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BSPD Surge Protective Devices

High capacity Type 1 and Type 2 SPDs for overvoltage protection on switchgear and power distribution panels



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Introduction

The BSPD Series of surge protective devices are tested by Underwriters Laboratory and Listed to UL 1449, 4th Edition to help ensure equipment is protected with highly reliable surge protection technology. Delta and Wye system units are available in three configurations to increase application flexibility. The BSPD Series is for installation external to an electrical enclosure or panelboard. Application of BSPD Series units throughout a facility will help ensure that equipment is protected.

Applications

BSPD Series units are available for common Delta and Wye system voltages in a variety of surge current capacity ratings from 120kA to 400kA. Available in three configurations, the BSPD Series' features and options make it easy to specify units for many electrical applications including service entrances, distribution switchboards, panelboards and point-of-use. All possible combinations of product attributes are available for ordering in the catalog number system (see page 7).

Features

- BSPD uses Bussmann series SurgePOD™ thermally protected Metal Oxide Varistor (MOV) technology to safely shunt overvoltages to ground while its thermal disconnect capability eliminates the need for additional fusing
- 200kA SCCR meets the highest NEC® requirements
- Models available to meet the overvoltage protection needs of Wye and Delta electrical systems from 208 to 600 volts, 3-phase
- BSPD has the highest nominal discharge current (I_n) of 20kA per UL 1449 4th Edition. This rating indicates the SPD's ability to handle a number of large-magnitude surges over a short period of time and remain operational.
- 120kA to 400kA surge current capacity (I_{max}) ratings meet the needs of larger switchgear and power distribution panel applications
- Optional Form C contact relay, EMI/RFI filtering and surge counter available to meet additional system requirements.
- 200kA Short-Circuit Current Rating (SCCR)
- NEMA 1 or NEMA 4X enclosures
- RoHS compliant
- 10 year warranty

Agency information

- Basic, Standard and Standard with Surge Counter configurations UL Listed, 1449 4th Edition, File E316410, Guide VZCA, CSA Certified, Notice 516, File 243397
- Standard and Standard with Surge Counter configurations are also UL Recognized, 1283 5th Edition, File E316410, Guide VZCA2, CSA Component Acceptance, Std. C22.2, No. 8-M1986, File 243397



Factory sealed to improve electrical safety

All BSPD Series units are factory-sealed to eliminate arc flash and shock hazards, as the user/installer has no chance of coming into contact with energized parts. The units also contain no user-serviceable parts or wire lugs that require periodic retightening to eliminate the need for periodic maintenance.

Bussmann SurgePOD technology eliminates the need for additional fusing

BSPD uses Bussmann SurgePOD modules that each contain an internal element that safely disconnects upon reaching an overvoltage breakdown condition.

Prewired

All BSPD units are factory wired for ease of installation. Simply install any necessary conduit runs, mount the unit and make all wire connections. No need for internal wiring or access to the unit's inside.

Compact size takes less space

Available in enclosures that are up to 50% smaller than other products with comparable ratings the BSPD Series come in NEMA 1 and 4X enclosures that differ in size according to their surge current capacity (I_{max}).

NEMA 1 BSPD Series units.

- The 120-200kA surge current capacity units are housed in a 74 square-inch enclosure that is only 3-1/2 inches deep.
- The 300-400kA surge current capacity units are housed in a 74 square-inch enclosure that is only 6 inches deep.

NEMA 4X BSPD Series units.

- The 120-200kA surge current capacity units are housed in a 108 square-inch enclosure that is only 5-3/8 inches deep.
- The 300-400kA surge current capacity units are housed in a 108 square-inch enclosure that is only 7-11/16 inches deep.



BSPD Series unit mounted externally to a Bussmann Quik-Spec™ Coordination Panelboard

Enhanced protection status indicators

Unlike many SPDs that only have single-color indicators, all BSPD units include green and red Light Emitting Diodes (LEDs) that indicate the true protection status for each phase.

If power is removed from any one phase, the unit's LEDs continue to indicate the protection status on that phase — regardless if power is applied to the phase. This feature ensures proper indication.

Although many SPDs on the market have N-G surge protection, they do not always have a means of monitoring and indicating the protection status of that mode. All BSPD units for Wye systems also contain green and red LED surge protection status indicators for the Neutral-to-Ground (N-G) connection. Like the phase protection status LEDs, the N-G protection status LEDs show the true protection status in the N-G mode.

