

# Bourns® Surge Protective Devices (SPDs)

*Short Form Brochure*



**BOURNS®**

# 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 stand-alone 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 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



### 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



### 1200TA

- Terminal adapters for 1210 and 1250 Series



### Bus Bar

- Bus Bar in configurations of 2, 3 and 4

## DC Power Surge Protective Devices



### 1320 Series

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



### 20 Series

- DIN Rail SPD for photovoltaic systems

## Signal and Data Line Surge Protective Devices



### 1500 Series

- SPD for exposed Gigabit Ethernet, DIN Rail or wall mount



### 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



### 1830 Series

- DIN Rail SPD for T1/E1 applications

## Coaxial Surge Protective Devices



### 1965 Series

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



### 1977 Series

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



### 1740 Series

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



### 7041 Series

- Enclosure for 1740 SPD



### 7004C Series

- Enclosure for 1740 SPD and optional data line/telco line protection

# Bourns® SPD Product Data

## AC / DC Surge Protective Devices

Device	Series	Configuration	Type	Part Numbers	AC Network	I <sub>max</sub> *	Description
AC Surge Protective Devices (SPDs)	1210 Series	1-Pole	Type 4 construction, Type 2 application per UL 1449 3rd Edition: Type 2 per EN61643-11 and IEC61643-11	1210-1S-120	120/240 V, 120/208 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)
				1210-1S-230	220/380 V, 240/415 V - Single Phase		
				1210-1S-400	220/380 V, 277/480 V, 347/600 V - Single Phase		
				1210-1S-600	480 V/600 V - Single Phase		
		2-Pole		1210-2S-120	120/240 V, 120/208 V - Single Phase		
				1210-2S-230	220/380 V, 240/415 V - Single Phase		
				1210-2S-400	220/380 V, 277/480 V, 347/600 V - Single Phase		
				1210-2S-600	480 V/600 V - Single Phase		
	3-Pole	1210-3S-120	120/240 V, 120/208 V - 3-Phase				
		1210-3S-230	220/380 V, 240/415 V - 3-Phase				
		1210-3S-400	220/380 V, 277/480 V, 347/600 V - 3-Phase				
		1210-3S-600	480 V/600 V - 3-Phase				
	4-Pole	1210-2S-120	120/240 V, 120/208 V - 3-Phase + N				
		1210-2S-230	220/380 V, 240/415 V - 3-Phase + N				
		1210-2S-400	220/380 V, 277/480 V, 347/600 V - 3-Phase + N				
		1210-2S-600	480 V/600 V - 3-Phase + N				
1250 Series	1-Pole	Type 4 construction, Type 2 application per UL 1449 3rd Edition: Type 2 per EN61643-11 and IEC61643-11	1250-1S-120	120/240 V, 120/208 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)	
			1250-1S-230	220/380 V, 240/415 V - Single Phase			
			1250-1S-400	220/380 V, 277/480 V, 347/600 V - Single Phase			
			1250-1S-600	480 V/600 V - Single Phase			
	2-Pole		1250-2S-120	120/240 V, 120/208 V - Single Phase			
			1250-2S-230	220/380 V, 240/415 V - Single Phase			
			1250-2S-400	220/380 V, 277/480 V, 347/600 V - Single Phase			
			1250-2S-600	480 V/600 V - Single Phase			
3-Pole	1250-3S-120	120/240 V, 120/208 V - 3-Phase					
	1250-3S-230	220/380 V, 240/415 V - 3-Phase					
	1250-3S-400	220/380 V, 277/480 V, 347/600 V - 3-Phase					
	1250-3S-600	480 V/600 V - 3-Phase					
4-Pole	1250-2S-120	120/240 V, 120/208 V - 3-Phase + N					
	1250-2S-230	220/380 V, 240/415 V - 3-Phase + N					
	1250-2S-400	220/380 V, 277/480 V, 347/600 V - 3-Phase + N					
	1250-2S-600	480 V/600 V - 3-Phase + N					
DC Power Surge Protective Devices (SPDs)	1320 Series	1-Pole	Type 4 construction, Type 2 application per UL 1449 3rd Edition: Low Voltage SPD Test Class II per EN61643-11 and IEC61643-11	1320-5-48 1320-5-75 1320-5-110	48 VDC 75 VDC 110 VDC	30 kA 40 kA 40 kA	SPD designed to protect DC power systems from damage due to lightning and power surges
	1420 Series	1-Pole	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

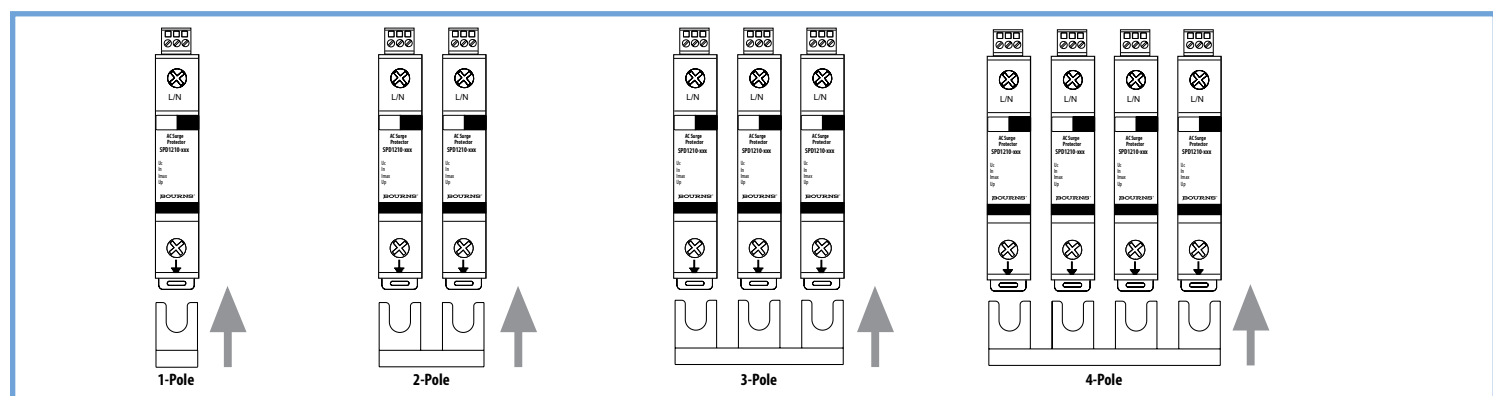











Figure 1 | SPD 1210 and 1250 Series Configurations

\*AC & DC Surge Protective Devices 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

Photo	Base Model Number	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
	1830-T1E1	T1E1	12	170	2.048 Mbits/s	100	75	75	10
	1500-1x-x	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

## Coaxial Surge Protective Devices

Photo	Base Model Number	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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[www.bourns.com](http://www.bourns.com)

Bourns® products are available through an extensive network of manufacturer's representatives, agents and distributors. To obtain technical applications assistance, a quotation, or to place an order, contact a Bourns representative in your area.

Specifications are subject to change without notice. The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.

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