

SPD for Data Protocols
RayDat RS 485
D1 • C1 • C2 • C3

VM-RS 485



IEC/EN Category: D1/C1/C2/C3
 Protection: Longitudinal, Transverse
 Coarse Protection: 2×2, 2×3 terminal GDT
 Voltages: 5VDC
 Maximum Operating Voltage: 6VDC
 Serial Resistance per Path: 1.7–1.90Ω per line
 Frequency Range: 1MHz
 Surge Discharge Ratings: I_n : 20kA, I_{imp} : 2.5kA
 Enclosure: DIN 43880 2TE, DIN Rail Mount
 Terminals: Stranded 2×2.5mm²
 Housing: 16 Terminal, Compact Design
 Compliance: IEC/EN 61643-21

The RayDat RS 485 has been developed to protect 2 pair data transmission circuits using the RS 485, RS 422 and V.11 protocol.

The circuit consists of two balanced pairs with equipotential equalization between them. Equipotential equalization is also provided between signal ground and protective ground to avoid equipment damage from ground potential rises during surge activity.

Coarse protection is provided by a three terminal gas discharge tube while fine protection is provided using a high speed silicon stage, which provides both common (longitudinal) mode protection from each line to protective ground and differential (transverse) mode protection between each pair.

Care is taken to ensure coordination between these two stages without voltage or surge current blind spots occurring.

Thermal protection is provided to reduce the hazards of thermal runaway should there be an inadvertent mains incursion fault.

Technical Data

RS 485

Electrical

Number of Protected Pairs		2(4 Conductors)
Nominal Operating Voltage (DC)	U_n	5V
Maximum Continuous Operating Voltage (DC)	U_c	6V
Rated Load Current at 25°C	I_L	500mA
C2 Nominal Discharge Current (8/20μs) (Line-Line)	I_n	20kA
D1 Impulse Current (10/350μs)	I_{imp}	2.5kA
Residual Voltage at 5kA (8/20μs) (Line-Line)	U_{res}	20V
Rated Spark Overvoltage	(5, 6, 7 & 8-4, SG)	6.5V–8.5V
	(5-6 & 7-8)	6.5V–8.5V
	(5,6,7 & 8-2, PG)	78V–116V
Response Time Overvoltage Protection (5,6,7,8,SG)	t_A	< 1 ns
Thermal Protection (5,6,7,8)		Yes
Insulation Resistance of Protection	R_{iso}	6 kΩ
Serial Resistance per Path	R	1.7–1.9Ω
Transverse Capacitance	C	<2nF
Cut-off Frequency	f_G	> 1 MHz

Mechanical

Temperature Range		-40 °C to +80 °C
Terminal Cross Section Multi-strand		2×2.5mm ²
Terminal Screw Torque		2.0Nm
Degree of Protection IEC/EN 60529		IP 20
Housing Material		Thermoplastic; Grey; Extinguishing Degree V-0
Mounting IEC/EN 60715		35mm DIN Rail

Order Information

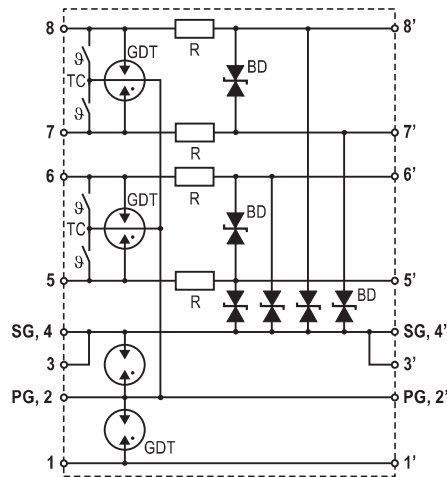
Order Code		
RS 485		703 812

RayDat RS 485

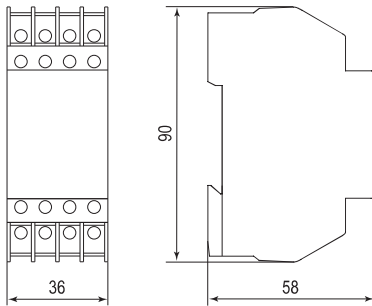
Internal Configuration

Legend

- BD Bi-directional TVS Diode
- GDT Gas Discharge Tube
- PG Protective Grounding
- R Resistor
- SG Signal Grounding
- TC Thermo-clip



Dimensions & Packaging



RS 485

Dimensions

Weight per Unit	114 g
Dimensions DIN 43880	2TE
Packaging Dimensions (Single Unit)	39 × 74 × 106 mm
Minimum Package Quantity	6 pieces