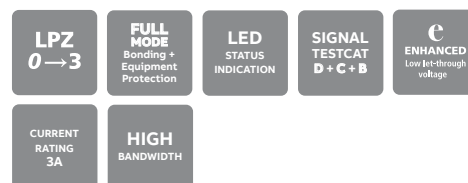


Lightning and surge protection

SPD/S1.1 OVR KNX Surge protection device (SPD)

Combined Category D, C, B tested SPD (to EN/IEC 61643) suitable for protecting KNX i-bus systems against transient overvoltages (surges). For use at boundaries up to Lightning Protection Zone LPZ 0 to protect against flashover (typically the service entrance location) through to LPZ 3 to protect sensitive electronic equipment connected on the KNX i-bus system.

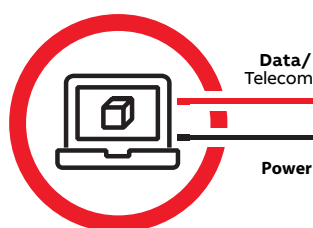


Features & benefits

- Surge protection between all KNX lines (line to line, line to earth) capable of handling partial lightning currents as well as allowing continual operation of protected equipment
- Superior surge protection performance for sensitive KNX line to line mode
- Repeated protection in lightning intense environments
- Simple in-line or series plug-in installation with convenient earth connection and DIN rail mounting
- Push button for protection health-check LED indication
- Strong, flame retardant housing
- Certified to latest IEC 61643:21 SPD and KNX 9.1FV standards

Application

- SPD/S1.1 (OVR KNX) SPDs are applied to KNX i-bus data lines for each KNX system within each distribution panel as shown in the application diagram. Additional power SPDs are also required - contact ABB.



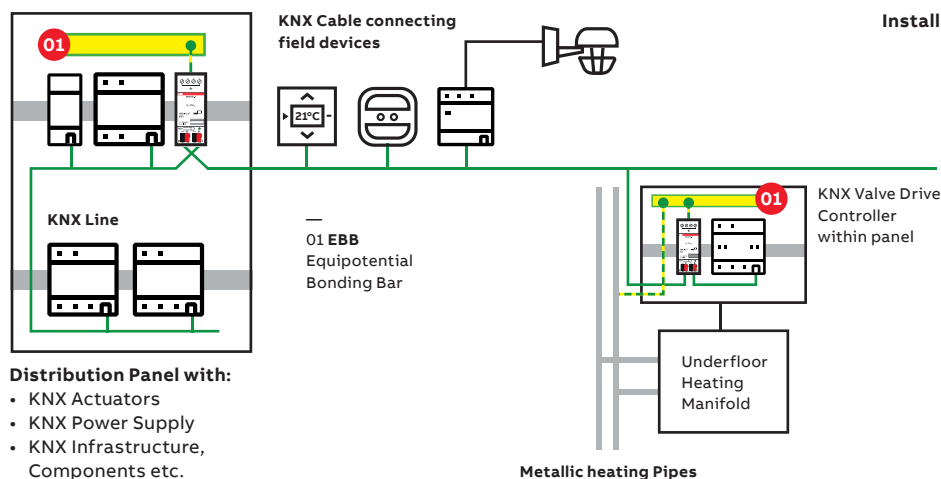
IMPORTANT: Full protection of electronic systems can only be achieved if all incoming/outgoing metallic services, including data, signal and telecoms lines are protected.

Installation

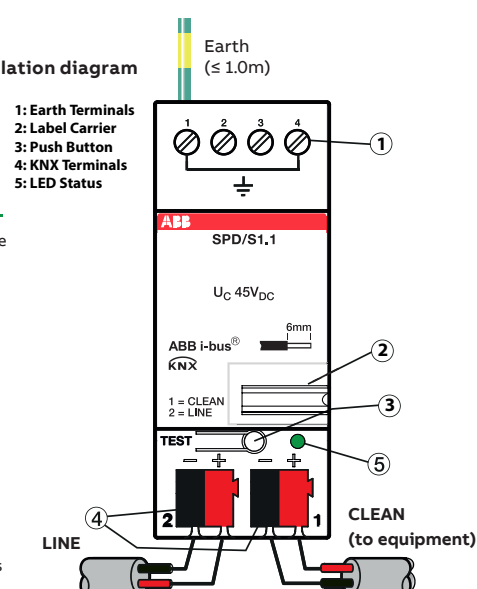
SPD/S1.1 (OVR KNX) SPD is a DIN rail mounted modular device for easy installation in distribution panels to protect KNX components also mounted on the DIN rail. Connect the KNX bus line via the bus connection to the 'LINE' terminal of the SPD close to the equipment being protected. Ensure the 'CLEAN' connection is made to protected equipment and make a short earth connection ($< 1.0\text{ m}$) to the local equipotential bonding bar EBB within the panel.

