



Surge Protective Devices (SPDs)

Bourns® SPD Brochure



BOURNS®

Bourns® SPD Product 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.

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

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.

AC Surge Protective Devices



1210 Series

- UL1449 Type 4, Type 2 location DIN-Rail AC SPD
- 1-pole and multi-pole surge protectors
- Pluggable
- 100 kA rated



1250 Series

- UL1449 Type 4, Type 2 location DIN-Rail AC SPD
- 1-pole and multipole surge protectors
- Pluggable
- 50 kA rated



1202 Series

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



1214/1224 Series

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



1220 Series

- UL1449 Type 4, Type 2 location TPMOV SPD
- 1-pole surge protectors
- PCB mounting with Advanced Thermal Disconnect (TD+)
- 22 - 75 kA rated



1250A Series

- UL1449 Type 4, Type 2 location DIN-Rail AC SPD
- 1-pole and multipole surge protectors
- Pluggable module with Advanced Thermal Disconnect (TD+)
- 50 kA rated



1260 Hybrid Series

- IEC/EN 61643-11 Class I+II / T1+T2 DIN-Rail AC SPD
- 1-pole and multipole surge protectors
- Pluggable
- 100 kA rated



1251/1252 Series

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

DC Power Surge Protective Devices



1320 Series

- UL1449 Type 4, Type 2 location DIN-Rail DC SPD
- SPD for 12V, 24V, 48V, 75V or 110V DC powered equipment



1420 Series

- UL1449 Type 4, Type 2 location DIN-Rail DC SPD
- DIN-Rail SPD for photovoltaic systems
- Pluggable



1420A Series

- UL1449 Type 4, Type 2 location DIN-Rail DC SPD
- DIN-Rail SPD for photovoltaic systems up to 1500 V
- Pluggable module with Advanced Thermal Disconnect (TD+)

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.



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



2510 Series

- UL497B listed DIN-Rail Data and Signal Line SPD
- SPD for 1-pair 5 V, 12 V, 24 V, 48 V, 110 V, RS-232, RS-422 & RS-485

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.



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
- Railroad electronic equipment



2520 Series

- UL497B listed DIN-Rail Data and Signal Line SPD
- SPD for 2-pairs 5 V, 12 V, 24 V, 48 V, RS-232, RS-422 & RS-485

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.



1965 Series

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

Bourns® coaxial SPDs are also available in weatherized enclosures for residential and commercial installations.



1977 Series

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

Accessories

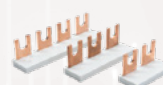
Bourns® Model 4030-0x Surge Protector Test Set is a handheld, battery-operated tester designed to measure the clamping voltage and DC breakdown voltage of most SPDs. The Model 4030-0x is suitable for testing GDTs, carbon gaps, MOVs, Zener and avalanche diodes and thyristors as components and complete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



4030 Test Set

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

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.









Bus Bar



- Bus bar for 1210 and 1250 Series SPDs

Bourns® SPD Product Selector




AC Surge Protective Devices (SPDs)