By specifying the BSPD Series, users are supplied with accurate information concerning the surge protection status of their electrical systems.

Configurations

The BSPD Series provides users with three configurations. These are:

- Basic (UL Type 1 - can be installed in UL Type 2 locations)
- Standard (UL Type 2)
- Standard with Surge Counter (UL Type 2)

The proper configuration can be selected based on application requirements or specification.

Table 1. Configuration comparisons

Feature	Configuration		
	Basic (Type 1)	Standard (Type 2)	Standard with Surge Counter (Type 2)
Surge protection using thermally protected MOV technology	X	X	X
Green and red LED protection status indicators for each phase	X	X	X
Green and red LED protection status indicators for the Neutral-to-Ground protection mode (Wye systems only)	X	X	X
Audible alarm with silence button		X	X
Form C relay contact		X	X
EMI/RFI filtering, providing up to 50dB of noise attenuation from 10kHz to 100MHz		X	X
Surge counter with reset button held in nonvolatile memory			X

Dimensions - in (mm) and weights

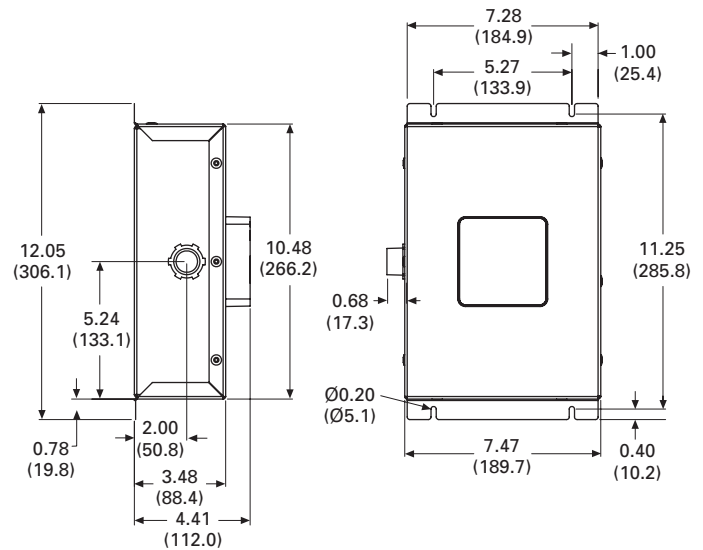


Figure 1. NEMA 1, 120kA-200kA Units, Weight = 6.8 Lbs (3.1 kg)

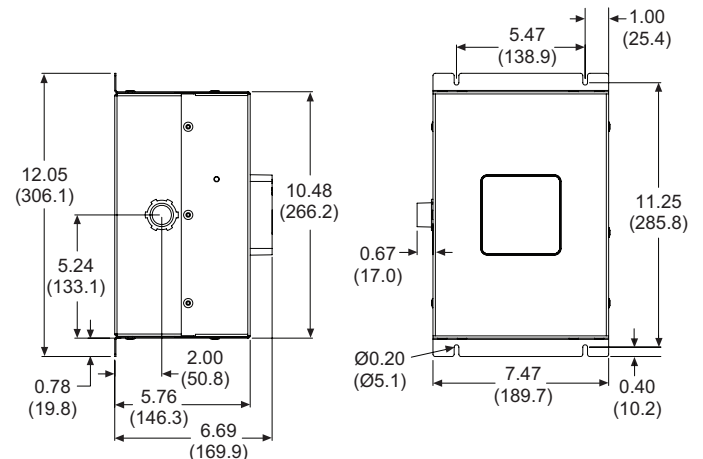


Figure 2. NEMA 1, 300kA-400kA Units, Weight = 13.5 Lbs (6.1 kg)

