SPD with Single Protection Mode **RayDat SCL-1 Series** C1-C3

IM-VF Series



IEC/EN Category: C1/C3
Mode of Protection: Transverse
Fine Protection: MOV
Voltages: 12, 24 V DC

Frequency Range: 0.5 MHz Surge Discharge Ratings: I_n: 500 A Series Load Current: 10 A

Enclosure: DIN 43880 1/3TE, DIN Rail Mount

Terminals: Stranded to 4 mm² Housing: Compact Design Compliance: IEC/EN 61643-21

The RayDat SCL-1 Series has been developed to protect data transmission circuits or low voltage alarm circuits such as fire or security.

The unit provides fine protection using a MOV.

Where necessary, the SCL-1 may be used with a higher energy coarse protection unit such as the SUR-2 110 Series.

Technical Data

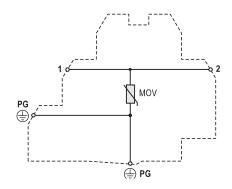
Electrical Lines Protected 1 Conductor Nominal Operating Voltage (DC) Un 12V 24V Maximum Continuous Operating Voltage (DC) Uc 22V 38V Rated Load Current at 25°C IL 10A 10A C1 Nominal Discharge Current (8/20 μs) In 500 A 500 A Residual Voltage at In (8/20 μs) Ures <48V	SCL-1 Series		12V	24V	
Lines Protected 1 Conductor Nominal Operating Voltage (DC) Un 12V 24V Maximum Continuous Operating Voltage (DC) Uc 22V 38V Rated Load Current at 25°C IL 10A C1 Nominal Discharge Current (8/20µs) In 500A Residual Voltage at In (8/20µs) Unes <48V			127	24 V	
Nominal Operating Voltage (DC) Un 12V 24V Maximum Continuous Operating Voltage (DC) Uc 22V 38V Rated Load Current at 25°C IL 10A C1 Nominal Discharge Current (8/20 μs) In 500 A Residual Voltage at In (8/20 μs) Ures <48V					
Maximum Continuous Operating Voltage (DC) U _c 22V 38V Rated Load Current at 25°C I _L 10 A C1 Nominal Discharge Current (8/20 μs) I _n 500 A Residual Voltage at I _n (8/20 μs) U _{res} <48V	Lines Protected	1 Conductor			
Rated Load Current at 25°C IL 10 A C1 Nominal Discharge Current (8/20μs) In 500 A Residual Voltage at In (8/20μs) Ures <48 V	Nominal Operating Voltage (DC)	Un	12V	24V	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Maximum Continuous Operating Voltage (DC)	U _c	22V	38V	
Residual Voltage at I _n (8/20 μs) U _{res} <48V <87V Rated Spark Overvoltage 24-30V 42-52V Response Time Overvoltage Protection t_A <25 ns	Rated Load Current at 25°C	Ι _L	10)A	
Rated Spark Overvoltage 24-30V 42-52 V Response Time Overvoltage Protection t_A <25 ns	C1 Nominal Discharge Current (8/20 µs)	l _n	500 A		
Response Time Overvoltage Protection t_A <25 ns Insulation Resistance of the Protection R_{iso} ≥ 1.5 MΩ ≥ 3.0 MΩ Serial Resistance per Path R <0.1 Ω	Residual Voltage at I _n (8/20 µs)	U _{res}	<48V	<87V	
$\begin{array}{ l c c c }\hline \text{Insulation Resistance of the Protection} & R_{\text{iso}} & \geq 1.5\text{M}\Omega & \geq 3.0\text{M}\Omega \\ \hline \text{Serial Resistance per Path} & R & <0.1\Omega \\ \hline \text{Transverse Capacitance} & C & <10\text{nF} & <6.0\text{nF} \\ \hline \text{Cut-off Frequency} & f_{\text{g}} & 0.5\text{MHz} \\ \hline \hline \text{Mechanical} & & & & & & & & & & & & & & & & & & &$	Rated Spark Overvoltage		24-30 V	42-52V	
