

4-pole universal data signal surge protective devices

RoHS



Catalog numbers:

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

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.

Agency information

- UL 497B Listed
- CSAus
- ATEX
- CE

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 family as transient suppressor. This approval applies to the following equipment types:

BSPD5DING	BSPD12DING	BSPD24DING
BSPD48DING	BSPD5DINLHF	BSPD24DINLHF

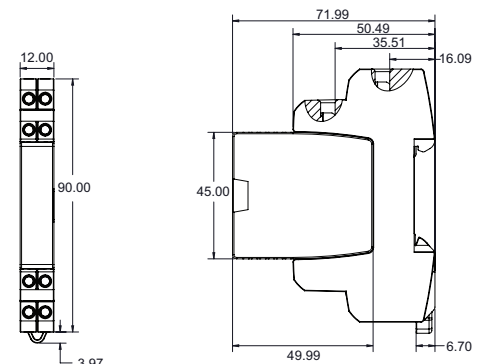
Ambient and temperature class

- -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

Features:

- 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



Catalog numbers and specifications

Catalog number — prefix: BSPD...	...5DING	...12DING	...24DING	...48DING	...5DINLHF	...24DINLHF	...0180DINL
Nominal voltage (U_N)	5 V	12 V	24 V	48 V	5 V	24 V	0-180 V
Nominal current at 45°C (I_L)	1.0 A	0.75 A	0.75 A	0.75 A	1.0 A	1.0 A	≤0.1 A@80°C
VPL line-line for limp D1 (U_p)	≤29 V	≤50 V	≤102 V	≤160 V	≤25 V	≤65 V	≤ UN + 53 V
VPL line-PG for limp D1 (U_p)	≤27 V	≤37 V	≤66 V	≤95 V	≤550 V	≤550 V	—
VPL line-line at 1 kV/μs C3 (U_p)	≤18 V	≤38 V	≤90 V	≤140 V	≤11 V	≤47 V	see Note 1
VPL line-PG at 1 kV/μs C3 (U_p)	≤9 V	≤19 V	≤45 V	≤70 V	≤550 V	≤550 V	—
VPL line-line for In C2 (U_p)	—	—	—	—	—	—	see Note 2
VPL line-PG for C2 / C3 / D1	—	—	—	—	—	—	≤ 550 V
D1 Total lightning impulse current (10/350 μs) (I_{imp})	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA
D1 Lightning impulse current (10/350 μs) per line (I_{imp})	2.5 kA	2.5 kA	2.5 kA	2.5 kA	2.5 kA	2.5 kA	2.5 kA
C2 Total nominal discharge current (8/20μs) (I_n)	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA	20 kA
C2 Nominal discharge current (8/20μs) per line (I_n)	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA
Series impedance per line	1.0 Ω	1.8 Ω	1.8 Ω	1.8 Ω	1.0 Ω	1.0 Ω	10Ω/7.5Ω typ
Frequency of the operating voltage (f_{UN})	—	—	—	—	—	—	0-400 Hz
Max. continuous operating DC voltage (U_C)	6 V	15 V	33 V	54 V	6 V	33 V	180 V
Max. continuous operating AC voltage (U_C)	4.2 V	10.6 V	23.3 V	38.1 V	4.2 V	23.3 V	127 V
Permissible superimposed signal voltage (U_{Signal})	—	—	—	—	—	—	± 5 V
“Nominal current at 80°C (I_L)”	—	—	—	—	—	—	100 mA
(corresponds to max. short-circuit current)”	—	—	—	—	—	—	—
Cut-off frequency line-PG (f_G)	1.0 MHz	2.7 MHz	6.8 MHz	8.7 MHz	100 MHz	100 MHz	—
Cut-off frequency line-line (U_{Signal} , balanced 100 Ω) (f_G)	—	—	—	—	—	—	50 MHz
Capacitance line-line (C)	≤2.7 nF	≤1.0 nF	≤0.5 nF	≤0.35 nF	≤25 pF	≤25 pF	≤80 pF
Capacitance line-PG (C)	≤5.4 nF	≤2.0 nF	≤1.0 nF	≤0.7 nF	≤16 pF	≤16 pF	≤16 pF
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: 12-28 AWG (4-0.08 mm²) Flexible: 14-28A WG (2.5-0.08 mm²)						
Terminal torque	3.5 Lb-In (0.4 N•m)						
Warranty	5 Years*						