The SPDs health can be checked by simply pressing the 'TEST' button. Under normal 'healthy' conditions, whilst the switch is pressed then any bus activity (e.g. signals going high/low/high) will make the LED flash (on/off/on) in line with the bus activity. If there the switch is pressed and the LED is off, investigate the bus line for activity and check the SPD.

Application diagram



Installation diagram



Note: In accordance with the lightning protection zone concept (LPZ) of EN/IEC 62305, suitable power surge protection devices (SPDs) must also be provided to prevent overvoltage damage from power supply lines. Contact ABB for further advice.

SPD/S1.1 (OVR KNX) Surge Protective Device SPD - Technical specification

Electrical specification	SPD/S1.1 (OVR KNX)
ABB order code	7TCA085400R0448
Maximum working voltage U_c (A_{CRMS} / DC) ⁽¹⁾	32 V / 45 V
Current rating (signal) I_L @ 25 °C	3 A
Max. back-up fuse (gG - gL) / MCB	3 A
Impulse reset @ 24 V DC / 500 mA ⁽²⁾	< 150 ms
Insulation resistance @ 25 V DC ⁽²⁾	> 25 MΩ
Insertion loss/ Frequency bandwidth (-3 dB 150 Ω systems) ⁽²⁾	> 100 kHz
Status Indication - operation	Push button with LED
Transient specification	
Surge current	
Nominal discharge current I_n (8/20) - between signal lines (L-L)	2 kA
Maximum discharge current (8/20) - each signal line to earth (L-E)	10 kA
Total discharge current I_{total} (8/20) - total to earth (L+L to E)	20 kA
D1 test - impulse discharge current I_{imp} (10/350 μs) - each signal line to earth (L-E)	2.5 kA
D1 test - total impulse discharge current I_{total} (10/350 μs) - total to earth (L+L to E)	5 kA
Voltage protection level Up (all conductors - L-L/L-PE)⁽³⁾	
U_p @ I_n (L-L/L-PE)	<75 V / <650 V
U_p @ C3 test 1 kV μs, 100A 10/1000 μs ⁽²⁾ (L-L/L-PE)	<80 V / <580 V
U_p @ C2 test 4 kV 1.2/50 μs, 2 kA 8/20 μs ⁽²⁾ (L-L/L-PE)	<85 V / <650 V
U_p @ C1 test 1 kV, 1.2/50 μs, 0.5 kA 8/20 μs ⁽²⁾ (L-L/L-PE)	<85 V / <600 V
Mechanical specification	
Temperature range	-40 to +80 °C
Connection type (KNX bus connection terminals)	2-fold (red/black) - 0.8 mm², solid
Connection type - Earth (4 terminals)	Screw terminal
Conductor size - Earth (solid/stranded) ⁽⁴⁾	4 mm² / 2.5 mm²
Conductor tightening torque - Earth (maximum)	0.6 Nm
Conductor stripping length - Earth	8 mm
Enclosure - Ingress Protection IP (to EN / IEC 60529)	IP20
Enclosure housing (case material, colour / flammability rating)	Plastic, Grey / UL-94 V-0
Mounting (Modular installation device, Pro M)	35 mm DIN rail
Weight: – Unit	0.1 kg
– Packaged	0.15 kg
Dimensions See diagram below	

⁽¹⁾ Maximum working voltage (RMS/DC or AC peak) measured at < 1 mA leakage.

⁽²⁾ Tests to EN/IEC 61643-21.

⁽³⁾ Maximum voltage protection level Up (+10%) of the SPD throughout tests, L-L, L-PE.

⁽⁴⁾ Minimal conductor size 0.2 mm² (solid or stranded).

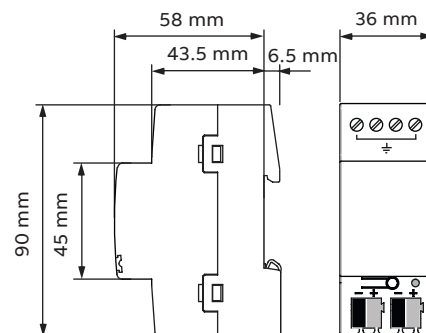


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