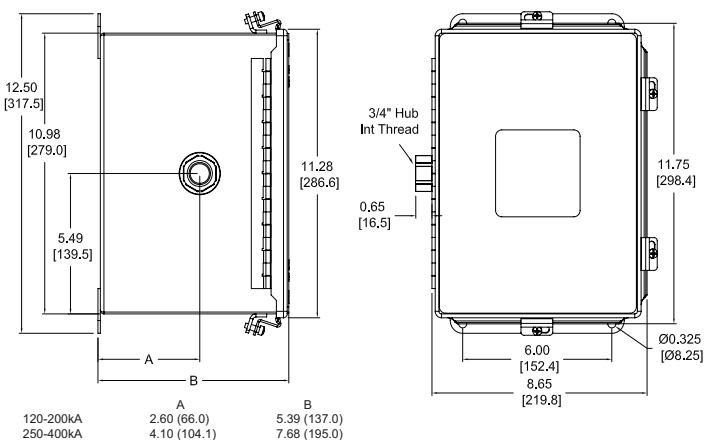


Figure 3. NEMA 4X, 120kA-400kA Units, Weight = 120-200kA; 14.6 Lbs (6.6 kg), 250-400kA; 21.0 Lbs (9.5 kg)

Voltage protection ratings

ANSI/UL 1449 4th Edition voltage protection ratings

Voltage Protection Rating (V_{PR}) data for all units is included in the following tables. The data varies based upon the configuration and NEMA enclosure. V_{PR} values for the *Basic* configurations are on the left-hand side of the page. Tables on the right-hand side contain VPR values for the *Standard* or *Standard with Surge Counter* configurations.

NEMA 1: Basic (cat. nos. ending with 1K)

Table 2. 120-200kA

Voltage/ system code	Protection mode			
	L-N	L-G	N-G	L-L
208Y	700	700	700	1200
480Y	1200	1200	1200	2000
600Y	1500	1500	1500	2500
240D	—	1000	—	1000
480D	—	2000	—	2500
600D	—	2500	—	2500

Table 3. 300kA

Voltage/ system code	Protection mode			
	L-N	L-G	N-G	L-L
208Y	700	700	700	1000
480Y	1200	1200	1200	1800
600Y	1500	1500	1500	2500
240D	—	1000	—	1000
480D	—	1800	—	2000
600D	—	2500	—	2500

Table 4. 400kA

Voltage/ system code	Protection mode			
	L-N	L-G	N-G	L-L
208Y	700	700	700	1000
480Y	1200	1200	1200	1800
600Y	1500	1500	1500	2500
240D	—	1000	—	1000
480D	—	1800	—	2000
600D	—	2500	—	2500

NEMA 1: Standard or Standard w/ Surge Counter (cat. nos. ending with 2K or 3K)

Table 5. 120-200kA

Voltage/ system code	Protection mode			
	L-N	L-G	N-G	L-L
208Y	600	800	600	1000
480Y	1200	1200	1200	1800
600Y	1500	1500	1500	2500
240D	—	1000	—	1000
480D	—	2500	—	2500
600D	—	2500	—	2500

Table 6. 300kA

Voltage/ system code	Protection mode			
	L-N	L-G	N-G	L-L
208Y	600	700	600	1000
480Y	1000	1200	1000	1800
600Y	1500	1500	1500	2500
240D	—	1000	—	1000
480D	—	1800	—	2000
600D	—	2500	—	2500

Table 7. 400kA

Voltage/ system code	Protection mode			
	L-N	L-G	N-G	L-L
208Y	600	700	600	1000
480Y	1000	1200	1000	1800
600Y	1500	1500	1500	2500
240D	—	1000	—	1000
480D	—	1800	—	2000
600D	—	2500	—	2500

**NEMA 4X: Basic
(cat. nos ending with 1P)**

Table 8 120–200kA

Voltage/ system code	Protection mode			
	L-N	L-G	N-G	L-L
208Y	700	800	700	1200
480Y	1200	1200	1000	2000
600Y	1500	1500	1500	2500
240D	—	1000	—	1000
480D	—	2000	—	2500
600D	—	2500	—	2500

Table 9. 300kA

Voltage/ system code	Protection mode			
	L-N	L-G	N-G	L-L
208Y	700	800	700	1200
480Y	1200	1200	1200	2000
600Y	1500	1500	1500	2500
240D	—	1000	—	1000
480D	—	1800	—	2000
600D	—	2500	—	2500

Table 10. 400kA

Voltage/ system code	Protection mode			
	L-N	L-G	N-G	L-L
208Y	700	800	700	1200
480Y	1200	1200	1200	2000
600Y	1500	1500	1500	2500
240D	—	1000	—	1000
480D	—	1800	—	2000
600D	—	2500	—	2500