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

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

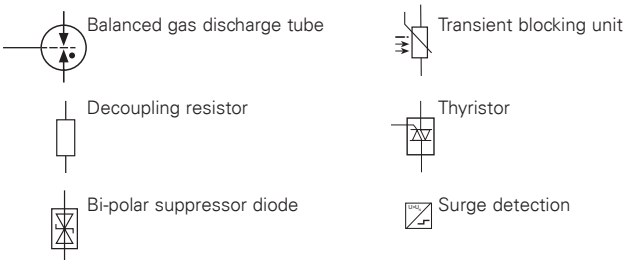
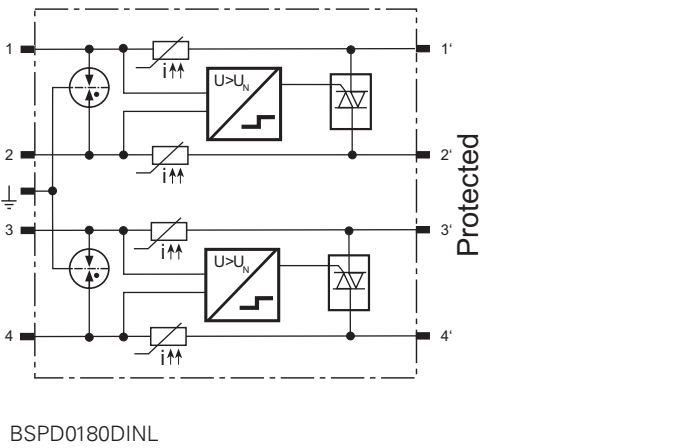
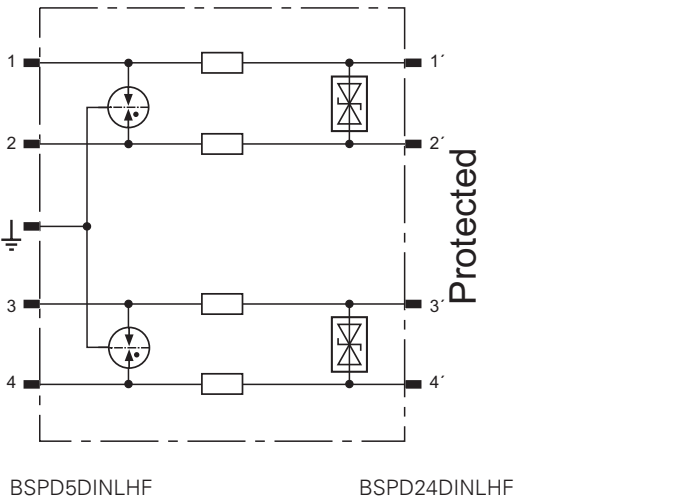
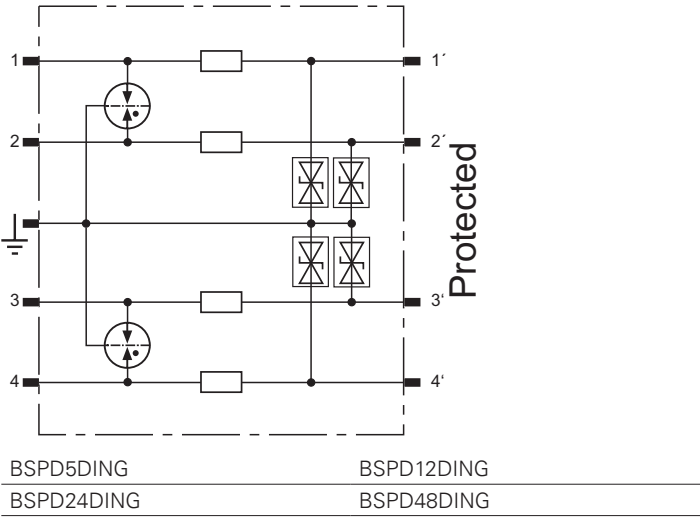
Note 2 - See Diagram 1 - VPL line-line graph line C2.

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

††ATEX, UL, CSA

‡ UL 497B

Circuit diagrams



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.

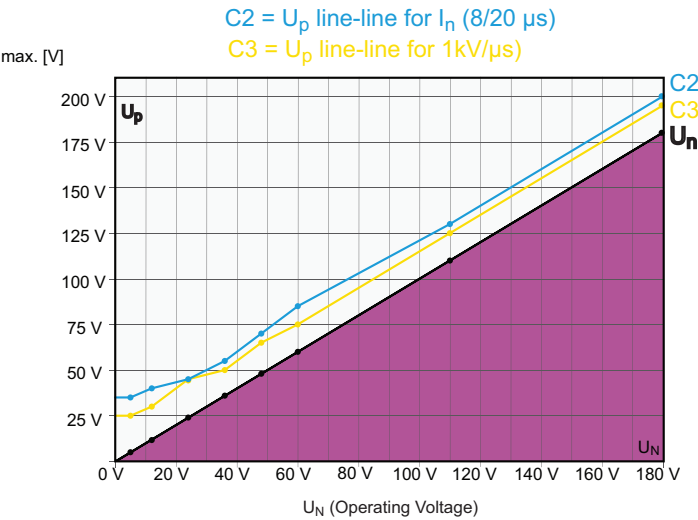


Diagram 1: Voltage Protection Level U_p (V) (Line - Line)

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 catalog number, and the applications to which they are suited to be used.

Catalog 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,					X		X
Long-distance bus							
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		X					
NTC & PTC Thermistors							
TTL		X					
TTY 4-20mA			X				
Telecommunication, telephony							
a/b Wires							X
ADSL, ADSL 2+							X
ISDN S0, S2m/U2m, UKO/UPO							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					

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