

SPDs for data / signalling / telecommunication networks

SPDs for Ethernet networks



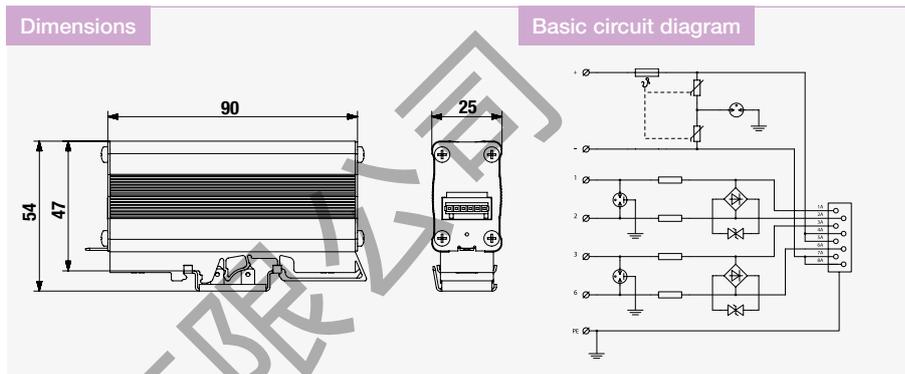
- SPDs for protection of Ethernet networks up to 10 Gbps bitrate
- Variants for lines combined with Power over Ethernet (PoE)

- Line DL-Cat.5e, DL-Cat.6 and DL-Cat.6A – surge arresters
- Line DL-1G a DL-10G – surge arresters
- Line DL-...-60V – for general structured cabling networks

DL-Cat.5e POE plus

SPDs for Ethernet networks, compact devices
screwless terminals / RJ45 connector

- LPZ 1 and higher for Fast Ethernet with PoE
- combination of coarse and fine protection of Ethernet line with PoE
- installation close to protected equipment
- for protection of WiFi equipment, IP cameras, etc., against surge voltage
- in the scope of delivery: universal plastic adapter for mounting on DIN rail and GND 2 holder



Parameter / Type		DL-Cat.5e POE plus
Location of SPD		ST 2+3
Maximum operating voltage		U_c 6 V AC / 8,5 V DC
Nominal load current		I_L 0,1 A
C2 nominal discharge current (8/20 μ s) per core		I_n 1,5 kA
line part	C2 voltage protection level mode core-core at I_n	U_p 180 V
	C2 voltage protection level mode core-PE at I_n	U_p 490 V
	C3 voltage protection level mode core-core at 1 kV/ μ s	U_p 60 V
	C3 voltage protection level mode core-PE at 1 kV/ μ s	U_p 560 V
	Response time core-core	t_a 1 ns
	Response time core-PE	t_a 100 ns
Insertion attenuation at 100 MHz		1,5 dB
Serial resistance per core		R 0,27 Ω
Nominal voltage		U_n 48 V DC
Maximum operating voltage		U_c 40 V AC / 76 V DC
Nominal load current		I_L 1 A
Maximum load current		48,9 W
C2 nominal discharge current (8/20 μ s) core-core		I_n 1 kA
power part	C2 voltage protection level mode (POE) at I_n	U_p 280 V
	C2 voltage protection level mode core-PE at I_n	U_p 780 V
	Response time core-core	t_a 25 ns
	Response time core-PE	t_a 100 ns
	Connection (input - output)	screwless terminals/RJ 45
	Degree of protection	IP 20
Range of operating temperatures (min/max)		-40 $^{\circ}$ C / 80 $^{\circ}$ C
Mounting		DIN rail 35 mm
According to standard		EN 61643-21+A1,A2:2013, IEC 61643-21+A1,A2:2012 / C2,C3
Ordering number		A03806

Data, signal and telecommunication networks

DL-Cat. ...