**NEMA 4X: Standard or Standard w/ Surge Counter
(cat. nos. ending with 2P or 3P)**

Table 11. 120–200kA

Voltage/ system code	Protection mode			
	L-N	L-G	N-G	L-L
208Y	900	900	700	1500
480Y	1200	1200	1000	2500
600Y	1500	1500	1500	2500
240D	—	1000	—	1000
480D	—	2500	—	2500
600D	—	2500	—	2500

Table 12. 300kA

Voltage/ system code	Protection mode			
	L-N	L-G	N-G	L-L
208Y	800	900	700	1500
480Y	1200	1200	1000	2000
600Y	1500	1500	1500	2500
240D	—	1000	—	1000
480D	—	2000	—	2000
600D	—	2500	—	2500

Table 13. 400kA

Voltage/ system code	Protection mode			
	L-N	L-G	N-G	L-L
208Y	800	900	700	1500
480Y	1200	1200	1000	2000
600Y	1500	1500	1500	2500
240D	—	1000	—	1000
480D	—	2000	—	2000
600D	—	2500	—	2500

5.0 Specifications

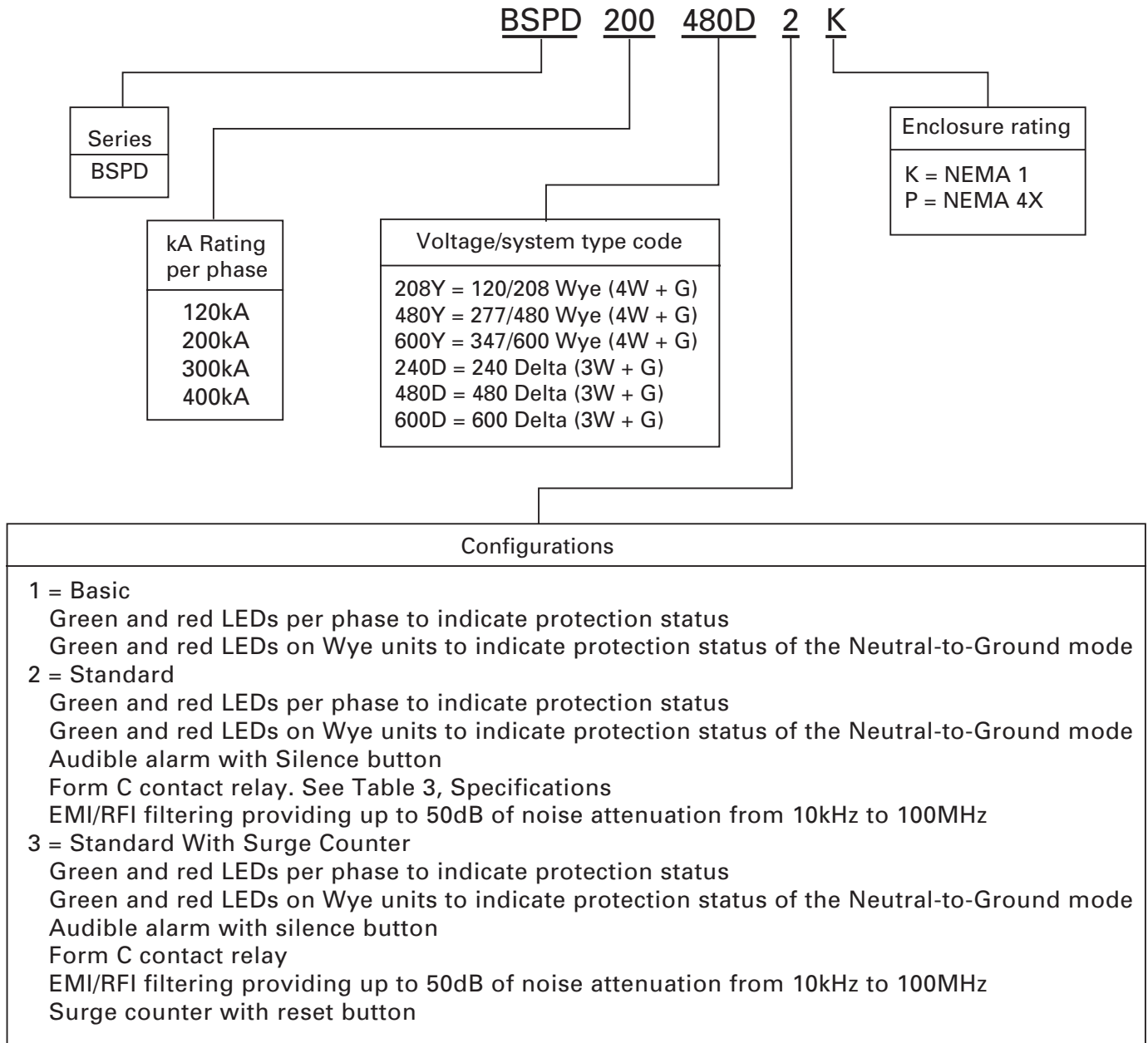
Table 14. Specifications

Description	Specification
Available system voltages	
Three-phase Wye	120/208, 277/480 and 347/600
Three-phase Delta	240, 480 and 600
Input power frequency	50/60Hz
Maximum Continuous Operating Voltage (MCOV)	
208Y, and 240D voltage/system type codes	150 L-N, 150 L-G, 150 N-G, 300 L-L
480Y Voltage/system type code	320 L-N, 320 L-G, 320 N-G, 640 L-L
600Y Voltage/system type code	420 L-N, 420 L-G, 420 N-G, 840 L-L
480D Voltage/system type code	640 L-G, 640 L-L
600D Voltage/system type code	840 L-G, 840 L-L
Short-Circuit Current Rating (SCCR)	200kA
Nominal discharge current (I_n)	20kA
Surge current capacity per phase (I_{max})	120kA, 200kA, 300kA and 400kA ratings available
SPD Types	Type 1 (<i>Basic</i> configuration, can also be used in Type 2 applications) Type 2 (<i>Standard</i> and <i>Standard With Surge Counter</i> configurations)
Enclosure types	NEMA 1, NEMA 4X 304 Stainless Steel
Ports	1
SPD Conductor length/gauge	48" (1.22m) 10AWG Stranded copper
Form C contact relay (<i>Standard</i> and <i>Standard With Surge Counter</i> configurations only)	
Contact ratings	150Vac or 125Vdc, 1A maximum
Lead length/gauge	48 inches (1.22m) / 14AWG
