

# Bourns® Surge Protective Devices (SPDs)

*Short Form Brochure*



# Bourns® SPD Overview

Building on our expertise in circuit protection devices and technology, Bourns now offers four major families of Surge Protective Devices (SPDs). SPDs are standalone protection devices or modules that incorporate one or more circuit protection technologies.

## AC and DC Surge Protective Devices

AC and DC SPDs are designed to meet the surge protection needs of low-voltage installations. Designed for mounting on DIN-Rails, these SPDs are easy to install in standardized panels and cabinets. These products are modular in design and employ thermal disconnection devices, visual indicators and remote signalling capabilities which allow for total operation safety.

## Signal and Data Line Surge Protective Devices

Bourns® Signal and Data Line SPDs are designed to shield sensitive equipment connected to signal and data line interfaces from damage or disruption caused by transient surges. These protectors are heavy duty, multi-stage protectors that employ Bourns® GDT, Bourns® TBU® HSP and silicon technologies. These protectors are generally installed as close as possible to the sensitive equipment being protected.

## Coaxial Surge Protective Devices

Coaxial SPDs are designed to protect sensitive equipment connected to coaxial lines. Coaxial SPDs are used in applications such as computer networks, CATV, antennas, WiMax, GSM, GPS, microwave and cellular. Bourns® coaxial SPDs are also available in weatherized enclosures for residential and commercial installations.

Bourns® SPD offering includes AC Surge Protective Devices, DC Surge Protective Devices, Signal and Data Line Surge Protective Devices and Coaxial Surge Protective Devices.

## Accessories



### 4030 Test Set

- Test Set used to verify operation of the SPD installed in the field

Bourns® Model 4030-0x Surge Protector Test Set is a handheld, battery-operated tester designed to measure the clamping voltage and DC breakdown voltage of most SPDs. The Model 4030-0x is suitable for testing GDTs, carbon gaps, MOVs, Zener and avalanche diodes and thyristors as components and complete protectors.



### 1200TA Terminal Adapter

- Terminal Adapter for the 1210 and 1250 Series SPDs

Bourns® Model 1200TA Terminal Adapter is designed to improve the wiring efficiency of Model 1210 and 1250 Series SPDs. This add-on adaptor allows for efficient and safe parallel connections. This method of connection is highly recommended and minimizes voltage drops in parallel connections.



### Bus Bar

- Bus Bar for 1210 and 1250 Series SPDs

Bourns® Model 1200 Series Bus Bar accessory provides a quick solution for combining the ground connection on two to four Model 1210 or 1250 Series single pole SPD devices. The bus bar is installed at the bottom of the SPD providing a bridge that connects the individual ground points. After installation of the bus bar, a single ground wire can then be used to complete the installation.

# Bourns® SPD Product Overview

## AC Surge Protective Devices



### 1202 Series

- General purpose hybrid SPD
- 25 kA 8/20  $\mu$ s rating
- Rated for indoor or outdoor use

### 1251/1252 Series

- Heavy duty hybrid SPD
- 50 kA 8/20  $\mu$ s rating
- Rated for indoor or outdoor use

### 1214/1224 Series

- Heavy duty SPD
- 100 kA and 200 kA 8/20  $\mu$ s ratings
- Rated for indoor or outdoor use



### 1210 Series

- Type 2-pole DIN-Rail AC SPD
- 1-pole and multi-pole surge protectors
- Pluggable
- 100 kA rated



### 1250 Series

- Type 2-pole DIN-Rail AC SPD
- 1-pole and multi-pole surge protectors
- Pluggable
- 50 kA rated

## DC Power Surge Protective Devices



### 1320 Series

- DIN-Rail SPD for 48 V, 75 V or 110 V DC powered equipment



### 1420 Series

- DIN-Rail SPD for photovoltaic systems

## Signal and Data Line Surge Protective Devices



### 1500/1530-1 Series

- SPD for exposed Gigabit Ethernet & PoE
- DIN-Rail or wall mount



### 1540 Series

- Outdoor SPD for Power over Ethernet (PoE)



### 1669 Series

- SPD for transmitter and instrumentation
- 24-28 V, 4-20 mA control loops



### 1800 Series

- DIN-Rail SPD for RS-232, RS-422, RS-423, RS-485, 20 mA and 50 mA instrument loops



### 1840 Series

- Din-Rail SPD RS-232, RS-422, RS-423, RS-486
- Utilizes TBU® HSP technology



### 1675 Series

- Rail Wayside hut signal circuits
- See [www.bourns.com](http://www.bourns.com)

## Coaxial Surge Protective Devices



### 1965 Series

- SPD for RF applications from DC-1 GHz, 50 Ohms



### 1977 Series

- SPD for RF applications from VDC - 4 GHz, 50 or 75 Ohms



### 1740 Series

- SPD for RF applications from DC-1.25 GHz, 75 Ohms



### 7041 Series

- Enclosure for Model 1740 SPD



### 7004C Series








- Enclosure for Model 1740 SPD and optional data line/telecom line protection

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# Bourns® SPD Product Selector