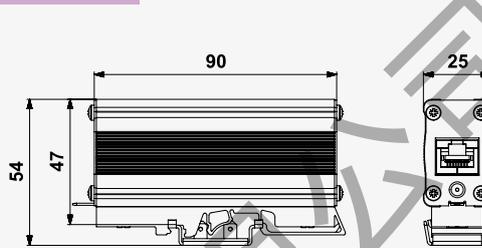
SPDs for Ethernet networks, compact devices

RJ45 connectors; LPZ 1 and higher

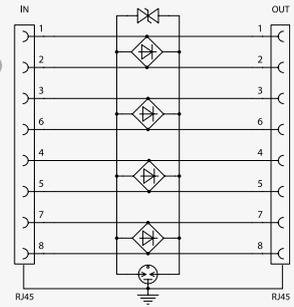
- fine surge protection of Ethernet line
- installation close to protected equipment
- for protection of Ethernet line Cat. 5e/6/6A against surge voltage
- in the scope of delivery: universal plastic adapter for mounting on DIN rail and GND 2 holder
- not suitable for networks with PoE



Dimensions



Basic circuit diagram



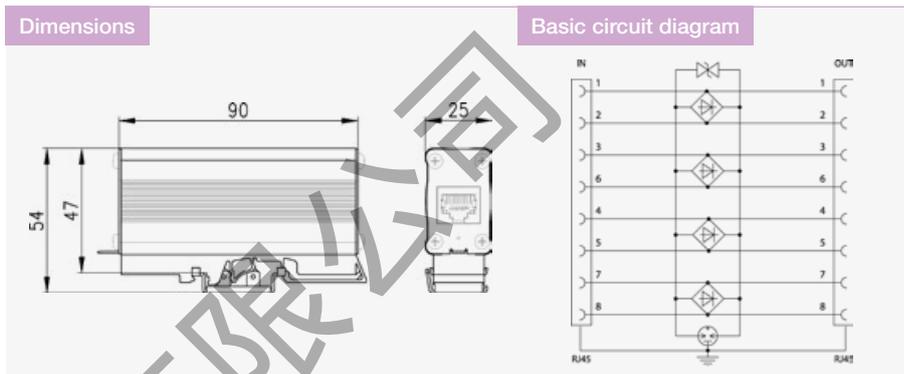
Parameter / Type	DL-Cat. 5e	DL-Cat. 6	DL-Cat. 6A
Location of SPD	ST2+3	ST2+3	ST2+3
Maximum operating voltage core-core (data)	U_c 6 V AC / 8,5 V DC	6 V AC / 8,5 V DC	6 V AC / 8,5 V DC
Maximum operating voltage pair-pair (PoE)	U_c 6 V AC / 8,5 V DC	6 V AC / 8,5 V DC	6 V AC / 8,5 V DC
Nominal load current at 25°C	I_n 0,5 A	0,5 A	0,5 A
C2 nominal discharge current (8/20 μ s) per core	I_n 0,2 kA	0,2 kA	0,2 kA
C2 total discharge current (8/20 μ s) cores-PE	I_{total} 1,6 kA	1,6 kA	1,6 kA
C2 voltage protection level mode core-core at I_n	U_p 40 V	40 V	55 V
C2 voltage protection level mode core-PE at I_n	U_p 350 V	350 V	400 V
C2 voltage protection level mode pair-pair (PoE) at I_n	U_p 40 V	40 V	55 V
C3 voltage protection level mode core-core at 1 kV/ μ s	U_p 65 V	65 V	30 V
C3 voltage protection level mode core-PE at 1 kV/ μ s	U_p 350 V	350 V	600 V
C3 voltage protection level mode pair-pair (PoE) at 1 kV/ μ s	U_p 65 V	65 V	30 V
Response time core-core	t_a 1 ns	1 ns	1 ns
Response time core-PE	t_a 100 ns	100 ns	100 ns
Maximum frequency	f_{max} 100 MHz	250 MHz	500 MHz
Insertion attenuation at f_{max}	0,9 dB	1,9 dB	2,9 dB
Connection (input / output)	RJ45 / RJ45	RJ45 / RJ45	RJ45 / RJ45
Degree of protection	IP 20	IP 20	IP 20
Mounting	DIN rail 35 mm	DIN rail 35 mm	DIN rail 35 mm
Range of operating temperatures (min / max)	-40 °C / 80 °C	-40 °C / 80 °C	-40 °C / 80 °C
According to standard	EN 61643-21+A1,A2 / C2, C3	EN 61643-21+A1,A2 / C2, C3	EN 61643-21+A1,A2 / C2, C3
According to IEEE 802.3 standard (PoE)	no	no	no
Ordering number	A03375	A03603	A06574

