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Selecting a Type 1 SPD

Electrical systems and connections

Step 1: Review the following system diagrams that show the SPD connection points for the Bussmann SPD models that may be applied.

Step 2: Locate the system diagram that matches your application, note the applicable SPD model numbers and then proceed to the product pages for their details.

Understanding the following will help assure that the correct surge protective device is specified.

- Typical North American electrical systems include single-phase, split-phase, Delta and Wye.
- Selecting the wrong SPD generally arises from misunderstanding the nominal system voltage, ground and neutral connections.

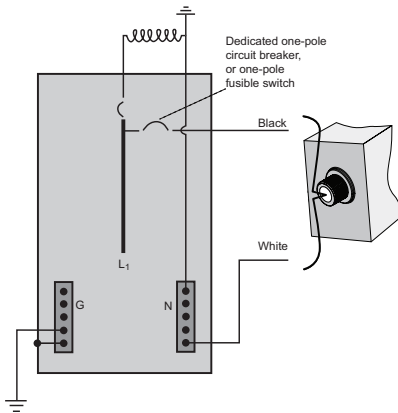
- General convention has it that a “ground” wire is not counted as a wire in the system description (e.g., 3 wire, 4 wire, etc.), but it is counted as a connection point if the SPD has a ground wire.
- Selecting a voltage rating for Wye systems must be based upon its nominal system voltage rating and not on the leg-to-leg voltages.
- Bonded N-G configurations do not require protection at the service entrance transformer, but protection is suggested in downstream bonded N-G systems if the length of conductor making the bond is greater than 10 feet (3m).

Two wire single-phase - 2 connection points

Application: Sub-panel or feeder panel

Volts: 120, 240, 347 (L-N)

Note: Must be installed within 10 feet (3m) of a bonded neutral ground connection per IEEE C62.41-1991.



SPD models and part numbers:

SurgePOD HEAVY DUTY

- SPH50SP1120SN
- SPH50SP1240SN
- SPH50SP1347SN

SurgePOD PRO:

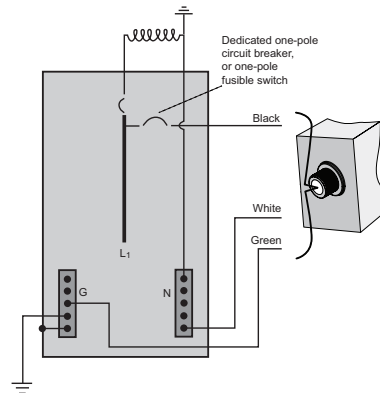
- SPP40SP1120SN

Three wire split-phase/two-pole - 3 connection points

Application: Service entrance panel

Volts: 120, 240, 347 (L-N)

Note: Installation for where the SPD is greater than 10 feet (3m) from a bonded neutral-ground connection.



SPD models and part numbers:

SurgePOD HEAVY DUTY:

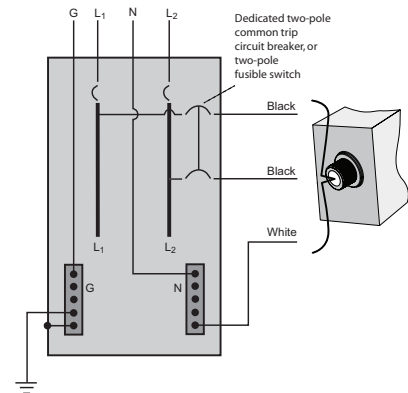
- SPH50SP2120SNG
- SPH50SP2240SNG
- SPH50SP2347S

Three wire split-phase/two-pole - 3 connection points

Application: Sub-panel or feeder panel

Volts: 120, 240 (L-N), 240, 480 (L1-L2)

Note: Installation at or less than 10 feet (3m) from the transformer and within 10 feet (3m) of a bonded-neutral ground connection.



SPD models and part numbers:

SurgePOD HEAVY DUTY:

- SPH50SP2240PN
- SPH50SP2480PN

SurgePOD PRO:

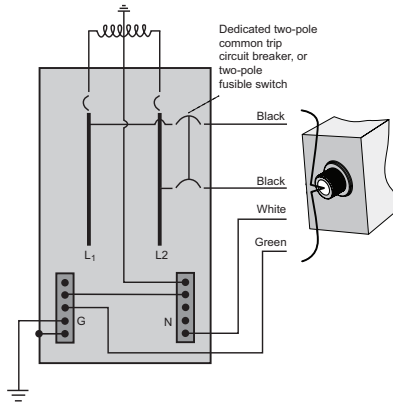
- SPP40SP2240PN

Three wire split-phase/two-pole plus ground - 4 connection points

Application: Service entrance equipment

Volts: 120, 240 (L-N), 240, 480 (L1-L2)

Note: Installation where greater than 10 feet (3m) of a bonded-neutral ground connection.



SPD models and part numbers:

SurgePOD HEAVY DUTY:

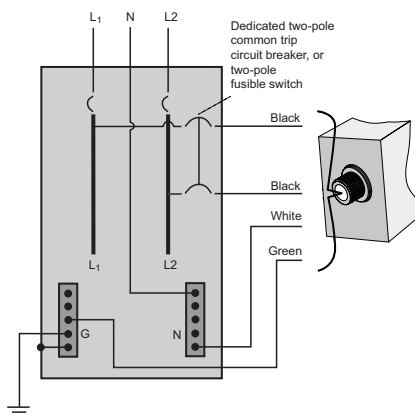
- SPH50SP3240PNG
- SPH50SP3480PNG

Three wire split-phase/two-pole plus ground - 4 connection points

Application: Sub-panel or feeder panel

Volts: 120, 240 (L-N), 240, 480 (L1-L2)

Note: For installation greater than 10 feet (3m) of a bonded-neutral ground connection.



SPD models and part numbers:

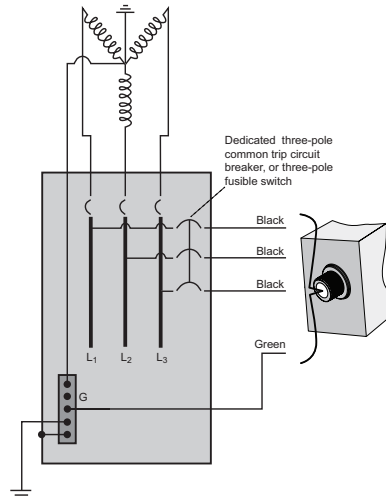
SurgePOD HEAVY DUTY:

Three wire Wye plus ground - 4 connection points

Application: Sub-panel or feeder panel

Volts: 208, 480, 600 (L-L)

Note: A common MCC configuration for pumping and water/waste water treatment.



SPD models and part numbers:

SurgePOD HEAVY DUTY:

- SPH50SP3208WYG
- SPH50SP3480WYG
- SPH50SP3600WYG

SurgePOD PRO:

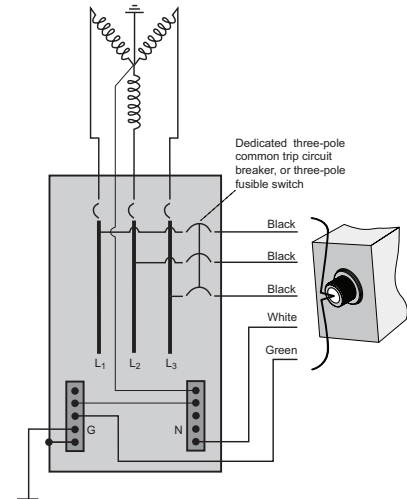
- SPP40SP3208WYG
- SPHP4SP3480WYG

Four wire Wye plus ground - 5 connection points

Application: Service entrance equipment

Volts: 120, 127, 277, 347 (L-N), 208, 220, 480, 600 (L-L)

Note: Common system configuration with Neutral pulled into facility and bonded to ground.



SPD models and part numbers:

SurgePOD HEAVY DUTY:

- SPH50SP4208WYNG
- SPH50SP4480WYNG
- SPH50SP4600WYNG

BSPD

Specify from build-a-code catalog number system:

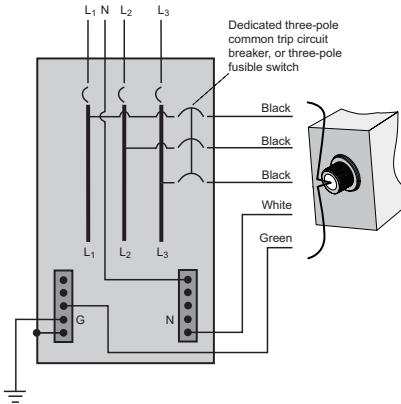
- Surge current capacity (I_{max}): 120kA, 200kA, 300kA or 400kA
- Voltage/system type: 208Y, 480Y or 600Y
- Configuration: *Basic, Standard or Standard with Surge Counter*
- Enclosure rating: NEMA 1 or NEMA 4X

Four wire Wye plus ground - 5 connection points

Application: Sub-panel or feeder panel

Volts: 120, 127, 277, 347 (L-N), 208, 220, 480, 600 (L-L)

Note: Common system configuration with Neutral pulled into facility and bonded to ground.



SPD models and part numbers:

SurgePOD HEAVY DUTY:

- SPH50SP4208WYNG
- SPH50SP4480WYNG
- SPH50SP4600WYNG

BSPD

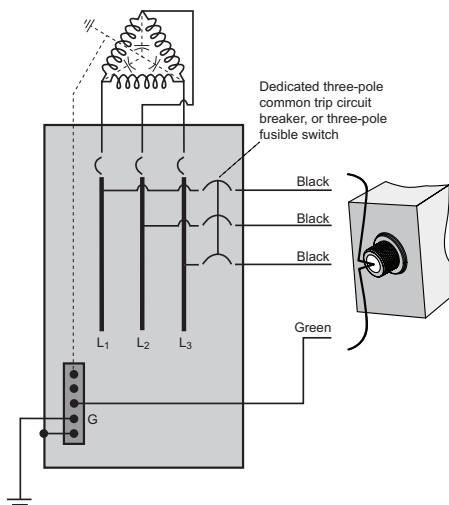
Specify from build-a-code catalog number system:

- Surge current capacity (I_{max}): 120kA, 200kA, 300kA or 400kA
- Voltage/system type: 208Y, 480Y or 600Y
- Configuration: *Basic*, *Standard* or *Standard with Surge Counter*
- Enclosure rating: NEMA 1 or NEMA 4X

Three wire Delta plus ground - 4 connection points

Application: Service entrance equipment, sub-panel or feeder panel

Volts: 240, 480, 600 (L-L)



SPD models and part numbers:

SurgePOD HEAVY DUTY:

- SPH50SP3240DLG
- SPH50SP3480DLG

SurgePOD PRO:

- SPP40SP3240DLG
- SPP40SP3480DLG

BSPD

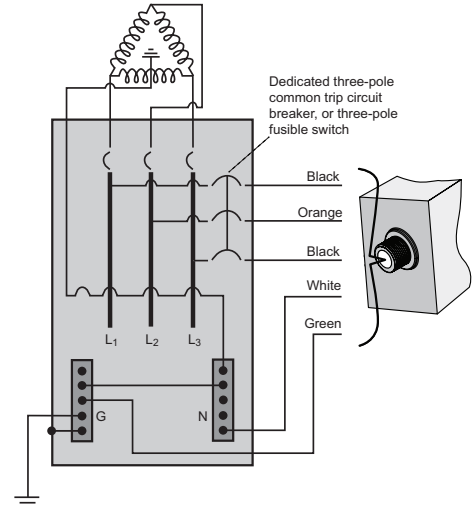
Specify from build-a-code catalog number system:

- Surge current capacity (I_{max}): 120kA, 200kA, 300kA or 400kA
- Voltage/system type 240D, 480D or 600D
- Configuration: *Basic*, *Standard* or *Standard with Surge Counter*
- Enclosure rating: NEMA 1 or NEMA 4X

Four wire Highleg Delta - 5 connection points

Application: Service entrance equipment

Volts: 120V (L1 / L3-N) / 240V (L-L), 240V (L1 / L3-N) / 480V (L-L)



SPD models and part numbers:

SurgePOD HEAVY DUTY:

- SPH50SP4240HLG
- SPH50SP4480HLG



NEMA 1 steel enclosure
120kA and 200kA
maximum surge
current capacity



NEMA 1 steel enclosure
300kA and 400kA
maximum surge
current capacity



NEMA 4X 304 Stainless
Steel enclosure,
all surge current
capacities

Description

The BSPD Surge Protective Devices (SPDs) deliver reliable surge protection with high surge current capacity for system switchboards and power distribution panels.

Applications

BSPD 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.

- 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 3rd 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 complaint.
- 10 year warranty.

Agency information

- Basic, Standard and Standard with Surge Counter configurations UL Listed, 1449 3rd 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 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.

Eaton SurgePOD technology eliminates the need for additional fusing

BSPD uses Bussmann series 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.

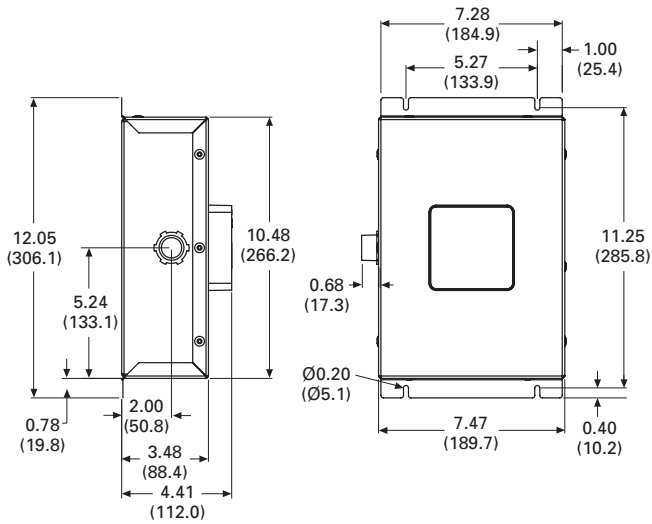
NEMA 4X BSPD Series units.

- 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.

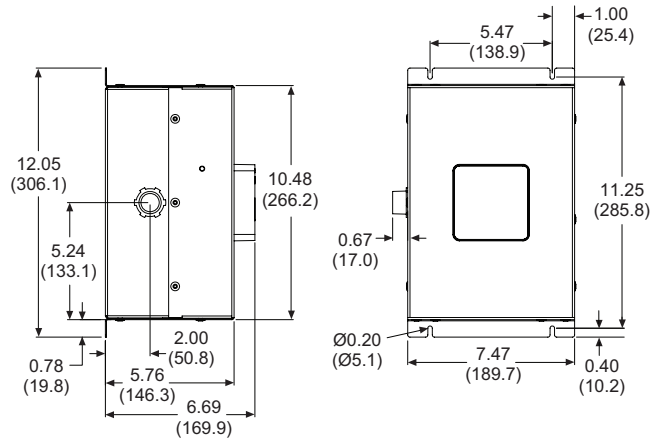
BSPD configuration comparisons

Features	Configuration		
	Basic (Type 1)	Standard (Type 2)	Standard with Surge Counter (Type 2)
Surge protection using Bussmann SurgePOD™ MOV technology	X	X	X
Two color LED protection status indicators for each phase	X	X	X
Two color LED protection status indicators for the neutral-ground protection mode (Wye systems only)	X	X	X
Audible alarm with silence button		X	X
Form C contact relay		X	X
EMI/RFI filtering, providing up to 50dB of noise attenuation from 10kHz to 100MHz		X	X
Surge counter with reset button			X

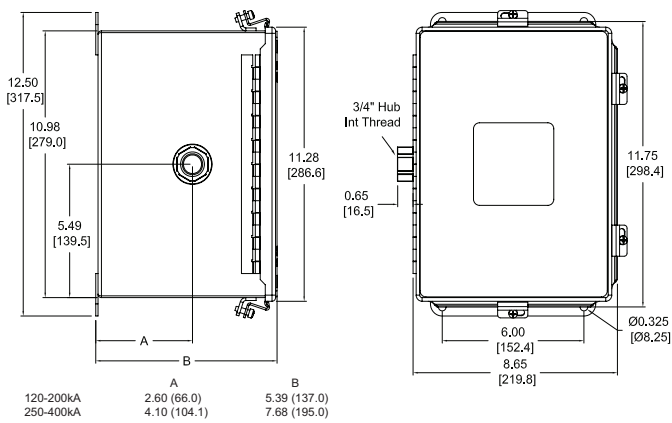
Dimensions - in (mm)



120kA and 200kA Units/NEMA 1

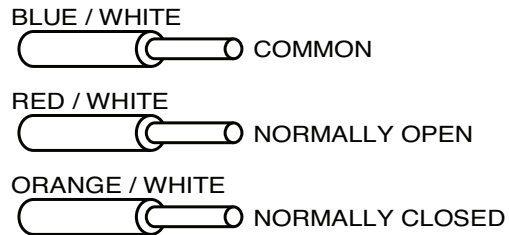


300kA and 400kA Units/NEMA 1



120kA to 400kA Units/NEMA 4X

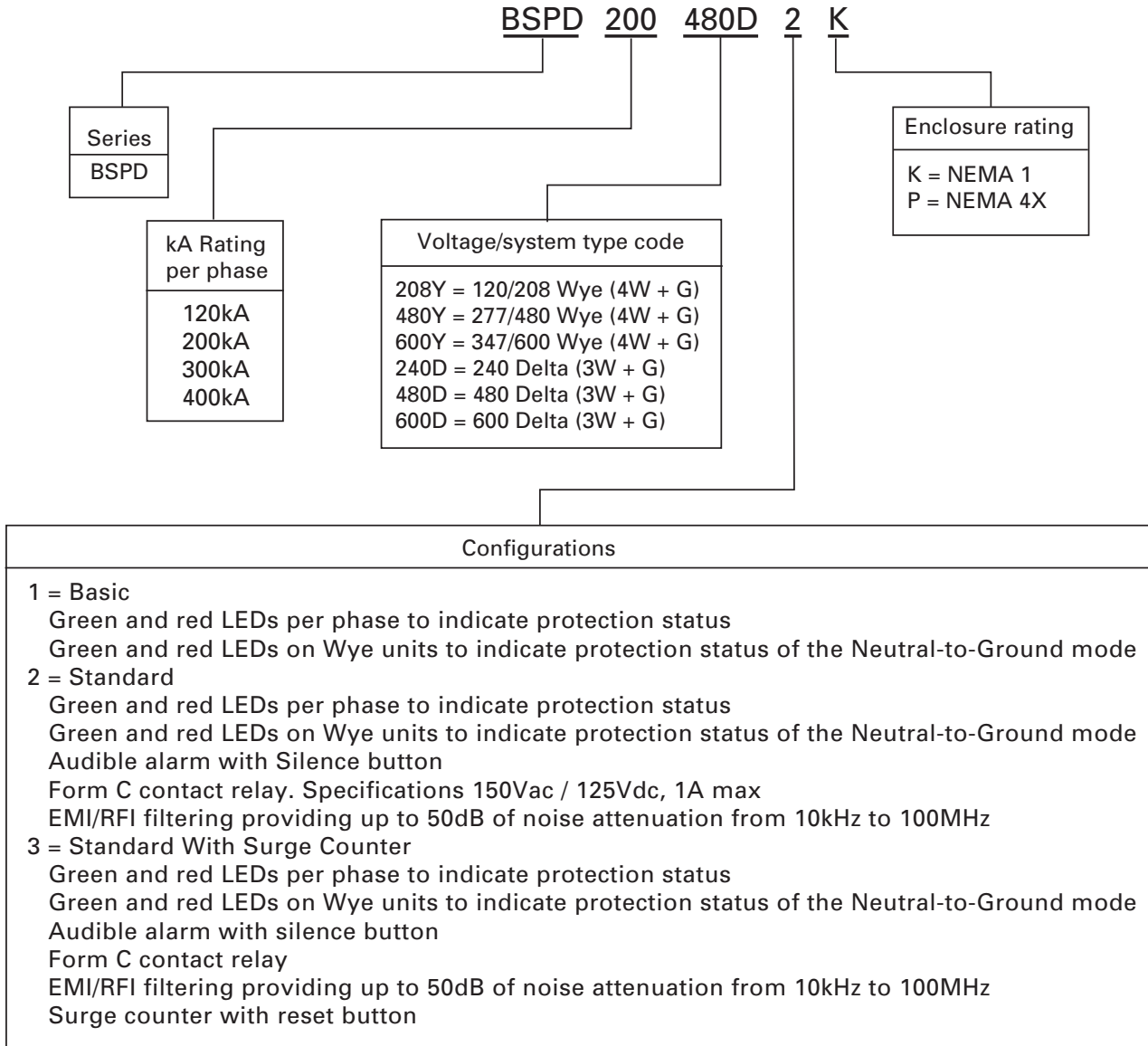
Form C Contact Relay Wire Color Codes



Data Sheet: 10208

BSPD catalog number system

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



Surge protection devices

SURGEPOD™ HEAVY DUTY SPD for UL 1449 3rd Edition Listed loadside and lineside protection

Description

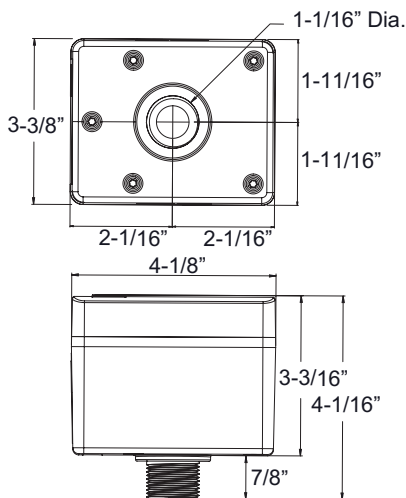
The Bussmann series SurgePOD™ HEAVY DUTY is a Type 1 UL Listed 1449 3rd Edition surge protective device suitable for installation on both the loadside or lineside of the service entrance overcurrent protective device.

Available in voltage and system specific versions to match electrical system and equipment requirements. The SurgePOD HEAVY DUTY delivers optimum surge protection using advanced patent pending SurgePOD™ module featuring thermal disconnect technology that eliminates the need for additional overcurrent protection.

Parallel connection to the electrical system permits the SurgePOD HEAVY DUTY SPD to be installed on any ampacity panel.

- Type 1 UL 1449 3rd Edition Listed SPDs are easily selected and installed on the loadside or lineside of the service entrance overcurrent protective device
- Patented Eaton SurgePOD module technology eliminates the need for additional fusing
- Voltage specific models precisely match and protect electrical systems and equipment up to 600Vac
- Compact UV resistant NEMA 4X for indoor or outdoor applications
- easyID™ LED status indicator provides surge protection status at a glance

Dimensions - in



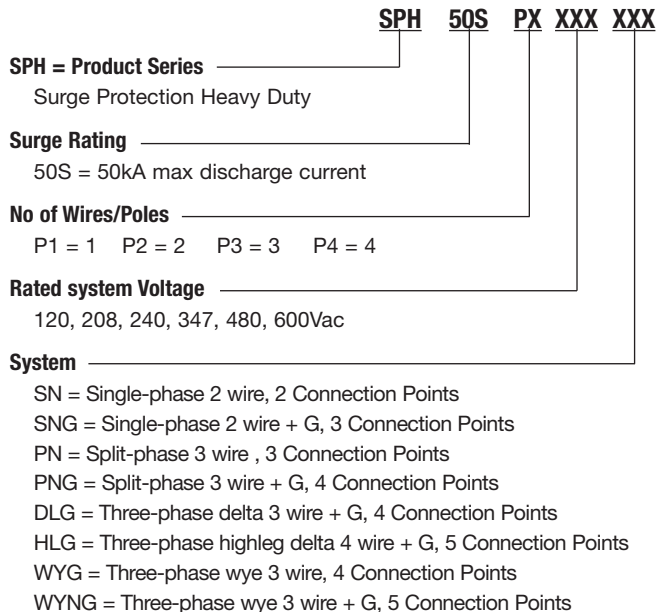
Available catalog numbers

Below are the available SurgePOD HEAVY catalog numbers. See catalog number explanation below for details.

SPH50SP1120SN	SPH50SP3240PNG	SPH50SP3600WYG
SPH50SP1240SN	SPH50SP3480PNG	SPH50SP4208WYNG
SPH50SP1347SN	SPH50SP3240DLG	SPH50SP4480WYNG
SPH50SP2120SNG	SPH50SP3480DLG	SPH50SP4600WYNG
SPH50SP2240SNG	SPH50SP4240HLG	
SPH50SP2347SNG	SPH50SP4480HLG	
SPH50SP2240PN	SPH50SP3208WYG	
SPH50SP2480PN	SPH50SP3480WYG	

NEMA 4X rated heavy duty Type 1 UL Listed SPD

Catalog number explanation



SurgePOD HEAVY DUTY technical information

Catalog number	Nominal system voltage	Max. continuous operating AC voltage (MCOV) (V _c)	System type	Connection points
SPH50SP1120SN	120V	150V	Single-phase 2 Wire	2
SPH50SP1240SN	240V	320V	Single-phase 2 Wire	2
SPH50SP1347SN	347V	420V	Single-phase 2 Wire	2
SPH50SP2120SNG	120V	150V	Single-phase 2 Wire + G	3
SPH50SP2240SNG	240V	320V	Single-phase 2 Wire + G	3
SPH50SP2347SNG	347V	420V	Single-phase 2 Wire + G	3
SPH50SP2240PN	120/240V	150V	Split-phase 3 Wire	3
SPH50SP2480PN	240/480V	320V	Split-phase 3 Wire	3
SPH50SP3240PNG	120/240V	150V	Split-phase 3 Wire + G	4
SPH50SP3480PNG	240/480V	320V	Split-phase 3 Wire + G	4
SPH50SP3240DLG	240V	320V	Three-phase Delta 3 Wire + G	4
SPH50SP3480DLG	480V	550V	Three-phase Delta 3 Wire + G	4
SPH50SP4240HLG	120/240V	150/320V	Three-phase Highleg Delta 4 Wire + G	5
SPH50SP4480HLG	240/480V	320/550V	Three-phase Highleg Delta 4 Wire + G	5
SPH50SP3208WYG	208V	150V ^{††}	Three-phase Wye 3 Wire + G	4
SPH50SP3480WYG	480V	320V ^{††}	Three-phase Wye 3 Wire + G	4
SPH50SP3600WYG [†]	600V	420V ^{††}	Three-phase Wye 3 Wire + G	4
SPH50SP4208WYNG	208Y/120V	150V	Three-phase Wye 4 Wire + G	5
SPH50SP4480WYNG	480Y/277V	320V	Three-phase Wye 4 Wire + G	5
SPH50SP4600WYNG [†]	600Y/347V	420V	Three-phase Wye 4 Wire + G	5

[†] 600V Wye version is not CSA Certified.