## AC Surge Protective Devices (SPDs)

Photo	Series	Configuration	Type	Part Numbers	AC Network	I <sub>max</sub>	Description
	1202 Series	NEMA 4x Enclosure	Type 1, UL 1449 4th edition	1202-120S 1202-240S	120 V Single Phase 120/240 V Split Phase 120 V Single Phase 120/240 V Split Phase	25 kA	General purpose hybrid SPD designed for indoor/outdoor usage. Suitable for use before main service disconnect.
	1251 Series	NEMA 4x Enclosure Wiring rear exit	Type 1, UL 1449 4th edition	1251-120S-N1 1251-208Y-N1 1251-240S-N1 1251-120S-N2 1251-208Y-N2 1251-240S-N2	120 V Single Phase 120/208 V 3-phase Wye 120/240 V Split Phase 120 V Single Phase 120/208 V 3-phase Wye 120/240 V Split Phase	100 kA	Heavy duty hybrid SPD designed for indoor/outdoor usage. Suitable for use before main service disconnect.
	1252 Series	NEMA 4x Enclosure Wiring rear exit	Type 2, UL 1449 4th edition	1252-120S-N1 1252-208Y-N1 1252-240S-N1 1252-120S-N2 1252-208Y-N2 1252-240S-N2	120 V-Single Phase 120/208 V 3-phase Wye 120/240 V Split Phase 120 V Single Phase 120/208 V 3-phase Wye 120/240 V Split Phase	50 kA	Heavy duty hybrid SPD with filtering designed for indoor/outdoor usage. Suitable for use after main service disconnect.
	1214 Series	NEMA 4x Enclosure Wiring rear exit	Type 1, UL 1449 4th edition	1214-240S 1214-208Y 1214-277Y 1214-480D	120/240 V Split Phase 120/208 V 3-phase Wye 277/480 V 3-phase Wye 480 V Delta	100 kA	Heavy duty SPD designed for indoor/outdoor use. Suitable for use before main service disconnect.
	1224 Series	NEMA 4x Enclosure Wiring rear exit	Type 1, UL 1449 4th edition	1224-240S 1224-208Y 1224-277Y 1224-480D	120/240 V Split Phase 120/208 V 3-phase Wye 277/480 V 3-phase Wye 480 V Delta	100 kA	Heavy duty SPD designed for indoor/outdoor use. Suitable for use before main service disconnect.
	1210 Series	1-Pole DIN-Rail	Type 2, UL 1449 4th edition	1210-1S-120 1210-1S-230 1210-1S-400 1210-1S-600	120/240 V, 120/208 V - Single Phase 220/380 V, 240/415 V - Single Phase 220/380 V, 277/480 V, 347/600V - Single Phase 480 V/600 V - Single Phase	100 kA	Heavy duty SPD designed to be installed at the beginning of the installation, in the main switchboard, or close to sensitive terminals, on installations without LPS (Lightning Protection System).
		2-Pole		1210-2S-120 1210-2S-230 1210-2S-400 1210-2S-600	120/240 V, 120/208 V - Single Phase 220/380 V, 240/415 V - Single Phase 220/380 V, 277/480 V, 347/600 V - Single Phase 480 V/600 V - Single Phase		
		3-Pole		1210-3S-120 1210-3S-230 1210-3S-400 1210-3S-600	120/240 V, 120/208 V - 3-Phase 220/380 V, 240/415 V - 3-Phase 220/380 V, 277/480 V, 347/600 V - 3-Phase 480 V/600 V - 3-Phase		
		4-Pole		1210-2S-120 1210-2S-230 1210-2S-400 1210-2S-600	120/240 V, 120/208 V - 3-Phase + N 220/380 V, 240/415 V - 3-Phase + N 220/380 V, 277/480 V, 347/600 V - 3-Phase + N 480 V/600 V - 3-Phase + N		
	1250 Series	1-Pole	Type 2, UL 1449 4th edition	1250-1S-120 1250-1S-230 1250-1S-400 1250-1S-600	120/240 V, 120/208 V - Single Phase 220/380 V, 240/415 V - Single Phase 220/380 V, 277/480 V, 347/600 V - Single Phase 480 V/600 V - Single Phase	50 kA	General duty SPD designed to be installed at the beginning of the installation, in the main switchboard, or close to sensitive terminals, on installations without LPS (Lightning Protection System).
		2-Pole		1250-2S-120 1250-2S-230 1250-2S-400 1250-2S-600	120/240 V, 120/208 V - Single Phase 220/380 V, 240/415 V - Single Phase 220/380 V, 277/480 V, 347/600 V - Single Phase 480 V/600 V - Single Phase		
		3-Pole		1250-3S-120 1250-3S-230 1250-3S-400 1250-3S-600	120/240 V, 120/208 V - 3-Phase 220/380 V, 240/415 V - 3-Phase 220/380 V, 277/480 V, 347/600 V - 3-Phase 480 V/600 V - 3-Phase		
		4-Pole		1250-2S-120 1250-2S-230 1250-2S-400 1210-2S-600	120/240 V, 120/208 V - 3-Phase + N 220/380 V, 240/415 V - 3-Phase + N 220/380 V, 277/480 V, 347/600 V - 3-Phase + N 480 V/600 V - 3-Phase + N		