DL-Cat. 6-60V

SPDs for Ethernet networks, compact devices

RJ45 connectors; LPZ 1 and higher

- fine surge protection of Ethernet with PoE and structured cabling networks
- installation close to protected equipment
- for protection of Ethernet line Cat.6 against surge voltage
- for protection of ISDN lines
- in scope of delivery: universal plastic adapter for mounting on DIN rail and GND 2 holder



Parameter / Type	DL-Cat. 6 -60V
Location of SPD	ST 2+3
Maximum operating voltage core-core (data) U_c	60 V DC
Maximum operating voltage pair-pair (PoE) U_c	60 V DC
Nominal load current at 25 °C I_n	0,5 A
C2 nominal discharge current (8/20 μ s) per core I_n	0,2 kA
C2 total discharge current (8/20 μ s) cores-PE I_{total}	1,6 kA
C2 voltage protection level mode core-core at I_n U_p	130 V
C2 voltage protection level mode core-PE at I_n U_p	350 V
C2 voltage protection level mode pair-pair (PoE) at I_n U_p	130 V
C3 voltage protection level mode core-core at 1 kV/ μ s U_p	130 V
C3 voltage protection level mode core-PE at 1 kV/ μ s U_p	450 V
C3 voltage protection level mode pair-pair (PoE) at 1 kV/ μ s U_p	130 V
Response time core-core t_a	1 ns
Response time core-PE t_a	100 ns
Maximum frequency f_{max}	250 MHz
Insertion attenuation at f_{max}	2 dB
Connection (input / output)	RJ45 / RJ45
Degree of protection	IP 20
Mounting	DIN rail 35 mm
Range of operating temperatures (min / max)	-40 °C / 80 °C
According to standard	EN 61643-21+A1,A2 / C2, C3
According to IEEE 802.3 standard (PoE)	af/at/bt
Ordering number	A03808

Data, signal and telecommunication networks

DL-..G-RJ45-PoE-AB

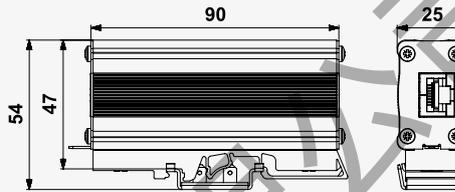
SPDs for Ethernet networks, compact devices

RJ45 connectors, LPZ 0 and higher

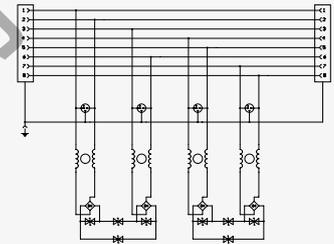
- combination of coarse and fine protection of Ethernet line with PoE
- installation at the entry of the line into building and close to protected equipment, at the boundary of LPZ 0 and LPZ 1 or higher
- for protection of Ethernet line with PoE (Power over Ethernet) against surge voltage
- in the scope of delivery: universal plastic adapter for mounting on DIN rail and GND 2 holder
- suitable for all PoE types – PoE/PoE+/PoE++ (IEEE 802.3 af/at/bt)



