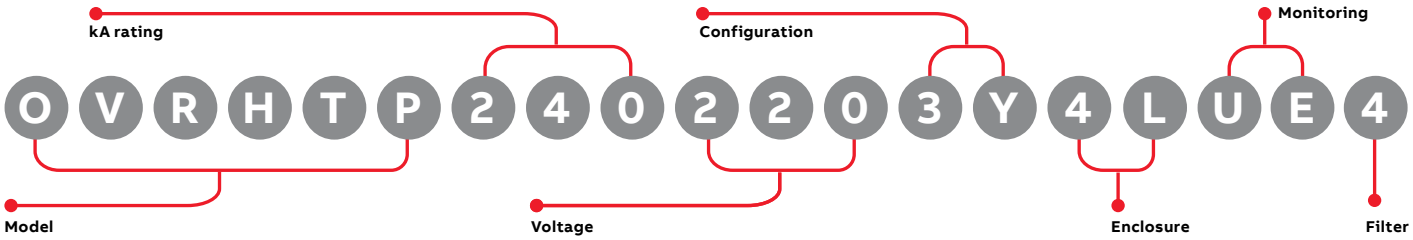


Product features

- UL Listed 1449 5th edition for Type 1 and Type 2 SPD applications
- Thermally protected MOVs provide superior protection and continuous operation
- 200 kAIC short circuit current rating allows direct bus connection without the need for an upstream over-current protection device
- UL 1283 EMI/RF filter available as an option
- Compact and lightweight design
- 10-year standard warranty

c UL US LISTED

RoHS Compliant



kA rating	Suffix
240 kA per phase, 120 kA per mode	240
300 kA per phase, 150 kA per mode	300
400 kA per phase, 200 kA per mode	400

Enclosure option	Suffix
Fiberglass-reinforced polyester with termination lugs	PL
Powder-coated metal NEMA 4 with termination lugs	4L
Stainless steel NEMA 4X with termination lug	SL

Voltage and configuration (must choose one)	Suffix
120 V, 1-phase, 2-wire + ground	1201P
127 V, 1-phase, 2-wire + ground	1271P
220 V, 1-phase, 2-wire + ground	2201P
230 V, 1-phase, 2-wire + ground	2301P
240 V, 1-phase, 2-wire + ground	2401P
277 V, 1-phase, 2-wire + ground	2771P
240/120 V, 2-phase, 3-wire + ground	1202S
480/240 V, 2-phase, 3-wire + ground	2402S
240Δ /120 V, 3-phase high-leg , 4-wire + ground	1203H
208Y/120 V, 3-phase Wye, 4-wire + ground	1203Y
380Y/220 V, 3-phase Wye, 4-wire + ground	2203Y
400Y/230 V, 3-phase Wye, 4-wire + ground	2303Y
415Y/240 V, 3-phase Wye, 4-wire + ground	2403Y
480Y/277 V, 3-phase Wye, 4-wire + ground	2773Y
600Y/347 V, 3-phase Wye, 4-wire + ground	3473Y
208 V, 3-phase Delta, 3-wire + ground	2083D
240 V, 3-phase Delta, 3-wire + ground	2403D
415 V, 3-phase Delta, 3-wire + ground	4153D
480 V, 3-phase Delta, 3-wire + ground	4803D
600 V, 3-phase Delta, 3-wire + ground	6003D

Monitoring option (must choose one)	Suffix
Status indicator LED lights (one per phase)	B
Status indicator LED lights (one per phase), dry relay contacts, audible alarm with silence button, fault light	U
Status indicator LED lights (one per phase), surge counter, dry relay contacts, audible alarm with silence button, fault light	UE

Filter option	Suffix
4 UF filter	4
UL 1283 filter making device a Type 2	4T2
No filter	0

Product specifications

Electrical	
240 kA per phase, 120 kA per mode	
300 kA per phase, 150 kA per mode	
400 kA per phase, 200 kA per mode	
Maximum surge current rating	XX kA per phase, XX kA per mode
Nominal discharge current rating (L-N)	20 kA Earthing and Delta systems 10 kA
Operating frequency	47–63 Hz
Connection method	Termination lugs for #10–#4 AWG conductor (PL, ML or SL enclosure suffix)
Modes of protection	All modes (L-N, L-G, N-G, L-L)
Fault rating (SCCR)	200 kAIC — no upstream over-current protection device (breaker or fuse) required
Application	ANSI/IEEE C62.41.1 locations A, B and C ideal for distribution panels, branch panels and critical loads

Mechanical		
Installation location		Indoor or outdoor
Mounting method		Dual mounting flanges
Operating environment	-40 °F to 149 °F (-40 °C to +65 °C)	5%–95% non-condensing humidity
Altitude		0–12,000 ft (3.66 km)
Product design		Individual thermally fused MOV technology

EMI/RFI filter attenuation	
Mil Standard 220B	Up to 40 dB from 10 kHz to 100 MHz

Regulatory	
cULus 1449 5th Edition	VZCA: E316636 Type 1
UL 1283 with filter option	Yes
UL96A compliant	Yes
IEEE C62.41.2, C62.45	Yes
NFPA 70 (NEC), Article 285	Yes
RoHs compliant	Yes
Listed by	UL

Warranty	**10 years**

OVRH series

OVRHT3D (400 A and below, 50 kA)



Product features

- UL listed 1449 5th edition for Type 1 SPD applications
- 50 kA per phase protection
- Individual thermally fused and protected MOVs
- Includes pre-wired pigtail conductors
- Multiple MOVs per phase eliminate single-point failure

Voltage	Network Type 1 SPD	Part number
240 V	1-phase, 2-wire + ground	OVRHT3D502401P
277 V	1-phase, 2-wire + ground	OVRHT3D502771P
240/120 V	2-phase, 3-wire + ground	OVRHT3D501202S
208/120 V	3-phase Wye, 4-wire + ground	OVRHT3D501203Y
380/220 V	3-phase Wye, 4-wire + ground	OVRHT3D502203Y
480/277 V	3-phase Wye, 4-wire + ground	OVRHT3D502773Y
240 V	3-phase Delta, 3-wire + ground	OVRHT3D502403D
380 V	3-phase Delta, 3-wire + ground	OVRHT3D503803D
480 V	3-phase Delta, 3-wire + ground	OVRHT3D504803D
Special order		
120 V	1-phase, 2-wire + ground	OVRHT3D501201P
220 V	1-phase, 2-wire + ground	OVRHT3D502201P
230 V	1-phase, 2-wire + ground	OVRHT3D502301P
347 V	1-phase, 2-wire + ground	OVRHT3D503471P
480/240 V	2-phase, 3-wire + ground	OVRHT3D502402S
400/230 V	3-phase Wye, 4-wire + ground	OVRHT3D502303Y
415/240 V	3-phase Wye, 4-wire + ground	OVRHT3D502403Y
600/347 V	3-phase Wye, 4-wire + ground	OVRHT3D503473Y
400 V	3-phase Delta, 3-wire + ground	OVRHT3D504003D
600 V	3-phase Delta, 3-wire + ground	OVRHT3D506003D
240/120 V	3-phase high-leg, 4-wire + ground	OVRHT3D502403H

Electrical	
Maximum surge current	50 kA per phase
UL type designation	Type 1
UL 1449 nominal discharge current rating (I-n)	20 kA
UL 1449 fault rating/short circuit current rating (SCCR)	200 kAIC
Design specifications	
Product design	Individual thermally fused and protected MOVs
Connection methods	External parallel connected for mounting next to electrical gear
Typical connection	18" #12 AWG (pre-wired pig tails)
Diagnostic and status monitoring specifications	
LED protection status monitoring standard	Status indicator light, 1 per phase

Enclosure	
Enclosure type	Polycarbonate, NEMA 4X
Installation location	Indoor/outdoor
Mounting method	12.7 mm (½") NPT side-mount nipple
Technical data	
Humidity range	0–95% non-condensing
Operating environment	-35 °C to +85 °C (-31 °F to +185 °F)
Operating frequency	50–60 Hz
Modes of protection	Model dependent

Size specifications	
Dimensions	4.25" × 2.41" × 2.75"
Weight	0.23 kg (0.5 lb.)

Standards compliance and certifications
UL 1449 5th Edition: 2021, cULus, (UL File: VZCA E316636), ANSI/IEEE C62.41.1-2002, C62.41.2-2002, C62.45-2002, NEC Article 285
ISO 9001: 2014 quality management system, ISO 17025:2007 laboratory certification (UL DAP program) compliance with RoHS, REACH and California Prop 65
100% quality tested prior to shipping

OVRHR

Surge protective device



Product features

- 36 kA per phase
- UL 1449 Listed
- 10 kA I-nominal rating
- 200 kA SCCR
- Catalog number: OVRHR361202S

General specifications	
Maximum surge current	36 kA per phase
UL type designation	Type 1
UL 1449 I-nominal rating	10 kA
UL 1449 Short circuit current rating	65 kA
Design specifications	
Custom MOV design for high energy handling in category c locations	
Thermally protected MOVs	
External parallel connected for mounting next to electrical gear	
Reduced mode of protection (L1-N, L2-N)	
Diagnostic and status monitoring specifications	
LED protection status monitoring (single LED standard)	

Standards compliance and certifications
UL 1449 5th Edition: 2021, cULus, (UL File: VZCA.E316468), ANSI/IEEE C62.41.1-2002, C62.41.2-2002, C62.45-2002, NEC Article 285
ISO 9001: 2014 quality management system, ISO 17025:2007 laboratory certification (UL DAP program) compliance with RoHS, REACH and California Prop 65
100% quality tested prior to shipping

Size and mechanical specifications	
Dimensions	4.25" × 2.41" × 2.75"
Weight	0.46 lbs
Enclosure type	Polycarbonate NEMA 4X
Installation type	Indoor / outdoor
Mounting method	Flush / flange / through-hole

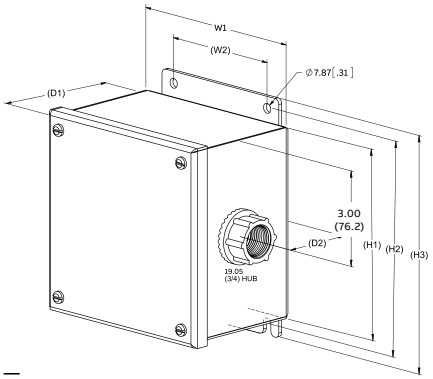
Enclosure
Polycarbonate 4.25" × 2.41" × 2.75"
Lid ultrasonically sealed
NEMA 4X
1/2 inch NPT side-mount nipple
Filtering
NO

Technical data	
Humidity range	0 – 95% non-condensing
Operating frequency	50 – 60 Hz
Operating temperature	-35°C to +85°C
Typical connection	18" #12 AWG (pre-wired pig tails)

UL 1449 performance data						
System voltage	L-N	L-G	N-G	L-L	SCCR	MCOV
240/120 V split Ø	700	–	–	1200	200 kA	180

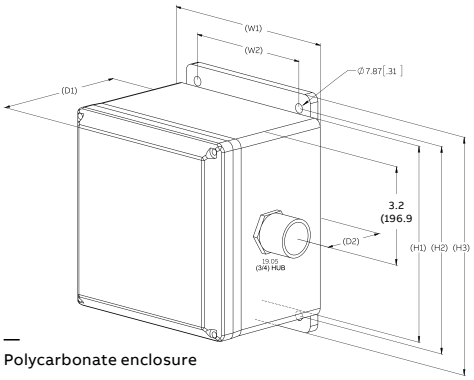
OVRHTP series
Dimensions

Dimensions OVRHTP (60 to 100 kA)



Metal enclosure

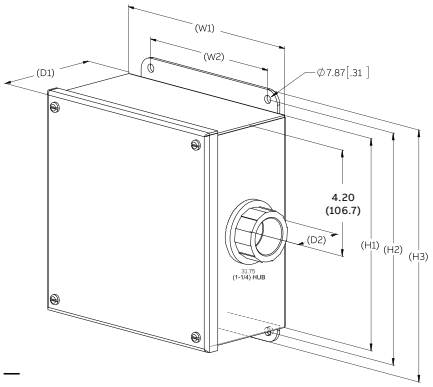
Value	Inches / millimeters
H1	6.00 / 152.4
H2	6.75 / 171.5
H3	7.5 /190.5
W1	6.00 / 152.4
W2	4.00 / 101.6
D1	4.26 / 108.3
D2	2.25 / 57.2



Polycarbonate enclosure

Value	Inches / millimeters
H1	6.42 / 163
H2	6.75 / 171.5
H3	7.75 / 196.9
W1	6.42 / 163
W2	4.50 / 114.3
D1	4.79 / 121.7
D2	2.25 / 57.15

Dimensions OVRHTP (120 to 200 kA)

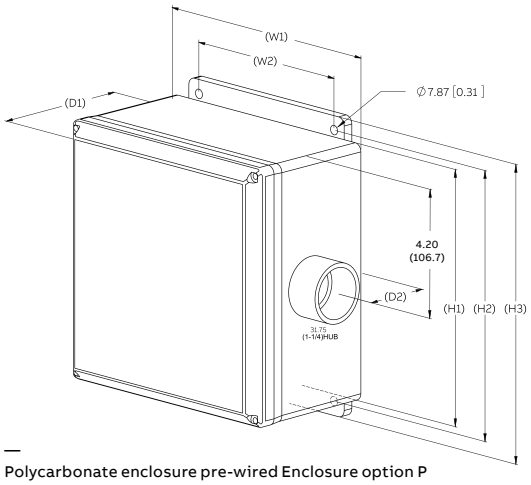


Metal enclosure pre-wired Enclosure option M

Value	Inches / millimeters
H1	8.00 / 203.2
H2	8.75 / 222.3
H3	9.5 / 241.3
W1	8.00 / 203.2
W2	6.00 / 152.4
D1	4.26 / 108.3
D2	2.00 / 50.8

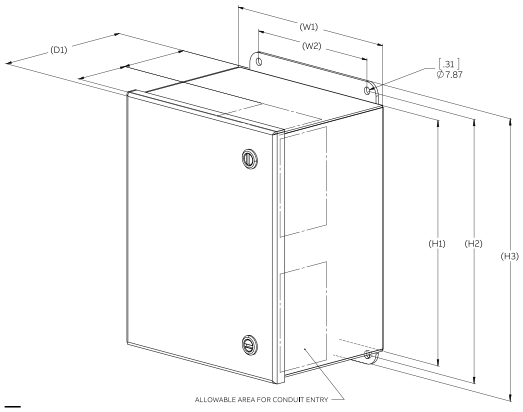
OVRHTP series
Dimensions

Dimensions OVRHTP (120 to 200 kA)



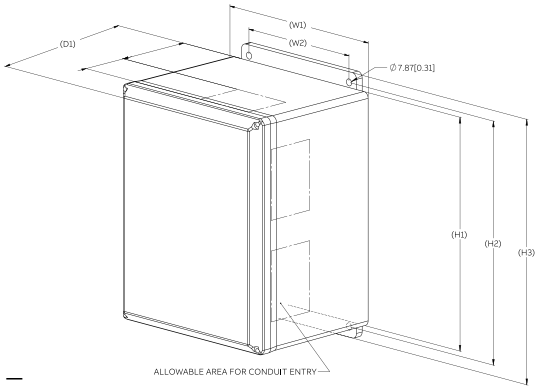
Polycarbonate enclosure pre-wired Enclosure option P

Value	Inches / millimeters
H1	8.42 / 213.9
H2	8.84 / 224.4
H3	9.78 / 248.3
W1	8.42 / 213.9
W2	6.00 / 152.4
D1	4.79 / 121.7
D2	2.25 / 57.2



Metal enclosure with lugs Enclosure option ML

Value	Inches / millimeters
H1	10.00 / 254
H2	10.75 / 273.1
H3	11.5 / 292.1
W1	8.00 / 203.2
W2	6.00 / 152.4
D	6.26 / 159.1