^{††} SPD voltages are measured from Line-to-Neutral, or Line-to-Ground on systems where there is no Neutral present. These units do not have a Line-to-Neutral, so the Line-to-Ground voltage is 120V for the 208V Wye L-G, 277V for the 480V L-G and 347V for the 600V Wye L-G, making the normal voltage applied to the unit less than the MCOV values listed in the table.

SurgePOD™ HEAVY DUTY technical information

Specifications (for all SurgePOD HD units)	Values
Short-Circuit Current Rating (SCCR)	200kA
Nominal discharge current (8x20μs) (I _n)	20kA
Surge current capacity (8x20μs) (I _{max})	50kA
Response time (t _A)	<25ns
Frequency	50/60Hz
Operating state/fault indication	Bi-color LED - Green (good) / Red (replace)
Conductor length / gauge	18 inches, 10 AWG stranded copper
Mounting	Chase nipple / bracket*
Enclosure / flammability ratings	NEMA 4X - UL 94-5VA
Degree of protection (installed state)	IP20 (finger-safe)
SPD install location	Indoor/outdoor
Circuit location	Lineside or loadside of service entrance overcurrent protective device
Operating temperature	-40°C to +85°C
Maximum operating altitude	16,000FT
Agency information	cULus, CSA**, RoHS Compliant
Standard	UL 1449 3 rd Edition Type 1 Listed SPD
Warranty	Five Years***

* Customer-supplied bracket.

** 600V Wye version is CSA Certified.

*** See SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/Surge.

Voltage Protection Ratings (VPR)

Catalog number	Rated system voltage (V _r)	MCOV (V _c)	Voltage Protection Ratings (VPR)			
			L-N	L-L	L-G	N-G
SPH50SP1120SN	120V	150V	700	—	—	—
SPH50SP1240SN	240V	320V	1200	—	—	—
SPH50SP1347SN	347V	420V	1500	—	—	—
SPH50SP2120SNG	120V	150V	700	—	1200	700
SPH50SP2240SNG	240V	320V	1200	—	2500	1200
SPH50SP2347SNG	347V	420V	1500	—	2500	1500
SPH50SP2240PN	120V/240V	150V	700	1200	—	—
SPH50SP2480PN	240V/480V	320V	1200	2500	—	—
SPH50SP3240PNG	120V/240V	150V	700	1200	1200	700
SPH50SP3480PNG	240V/480V	320V	1200	2500	2500	1200
SPH50SP3240DLG	240V	320V	—	2500	1200	—
SPH50SP3480DLG	480V	550V	—	3000	1800	—
SPH50SP4240HLG	120/240V	150V/320V	700/1200	1200/2500	1200/2500	700/1200
SPH50SP4480HLG	240/480V	320V/550V	1200/1800	2500/3000	2500/3000	1200/1800
SPH50SP3208WYG	208V	150V†	—	1200	700	—
SPH50SP3480WYG	480V	320V†	—	2500	1200	—
SPH50SP3600WYG††	600V	420V†	—	2500	1500	—
SPH50SP4208WYNG	208Y/120V	150V	700	1200	1200	700
SPH50SP4480WYNG	480Y/277V	320V	1200	2500	2500	1200
SPH50SP4600WYNG††	600Y/347V	420V	1500	2500	2500	1500

† SPD voltages are measured from Line-to-Neutral, or Line-to-Ground on systems where there is no Neutral present. These units do not have a Line-to-Neutral, so the Line-to-Ground voltage is 120V for the 208V Wye L-G, 277V for the 480V L-G and 347V for the 600V Wye L-G, making the normal voltage applied to the unit less than the MCOV values listed in the table.

†† 600V Wye version is not CSA Certified.

easyID™ LED status indicator

The easyID™ LED status indicator will illuminate when the unit is properly installed and the system or equipment being protected is energized. The following LED color/status indicates:



Green LED = good

The circuit is energized and *protected*.



Red LED = replace

The circuit is *energized and unprotected*.

The unit **needs** replacing.



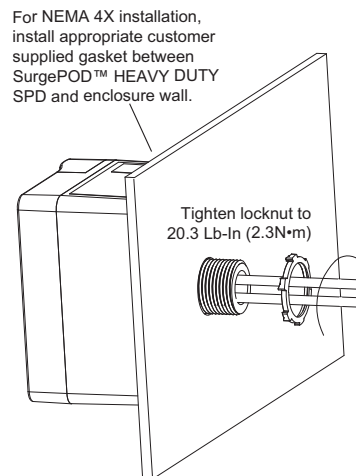
LED is out / unit:

- The circuit is most likely deenergized
- The unit's leads are disconnected
- The unit is damaged

Authorized personnel should follow all prescribed lockout/tagout and safety procedures in troubleshooting the cause for the above conditions. Opening SurgePOD HEAVY DUTY enclosure will void UL listing and warranty.

Mounting

SurgePOD HEAVY DUTY is a panel mount device. It may also be mounted using a customer supplied bracket or directly onto a female threaded conduit fitting.



SurgePOD™ PRO SPD for UL 1449 3rd Edition Listed loadside and lineside protection

Description

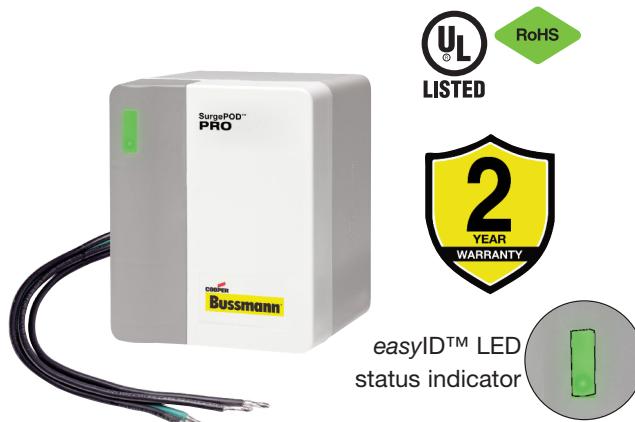
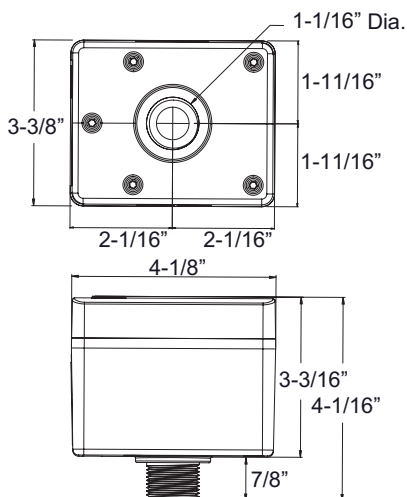
The Bussmann series SurgePOD™ PRO is a Type 1 UL Listed 1449 3rd Edition surge protective device suitable for installation on both the loadside or lineside of the service entrance overcurrent protective device.

Available in popular voltage and system specific versions to match common residential and light commercial electrical system and equipment requirements. The SurgePOD PRO delivers superior surge protection using MOV thermal disconnect technology that eliminates the need for additional overcurrent protection.

Parallel connection to the electrical system permits the SurgePOD PRO SPD to be installed on any ampacity panel.

- Type 1 UL 1449 3rd Edition Listed SPDs are easily selected and installed on the loadside or lineside of the service entrance overcurrent protective device
- Voltage specific models precisely match and protect electrical systems and equipment better than “one-size-fits-all” SPDs
- Thermal disconnect technology eliminates the need for additional fusing
- NEMA 4X enclosure for indoor or outdoor applications
- easyID™ LED status indicator provides surge protection status at a glance

Dimensions - in



Available catalog numbers

Below are the available SurgePOD HEAVY catalog numbers. See catalog number explanation below for details.

SPP40SP1120SN SPP40SP3240DLG SPP40SP3208WYG
 SPP40SP2240PN SPP40SP3480DLG SPP40SP3480WYG

NEMA 4X rated pro Type 1 UL Listed SPD

Surge protection devices

Catalog number explanation

- | | | | | |
|------------|------------|-----------|------------|------------|
| SPP | 40S | PX | XXX | XXX |
|------------|------------|-----------|------------|------------|
- SPP = product series**
Surge Protection PRO
 - Surge rating**
40S = 40kA max discharge current
 - No of wires/poles**
P1 = 1 P2 = 2 P3 = 3
 - Rated system voltage**
120, 208, 240, 480Vac
 - System**
SN = Single-phase 2 wire, 2 Connection Points
PN = Split-Phase, 3 Wire, 3 Connection Points
DLG = Three-phase delta 3 wire + G, 4 Connection Points
WYG = Three-phase wye 3 wire, 4 Connection Points

SurgePOD™ PRO technical information

Catalog number	Nominal system voltage	Max. continuous operating AC voltage (MCOV) (V _c)	System type	Connection points
SPP40SP1120SN	120V	150V	Single-phase 2 Wire	2
SPP40SP2240PN	120/240V	150V	Split-phase 3 Wire	3
SPP40SP3240DLG	240V	320V	Three-phase Delta 3 Wire + G	4
SPP40SP3480DLG	480V	550V	Three-phase Delta 3 Wire + G	4
SPP40SP3208WYG	208V	150V	Three-phase Wye 3 Wire + G	4
SPP40SP3480WYG	480V	320V	Three-phase Wye 3 Wire + G	4

Specifications (for all SurgePOD PRO units)	Values
Short-Circuit Current Rating (SCCR)	200kA
Nominal discharge current (8x20μs) (I _n)	10kA
Surge current capacity (8x20μs) (I _{max})	40kA
Response time (ns) (t _d)	<25ns
Frequency	50/60Hz
Operating state/fault indication	Bi-color LED - Green (good) / Red (replace)
Conductor length / gauge	18 inches, 10 AWG stranded tinned copper
Mounting	Chase nipple / bracket*
Enclosure / flammability ratings	NEMA 4X - UL 94-5VA
Degree of protection (installed state)	IP20 (finger-safe)
SPD install location	Indoor/outdoor
Circuit location	Lineside or loadside of service entrance overcurrent protective device
Operating Temperature	-40°C to +65°C
Maximum Operating Altitude	12,000FT
Agency information	cULus, RoHS Compliant
Standard	UL 1449 3 rd Edition Type 1 Listed SPD
Warranty	Two Years**

* Customer-supplied bracket.

** See SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/Surge.

Voltage Protection Ratings (VPR)

Catalog number	Nominal system voltage	MCOV (V _c)	Voltage Protection Ratings (VPR)		
			L-N	L-L	L-G
SPP40SP1120SN	120V	150V	700	—	—
SPP40SP2240PN	120V/240V	150V	700	1200	—
SPP40SP3240DLG	240V	320V	—	2500	1200
SPP40SP3480DLG	480V	550V	—	3000	1800
SPP40SP3208WYG	208V	150V [†]	—	1200	700
SPP40SP3480WYG	480V	320V [†]	—	2500	1200

† SPD voltages are measured from Line-to-Neutral, or Line-to-Ground on systems where there is no Neutral present. These units do not have a Line-to-Neutral, so the Line-to-Ground voltage is 120V for the 208V Wye L-G and 277V for the 480V L-G, making the normal voltage applied to the unit less than the MCOV values listed in the table.

easyID™ LED status indicator

The easyID™ LED status indicator will illuminate when the unit is properly installed and the system or equipment being protected is energized. The following LED color/status indicates:



Green LED = good

The circuit is energized and *protected*.



Red LED = replace

The circuit is *energized and unprotected*.

The unit **needs** replacing.



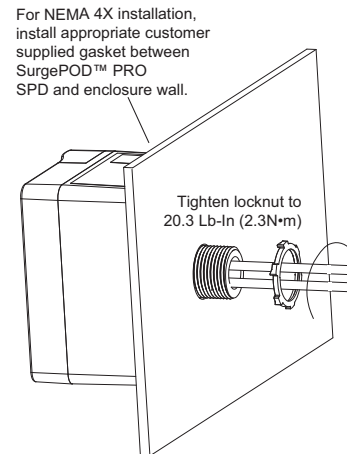
LED is out / unlit:

- The circuit is most likely deenergized
- The unit's leads are disconnected
- The unit is damaged

Authorized personnel should follow all prescribed lockout/tagout and safety procedures in troubleshooting the cause for the above conditions. Opening SurgePOD PRO enclosure will void UL listing and warranty.

Mounting

SurgePOD PRO is a panel mount device. It may also be mounted using a customer supplied bracket or directly onto a female threaded conduit fitting.



BSPM_ _ _ _ S2G



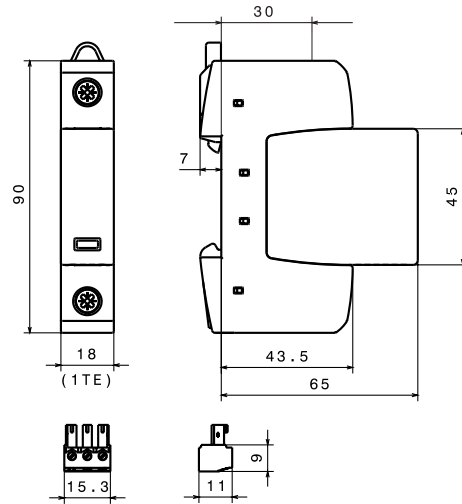
easyID™
Visual Status Indication



Remote Signal
Contact Available



Dimensions - mm



Shown with optional remote contact signaling

Specifications

Description

The Bussmann series single pole UL modular surge arresters for 120, 240 and 347Vac Single-phase systems feature local, easyID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

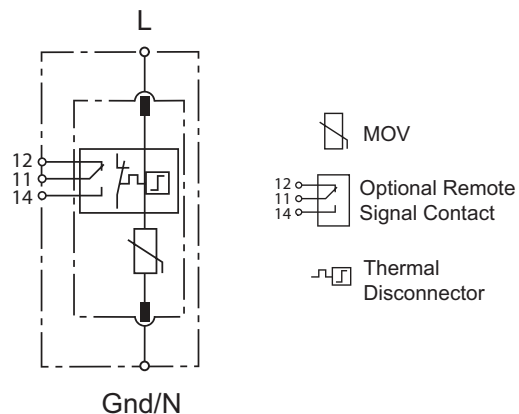
Features

- Surge arrester according to UL 1449 3rd Edition, Type 2 Component Assembly helps meet UL 508A requirements
- Heavy-duty metal oxide varistors for high discharge capacity
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button makes module replacement easy without tools
- Up to 200kA Short-Circuit Current Rating (SCCR) makes higher *assembly* SCCR ratings possible
- Optional remote signaling of all protection modules makes status monitoring easy and accurate in any monitoring scheme
- No additional upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

Optional remote signaling Form C contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact for easy adoption in any monitoring application.

Circuit diagram



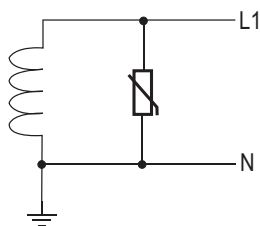
BSPM1120S2G, BSPM1240S2G, BSPM1347S2G

Shown with optional remote contact signaling

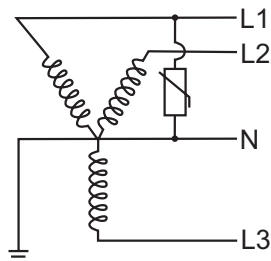
For remote signaling contact, add "R" suffix to the part number, E.g., BSPM1347S2GR

Ordering information				
Nominal system voltage		120Vac	240 and 277Vac	347Vac
Maximum Continuous Operating AC Voltage (MCOV) [V _C]		275Vac	385Vac	600Vac
Catalog numbers:	Without remote signaling	BSPM1120S2G	BSPM1240S2G	BSPM1347S2G
	With remote signaling	BSPM1120S2GR	BSPM1240S2GR	BSPM1347S2GR
Replacement module	MOV technology	BPM275UL	BPM385UL	BPM600UL
Specifications				
Rated voltage		120-127Vac	240-277Vac	347Vac
Voltage Protection Rating VPR		1kV	1.5kV	2kV
Short-circuit Current Rating (SCCR)		200kA	200kA	125kA
Nominal discharge current (I _n)			20kA	
Surge current capacity (I _{max})			40kA	
Response time (t _A)			≤25ns	
Frequency			50/60Hz	
Number of poles			1	
Number of wires/connection points			2 wires / 2 connection points	
Operating temperature range			-40°C to +80°C	
Operating state/fault indication			Green (good) / Red (replace)	
Cross-sectional area (minimum)			14AWG - Cu stranded, solid or fine	
Cross-sectional area (maximum)			2AWG - Cu solid or stranded / 4AWG - Cu fine	
Terminal torque			45 lb-in	
Mounting			35mm DIN-Rail per EN 60715	
Enclosure material			Thermoplastic, UL 94V0	
Degree of protection			IP20 (finger-safe)	
Location category			Indoor	
Capacity			1 module, DIN 43880	
Application			UL Type 4 for Type 2 applications	
Agency information			cURus, CSA, RoHS compliant	
Standard			UL 1449, 3 rd Edition	
Warranty			Five years*	
Remote contact signaling				
Remote contact signaling type			Changeover contact	
AC switching capacity (volts/amperes)			250V/0.5A	
DC switching capacity (volts/amperes)			250V/0.1A; 125V/0.2A; 75V/0.5A	
Conductor ratings and cross-sectional area for remote contact signal terminals			60/75°C Maximum 14AWG solid/stranded	
Ordering information			Order from catalog numbers above	

*See SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.



120, 240, 347Vac 2 wire systems



120, 277, 347Vac 2 wire Wye systems

Part numbers for all systems: BSPM1120S2G, BSPM1240S2G, BSPM1347S2G

See document 3A1636 for black label single-pole UL SCCR rated BSPM installation instructions.

Data Sheet: 2149

BSPM_ _ _ S3G



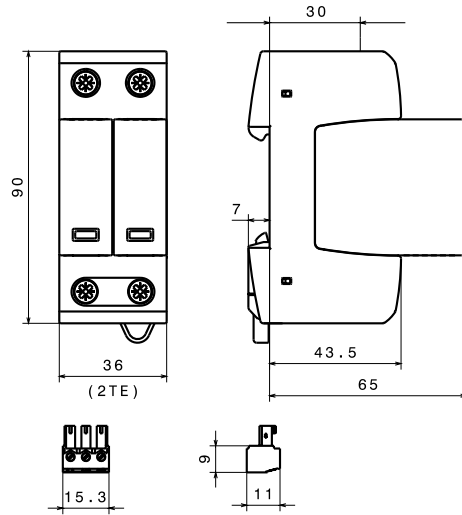
easyID™
Visual Status Indication



Remote Signal
Contact Available



Dimensions - mm



Shown with optional remote contact signaling

Description

The Bussmann series 2-pole UL modular surge arresters for 120/240, 120/208, 127/254, 240, 240/480, 277/480 and 480Vac (split-phase) systems feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

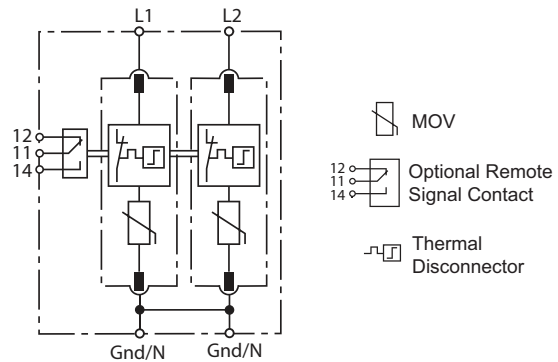
Features

- Surge arrester according to UL 1449 3rd Edition, Type 2 Component Assembly helps meet UL 508A requirements
- Heavy-duty metal oxide varistors for high discharge capacity
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button make module replacement easy without tools
- Up to 200kA Short-Circuit Current Rating (SCCR) make higher *assembly* SCCR ratings possible
- Optional remote signaling of all protection modules make status monitoring easy and accurate in any monitoring scheme
- No additional upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

Optional remote signaling Form C contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact for easy adoption in any monitoring application.

Circuit diagram



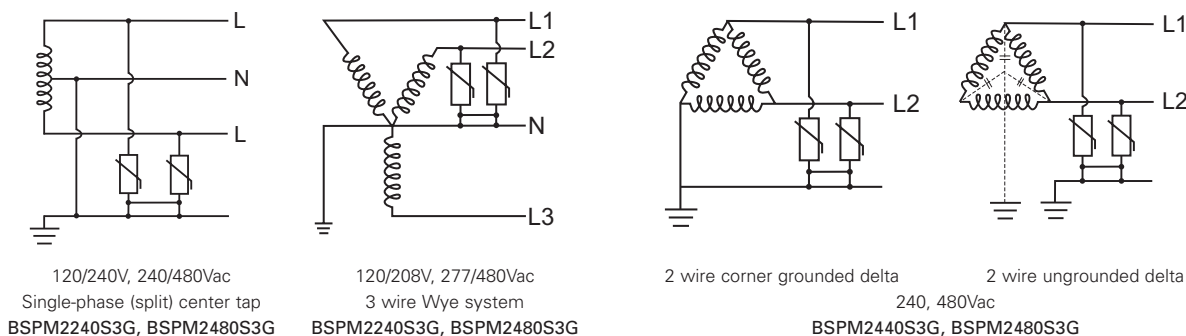
BSPM2240S3G, BSPM2480S3G

Shown with optional remote contact signaling

For remote signaling contact, add "R" suffix to the part number, E.g., BSPM2480S3GR

Ordering information			
Nominal system voltage		120/240, 240Vac	240/480Vac
Maximum Continuous Operating Voltage MCOV [L-G/L-L]		275/550Vac	385/770Vac
Catalog numbers:	Without remote signaling	BSPM2240S3G	BSPM2480S3G
	With remote signaling	BSPM2240S3GR	BSPM2480S3GR
Replacement module	MOV technology	BPM275UL	BPM385UL
Specifications			
Rated voltage		120-127Vac, 240-254Vac, 240Vac	240-480Vac, 480Vac
Voltage Protection Rating VPR [L-G/L-L]		1kV/1.8kV	1.5kV/2.5kV
Short-Circuit Current Rating (SCCR)		200kA	
Nominal discharge current (I_n)		20kA	
Surge current capacity (I_{max})		40kA	
Response time (t_A)		≤25ns	
Frequency		50/60Hz	
Number of poles		2	
Number of wires/connection points		2 wires or 3 wires / 3 connection points	
Operating temperature range		-40°C to +80°C	
Operating state/fault indication		Green (good) / Red (replace)	
Cross-sectional area (minimum)		14AWG - Cu stranded, solid or fine	
Cross-sectional area (maximum)		2AWG - Cu solid or stranded, 4AWG - Cu fine	
Terminal torque		45 lb-in	
Mounting		35mm DIN-Rail per EN 60715	
Enclosure material		Thermoplastic, UL 94V0	
Degree of protection		IP20 (finger-safe)	
Location category		Indoor	
Capacity		2 modules, DIN 43880	
Application		UL Type 4 for Type 2 applications	
Agency information		cURus, CSA, RoHS compliant	
Standard		UL 1449, 3 rd Edition	
Product warranty		Five years*	
Remote contact signaling			
Remote contact signaling type		Changeover contact	
AC switching capacity (volts/amperes)		250V/0.5A	
DC switching capacity (volts/amperes)		250V/0.1A; 125V/0.2A; 75V/0.5A	
Conductor ratings and cross-sectional area for remote contact signal terminals		60/75°C Maximum 14AWG solid/stranded	
Ordering Information		Order from catalog numbers above	

*See SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/Surge.



