COOPER Bussmann

Surge Protection Made Simple™ for Twisted Pair Data Cables

UL Listed 497B DIN-Rail Mount Universal Surge Protective Device for Measuring and Control Circuits, and Bus Systems

Description

The Cooper Bussmann 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.

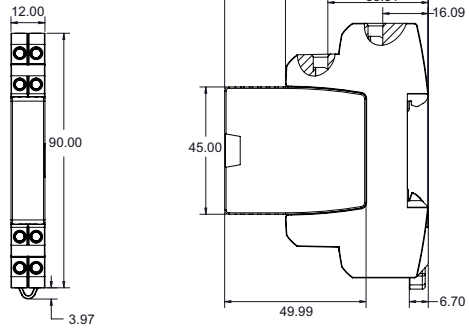
1. When installed in potentially explosive atmospheres, the Data Signal DIN Series shall be installed into an enclosure which meets the requirements of a recognized type of protection, in accordance with EN 60079-0.
2. The Data Signal DIN Series as transient suppressor. This approval applies to the following 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

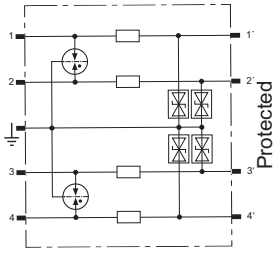


BSPD5DING
BSPD12DING
BSPD24DING
BSPD48DING
BSPD5DINLHF
BSPD24DINLHF
BSPD0180DINL

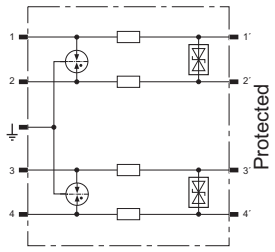
5 YEAR WARRANTY

Four-Pole DIN-Rail Mount Universal SPD for Data Signal Applications

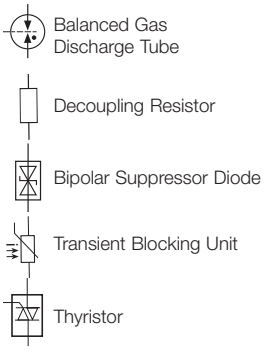
Circuit Diagrams

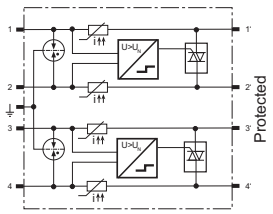


BSPD5DING
BSPD12DING
BSPD24DING
BSPD48DING



BSPD5DINLHF
BSPD24DINLHF





BSPD0180DINL

www.cooperbussmann.com/Surge

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
Nominal current at 45°C (I_L)		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 (fU_N)		-	-	-	-	-	-	0-400Hz
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
Permissible superimposed signal voltage (U_{Signal})								± 5V
"Nominal current at 80°C (I_L) (corresponds to max. short-circuit current)"		—	—	—	—	—	—	100mA
Cut-off frequency line-PG (f_G)		1.0MHz	2.7MHz	6.8MHz	8.7MHz	100MHz	100MHz	-
Cut-off frequency line-line (U_{Signal}, balanced 100Ω) (f_G)		-	-	-	-	-	-	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	12-28AWG (4-0.08mm²)						
	Flexible	14-28AWG (2.5-0.08mm²)						
Terminal torque		3.5 Lb-In (0.4 N•m)						
Warranty		5 Years*						

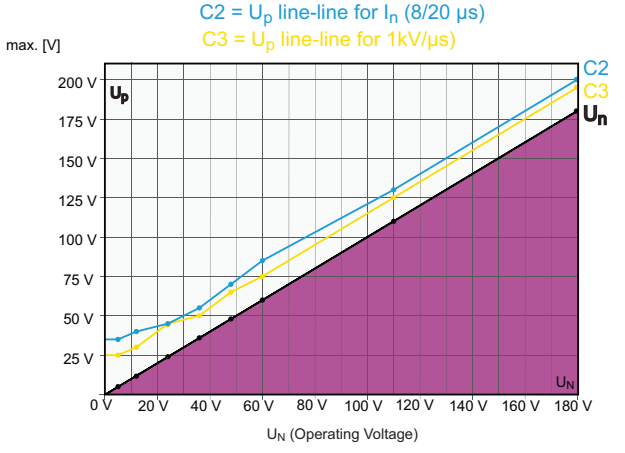
* See Cooper Bussmann SPD Limited Warranty Statement (3A1502) for details at www.cooperbussmann.com/surge.

0-180V 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 an overvoltage event occurs, the SPD voltage protection level adjusts itself based upon the output terminal operating voltage of the base.

Diagram 1: Voltage Protection Level U_p (V) (Line - Line)



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

COOPER Bussmann

DIN-Rail Universal 4 Wire Data Signal SPDs and Applications

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, $S2_m/U2_m$, 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					