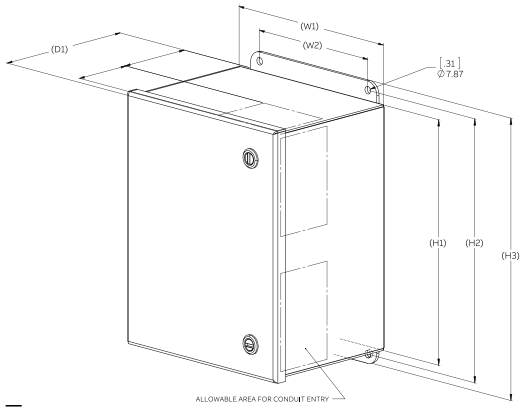


Polycarbonate enclosure with lugs Enclosure option PL

Value	Inches / millimeters
H1	10.35 / 291.9
H2	10.75 / 273.1
H3	11.69 / 296.9
W1	8.35 / 212.1
W2	6.00 / 152.4
D	6.79 / 172.5

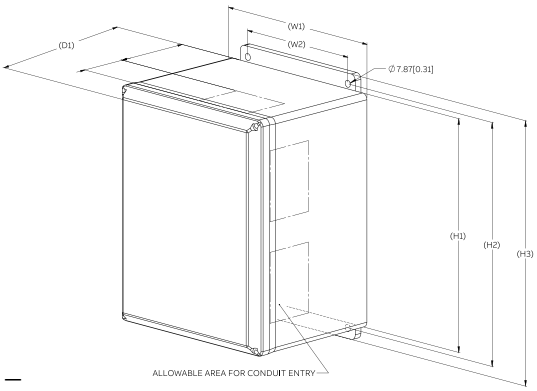
OVRHTP series
Dimensions

Dimensions OVRHTP (240 to 400 kA)



Metal enclosure with lugs Enclosure option ML

H1	10.00 / 254
H2	10.75 / 273.1
H3	11.5 / 292.1
W1	8.00 / 203.2
W2	6.00 / 152.4
D	6.26 / 159.1

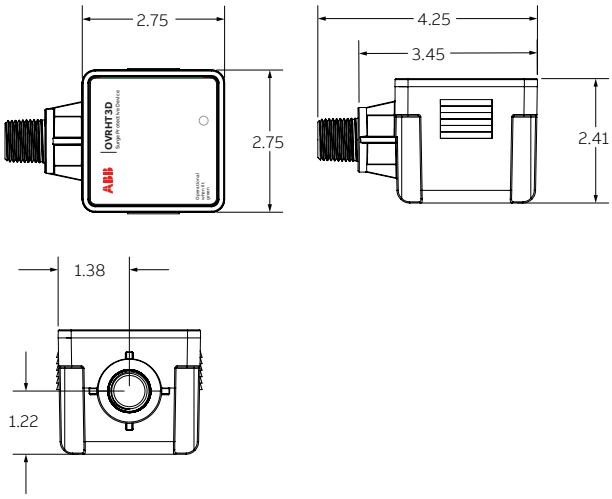


Polycarbonate enclosure with lugs Enclosure option PL

H1	10.35 / 291.9
H2	10.75 / 273.1
H3	11.69 / 296.9
W1	8.35 /212.1
W2	6.00 / 152.4
D	6.79 / 172.5

OVRH series
Dimensions

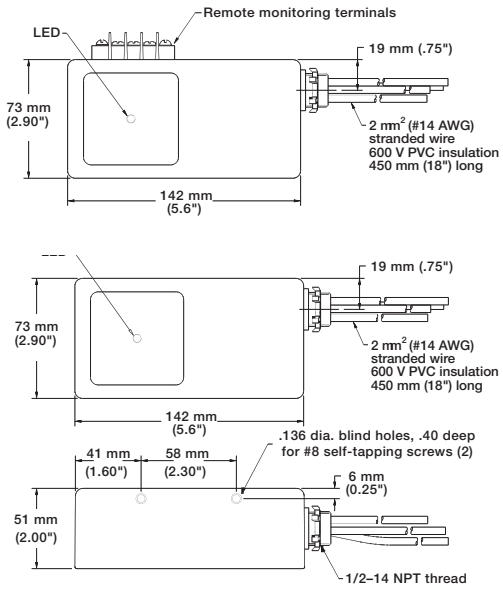
Dimensions OVRHT3D



Value	Inches / millimeters
W	4.25/ 107.95
D	2.41/61.214
H	2.75/69.85

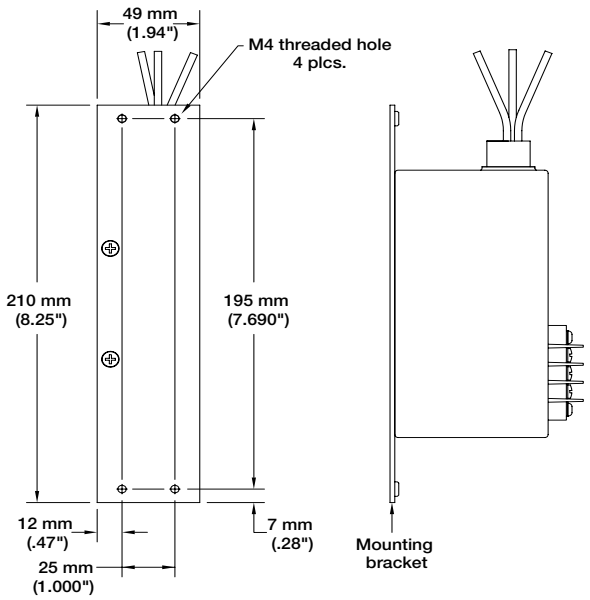
OVRH series
Dimensions

Dimensions OVRHS3U (with and without dry contacts option)



Value	Inches / millimeters
W	2.90 / 73.0
D	2.00 / 51.0
H	5.60 / 142.0

Dimensions mounting bracket OVRHS3U

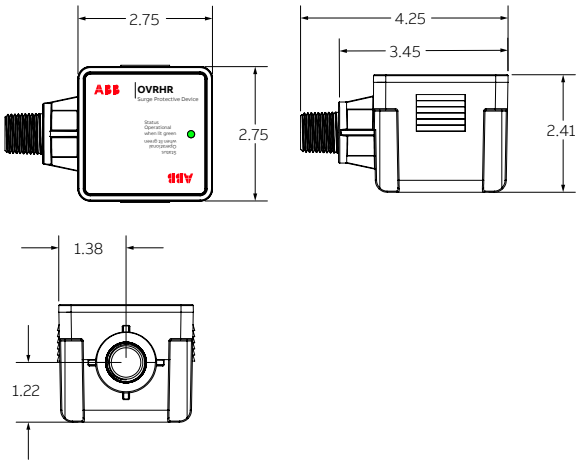


Value	Inches / millimeters
W	1.94 / 49.0
H	8.25 / 210.0

OVRHR series

Dimensions

Dimensions OVRHR



Value	Inches / millimeters
W	4.25/ 107.95
D	2.41/61.214
H	2.75/69.85

Type 2: OVRH series (hard-wired SPDs)

028 – 029 **OVRHMSU series**

OVRHMSU series

Series-connected suppression filter system

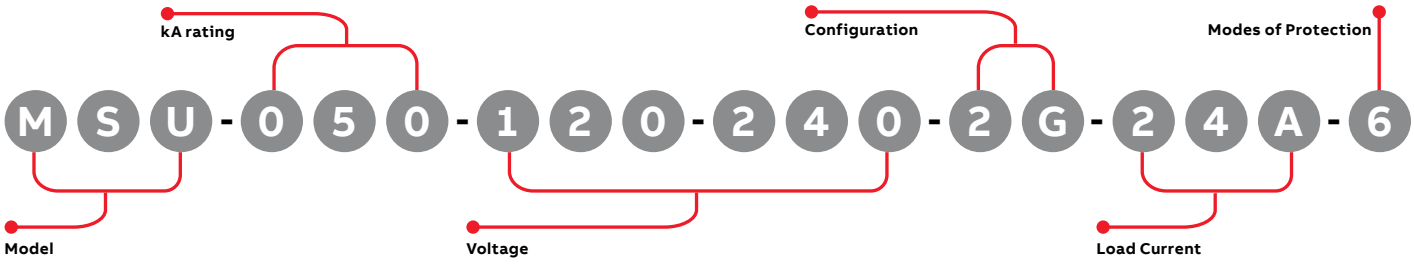


Product features

The OVRHMSU is engineered for hard-wired installation within or adjacent to electrical loads such as outdoor lighting, robotics, process automation systems, motors, HVAC systems, pumps, heaters, programmable logic controllers and other point-of-use applications. Compact and powerful, the OVRHMSU protects these and other individual components from damaging electrical transients, high-frequency noise and high-energy disturbances. OVRHMSU provides 50 kA of surge protection for loads up to 24 amps.

c UL US LISTED

RoHS Compliant



Product specifications	
General specifications	
Maximum surge current rating	50 kA per mode
Voltage (single-phase applications)	120, 220 or 277
Voltage (3-wire + ground applications)	220/380 or 277/480
Voltage (split-phase applications)	120/240
Safety listings	Listed by ETL to UL 1449 5th Edition, Type 4 for Type 2 SPD applications, cUL, and UL 1283 / Compliant to IEEE C62.41.1-2002, C62.41.2-2002 and C62.45-2002 / NFPA 70 [NEC], Article 285 / RoHS Compliant / CE, IEC 61643-11-2011 / EMC Directive 2004/108/EC
Product design	Individually fused MOVs UL 1283 EMI/RFI filter
Ampacity rating	24 A
Dimensions	5.8”W x 4”H x 1.875”D
Weight	2.25 lbs.
Enclosure type	Nonmetallic
Operating environment	-40 °F to 140 °F (-40 °C to 60 °C) 5% – 95% non-condensing humidity
Connection method	Series/in-line; terminal block termination
Connection means	#8 Screws
Protection modes	3 or 6
Warranty	5 years

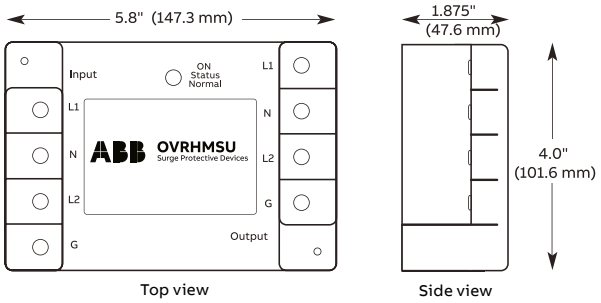
OVRHMSU series

Series-connected suppression filter system

kA/mode	Voltage*	
50 kA = 050	208	120/240
	240	208Y/120
	380	380Y/220
	480	480Y/277

Configuration*		Load current	Modes of protection
1G	1-phase, grounded	24 A	3 or 6
2G	2-phase, grounded, split-phase		

*Consult factory for additional voltage configurations



Input voltages	Phase	Load current ratings (A)	Line frequency range (Hz)
120 V	1	24	50–60
120/240 V	Split-phase	24	50–60
220 V	1	24	50–60
220/380 V	2	24	50–60
277 V	1	24	50–60
277/480 V	2	24	50–60

High-frequency noise filtration

Model no.	Voltage	Mode	1 KHz	10 KHz	100 KHz	1 MHz	10 MHz	100 MHz
MSU50-120-1G-24A-3-ABB	120	L-N	6 dB	16 dB	42 dB	25 dB	21 dB	36 dB
MSU50-120/240-2G-24A-6-ABB	120/240	L-G	6 dB	6 dB	16 dB	55 dB	81 dB	80 dB
MSU50-220-1G-24A-3-ABB	220	L-N	6 dB	16 dB	42 dB	25 dB	21 dB	36 dB
MSU50-220/380-2G-24A-6	220/380	L-G	6 dB	6 dB	16 dB	55 dB	81 dB	80 dB
MSU50-277-1G-24A-3-ABB	277	L-N	6 dB	16 dB	42 dB	25 dB	21 dB	36 dB
MSU50-277/480-2G-24A-6-ABB	277/480	L-G	6 dB	6 dB	8 dB	36 dB	82 dB	81 dB

OVRHMSU performance data

Model no.	System voltage (VAC)	Current (A)	Phase 1 or 2	MCOV / UC (V)			VPR / VPL (Up)					
				L-N	L-G	N-G	L-L	L-N	L-G	N-G	L-L	I-n (kA)
MSU50-120-1G-24A-3-ABB	120	24 A	1	150	300	150	N/A	800	800	800	N/A	20
MSU50-120/240-2G-24A-6-ABB	120/240	24 A	2	150	300	150	300	800	N/A	800	1200	20
MSU50-220-1G-24A-3-ABB	220	24 A	1	320	552	320	N/A	1200	1200	1000	N/A	20
MSU50-220/380-2G-24A-6	220/380	24 A	2	320	552	320	552	1200	N/A	1000	2000	20
MSU50-277-1G-24A-3-ABB	277	24 A	1	320	552	320	N/A	1200	1200	1000	N/A	20
MSU50-277/480-2G-24A-6-ABB	277/480	24 A	2	320	552	320	552	1200	N/A	1000	2000	20

Notes

Type 2: TPME and TPHE series (legacy GE hard-wired SPDs)

032	**TPME series SPD**
033	**TPHE series SPD**
034	**TME series SPD**
035	**THE series SPD**
036	**TLE series SPD**
037	**TME series SPD**
038	**TPME A series integrated SPD**
039	**TPHE series integrated SPD**
040	**TPME series integrated SPD**
041–042	**9" box extension SPD**
043–044	**24" box extension SPD**
045–050	**Dimensions**

Legacy GE

TPME series SPD



Wall-mount SPD with enhanced thermal protection

- UL Listed 1449 5th Edition, Type 1, Type 2
- cUL Listed, CSA C22.2
- UL 96A, for use in lightning protection systems
- Patented thermal fuse technology
- Standard features include a surge counter, audible alarm, indicating lights, dry contacts and NEMA 4 painted steel enclosure
- 10-year limited warranty

Voltage	Configuration	Part number
240/120	1-phase, 3-wire + ground	TPME120SxxxWMN
208Y/120	3-phase, 4-wire + ground	TPME120YxxxWMN
380Y/220	3-phase, 4-wire + ground	TPME220YxxxWMN
240 Delta	3-phase, 3-wire + ground	TPME240DxxxWMN
240/120 Hi-leg delta	3-phase, 4-wire + ground	TPME240HxxxWMN
415Y/240	3-phase, 4-wire + ground	TPME240YxxxWMN
480Y/277	3-phase, 4-wire + ground	TPME277YxxxWMN
600Y/347	3-phase, 4-wire + ground	TPME347YxxxWMN
480 Delta	3-phase, 3-wire + ground	TPME480DxxxWMN
Desired kA		**xxx Code**
65 per mode		06
80 per mode		08
100 per mode		10
Options	**Weight**	**Suffix**
Painted steel, NEMA 4 without disconnect*	44 lbs. (20.0 kg)	WMN4S / WMN4ST1**
Stainless steel, NEMA 4X without disconnect	50 lbs. (22.7 kg)	WMN4X / WMN4XT1**
Painted steel, NEMA 1 with disconnect	63 lbs. (28.5 kg)	WMN1 / WMN1T1**
Fiberglass, NEMA 4X with disconnect	56 lbs. (25.4 kg)	WMN4 / WMN4**