Data Sheet: 2150

BSPM_ _ _ WYG, BSPM_ _ _ DLG



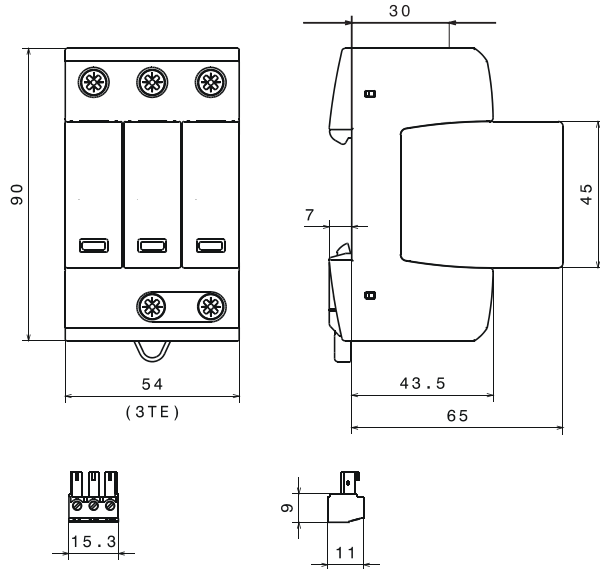
easyID™
Visual Status Indication



Remote Signal
Contact Available



Dimensions - mm



Shown with optional remote contact signaling

Description

The Bussmann series 3-pole UL modular surge arresters for 240 and 480 3-phase Delta, and 120/208, 277/480 and 347/600Vac 3-phase Wye systems feature local, **easyID™** visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

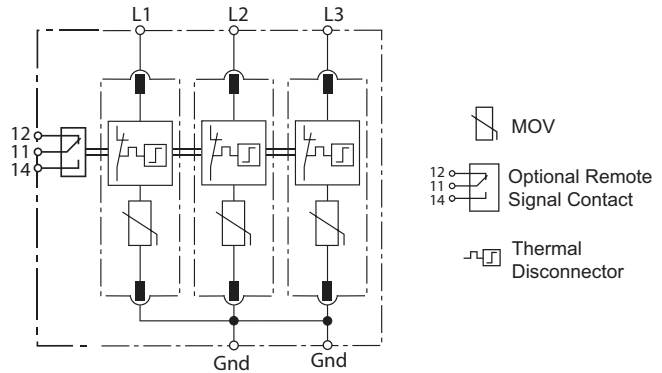
Features

- Surge arrester according to UL 1449 3rd Edition, Type 2 Component Assembly helps meet UL 508A requirements
- Heavy-duty metal oxide varistors for high discharge capacity
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button make module replacement easy without tools
- Up to 200kA Short-Circuit Current Rating (SCCR) make higher *assembly* SCCR ratings possible
- Optional remote signaling of all protection modules make status monitoring easy and accurate in any monitoring scheme
- No additional upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

Optional remote signaling Form C contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

Circuit diagrams



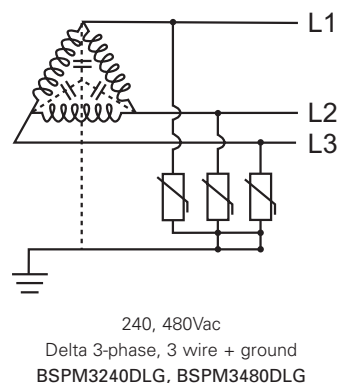
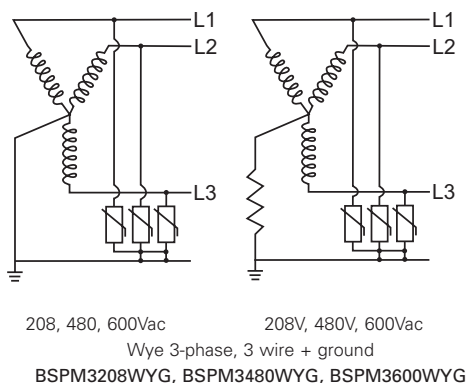
BSPM3208WYG, BSPM3480WYG), BSPM3600WYG, BSPM3240DLG, BSPM3480DLG

Shown with optional remote contact signaling

For remote signaling contact, add "R" suffix to the part number, E.g., BSPM3480DLGR

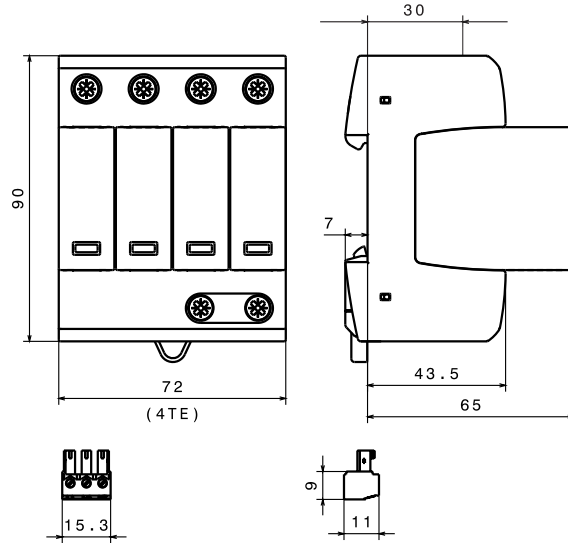
Ordering information						
Nominal system voltage		120/208Vac	240Vac	277/480Vac	480Vac	347/600Vac
Max. Continuous Operating AC Voltage MCOV [L-G/L-L]		275/550Vac	275/550Vac	385/770Vac	600/1200Vac	600/1200Vac
Catalog numbers:	Without remote signaling	BSPM3208WYG	BSPM3240DLG	BSPM3480WYG	BSPM3480DLG	BSPM3600WYG
	With remote signaling	BSPM3208WYGR	BSPM3240DLGR	BSPM3480WYGR	BSPM3480DLGR	BSPM3600WYGR
Replacement module	MOV technology	BPM275UL	BPM275UL	BPM385UL	BPM600UL	BPM600UL
Specifications						
Rated Voltage		120-127Vac, 208-220Vac	240Vac	277/480Vac	480Vac	347/600Vac
Voltage Protection Rating VPR [L-G/L-L]		1kV/1.8kV	1kV/1.8kV	1.5kV/2.5kV	2kV/4kV	2kV/4kV
Short-Circuit Current Rating (SCCR)		200kA	200kA	200kA	125kA	125kA
Nominal discharge current (I_n)		20kA				
Surge current capacity (I_{max})		40kA				
Response time (t_A)		≤25ns				
Frequency		50/60Hz				
Number of poles		3				
Number of wires/connection points		3 wires / 4 connection points				
Operating temperature range		-40°C to +80°C				
Operating state/fault indication		Green (good) / Red (replace)				
Cross-sectional area (minimum)		14AWG - Cu stranded, solid or fine				
Cross-sectional area (maximum)		2AWG - Cu solid or stranded, 4AWG - Cu fine				
Terminal torque		45 lb-In				
Mounting		35mm DIN-Rail per EN 60715				
Enclosure material		Thermoplastic, UL 94V0				
Degree of protection		IP20 (finger-safe)				
Location category		Indoor				
Capacity		3 modules, DIN 43880				
Application		UL Type 4 for Type 2 applications				
Agency information		cURus, CSA, RoHS compliant				
Standard		UL 1449, 3 rd Edition				
Warranty		Five years*				
Remote Contact Signaling						
Remote contact signaling type		Changeover contact				
AC switching capacity (volts/amperes)		250V/0.5A				
DC switching capacity (volts/amperes)		250V/0.1A; 125V/0.2A; 75V/0.5A				
Conductor ratings and cross-sectional area for remote contact signal terminals		60/75°C maximum 14AWG solid/stranded				
Ordering information		Order from catalog numbers above				

*See SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/Surge.



BSPM_ _ _ WYNG, BSPM_ _ _ HLG

Dimensions - mm



Shown with optional remote contact signaling

Description

The Bussmann series 4-pole UL modular surge arresters for 120/240, 240/480Vac 3-phase Highleg Delta and 120/208, 127/220, 277/480 and 347/600Vac 3-phase 4 wire Wye systems feature local, *easyID*™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

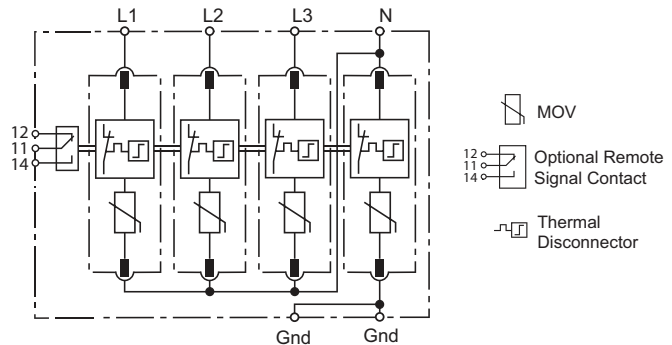
Features

- Surge arrester according to UL 1449 3rd Edition, Type 2 Component Assembly helps meet UL 508A requirements
- Heavy-duty metal oxide varistors for high discharge capacity
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button make module replacement easy without tools
- Up to 200kA Short-Circuit Current Rating (SCCR) make higher *assembly* SCCR ratings possible
- Optional remote signaling of all protection modules make status monitoring easy and accurate in any monitoring scheme
- No additional upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

Optional remote signaling Form C contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact for easy adoption in any monitoring application.

Circuit diagram



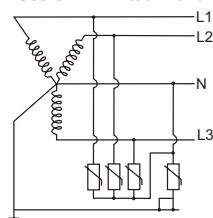
BSPM4208WYNG, BSPM4480WYNG, BSPM4600WYNG, BSPM4240HLG, BSPM4480HLG

Shown with optional remote contact signaling

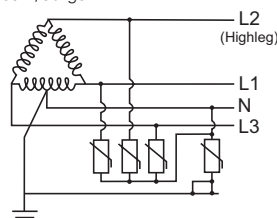
For remote signaling contact, add "R" suffix to the part number, E.g., BSPM4480HLGR

Ordering information							
Nominal system voltage		120/208Vac, 127/220Vac	120/240Vac	240/480Vac	277/480Vac	347/600Vac	
Max. Continuous Operating AC Voltage MCOV		[L-N]/[L-G]	275/550Vac	275/550Vac	385/770Vac	385/660Vac	
		[N-G]/[L-L]	275/550Vac	275/550Vac	385/770Vac	275/770Vac	
		[H-N]/[H-G]	—	275/550Vac	600/985Vac	—	—
		[H-L]	—	550Vac	985Vac	—	—
Catalog numbers		Without remote signaling	BSPM4208WYNG	BSPM4240HLG	BSPM4480HLG	BSPM4480WYNG	
		With remote signaling	BSPM4208WYNGR	BSPM4240HLGR	BSPM4480HLGR	BSPM4480WYNGR	BSPM4600WYNGR
Replacement modules MOV technology four (4) total required		Module positions		L1 or L3	BPM275UL	BPM275UL	
				L2	BPM275UL	BPM275UL	
				N	BPM275UL	BPM275UL	
Specifications							
Rated Voltage		120/208Vac, 127/220Vac	120/240Vac	240/480Vac	277/480Vac	347/600Vac	
Voltage Protection Rating VPR		[L-N/L-G]	1kV/1.8kV	1kV/1.8kV	1.5kV/2.5kV	1.5kV/2.5kV	
		[N-G/L-L]	1kV/1.8kV	1kV/1.8kV	1.5kV/2.5kV	1kV/2.5kV	
		[H-N/H-G]	—	1kV/1.8kV	2kV/3kV	—	—
		[H-L]	—	1.8kV	3kV	—	—
Short-Circuit Current Rating (SCCR)		200kA	200kA	125kA	200kA	125kA	
Nominal discharge current (I_n)		20kA					
Surge current capacity (I_{max})		40kA					
Response time (t_A)		≤25ns					
Frequency		50/60Hz					
Number of poles		4					
Number of wires/connection points		4 wires / 5 connection points					
Operating temperature range		-40°C to +80°C					
Operating state/fault indication		Green (good) / Red (replace)					
Cross-sectional area (minimum)		14AWG - Cu stranded, solid or fine					
Cross-sectional area (maximum)		2AWG - Cu solid or stranded, 4AWG - Cu fine					
Terminal torque		45 lb-In					
Mounting		35mm DIN-Rail per EN 60715					
Enclosure material		Thermoplastic, UL 94V0					
Degree of protection		IP20 (finger-safe)					
Location category		Indoor					
Capacity		4 modules, DIN 43880					
Application		UL Type 4 for Type 2 applications					
Agency information		cURus, CSA, RoHS compliant					
Standard		UL 1449, 3 rd Edition					
Warranty		Five years*					
Remote contact signaling							
Remote contact signaling type		Changeover contact					
AC switching capacity (volts/amperes)		250V/0.5A					
DC switching capacity (volts/amperes)		250V/0.1A; 125V/0.2A; 75V/0.5A					
Conductor ratings and cross-sectional area for remote contact signal terminals		60/75°C Maximum 14AWG solid/stranded					
Ordering information		Order from catalog numbers above					

*See SPD Limited Warranty Statement (3A1502) for details at www.cooperbusmann.com/Surge.



120/208V, 127/220V, 277/480V, 347/600Vac
Wye 3-phase, 4 wire + ground
BSPM4208WYNG, BSPM4480WYNG,
BSPM4600WYNG



120/240V, 240/480Vac
Highleg Delta, 3-phase, 4 wire + ground
BSPM4240HLG, BSPM4480HLG

See document 3A1639 for black label four-pole UL SCCR rated BSPM installation instructions.

Data Sheet: 2152

BSPM1A_ _ _ LV



easyID™

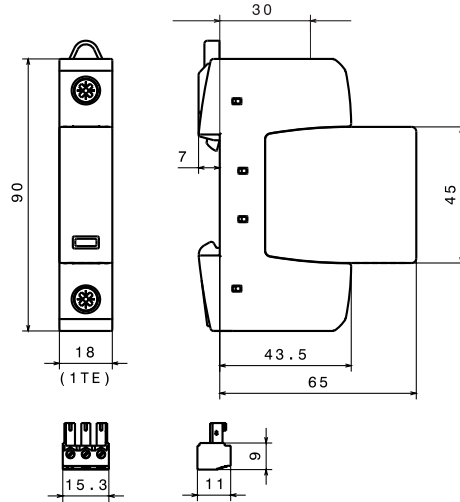
Visual status indication



Remote signal contact available



Dimensions - mm



Shown with optional remote contact signaling

Description

The Buschmann series UL Type 4 48Vac/60Vdc, 75Vac/100Vdc, 120Vac/200Vdc, 275Vac/350Vdc, 320Vac/420Vdc, 385Vac/500Vdc, 440Vac/585Vdc and 600Vac/dc single pole, modular surge arresters feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

LV power system arresters

The features of these single-pole devices are for use as a single device or in combination with other devices for AC and DC voltage systems.

- Surge arrester according to UL 1449 3rd Edition, Type 4 Component Assembly for use in Type 2 applications helps meet UL 508A requirements*
- Proven MOV technology for reliable surge protection
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button make module replacement easy without tools
- Optional remote signaling of all protection modules make status monitoring easy and accurate in any monitoring scheme
- No additional upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

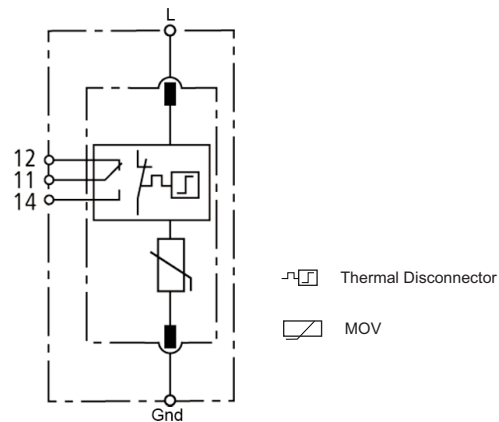
Optional remote signaling Form C contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact for easy adoption in any monitoring application.

* Except as noted in data sheets.

Data Sheet: 2056

Module circuit diagrams - Shown with optional remote contact signaling



**BSPM1A48D60LV, BSPM1A75D100LV,
BSPM1A150D200LV,
BSPM1A275D350LV, BSPM1A320D420LV,
BSPM1A385D500LV, BSPM1A440D585LV,
BSPM1A600D600LV**

Shown with optional remote contact signaling

For remote signaling contact, add "R" suffix to the part number, E.g., BSPM1A150D200LVR

Ordering information — for 48Vac/60Vdc to 275Vac/350Vdc					
System voltage		48Vac/60Vdc	75Vac/100Vdc	120Vac/200Vdc	275Vac/350Vdc
Catalog numbers (base + modules)	W/O remote signaling	BSPM1A48D60LV	BSPM1A75D100LV	BSPM1A150D200LV	BSPM1A275D350LV
	With remote signaling	BSPM1A48D60LVR	BSPM1A75D100LVR	BSPM1A150D200LVR	BSPM1A275D350LVR
Replacement Modules		BPMA48D60LV	BPMA75D100LV	BPMA150D200LV	BPMA275D350LV
Specifications					
Max. continuous operating AC voltage [V _c]		48Vac	75Vac	150Vac	275Vac
Voltage protection level [VPL]		≤0.33kV	≤0.4kV	≤0.7kV	≤1.5kV
Voltage protection level at 5kA [VPL]		≤0.25kV	≤0.35kV	≤0.55kV	≤1kV
Max. continuous operating DC voltage [V _c]		60Vdc	100Vdc	200Vdc	350Vdc
Nominal discharge current (8/20μs) [I _n] AC		7.5kA	10kA	15kA	20kA
Nominal discharge current (8/20μs) [I _n] DC		7.5kA	10kA	12.5kA	12.5kA
Surge current capacity(8/20μs) [I _{max}]		25kA	40kA	40kA	40kA
Temporary overvoltage (TOV)		70V / 5 sec.	90V / 5 sec.	175V / 5 sec.	335V / 5 sec
Agency information*		—	UL / cUL, CSA, KEMA	UL / cUL, CSA, KEMA	UL / cUL, CSA, KEMA

Ordering information — for 320Vac/420Vdc to 600Vac/dc					
System voltage		320Vac/420Vdc	385Vac/500Vdc	440Vac/585Vdc	600Vac/600Vdc
Catalog numbers: (base + modules)	W/O remote signaling	BSPM1A320D420LV	BSPM1A385D500LV	BSPM1A440D585LV	BSPM1A600D600LV
	With remote signaling	BSPM1A320D420LVR	BSPM1A385D500LVR	BSPM1A440D585LVR	BSPM1A600D600LVR
Replacement modules		BPMA320D420LV	BPMA385D500LV	BPMA440D585LV	BPMA600D600LV
Specifications					
Max. continuous operating AC voltage [V _c]		320Vac	385Vac	440Vac	600Vac
Max. continuous operating DC voltage [V _c]		420Vdc	500Vdc	585Vdc	600Vdc
Voltage protection level [VPL]		≤1.5kV	≤1.75kV	≤2kV	≤2.5kV
Voltage protection level at 5kA [VPL]		≤1.2kV	≤1.35kV	≤1.7kV	≤2kV
Nominal discharge current (8/20μs) [I _n] AC		20kA	20kA	20kA	15kA
Nominal discharge current (8/20μs) [I _n] DC		12.5kA	5kA	5kA	5kA
Surge current capacity(8/20μs) [I _{max}]		40kA	40kA	40kA	30kA
Temporary overvoltage (TOV)		335V / 5 sec.	385V / 5 sec.	580V / 5 sec.	600V / 5 sec.
Agency information*		UL / cUL, CSA, KEMA	UL / cUL, CSA, KEMA	UL / cUL, CSA, KEMA	UL / cUL, CSA, KEMA

Specifications — all catalog numbers	
SPD according to EN 61643-11	Type 2
SPD according to IEC 61643-1	Class II
Response time [t _A]	≤25ns
TOV characteristics	Withstand
Operating temperature range [T _U]	-40°C to +80°C
Operating state/fault indication	Green (good) / Red (replace)
Number of ports	1
Cross-sectional area (minimum)	14AWG solid/stranded
Cross-sectional area (maximum)	1AWG solid — 2AWG stranded
Mounting	35mm DIN-Rail per EN 60715
Enclosure material	Thermoplastic, UL 94V0
Location category	Indoor
Degree of protection	IP20
Capacity	1 module, DIN 43880
Warranty	Five Years**
Remote contact signaling	
Remote contact signaling type	Changeover contact
AC switching capacity (volts/amperes)	250V/0.5A
DC switching capacity (volts/amperes)	250V/0.1A; 125V/0.2A; 75V/0.5A
Conductor ratings / cross-sectional area for remote contact signal terminals	60/75°C Max. 14AWG solid/stranded
Ordering information	Order from catalog numbers above

* Agency information not applicable to DC ratings.

** See SPD Limited Warranty Statement (3A1502) for details at www.cooperbusmann.com/Surge.

See document 3A1502 for blue label one-pole low voltage power non-SCCR rated BSPM installation instructions.

Data Sheet: 2056

BSPH2A__LV(R)



easyID™

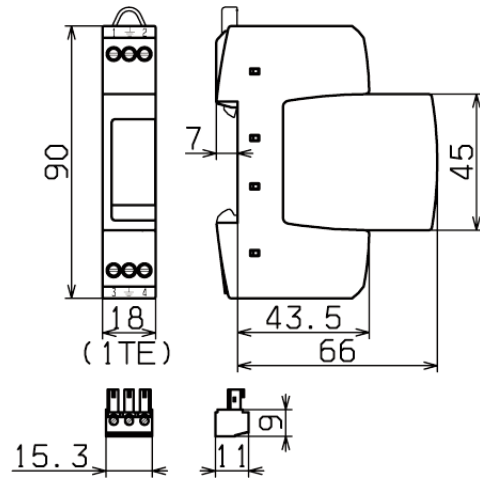
Visual status indication



Remote signal contact available



Dimensions - mm



Shown with optional remote contact signaling

Specifications

Description

The Bussmann series UL Type 4 24Vac/dc, 48Vac/dc, 60Vac/dc, 120Vac/dc and 230Vac/dc, two-pole, modular surge arresters feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

LV system arresters

The features of these two-pole devices are for use in coordination with other upstream SPDs in UL 508A Applications*.

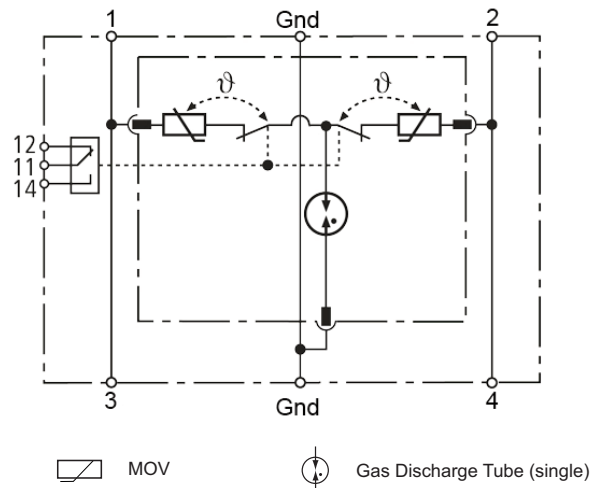
- Surge arrester according to UL 1449 3rd Edition, Type 4 Component Assembly for use in Type 3 applications helps meet UL 508A requirements
- Proven MOV and GDT hybrid technology for reliable surge protection
- "Thermo Dynamic Control" SPD monitoring device ensures high reliability against surge events
- Module locking system with module release button make module replacement easy without tools
- Optional remote signaling of all protection modules make status monitoring easy and accurate in any monitoring scheme
- No additional upstream overcurrent protection necessary to make installation easier and more economical
- Vibration and shock tested according to EN 60068-2 to withstand harsh environments

Optional remote signaling Form C contact

The remote signaling contact versions have a floating changeover contact for use as a break or make contact for easy adoption in any monitoring application.

* UL 1449 3rd Edition not applicable to DC voltages.

Module circuit diagrams



- BPH2A24D24LV** **BPH2A48D48LV** **BPH2A60D60LV**
- BPH2A150D150LV** **BPH2A230D230LV**

Shown with optional remote contact signaling

For remote signaling contact, add "R" suffix to the part number, E.g., BSPH2A230D230LVR

Ordering information						
System Voltage		24Vac/dc	48Vac/dc	60Vac/dc	120Vac/dc	230Vac/dc
Max. continuous operating AC voltage (MCOV) [V _c]		30Vac/dc	60Vac/dc	75Vac/dc	150Vac/dc	255Vac/dc
Catalog numbers (base + modules)	W/O remote signaling	BSPH2A24D24LV	BSPH2A48D48LV	BSPH2A60D60LV	BSPH2A150D150LV	BSPH2A230D230LV
	With remote signaling	BSPH2A24D24LVR	BSPH2A48D48LVR	BSPH2A60D60LVR	BSPH2A150D150LVR	BSPH2A230D230LVR
Replacement Modules		BPHA24D24LV	BPHA48D48LV	BPHA60D60LV	BPHA150D150LV	BPHA230D230LV
Specifications						
Nominal AC voltage [V _n]		24V	48V	60V	120V	230V
Max. continuous operating AC voltage [V _c]		30V	60V	75V	150V	255V
Max. continuous operating DC voltage [V _c]		30V	60V	75V	150V	255V
Nominal discharge current (8/20μs) [I _n]		1kA	1kA	2kA	2kA	3kA
Total discharge current (8/20μs) [L+N-Gnd] [I _{total}]		2kA	2kA	4kA	4kA	5kA
Nominal load current AC [I _l]		25A	25A	25A	25A	25A
Combined impulse [U _{oc}]		2kV	2kV	4kV	4kV	6kV
Combined impulse [L+N-Gnd] [U _{oc} total]		4kV	4kV	8kV	8kV	10kV
Voltage protection level [L-N] [VPL]		≤180V	≤350V	≤400V	≤640V	≤1250V
Voltage protection level [L/N-Gnd] [VPL]		≤630V	≤730V	≤730V	≤800V	≤1500V
Temporary overvoltage (TOV) [L-N]		—	—	—	—	335V / 5 sec.
Temporary overvoltage (TOV) [L/N-Gnd]		—	—	—	—	400V / 5 sec.
Temporary overvoltage (TOV) [L+N-Gnd]		—	—	—	—	1200V + V _o / 20
TOV characteristics [L-N]		—	—	—	—	Withstand
TOV characteristics [L/N-Gnd]		—	—	—	—	Withstand
TOV characteristics [L+N-Gnd]		—	—	—	—	Failure
SPD according to EN 61643-11		Type 3				
SPD according to IEC 61643-1		Class III				
Response time [L-N] [t _a]		≤25ns				
Response time [L/N-Gnd] [t _a]		≤100ns				
Operating temperature range [T _o]		-40°C to +80°C				
Operating state/fault indication		Green (good) / Red (replace)				
Number of ports		1				
Cross-sectional area (min.)		18AWG solid/stranded				
Cross-sectional area (max.)		10AWG solid/12AWG stranded				
For mounting on		35mm DIN-Rail per EN 60715				
Enclosure material		Thermoplastic, UL 94V0				
Location category		Indoor				
Degree of protection		IP20				
Capacity		1 Module, DIN 43880				
Agency information*		UL / cUL, CSA, KEMA				
Product warranty		Five years**				
Remote contact signaling						
Remote contact signaling type		Changeover contact				
AC switching capacity (volts/amperes)		250V/0.5A				
DC switching capacity (volts/amperes)		250V/0.1A; 125V/0.2A; 75V/0.5A				
Conductor ratings and cross-sectional area for remote contact signal terminals		60/75°C Max. 14AWG solid/stranded				
Ordering information		Order from catalog numbers above				

* Agency information not applicable to DC ratings.