Dimensions



Basic circuit diagram



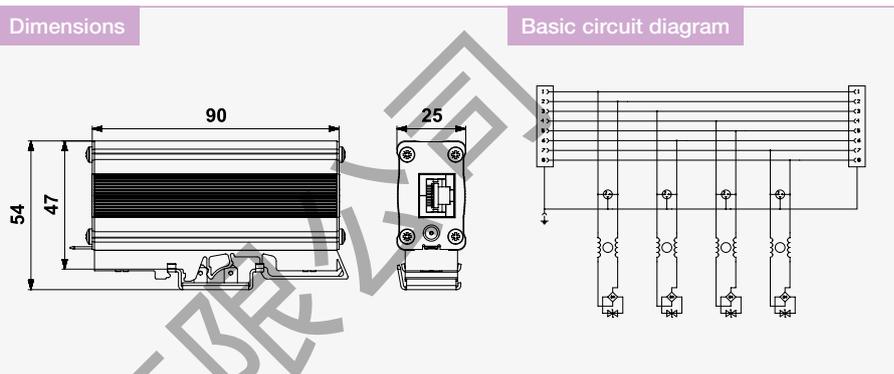
Parameter / Type		DL-1G-RJ45-PoE-AB	DL-10G-RJ45-PoE-AB
Location of SPD		ST 1+2+3	ST 1+2+3
Maximum operating voltage core-core (data)	U_c	8,5 V DC	8,5 V DC
Maximum operating voltage pair-pair (PoE)	U_c	58 V DC	58 V DC
Nominal load current at 25°C	I_n	0,5 A	0,5 A
C2 nominal discharge current (8/20 μ s) per core	I_n	0,15 kA	0,15 kA
C2 total discharge current (8/20 μ s) cores-PE	I_{total}	10 kA	10 kA
C2 voltage protection level mode core-core at I_n	U_p	60 V	60 V
C2 voltage protection level mode core-PE at $I_n = 1,25$ kA	U_p	700 V	700 V
C2 voltage protection level mode pair-pair (PoE) at $I_n = 1,25$ kA	U_p	90 V	90 V
C3 voltage protection level mode core-core at 1 kV/ μ s	U_p	22 V	22 V
C3 voltage protection level mode core-PE at 1 kV/ μ s	U_p	500 V	500 V
C3 voltage protection level mode pair-pair (PoE) at 1 kV/ μ s	U_p	80 V	80 V
D1 total discharge current (10/350 μ s) cores-PE	I_{total}	2 kA	2 kA
Response time core-core	t_a	1ns	1ns
Response time core-PE	t_a	100 ns	100 ns
Maximum frequency	f_{max}	250 MHz	500 MHz
Insertion attenuation at f_{max}		1,2 dB	1,8 dB
Connection (input / output)		RJ45 / RJ45	RJ45 / RJ45
Degree of protection		IP 20	IP 20
Mounting		DIN rail 35 mm	DIN rail 35 mm
Range of operating temperatures (min / max)		-40 °C / 80 °C	-40 °C / 80 °C
According to standard		EN 61643-21+A1,A2 / D1, C2, C3	EN 61643-21+A1,A2 / D1, C2, C3
According to IEEE 802.3 standard (PoE)		af/at/bt	af/at/bt
Ordering number		A06148	A06149

DL-.G-RJ45-60V

SPDs for Ethernet networks, compact devices

RJ45 connectors; LPZ 0 and higher; for general structured cabling

- lightning current arrester with coarse and fine protection of Ethernet and general structured cabling networks
- installation at the boundary of LPZ 0 and LPZ 1 zones or higher, at the line entry into building and also installation close to protected device
- for protection of Ethernet, KNX, DMX, RS-485, IP telephony,... interfaces of twisted pair cabling
- in the scope of delivery: universal plastic adapter for mounting on DIN rail and GND 2 holder