* Standard enclosure

Electrical characteristics	
Maximum surge current rating	xxx per phase/ half xxx per mode 130 kA per phase/ 65 kA per mode 160 kA per phase/ 80 kA per mode 200 kA per phase/ 100 kA per mode
Nominal discharge current rating (L-N)	20 kA
Operating frequency	50–60 Hz
Surge life (IEEE C62.41 - C3 10 kA)	≥5,000 impulses
Connection method	#6 to 2/0 AWG conductors, parallel connected
Modes of protection	All modes (L-N, L-G, N-G, L-L)
Fault rating (SCCR)	200 kAIC
Standard monitoring	Status indicator lights (one per phase) and red service light Audible alarm with silencer and test switch Contacts for remote monitoring (2 amp, 125 V AC)–(1 amp, 30 V DC) 6-digit LCD re-settable surge event counter
EMI / RFI filter attenuation	
Maximum attenuation frequency	-50 dB at 100 kHz
Mechanical characteristics	
Weight	Varies and depends on enclosure type
Enclosure type	Varies on option chosen
Installation location	Service entrance equipment, primary distribution equipment
Mounting method	Surface mount, 4-point mounting brackets
Operating temperature	-40 °F to 149 °F (-40 °C to 65 °C)
Altitude	0–12,000 ft. (3.66 km)
Product design	Individually fused thermally protected MOV technology
Regulations and certifications	
UL 1449 5th edition	VZCA: E320456 Type 1 / Type 2
cUL, CSA C22.2	VZCA7: E320456 Type 2 / Type 2
UL 1283	FOKY: E320456 Type 2
UL 96A	Yes
IEEE C62.62, C62.72, C62.41	Yes
Listed by	UL

Legacy GE

TPHE series SPD



Wall-mount SPD with enhanced thermal protection

- UL Listed 1449 5th Edition, Type 1, Type 2
- cUL Listed, CSA C22.2
- UL 96A, for use in lightning protection systems
- Thermally protected MOV design eliminates the need for additional upstream over-current protection
- Standard features include a surge counter, audible alarm, indicating lights, dry contacts and NEMA 4 painted steel enclosure
- 10-year limited warranty

Voltage	Configuration	Part number
240/120	1-phase, 3-wire + ground	TPHE120Sxxx**WMN**
208Y/120	3-phase, 4-wire + ground	TPHE120Yxxx**WMN**
380Y/220	3-phase, 4-wire + ground	TPHE220Yxxx**WMN**
240 Delta	3-phase, 3-wire + ground	TPHE240Dxxx**WMN**
240/120 Hi-leg delta	3-phase, 4-wire + ground	TPHE240Hxxx**WMN**
415Y/240	3-phase, 4-wire + ground	TPHE240Yxxx**WMN**
480Y/277	3-phase, 4-wire + ground	TPHE277Yxxx**WMN**
600Y/347	3-phase, 4-wire + ground	TPHE347Yxxx**WMN**
480 Delta	3-phase, 3-wire + ground	TPHE480Dxxx**WMN**
Desired kA		**xxx Code**
125 per mode		12
150 per mode		15
200 per mode		20
250 per mode		25
300 per mode		30
Options	**Weight**	**Suffix**
Painted steel, NEMA 4 without disconnect*	44 lbs. (20.0 kg)	WMN4S / WMN4ST1**
Stainless steel, NEMA 4X without disconnect	50 lbs. (22.7 kg)	WMN4X / WMN4XT1**
Painted steel, NEMA 1 with disconnect	63 lbs. (28.5 kg)	WMN1 / WMN1T1**
Fiberglass, NEMA 4X with disconnect	56 lbs. (25.4 kg)	WMN4 / WMN4**

* Standard enclosure

Electrical characteristics	
Maximum surge current rating	250 kA per phase/ 125 kA per mode 300 kA per phase/ 150 kA per mode 400 kA per phase/ 200 kA per mode 500 kA per phase/ 250 kA per mode 600 kA per phase/ 300 kA per mode
Nominal discharge current rating (L-N)	20 kA
Operating frequency	50–60 Hz
Surge life (IEEE C62.41 - C3 10 kA)	≥20,000 impulses
Connection method	#6 to 2/0 AWG conductors, parallel connected
Modes of protection	All modes (L-N, L-G, N-G, L-L)
Fault rating (SCCR)	200 kAIC
Standard monitoring	Status indicator lights (one per phase) and red service light Audible alarm with silencer and test switch Contacts for remote monitoring (2 amp, 125 V AC)–(1 amp, 30 V DC) 6-digit LCD re-settable surge event counter
EMI / RFI filter attenuation	
Maximum attenuation frequency	-50 dB at 100 kHz
Mechanical characteristics	
Weight	Varies and depends on enclosure type
Enclosure type	Varies on option chosen
Installation location	Service entrance equipment, primary distribution equipment
Mounting method	Surface mount, 4-point mounting brackets
Operating temperature	-40 °F to 149 F (-40 °C to 65 °C)
Altitude	0–12,000 ft. (3.66 km)
Product design	Individually fused thermally protected MOV technology
Regulations and certifications	
UL 1449 5th edition	VZCA: E320456 Type 1 / Type 2
cUL, CSA C22.2	VZCA7: E320456 Type 2 / Type 2
UL 1283	FOKY: E320456 Type 2
UL 96A	Yes
IEEE C62.62, C62.72, C62.41	Yes
Listed by	UL

Legacy GE

TME series SPD



Wall-mount SPD

- UL Listed 1449 5th Edition, Type 2
- cUL Listed, CSA C22.2
- UL 96A, for use in lightning protection systems
- UL Recognized 200 kAIC surge-rated fuses in combination with patented thermal fuse technology
- Standard features include a surge counter, audible alarm, indicating lights, dry contacts and NEMA 4 painted steel enclosure
- 10-year limited warranty

Voltage	Configuration	Part number
240/120	1-phase, 3-wire + ground	TME120SxxxWMN
208Y/120	3-phase, 4-wire + ground	TME120YxxxWMN
380Y/220	3-phase, 4-wire + ground	TME220YxxxWMN
240 Delta	3-phase, 3-wire + ground	TME240DxxxWMN
240/120 Hi-leg delta	3-phase, 4-wire + ground	TME240HxxxWMN
415Y/240	3-phase, 4-wire + ground	TME240YxxxWMN
480Y/277	3-phase, 4-wire + ground	TME277YxxxWMN
600Y/347	3-phase, 4-wire + ground	TME347YxxxWMN
480 Delta	3-phase, 3-wire + ground	TME480DxxxWMN
Desired kA		**xxx Code**
65 per mode		065
80 per mode		080
100 per mode		100
Option		**Suffix**
Painted steel, NEMA 4*		4S
Stainless steel, NEMA 4X		4X

* Standard enclosure

Electrical characteristics	
Maximum surge current rating	xxx per phase/ half xxx per mode 130 kA per phase/ 65 kA per mode 160 kA per phase/ 80 kA per mode 200 kA per phase/ 100 kA per mode
Nominal discharge current rating (L-N)	20 kA
Operating frequency	50–60 Hz
Surge life (IEEE C62.41 - C3 10 kA)	≥5,000 impulses
Connection method	#6 to 2/0 AWG conductors, parallel connected
Modes of protection	All modes (L-N, L-G, N-G, L-L)
Fault rating (SCCR)	65 kA (30 A breaker required)
Standard monitoring	Status indicator lights (one per phase) and red service light Audible alarm with silencer and test switch Contacts for remote monitoring (2 amp, 125 V AC)–(1 amp, 30 V DC) 6-digit LCD re-settable surge event counter

EMI / RFI filter attenuation	
Maximum attenuation frequency	-44 dB at 50–100 kHz
Mechanical characteristics	
Weight	32 lbs. (14.51 kg)
Enclosure type	Varies on option chosen
Installation location	Service entrance equipment, primary distribution equipment – Rated for UL and NEC 2020 Type 2 installation locations
Mounting method	Dual mounting flanges / ¾" NPT offset nipple
Operating temperature	-40 °F to 149 °F (-40 °C to 65 °C)
Altitude	0–12,000 ft. (3.66 km)
Product design	Thermal fuse technology
Regulations and certifications	
UL 1449 5th edition	VZCA: E320456 Type 2
cUL, CSA C22.2	VZCA7: E320456 Type 2
UL 1283	FOKY: E320456 Type 2
UL 96A	Yes
IEEE C62.62, C62.72	Yes
Listed by	UL

Legacy GE

THE series SPD



Wall-mount SPD

- UL Listed 1449 5th Edition, Type 2
- cUL Listed, CSA C22.2
- UL 96A, for use in lightning protection systems
- UL Recognized 200 kAIC surge-rated fuses in combination with patented thermal fuse technology
- Standard features include a surge counter, audible alarm, indicating lights, dry contacts and NEMA 4 painted steel enclosure
- 10-year limited warranty

Voltage	Configuration	Part number
240/120	1-phase, 3-wire + ground	THE120SxxxWMN
208Y/120	3-phase, 4-wire + ground	THE120YxxxWMN
380Y/220	3-phase, 4-wire + ground	THE220YxxxWMN
240 Delta	3-phase, 3-wire + ground	THE240DxxxWMN
240/120 Hi-leg delta	3-phase, 4-wire + ground	THE240HxxxWMN
415Y/240	3-phase, 4-wire + ground	THE240YxxxWMN
480Y/277	3-phase, 4-wire + ground	THE277YxxxWMN
600Y/347	3-phase, 4-wire + ground	THE347YxxxWMN
480 Delta	3-phase, 3-wire + ground	THE480DxxxWMN
600 Delta	3-phase, 3-wire + ground	THE600DxxxWMN
600 Delta is offered in version on prior page		

Desired kA	xxx Code
125 per mode	125
150 per mode	150
200 per mode	200
250 per mode	250
300 per mode	300

Option	Suffix
Painted steel, NEMA 4*	4S
Stainless steel, NEMA 4X	4X

* Standard enclosure

Electrical characteristics	
Maximum surge current rating	xxx per phase/ half xxx per mode 250 kA per phase/ 125 kA per mode 300 kA per phase/ 150 kA per mode 400 kA per phase/ 200 kA per mode 500 kA per phase/ 250 kA per mode 600 kA per phase/ 300 kA per mode
Nominal discharge current rating (L-N)	20 kA
Operating frequency	50–60 Hz
Surge life (IEEE C62.41 - C3 10 kA)	≥20,000 impulses
Connection method	#6 to 2/0 AWG conductors, parallel connected
Modes of protection	All modes (L-N, L-G, N-G, L-L)
Fault rating (SCCR)	200 kAIC (60 A breaker required as a local disconnect means)
Standard monitoring	Status indicator lights (one per phase) and red service light Audible alarm with silencer and test switch Contacts for remote monitoring (2 amp, 125 V AC)–(1 amp, 30 V DC) 6-digit LCD re-settable surge event counter
EMI / RFI filter attenuation	
Maximum attenuation frequency	-44 dB at 50–100 kHz
Mechanical characteristics	
Weight	50 lbs. (22.68 kg)
Enclosure type	Varies on option chosen
Installation location	Service entrance equipment, primary distribution equipment – Rated for UL and NEC 2020 Type 2 installation locations
Mounting method	Dual mounting flanges / ¾" NPT offset nipple
Operating temperature	-40 °F to 149 °F (-40 °C to 65 °C)
Altitude	0–12,000 ft. (3.66 km)
Product design	Thermal fuse technology
Regulations and certifications	
UL 1449 5th edition	VZCA: E320456 Type 2
cUL, CSA C22.2	VZCA7: E320456 Type 2
UL 1283	Yes
UL 96A	Yes
IEEE C62.62, C62.72	Yes
Listed by	UL

Legacy GE

TLE series SPD



Wall-mount SPD

- UL Listed 1449 5th Edition, Type 2
- cUL Listed, CSA C22.2
- Compact and economical design for use at medium-exposure distribution or branch panels
- Patented thermal fuse technology
- Standard features include status indicating LEDs, form C dry contacts for remote monitoring and NEMA 12 painted steel enclosure
- 10-year limited warranty

Voltage	Configuration	Part number
240/120	1-phase, 3-wire + ground	TLE120Sxxx**WM**
208Y/120	3-phase, 4-wire + ground	TLE120Yxxx**WM**
380Y/220	3-phase, 4-wire + ground	TLE220Yxxx**WM**
240 Delta	3-phase, 3-wire + ground	TLE240Dxxx**WM**
240/120 Hi-leg delta	3-phase, 4-wire + ground	TLE240Hxxx**WM**
415Y/240	3-phase, 4-wire + ground	TLE240Yxxx**WM**
480Y/277	3-phase, 4-wire + ground	TLE277Yxxx**WM**
480 Delta	3-phase, 3-wire + ground	TLE480Dxxx**WM**
600 Delta is offered in version on prior page		

Desired kA	xxx Code
25 per mode	025
50 per mode	050

Electrical characteristics	
Maximum surge current rating	xxx per phase/ half xxx per mode 50 kA per phase/ 25 kA per mode 100 kA per phase/ 50 kA per mode
Nominal discharge current rating (L-N)	10 kA
Operating frequency	50–60 Hz
Surge life (IEEE C62.41 - C3 10 kA)	≥3,500 impulses
Connection method	#10 AWG conductors, parallel connected
Modes of protection	All modes (L-N, L-G, N-G, L-L)
Fault rating (SCCR)	65 kA (30 A breaker required)
Standard monitoring	Status indicator lights (one per phase) Standard dry (form C) relay contacts
Mechanical characteristics	
Weight	17 lbs. (7.7 kg)
Enclosure type	Painted steel, NEMA 12
Installation location	Secondary distribution equipment, branch panels – Rated for UL and NEC 2020 Type 2 installation locations
Mounting method	Dual mounting flanges / ¾" NPT offset nipple
Operating temperature	-40 °F to 149 °F (-40 °C to 65 °C)
Altitude	0–12,000 ft. (3.66 km)
Product design	Thermal fuse technology
Regulations and certifications	
UL 1449 5th edition	VZCA: E320456 Type 2
cUL, CSA C22.2	VZCA7: E320456 Type 2
IEEE C62.62, C62.72	Yes
Listed by	UL

Legacy GE

TME series SPD



Wall-mount SPD

- UL Listed 1449 5th Edition, Type 2
- cUL Listed, CSA C22.2
- UL 96A, for use in lightning protection systems
- Compact and economical design for use at medium-exposure distribution or branch panels
- Standard features include status indicating LEDs, form C dry contacts for remote monitoring and NEMA 12 painted steel enclosure
- 10-year limited warranty

Voltage	Configuration	Part number
240/120	1-phase, 3-wire + ground	TME120Sxxx WM
208Y/120	3-phase, 4-wire + ground	TME120Yxxx WM
380Y/220	3-phase, 4-wire + ground	TME220Yxxx WM
240 Delta	3-phase, 3-wire + ground	TME240Dxxx WM
240/120 Hi-leg delta	3-phase, 4-wire + ground	TME240Hxxx WM
415Y/240	3-phase, 4-wire + ground	TME240Yxxx WM
480Y/277	3-phase, 4-wire + ground	TME277Yxxx WM
480 Delta	3-phase, 3-wire + ground	TME480Dxxx WM
Desired kA		**xxx Code**
65 per mode		065
80 per mode		080
100 per mode		100

Electrical characteristics	
Maximum surge current rating	xxx per phase/ half xxx per mode 130 kA per phase/ 65 kA per mode 160 kA per phase/ 80 kA per mode 200 kA per phase/ 100 kA per mode
Nominal discharge current rating (L-N)	20 kA
Operating frequency	50–60 Hz
Surge life (IEEE C62.41 - C3 10 kA)	≥5,000 impulses
Connection method	#10 AWG conductors, parallel connected
Modes of protection	All modes (L-N, L-G, N-G, L-L)
Fault rating (SCCR)	65 kA (30 A breaker required)
Standard monitoring	Status indicator lights (one per phase) Standard dry (form C) relay contacts
EMI / RFI filter attenuation	
Maximum attenuation frequency	-44 dB at 50 kHz–100 MHz
Mechanical characteristics	
Weight	17 lbs. (7.7 kg)
Enclosure type	Painted steel, NEMA 12
Installation location	Service entrance equipment, primary distribution equipment – Rated for UL and NEC 2020 Type 2 installation locations
Mounting method	Dual mounting flanges / ¾" NPT offset nipple
Operating temperature	-40 °F to 149 °F (-40 °C to 65 °C)
Altitude	0–12,000 ft. (3.66 km)
Product design	Thermal fuse technology
Regulations and certifications	
UL 1449 5th edition	VZCA: E320456 Type 2
cUL, CSA C22.2	VZCA7: E320456 Type 2
UL 1283	FOKY: E320456 Type 2
UL 96A	Yes
IEEE C62.62, C62.72	Yes
Listed by	UL