Serial Resistance per Path R <0.1 Ω Transverse Capacitance C <10 nF	Response Time Overvoltage Protection	t _A	<25 ns		
Transverse Capacitance C < <10 nF <6.0 nF Cut-off Frequency f _G 0.5 MHz Mechanical Temperature Range -40 °C to +80 °C Terminal Cross Section Stranded to 4 mm² Terminal Screw Torque 0.5 Nm Degree of Protection IEC/EN 60529 IP 20 Housing Material Thermoplastic; Beige; Extinguishing Degree V-0 Mounting IEC/EN 60715 35 mm DIN Rail Order Information Order Code 12V 24V	Insulation Resistance of the Protection	R _{iso}	≥ 1.5MΩ	≥ 3.0 MΩ	
Cut-off Frequency f _G 0.5 MHz Mechanical Temperature Range -40 °C to +80 °C Terminal Cross Section Stranded to 4 mm² Terminal Screw Torque 0.5 Nm Degree of Protection IEC/EN 60529 IP 20 Housing Material Thermoplastic; Beige; Extinguishing Degree V-0 Mounting IEC/EN 60715 35 mm DIN Rail Order Information 12V 24V	Serial Resistance per Path	R	<0.	1Ω	
Mechanical Temperature Range -40 °C to +80 °C Terminal Cross Section Stranded to 4 mm² Terminal Screw Torque 0.5 Nm Degree of Protection IEC/EN 60529 IP 20 Housing Material Thermoplastic; Beige; Extinguishing Degree V-0 Mounting IEC/EN 60715 35 mm DIN Rail Order Information Order Code 12V 24V	Transverse Capacitance	С	<10nF	<6.0 nF	
Temperature Range -40 °C to +80 °C Terminal Cross Section Stranded to 4 mm² Terminal Screw Torque 0.5 Nm Degree of Protection IEC/EN 60529 IP 20 Housing Material Thermoplastic; Beige; Extinguishing Degree V-0 Mounting IEC/EN 60715 35 mm DIN Rail Order Information 12V 24V	Cut-off Frequency	f _G	0.51	MHz	
Terminal Cross Section Stranded to 4 mm² Terminal Screw Torque 0.5 Nm Degree of Protection IEC/EN 60529 Housing Material Thermoplastic; Beige; Extinguishing Degree V-0 Mounting IEC/EN 60715 35 mm DIN Rail Order Information Order Code 12V 24V	Mechanical				
Terminal Screw Torque 0.5 Nm Degree of Protection IEC/EN 60529 IP20 Housing Material Thermoplastic; Beige; Extinguishing Degree V-0 Mounting IEC/EN 60715 35 mm DIN Rail Order Information Order Code 12V 24V	Temperature Range		-40 °C to	o +80 °C	
Degree of Protection IEC/EN 60529 Housing Material Mounting IEC/EN 60715 Order Information Order Code IP 20 Thermoplastic; Beige; Extinguishing Degree V-0 35 mm DIN Rail Order Code 12V 24V	Terminal Cross Section		Stranded to 4 mm ²		
Housing Material Mounting IEC/EN 60715 Order Information Order Code Thermoplastic; Beige; Extinguishing Degree V-0 35 mm DIN Rail 12V 24V	Terminal Screw Torque		0.5 Nm		
Mounting IEC/EN 60715 35 mm DIN Rail Order Information 12V 24V	Degree of Protection IEC/EN 60529		IP20		
Order Information Order Code 12V 24V	Housing Material		Thermoplastic; Beige; Extinguishing Degree V-0		
Order Code 12V 24V	Mounting IEC/EN 60715		35 mm DIN Rail		
	Order Information				
SCL-1-xx 704 552 704 553	Order Code		12V	24V	
	SCL-1-xx		704 552	704 553	