Photo	Series	Configuration	Type	Part Numbers	AC Network	I _{max}	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 usage. Suitable for use before main service disconnect.
	1210 Series	1-Pole	Type 4, Type 2 location 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		1210-4S-120 1210-4S-230 1210-4S-400 1210-4S-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		
	1220 Series	SMD Module Type 1	Type 4, Type 2 location UL 1449 4th edition	1220-10-12-120M1 1220-10-12-277M1 1220-10-12-400M1 1220-10-11-480M1 1220-10-11-600M1	120/240 V, 120/208 V - Single Phase 240/415 V, 277/480 V - Single Phase 277/480 V, 347/600 V - Single Phase 347/600 V - Single Phase, 480V (Delta) 600 V (Delta)	25 kA 22 kA	Surge suppressor with thermal protection designed to open in the event of overheating due to an abnormal overvoltage or Temporary Overvoltage (TOV) event and will interrupt any abnormal current that may be encountered. Integrated with high energy MOV and Advanced Thermal Disconnecter (TD+) technology.
		SMD Module Type 2		1220-20-14-120M2 1220-20-14-277M2 1220-20-14-400M2 1220-20-14-480M2	120/240 V, 120/208 V - Single Phase 240/415 V, 277/480 V - Single Phase 277/480 V, 347/600 V - Single Phase 347/600 V - Single Phase, 480V (Delta)	50 kA	
		SMD Module Type 3		1220-20-14-120M3 1220-20-14-230M3 1220-20-14-277M3 1220-20-14-400M3 1220-20-14-480M3 1220-20-13-600M3	120/240 V, 120/208 V - Single Phase 220/380 V, 230/400 V - Single Phase 240/415 V, 277/480 V - Single Phase 277/480 V, 347/600 V - Single Phase 347/600 V - Single Phase, 480V (Delta) 600 V (Delta)	50 kA 40 kA	
		SMD Module Type 4		1220-20-15-120M4 1220-20-15-230M4 1220-20-15-277M4	120/240 V, 120/208 V - Single Phase 220/380 V, 230/400 V - Single Phase 240/415 V, 277/480 V - Single Phase	75 kA	
				1250 Series	1-Pole	Type 4, Type 2 location UL 1449 4th edition	
2-Pole	1250-2S-120 1250-2S-230 1250-2S-400 1250-2S-480		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 347/600 V - Single Phase				
3-Pole	1250-3S-120 1250-3S-230 1250-3S-400 1250-3S-480		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 - Delta				
4-Pole	1250-4S-120 1250-4S-230 1250-4S-400 1250-4S-480		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 - Delta				

AC Surge Protective Devices (SPDs)







Photo	Series	Configuration	Type	Part Numbers	AC Network	I _{max}	Description
	1250A Series	1-Pole	Type 4, Type 2 location UL 1449 4th edition	1250A-1S-120	120/240 V, 120/208 V - Single Phase 220/380 V, 230/400 V - Single Phase 240/415 V, 277/480 V - Single Phase 277/480 V, 347/600 V - Single Phase 347/600 V - Single Phase, 480V (Delta) 600 V (Delta)	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). Integragted with high energy MOV and Advanced Thermal Disconnector (TD+) technology.
				1250A-1S-230			
				1250A-1S-277			
				1250A-1S-400			
				1250A-1S-480			
				1250A-1S-600			
		2-Pole		1250A-2S-120	120/240 V, 120/208 V - Single Phase 220/380 V, 230/400 V - Single Phase 240/415 V, 277/480 V - Single Phase 277/480 V, 347/600 V - Single Phase 347/600 V - Single Phase, 480V (Delta) 600 V (Delta)	50 kA	
				1250A-2S-230			
				1250A-2S-277			
				1250A-2S-400			
				1250A-2S-480			
				1250A-2S-600			
		3-Pole		1250A-3S-120	120/240 V, 120/208 V - 3 Phase 220/380 V, 230/400 V - 3 Phase 240/415 V, 277/480 V - 3 Phase 277/480 V, 347/600 V - 3 Phase 347/600 V - 3 Phase, 480V (Delta) 600 V (Delta)	50 kA	
				1250A-3S-230			
				1250A-3S-277			
				1250A-3S-400			
1250A-3S-480							
1250A-3S-600							
4-Pole	1250A-4S-120	120/240 V, 120/208 V - 3 Phase+N 220/380 V, 230/400 V - 3 Phase+N 240/415 V, 277/480 V - 3 Phase+N 277/480 V, 347/600 V - 3 Phase+N 347/600 V - 3 Phase+N, 480V (Delta) 600 V (Delta)	50 kA				
	1250A-4S-230						
	1250A-4S-277						
	1250A-4S-400						
	1250A-4S-480						
	1250A-4S-600						
	1260 Series	1-Pole	IEC/EN 61643-11 Class I+II / T1+T2	1260-1SMG-120	120/240 V, 120/208 V - Single Phase 120/208 V, 127/220 V - Single Phase 220/380 V, 230/400 V - Single Phase 240/415 V, 277/480 V - Single Phase 277/480 V, 347/600 V - Single Phase 347/600 V - Single Phase, 480V (Delta) 690 V (Delta)	100 kA	AC Hybrid Surge Protective Device (SPD) designed to protect high-risk electrical service entrance and branch panels. Based on its advanced hybrid architecture (MOV + GDT technology), this series can provide better reliability and safety protection due to no leakage or follow current..
				1260-1SMG-127			
				1260-1SMG-230			
				1260-1SMG-277			
				1260-1SMG-400			
				1260-1SMG-480			
		2-Pole		1260-2SMG-120	120/240 V, 120/208 V - Single Phase 120/208 V, 127/220 V - Single Phase 220/380 V, 230/400 V - Single Phase 240/415 V, 277/480 V - Single Phase 277/480 V, 347/600 V - Single Phase 347/600 V - Single Phase, 480V (Delta) 690 V (Delta)		
				1260-2SMG-127			
				1260-2SMG-230			
				1260-2SMG-277			
				1260-2SMG-400			
				1260-2SMG-480			
		3-Pole		1260-3SMG-120	120/240 V, 120/208 V - 3 Phase 120/208 V, 127/220 V - 3 Phase 220/380 V, 230/400 V - 3 Phase 240/415 V, 277/480 V - 3 Phase 277/480 V, 347/600 V - 3 Phase 347/600 V - 3 Phase, 480V (Delta) 690 V (Delta)		
				1260-3SMG-127			
				1260-3SMG-230			
				1260-3SMG-277			
1260-3SMG-400							
1260-3SMG-480							
4-Pole	1260-4SMG-120	120/240 V, 120/208 V - 3 Phase+N 120/208 V, 127/220 V - 3 Phase+N 220/380 V, 230/400 V - 3 Phase+N 240/415 V, 277/480 V - 3 Phase+N 277/480 V, 347/600 V - 3 Phase+N 347/600 V - 3 Phase+N, 480V (Delta) 690 V (Delta)					
	1260-4SMG-127						
	1260-4SMG-230						
	1260-4SMG-277						
	1260-4SMG-400						
	1260-4SMG-480						