Legacy GE

TPME A series integrated SPD



Designed to connect within ReliaGear™ panelboards

- UL Listed 1449 5th Edition, Type 1, Type 2
- cUL, CSA C22.2
- Factory installed in GE® A Series™ panels
- Connects directly to the A Series panelboard bus bars
- Standard features include a surge counter, audible alarm, indicating lights, dry contacts and NEMA 4 painted steel enclosure
- 10-year limited warranty

Voltage	Configuration	Part number
240/120	1-phase, 3-wire + ground	TPME120Sxx*
208Y/120	3-phase, 4-wire + ground	TPME120Yxx*
240 Delta	3-phase, 3-wire + ground	TPME240Dxx*
240/120 Hi-leg delta	3-phase, 4-wire + ground	TPME240Hxx*
415Y/240	3-phase, 4-wire + ground	TPME240Yxx*
480Y/277	3-phase, 4-wire + ground	TPME277Yxx*
380Y/220	3-phase, 4-wire + ground	TPME220Yxx*
600Y/347	3-phase, 4-wire + ground	TPME347Yxx*
480 Delta	3-phase, 3-wire + ground	TPME480Dxx*
Desired kA		**xx Code**
65 per mode		06
80 per mode		08
100 per mode		10
Options (*)		**Suffix (*)**
With UL 1283 noise filter and surge counter *		AS
Without UL 1283 noise filtering only (available in 100 kA per mode only)		ASNF
Without UL 1283 noise filter and surge counter (available in 100 kA per mode only)		ASNC

AST1
Full featured with UL 1283 noise filtering and surge counter for UL Type 1 locations

* Standard option

Electrical characteristics	
Maximum surge current rating	xxx per phase/ half xxx per mode mode 130 kA per phase/ 65 kA per mode 160 kA per phase/ 80 kA per mode 200 kA per phase/ 100 kA per mode
Nominal discharge current rating (L-N)	20 kA
Operating frequency	50–60 Hz
Surge life (IEEE C62.41 - C3 10 kA)	≥5,000 impulses
Connection method	#6 to 2/0 AWG conductors, parallel connected
Modes of protection	All modes (L-N, L-G, N-G, L-L)
Fault rating (SCCR)	200 kAIC
Standard monitoring	Status indicator lights (one per phase) and red service light Audible alarm with silencer and test switch Contacts for remote monitoring (2 amp, 125 V AC)–(1 amp, 30 V DC) 6-digit LCD re-settable surge event counter
EMI / RFI filter attenuation	
Maximum attenuation frequency	-50 dB at 100 kHz
Mechanical characteristics	
Weight	13 lbs. (5.9 kg)
Enclosure type	Painted steel, NEMA 12
Installation location	Service entrance equipment, primary distribution equipment, secondary distribution equipment, lighting panels – Rated for UL and NEC 2008 Type 1 and Type 2 installation locations
Mounting method	Bolts onto electrical panel interior frame
Operating temperature	-40 °F to 149 °F (-40 °C to 65 °C)
Altitude	0–12,000 ft. (3.66 km)
Product design	Individually fused thermally protected MOV technology
Regulations and certifications	
UL 1449 5th edition	VZCA2: E320456 Type 1 / Type 2
cUL, CSA C22.2	VZCA8: E320456 Type 1 / Type 2
UL 1283	FOKY2: E320456 Type 2
UL 96A	Yes
IEEE C62.62, C62.72, C62.41	Yes
Listed by	UL

Legacy GE

TPHE series integrated SPD



Designed for ABB distribution equipment

- UL Listed 1449 5th Edition, Type 1, Type 2
- cUL, CSA C22.2
- Connect to the panelboard or switchboard bus bars
- Thermally protected MOV design eliminates the need for additional upstream over-current protection
- Standard features include a surge counter, audible alarm, indicating lights, dry contacts and NEMA 4 painted steel enclosure
- 10-year limited warranty

Voltage	Configuration	Part number
240/120	1-phase, 3-wire + ground	TPHE120Sxx*
208Y/120	3-phase, 4-wire + ground	TPHE120Yxx*
380Y/220	3-phase, 4-wire + ground	TPHE220Yxx*
240 Delta	3-phase, 3-wire + ground	TPHE240Dxx*
240/120 Hi-leg delta	3-phase, 4-wire + ground	TPHE240Hxx*
415Y/240	3-phase, 4-wire + ground	TPHE240Yxx*
480Y/277	3-phase, 4-wire + ground	TPHE277Yxx*
600Y/347	3-phase, 4-wire + ground	TPHE347Yxx*
480 Delta	3-phase, 3-wire + ground	TPHE480Dxx*
Desired kA		**xx Code**
65 per mode		06
80 per mode		08
100 per mode		10

Options	Mounting	UL Type	Suffix (*)
ABB Spectra power panels	Integral	Type 2	PP
ABB motor control centers	Integral	Type 2	ME
ABB LV switchgear	Integral	Type 2	SG
ABB Spectra power panels	Integral	Type 1	PPT1
ABB motor control centers	Integral	Type 1	MET1
ABB LV switchgear	Integral	Type 1	SGT1

Electrical characteristics	
Maximum surge current rating	xxx per phase/ half xxx per mode 130 kA per phase/ 65 kA per mode 160 kA per phase/ 80 kA per mode 200 kA per phase/ 100 kA per mode
Nominal discharge current rating (L-N)	20 kA
Operating frequency	50–60 Hz
Surge life (IEEE C62.41 - C3 10 kA)	≥5,000 impulses
Connection method	#6 to 2/0 AWG conductors, parallel connected
Modes of protection	All modes (L-N, L-G, N-G, L-L)
Fault rating (SCCR)	200 kAIC
Standard monitoring	Status indicator lights (one per phase) and red service light Audible alarm with silencer and test switch Contacts for remote monitoring (2 amp, 125 V AC)–(1 amp, 30 V DC) 6-digit LCD re-settable surge event counter
EMI / RFI filter attenuation	
Maximum attenuation frequency	-50 dB at 100 kHz
Mechanical characteristics	
Weight	24 lbs. (10.89 kg)
Installation location	Service entrance equipment, primary distribution equipment – Rated for UL and NEC 2008 Type 1 and Type 2 installation locations
Mounting method	Bolts onto electrical panel interior frame
Operating temperature	-40 °F to 149 °F (-40 °C to 65 °C)
Altitude	0–12,000 ft. (3.66 km)
Product design	Individually fused thermally protected MOV technology
Regulations and certifications	
UL 1449 5th edition	VZCA2: E320456 Type 1 / Type 2
cUL, CSA C22.2	VZCA8: E320456 Type 1 / Type 2
UL 1283	FOKY2: E320456 Type 2
UL 96A	Yes
IEEE C62.62, C62.72, C62.41	Yes
Listed by	UL

Legacy GE

TPME series integrated SPD



Designed for ABB distribution equipment

- UL Listed 1449 5th Edition, Type 2
- cUL, CSA C22.2
- Connect to the panelboard or switchboard bus bars
- Thermally protected MOV design eliminates the need for additional upstream over-current protection
- Standard features include a surge counter, audible alarm, indicating lights, dry contacts and integral surge-rated disconnect
- 10-year limited warranty

Voltage	Configuration	Part number
240/120	1-phase, 3-wire + ground	TPME120Sxx*
208Y/120	3-phase, 4-wire + ground	TPME120Yxx*
380Y/220	3-phase, 4-wire + ground	TPME220Yxx*
240 Delta	3-phase, 3-wire + ground	TPME240Dxx*
240/120 Hi-leg delta	3-phase, 4-wire + ground	TPME240Hxx*
415Y/240	3-phase, 4-wire + ground	TPME240Yxx*
480Y/277	3-phase, 4-wire + ground	TPME277Yxx*
600Y/347	3-phase, 4-wire + ground	TPME347Yxx*
480 Delta	3-phase, 3-wire + ground	TPME480Dxx*

Desired kA	xx Code
125 per mode	12
150 per mode	15
200 per mode	20
250 per mode	25
300 per mode	30

Options	Mounting	UL Type	Suffix (*)
ABB Spectra power panels	Integral	Type 2	PP
ABB motor control centers	Integral	Type 2	ME
ABB LV switchgear	Integral	Type 2	SG
ABB Spectra power panels	Integral	Type 1	PPT1
ABB motor control centers	Integral	Type 1	MET1
ABB LV switchgear	Integral	Type 1	SGT1

Electrical characteristics	
Maximum surge current rating	xxx per phase/ half xxx per mode 250 kA per phase/ 125 kA per mode 300 kA per phase/ 150 kA per mode 400 kA per phase/ 200 kA per mode 500 kA per phase/ 250 kA per mode 600 kA per phase/ 300 kA per mode
Nominal discharge current rating (L-N)	20 kA
Operating frequency	50–60 Hz
Surge life (IEEE C62.41 - C3 10 kA)	≥20,000 impulses
Connection method	#6 to 2/0 AWG conductors, parallel connected
Modes of protection	All modes (L-N, L-G, N-G, L-L)
Fault rating (SCCR)	200 kAIC
Standard monitoring	Status indicator lights (one per phase) and red service light Audible alarm with silencer and test switch Contacts for remote monitoring (2 amp, 125 V AC)–(1 amp, 30 V DC) 6-digit LCD re-settable surge event counter
EMI / RFI filter attenuation	
Maximum attenuation frequency	-50 dB at 100 kHz
Mechanical characteristics	
Weight	24 lbs. (10.89 kg)
Installation location	Service entrance equipment, primary distribution equipment – Rated for UL and NEC 2020 Type 1 and Type 2 installation locations
Mounting method	Bolts onto electrical panel interior frame
Operating temperature	-40 °F to 149 °F (-40 °C to 65 °C)
Altitude	0–12,000 ft. (3.66 km)
Product design	Individually fused thermally protected MOV technology
Regulations and certifications	
UL 1449 5th edition	VZCA2: E320456 Type 1 / Type 2
UL 1283	VZCA8: E320456 Type 1 / Type 2
cUL, CSA C22.2	FOKY2: E320456 Type 2
UL 96A	Yes
IEEE C62.62, C62.72, C62.41	Yes
Listed by	UL

Legacy GE

9" box extension SPD



Designed for ABB distribution equipment

- UL Listed 1449 5th Edition, Type 2
- cUL, CSA C22.2
- The 9" box extension SPD is field installed and attaches neatly to the top or bottom of a standard panel
- The true maximum surge current rating, unlimited by fusing, has been proven successful in third-party tests
- Standard features include a surge counter, audible alarm, indicating lights and dry contacts
- 10-year limited warranty

Voltage	Configuration	Part number
240/120	1-phase, 3-wire + ground	TPME120SxxBX*
208Y/120	3-phase, 4-wire + ground	TPME120YxxBX*
380Y/220	3-phase, 4-wire + ground	TPME220YxxBX*
240 Delta	3-phase, 3-wire + ground	TPME240DxxBX*
240/120 Hi-leg delta	3-phase, 4-wire + ground	TPME240HxxBX*
415Y/240	3-phase, 4-wire + ground	TPME240YxxBX*
480Y/277	3-phase, 4-wire + ground	TPME277YxxBX*
600Y/347	3-phase, 4-wire + ground	TPME347YxxBX*
480 Delta	3-phase, 3-wire + ground	TPME480DxxBX*
Desired kA		**xx Code**
65 per mode		06
80 per mode		08
100 per mode		10
Options		**Suffix (*)**
Surface mounted, no display		9S
Surface mounted, display access		9WS
Flush mounted , no display		9F
Flush mounted, display access		9WF

Electrical characteristics	
Maximum surge current rating	xxx per phase/ half xxx per mode 130 kA per phase/ 65 kA per mode 160 kA per phase/ 80 kA per mode 200 kA per phase/ 100 kA per mode
Nominal discharge current rating (L-N)	20 kA
Operating frequency	50–60 Hz
Connection method	#6 to 2/0 AWG conductors, parallel connected Note: A dedicated circuit breaker, rated 60 A or above, is recommended to provide a local disconnecting means for the SPD.
Modes of protection	All modes (L-N, L-G, N-G, L-L)
Fault rating (SCCR)	65 kAIC
Standard monitoring	Status indicator lights (one per phase) and red service light Audible alarm with silencer and test switch Contacts for remote monitoring (2 amp, 125 V AC)–(1 amp, 30 V DC) 6-digit LCD re-settable surge event counter
EMI / RFI filter attenuation	
Maximum attenuation frequency	-50 dB at 100 kHz
Mechanical characteristics	
Weight	31 lbs. (14.1 kg)
Enclosure type	NEMA 1
Installation location	Service entrance equipment, primary distribution equipment - Rated for UL and NEC 2020 Type 2 installation locations
Mounting method	Either top or bottom of A-Series panelboard only
Operating temperature	-40 °F to 149 °F (-40°C to 65 °C)
Altitude	0–12,000 ft. (3.66 km)
Product design	Individually fused thermally protected MOV technology
Regulations and certifications	
UL 1449 5th edition	XUPD.E248748 Type 2
UL 1283	Yes
UL 96A	Yes
cUL, CSA C22.2	VZCA7: E320456 Type 2
IEEE C62.62, C62.72	Yes
Listed by	UL

Legacy GE

9" box extension SPD



Designed for ABB distribution equipment

- UL Listed 1449 5th Edition, Type 2
- cUL, CSA C22.2
- The 9" box extension SPD is field installed and attaches neatly to the top or bottom of a standard panel
- The true maximum surge current rating, unlimited by fusing, has been proven successful in third-party tests
- Standard features include a surge counter, audible alarm, indicating lights and dry contacts
- 10-year limited warranty

Voltage	Configuration	Part number
240/120	1-phase, 3-wire + ground	TPHE120Sxx**BX***
208Y/120	3-phase, 4-wire + ground	TPHE120Yxx**BX***
380Y/220	3-phase, 4-wire + ground	TPHE220Yxx**BX***
240 Delta	3-phase, 3-wire + ground	TPHE240Dxx**BX***
240/120 Hi-leg delta	3-phase, 4-wire + ground	TPHE240Hxx**BX***
415Y/240	3-phase, 4-wire + ground	TPHE240Yxx**BX***
480Y/277	3-phase, 4-wire + ground	TPHE277Yxx**BX***
600Y/347	3-phase, 4-wire + ground	TPHE347Yxx**BX***
480 Delta	3-phase, 3-wire + ground	TPHE480Dxx**BX***
Desired kA		**xx Code**
150 per mode		15
200 per mode		20
300 per mode		30
Options		**Suffix (*)**
Surface mounted, no display		9S
Surface mounted, display access		9WS
Flush mounted , no display		9F
Flush mounted, display access		9WF

Electrical characteristics	
Maximum surge current rating	xxx per phase/ half xxx per mode 300 kA phase/150 kA per mode 400 kA phase/200 kA per mode 600 kA phase/300 kA per mode
Nominal discharge current rating (L-N)	20 kA
Operating frequency	50–60 Hz
Connection method	#6 to 2/0 AWG conductors, parallel connected Note: A dedicated circuit breaker, rated 60 A or above, is recommended to provide a local disconnecting means for the SPD.
Modes of protection	All modes (L-N, L-G, N-G, L-L)
Fault rating (SCCR)	65 kAIC
Standard monitoring	Status indicator lights (one per phase) and red service light Audible alarm with silencer and test switch Contacts for remote monitoring (2 amp, 125 V AC)–(1 amp, 30 V DC) 6-digit LCD re-settable surge event counter
EMI / RFI filter attenuation	
Maximum attenuation frequency	-50 dB at 100 kHz
Mechanical characteristics	
Weight	31 lbs. (14.1 kg)
Enclosure type	NEMA 1
Installation location	Service entrance equipment, primary distribution equipment - Rated for UL and NEC 2020 Type 2 installation locations
Mounting method	Either top or bottom of A-Series panelboard only
Operating temperature	-40 °F to 149 °F (-40°C to 65 °C)
Altitude	0–12,000 ft. (3.66 km)
Product design	Individually fused thermally protected MOV technology
Regulations and certifications	
UL 1449 5th edition	XUPD.E248748 Type 2
UL 1283	Yes
UL 96A	Yes
cUL, CSA C22.2	VZCA7: E320456 Type 2
IEEE C62.62, C62.72	Yes
Listed by	UL