## DC Surge Protective Devices (SPDs)

Photo	Series	Configuration	Type	Part Numbers	DC Power System	I <sub>max</sub> *	Description
	1320 Series	1-Pole DIN Rail	Type 4 construction, Type 2 application per UL 1449 3rd Edition: Low Voltage SPD Test Class II per EN61643-11 and IEC61643-11	1320-S-12 1320-S-24 1320-S-48 1320-S-75 1320-S-110	48 VDC 75 VDC 110 VDC 12 V 24 V	20-40 kA	SPD designed to protect DC power systems from damage due to lightning and power surges
	1420 Series	1-Pole DIN Rail	Type 4 construction, Type 2 application per UL 1449 3rd Edition: Low Voltage SPD Test Class II per EN61643-11 and IEC61643-11	1420-PV-1000	1000 VDC	40 kA	DC powered SPD designed to protect photovoltaic systems operating up to 1200 VDC

## Signal and Data Line Surge Protective Devices

Photo	Base Model	Application	Interface Operating Characteristics			Max. DC Current (mA)	Typical Capacitance		Series Resistance Each Line - Input to Output (Ohms)
			Peak Signal Voltage L/L (Volts)	Peak Signal Voltage L/G (Volts)	Max. Data Rate (MHz)		L/G (pF)	L/L (pF)	
	1169-01	4-20 mA	28	28	4	150	1800	1800	22
	1669-02	4-20 mA	28	28	4	150	1800	1800	22
	1669-05	4-20 mA	28	28	4	150	1800	1800	22
	1669-06	4-20 mA	28	28	4	150	1800	1800	22
	1810-10-xx		20	10	10	220	2200	1200	10
	1811-10-xx		20	10	50	350	45	45	10
	1820-10-xx	RS-422	10	10	4	220	3300	3300	10
	1821-10-xx		10	10	50	350	65	65	10
	1810-15-xx	RS-232	30	15	8	180	1500	750	15
	1811-15-xx		30	15	45	300	45	45	15
	1820-15-xx	RS-485	15	15	3	180	2300	2300	15
	1821-15-xx		15	15	45	300	65	65	15
	1810-28-xx		56	28	9	150	1100	600	22
	1811-28-xx		56	28	40	250	45	45	22
	1820-28-xx	4-20 mA	28	28	4	150	1800	1800	22
	1821-28-xx		28	28	40	250	65	65	22
	1810-50-xx		100	50	10	100	500	300	51
	1820-50-xx		50	50	4	100	800	800	51
	1840-05-Ax 1840-12-Ax	RS-232, RS-485	6 V 13 V	6 V 13 V	30	220	35	45	12
	1500-1x-x Isolated - no ground	Ethernet	7	7	1 Gbit/s	200	n/a	10	12
	1500-2x-x	Ethernet	7	7	1 Gbit/s	200	n/a	10	12
	1530-1	PoE	35 Watts @ 57 V		1000 Mbit/s	600	n/a	10	6
	1540	PoE	35 Watts @ 57 V		1000 Mbit/s	600	n/a	10	6

## Coaxial Surge Protective Devices

Photo	Base Model	Application	Characteristic Impedance	Frequency Range	Insertion Loss	Connectors
	1965-xx-Axx	UHF, VHF transmitters, 2-way base stations, transceivers	50 Ω	DC-1 GHz	<0.2 dB	N, BNC, UHF
	1977-xx-xxx	Antenna, broadband, microwave, GPS, cellular, CATV	50 Ω - N-type connector 75 Ω - F-type connector	DC-4 GHz	<0.1 dB	N,F
	1740-xx	CATV, satellite video	75 Ω	DC-1.25 GHz	<0.45 dB	F-type
	7041-1x-xx	Residential: combines 1740 coaxial SPD into a compact residential enclosure	75 Ω	DC-1.25 GHz	<0.45 dB	F-type
	7004C-0x-x x-xx	Residential or commercial: 1740 coaxial SPD housed in a weather-resistant enclosure. Solution provides voice, data and video protection.	75 Ω	DC-1.25 GHz	<0.45 dB	F-type

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Specifications subject to change without notice. Actual performance in specific customer applications may differ due to the influence of other variables. Customers should verify actual device performance in their specific applications.

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