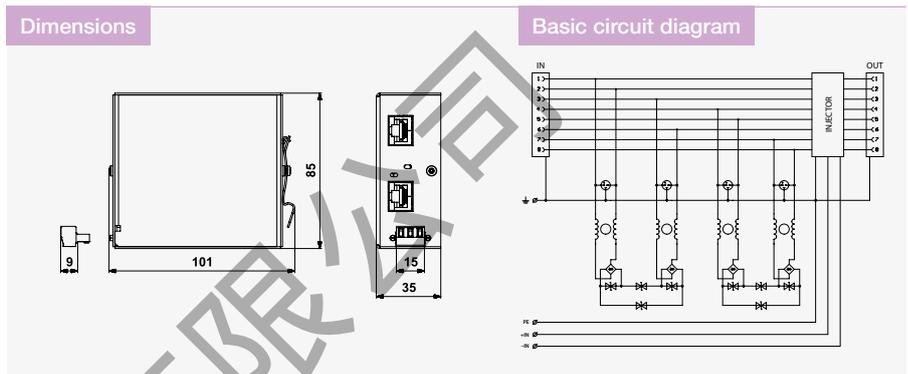


Parameter / Type	DL-1G-RJ45-60V	DL-10G-RJ45-60V
Location of SPD	ST 1+2+3	ST 1+2+3
Maximum operating voltage core-core (data) U_c	60 V DC	60 V DC
Maximum operating voltage pair-pair (PoE) U_c	60 V DC	60 V DC
Nominal load current at 25°C I_n	0,5 A	0,5 A
C2 nominal discharge current (8/20 µs) per core I_n	0,15 kA	0,15 kA
C2 total discharge current (8/20 µs) cores-PE I_{total}	10 kA	10 kA
C2 voltage protection level mode core-core at I_n U_p	100 V	100 V
C2 voltage protection level mode core-PE at $I_n = 1,25$ kA U_p	700 V	700 V
C2 voltage protection level mode pair-pair (PoE) at $I_n = 1,25$ kA U_p	1,2 kV	1,2 kV
C3 voltage protection level mode core-core at 1 kV/µs U_p	22 V	22 V
C3 voltage protection level mode core-PE at 1 kV/µs U_p	500 V	500 V
C3 voltage protection level mode pair-pair (PoE) at 1 kV/µs U_p	950 V	950 V
D1 total discharge current (10/350 µs) cores-PE I_{total}	2 kA	2 kA
Response time core-core t_a	1 ns	1 ns
Response time core-PE t_a	100 ns	100 ns
Maximum frequency f_{max}	250 MHz	500 MHz
Insertion attenuation at f_{max}	1,5 dB	2,5 dB
Connection (input / output)	RJ45 / RJ45	RJ45 / RJ45
Degree of protection	IP 20	IP 20
Mounting	DIN rail 35 mm	DIN rail 35 mm
Range of operating temperatures (min / max)	-40 °C / 80 °C	-40 °C / 80 °C
According to standard	EN 61643-21+A1,A2 / D1, C2, C3	EN 61643-21+A1,A2 / D1, C2, C3
According to IEEE 802.3 standard (PoE)	af/at/bt	af/at/bt
Ordering number	A06220	A06221

DL-1G-POE-INJECTOR

SPDs for Ethernet networks, compact devices
passive midspan PoE injector with integrated SPD

- two-stage surge protection device for Ethernet and PoE protection with integrated PoE/PoE+ injector
- installed at the boundary of LPZ 0 and LPZ 1 zones or near the equipment to be protected
- to protect Ethernet Cat. 6 lines with PoE (Power over Ethernet), operating in A and B modes



Parameter / Type	DL-1G-POE-INJECTOR	
Location of SPD		ST 1+2+3
Maximum operating voltage core-core (data)	U_c	8,5 V DC
Maximum operating voltage pair-pair (PoE)	U_c	58 V DC
Nominal load current at 25°C	I_n	0,5 A
C2 nominal discharge current (8/20 μ s) per core	I_n	0,15 kA
C2 total discharge current (8/20 μ s) cores-PE	I_{total}	10 kA
C2 voltage protection level mode core-core at I_n	U_p	70 V
C2 voltage protection level mode core-PE at $I_n = 1,25$ kA	U_p	700 V
C2 voltage protection level mode pair-pair (PoE) at $I_n = 1,25$ kA	U_p	90 V
C3 voltage protection level mode core-core at 1 kV/ μ s	U_p	80 V
C3 voltage protection level mode core-PE at 1 kV/ μ s	U_p	500 V
C3 voltage protection level mode pair-pair (PoE) at 1 kV/ μ s	U_p	80 V
D1 total discharge current (10/350 μ s) cores-PE	I_{total}	2 kA
Response time core-core	t_a	1 ns
Response time core-PE	t_a	100 ns
Maximum frequency	f_{max}	250 MHz
Insertion attenuation at f_{max}		1,2 dB
Connection (input / output)		RJ45 / RJ45
Degree of protection		IP 20
Mounting		DIN rail 35 mm
Range of operating temperatures (min / max)		-40 °C / 80 °C
According to standard		EN 61643-21+A1,A2 / D1, C2, C3
According to IEEE 802.3 standard (PoE)		af/at
Ordering number		A06620

Data, signal and telecommunication networks