Legacy GE

24" box extension SPD



Designed for ABB distribution equipment

- UL Listed 1449 5th Edition for Type 2 applications
- cUL, CSA C22.2
- This model is installed in an extended box and connects to the panelboard
- The true maximum surge current rating, unlimited by fusing, has been proven successful in third-party tests
- Standard features include a surge counter, audible alarm, indicating lights and dry contacts
- 10-year limited warranty

Voltage	Configuration	Part number
240/120	1-phase, 3-wire + ground	TPME120SxxBX*
208Y/120	3-phase, 4-wire + ground	TPME120YxxBX*
380Y/220	3-phase, 4-wire + ground	TPME220YxxBX*
240 Delta	3-phase, 3-wire + ground	TPME240DxxBX*
240/120 Hi-leg delta	3-phase, 4-wire + ground	TPME240HxxBX*
415Y/240	3-phase, 4-wire + ground	TPME240YxxBX*
480Y/277	3-phase, 4-wire + ground	TPME277YxxBX*
600Y/347	3-phase, 4-wire + ground	TPME347YxxBX
480 Delta	3-phase, 3-wire + ground	TPME480DxxBX
Desired kA		**xx Code**
65 per mode		06
80 per mode		08
100 per mode		10
Options		**Suffix (*)**
Surface mounted, display access		24WS
Flush mounted, display access		24WF

Electrical characteristics	
Maximum surge current rating	xxx per phase/ half xxx per mode 130 kA phase/65 kA per mode 160 kA phase/80 kA per mode 200 kA phase/100 kA per mode
Nominal discharge current rating (L-N)	20 kA
Operating frequency	50–60 Hz
Connection method	#6 to 2/0 AWG conductors, parallel connected Note: A dedicated circuit breaker, rated 60 A or above, is recommended to provide a local disconnecting means for the SPD.
Modes of protection	All modes (L-N, L-G, N-G, L-L)
Fault rating (SCCR)	200 kAIC
Standard monitoring	Status indicator lights (one per phase) and red service light Audible alarm with silencer and test switch Contacts for remote monitoring (2 amp, 125 V AC)–(1 amp, 30 V DC) 6-digit LCD re-settable surge event counter
EMI / RFI filter attenuation	
Maximum attenuation frequency	-50 dB at 100 kHz
Mechanical characteristics	
Weight	57 lbs. (25.9 kg)
Enclosure type	NEMA 1
Installation location	Service entrance equipment, primary distribution equipment – Rated for UL and NEC 2020 Type 2 installation locations
Mounting method	Either top or bottom of A-Series panelboard only
Operating temperature	-40 °F to 149 °F (-40 °C to 65 °C)
Altitude	0–12,000 ft. (3.66 km)
Product design	Individually fused thermally protected MOV technology
Regulations and certifications	
UL 1449 5th edition	XUPD.E248748 Type 2
UL 1283	Yes
UL 96A	Yes
cUL, CSA C22.2	VZCA7: E320456 Type 2
IEEE C62.62, C62.72	Yes
Listed by	UL

Legacy GE

24" box extension SPD



Designed for ABB distribution equipment

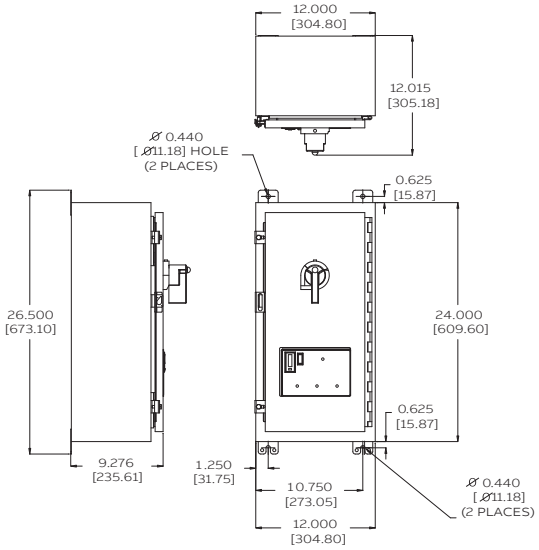
- UL Listed 1449 5th Edition for Type 2 applications
- cUL, CSA C22.2
- This model is installed in an extended box and connects to the panelboard
- The true maximum surge current rating, unlimited by fusing, has been proven successful in third-party tests
- Standard features include a surge counter, audible alarm, indicating lights and dry contacts
- 10-year limited warranty

Voltage	Configuration	Part number
240/120	1-phase, 3-wire + ground	TPHE120SxxBX*
208Y/120	3-phase, 4-wire + ground	TPHE120YxxBX*
380Y/220	3-phase, 4-wire + ground	TPHE220YxxBX*
240 Delta	3-phase, 3-wire + ground	TPHE240DxxBX*
240/120 Hi-leg delta	3-phase, 4-wire + ground	TPHE240HxxBX*
415Y/240	3-phase, 4-wire + ground	TPHE240YxxBX*
480Y/277	3-phase, 4-wire + ground	TPHE277YxxBX*
600Y/347	3-phase, 4-wire + ground	TPHE347YxxBX
480 Delta	3-phase, 3-wire + ground	TPHE480DxxBX
Desired kA		**xx Code**
150 per mode		15
200 per mode		20
300 per mode		30
Options		**Suffix (*)**
Surface mounted, display access		24WS
Flush mounted, display access		24WF

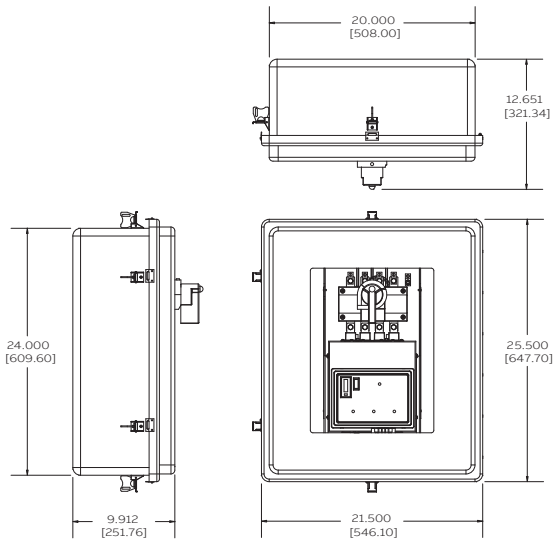
Electrical characteristics	
Maximum surge current rating	xxx per phase/ half xxx per mode 300 kA per phase/ 150 kA per mode 400 kA per phase/ 200 kA per mode 600 kA per phase/ 300 kA per mode
Nominal discharge current rating (L-N)	20 kA
Operating frequency	50–60 Hz
Connection method	#6 to 2/0 AWG conductors, parallel connected Note: A dedicated circuit breaker, rated 60 A or above, is recommended to provide a local disconnecting means for the SPD.
Modes of protection	All modes (L-N, L-G, N-G, L-L)
Fault rating (SCCR)	200 kAIC
Standard monitoring	Status indicator lights (one per phase) and red service light Audible alarm with silencer and test switch Contacts for remote monitoring (2 amp, 125 V AC)–(1 amp, 30 V DC) 6-digit LCD re-settable surge event counter
EMI / RFI filter attenuation	
Maximum attenuation frequency	-50 dB at 100 kHz
Mechanical characteristics	
Weight	57 lbs. (25.9 kg)
Enclosure type	NEMA 1
Installation location	Service entrance equipment, primary distribution equipment – Rated for UL and NEC 2020 Type 2 installation locations
Mounting method	Either top or bottom of A-Series panelboard only
Operating temperature	-40 °F to 149 °F (-40 °C to 65 °C)
Altitude	0–12,000 ft. (3.66 km)
Product design	Individually fused thermally protected MOV technology
Regulations and certifications	
UL 1449 5th edition	XUPD.E248748 Type 2
UL 1283	Yes
UL 96A	Yes
cUL, CSA C22.2	VZCA7: E320456 Type 2
IEEE C62.62, C62.72	Yes
Listed by	UL

Legacy GE product
Dimensions

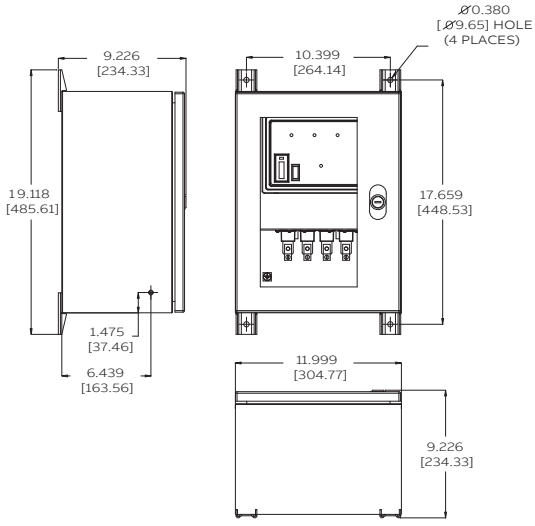
TPME and TPHE series wall-mount SPDs with enhanced thermal protection



WMN1 dimensions



WMN4 dimensions

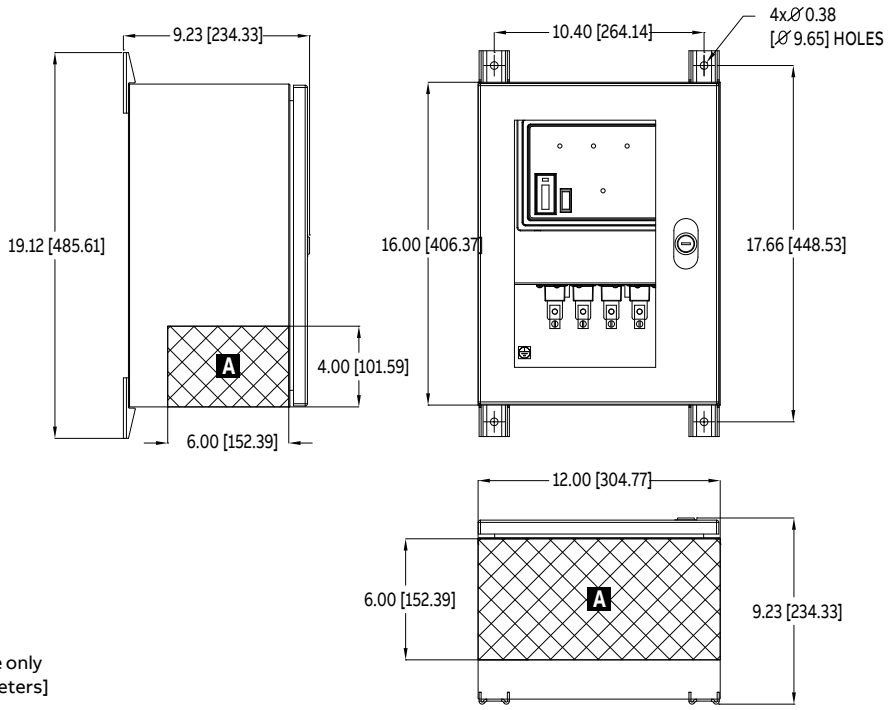


WMN4S, WMN4X dimensions

Legacy GE product
Dimensions

THE and TME series wall-mount SPDs

WMN4S, WMN4X Suffix



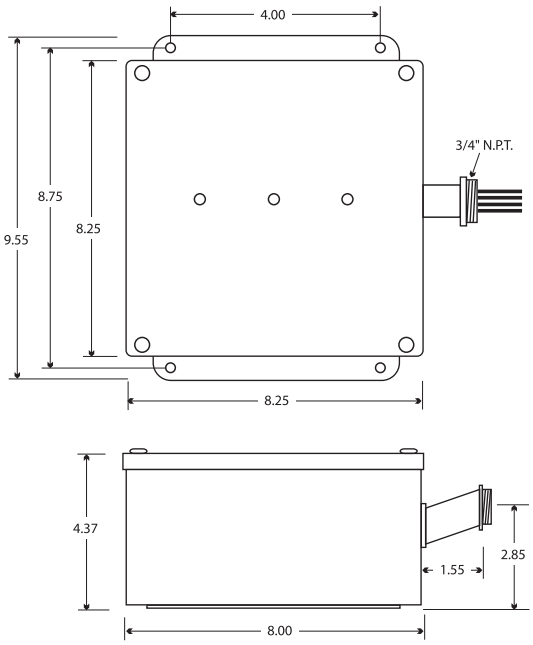
NOTE
All dimensions are for reference only and are shown in Inches [millimeters]