** See SPD Limited Warranty Statement (3A1502) for details at www.cooperbusmann.com/Surge.

BSPS__TN, BSPS__TT



Obsolete

No recommended replacement is available

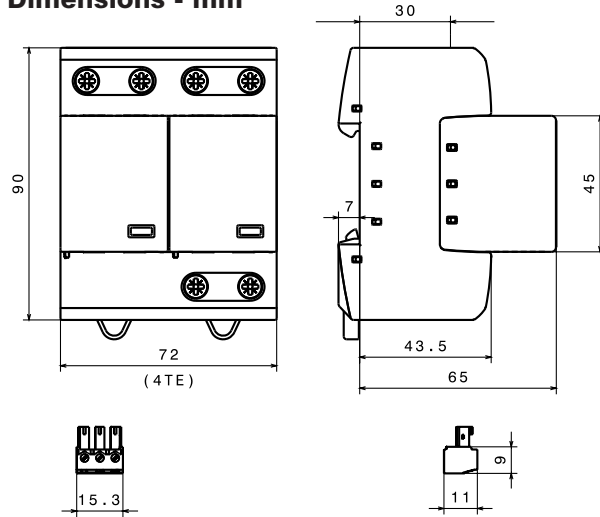
easyID™
Visual status indication



Remote signal contact available



Dimensions - mm



Shown with optional remote contact signaling

Description

The Bussmann series IEC Class I 230V, two-pole, modular combined lightning, current and surge arresters feature local, easyID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module. 230V models are offered with MCOV rating of 255V.

TN system arresters

The features of these two-pole devices are for use as a modular combined lightning and current arrester and surge arrester for use in single TN- systems ("2-0" circuit).

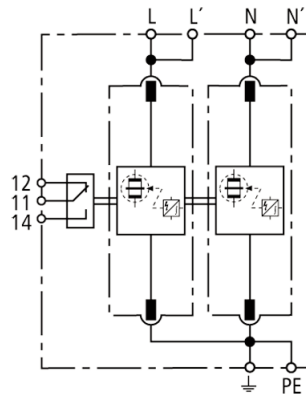
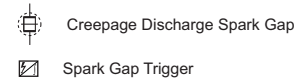
TT system arrester

Provides a current arresting means for use in single TT- systems ("1-1" circuit).

Optional remote signaling Form C contact

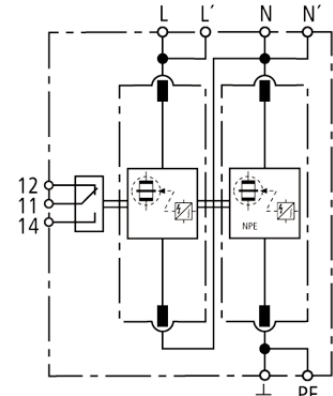
The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

Circuit diagrams



BPS2255TN

Shown with optional remote contact signaling



BPS2255TT

Shown with optional remote contact signaling

For remote signaling contact, add "R" suffix to the part number, E.g., BPS2255TNR

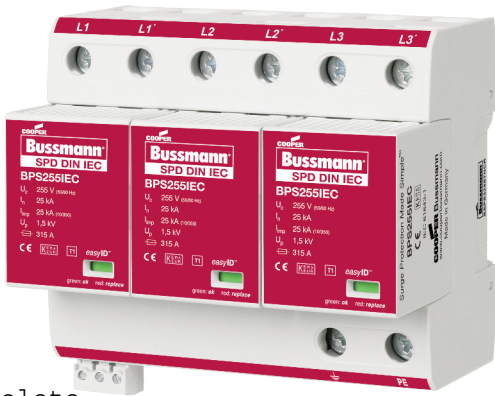
Ordering information		
System voltage/poles	230V/2	230V/2
Max. continuous operating AC voltage (MCOV) [U _C]	255V	255V
Catalog numbers:	Without remote signaling With remote signaling	BSPS2255TN BSPS2255TTR
Replacement modules:	MOV technology Spark Gap technology	(1X) BPS255IEC (1X) BPS50NPEIEC*
Specifications		
Specific energy [L+N-PE] [W/R]	625.00 kJ/ohms	--
Lightning impulse current (10/350 μs) [L, N-PE] [I _{imp}]	25kA	25/50kA I _S [L-N]/[N-PE]
Specific energy [L,N-PE] [W/R]	156.25 kJ/ohms	156.25kJ/ohms/ 625.00 kJ/ohms
Voltage protection level [L-PE]/[N-PE] [U _p]	≤ 1.5 kV/≤ 1.5 kV	--
Voltage protection level [L-N]/[N-PE] [U _p]	--	≤ 1.5kV/≤ 1.5kV
Follow current extinguishing capability AC [I _{fj}]	50kA rms	--
Follow current extinguishing capability [L-N]/[N-PE] [I _{fj}]	--	50kA rms/100A rms
Temporary overvoltage (TOV) [N-PE] [U _T]	--	1200V/200 ms
SPD according to EN 61643-11/... IEC 61643-1	Type 1/Class I	
Energy-coordinated protection effect with regard to the terminal equipment	Type 1 + Type 2	
Energy-coordinated protection effect with regard to the terminal equipment (≤ 5m)	Type 1 + Type 2 + Type 3	
Nominal AC voltage [U _N]	230V	
Lightning impulse current (10/350 μs) [L+N-PE] [I _{total}]	50kA	
Nominal discharge current (8/20 μs) [I _n]	25/50kA	
Follow current limitation/Selectivity	no tripping of a 20A gL/gG fuse up to 50kA rms (prosp.)	
Response time [t _A]	≤ 100 ns	
Max. Backup fuse (L) up to I _k ≤ 50kA rms	315A gL/gG	
Max. Backup fuse (L) for I _k > 50kA rms	200A gL/gG	
Max. Backup fuse (L-L)	125A gL/gG	
Temporary overvoltage (TOV) [L-N] [U _T]	440V/5 sec.	
TOV characteristics	withstand	
Operating temperature range (parallel connection) [T _{Up}]	-40°C to +80°C	
Operating temperature range (series connection) [T _{Us}]	-40°C to +60°C	
Operating temperature range [parallel]/[continuity] [TU]	-40°C to +80°C/-40°C to +60°C	
Operating state/fault indication	green (good)/red (replace)	
Number of ports	1	
Cross-sectional area (L, L, N, N, PE, $\frac{1}{2}$) [min.]	10mm ² solid/flexible	
Cross-sectional area (L, N, PE) [max.]	50mm ² /1AWG stranded-35mm ² /2AWG flexible	
Cross-sectional area (L, N, $\frac{1}{2}$) [max.]	35mm ² /2AWG stranded-25mm ² /4AWG flexible	
For mounting on	35mm DIN Rail per EN 60715	
Enclosure material	Thermoplastic, UL 94V0	
Location category	Indoor	
Degree of protection	IP20	
Capacity	4 mods., DIN 43880	
Agency Information	KEMA	
Product warranty	Five years**	
Remote contact signaling		
Remote contact signaling type	Changeover contact	
AC switching capacity (volts/amps)	250V/0.1A	
DC switching capacity (volts/amps)	250V/0.1A; 125V/0.2A; 75V/0.5A	
Conductor ratings and cross-sectional area for remote contact signal terminals	60/75°C Max. 1.5mm ² /14AWG Solid/Flexible	
Ordering information	Order from catalog numbers above	

Recommended Eaton NH DIN size back up fuses			
Size	NH fuse part number	Size	NH fuse part number
00	125NHG00B (max L-L)	02	125NHG02B (max L-L)
0	125NHG0B (max L-L)	02	200NHG02B (max L I _k >50kA)
01	125NHG01B (max L-L)	2	315NHG2B (max L ≤50kA)
1	200NHG1B (max L I _k >50kA)	03	315NHG03B (max L ≤50kA)

* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.

** See SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

BSPS_ _ _ TNC



Obsolete

No recommended replacement is available

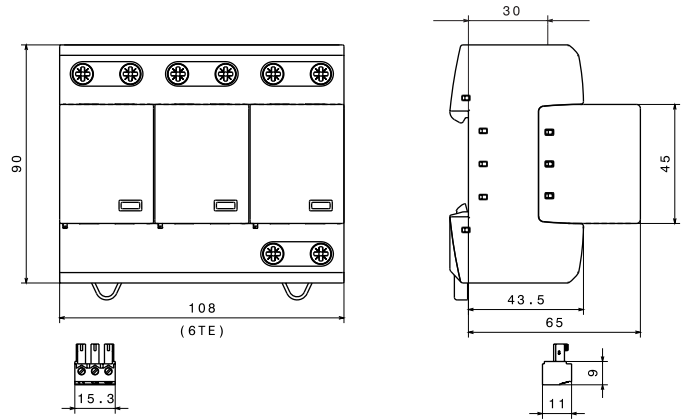
easyID™
Visual status indication



Remote signal contact available

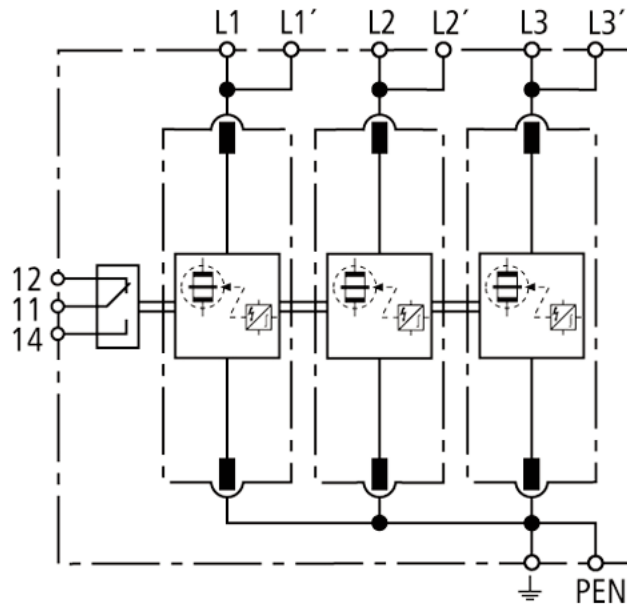


Dimensions - mm



Shown with optional remote contact signaling

Circuit diagrams



BSPS325TNC

Shown with optional remote contact signaling

For remote signaling contact, add "R" suffix to the part number, E.g., BS255TNCR

Ordering information	
System voltage/poles	230/400V/3
Max. continuous operating AC voltage (MCOV) [U _C]	255V
Catalog numbers:	Without remote signaling BSPS3255TNC
	With remote signaling BSPS3255TNCR
Replacement module	MOV technology BPS255IEC
Specifications	
SPD according to EN 61643-11/... IEC 61643-1	Type 1/Class I
Energy-coordinated protection effect with regard to the terminal equipment	Type 1 + Type 2
Energy-coordinated protection effect with regard to the terminal equipment (≤ 5m)	Type 1 + Type 2 + Type 3
Nominal AC voltage [U _N]	230/400V
Lightning impulse current (10/350 μs) [L1+L2+L3-PEN] [I _{total}]	75kA
Specific energy [L1+L2+L3-PEN] [W/R]	1.40 MJ/ohms
Lightning impulse current (10/350 μs) [L-PEN] [I _{imp}]	25kA
Specific energy [L-PEN] [W/R]	156.25kJ/ohms
Nominal discharge current (8/20 μs) [I _n]	25/75kA
Voltage protection level [U _p]	≤ 1.5kV
Follow current extinguishing capability AC [I _{fi}]	50kA rms
Follow current limitation/Selectivity	no tripping of a 20A gL/gG fuse up to 50kA rms (prosp.)
Response time [t _A]	≤ 100 ns
Max. Backup fuse (L) up to I _K = 50kA rms	315A gL/gG
Max. Backup fuse (L) for I _K > 50kA rms	200A gL/gG
Max. Backup fuse (L-L)	125A gL/gG
Temporary overvoltage (TOV) [U _T]	440V/5 sec.
TOV characteristics	withstand
Operating temperature range [parallel]/[continuity] [T _U]	-40°C to +80°C/-40°C to +60°C
Operating state/fault indication	green (good)/red (replace)
Number of ports	1
Cross-sectional area (L1, L1, L2, L2, L3, L3, PEN, \perp) [min.]	10mm ² solid/flexible
Cross-sectional area (L1, L2, L3, PEN) [max.]	50mm ² /1AWG stranded-35mm ² /2AWG flexible
Cross-sectional area (L1, L2, L3, \perp) [max.]	35mm ² /2AWG stranded-25mm ² /4AWG flexible
Mounting	35mm DIN rail per to EN 60715
Enclosure material	Thermoplastic, UL 94V0
Location category	Indoor
Degree of protection	IP20
Capacity	6 mods., DIN 43880
Agency Information	KEMA
Product warranty	Five years*
Remote contact signaling	
Remote contact signaling type	Changeover contact
AC switching capacity (volts/amps)	250V/0.1A
DC switching capacity (volts/amps)	250V/0.1A; 125V/0.2A; 75V/0.5A
Conductor ratings and cross-sectional area for remote contact signal terminals	60/75°C Max. 1.5mm ² /14AWG Solid/Flexible
Ordering information	Order from catalog numbers above

* See SPD Limited Warranty Statement (3A1502) for details at www.cooperbusmann.com/surge.

Recommended Eaton NH DIN size back up fuses			
Size	NH fuse part number	Size	NH fuse part number
00	125NHG00B (max L-L)	02	125NHG02B (max L-L)
0	125NHG0B (max L-L)	02	200NHG02B (max L I _k >50kA)
01	125NHG01B (max L-L)	2	315NHG2B (max L ≤50kA)
1	200NHG1B (max L I _k >50kA)	03	315NHG03B (max L ≤50kA)

BSPS _ _ _ **TNS, BSPS** _ _ _ **TT**



Obsolete

No recommended replacement is available



Remote signal contact available



Description

The Bussmann series IEC Class I 230V, four-pole, modular combined lightning, current and surge arresters feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

230V models are offered with MCOV ratings of 255V.

TNS system arresters

The features of these four-pole devices are for use in TNS 230/400V systems ("4-0" circuit) against surges.

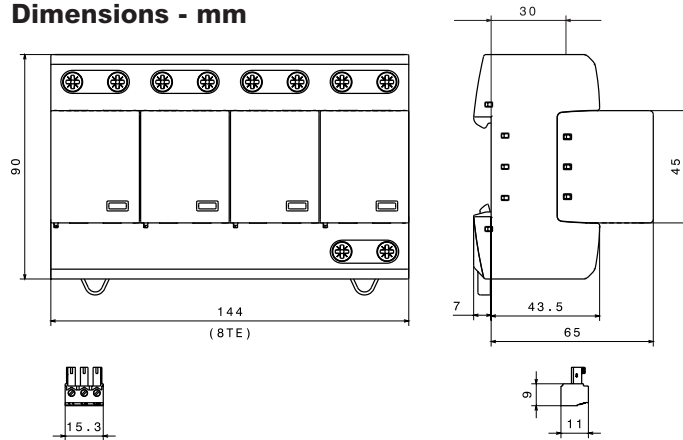
TT system arrester

Provides a current arresting means between neutral conductor and protective conductor in TT 230/400V systems ("3+1" circuit) against surges.

Optional remote signaling Form C contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

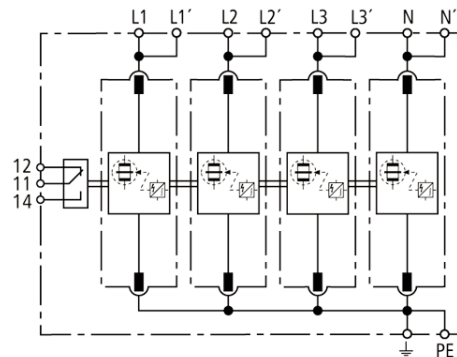
Dimensions - mm



Shown with optional remote contact signaling

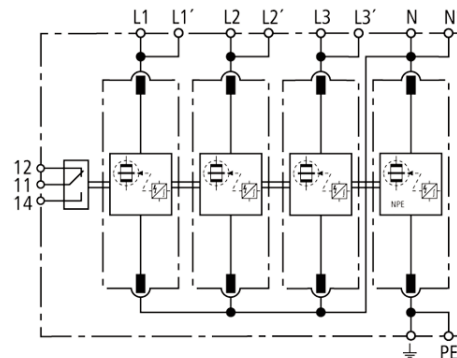
Circuit diagrams

- Creepage Discharge Spark Gap
- Spark Gap Trigger



BSPTS4255TNS

Shown with optional remote contact signaling



BSPTS4255TT

Shown with optional remote contact signaling

For remote signaling contact, add "R" suffix to the part number, E.g., BSPTS4255TTR

Data Sheet: 1165

Ordering information			
System voltage/poles		230/400V/4	230/400V/4
Max. continuous operating AC voltage (MCOV) [U _C]		255V	255V
Catalog numbers:	Without remote signaling	BSPS4255TNS	BSPS4255TT
	With remote signaling	BSPS4255TNSR	BSPS4255TTR
Replacement modules:	MOV technology	BPS255IEC	BPS255IEC
	Spark gap technology	- -	BPS100NPEIEC*
Specifications			
SPD according to EN 61643-11/... IEC 61643-1		Type 1/Class I	
Energy-coordinated protection effect with regard to the terminal equipment		Type 1 + Type 2	
Energy-coordinated protection effect with regard to the terminal equipment (≤ 5m)		Type 1 + Type 2 + Type 3	
Nominal AC voltage [U _N]		230/400V	
Lightning impulse current (10/350 μs) [L1+L2+L3+N-PE] [I _{total}]		100kA	
Specific energy [L1+L2+L3+N-PE] [W/R]		2.50MJ/ohms	
Lightning impulse current (10/350 μs) [L, N-PE] [I _{imp}]		25kA	
TNS system specific energy [L,N-PE] [W/R]		156.25kJ/ohms	
TT system specific energy [L-N]/[N-PE] [W/R]		156.25kJ/ohms/2.50kJ/ohms	
Nominal discharge current (8/20 μs) [I _n]		25/100kA	
Voltage protection level [L-PE]/[N-PE] [U _p]		≤ 1.5kV/≤ 1.5kV	
TNS system follow current extinguishing capability AC [I _{fl}]		50kA rms	
TT system follow current extinguishing capability AC [I _{fl}]		50kA rms/100A rms	
Follow current limitation/Selectivity		No tripping of a 20A gL/gG fuse up to 50kA rms (prosp.)	
Response time [t _A]		≤ 100 ns	
Max. Backup fuse (L) up to I _k ≤ 50kA rms		315A gL/gG	
Max. Backup fuse (L) for I _k > 50kA rms		200A gL/gG	
Max. Backup fuse (L-L)		125A gL/gG	
Temporary overvoltage (TOV) [L-N] [U _T]		440V/5 sec.	
Temporary overvoltage (TOV) [N-PE] [U _T]		1200V/200mS	
TOV characteristics		Withstand	
Operating temperature range [parallel]/[continuity] [T _U]		-40°C to +80°C/-40°C to +60°C	
Operating state/fault indication		green (good)/red (replace)	
Number of ports		1	
Cross-sectional area (L1, L1, L2, L2, L3, L3, N, N, PE, $\frac{1}{2}$) [min.]		10mm ² solid/flexible	
Cross-sectional area (L1, L2, L3, N, PE) [max.]		50mm ² /1AWG stranded-35mm ² /2AWG flexible	
Cross-sectional area (L1, L2, L3, N, $\frac{1}{2}$) [max.]		35mm ² /2AWG stranded-25mm ² /4AWG flexible	
Mounting		35mm DIN Rail per EN 60715	
Enclosure material		Thermoplastic, UL 94V0	
Location category		Indoor	
Degree of protection		IP20	
Capacity		8 mods., DIN 43880	
Agency information		KEMA	
Product warranty		Five years**	
Remote contact signaling			
Remote contact signaling type		Changeover contact	
AC switching capacity (volts/amps)		250V/0.1A	
DC switching capacity (volts/amps)		250V/0.1A; 125V/0.2A; 75V/0.5A	
Conductor ratings and cross-sectional area for remote contact signal terminals		60/75°C Max. 1.5mm ² /14AWG Solid/Flexible	
Ordering information		Order from catalog numbers above	

* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.

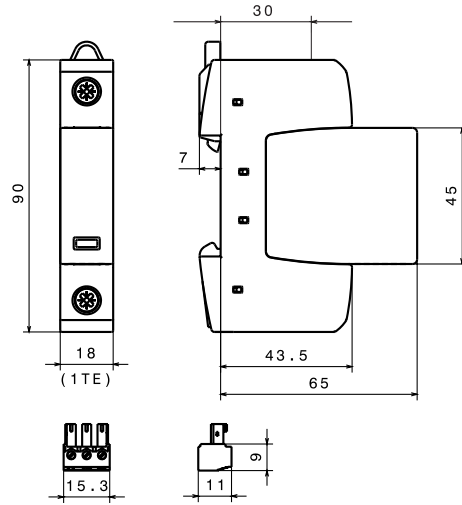
** See SPD Limited Warranty Statement (3A1502) for details at www.cooperbusmann.com/surge.

Recommended Eaton NH DIN size back up fuses			
Size	NH fuse part number	Size	NH fuse part number
00	125NHG00B (max L-L)	02	125NHG02B (max L-L)
0	125NHG0B (max L-L)	02	200NHG02B (max L I _k >50kA)
01	125NHG01B (max L-L)	2	315NHG2B (max L ≤50kA)
1	200NHG1B (max L I _k >50kA)	03	315NHG03B (max L ≤50kA)

BSPM_ _ _ TN, BSPG_ _ _ NPE



Dimensions - mm



Shown with optional remote contact signaling

Description

The Bussmann series IEC Class II 275, 320, 385, 440 and 600V, one-pole, modular surge arresters feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

Class II single-pole surge arrester models are offered with MCOV ratings of 255, 275, 320, 385, 440 and 600V.

TN system arresters

The features of these single-pole devices are for use as a single device or in combination with other devices.

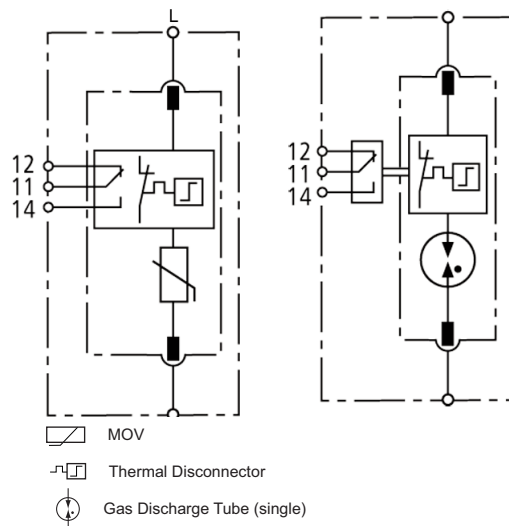
TT system arrester

Provides a current arresting means between neutral conductor and protective conductor in TT systems, this device helps ensure fulfilling the requirements for protection of personnel and equipment in "3+1" and "1+1" circuits.

Optional remote signaling Form C contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

Module circuit diagrams



BSPM1275TN
BSPM1320TN
BSPM1385TN
BSPM1440TN
BSPM1600TN

BSPG1255NPE(R)

Shown with optional remote contact signaling

For remote signaling contact, add "R" suffix to the part number, E.g., BSPM1275TNR

Ordering information						
System voltage/poles	230V/1	230V/1	230V/1	400V/1	600V/1	230V/1*
Max. continuous operating AC voltage (MCOV) [U _C]	275V	320V	385V	440V	600V	255V
Catalog numbers: Without remote signaling	BSPM1275TN	BSPM1320TN	BSPM1385TN	BSPM1440TN	BSPM1600TN	BSPG1255NPE
(Base + modules) With remote signaling	BSPM1275TNR	BSPM1320TNR	BSPM1385TNR	BSPM1440TNR	BSPM1600TNR	BSPG1255NPER
Replacement modules	BPM275IEC	BPM320IEC	BPM385IEC	BPM440IEC	BPM600IEC	BPG255NPE
Specifications						
Line system type	TN / TT	TN / TT	TN / TT	TN	TN	TT
Max. continuous operating DC voltage [U _C]	350V	420V	500V	585V	600V	--
Voltage protection level [U _p]	≤ 1.25kV	≤ 1.5kV	≤ 1.75kV	≤ 2kV	≤ 2.5kV	≤ 1.5kV
Voltage protection level at 5kA [U _p]	≤ 1kV	≤ 1.2kV	≤ 1.35kV	≤ 1.7kV	≤ 2kV	--
Max. mains-side overcurrent protection	125A gL/gG	125A gL/gG	125A gL/gG	125A gL/gG	100A gL-gG	--
Short-circuit withstand capability for max. mains-side overcurrent protection	50kA _{rms}	25kA _{rms}	25kA _{rms}	25kA _{rms}	25kA _{rms}	--
Temporary overvoltage (TOV) [U _T]	335V/5 sec.	335V/5 sec.	385V/5 sec.	580V/5 sec.	600V/5 sec.	1200V/200 ms
Response time [t _A]	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns	≤ 100 ns
Follow current extinguishing capability [I _{fi}]	--	--	--	--	--	100A _{rms}
Lightning impulse current (10/350 μs) [I _{imp}]	--	--	--	--	--	12kA
Nominal discharge current (8/20 μs) [I _n]	20kA	20kA	20kA	20kA	15kA	20kA
Max. discharge current (8/20 μs) [I _{max}]	40kA	40kA	40kA	40kA	30kA	40kA
Agency Information	KEMA	KEMA, CSA	KEMA, CSA	KEMA, CSA	KEMA, CSA	KEMA
Capacity	1 mod., DIN 43880					
SPD according to EN 61643-11	Type 2					
SPD according to IEC 61643-1	Class II					
TOV characteristics	Withstand					
Operating temperature range [T _U]	-40°C to +80°C					
Operating state/fault indication	Green (good) / red (replace)					
Number of ports	1					
Cross-sectional area (min.)	1.5mm ² /14AWG solid/flexible					
Cross-sectional area (max.)	35mm ² /2AWG stranded-25mm ² /4AWG flexible					
Mounting	35mm DIN Rail per EN 60715					
Enclosure material	Thermoplastic, UL 94V0					
Location category	Indoor					
Degree of protection	IP20					
Product warranty	Five years**					
Remote contact signaling						
Remote contact signaling type	Changeover contact					
AC switching capacity (volts/amps)	250V/0.1A					
DC switching capacity (volts/amps)	250V/0.1A; 125V/0.2A; 75V/0.5A					
Conductor ratings and cross-sectional area for Remote contact signal terminals	60/75°C Max. 1.5mm ² /14AWG Solid/Flexible					
Ordering information	Order from catalog numbers above					

* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.

