

# SPD with Separated Signal Ground (RS 232)

## RayDat SGH-3 Series

D1 • C1 • C2 • C3

SMH-SG Series



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: 30MHz  
 Surge Discharge Ratings:  $I_n$ : 10kA,  $I_{max}$ : 20kA,  $I_{imp}$ : 2.5kA  
 Series Load Current: 1A  
 Enclosure: DIN 43880 2/3TE, DIN Rail Mount  
 Terminals: Stranded to 4 mm<sup>2</sup>  
 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		5V	12V	15V	24V	30V	48V	60V	110V
<b>Electrical</b>									
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)	$I_n$	10kA							
Maximum Discharge Current (8/20µs)	$I_{max}$	20kA							
D1 Impulse Current (10/350µs)	$I_{imp}$	2.5kA							
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)	<100ns							
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							
<b>Mechanical</b>									
Temperature Range		-40 °C to +80 °C							
Terminal Cross Section Multi-strand		4mm <sup>2</sup>							
Terminal Screw Torque		0.5Nm							
Degree of Protection IEC/EN 60529		IP20							
Housing Material		Thermoplastic; Grey; Extinguishing Degree V-0							
Mounting IEC/EN 60715		35 mm DIN Rail							
<b>Order Information</b>									
Order Code		5V	12V	15V	24V	30V	48V	60V	110V
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