"A" = Recommended conduit entry areas

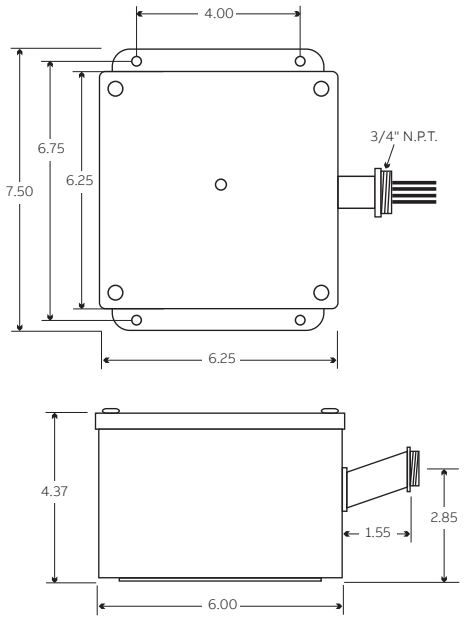
Refer to instruction manual for details

Legacy GE product
Dimensions

TME and TLE series wall-mount SPDs



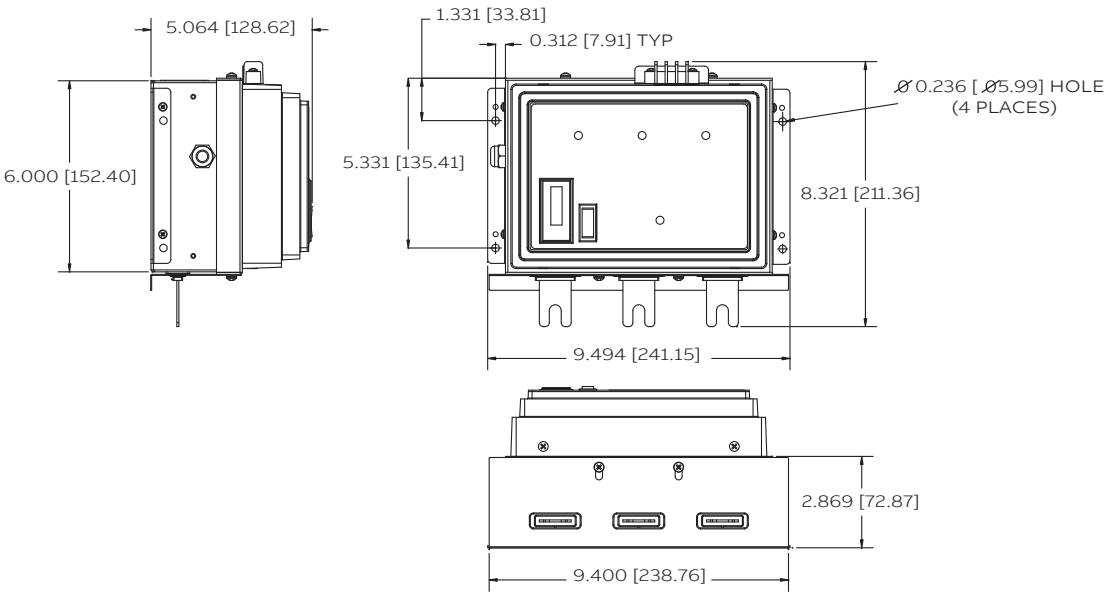
TME



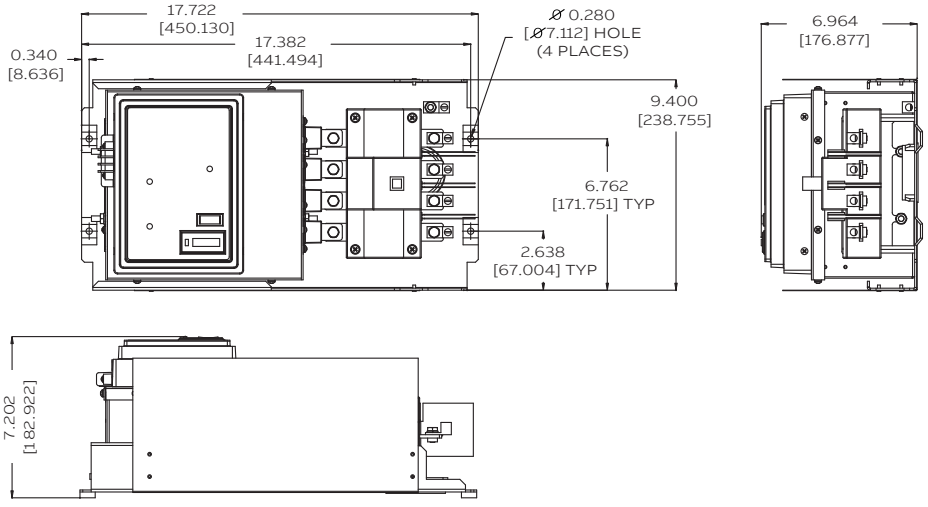
TLE

Legacy GE product
Dimensions

TPME series integrated SPD

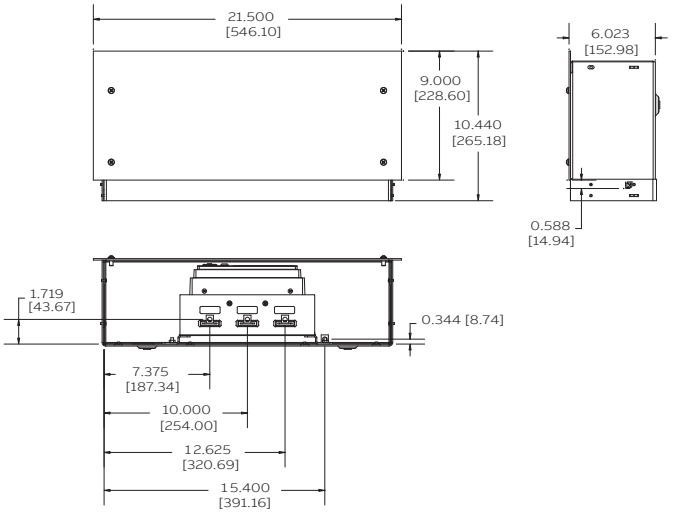


TPME and TPHE series integrated SPDs

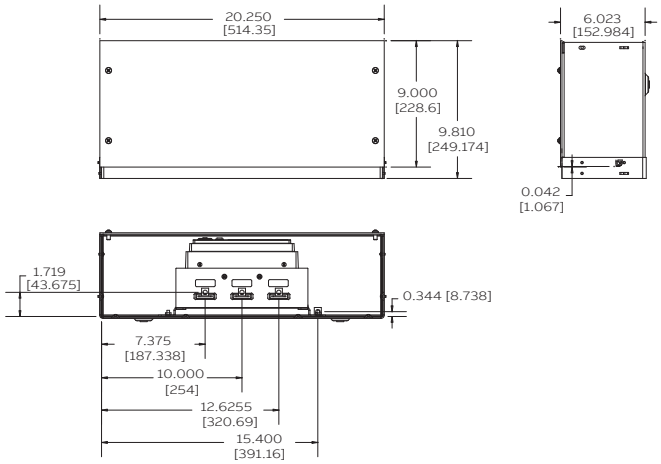


Legacy GE product
Dimensions

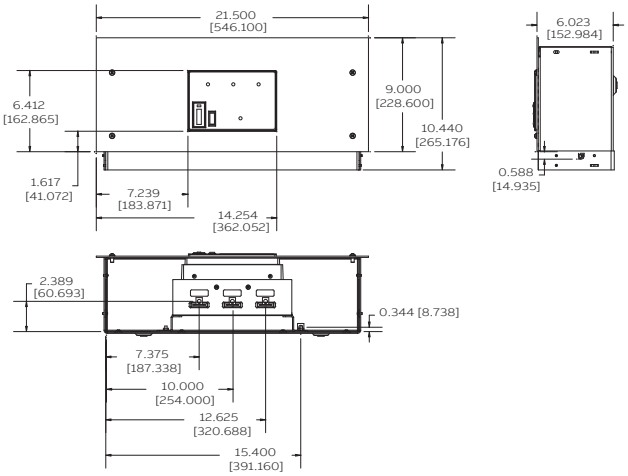
9" box extension SPD



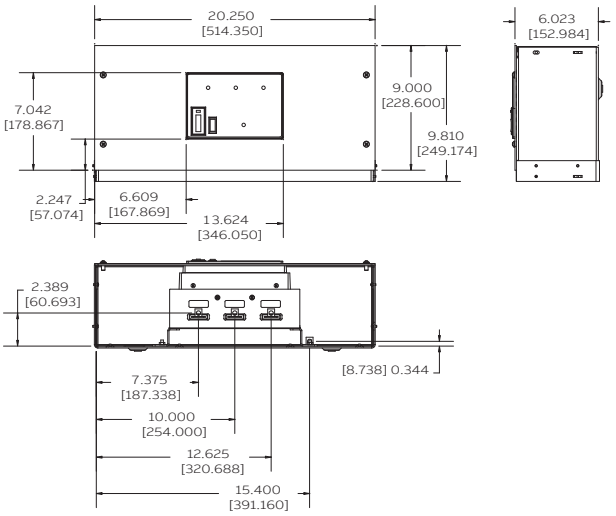
BX9F Dimensions



BX9S Dimensions



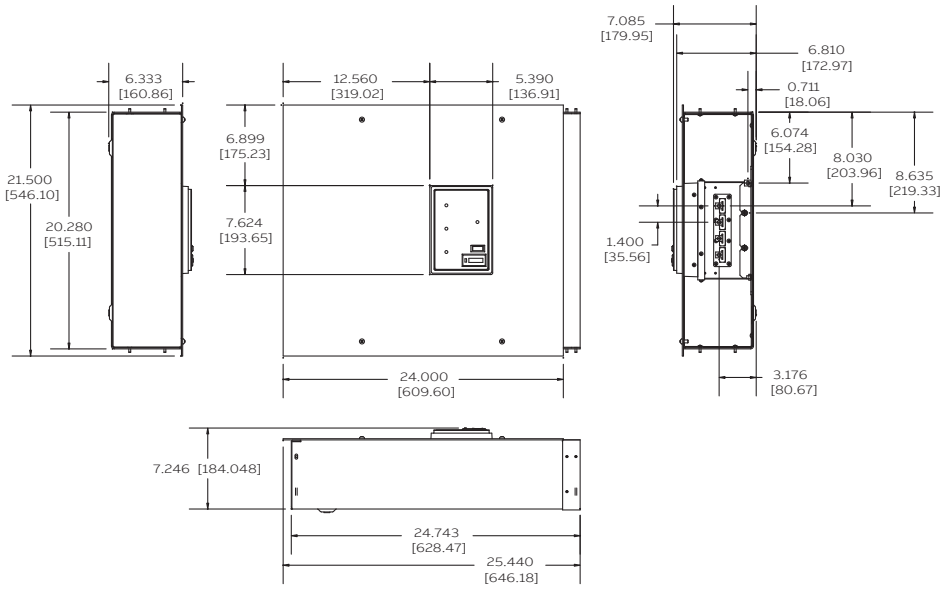
BX9WF Dimensions



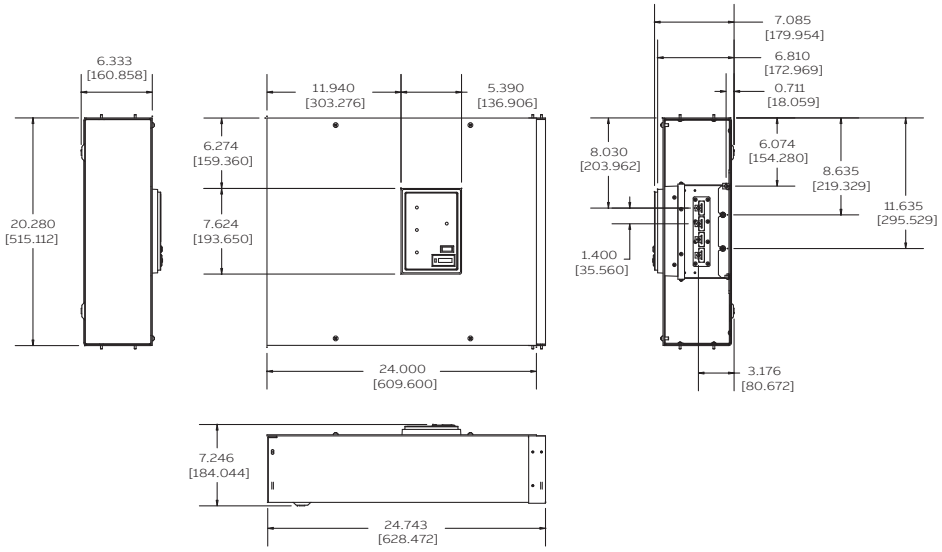
BX9WS Dimensions

Legacy GE product
Dimensions

24" box extension SPD



BX24WF dimensions



BX24WS dimensions

Type 1 open type: OVRT2 series (DIN rail SPDs)

052 – 054 **Product introduction / overview**

055 **OVRT2 single-pole series**

056 **OVRT2 1N series (1P+N+Gnd)**

057 **OVRT2 2L series (2P+Gnd)**

058 **OVRT2 2N series (2P+N+Gnd)**

059 **OVRT2 3L series (3P+Gnd)**

060 **OVRT2 3N series (3P+N+Gnd)**

061 – 062 **Dimensions**

Protection and safety
UL 1449 5th edition

The Underwriters Laboratories (UL) standard for surge protective devices (SPDs) has been the primary safety standard for surge protection since the first edition was published in 1985.

The objective of UL 1449 has always been to increase safety in terms of surge protection.

Change in the standard's name: From TVSS to SPDs
Prior to UL 1449 3rd Edition taking effect, the devices this standard covers were known as transient voltage surge suppressors (TVSS), operating on power circuits not exceeding 600 V. With the inception of the 3rd and 5th Edition, these devices are now known as surge protective devices (SPDs), and may operate on power circuits not exceeding 1500 V DC.

This new designation moves the UL standard closer to the international designation and to IEC standards.

The different Type designations of surge protective devices
The UL 1449 placed SPDs into five different Type categories based on installation location within an electrical system. While Type 1, Type 2 and Type 3 categories refer to different types of SPDs that can be installed at specific locations, Type 4 and Type 5 categories refer to components used in an SPD's configuration.

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."
Type 2 – "Permanently connected SPDs intended for installation on the load side of the service equipment overcurrent device."
Type 3 – "Point of utilization SPDs, installed at a minimum conductor length of 10 meters (30 feet) from the electrical service panel."
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 the limited current tests."
Type 1, 2, 3 – Component assemblies – "Consists of a Type 4 component assembly with internal or external short circuit protection."
Type 5 – "Discrete component surge suppressors, such as MOVs that may be mounted on a PWB, connected by its leads or provided within an enclosure with mounting means and wiring terminations."



The closer an SPD is installed to the equipment, the better the protection is. This is a push in the direction of providing stepped protection including external and internal surge protection.

The measured voltage protection level
The measured limiting voltage (MLV) is the maximum magnitude of voltage measured at the application of a specific impulse wave shape.

When applying a certain surge current on the SPD, the measured voltage at the device terminals is the so called "let-through voltage."

In UL 1449 2nd Edition, the let-through voltage was referred to as suppressed voltage rating (SVR) and was calculated with a 0.5 kA surge wave form at 6 kV. The new designation is voltage protection rating (VPR) and is calculated with a 3 kA surge wave form at 6 kV.

All products you will find in this chapter have been certified according to the UL 1449 5th Edition.

The MLV will allow comparison of different types of SPDs with regards to the let-through voltage. However, it is important to note that the surge current used to measure the let-through voltage is six times higher in the 3rd and 5th Edition than in the 2nd Edition. This means that comparing the obsolete SVR designation with the new VPR ratings will not be valid, because VPR ratings will of course be higher than SVR ratings.

Protection and safety
OVRT2 series – Selection guide

Complete facility protection
Installing surge protection at the main distribution panel is only the beginning of protecting the entire operation. As most transient surges are created internally, it is necessary to install surge protection at sub-distribution panels (equipment protection) to be fully protected. Stepping down the Imax level from the service entrance panel toward equipment to be protected is recommended.

For example, if a 40 kA Imax SPD is installed in the main distribution panel, then 15 kA Imax SPDs should be installed in sub-distribution panels for equipment protection.

Coordination
It may be necessary to add a second surge protector, wired to the incoming unit, to achieve the required voltage protection and/or surge capacity. For Type 2 or 4 SPDs, installing this second unit a minimum of 1 m from the first unit will allow the two to work together, achieving the required protection.

Wiring rules
The impedance of the cables increases the voltage across the connected equipment. Therefore, the length of the cable between the surge protector and the equipment should be minimized.

The surge protective device should be installed as close to the equipment to be protected as possible. If this is not possible (the equipment is over 30 m from the panel), then a second surge protector must be installed.

Choosing the correct model

1) Determine the service voltage
Consult qualified personnel if the facility or operation service voltage is unknown.

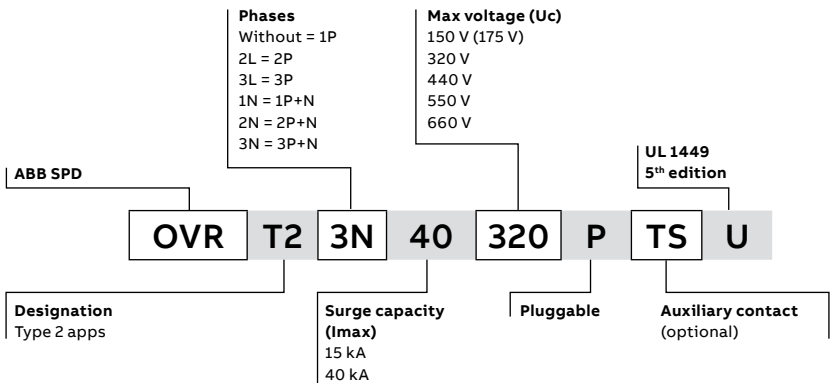
2) Select the SPD maximum continuous operating voltage (MCOV, Uc)
The MCOV should correspond to the service voltage. Example: If the service voltage is 480 V Delta, an SPD with 550 V or 660 V MCOV will be required. Surge protection devices must also provide a level of protection compatible with the withstand voltage of the equipment. This withstand voltage depends on the type of equipment and its sensitivity. The incoming surge protector may not provide adequate protection by itself, as certain electrical phenomena may greatly increase its residual voltage if cable lengths exceed 10 m. A second SPD may be necessary.

3) Select the SPD surge capacity (Imax)
Surge capacity is the amount of energy the SPD can withstand from a single surge event. The higher the surge capacity, the longer the device will protect the system. A second surge protector may be required if the surge capacity of the first is not capable of diverting all surge current to ground. See coordination below.

4) Remote monitoring (optional)
Integrated auxiliary contact for remote monitoring available on models with "TS" designation.

Consult "Selection tables" on next page for help in the selection of SPDs.

