

Modular SPD for Two Pair
RayDat SPH-4 Series
D1 • C1 • C2 • C3



IEC/EN Category: D1/C1/C2/C3
 Mode of Protection: Longitudinal, Transverse
 Coarse Protection: 3 Terminal GDT
 Voltages: 30V DC
 Frequency Range: 30MHz
 Surge Discharge Ratings: I_n : 10kA, I_{max} : 20kA, I_{imp} : 5kA
 Series Load Current: 1A
 Enclosure: DIN 43880 2/3TE, DIN Rail Mount
 Terminals: Stranded to 4 mm²
 Housing: Modular Design
 Compliance: IEC/EN 61643-21

The RayDAT SPH-4 Series of surge protective devices has been developed to protect two pair loops, which could be ungrounded onto data, signal and communication circuits.

It is intended for those applications where high ground potential rises may frequently occur, such as in locations close to electric railways.

The circuit topology consists of a multi-stage protector providing both common (longitudinal) mode and differential (transverse) mode protection.

Coarse protection is provided by a three terminal gas discharge

tube while fine protection is provided using a high speed silicon avalanche diode or metal oxide varistor stage. 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. Both common (longitudinal) mode and differential (transverse) mode protection is provided.

If the module is unplugged out of the base, the connection lines remain enabled.

Technical Data

SPH-4 Series

30V

Electrical

Lines Protected		2 (4 Conductors)
Nominal Operating Voltage (DC)	U_n	30V
Maximum Continuous Operating Voltage (DC)	U_c	33V
Rated Load Current at 25°C	I_L	1A
C2 Nominal Discharge Current (8/20µs)	I_n	10kA
Maximum Discharge Current (8/20µs)	I_{max}	20kA
D1 Impulse Current (10/350µs)	I_{imp}	5kA
Residual Voltage at 5kA (8/20µs)	(Line-Line) U_{res}	<80V
Rated Spark Overvoltage	(Line-Ground)	184-276V
	(Line-Line)	35-44V
Response Time Overvoltage Protection	(Line-Line) t_A	< 1 ns
	(Line-Ground)	< 100 ns
Insulation Resistance of the Protection	(Line-Ground) R_{iso}	> 1 GΩ/100V
	(Line-Line)	≥ 33 MΩ
Serial Resistance per Path	R	1.6-2.0Ω
Transverse Capacitance	(Line-Line) C	50 pF
	(Line-Ground)	5 pF
Cut-off Frequency	f_G	30MHz

Mechanical

Temperature Range	-40 °C to +80 °C
Terminal Cross Section Multi-strand	4 mm ² , 2.5 mm ² Q Version
Terminal Screw Torque	0.5Nm
Degree of Protection IEC/EN 60529	IP 20
Housing Material	Thermoplastic; Grey; Extinguishing Degree V-0
Mounting IEC/EN 60715	35 mm DIN Rail

Order Information

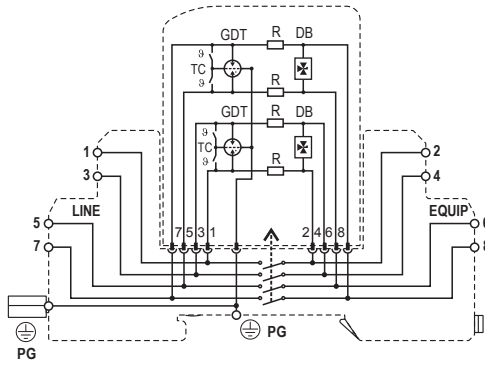
Order Code	30V
SPH-4-xx	7082.82
SPH-4-xxQ (Quick Connect Terminals)	7085.24
SPH-4-xxM (module)	7082.83

RayDat SPH-4 Series

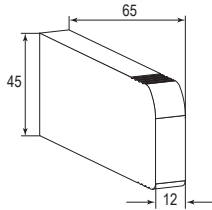
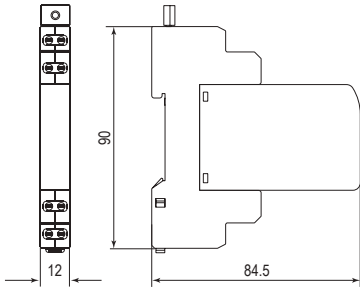
Internal Configuration

Legend

- DB Diode Block
- GDT Gas Discharge Tube
- PG Protective Grounding
- R Resistor
- TC Thermo-clip



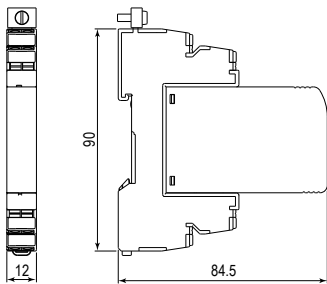
Dimensions & Packaging



SPH-4 Series	30V
Dimensions	
Weight per Unit	60g
Dimensions DIN 43880	2/3 TE
Packaging Dimensions (Single Unit)	87 x 15 x 102 mm
Minimum Package Quantity	15 pieces

SPH-4-xxM Series	30V
Dimensions	
Weight per Unit	26g
Packaging Dimensions (Single Unit)	87 x 15 x 102 mm
Minimum Package Quantity	15 pieces

Quick Connect Terminals



SPH-4-xxQ Series	30V
Dimensions	
Weight per Unit	62g
Dimensions DIN 43880	2/3 TE
Packaging Dimensions (Single Unit)	87 x 15 x 102 mm
Minimum Package Quantity	15 pieces



Bases with Quick Connect Terminals enable faster installation and have built-in contacts to enhance vibration resistance.