** See SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Recommended Eaton back up fuses		
DIN fuse size	TT / TN system NH fuse part numbers	
	275, 320, 385, 440V	600V
00	125NHG00B	100NHG00B-690
0	125NHG0B	100NHG0B-690
01	125NHG01B	--
1	--	100NHG1B-690
02	125NHG02B	--
2	--	100NHG2B-690

BSPM_ _ _ TN, BSPH_ _ _ TT



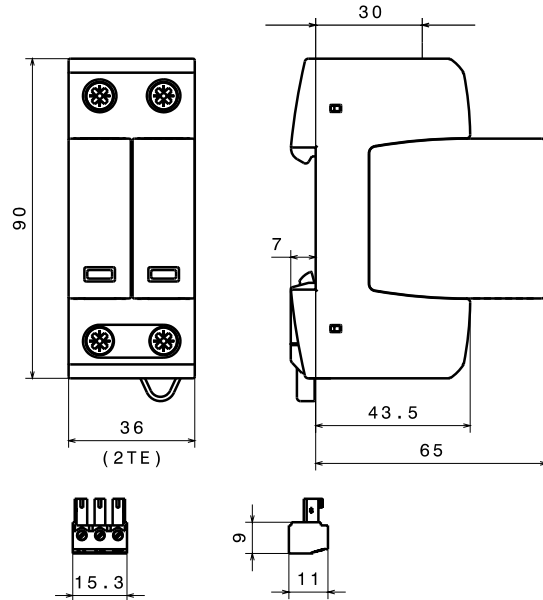
easyID™
Visual status indication



Remote signal
contact available



Dimensions - mm



Shown with optional remote contact signaling

Description

The Bussmann series IEC Class II 230V, two-pole, modular surge arresters feature local, **easyID™** visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module. 230V models are offered with MCOV ratings of 255 and 275V.

TN system arresters

The features of these single-pole devices are for use in Single-phase 230V TN systems ("2-0" circuit).

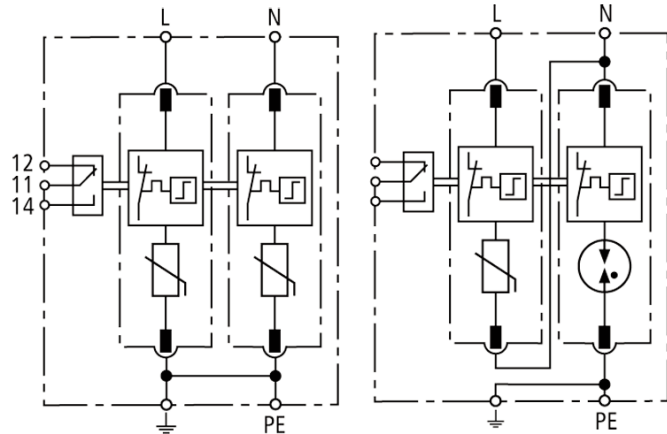
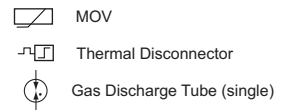
TT system arrester

The features of these single-pole devices are for use in Single-phase 230V TT and TNS systems ("1-1" circuit).

Optional remote signaling Form C contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

Circuit diagrams



BSPM2275TN

Shown with optional remote
contact signaling

BSPH2275TT

Shown with optional remote
contact signaling

For remote signaling contact, add "R" suffix to the part number, E.g., BSPM2275TNR

Ordering information		
System voltage/poles	230V/2	230V/2
Max. continuous operating AC voltage (MCOV) [U _C]	275V	--
Max. continuous operating AC voltage (MCOV) [L-N] [U _C]	--	275V
Max. continuous operating AC voltage (MCOV) [N-PE] [U _C]	--	255V
Catalog numbers:	Without remote signaling	BSPM2275TN
	With remote signaling	BSPM2275TNR
Replacement modules:	MOV Technology	BPM275IEC
	Spark Gap technology	--
		BSPH2275TT
		BSPH2275TTR
		BPM275IEC
		BPSNPEIEC*
Specifications		
Lightning impulse current (10/350 μs) [N-PE] [I _{imp}]	--	12kA
Voltage protection level [U _p]	≤ 1.25kV	--
Voltage protection level at 5kA [U _p]	≤ 1kV	--
Voltage protection level [L-N] [U _p]	--	≤ 1.25kV
Voltage protection level [L-N] at 5kA [U _p]	--	≤ 1kV
Voltage protection level [N-PE] [U _p]	--	≤ 1.5kV
Follow current extinguishing capability [N-PE] [I _{fi}]	--	100A rms
Response time [t _A]	≤ 25 ns	--
Response time [L-N] [t _A]	--	≤ 25 ns
Response time [N-PE] [t _A]	--	≤ 100 ns
Temporary overvoltage (TOV) [U _T]	335V/5 sec.	--
Temporary overvoltage (TOV) [L-N] [U _T]	--	335V/5 sec.
Temporary overvoltage (TOV) [N-PE] [U _T]	--	1200V/200 ms
SPD according to EN 61643-11		Type 2
SPD according to IEC 61643-1		Class II
Nominal discharge current (8/20 μs) [I _n]		20kA
Max. discharge current (8/20 μs) [I _{max}]		40kA
Max. mains-side overcurrent protection		125A gL/gG
Short-circuit withstand capability for max. mains-side overcurrent protection		50kA rms
Nominal AC voltage [U _N]		230V
TOV characteristics		withstand
Operating temperature range [T _U]		-40°C to +80°C
Operating state/fault indication		green (good)/red (replace)
Number of ports		1
Cross-sectional area (min.)		1.5mm ² /14AWG solid/flexible
Cross-sectional area (max.)		35mm ² /2AWG stranded-25mm ² /4AWG flexible
Mounting		35mm DIN rail per EN 60715
Enclosure material		Thermoplastic, UL 94V0
Location category		Indoor
Degree of protection		IP20
Capacity		2 mods., DIN 43880
Agency Information		KEMA
Product warranty		Five years**
Remote contact signaling		
Remote contact signaling type		Changeover contact
AC switching capacity (volts/amps)		250V/0.1A
DC switching capacity (volts/amps)		250V/0.1A; 125V/0.2A; 75V/0.5A
Conductor ratings and cross-sectional area for remote contact signal terminals		60/75°C Max. 1.5mm ² /14AWG Solid/Flexible
Ordering information		Order from catalog numbers above

* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.

** See SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Recommended Eaton back up fuses	
DIN fuse size	NH fuse part number
00	125NHG00B
0	125NHG0B
01	125NHG01B
02	125NHG02B

BSPM_ _ _ TNC



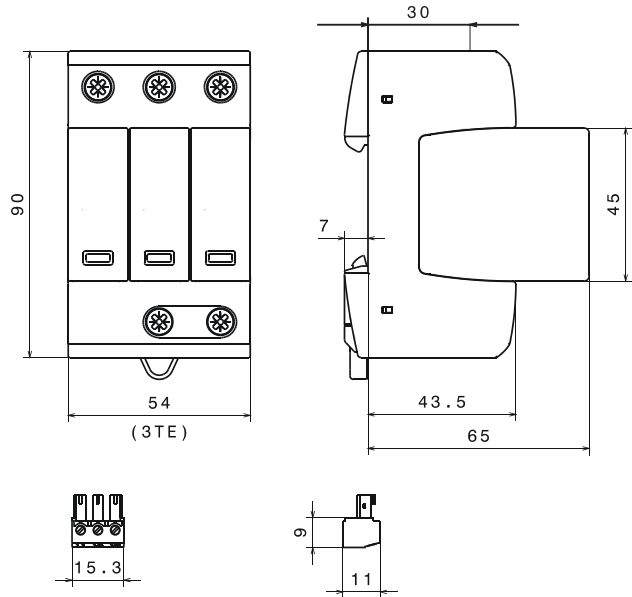
easyID™
Visual status indication



Remote signal contact available



Dimensions - mm



Shown with optional remote contact signaling

Description

The Bussmann series IEC Class II 120/240V and 230/400V, three-pole, modular surge arresters feature local, easyID™ visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

120V models are offered with a MCOV rating of 150V.

230V models are offered with a MCOV rating of 275 or 385V.

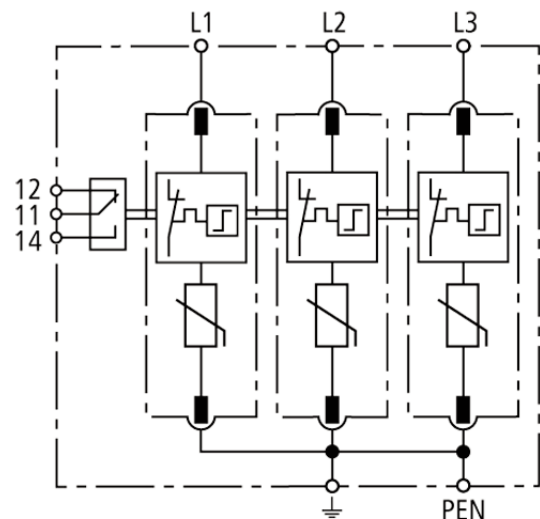
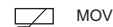
TNC system arresters

The features of these three-pole devices are for use in TN-C 120/240V or 230/400V systems ("3-0" circuit) against surges.

Optional remote signaling Form C contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

Circuit diagrams



BSPM3150TNC, BSPM3275TNC, BSPM3385TNC

Shown with optional remote contact signaling

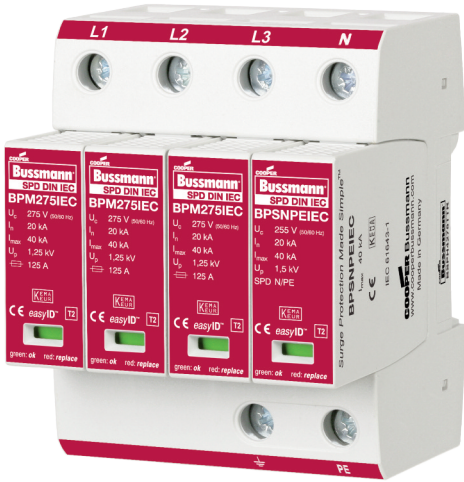
For remote signaling contact, add "R" suffix to the part number, E.g., BSPM3150TNCR

Ordering information			
System voltage/poles	120V/3	230V/3	230V/3
Max. continuous operating AC voltage (MCOV) [U _C]	150V	275V	385V
Catalog numbers:	Without remote signaling	BSPM3150TNC	BSPM3275TNC
	With remote signaling	BSPM3150TNCR	BSPM3275TNCR
Replacement module	MOV technology	BPM150IEC	BPM275IEC
			BPM385IEC
Specifications			
Nominal AC voltage [U _N]	120/240V	230/400V	230/400V
Voltage protection level [U _p]	≤ 0.7kV	≤ 1.25kV	≤ 1.75kV
Voltage protection level at 5kA [U _p]	≤ 0.55kV	≤ 1kV	≤ 1.35kV
Short-circuit withstand capability for max. mains-side overcurrent protection	50kA _{rms}	50kA _{rms}	25kA _{rms}
Temporary overvoltage (TOV) [U _T]	175V/5 sec	335V/5 sec.	385V/5 sec
Nominal discharge current (8/20 μs) [I _n]	15kA	20kA	20kA
Max. discharge current (8/20 μs) [I _{max}]		40kA	
SPD according to EN 61643-11		Type 2	
SPD according to IEC 61643-1		Class II	
Response time [t _A]		≤ 25 ns	
Max. mains-side overcurrent protection		125A gL/gG	
TOV characteristics		withstand	
Operating temperature range [T _U]		-40°C to +80°C	
Operating state/fault indication		Green (good)/red (replace)	
Number of ports		1	
Cross-sectional area (min.)		1.5mm ² /14AWG solid/flexible	
Cross-sectional area (max.)		35mm ² /2AWG stranded-25mm ² /4AWG flexible	
Mounting		35mm DIN rail per EN 60715	
Enclosure material		Thermoplastic, UL 94V0	
Location category		Indoor	
Degree of protection		IP20	
Capacity		3 mods., DIN 43880	
Agency Information		KEMA	
Product warranty		Five years*	
Remote contact signaling			
Remote contact signaling type		Changeover contact	
AC switching capacity (volts/amps)		250V/0.1A	
DC switching capacity (volts/amps)		250V/0.1A; 125V/0.2A; 75V/0.5A	
Conductor ratings and cross-sectional area for remote contact signal terminals		60/75°C Max. 1.5mm ² /14AWG Solid/Flexible	
Ordering information		Order from catalog numbers above	

* See SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Recommended Eaton back up fuses	
DIN fuse Size	NH fuse part number
00	125NHG00B
0	125NHG0B
01	125NHG01B
02	125NHG02B

BSPH_TNS, BSPH_TT



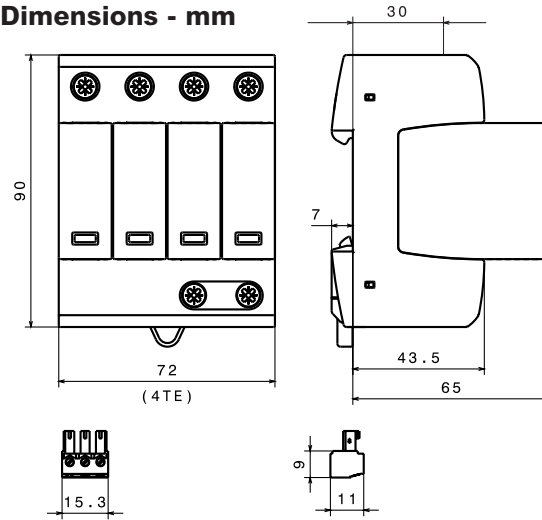
easyID™
Visual status indication



Remote signal contact available

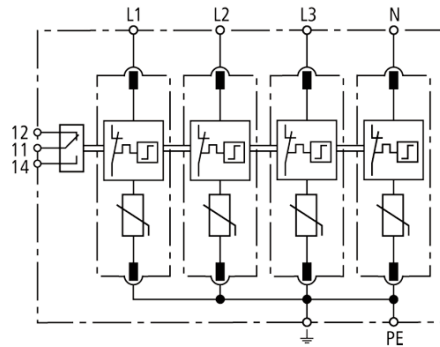
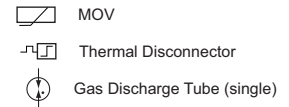


Dimensions - mm



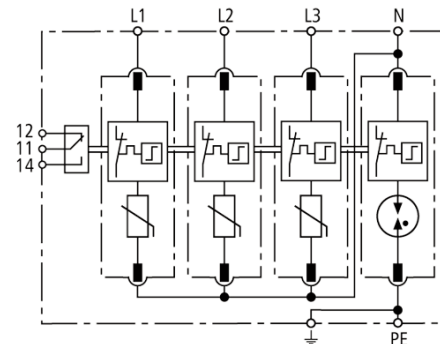
Shown with optional remote contact signaling

Circuit diagrams



BSPM4275TNS

Shown with optional remote contact signaling



**BSPH4275TT, BSPH4320TT
BSPH4385TT**

Shown with optional remote contact signaling

For remote signaling contact, add "R" suffix to the part number, e.g., BSPH4275TTR

Description

The Bussmann series IEC Class II 230/400V, four-pole, modular surge arresters feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

These 230V models are offered with MCOV ratings of 275, 320 or 385V.

TNS system arrester

The features of these four-pole devices are for use in TNS 230/400V systems ("4-0" circuit) against surges.

TT system arrester

The features of these four-pole devices are for use in TT and TN-S 230/400V systems ("3+1" circuit) against surges.

Optional remote signaling Form C contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

Ordering information					
System voltage/poles		230V/4	230V/4	230V/4	230V/4
Max. continuous operating AC voltage (MCOV) [U _C]		275V	--	--	--
Max. continuous operating AC voltage (MCOV) [L-N] [U _C]		--	275V	320V	385V
Max. continuous operating AC voltage [N-PE] [U _C]		--	255V	255V	255V
Catalog numbers:	Without remote signaling	BSPM4275TNS	BSPH4275TT	BSPH4320TT	BSPH4385TT
	With remote signaling	BSPM4275TNSR	BSPH4275TTR	BSPH4320TTR	BSPH4385TTR
Replacement modules:	MOV technology	BPM275IEC	BPM275IEC	BPM320IEC	BPM385IEC
	Spark Gap technology	--	BPSNPEIEC*	BPSNPEIEC*	BPSNPEIEC*
Specifications					
Lightning impulse current (10/350 μs) [N-PE] [I _{imp}]		--	12kA	12kA	12kA
Voltage protection level [U _p]		≤ 1.25kV	--	--	--
Voltage protection level at 5kA [U _p]		≤ 1kV	--	--	--
Voltage protection level [L-N] [U _p]		--	≤ 1.25kV	≤ 1.5kV	≤ 1.75kV
Voltage protection level [L-N] at 5kA [U _p]		--	≤ 1kV	≤ 1.2kV	≤ 1.35kV
Voltage protection level [N-PE] [U _p]		--	≤ 1.5kV	≤ 1.5kV	≤ 1.5kV
Follow current extinguishing capability [N-PE] [I _{fi}]		--	100A _{rms}	100A _{rms}	100A _{rms}
Response time [t _A]		≤ 25 ns	--	--	--
Response time [L-N] [t _A]		--	≤ 25 ns	≤ 25 ns	≤ 25 ns
Response time [N-PE] [t _A]		--	≤ 100 ns	≤ 100 ns	≤ 100 ns
Temporary overvoltage (TOV) [U _T]		335V/5 sec.	--	--	--
Temporary overvoltage (TOV) [L-N] [U _T]		--	335V/5 sec.	335V/5 sec.	385V/5 sec.
Temporary overvoltage (TOV) [N-PE] [U _T]		--	1200V/200 ms	1200V/200 ms	1200V/200 ms
Short-circuit withstand capability for max. mains-side overcurrent protection		50kA _{rms}	50kA _{rms}	25kA _{rms}	25kA _{rms}
SPD according to EN 61643-11		Type 2			
SPD according to IEC 61643-1		Class II			
Nominal AC voltage [U _N]		230/400V			
Nominal discharge current (8/20 μs) [I _n]		20kA			
Max. discharge current (8/20 μs) [I _{max}]		40kA			
Max. mains-side overcurrent protection		125A gL/gG			
TOV characteristics		withstand			
Operating temperature range [T _{ij}]		-40°C to +80°C			
Operating state/fault indication		green (good)/red (replace)			
Number of ports		1			
Cross-sectional area (min.)		1.5mm ² /14AWG solid/flexible			
Cross-sectional area (max.)		35mm ² /2AWG stranded-25mm ² /4AWG flexible			
Mounting		35mm DIN rail per EN 60715			
Enclosure material		Thermoplastic, UL 94V0			
Location category		Indoor			
Degree of protection		IP20			
Capacity		4 mods., DIN 43880			
Agency Information		KEMA			
Product warranty		Five years**			
Remote contact signaling					
Remote contact signaling type		Changeover contact			
AC switching capacity (volts/amps)		250V/0.1A			
DC switching capacity (volts/amps)		250V/0.1A; 125V/0.2A; 75V/0.5A			
Conductor ratings and cross-sectional area for remote contact signal terminals		60/75°C Max. 1.5mm ² /14AWG Solid/Flexible			
Ordering information		Order from catalog numbers above			

* N-PE Surge arrester module for location between neutral conductor and protective conductor in TT systems.

** See SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Recommended Eaton back up fuses	
DIN fuse size	NH fuse part number
00	125NHG00B
0	125NHGOB
01	125NHG01B
02	125NHG02B

PV SPDs — 600/1000/1200Vdc overvoltage — 1000Vdc lightning arrester

Description:

The Bussmann series range of PV surge protective devices (SPDs) provides complete system protection with PV ADVANCE to suppress lightning current and PV PRO or PV HEAVY DUTY to suppress overvoltage events. Together, they protect the DC voltage section of a PV system.

Catalog numbers:

PV PRO — (Base + three modules) bi-pole systems

	W/O remote signaling	BSPP3600YPV
600Vdc	With remote signaling	BSPP3600YPVR
	Replacement module	BPP300SYPV
	W/O remote signaling	BSPP31000YPV
1000Vdc	With remote signaling	BSPP31000YPVR
	Replacement module	BPP500SYPV

PV HEAVY DUTY — (Base + three modules) bi-pole systems

	W/O remote signaling	BSPH3600YPV
600Vdc	With remote signaling	BSPH3600YPVR
	Replacement modules:	Outer (2) BPH300YPV Center BPM300YPV
	W/O remote signaling	BSPH31000YPV
1000Vdc	With remote signaling	BSPH31000YPVR
	Replacement modules:	Outer (2) BPH500YPV Center (1) BPM500YPV
	W/O remote signaling	BSPH31200YPV
1200Vdc	With remote signaling	BSPH31200YPVR
	Replacement modules:	Outer (2) BPH600YPV Center (1) BPM600YPV

PV HEAVY DUTY — (Base + two modules) mono-pole systems

	W/O remote signaling	BSPH2600PV
600Vdc	With remote signaling	BSPH2600PVR
	Replacement modules:	Left BPH300YPV Right BPM300YPV

PV ADVANCE — (Complete assembly)

1000Vdc	BSPS31000PV (complete assembly)
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Product specifications	PV PRO	PV HEAVY DUTY	PV ADVANCE
Nominal system voltage V_O	600, 1000Vdc	600, 1000, 1200Vdc	Up to 1000Vdc
System type	Bi-pole	Mono-pole, bi-pole	Bi-pole
Protection from	Surge	Surge	Direct/Indirect Lightning Currents
Wiring configuration / applications	"I" and "Y" configuration Applications B, C and D	"I" and "Y" configuration Applications B, C, D and E	Application A
Nominal discharge current I_n - IEC	20kA	12.5kA	100kA
Nominal discharge current (8x20 μ s) I_n - UL	20kA	10kA	—
Impulse current rating (10/350 μ s) I_{imp}	—	—	50kA
Max. discharge current (8x20 μ s) I_{max}	40kA	25kA	N/A
PV short-circuit current rating I_{scpv} Amps	125A	1000A	—
Technology	MOV	MOV SCI	Trigger Spark Gap
Agency information	UL Recognized, EN 50539-11	UL Recognized, EN 50539-11	IEC 61643-11
Product warranty*	2 Years	5 Years	5 Years
Typical product application	Combiner boxes	Recombiner boxes / inverters	Arrays / inverters

* See limited warranty statement (3A1502) for details.

Overvoltage surge protection

PV PRO (Performance)

- 600, 1000Vdc
- Bi-pole

PV HEAVY DUTY (Safety)

- 600, 1000, 1200Vdc
- Mono-pole, bi-pole
- Integrated overcurrent protection for complete device isolation and enhanced safety



+

Lightning current protection

PV ADVANCE (Lightning)

- Combined lightning current and surge protection



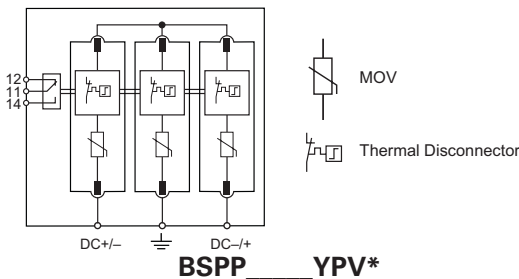
= Complete system protection

PV PRO – Performance

- UL 1449 3rd Edition Recognized, and EN 50539-11 SPDs for most popular bi-pole protection up to 600Vdc and 1000Vdc
- Modular DIN-Rail mounting with IP20 finger-safe construction makes it easy to install and maintain
- Built-in thermal disconnect technology eliminates the need for any additional fuse installation and wiring
- *easyID*[™] local visual indication and optional remote contact signaling make status monitoring simple
- Two-year warranty



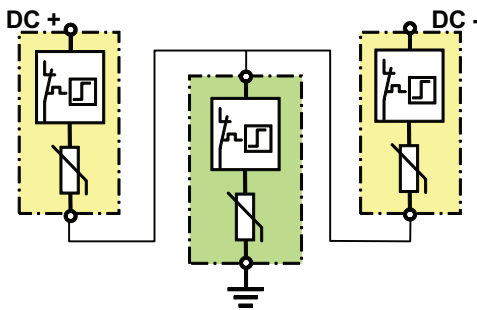
Module circuit diagram



Shown with optional remote contact signaling

* For remote signaling contact, add "R" suffix to the part number. E.g., BSPP3600YPVR

PV PRO "Y" series connection

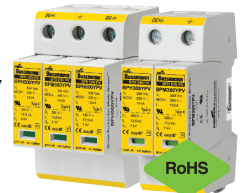


Series connection of modules between line and ground extends MOV life and permits higher voltage ratings.