DC Surge Protective Devices (SPDs)



Photo	Series	Configuration	Type	Part Numbers	DC Power System	I _{max}	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 IEC 61643-11	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 IEC 61643-11	1420-PV-1000	1000 VDC	40 kA	DC powered SPD designed to protect photovoltaic systems operating up to 1200 VDC.
	1420A Series	1-Pole Single Protection 2-Pole V Configuration 2-Pole Y Configuration	Type 4, Type 2 location UL 1449 4th edition	1420A-PV-48-P 1420A-PV-48-D 1420A-PV-600-D 1420A-PV-600-Y 1420A-PV-1000-Y 1420A-PV-1200-Y 1420A-PV-1500-Y	48 VDC 48 VDC 600 VDC 600 VDC 1000 VDC 1200 VDC 1500 VDC	50 kA	DC powered SPD designed to protect photovoltaic systems operating from 48 VDC to 1500 VDC. Can be configured for both common mode and differential mode protection. Integragted with high energy MOV and Advanced Thermal Disconnector (TD+) technology.

Bourns® SPD Product Selector



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	RS-232, RS-485	6	6	30	220	35	45
1840-12-Ax		13		13					
	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 @ 57V		1000 Mbit/s	600	n/a	10	6
	1540	PoE	35 watts @ 57V		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