OVR DIN rail SPD – Product type description



OVRT series
Product range overview



Name	OVRT2	OVRT2 1N	OVRT2 2L	OVRT2 2N	OVRT2 3L	OVRT2 3N
Number of poles	1p units	1p+N+Gnd	2p+Gnd	2p+N+Gnd	3p+Gnd	3p+N+Gnd
Network type	All networks	Single-phase 2w+Gnd	Split-phase 2w+Gnd	Split-phase 3w+Gnd	Three-phase 3w+Gnd	Three-phase 4w+Gnd
SPD type	Type 4 for Type 2	Type 4 for Type 2	Type 4 for Type 2	Type 4 for Type 2	Type 4 for Type 2	Type 4 for Type 2
Certifications	UL 1449 CSA C22.2 No. 269.4-14	UL 1449 CSA C22.2 No. 269.4-14	UL 1449 CSA C22.2 No. 269.4-14	UL 1449 CSA C22.2 No. 269.4-14	UL 1449 CSA C22.2 No. 269.4-14	UL 1449 CSA C22.2 No. 269.4-14
Marking	cURus, CE	cURus, CE	cURus, CE	cURus, CE	cURus, CE	cURus, CE
Surge ratings	15 kA 40 kA	15 kA 40 kA	15 kA 40 kA	15 kA 40 kA	15 kA 40 kA	15 kA 40 kA
Voltage	Up to 600 V AC	Up to 347 V AC	120/240 V AC	120/240 V AC	Up to 480 V AC	Up to 347/600 V AC
End-of-life signal contact	Only on 40 kA units	Only on 40 kA units	Only on 40 kA units	Only on 40 kA units	Only on 40 kA units	Only on 40 kA units
Replaceable cartridge	Yes	Yes	Yes	Yes	Yes	Yes
SPD technology	MOV	MOV	MOV	MOV	MOV	MOV
Thermally protected	No (upstream protection needed)	No (upstream protection needed)	No (upstream protection needed)	No (upstream protection needed)	No (upstream protection needed)	No (upstream protection needed)

OVRT2 series

OVRT2 single-pole



Product features

- Type 4 SPD, UL 1449 5th Edition for Type 2 applications
- Metal oxide varistor (MOV) technology
- Single-pole design
- Replaceable and pluggable cartridges
- DIN rail-mounted SPD
- State indication flag standard on all units
- End-of-life signal standard on 40 kA units

Network type	Voltage	MCOV	VPR	Max. disch.	Nominal disch.	Part number	Repl. cartridge
Pole to be connected between L-N, L-G or L-L	120 V AC	150 V AC	0.6 kV	15 kA	5 kA	OVRT215150PU	OVRT215150CU
				40 kA	20 kA	OVRT240150PU	OVRT240150CU
						OVRT240150PTSU	OVRT240150CU
	240...277 V AC	320 V AC	1.0 kV	15 kA	5 kA	OVRT215320PU	OVRT215320CU
				40 kA	20 kA	OVRT240320PTSU	OVRT240320CU
	347 V AC	440 V AC	1.3 kV	40 kA	20 kA	OVRT240440PTSU	OVRT240440CU
	480 V AC	550 V AC	1.7 kV	40 kA	20 kA	OVRT240550PTSU	OVRT240550CU
	600 V AC	660 V AC	1.9 kV	40 kA	20 kA	OVRT240660PTSU	OVRT240660CU
Neutral pole to be connected between N-G	230 V AC	255 V AC	1.2 kV	70 kA	20 kA	OVRT270NPU	OVRT270NCU

Electrical characteristics	
Operating frequency	(AC) 47–63 Hz
Modes of protection	L-N, L-G, N-G or L-L
Fault rating (SCCR)	200 kAIC – Upstream protection required (breaker / fuse)
Response time	< 25 nanoseconds
Standard monitoring	Cartridge state indicator flag
Mechanical characteristics	
Weight	0.25 lbs. (120 g)
Housing material	Thermoplastic, gray RAL 7035 / V0
Installation location	Type 1, indoor
Mounting method	DIN rail
Operating temperature	-40 °C to 80 °C (-40 °F to 175 °F)
Wire range (stranded / solid)	#6–14 AWG / #4–14 AWG
Product design	MOV technology

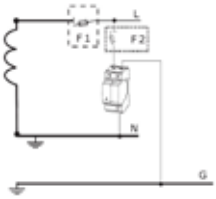
OVRT2 series

OVRT2 1N



Product features

- Type 4 SPD, UL 1449 5th Edition for Type 2 applications
- Metal oxide varistor (MOV) technology
- 1p+N+Gnd complete design
- Replaceable and pluggable cartridges
- DIN rail-mounted SPD
- State indication flag standard on all units
- End-of-life signal standard on 40 kA units

Network type	Voltage	MCOV	VPR	Max. disch.	Nominal disch.	Part number	Repl. cartridge
Single-phase 2w+Gnd 	120 V AC	175 V AC	1.2 kV	15 kA	5 kA	OVRT21N15150PU	OVRT215150CU
				40 kA	20 kA	OVRT21N40150PU	OVRT240150CU
						OVRT21N40150PTSU	OVRT240150CU
	240–277 V AC	320 V AC	1.2 kV	15 kA	5 kA	OVRT21N15320PU	OVRT215320CU
				40 kA	20 kA	OVRT21N40320PTSU	OVRT240320CU
	347 V AC	440 V AC	1.2 kV	40 kA	10 kA	OVRT21N40440PTSU	OVRT240440CU
	480 V AC	550 V AC	1.2 kV	40 kA	10 kA	OVRT21N40550PTSU	OVRT240550CU
	600 V AC	660 V AC	1.2 kV	40 kA	10 kA	OVRT21N40660PTSU	OVRT240660CU
Neutral pole	230 V AC	255 V AC	1.2 kV	70 kA	20 kA	-	OVRT270NCU

Electrical characteristics	
Operating frequency	50–60 Hz
Modes of protection	L-N and N-G
Fault rating (SCCR)	200 kAIC – Upstream protection required (breaker / fuse)
Response time	< 25 nanoseconds
Standard monitoring	Cartridge state indicator flag
Mechanical characteristics	
Weight	0.53 lbs. (240 g)
Housing material	Thermoplastic, gray RAL 7035 / V0
Installation location	Type 1, indoor
Mounting method	DIN rail
Operating temperature	-40 °C to 80 °C (-40 °F to 175 °F)
Wire range (stranded / solid)	#6–14 AWG / #4–14 AWG
Product design	MOV technology

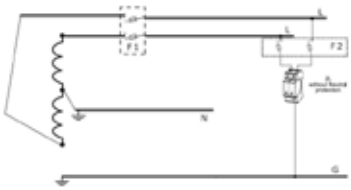
OVRT2 series

OVRT2 2L



Product features

- Type 4 SPD, UL 1449 5th Edition for Type 2 applications
- Metal oxide varistor (MOV) technology
- 2p+Gnd complete design
- Replaceable and pluggable cartridges
- DIN rail-mounted SPD
- State indication flag standard on all units
- End-of-life signal standard on 40 kA units

Network type	Voltage	MCOV	VPR	Max. disch.	Nominal disch.	Part number	Repl. cartridge
Split phase 2w+Gnd 	120 V AC	175 V AC	0.6 kV	15 kA	5 kA	OVRT22L15150PU	OVRT215150CU
				40 kA	20 kA	OVRT2240150PTSU	OVRT240150CU
	277 V AC	320 V AC	1.0 kV	15 kA	5 kA	OVRT22L15320PU	OVRT215320CU
				40 kA	20 kA	OVRT22L40320PTSU	OVRT240320CU

Electrical characteristics	
Operating frequency	50–60 Hz
Modes of protection	L-L and L-G
Fault rating (SCCR)	200 kAIC – Upstream protection required (breaker / fuse)
Response time	< 25 nanoseconds
Standard monitoring	Cartridge state indicator flag
Mechanical characteristics	
Weight	0.53 lbs. (240 g)
Housing material	Thermoplastic, gray RAL 7035 / V0
Installation location	Type 1, indoor
Mounting method	DIN rail
Operating temperature	-40 °C to 80 °C (-40 °F to 175 °F)
Wire range (stranded / solid)	#6–14 AWG / #4–14 AWG
Product design	MOV technology

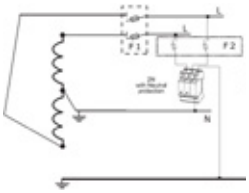
OVRT2 series

OVRT2 2N



Product features

- Type 4 SPD, UL 1449 5th Edition for Type 2 applications
- Metal oxide varistor (MOV) technology
- 2p+N+Gnd complete design
- Replaceable and pluggable cartridges
- DIN rail-mounted SPD
- State indication flag standard on all units
- End-of-life signal standard on 40 kA units

Network type	Voltage	MCOV	VPR	Max. disch.	Nominal disch.	Part number	Repl. cartridge
Split phase 2w+N+Gnd 	120 V AC	175 V AC	0.7 kV	15 kA	5 kA	OVRT22N15150PU	OVRT215150CU
			0.6 kV	40 kA	20 kA	OVRT22N40150PTSU	OVRT240150CU
	277 V AC	320 V AC	0.7 kV	15 kA	5 kA	OVRT22N15320PU	OVRT215320CU
			1.1 kV	40 kA	20 kA	OVRT22N40320PTSU	OVRT240320CU
	347 V AC	440 V AC	1.4 kV	40 kA	10 kA	OVRT22N40440PTSU	OVRT240440CU
	480 V AC	550 V AC	1.8 kV	40 kA	10 kA	OVRT22N40550PTSU	OVRT240550CU
	600 V AC	660 V AC	2.0 kV	40 kA	10 kA	OVRT22N40660PTSU	OVRT240660CU
Neutral pole	230 V AC	255 V AC	1.2 kV	70 kA	20 kA	-	OVRT270NCU

Electrical characteristics	
Operating frequency	50–60 Hz
Modes of protection	L-L, L-N , N-G and L-G
Fault rating (SCCR)	200 kAIC – Upstream protection required (breaker / fuse)
Response time	< 25 nanoseconds
Standard monitoring	Cartridge state indicator flag
Mechanical characteristics	
Weight	0.80 lbs. (360 g)
Housing material	Thermoplastic, gray RAL 7035 / V0
Installation location	Type 1, indoor
Mounting method	DIN rail
Operating temperature	-40 °C to 80 °C (-40 °F to 175 °F)
Wire range (stranded / solid)	#6–14 AWG / #4–14 AWG
Product design	MOV technology

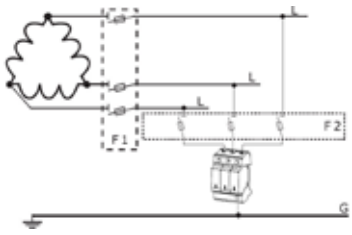
OVRT2 series

OVRT2 3L



Product features

- Type 4 SPD, UL 1449 5th Edition for Type 2 applications
- Metal oxide varistor (MOV) technology
- 3p+Gnd complete design
- Replaceable and pluggable cartridges
- DIN rail-mounted SPD
- State indication flag standard on all units
- End-of-life signal standard on 40 kA units

Network type	Voltage	MCOV	VPR	Max. disch.	Nominal disch.	Part number	Repl. cartridge
	120 V AC	175 V AC	0.6 kV	15 kA	5 kA	OVRT23L15150PU	OVRT215150CU
				40 kA	20 kA	OVRT23L40150PTSU	OVRT240150CU
	277 V AC	320 V AC	1.0 kV	15 kA	5 kA	OVRT23L15320PU	OVRT215320CU
				40 kA	20 kA	OVRT23L40320PTSU	OVRT240320CU
	347 V AC	440 V AC	1.3 kV	40 kA	10 kA	OVRT23L40440PTSU	OVRT240320CU
	480 V AC	550 V AC	1.7 kV	40 kA	10 kA	OVRT23L40550PTSU	OVRT240550CU

Electrical characteristics	
Operating frequency	50–60 Hz
Modes of protection	L-L and L-G
Fault rating (SCCR)	200 kAIC – Upstream protection required (breaker / fuse)
Response time	< 25 nanoseconds
Standard monitoring	Cartridge state indicator flag
Mechanical characteristics	
Weight	0.80 lbs. (360 g)
Housing material	Thermoplastic, gray RAL 7035 / V0
Installation location	Type 1, indoor
Mounting method	DIN rail
Operating temperature	-40 °C to 80 °C (-40 °F to 175 °F)
Wire range (stranded / solid)	#6–14 AWG / #4–14 AWG
Product design	MOV technology

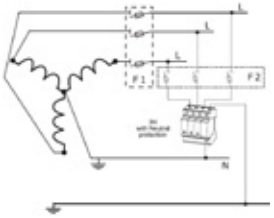
OVRT2 series

OVRT2 3N



Product features

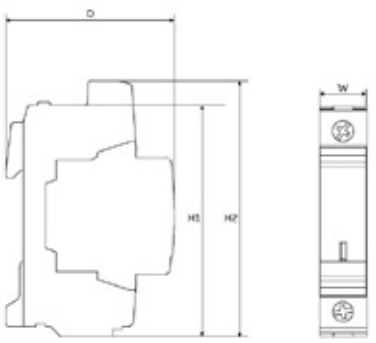
- Type 4 SPD, UL 1449 5th Edition for Type 2 applications
- Metal oxide varistor (MOV) technology
- 3p+N+Gnd complete design
- Replaceable and pluggable cartridges
- DIN rail-mounted SPD
- State indication flag standard on all units
- End-of-life signal standard on 40 kA units

Network type	Voltage	MCOV	VPR	Max. disch.	Nominal disch.	Part number	Repl. cartridge
Three phase 4w+Gnd 	120 V AC	175 V AC	0.6 kV	15 kA	5 kA	OVRT23NN15150PU	OVRT215150CU
			1.2 kV	40 kA	20 kA	OVRT23N40150PTSU	OVRT240150CU
	277 V AC	320 V AC	1.2 kV	15 kA	5 kA	OVRT23N15320PU	OVRT215320CU
				40 kA	20 kA	OVRT23N40320PTSU	OVRT240320CU
	347 V AC	440 V AC	1.2 kV	40 kA	10 kA	OVRT23N40440PTSU	OVRT240440CU
	480 V AC	550 V AC	1.2 kV	40 kA	10 kA	OVRT23N40550PTSU	OVRT240550CU
	600 V AC	660 V AC	1.2 kV	40 kA	10 kA	OVRT23N40660PTSU	OVRT240660CU
Neutral pole	230 V AC	255 V AC	1.2 kV	70 kA	20 kA	-	OVRT270NCU

Electrical characteristics	
Operating frequency	50–60 Hz
Modes of protection	L-L and L-G
Fault rating (SCCR)	200 kAIC – Upstream protection required (breaker / fuse)
Response time	< 25 nanoseconds
Standard monitoring	Cartridge state indicator flag
Mechanical characteristics	
Weight	1.05 lbs. (480 g)
Housing material	Thermoplastic, gray RAL 7035 / V0
Installation location	Type 1, indoor
Mounting method	DIN rail
Operating temperature	-40 °C to 80 °C (-40 °F to 175 °F)
Wire range (stranded / solid)	#6–14 AWG / #4–14 AWG
Product design	MOV technology

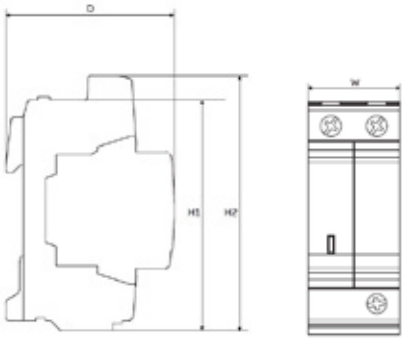
OVRT2 series
Dimensions

Dimensions OVRT2



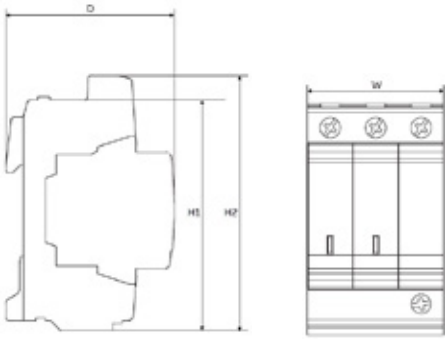
Value	Inches / millimeters
W	0.70 / 17.8
D	2.55 / 64.8
H1 (without TS option)	3.35 / 85.0
H2 (with TS option)	3.88 / 98.5

Dimensions OVRT2 1N, OVRT2 2L



Value	Inches / millimeters
W	1.40 / 35.6
D	2.55 / 64.8
H1 (without TS option)	3.35 / 85.0
H2 (with TS option)	3.88 / 98.5

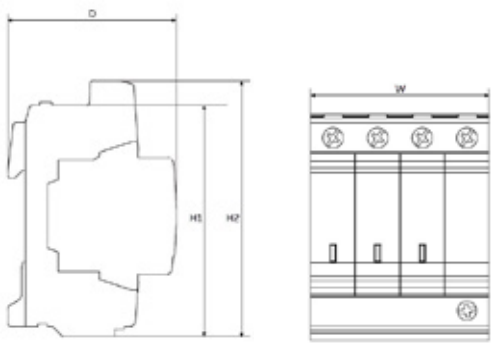
Dimensions OVRT2 2N, OVRT2 3L



Value	Inches / millimeters
W	2.10 / 53.4
D	2.55 / 64.8
H1 (without TS option)	3.35 / 85.0
H2 (with TS option)	3.88 / 98.5

OVRT2 series
Dimensions

Dimensions OVRT2 3N



Value	Inches / millimeters
W	2.80 / 71.2
D	2.55 / 64.8
H1 (without TS option)	3.35 / 85.0
H2 (with TS option)	3.88 / 98.5

Data and signal protection

064 – 065 **OVR RS485Q and SL RS485 series**

066 – 067 **OVR Q series**

068 – 069 **OVR SL series**

070 – 071 **Dimensions**

OVR RS485Q and SL RS485 series



The ABB range of data and signal surge protective devices are designed to protect sensitive equipment connected to data and telephone lines. These devices complement the OVR power SPD units for a complete and effective system protection solution against power and data surges.

