

SPD for Shielded Cable

RayDat SSH-3 Series

D1 • C1 • C2 • C3

SMH-SH 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 mm²
 Housing: Modular Design
 Compliance: IEC/EN 61643-21

The RayDAT SSH-3 Series of surge protective devices has been developed to protect against the effects of induced voltages onto data, signal and communication circuits.

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

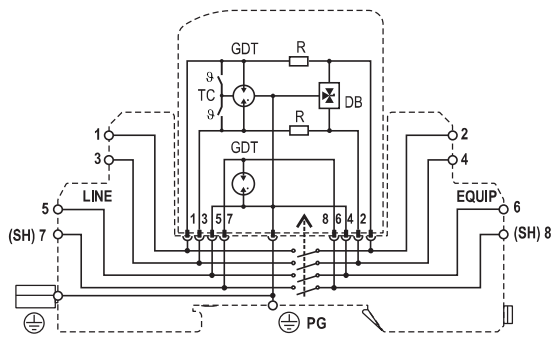
SSH-3 Series	5V	12V	15V	24V	30V	48V	60V	110V	
Electrical									
Lines Protected	1 (2 Conductors)								
Nominal Operating Voltage (DC)	U_n	5V	12V	15V	24V	30V	48V	60V	110V
Maximum Continuous Operating Voltage (DC)	U_c	6V	15V	18V	28V	33V	52V	64V	170V
Rated Load Current at 25°C	I_L	1 A							
C2 Nominal Discharge Current (8/20µs)	I_n	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	(Shield-Ground)	184-276V							
	(Line-Line), (Line-Ground)	7-10V	16-21V	20-24V	30-36V	35-43V	55-68V	67-85V	184-264V
Response Time Overvoltage Protection (Shield-Ground)	t_A	<100ns							
	(Line-Line), (Line-Ground)	<1 ns							
Insulation Resistance of the Protection (Shield-Ground)	R_{iso}	> 1 GΩ/100V							
	(Line-Line), (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	(Shield-Ground) C	5pF							
	(Line-Line), (Line-Ground)	50pF							
Cut-off Frequency	f_G	30MHz							
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; Grey; Extinguishing Degree V-0								
Mounting IEC/EN 60715	35mm DIN Rail								
Order Information									
Order Code	5V	12V	15V	24V	30V	48V	60V	110V	
SSH-3-xxx	7086.01	7086.02	7086.03	7086.04	7086.05	7086.06	7086.07	7086.08	
SSH-3-xxxQ (Quick Connect Terminals)	7086.90	7086.91	7086.92	7086.93	7086.94	7086.95	7086.96	7086.97	
SSH-3-xxxM (module)	7086.09	7086.10	7086.11	7086.12	7086.13	7086.14	7086.15	7086.16	

RayDat SSH-3 Series

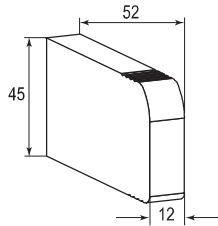
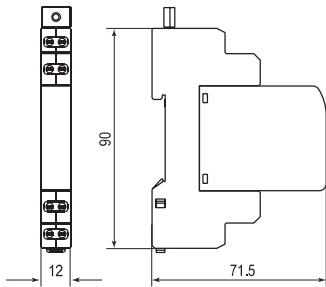
Internal Configuration

Legend

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



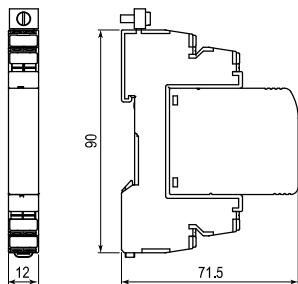
Dimensions & Packaging



SSH-3 Series	5V	12V	15V	24V	30V	48V	60V	110V
Dimensions								
Weight per Unit	60g							
Dimensions DIN 43880	2/3 TE							
Packaging Dimensions (Single Unit)	87 x 15 x 102mm							
Minimum Package Quantity	15 pieces							

SSH-3-xxxM Series	5V	12V	15V	24V	30V	48V	60V	110V
Dimensions								
Weight per Unit	26g							
Packaging Dimensions (Single Unit)	87 x 15 x 102mm							
Minimum Package Quantity	15 pieces							

Quick Connect Terminals



SSH-3-xxxQ Series	5V	12V	15V	24V	30V	48V	60V	110V
Dimensions								
Weight per Unit	62g							
Dimensions DIN 43880	2/3 TE							
Packaging Dimensions (Single Unit)	87 x 15 x 102mm							
Minimum Package Quantity	15 pieces							



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