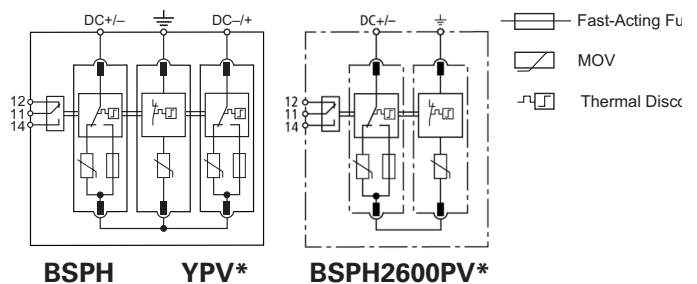
Data Sheet: 10091

PV HEAVY DUTY – Safety

- Patented, fast-acting hybrid Short-Circuit Interrupting (SCI) technology isolates system to prevent damage caused by DC arcs
- UL 1449 3rd Edition Recognized and EN 50539-11 SPDs for enhanced mono- and bi-pole system protection up to 600, 1000 and 1200Vdc
- Modular DIN-Rail mounting with IP20 finger-safe construction makes it easy to install and maintain
- *easyID*[™] local visual indication and optional remote contact signaling make status monitoring simple
- Five-year warranty



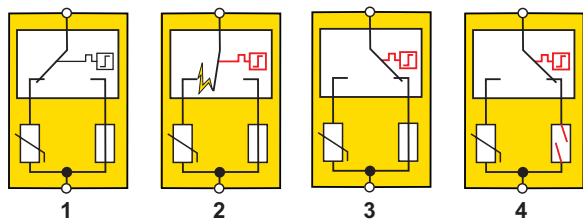
Module circuit diagrams



Shown with optional remote contact signaling

* For remote signaling contact, add "R" suffix to the part number. E.g., BSPH3600YPVR

PV HEAVY DUTY SCI technology



SCI technology utilizes an internal fast-acting fuse to fully isolate the SPD when a fault condition is encountered.

1. Normal operating state; conduction path is through MOV to ground.
2. MOV Failure trips thermal disconnect, moving contact off the MOV and starts DC arc.
3. As contact moves, DC arc is extinguished and the contact engages the fuse.
4. Fuse opens, isolating the SPD from the system, allowing safe module replacement and continued flow of power from PV arrays to inverter.

Data Sheets: 2055 (3-module) and 2145 (2-module)

Surge protection devices

PV ADVANCE – Lightning

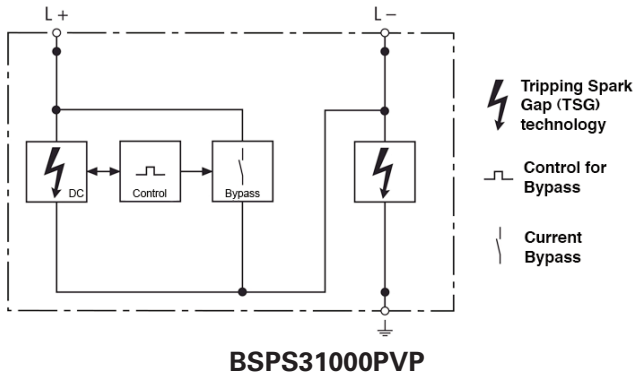
- Class I SPD per IEC 61643-11 standards for PV systems up to 1000V DC.
- Complements and enhances total PV system protection when used in combination with PV HEAVY DUTY or PV PRO SPDs up to 1000Vdc
- Protects arrays and inverters from direct and indirect lightning strikes, and damaging surges
- Triple terminals allow multiple PV string protection with one device
- High lightning current discharge capacity using Trigger Spark Gap (TSG) technology eliminates DC short-circuit currents up to 100A DC
- Five-year warranty



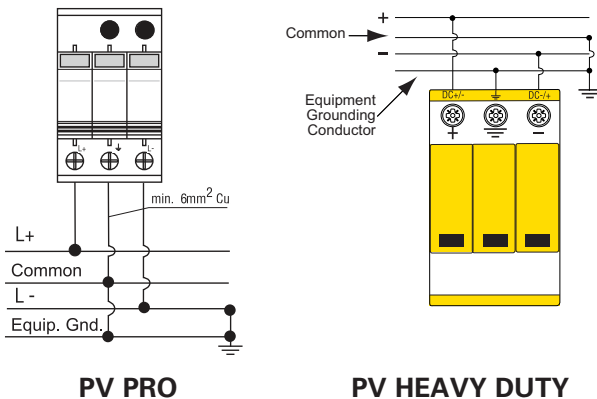
Data Sheet 2148

PV wiring applications

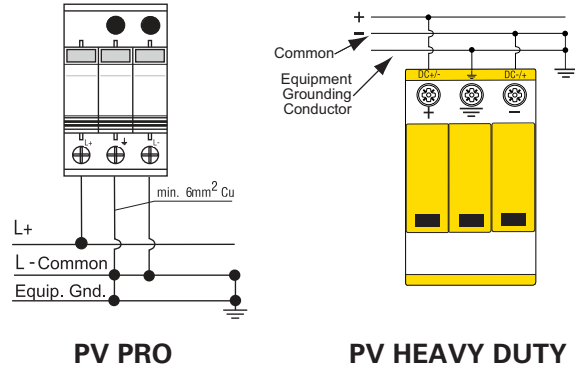
Application A: Circuit diagram and application wiring for two energized poles/modes up to 1000Vdc systems



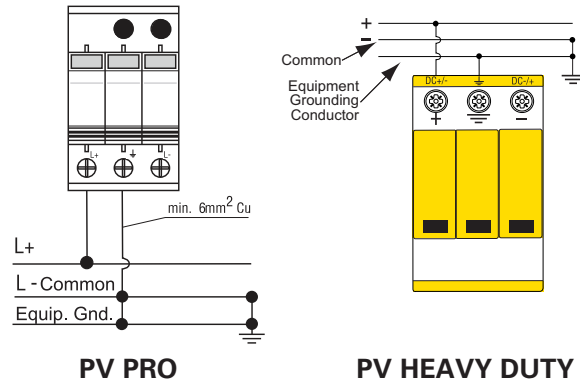
Application B: “Y” configuration - two energized poles/modes 600, 1000 and 1200Vdc* systems



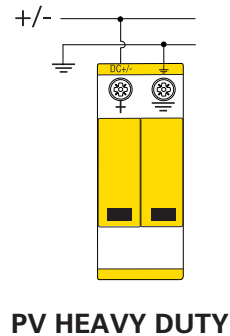
Application C: “I” configuration - one energized pole/mode 600Vdc and 1000Vdc systems only



Application D: “I” Configuration - one energized pole/mode 600Vdc and 1000Vdc** systems



Application E: “I” configuration - one energized pole/mode 600Vdc mono-pole systems only



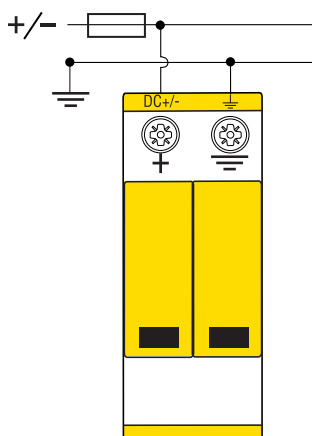
* BSPP31200YPV(R) only.

** BPP31000YPV(R) 1000Vdc one energized pole/mode requires the following:
 1. Use a suitable electrical insulator to keep a 10mm min. safety distance from the PV-SPD and other grounded parts in the housing.
 2. No metal covers are permitted in the area of the module release button.

Ordering information		
Nominal PV system voltage		600Vdc
Catalog numbers: (Base + modules)	Without remote signaling	BSPH2600PV
	With remote signaling	BSPH2600PVR
Replacement modules:	Left	BPH300YPV
	Right	BPM300YPV
Specifications		
Conformity with prEN 50539-11		Yes
SPD Classification per EN 61643-11		Type 2
SPD Classification per IEC 61643-1		Class II
Max. PV voltage [U_{CPV}]		$\leq 600V$
Short-circuit withstand capacity [I_{SCWPV}]		1000A
MCOV [U_{CPV}]		700Vdc
Nominal discharge current (8/20 μs) [(DC+/DC-) --> PE] [I_n]		12.5kA
Max. discharge current (8/20 μs) [(DC+/DC-) --> PE] [I_{max}]		25kA
Voltage protection level [U_p]		$\leq 2.5kV$
Voltage protection level at 5kA [U_p]		$\leq 2kV$
Response time [t_A]		$\leq 25 ns$
Operating temperature range [T_U]		-40°C to +80°C
Operating state/fault indication		Green (good) / red (replace)
Number of ports		1
Cross-sectional area (min.)		60/75°C 1.5mm ² /14AWG Solid/Flexible
Cross-sectional area (max.)		60/75°C 35mm ² /2AWG Stranded/25mm ² /4AWG Flexible
For mounting on		35 mm DIN rail per EN 60715
Enclosure material		Thermoplastic, UL 94V0
Place of installation		Indoor
Degree of protection		IP20
Capacity		2 Modules, DIN 43880
Agency Information:	UL	UL 1449 3 rd Edition (Type 1) CA
	IEC	IEC 61643-11 Type 2, IEC 61643-1 Class II
Product warranty		Five years*
Remote contact signaling		
Remote contact signaling type		Changeover contact
AC switching capacity (volts/amps)		250V/0.1A
DC switching capacity (volts/amps)		250V/0.1A; 125V/0.2A; 75V/0.5A
Conductor ratings and cross-sectional area for remote contact signal terminals		60/75°C Max. 1.5mm ² /14AWG Solid/Flexible
Ordering information		Order from catalog numbers above

* See Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Typical application schematic



BSPS_ _ _ WE



easyID™

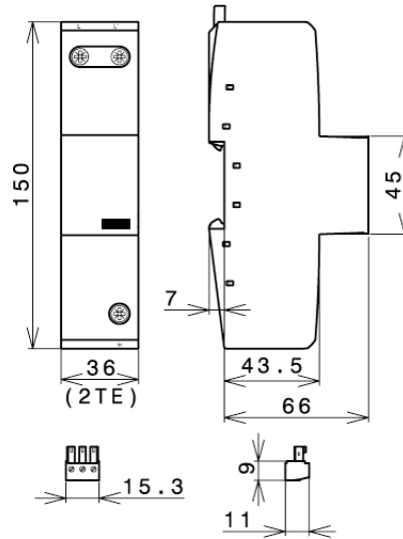
Visual status indication



Remote signal contact available



Dimensions - mm



Shown with optional remote contact signaling

Description

The Bussmann series IEC Class I 400 and 690V, one-pole lightning current arresters feature local, *easyID™* visual indication and optional remote contact signaling.

440V and 760V maximum continuous operating voltage arresters protect installations against surges and direct lightning strikes.

System and application

TNC 400V/690V: 3x BSPS1400WE(R)

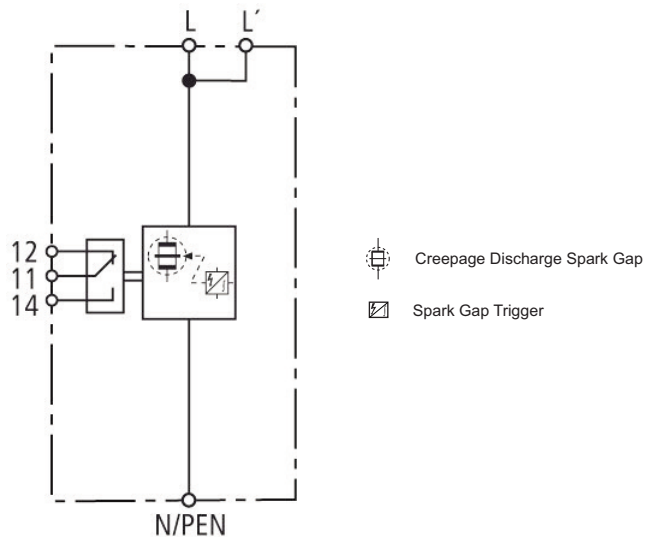
TNS 400/690V: 4x BSPS1400WE(R)

IT 690V: 3x BSPS1690WER

Optional remote signaling Form C contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

Circuit diagrams



BSPS1400WE
BSPS1690WE

Shown with optional remote contact signaling

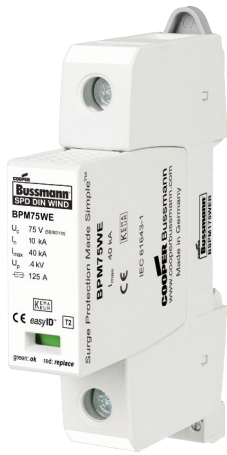
For remote signaling contact, add "R" suffix to the part number, E.g., BSPS1400WER

Ordering information		
System voltage/poles	400V/1	690V/1
Max. continuous Operating AC voltage (MCOV) [U _C]	440V	760V
Catalog numbers:	Without remote signaling	BSPS1400WE
	With remote signaling	BSPS1400WER
		BSPS1690WER
Specifications		
Line system type	TNC, TNS, IT	TNC, TNS, IT
Lightning impulse current (10/350 μs) [I _{imp}]	35kA	25kA
Specific energy [W/R]	306.25kJ/ohms	156.25kJ/ohms
Nominal discharge current (8/20 μs) [I _n]	35kA	25kA
Voltage protection level [U _p]	≤ 2.5kV	≤ 4kV
Follow Current Extinguishing Capability AC [I _{ff}]	50k _{rms}	25k _{rms}
Follow Current Limitation / Selectivity	no tripping of a 32 A gL/gG fuse up to 50 kA _{rms} (prosp.)	no tripping of a 32 A gL/gG fuse up to 25 kA _{rms} (prosp.)
Response time [t _A]	≤ 100 ns	≤ 100 ns
Max. Backup Fuse (L) up to I _k = 25kA _{rms} (t _a ≤ 5 s)	--	250A gL/gG
Max. Backup Fuse (L) up to I _k > 25kA _{rms}	--	100A gL/gG
Max. Backup Fuse (L) up to I _k = 50kA _{rms} (t _a ≤ 0.2 s)	500A gL/gG	--
Max. Backup Fuse (L) up to I _k = 50kA _{rms} (t _a ≤ 5 s)	250A gL/gG	--
Max. Backup Fuse (L) for I _k > 50kA _{rms}	160A gL/gG	--
Max. Backup Fuse (L-L)	125A gL/gG	125A gL/gG
Short-Circuit Withstand Capability for Max. Mains-Side Overcurrent Protection	50kA _{rms}	25kA _{rms}
Temporary Overvoltage (TOV) [U _T]	690V / 5 sec.	1000V / 5 sec.
Cross-Sectional Area (L, L, $\frac{1}{2}$) [min.]	--	10mm ² solid/flexible
Cross-Sectional Area (L, L, N/PEN) [min.]	10mm ² solid/flexible	--
Cross-Sectional Area (L, N/PEN) [max.]	50mm ² /1AWG stranded/35mm ² /2AWG flexible	--
Cross-Sectional Area (L, $\frac{1}{2}$) [max.]	--	50mm ² /1AWG stranded/35 mm ² /2AWG flexible
Cross-Sectional Area (L) [max.]	35mm ² /2AWG stranded/25mm ² /4AWG flexible	35mm ² /2AWG stranded/25mm ² /4AWG flexible
SPD According to EN 61643-11	Type 1	
SPD According to IEC 61643-1	Class I	
TOV Characteristics	Withstand	
Operating temperature Range (parallel connection) [T _{UP}]	-40°C to +80°C	
Operating temperature Range (series connection) [T _{US}]	-40°C to +60°C	
Operating state/fault indication	Green (good) / red (replace)	
Number of Ports	1	
Mounting	35mm DIN rail per EN 60715	
Enclosure material	Thermoplastic, UL 94V0	
Place of Installation	Indoor	
Degree of protection	IP20	
Capacity	2 Mods., DIN 43880	
Product warranty	Five years*	
Remote contact signaling		
Remote contact signaling type	Changeover contact	
AC switching capacity (volts/amps)	250V/0.5A	
DC switching capacity (volts/amps)	250V/0.1A; 125V/0.2A; 75V/0.5A	
Conductor ratings and cross-sectional area for Remote Contact Signal Terminals	60/75°C Max. 1.5mm ² / 14AWG Solid/Flexible	
Ordering information	Order from catalog numbers above	

Recommended Eaton NH DIN size back up fuses	
Size	NH fuse part number
000	100NHG000B-690 (max L) up to I _k > 25kA _{rms}
00	125NHG00B-690 (max L-L)
01	160NHG01B-690 (max L) for I _k > 50kA _{rms}
02	250NHG02B-690 (max L) up to I _k = 25kA _{rms} (t _a ≤ 5 s)
02	250NHG02B-690 (max L) up to I _k = 50kA _{rms} (t _a ≤ 5 s)
3	500NHG3B-690 (max L) up to I _k = 50kA _{rms} (t _a ≤ 0.2 s)

* See SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

BSPM_ _WE, BSPS_ _WE



easyID™

Visual Status Indication



Remote Signal Contact Available



Description

The Bussmann series IEC Class II 75, 230, 400, 690 and 1000V, one-pole, modular surge arresters feature local, *easyID™* visual indication and optional remote contact signaling. The unique module locking system on the 75 to 690V arresters fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

TN system arresters (also 1-phase TT systems)

The features of these single-pole devices are for use as a single device or in combination with other devices.

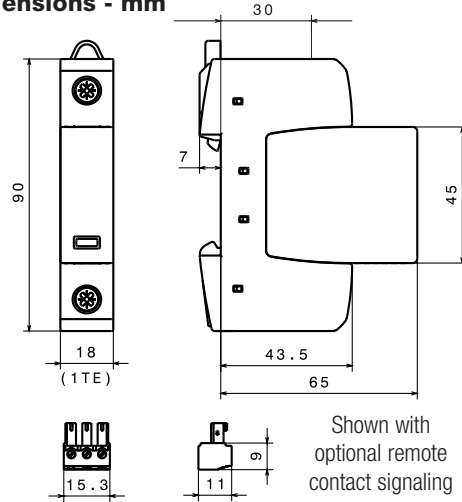
TT system arrester

Provides a current arresting means between neutral conductor and protective conductor in TT systems, this device helps ensure fulfilling the requirements for protection of personnel and equipment in “3+1” and “1+1” circuits.

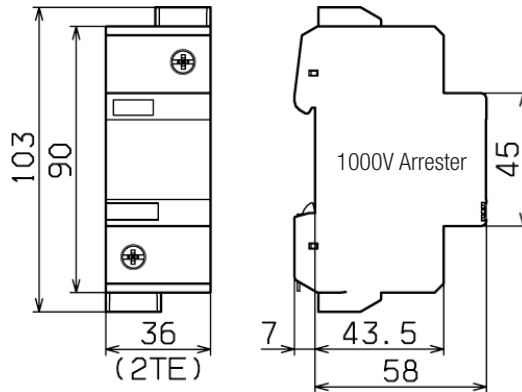
Optional remote signaling Form C contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

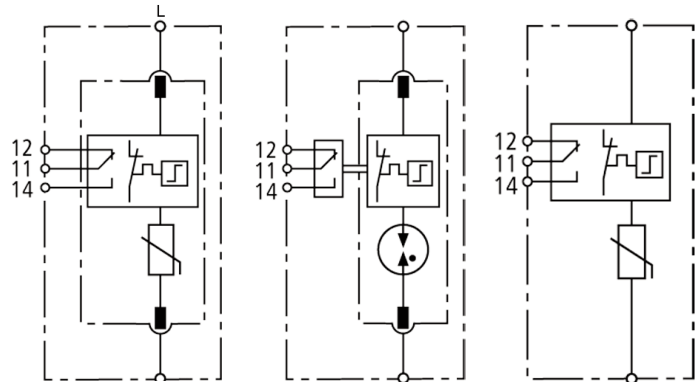
Dimensions - mm



Shown with optional remote contact signaling



Module circuit diagrams



BSPM175WE
BSPM1400WE
BSPM1690WE

BSPG1230WE

BSPM11000WE

MOV Thermal Disconnecter Gas Discharge Tube (single)

Shown with optional remote contact signaling

For remote signaling contact, add “R” suffix to the part number, E.g., BSPM175WER

Ordering information						
System voltage/poles	75V/1	230V/1	400V/1	690V/1	1000V/1	
Max. continuous operating AC voltage (MCOV) [U _C]	75V	255V	440V	600V	1000V	
Catalog numbers:	Without remote signaling	BSPM175WE	BSPG1230WE	BSPM1400WE	BSPM1690WE	BSPM11000WE
(Base + modules)	With remote signaling	BSPM175WER	BSPG1230WER	BSPM1400WER	BSPM1690WER	BSPM11000WER
Replacement modules		BPM75WE	BPG255NPEWE*	BPM440WE	BPM750WE	N/A
Specifications						
Line system type	TN / TT	TT	TN / TT	TN / TT	TN / TT	
Max. continuous Operating DC Voltage [U _C]	100V	--	585	600V	1000V	
Rated Varistor Voltage AC [U _{MOV}]	--	--	--	750V	1000V	
Nominal discharge current (8/20 μs) [I _n]	10kA	20kA	20kA	15kA	15kA	
Max. discharge current (8/20 μs) [I _{max}]	40kA	40kA	40kA	25kA	30kA	
Follow Current Extinguishing Capability [I _f]	--	100 A _{rms}	--	--	--	
Lightning Impulse Current (10/350 μs) [I _{imp}]	--	12kA	--	--	--	
Voltage protection level [U _p]	≤ 0.4kV	≤ 1.5kV	≤ 2.0kV	≤ 3kV	≤ 4.2kV	
Voltage protection level at 5kA [U _p]	≤ 0.35kV	--	≤ 1.7kV	≤ 2.5kV	≤ 3.5kV	
Response time [t _A]	≤ 25 ns	≤ 100 ns	≤ 25 ns	≤ 25 ns	≤ 25 ns	
Max. mains-side overcurrent protection	125A gL/gG	--	125A gL/gG	100A gL/gG	100A aM**	
Short-Circuit withstand capability for max. mains-side overcurrent protection	50kA _{rms}	--	25kA _{rms}	25kA _{rms}	25kA _{rms}	
Temporary overvoltage (TOV) [U _T]	90V / 5 sec.	1200V / 200ms	580V / 5 sec.	900V / 5 sec.	1000V / 5 sec.	
Capacity	1 Mod., DIN 43880	1 Mod., DIN 43880	1 Mod., DIN 43880	1 Mod., DIN 43880	2 Mod., DIN 43880	
SPD according to EN 61643-11	Type 2					
SPD according to IEC 61643-1	Class II					
TOV characteristics	Withstand					
Operating temperature range [T _U]	-40°C to +80°C					
Operating state/fault indication	Green (good) / red (replace)					
Number of ports	1					
Cross-sectional area (min.)	1.5mm ² /14AWG solid/flexible					
Cross-sectional area (max.)	35mm ² /2AWG stranded-25mm ² /4AWG flexible					
Mounting	35mm DIN rail per EN 60715					
Enclosure material	Thermoplastic, UL 94V0					
Location category	Indoor					
Degree of protection	IP20					
Agency Information:	CSA	CSA Std C22.2 No.8-M1986				
	IEC	KEMA to EN 61643-11				
Product warranty	Five years***					
Remote contact signaling						
Remote contact signaling type	Changeover contact					
AC switching capacity (volts/amperes)	250V/0.5A					
DC switching capacity (volts/amperes)	250V/0.1A; 125V/0.2A; 75V/0.5A					
Conductor ratings and cross-sectional area for remote contact signal terminals	60/75°C Max. 1.5mm ² /14AWG Solid/Flexible					
Ordering information	Order from catalog numbers above					

* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.

** 125A gL/gG @ 690Vac.

*** See SPD Limited Warranty Statement (3A1502) for details at www.cooperbusmann.com/surge.

Recommended Eaton back up fuses	
DIN fuse size	NH fuse part number
00	100NHG00B-690
00	125NHG00B-690

BSPM_ _ _ WE, BSPH_ _ _ WE



easyID™

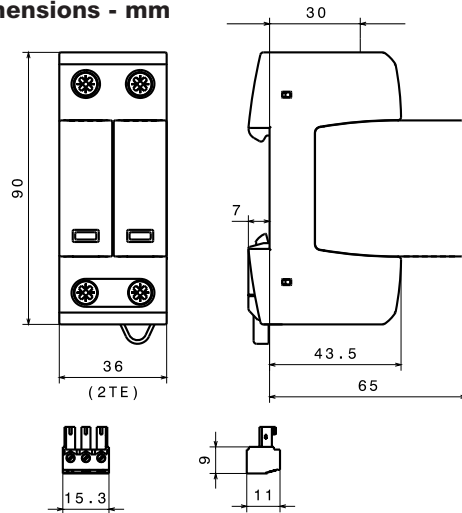
Visual status indication



Remote signal Contact available



Dimensions - mm



Shown with optional remote contact signaling

Description

The Bussmann series IEC Class II 230V, two-pole, modular surge arresters feature local, **easyID™** visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

TN system arrester

The features of these two-pole device are for use as a single device.