Application

OVR RS485Q and SL RS485 series UL 497B listed surge protective devices (SPDs) are specifically designed for RS485 and Fieldbus applications, such as Profibus DP. For installations at service entrances or within the building infrastructure to protect against lightning flashover (typically the service entrance location) and internal transient voltage activity.

Available as compact OVR RS485Q (4-pair) or Slim Line OVR SL RS485 (1-pair) versions for installations where a high number of lines require protection.

OVR SL RS485 and OVR RS485Q/PT have UL 497B approval under UL file QVGO:E240341

Technical specifications and standards	
Key features	
Protection mode	Normal and common
Status indicator	LED status indication option
Technology	Multi-stage hybrid
Installation	DIN rail

Electrical specification	**OVR SL RS485 series**	**OVR RS485Q series**
Nominal voltage[1]	15 V	
Maximum working voltage Uc (RMS/DC)[2]	11 V / 16.7 V	
Current rating (signal)	300 mA	
In-line resistance (per line ±10%)	1 Ω	
Bandwidth (-3 dB, 50 Ω system)	45 MHz	
Transient specification		
Let-through voltage (all conductors) [3] Up		
C2 test 4 kV 1.2/50 µs, 2 kA 8/20 µs to EN/IEC 61643-21	55.0 V	
C1 test 1 kV, 1.2/50 µs, 0.5 kA 8/20 µs to EN/IEC 61643-21	42.0 V	
B2 test 4 kV 10/700 µs to EN/IEC 61643-21	27.2 V	
5 kV, 10/700 µs[4]	28.2 V	

OVR RS485Q and SL RS485 series

Maximum discharge surge current (Imax)		OVR SL RS485 series	OVR RS485Q series
D1 test 10/350 µs to	– Per signal wire 2.5 kA	1.25 kA	2.5 kA
BS EN/EN/IEC 61643-21:	– Per pair	2.5 kA	5 kA
8/20 µs to ITU-T K.45:2003,	– Per signal wire	10 kA	
IEEE C62.41.2:2002:	– Per pair	20 kA	

(1) Nominal voltage (RMS/DC or AC peak) measured at < 10 µA
(2) Maximum working voltage (RMS/DC or AC peak) measured at < 5 mA
(3) The maximum transient voltage let-through of the protector throughout the test (±10%), line to line and line to ground, both polarities. Response time < 10 ns
(4) Test to IEC 61000-4-5:2006; ITU-T (formerly CCITT) K.20, K.21 and K.45; Telcordia GR-1089- CORE, Issue 2:2002, ANSI TIA/EIA/IS-968-A:2002 (formerly FCC Part 68)

Mechanical specification		OVR SL RS485 series	OVR RS485Q series
Temperature range		-40 to +80 °C	
Connection type		Screw terminal — max. torque 0.8 N	Pluggable 12-way screw terminal/PT version: Pluggable 12-way screwless push terminal
Max. Conductor size (stranded)		12 AWG/ 4 mm²	14 AWG/ 2.5 mm²
Ground connection		Via DIN rail or 4 mm² ground terminal — max. torque 0.8 Nm	Via DIN rail or M5 threaded hole in base of unit
Case material		FR Polymer UL 94 V-0	
Weight	– Unit	0.08 kg/ 0.18 lb	0.1 kg/ 0.22 lb
Dimensions		See diagram below	

Available configurations

Catalog number	Global ID	# Pairs	Description
OVRSLRS485UL	7TCA085400R0551	1	Slim Line, RS485, 1 pair + shield/screen
OVRSLRS485LUL	7TCA085400R0552	1	Slim Line, RS485, 1 pair + shield/screen, with LED status indication
OVRSLRS485LMUL	7TCA085400R0600	1	Replacement module for Slim Line, RS485, 1 pair + shield/screen, with LED status indication
OVRRS485QUL	7TCA085400R0572	4	Pluggable screw terminals, RS485, 4 pair + shield/screen for each pair
OVRRS485QPTUL	7TCA085400R0579	4	Pluggable push-in terminals, RS485, 4 pair + shield/screen for each pair

OVR Q series



The ABB OVR Q series of data and signal surge protective devices are designed to protect sensitive equipment connected to data and telephone lines. These devices complement the OVR power SPD units for a complete and effective system protection solution against surges on data and power lines.

Application

OVR Q series UL 497B listed surge protective devices (SPDs) are specifically designed for where installation space is at a premium and large numbers of lines require protection. For installations, connect in series with the signal or data line either near where it enters or leaves the building or close to the equipment being protected. Install in a cabinet/cubicle close to the system's ground star to protect against lightning flashover (typically the service entrance location) and internal transient voltage activity.

OVR Q series has UL 497B approval under UL file QVGO:E240341

Technical specifications and standards	
Key features	
Protection mode	Normal and common
Status indicator	No
Technology	Multi-stage hybrid
Installation	DIN rail

Electrical specification	**OVR Q series**
Nominal voltage[1]	30 V
Maximum working voltage Uc (RMS/DC)[2]	26 V/ 37.8 V
Current rating (signal)	–
In-line resistance (per line ±10%)	–
Bandwidth (-3 dB, 50 Ω system)	–
Transient specification	
Let-through voltage (all conductors)[3] Up	
C2 test 4 kV 1.2/50 µs, 2 kA 8/20 µs to EN/IEC 61643-21	53.0 V
C1 test 1 kV, 1.2/50 µs, 0.5 kA 8/20 µs to EN/IEC 61643-21	48.0 V
B2 test 4 kV 10/700 µs to EN/IEC 61643-21	43.5 V
5 kV, 10/700 µs[4]	44.3 V

OVR Q series

Maximum discharge surge current (Imax)		OVR Q series
D1 test 10/350 µs to	– Per signal wire	2.5 kA
BS EN/EN/IEC 61643-21	– Per pair	5 kA
8/20 µs to ITU-T K.45:2003,	– Per signal wire	10 kA
IEEE C62.41.2:2002:	– Per pair	20 kA

(1) Nominal voltage (RMS/DC or AC peak) measured at < 5 µA
(2) Maximum working voltage (RMS/DC or AC peak) measured at < 5 mA leakage (OVR 30Q)
(3) The maximum transient voltage let-through of the protector throughout the test (±10%), line to line and line to ground, both polarities. Response time < 10 ns
(4) Test to IEC 61000-4-5:2006, ITU-T (formerly CCITT) K.20, K.21 and K.45,Telcordia GR-1089-CORE, Issue 2:2002, ANSI TIA/EIA/IS-968-A:2002 formerly FCC Part 68)

Mechanical specification	OVR Q series
Temperature range	-40 to +80 °C
Installation location	Connect in series with the signal or data line either near where it enters or leaves the building or close to the equipment being protected. Install in a cabinet/cubicle close to the system's ground star point.
Connection type	Pluggable 12-way screw terminal - maximum torque 0.6 Nm/ PT version: Pluggable 12-way screwless push terminal
Conductor size (stranded)	2.5 mm^2
Ground connection	Via DIN rail or M5 threaded hole in base of unit
Case material	FR polymer UL 94 V-0
Weight:	
– Unit	0.1 kg
– Packaged (each)	0.12 kg
Dimensions	See diagram below

Available configurations

Catalog number	Voltage	Description	Global ID
OVR30QUL	30 V	With screw terminals	7TCA085400R0568
OVR30QPTUL	30 V	With screwless push terminals	7TCA085400R0575

OVR SL series



The ABB OVR SL series of data and signal surge protective devices are designed to protect sensitive equipment connected to data and telephone lines. These devices complement the OVR power SPD units for a complete and effective system protection solution against surges for data and power lines.

Application

OVR SL series UL 497B listed surge protective devices (SPDs) are specifically designed for applications where installation space is at a premium and a large number of lines require protection (e.g., process control, high-speed digital communication equipment or systems with long signal lines).

Connect in series with the data communication or signal line either near or where it enters or leaves the building or close to the equipment being protected (e.g., within its control panel.) It must be close to the system's ground star point. Install the SPD within an existing cabinet/cubicle or in a separate enclosure.

OVR SL series have UL 497B approval under UL file QVGO:E240341

Technical specifications and standards	
Key features	
Protection mode	Normal and common
Technology	Multi-stage hybrid
Installation	DIN rail

Electrical specification	**OVR SL06 series**	**OVR SL30 series**	**OVR SL180 series**
Nominal voltage[1]	6 V	30 V	180 V
Maximum working voltage Uc (DC)[2]	7.79 V	36.7 V	190 V
Maximum working voltage Uc (AC RMS)	5 V	25 V	130 V
Current rating (signal)	750 mA	-	250 mA
In-line resistance (per line ±10%)	1 Ω	-	6.8 Ω
Bandwidth (-3 dB 50 Ω system)	45 MHz	-	-

OVR SL series

Transient specification		OVR SL06 series	OVR SL30 series	OVR SL180 series
Let-through voltage (all conductors)[3] Up				
C2 test 4 kV 1.2/50 µs, 2 kA 8/20 µs to BS EN/EN/IEC 61643-21		36.0 V	63.0 V	215 V
C1 test 1 kV, 1.2/50 µs, 0.5 kA 8/20 µs to BS EN/EN/IEC 61643-21		26.2 V	51.3 V	205 V
B2 test 4 kV 10/700 µs to BS EN/EN/ IEC 61643-21		16.0 V	45.4 V	203 V
5 kV, 10/700 µs[4]		17.0 V	46.3 V	200 V
Maximum surge current				
D1 test 10/350 µs to EN/EN/IEC 61643-21	– Per signal wire BS	1.25 kA	–	–
	– Per pair	2.5 kA	–	–
8/20 µs to ITU-T K.45:2003 IEEE C62.41.2:2002	– Per signal wire	10 kA	–	–
	– Per pair	20 kA	–	–

(1) Nominal voltage (RMS/DC or AC peak) measured at < 5 µA
(2) Maximum working voltage (RMS/DC or AC peak) measured at < 5 mA leakage
(3) The maximum transient voltage let-through of the protector throughout the test (±10%), line to line and line to ground, both polarities Response time < 10 ns
(4) Test to IEC 61000-4-5:2006, ITU-T (formerly CCITT) K.20, K.21 and K.45, Telcordia GR-1089-CORE, Issue 2:2002, ANSI TIA/EIA/IS-968-A:2002 (formerly FCC Part 68)

Mechanical specification		
Temperature range		-40 °C to +80 °C
Installation location		Connect in series with the data communication or signal line either near where it enters or leaves the building or close to the equipment being protected (e.g., within its control panel). Either way, it must be very close to the system's ground star point. Install SPDs either within an existing cabinet/cubicle or in a separate enclosure.
Connection type		Screw terminal - maximum torque 0.8 Nm
Conductor size (stranded)		4 mm^2
Ground connection		Via DIN rail or 4 mm^2 ground terminal — max. torque 0.8 Nm
Case material		FR polymer UL 94 V-0
Weight	– Unit	0.08 kg
Dimensions		See diagram below

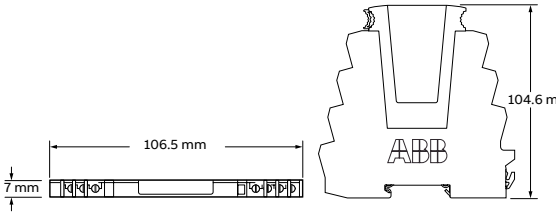
Available configurations

Catalog number	Description	Global ID
OVRSL06UL	6 V slim data SPD for 2-wire signal	7TCA085400R0527
OVRSL06IUL	6 V slim data SPD for 2-wire signal and isolated shield	7TCA085400R0528
OVRSL30UL	30 V slim data SPD for 2-wire signal	7TCA085400R0535
OVRSL30IUL	30 V slim data SPD for 2-wire signal and isolated shield	7TCA085400R0536
OVRSL180UL	180 V slim data SPD for 2-wire signal	7TCA085400R0547

OVR SL RS485 and OVR RS485Q series

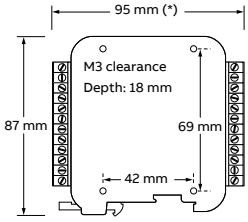
Dimensions

Dimensions OVR SL RS485



Value	Inches / millimeters
W	4.19 / 106.5
D	0.28 / 7
H	4.12 / 104.6

Dimensions OVR RS485Q



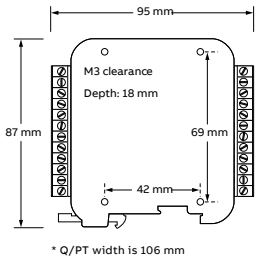
* Q/PT width is 106 mm

Value	Inches / millimeters
W	3.74 / 95
D	0.71 / 18
H	3.42 / 87

OVR Q and OVR SL series

Dimensions

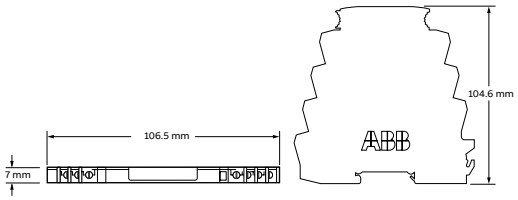
Dimensions OVR Q series



* Q/PT width is 106 mm

Value	Inches / millimeters
W	3.74 / 95
D	0.71 / 18
H	3.42 / 87

Dimensions OVR SL



Value	Inches / millimeters
W	4.19 / 106.5
D	0.28 / 7
H	4.12 / 104.6

ABB Inc.
305 Gregson Drive
Cary, NC 27511, USA

electrification.us.abb.com

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB Inc. does not accept any responsibility whatsoever for potential errors or possible lack of information in this document. We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB Inc.
Copyright© 2022 ABB
All rights reserved

© 2023 ABB. All rights reserved.
Specifications subject to change without notice.
GE is a registered trademark used under license from General Electric.

1TQC1237E0001 BR REV.F JUNE 2023