Contact logic	Power ON, normal state; N.O. contact = OPEN, N.C. contact = CLOSED Power OFF, fault state; N.O. contact = CLOSED, N.C. contact = OPEN
Power consumption	
Basic configuration	
208Y and 240D voltage/system type codes	0.5W
480Y and 480D voltage/system type codes	1.1W
600Y and 600D voltage/system type codes	1.3W
Standard and Standard with Surge Counter configurations	
208Y and 240D voltage/system type codes	0.6W
480Y, and 480D voltage/system type codes	1.7W
600Y and 600D voltage/system type codes	2.1W
Protection modes	Three-phase Delta; L-G, L-L Three-phase Wye; L-N, L-G, N-G, L-L
Operating temperature / humidity	-40 to +50°C (-40 to +122°F) / 5% to 95%, non-condensing
Operating altitude - ft (m)	16,000 (5000)
EMI/RFI filtering attenuation	Up to 50dB from 10kHz to 100MHz (<i>Standard</i> and <i>Standard With Surge Counter</i> configurations)
Weight - lbs (kg)	NEMA 1: 120kA-200kA - 6.8 (3.1), 30- 400kA -13.5 (6.1) NEMA 4X: 120-200kA - 14.6 (6.6), 300-400kA - 21.0 (9.5)
Agency information	- <i>Basic</i> , <i>Standard</i> and <i>Standard with Surge Counter</i> configurations UL Listed 1449 3rd Edition File E316410 Guide VZCA, CSA Certified Notice 516 File 243397 - <i>Standard</i> and <i>Standard with Surge Counter</i> configurations are also UL Recognized 1283 5th Edition File E316410 Guide VZCA2, CSA Component Acceptance Std. C22.2 No. 8-M1986 File 243397
Seismic withstand capability	Meets or exceeds the requirements specific to I.B.C. 2006, C.B.C 2007 and U.B.C Zone 4
Warranty	10 Years (see warranty statement 3A1502 for details at www.cooperbusmann.com/Surge)

6.0 Catalog Number System

Table 15. BSPD part number system

All possible combinations of the BSPD attributes are available for ordering.



Technical support information

If you have any questions or need additional information, please contact the Eaton's Bussmann Business Application Engineers between the hours of 7:00 a.m. and 5:00 p.m. Central Time at 855-287-7626 (855-Bussmann) or by e-mailing FuseTech@Eaton.com.

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