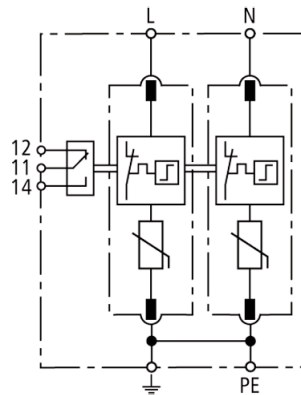
TT system arrester

For use as a single device in a 1-phase TT system.

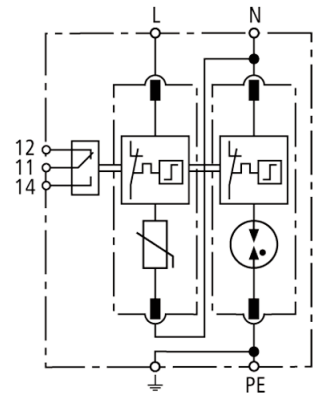
Optional remote signaling Form C contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

Module circuit diagrams



BSPM2230WE



BSPH2230WE

MOV

Thermal Disconnecter

Gas Discharge Tube (single)

Shown with optional remote contact signaling

For remote signaling contact, add "R" suffix to the part number, E.g., BSPM2230WER

Ordering information		
System voltage/poles	230V/2	230V/2
Max. continuous operating AC voltage (MCOV) [U _C]	275V	275 / 255V
Catalog numbers: (Base + modules)	Without remote signaling BSPM2230WE	BSPH2230WE
	With remote signaling BSPM2230WER	BSPH2230WER
Replacement modules	MOV BPM275WE	BPM275WE
	Spark Gap --	BPSNPEWE*
Specifications		
Line system type	TN	TT
Max. continuous Operating AC Voltage [L-N] [U _C]	--	275V
Max. continuous Operating AC Voltage [N-PE] [U _C]	--	255V
Nominal discharge current (8/20 μs)[I _n]	20kA	20kA
Max. discharge current (8/20 μs)[I _{max}]	40kA	40kA
Lightning Impulse Current (10/350 μs) [N-PE] [I _{imp}]	--	12kA
Voltage protection level [U _p]	≤ 1.25kV	--
Voltage protection level at 5kA [U _p]	≤ 1kV	--
Voltage protection level [L-N] [U _p]	--	≤ 1.25kV
Voltage protection level [L-N] at 5kA [U _p]	--	≤ 1kV
Voltage protection level [N-PE] [U _p]	--	≤ 1.5kV
Follow Current Extinguishing Capability [N-PE] [I _{fi}]	--	100A _{rms}
Response time [L-N] [t _A]	--	≤ 25 ns
Response time [N-PE] [t _A]	--	≤ 100 ns
Response time [t _A]	≤ 25 ns	--
Max. Mains-side Overcurrent Protection	125A gL/gG	125A gL/gG
Short-circuit Withstand Capability for Max. Mains-side Overcurrent Protection	50kA _{rms}	50kA _{rms}
Temporary Overvoltage (TOV) [U _T]	335 V / 5 sec.	--
Temporary Overvoltage (TOV) [L-N] [U _T]	--	335V / 5 sec.
Temporary Overvoltage (TOV) [N-PE] [U _T]	--	1200V / 200 ms
SPD According to EN 61643-11	Type 2	
SPD According to IEC 61643-1	Class II	
TOV Characteristics	Withstand	
Operating temperature Range [T _{ij}]	-40°C to +80°C	
Operating state/fault indication	Green (good) / red (replace)	
Number of Ports	1	
Cross-sectional area (min.)	1.5mm ² /14AWG solid/flexible	
Cross-sectional area (max.)	35mm ² /2AWG stranded-25mm ² /4AWG flexible	
Mounting	35mm DIN rail per EN 60715	
Enclosure material	Thermoplastic, UL 94V0	
Location category	Indoor	
Degree of protection	IP20	
Capacity	2 Mods., DIN 43880	
Agency Information	KEMA to EN 61643-11	
Product warranty	Five years**	
Remote contact signaling		
Remote contact signaling type	Changeover contact	
AC switching capacity (volts/amps)	250V/0.5A	
DC switching capacity (volts/amps)	250V/0.1A; 125V/0.2A; 75V/0.5A	
Conductor ratings and cross-sectional area for remote contact signal terminals	60/75°C Max. 1.5mm ² / 14AWG Solid/Flexible	
Ordering information	Order from catalog numbers above	

* N-PE Surge arrester for location between neutral conductor and protective conductor in TT systems.

** See SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Recommended Eaton back up fuse	
DIN fuse size	NH fuse part number
00	125NHG00B

BSPM_ _ _ WE



easyID™

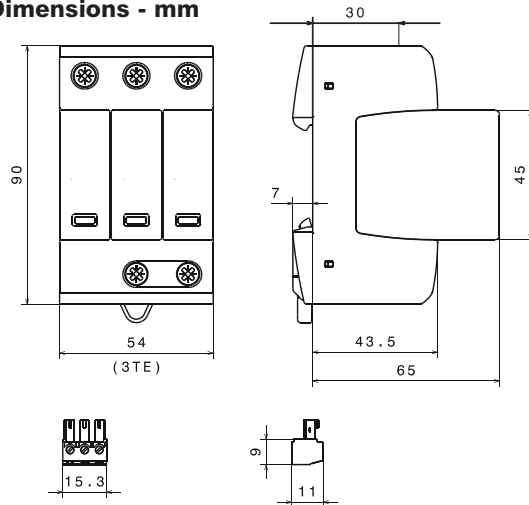
Visual Status Indication



Remote Signal Contact Available

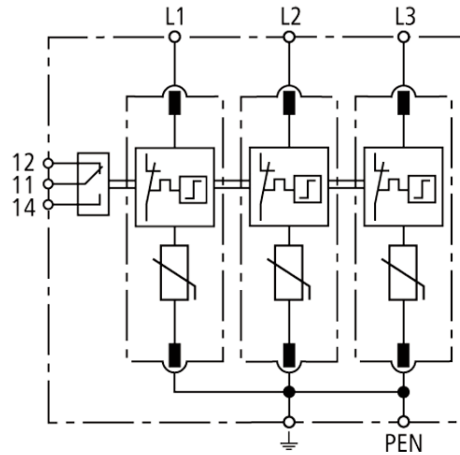


Dimensions - mm



Shown with optional remote contact signaling

Module circuit diagrams



BSPM3230WE
BSPM3400WE
BSPM3690WE

MOV

Thermal Disconnector

Shown with optional remote contact signaling

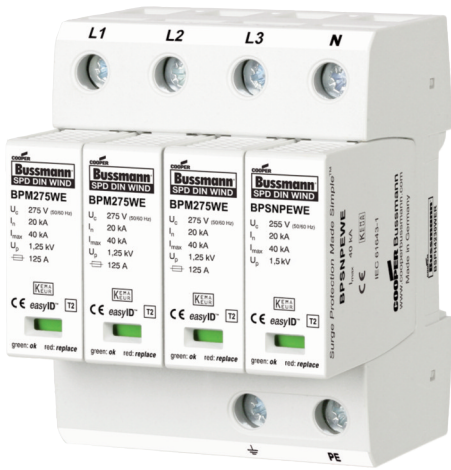
For remote signaling contact, add "R" suffix to the part number, E.g., BSPM3230WER

Ordering information			
System voltage/poles	230V/3	400V/3	690V/3
Max. continuous operating AC voltage (MCOV) [U _C]	275V	440V	600V
Catalog numbers:	Without remote signaling	BSPM3230WE	BSPM3400WE
(Base + modules)	With remote signaling	BSPM3230WER	BSPM3400WER
Replacement modules		BPM275WE	BPM440WE
		BPM750WE	
Specifications			
Line system type	TNC	TNC	TNC
Nominal AC Voltage [U _N]	230/400V	400/690V	600V
Rated Varistor Voltage [U _{MOV}]	275V	440V	750V
Nominal discharge current (8/20 μs) [I _n]	20kA	20kA	15kA
Max. discharge current (8/20 μs) [I _{max}]	40kA	40kA	25kA
Voltage protection level [U _p]	≤1.25kV	≤ 2kV	≤3kV
Voltage protection level at 5kA [U _p]	≤1kV	≤ 1.7kV	≤2.5kV
Response time [t _A]	≤25 ns	≤ 25 ns	≤25 ns
Max. Mains-side Overcurrent Protection	125A gL/gG	125A gL/gG	100A gL/gG
Short-circuit withstand capability for max. mains-side overcurrent protection	50kA _{rms}	25kA _{rms}	25kA _{rms}
Temporary Overvoltage (TOV) [U _T]	335V / 5 sec.	580V / 5 sec.	900V / 5 sec.
SPD According to EN 61643-11	Type 2		
SPD According to IEC 61643-1	Class II		
TOV Characteristics	Withstand		
Operating temperature Range [T _U]	-40°C to +80°C		
Operating state/fault indication	Green (good) / red (replace)		
Number of Ports	1		
Cross-sectional area (min.)	1.5mm ² /14AWG solid/flexible		
Cross-sectional area (max.)	35mm ² /2AWG stranded-25mm ² /4AWG flexible		
Mounting	35mm DIN rail per EN 60715		
Enclosure material	Thermoplastic, UL 94V0		
Location category	Indoor		
Degree of protection	IP20		
Capacity	3 Mods., DIN 43880		
Agency Information	KEMA to EN 61643-11		
Product warranty	Five years*		
Remote contact signaling			
Remote contact signaling type	Changeover contact		
AC switching capacity (volts/amps)	250V/0.5A		
DC switching capacity (volts/amps)	250V/0.1A; 125V/0.2A; 75V/0.5A		
Conductor ratings and cross-sectional area for remote contact signal terminals	60/75°C Max. 1.5mm ² /14AWG Solid/Flexible		
Ordering information	Order from catalog numbers above		

* See SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

Recommended Eaton back up fuse	
DIN fuse size	NH fuse part number
00	100NHG00B-690
	125NHG00B-690

BSPM_ _WE, BSPH_ _WE



easyID™

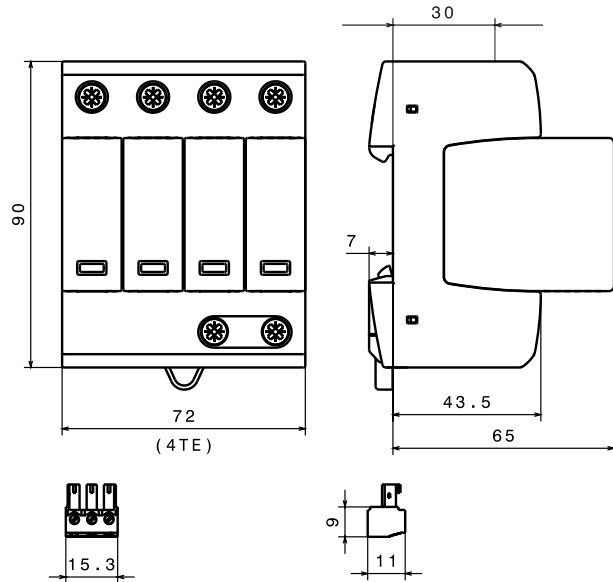
Visual status indication



Remote signal contact available



Dimensions - mm



Shown with optional remote contact signaling

Specifications

Description

The Bussmann series IEC Class II 230/400V, four-pole, modular surge arresters feature local, **easyID™** visual indication and optional remote contact signaling. The unique module locking system fixes the protection module to the base part. Modules can be easily replaced without tools by simply depressing the release buttons. Integrated mechanical coding between the base and protection module ensures against installing an incorrect replacement module.

These 230V models are offered with MCOV ratings of 275V.

TNS system arrester

The features of these four-pole devices are for use in TNS 230/400V systems ("4-0" circuit) against surges.

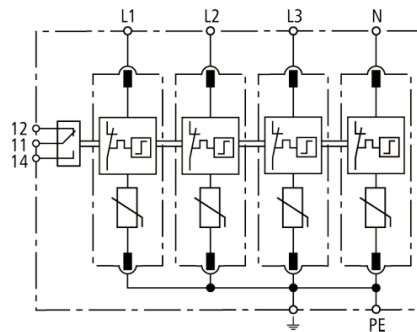
TT system arrester

The features of these four-pole devices are for use in TT and TN-S 230/400V systems ("3+1" circuit) against surges.

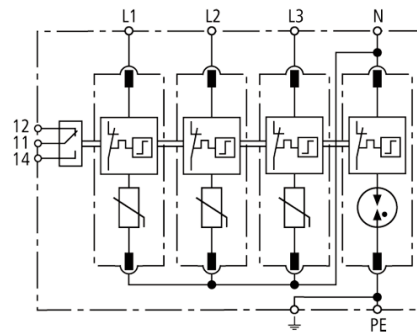
Optional remote signaling Form C contact

The three-pole terminal remote signaling contact versions have a floating changeover contact for use as a break or make contact, according to circuit concept.

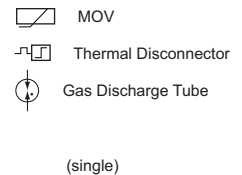
Circuit diagrams



BSPM4230WE



BSPH4230WE



Shown with optional remote contact signaling

For remote signaling contact, add "R" suffix to the part number, E.g., BSPM4230WER

Ordering information			
System voltage/poles	230/400V/4	230/400V/4	
Max. continuous operating AC voltage (MCOV) [U _C]	275V	--	
Max. continuous operating AC voltage (MCOV) [L-N] [U _C]	--	275V	
Max. continuous operating AC voltage [N-PE] [U _C]	--	255V	
Catalog numbers:	Without remote signaling	BSPM4230WE	BSPH4230WE
	With remote signaling	BSPM4230WER	BSPH4230WER
Replacement modules:	MOV technology	BPM275WE	BPM275WE
	Spark Gap technology	--	BPSNPEWE*
Specifications			
Line system type	TNS	TT / TNS	
Nominal AC voltage [U _N]	230/400V	230/400V	
Lightning impulse current (10/350 μs) [N-PE] [I _{imp}]	--	12kA	
Voltage protection level [U _p]	≤ 1.25kV	--	
Voltage protection level at 5kA [U _p]	≤ 1kV	--	
Voltage protection level [L-N] [U _p]	--	≤ 1.25kV	
Voltage protection level [L-N] at 5kA [U _p]	--	≤ 1kV	
Voltage protection level [N-PE] [U _p]	--	≤ 1.5kV	
Follow current extinguishing capability [N-PE] [I _f]	--	100A _{rms}	
Response time [t _A]	≤ 25 ns	--	
Response time [L-N] [t _A]	--	≤ 25 ns	
Response time [N-PE] [t _A]	--	≤ 100 ns	
Temporary overvoltage (TOV) [U _T]	335V / 5 sec.	--	
Temporary overvoltage (TOV) [L-N] [U _T]	--	335V / 5 sec.	
Temporary overvoltage (TOV) [N-PE] [U _T]	--	1200V / 200 ms	
SPD according to EN 61643-11	Type 2		
SPD according to IEC 61643-1	Class II		
Nominal discharge current (8/20 μs) [I _n]	20kA		
Max. discharge current (8/20 μs) [I _{max}]	40kA		
Max. mains-side overcurrent protection	125A gL/gG		
Short-circuit withstand capability for max. mains-side overcurrent protection	50kA rms		
TOV characteristics	withstand		
Operating temperature range [T _U]	-40°C to +80°C		
Operating state/fault indication	green (good)/red (replace)		
Number of ports	1		
Cross-sectional area (min.)	1.5mm ² /14AWG solid/flexible		
Cross-sectional area (max.)	35mm ² /2AWG stranded-25mm ² /4AWG flexible		
Mounting	35mm DIN rail per EN 60715		
Enclosure material	Thermoplastic, UL 94V0		
Location category	Indoor		
Degree of protection	IP20		
Capacity	4 Mods., DIN 43880		
Agency Information	KEMA to EN 61643-11		
Product warranty	Five years**		
Remote contact signaling			
Remote contact signaling type	Changeover contact		
AC switching capacity (volts/amps)	250V/0.1A		
DC switching capacity (volts/amps)	250V/0.1A; 125V/0.2A; 75V/0.5A		
Conductor ratings and cross-sectional area for remote contact signal terminals	60/75°C Max. 1.5mm ² /14AWG Solid/Flexible		
Ordering information	Order from catalog numbers above		

Recommended Eaton back up fuse	
DIN fuse size	NH fuse part number
00	125NHG00B

* N-PE Surge arrester module for location between neutral conductor and protective conductor in TT systems.

** See SPD Limited Warranty Statement (3A1502) for details at www.cooperbusmann.com/surge.

UL Listed 497B DIN-Rail mount surge protective device for BNC connector cable systems

Description

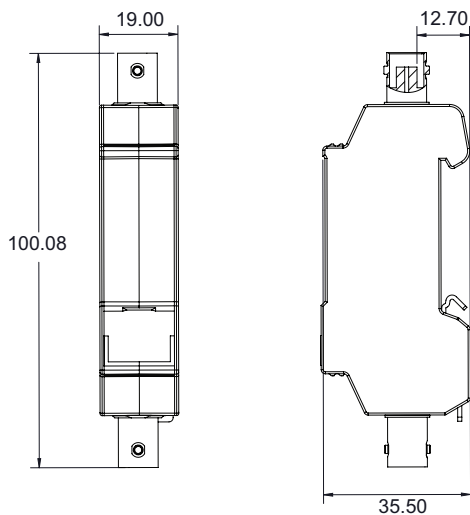
The Bussmann series BSPD5BNCDD and BSPD5BNCDI two-stage DIN-Rail mounted surge arresters are for protecting coaxial cable-connected systems (such as video and camera systems) from potential damage. The BSPD5BNCDD features direct (VCD) shield connection while the BSPD5BNCDI features indirect shield connection (VCID) to prevent leakage pickups.

The BSPD5BNCDD and BSPD5BNCDI shielded surge arresters are mounted on the supplied bracket with cable lug or mounted on a rack mounted DIN-Rail with suitable grounding. BNC connector terminated data or video signal cables are plugged into surge arrester with the equipment plugged into the protected side.

Common applications include protecting outdoor video surveillance systems or video control centers or coaxial data lines. For BSPD5BNCDI, the cable shield is indirectly grounded via a gas discharge tube to avoid being influenced by leakage pickups.

- UL 497B Listed
- Plug-in surge protective device for easy retrofitting
- The space-saving surge arrester with BNC socket is mounted on supplied rail terminal lug or standard 35mm DIN-Rail
- Integrated direct or indirect shield grounding avoids leakage pickups
- Easily adaptable due to BNC sockets

Dimensions-mm

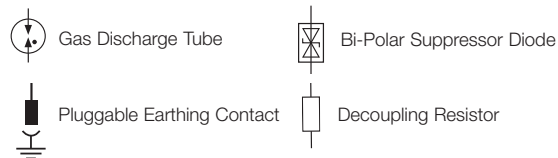
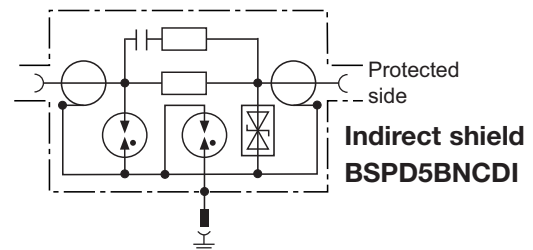
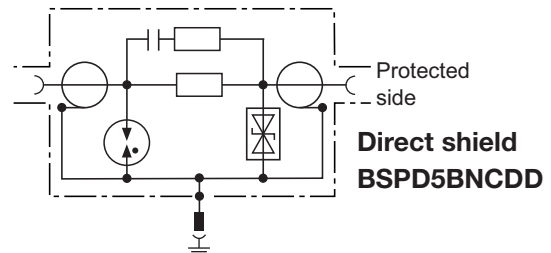


BSPD5BNCDD
BSPD5BNCDI



DIN-Rail mount SPD for BNC coax

Circuit diagrams



Technical data

Catalog number		BSPD5BNCDD		BSPD5BNCDI	
Nominal voltage (U_N)		5V			
Max. continuous operating DC voltage (U_C)		6.4V			
Nominal current (I_n)		0.1A			
C2 Nominal discharge current (8/20 μ s) shield-PG (I_n)		10kA			
C2 Nominal discharge current (8/20 μ s) line-shield (I_n)		5kA			
Voltage protection level line-shield for I_n C2 (U_p)		$\leq 35V$			
Voltage protection level line-shield at 1kV/ μ s C3 (U_p)		$\leq 13V$			
Frequency range		0-300MHz			
Capacitance shield-PG (C)		—		$\leq 20pF$	
Voltage protection level shield-PG for I_n C2 (U_p)		—		$\leq 650V$	
Voltage protection level shield-PG at 1kV/ μ s C3 (U_p)		—		$\leq 600V$	
Cable impedance (Z)		50 Ω	75 Ω	50 Ω	75 Ω
Insertion losses	$\leq 0.4dB$	160MHz	80MHz	160MHz	80MHz
	$\leq 3dB$	300MHz	300MHz	300MHz	300MHz
Return Losses	$\geq 10dB$	200MHz	100MHz	300MHz	100MHz
	$\geq 20dB$	130MHz	30MHz	130MHz	30MHz
Series impedance per line		4.7 Ω			
Capacitance line-shield (C)		$\leq 25pF$			
Operating temperature range		-40°C to +80°C			
Degree of protection		IP10			
Mounting		35mm DIN-Rail per EN 60715			
Connection (input / output)		BNC socket (female) / BNC socket (female)			
Grounding		Via 35mm DIN-Rail per EN 60715			
Enclosure material		Die cast zinc			
Color		Bare surface			
Test standards		IEC 61643-21 / EN 61643-21			
Agency information		UL 497B			
Warranty		Five years*			

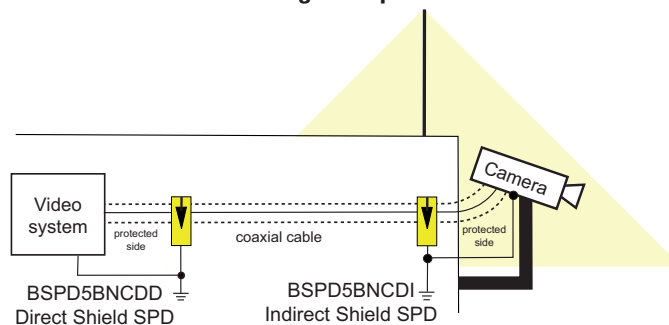
*See SPD Limited Warranty Statement (3A1502) for details at www.cooperbusmann.com/Surge.



DIN-Rail BNC SPD applications

Catalog numbers	BSPD5BNCDD	BSPD5BNCDI
Bus systems and measuring systems, and control technology		
Control Net	X	X
Melsec Net 2	X	X
N1 LAN	X	X
Data networks		
Arcnet	X	X
Video systems		
Video (coax)	X	X

Direct vs. indirect shielding example



Apply the BSPD5BNCDD (direct shield) at the equipment location and apply the BSPD5BNCDI (indirect shield) near exterior protected equipment. The indirect shield grounding at the exterior device will help avoid picking up leakage currents that can degrade signal quality while providing surge protection when needed.

See document 3A1977 for DIN-Rail BNC coaxial cable SPD installation instructions.

UL Listed 497B In-line surge protective device for BNC connector cable systems

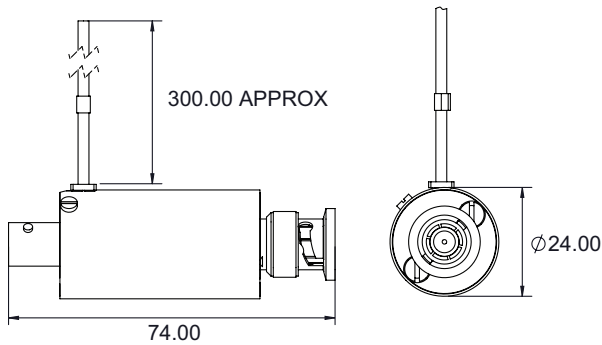
Description

The Bussmann series BSPD5BNCSI two-stage in-line surge arrester is for protecting coaxial cable-connected systems (such as video and camera systems) from potential damage.

The BSPD5BNCSI shielded surge arrester is plugged into coaxial terminal equipment or connections. Common applications include protecting outdoor video surveillance systems or video control centers. The cable shield is indirectly grounded via a gas discharge tube to avoid being influenced by leakage pickups. The arrester input is used as a socket and the protected output as a plug.

- UL 497B Listed
- Plug-in surge protective device for easy retrofitting
- Directly plugs into terminal equipment with BNC coaxial connections
- Integrated indirect shield grounding avoids leakage pickups

Dimensions-mm

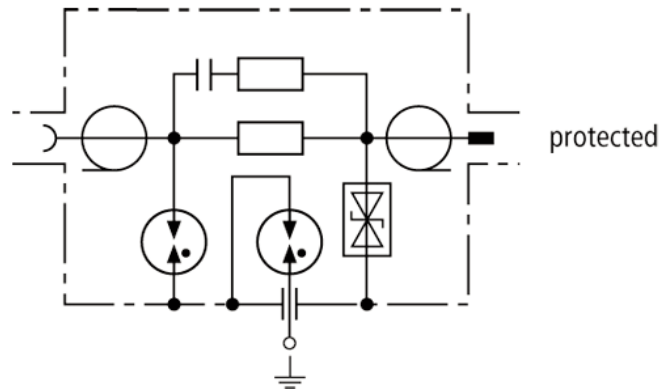


BSPD5BNCSI



In-line SPD for BNC Coax

Circuit diagram



Gas Discharge Tube



Bi-Polar Suppressor Diode



Decoupling Resistor



Capacitor

Technical data

Catalog number	BSPD5BNCSI	
Nominal voltage (U_N)	5V	
Max. continuous operating DC voltage (U_C)	8V	
C2 Nominal discharge current (8/20 μ s) per line (I_n)	2.5kA	
C2 Nominal discharge current (8/20 μ s) shield-PG (I_n)	10kA	
Voltage protection level line-shield for I_n C2 (U_p)	≤ 25 V	
Voltage protection level line-shield at 1kV/ μ s C3 (U_p)	≤ 15 V	
Voltage protection level shield-PG at 1kV/ μ s C3 (U_p)	≤ 600 V	
Cable impedance (Z)	50 Ω	75 Ω
Insertion loss at ≤ 3 db	300MHz	265MHz
Return loss at ≥ 20 db	40MHz	40MHz
Series impedance per line	10 Ω	
Capacitance line-shield (C)	≤ 50 pF	
Operating temperature range	-40°C to +80°C	
Connection (input / output)	BNC Socket (female) / BNC Plug (male)	
Grounding	Via outgoing earth conductor 18AWG	
Shield grounding	Indirectly via an integrated spark gap element	
Test standards	IEC 61643-21 / EN 61643-21	
Agency information	UL 497B	
Warranty	Five years*	

*See SPD Limited Warranty Statement (3A1502) for details at www.cooperbusmann.com/Surge.



