

DATA SHEET

SPD with Separated Signal Ground (RS 232)

RayDat SGH-3 Series

D1 • C1 • C2 • C3



IEC/EN Category: D1/C1/C2/C3
 Mode of Protection: Longitudinal, Transverse
 Coarse Protection: 3 Terminal GDT
 Voltages: 5, 12, 15, 24, 30, 48, 60, 110V DC
 Frequency Range: 30 MHz
 Surge Discharge Ratings: I_n : 10 kA, I_{max} : 20 kA, I_{imp} : 2.5 kA
 Series Load Current: 1 A
 Enclosure: DIN 43880 2/3TE, DIN Rail Mount
 Terminals: Stranded to 4 mm²
 Housing: Modular Design
 Compliance: IEC/EN 61643-21

The RayDAT SGH-3 Series of surge protective devices has been developed to protect against the effects of induced voltages 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

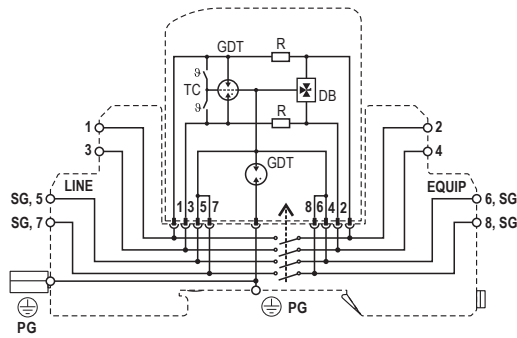
SGH-3 Series		5	12	15	24	30	48	60	110
Electrical									
Lines Protected		1 (2 Conductors)							
Nominal Operating Voltage (DC)	U_n	5V	12V	15V	24V	30V	48V	60V	110V
Maximum Continuous Operating Voltage (DC)	U_c	6V	15V	18V	28V	33V	52V	64V	170V
Rated Load Current at 25°C	I_L	1 A							
C2 Nominal Discharge Current (8/20µs)	I_n	10 kA							
Maximum Discharge Current (8/20µs)	I_{max}	20 kA							
D1 Impulse Current (10/350µs)	I_{imp}	2.5 kA							
Residual Voltage at 5kA (8/20µs)	(Line-Line) U_{res}	<22V	<42V	<48V	<70V	<80V	<140V	<160V	<450V
Rated Spark Overvoltage	(SG-Ground)	184-276V							
	(Line-Line), (Line-SG)	7-10V	16-19V	20-24V	30-36V	35-43V	55-68V	67-85V	184-264V
Response Time Overvoltage Protection	(Line-Line) t_A	< 1 ns							
	(Line-Ground)	< 100 ns							
Insulation Resistance of the Protection	(Line-Line) R_{iso}	> 1 GΩ/100V							
	(Line-Ground)	≥ 6 KΩ	≥ 15 MΩ	≥ 18 MΩ	≥ 28 MΩ	≥ 33 MΩ	≥ 52 MΩ	≥ 64 MΩ	≥ 170 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	30 MHz							
Mechanical									
Temperature Range		-40 °F to +176 °F [-40 °C to +80 °C]							
Terminal Cross Section Multi-strand (max.)		12 AWG [4 mm ² , 2.5 mm ² Q Version]							
Terminal Screw Torque		4.5 lbf-in [0.5 Nm]							
Degree of Protection IEC/EN 60529		IP 20 (built-in)							
Housing Material		Thermoplastic; Grey; Extinguishing Degree V-0							
Mounting IEC/EN 60715		35 mm DIN Rail							
Order Information									
Order Code		5	12	15	24	30	48	60	110
SGH-3-xxx		7086.61	7086.62	7086.63	7086.64	7086.65	7086.66	7086.67	7086.68
SGH-3-xxxM (module)		7086.69	7086.70	7086.71	7086.72	7086.73	7086.74	7086.75	7086.76

RayDat SGH-3 Series

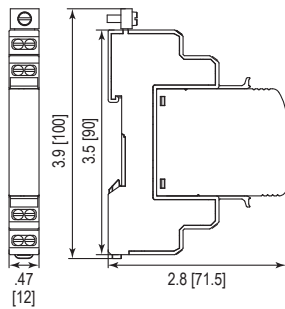
Internal Configuration

Legend

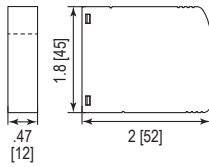
- DB Diode Block
- GDT Gas Discharge Tube
- R Resistor
- PG Protective Grounding
- SG Signal Grounding
- TC Thermo-clip



Dimensions & Packaging



SGH-3 Series	5	12	15	24	30	48	60	110
Dimensions								
Weight per Unit	2.11 oz [60g]							
Dimensions DIN 43880	2/3 TE							
Packaging Dimensions (Single Unit)	3.4 x .59 x 4" [87 x 15 x 102 mm]							
Minimum Package Quantity	15 pieces							



SGH-3-xxxM Series	5	12	15	24	30	48	60	110
Dimensions								
Weight per Unit	.91 oz [26g]							
Packaging Dimensions (Single Unit)	3.4 x .59 x 4" [87 x 15 x 102 mm]							
Minimum Package Quantity	15 pieces							

inches
[mm]

Information contained in this document is subject to change at any time without notice.