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)	
	2510-2L1-05	RS-232 RS-422 RS-485	30	30	100	1000	n/a	n/a	0.68
	2510-2L1-12		45	45	100	1000	n/a	n/a	0.68
	2510-2L1-24		55	55	100	1000	n/a	n/a	0.68
	2510-2L1-48		100	100	100	1000	n/a	n/a	0.68
	2510-2L1-110		300	300	100	1000	n/a	n/a	0.68
	2510-2L2-05		30	500	100	1000	n/a	n/a	0.68
	2510-2L2-12		45	500	100	1000	n/a	n/a	0.68
	2510-2L2-24		55	500	100	1000	n/a	n/a	0.68
	2510-2L2-48		100	500	100	1000	n/a	n/a	0.68
	2510-2L2-110		300	500	100	1000	n/a	n/a	0.68
	2510-2L3-05		30	500	100	1000	n/a	n/a	0.68
	2510-2L3-12		45	500	100	1000	n/a	n/a	0.68
	2510-2L3-24		55	500	100	1000	n/a	n/a	0.68
	2510-2L3-48		100	500	100	1000	n/a	n/a	0.68
	2510-2L3-110		300	500	100	1000	n/a	n/a	0.68
	2510-2L4-05		30	500	100	1000	n/a	n/a	0.68
	2510-2L4-12		45	500	100	1000	n/a	n/a	0.68
	2510-2L4-24		55	500	100	1000	n/a	n/a	0.68
	2510-2L4-48		100	500	100	1000	n/a	n/a	0.68
	2510-2L4-110		300	500	100	1000	n/a	n/a	0.68
2510-2L5-12	25	750	2	1000	n/a	n/a	1.36		
2510-2L5-24	50	750	2	1000	n/a	n/a	1.36		
2510-2L5-48	100	750	2	1000	n/a	n/a	1.36		
2510-2L5-110	260	750	2	1000	n/a	n/a	1.36		
2510-2L6-05	30	500	100	2000	n/a	n/a	0		
2510-2L6-12	45	500	100	2000	n/a	n/a	0		
2510-2L6-24	55	500	100	2000	n/a	n/a	0		
2510-2L6-48	100	500	100	2000	n/a	n/a	0		
	2520-4L1-05	RS-232 RS-422 RS-485	30	30	100	1000	n/a	n/a	0.68
	2520-4L1-12		45	45	100	1000	n/a	n/a	0.68
	2520-4L1-24		55	55	100	1000	n/a	n/a	0.68
	2520-4L1-48		100	100	100	1000	n/a	n/a	0.68
	2520-4L2-05		30	500	100	1000	n/a	n/a	0.68
	2520-4L2-12		45	500	100	1000	n/a	n/a	0.68
	2520-4L2-24		55	500	100	1000	n/a	n/a	0.68
	2520-4L2-48		100	500	100	1000	n/a	n/a	0.68
	2520-4L3-05		30	500	100	2000	n/a	n/a	0
	2520-4L3-12		45	500	100	2000	n/a	n/a	0
	2520-4L3-24		55	500	100	2000	n/a	n/a	0
	2520-4L3-48		100	500	100	2000	n/a	n/a	0

Worldwide Sales Offices



Country/Region	Phone	Email
Americas:	+1-951-781-5500	americus@bourns.com
Brazil:	+55 11 5505 0601	americus@bourns.com
China:	+86 21 64821250	asiacus@bourns.com
Europe, Middle East, Africa:	+36 88 885 877	eurocus@bourns.com
Japan:	+81 49 269 3204	asiacus@bourns.com
Korea:	+82 70 4036 7730	asiacus@bourns.com
Singapore:	+65 6348 7227	asiacus@bourns.com
Taiwan:	+886 2 25624117	asiacus@bourns.com
Other Asia-Pacific Countries:	+886 2 25624117	asiacus@bourns.com

Technical Assistance Region	Phone	Email
Asia-Pacific:	+886 2 25624117	techweb@bourns.com
Europe, Middle East, Africa:	+36 88 520 390	eurotech@bourns.com
Americas:	+1-951-781-5500	techweb@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 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.

BOURNS®

www.bourns.com

"Bourns" is a registered trademark of Bourns, Inc. in the U.S. and other countries. "TBU" is a registered trademark of Bourns, Inc. in the U.S. and other countries, except Japan. All references to TBU® in this document for use in Japan shall be deemed to be replaced with Bourns® TBU™. COPYRIGHT© 2023, BOURNS, INC. • MIMEO • 11/23 • e/SPD2309