In-line BNC SPD applications

Catalog number	BSPD5BNCSI
Bus systems, and measuring and control technology	
Control Net	X
Melsec Net 2	X
Data networks	
Arcnet	X
Video systems	
Video (coax)	X

UL Listed 497B universal DIN-Rail mount surge protective device for RJ45/ethernet cable systems

Description

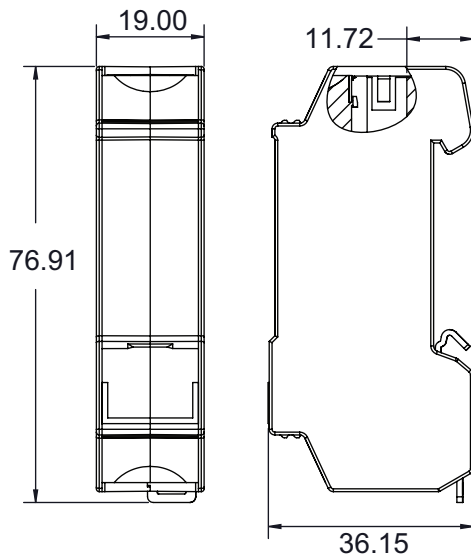
The Bussmann series DIN-Rail mount BSPD48RJ45 Surge Protective Device (SPD) for Ethernet cable systems with RJ connectors is easy to install in new, or retrofitting into existing, installations.

The BSPD48RJ45 is installed between the patch panel and the active component (a switch for example). The snap-in mechanism of the supporting foot allows the SPD to be safely grounded via the DIN-Rail. For single applications, the BSPD48RJ45 comes with a supplied mounting bracket with cable lug.

Fulfilling the requirements of Category 6, the BSPD48RJ45 can be universally used for all data services up to nominal voltages of 48V. It is well suited for existing services such as Gigabit Ethernet, ATM, ISDN, Voice over IP and Power over Ethernet (PoE+ acc. to IEEE 802.3at up to 57V) and similar applications in structured cabling systems according to Class E up to 250MHz. Protection of all pairs by means of powerful gas discharge tubes and one adapter filter matrix per pair.

- UL 497B Listed
- Easy to install or retrofit for protection of all lines
- CAT 6 according to ISO/IEC 11801
- CAT 6 in the channel (Class E)
- Power over Ethernet (PoE+ according to IEEE 802.3at)

Dimensions -mm

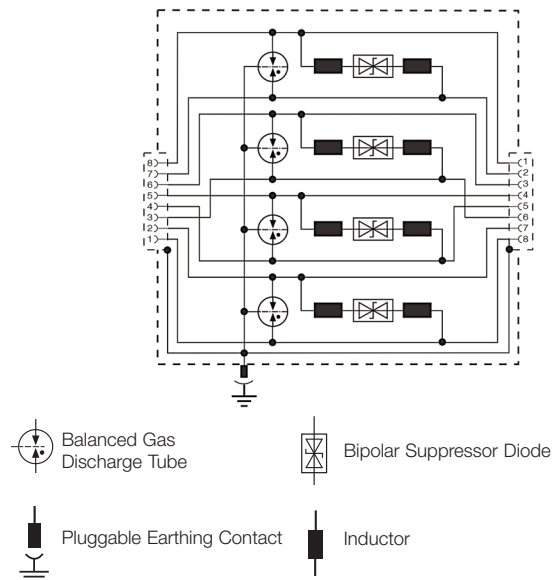


BSPD48RJ45



DIN-Rail mount SPD for RJ45 / ethernet connection

Circuit diagram



Technical data

Catalog number	BSPD48RJ45
Nominal voltage (U_N)	48V
Max. continuous operating DC voltage (U_C)	48V
Max. continuous operating AC voltage (U_C)	34V
Max. continuous DC voltage pair-pair (PoE) (U_C)	57V
Nominal current (I_N)	1A
C2 Nominal discharge current (8/20 μ s) line-line (I_n)	150A
C2 Nominal discharge current (8/20 μ s) line-PG (I_n)	2.5kA
C2 Total nominal discharge current (8/20 μ s) line-PG (I_n)	10kA
C2 Nominal discharge current (8/20 μ s) pair-pair (PoE) (I_n)	150A
Voltage protection level line-line for In C2 (U_p)	$\leq 190V$
Voltage protection level line-PG for In C2 (U_p)	$\leq 600V$
Voltage protection level line-line for In C2 (PoE) (U_p)	$\leq 600V$
Voltage protection level line-line at 1kV/ μ s C3 (U_p)	$\leq 180V$
Voltage protection level line-PG at 1kV/ μ s C3 (U_p)	$\leq 500V$
Voltage protection level pair-pair at 1kV/ μ s C3 (PoE) (U_p)	$\leq 600V$
Insertion loss at 250MHz	$\leq 3dB$
Capacitance line-line (C)	$\leq 30pF$
Capacitance line-PG (C)	$\leq 25pF$
Operating temperature range	-40°C to +80°C
Degree of protection	IP10
Mounting	35mm DIN-Rail per EN 60715
Connection (input / output)	RJ45 socket / RJ45 socket
Pinning	1 / 2, 3 / 6, 4 / 5, 7 / 8
Grounding	Via 35mm DIN-Rail per EN 60715
Enclosure material	Die cast zinc
Color	Bare surface
Test standards	IEC 61643-21 / EN 61643-21
Agency information	UL 497B
Warranty	Five years*

* See SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/Surge.



DIN-Rail RJ45 SPDs Applications

Catalog number	BSPD48RJ45
Bus systems, and measuring and control technology	
Industrial Ethernet	X
Data networks	
ATM	X
Ethernet 10/100/1000	X
FDDI, CDDI	X
Industrial Ethernet	X
Power over Ethernet (PoE)	X
Token Ring	X
VG any LAN	X
Video systems	
Video (2 wire)	X

UL Listed 497B DIN-Rail mount universal surge protective device for measuring and control circuits, and Bus systems

Description

The Bussmann series universal four-pole, DIN-Rail mounted surge arresters provide effective protection with minimum space requirements and are designed for stringent requirements on the availability of measuring and control circuits, and bus systems.

To ensure safe operation, the arresters provide protection against vibration and shock up to a 30-fold acceleration of gravity. The function-optimized design of the devices allows quick and easy removal of protection modules via “make-before-break” terminals that assure continuity of data signals in the protected and unprotected state.

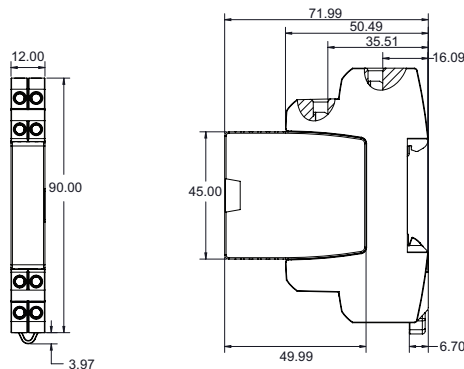
For IEC Applications - Instruction for Surge Protective Device Use In Zone 2 Explosive Atmospheres per ATEX.

- When installed in potentially explosive atmospheres, the Data Signal DIN Series shall be installed into an enclosure which meets the requirements of a recognized type of protection, in accordance with EN 60079-0.
- The Data Signal DIN Series as transient suppressor. This approval applies to the following equipment types:
 - BSPD5DING
 - BSPD12DING
 - BSPD24DING
 - BSPD48DING
 - BSPD5DINLHF
 - BSPD24DINLHF

Ambient and Temperature Class

- 40°C to +80°C, T4: DEKRA 12ATEX0254 X: II 3 G Ex nA IIC T4 Gc
- Standards used for: ATEX: EN60079-0: 2009, EN 60079-15: 2005
- UL 497B Listed
- Function-optimized design for safe use and easy installation
- Four-pole and base mounts on grounded 35mm DIN-Rail
- Module removal without signal interruption via “make-before-break” circuitry
- 0-180V BSPD0180DINL automatically adjusts to system operating voltage and can protect data circuits of different voltages up to 100mA load current.

Dimensions-mm

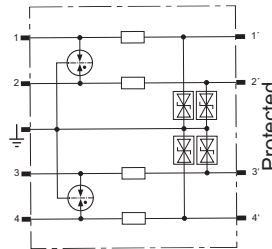


- BSPD5DING
- BSPD12DING
- BSPD24DING
- BSPD48DING
- BSPD5DINLHF
- BSPD24DINLHF
- BSPD0180DINL

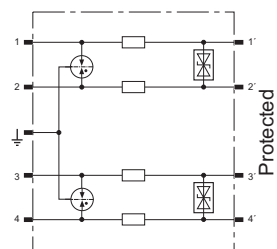


Four-pole DIN-Rail mount universal SPD for data signal applications

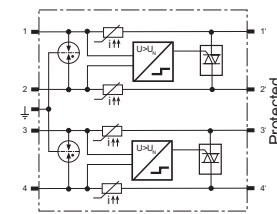
Circuit diagrams



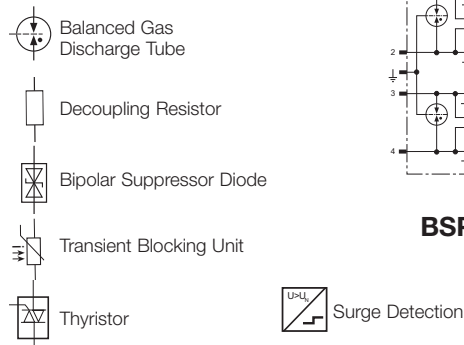
**BSPD5DING
BSPD12DING
BSPD24DING
BSPD48DING**



**BSPD5DINLHF
BSPD24DINLHF**



BSPD0180DINL



Technical data

Catalog number (Prefix BSPD...)	5DING	12DING	24DING	48DING	5DINLHF	24DINLHF	0180DINL
Nominal voltage (U_N)	5V	12V	24V	48V	5V	24V	0-180V
Max. continuous operating DC voltage (U_C)	6V	15V	33V	54V	6V	33V	180V
Max. continuous operating AC voltage (U_C)	4.2V	10.6V	23.3V	38.1V	4.2V	23.3V	127V
Nominal current at 45°C (I_n)	1.0A	0.75A	0.75A	0.75A	1.0A	1.0A	≤0.1A@80°C
VPL line-line for I_{imp} D1 (U_p)	≤29V	≤50V	≤102V	≤160V	≤25V	≤65V	≤ $U_N + 53V$
VPL line-PG for I_{imp} D1 (U_p)	≤27V	≤37V	≤66V	≤95V	≤550V	≤550V	—
VPL line-line at 1kV/μs C3 (U_p)	≤18V	≤38V	≤90V	≤140V	≤11V	≤47V	see Note 1
VPL line-PG at 1kV/μs C3 (U_p)	≤9V	≤19V	≤45V	≤70V	≤550V	≤550V	-
VPL line-line for I_n C2 (U_p)	—	—	—	—	—	—	see Note 2
VPL line-PG for C2 / C3 / D1	—	—	—	—	—	—	≤550V
D1 Total lightning impulse current (10/350μs) (I_{imp})	10kA	10kA	10kA	10kA	10kA	10kA	10kA
D1 Lightning impulse current (10/350μs) per line (I_{imp})	2.5kA	2.5kA	2.5kA	2.5kA	2.5kA	2.5kA	2.5kA
C2 Total nominal discharge current (8/20μs) (I_n)	20kA	20kA	20kA	20kA	20kA	20kA	20kA
C2 Nominal discharge current (8/20μs) per line (I_n)	10kA	10kA	10kA	10kA	10kA	10kA	10kA
Series impedance per line	1.0Ω	1.8Ω	1.8Ω	1.8Ω	1.0Ω	1.0Ω	10Ω/7.5Ω typ
Frequency of the operating voltage (f_{U_N})	-	-	-	-	-	-	0-400Hz
Permissible superimposed signal voltage (U_{Signal})	—	—	—	—	—	—	± 5V
“Nominal current at 80°C (I_n) (corresponds to max. short-circuit current)”	—	—	—	—	—	—	100mA
Cut-off frequency line-PG (f_c)	1.0MHz	2.7MHz	6.8MHz	8.7MHz	100MHz	100MHz	—
Cut-off frequency line-line (U_{Signal} , balanced 100Ω) (f_c)	—	—	—	—	—	—	50MHz
Capacitance line-line (C)	≤2.7nF	≤1.0nF	≤0.5nF	≤0.35nF	≤25pF	≤25pF	≤80pF
Capacitance line-PG (C)	≤5.4nF	≤2.0nF	≤1.0nF	≤0.7nF	≤16pF	≤16pF	≤16pF
ATEX approvals	†	†	†	†	†	†	—
Agency information	††	††	††	††	††	††	‡
IEC 61643-21 test category	D1, C2, C3						
Operating temperature range	-40°C to +80°C						
Degree of protection	IP20						
For mounting on	35mm DIN-Rails per EN 60715						
Grounding	Via base part						
Color / enclosure material	Grey / polyamide PA 6.6						
Test standards	IEC 61643-21 / EN 61643-21, UL 497B						
Connection (input / output)	Screw terminal						
Conductors	Solid						
	Flexible						
Terminal torque	3.5 Lb-In						
Warranty	Five years*						

* See SPD Limited Warranty Statement (3A1502) for details at www.cooperbusmann.com/surge.

0-180V self-adjusting SPD application and mode of operation

The BSPD0180DINL surge protective device automatically adjusts to the operating voltage (from 0 to 180 volts) of the protected device.

When a surge occurs, the SPD voltage protection level adjusts itself based upon the output terminal operating voltage of the base.

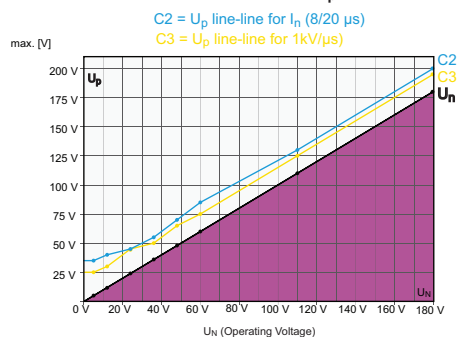
Note 1 - See Diagram 1 - VPL line-line graph line C3.

Note 2 - See Diagram 1 - VPL line-line graph line C2.

† DEKRA 12ATEX0254 X: II 3 G Ex nA IIC T4 Gc

†† ATEX, UL, CSA

‡ UL 497B

Diagram 1: voltage protection level U_p (V) (line-line)

Universal 4 wire data signal SPD products are specified by communication technology. The table below contains the specific SPD product, by part number, and the applications to which they are suited to be used.



Part numbers	BSPD5DING	BSPD12DING	BSPD24DING	BSPD48DING	BSPD5DINLHF	BSPD24DINLHF	BSPD0180DINL
Bus systems and measuring, and control technology							
0-20 mA, 4-20 mA signals			X			X (4-20mA only)	X
Binary Signals	X	X	X	X			
CAN-Bus (data line only)					X		X
C-Bus (Honeywell)					X		X
Data Highway Plus							X
Device Net (data line only)					X		X
Dupline							X
E-Bus (Honeywell)							X
Fieldbus Foundation						X	X
FIPIO / FIPWAY						X	
FSK					X		X
IEC-Bus (RS485)					X		X
Interbus INLINE (I/O)							X
Interbus INLINE, Long-distance bus					X		X
K Bus						X	
LON - TP/XF 78					X		
LUXMATE Bus						X	X
M Bus							X
MODBUS					X		X
MPI Bus					X		X
Procontic CS31 (RS232)		X					
Procontic T200 (RS422)					X		X
PROFIBUS DP/FMS					X		X
PROFIBUS PA						X	X
PROFIBUS SIMATIC NET					X		X
PSM EG RS422 & RS485					X		X
Rackbus (RS485)					X		X
R Bus					X		X
RS 485					X		X
RS422, V11					X		X
SafetyBUS p					X		X
Securilan LON Bus					X		
SIGMASYS				X			
SS97 SIN/X (RS 232)		X					
SUCONET					X		X
Resistance Temp. Measuring Ni1000, PT100, PT1000 Wire NTC & PTC Thermistors		X					
TTL		X					
TTY 4-20mA			X				
Telecommunication, telephony							
a/b Wires							X
ADSL, ADSL 2+							X
ISDN S ₀ , S _{2m} /U _{2m} , U _{KO} /U _{PO}							X
Modem M1		X					
SDSL, SHDSL						X	X
Telephony Systems (e.g., Siemens, HICOM, Alcatel)							X
T-DSL							X
Telecommunication Systems (e.g., Siemens, HICOM, Alcatel)							X
VDSL							X
Data networks							
V 24 (RS232 C)		X					

SurgePOD™ standard and universal surge protective modules

Description

Bussmann Standard and Universal SurgePOD modules are PCB-mountable for original equipment applications.

Universal modules are primarily differentiated from the Standard modules by having consistent terminal spacing dimensions on all Maximum Continuous Operating Voltage (MCOV) ratings.

This consistent terminal spacing eliminates the need for OEMs to maintain multiple PCB designs.

Standard modules have two available terminal lengths and spacing dimensions vary by MCOV rating (see Standard module dimensions for details).

When a surge condition exceeds either the Standard or Universal SPD module's MCOV, the patented Metal Oxide Varistor (MOV) technology becomes conductive to safely shunt the surge to ground.

The same MOV technology also eliminates the need for additional fusing in UL applications by safely disconnecting the SPD module upon reaching an overvoltage breakdown condition.

All Standard or Universal SPD modules are UL Recognized 1449 3rd Edition for installation in Type 1 or Type 2 surge protective devices.

Optional remote contact signaling is accomplished with a Normally Open (NO) microswitch that closes upon the module reaching an overvoltage breakdown condition.

Optional local visual indication is accomplished with indicating tabs that protrude through the device's top upon the module reaching an overvoltage breakdown condition.



Catalog symbols

SPOD (Standard module)

SPODU (Universal module)

Ratings

See ratings table

Agency information

UL Recognized, 1449 3rd Edition Type 1 Component Assembly Device; E340782

Flammability rating

UL 94V0

Terminal material

Nickel-plated copper

Storage and operating temperature range

-25°C to +85°C

Traceability

Each SurgePOD SPD module is marked with a serial number for identification and tracking

Options

Remote contact signaling is accomplished with a Normally Open (NO) microswitch that closes upon the module reaching an overvoltage breakdown condition.

Local visual indication is accomplished with indicating tabs that protrude through the device's top upon the module reaching an overvoltage breakdown condition.

Packaging

200 units per master pack

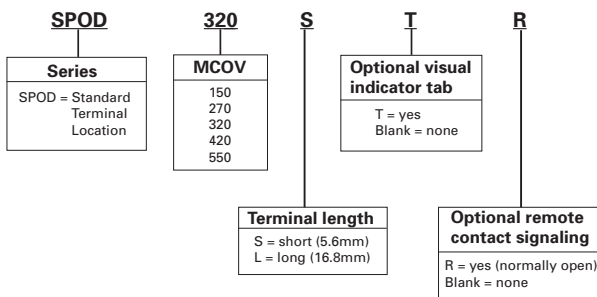
Additional information

The SurgePOD module may be damaged by excessive mechanical shock or rough handling. To ensure integrity of finished device, do NOT install any SurgePOD module that was dropped or abused during assembly.

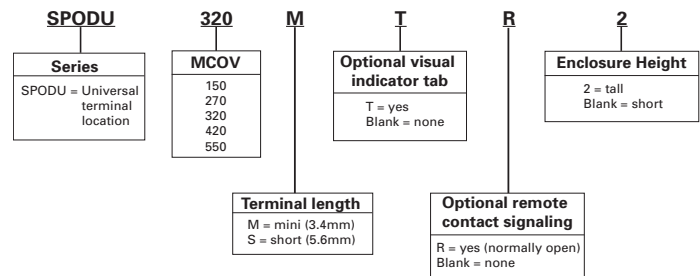
Suitability for final application of a SurgePOD module to be determined by the OEM.



Standard SurgePOD module catalog number system



Universal SurgePOD module catalog number system



Data Sheet: 1170

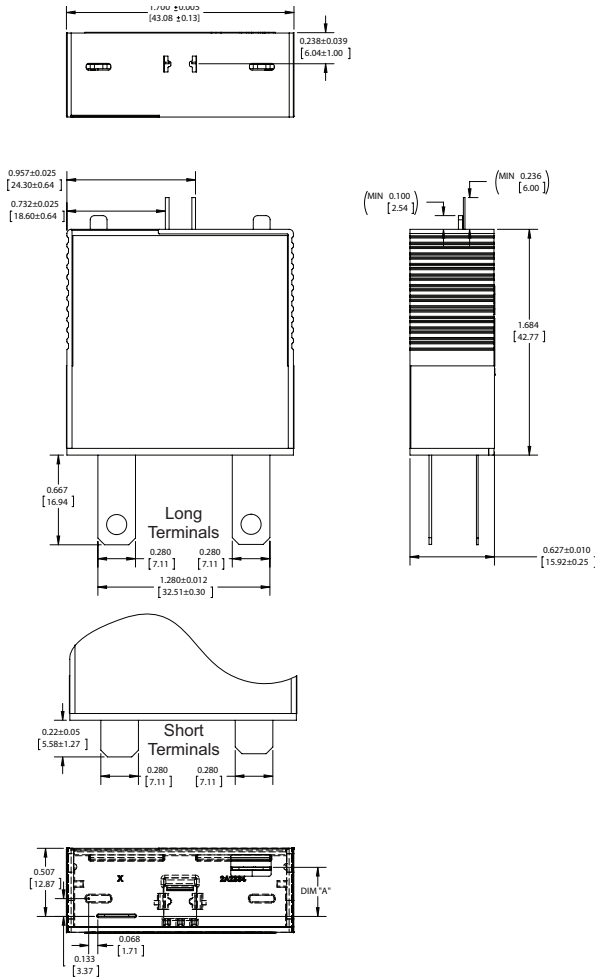
Surge protection devices

Specifications for SurgePOD Standard and Universal Modules

	Color Code	Blue	Green	Yellow	Red	Brown
Maximum Continuous Operating Voltage MCOV (V_{rms})		150V	270V	320V	420V	550V
Nominal system voltage @ 50/60Hz (V_{rms})		120V	220V	277V	347V	480V
Nominal discharge current rating 8/20 μ s (I_n)		20kA	20kA	20kA	20kA	20kA
Max discharge current rating 8/20 μ s (I_{max})		50kA	50kA	50kA	50kA	50kA
Short-Circuit Current Rating (SCCR)		200kA	200kA	200kA	200kA	200kA
Voltage Protection Rating (V_{pr})		600V	900V	1200V	1500V	1500V

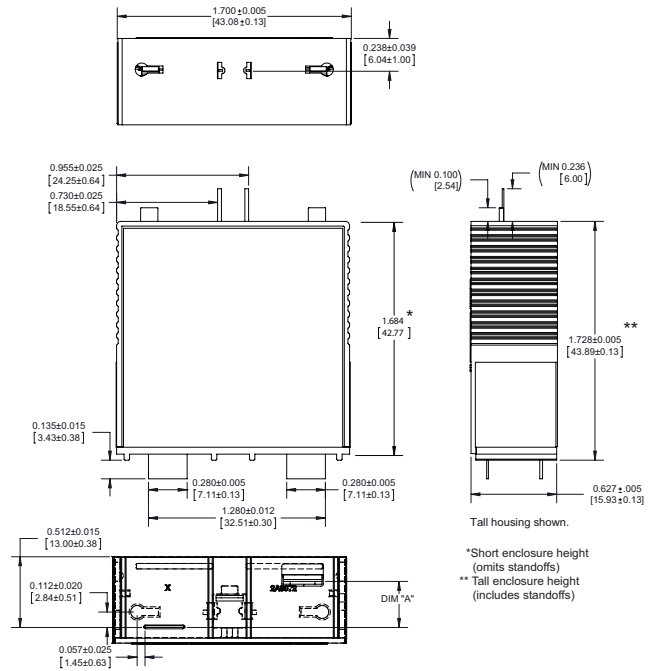
Standard module dimensions - in [mm]

Tolerance is $\pm 0.005''$ [0.13mm] unless otherwise stated.



Universal module dimensions - in [mm]

Tolerance is $\pm 0.005''$ [0.13mm] unless otherwise stated.



SPODU universal lead spacing dimension A

Part Number	"A" ± 0.03 [0.76]
SPODU150XXX	0.410 [10.42]
SPODU270XXX	0.399 [10.14]
SPODU320XXX	0.399 [10.14]
SPODU420XXX	0.400 [10.16]
SPODU550XXX	0.402 [10.21]

SPOD standard lead spacing dimension A

Part Number	"A"	
	Min	Max
SPOD150XXX	7.08	8.52
SPOD270XXX	8.01	9.51
SPOD320XXX	7.98	9.52
SPOD420XXX	9.25	10.64
SPOD550XXX	9.26	10.72