RayDat SCL-1 Series

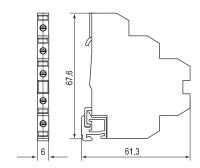
Internal Configuration

Legend

MOV Metal Oxide Varistor
PG Protective Grounding



Dimensions & Packaging



SCL-1 Series	12V	24V			
Dimensions					
Weight per Unit	28 g				
Dimensions DIN 43880	1/3 TE				
Packaging Dimensions (Single Unit)	90 × 150 × 8 mm				
Minimum Package Quantity	40 pieces				

SPD with Single Protection Mode RayDat SCL-2 Series C1 • C2 • C3

IM-DF Series



IEC/EN Category: C1/C2/C3 (see Technical Data)

Mode of Protection: Transverse

Fine Protection: Bi-directional TVS Diode Voltages: 5, 12, 24, 60 V DC Frequency Range: Up to 1.4 MHz

Surge Discharge Ratings: In: up to 500 A Series Load Current: 10A

Enclosure: DIN 43880 1/3TE, DIN Rail Mount

Terminals: Stranded to 4 mm² Housing: Compact Design Compliance: IEC/EN 61643-21

The RayDat SCL-2 Series has been developed to protect data transmission circuits or low voltage alarm circuits such as fire or

They only provide fine protection using a high speed, bi-directional, silicon stage.

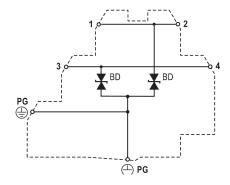
Where necessary, the SCL-2 may be used with a higher energy coarse protection unit such as the SUR-2-110 series.

Technical Data

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SCL-2 Series			5V	12V	24V	60V	
Electrical							
Type per IEC/EN 61643-21			C1/C2/C3	C1/C3	C1/C3	C3	
Lines Protected				1 (2 Conductors)			
Nominal Operating Voltage (DC)		Un	5 V	15V	24V	60 V	
Maximum Continuous Operating Voltage (DC)		U _c	6V	15V	28V	64V	
Rated Load Current at 25°C		IL.		10 A			
Nominal Discharge Current (8/20 µ	s)	I _n	500 A	500 A	250 A	100 A	
Residual Voltage at I _{nv} (8/20 µs)		U _{res}	<20V	<39V	<65V	<150V	
Rated Spark Overvoltage ((Line-Ground))	8-10V	15-19V	30-36V	67-85V	
	(Line-Line))	16-20 V	30-38V	60-72V	134-170V	
Response Time Overvoltage Prote	Response Time Overvoltage Protection t _A			<1 ns			
Insulation Resistance of the Protection		R _{iso}	≥ 6 KΩ	≥ 15MΩ	≥ 28 MΩ	≥ 64 MΩ	
Serial Resistance per Path R		R		<0.1Ω			
Transverse Capacitance		С	<7.0 nF	<3.0 nF	<1.0 nF	<0.5 nF	
Cut-off Frequency		f_G	0.6 MHz	0.9 MHz	1.4 MHz	3 MHz	
Mechanical							
Temperature Range			-40 °C to +80 °C				
Terminal Cross Section Multi-strand			4 mm ²				
Terminal Screw Torque				0.5 Nm			
Degree of Protection IEC/EN 60529		IP20					
Housing Material Thermoplastic; Beige; Extinguishing Degree V-0							
Mounting IEC/EN 60715			35 mm DIN Rail				
Order Information							
Order Code			5V	12V	24V	60V	
SCL-2-xx			7045.16	7045.17	7045.18	7045.19	

RayDat SCL-2 Series

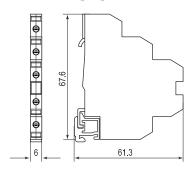
Internal Configuration



Legend

BD Bi-directional TVS Diode
PG Protective Grounding

Dimensions & Packaging



SCL-2 Series	5V	12V	24V	60V	
Dimensions					
Weight per Unit	26 g				
Dimensions DIN 43880	1/3 TE				
Packaging Dimensions (Single Unit)	90 × 150 × 8 mm				
Minimum Package Quantity	40 pieces				