

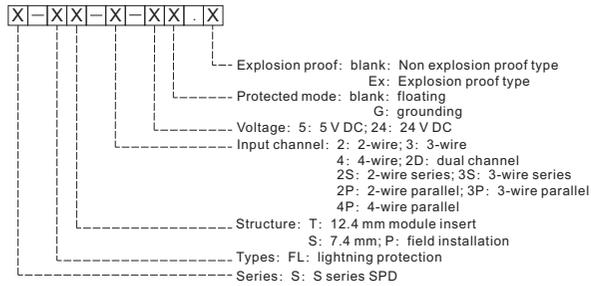
S-FLS Series Intrinsic Safety Signal Surge Protective Devices



→ Standards

IEC 61643-21/GB 18802.21; IEC 60079-4/GB 3836.4
IEC 62305-1~IEC 62305-5; IEC 61508-1~IEC 61508-7

→ Model description



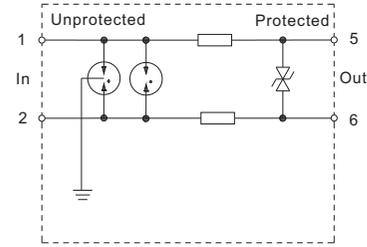
→ Features

- 7.4 mm Ultra-thin design, saving space;
- Multiple protection circuit, strong resistance to surge;
- Support terminal grounding (optional);
- A variety of models, applicable to all measurement;
- 35 mm rail installation.

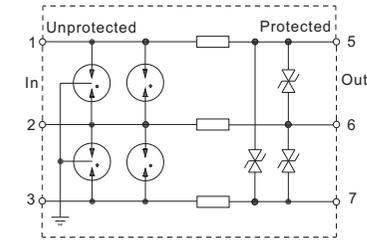
→ Parameters

Parameter \ Type	S-FLS-2-5.Ex	S-FLS-2-24.Ex	S-FLS-3-5.Ex	S-FLS-3-24.Ex
Voltage U_n	5 V	24 V	5 V	24 V
Max.continuous voltage U_c (DC)	6 V	32 V	6 V	32 V
Max.continuous voltage U_c (AC)	4 V	22.5 V	4 V	22.5 V
Nominal current I_L	600 mA	600 mA	600 mA	600 mA
Impulse current I_{imp} (10/350 μ s)	2 kA	2 kA	2 kA	2 kA
Total discharge current I_n (8/20 μ s , C2)	10 kA	10 kA	15 kA	15 kA
Discharge current per path I_n (8/20 μ s , C2)	5 kA	5 kA	5 kA	5 kA
Voltage protection U_p (8/20 μ s , C2)	L-L \leq 45 V	L-L \leq 60 V	L-L \leq 45 V	L-L \leq 60 V
	L-PE \leq 600 V	L-PE \leq 600 V	L-PE \leq 600 V	L-PE \leq 600 V
Voltage protection U_p (1 kV/ μ s , C3)	L-L \leq 15 V	L-L \leq 45 V	L-L \leq 15 V	L-L \leq 45 V
	L-PE \leq 600 V	L-PE \leq 600 V	L-PE \leq 600 V	L-PE \leq 600 V
Series impedances	1.8 Ω	1.8 Ω	1.8 Ω	1.8 Ω
Limiting frequency (f_c)	100 MHz	10 MHz	10 MHz	10 MHz
Response time	< 1ns			
Intrinsically safe circuit certification	Ex ia IIC T6 Ga			
Temperature	-40 $^{\circ}$ C~80 $^{\circ}$ C			
Installation	35 mm DIN rail			
Connections	rail grounding/terminal grounding(optional)			
Connecting wire size	0.2 mm ² ~2.5 mm ²			
Material	PC			
Protection degree	IP20			

→ Wiring diagram



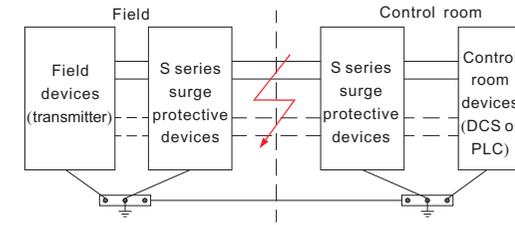
S-FLS-2-5.Ex, S-FLS-2-24.Ex



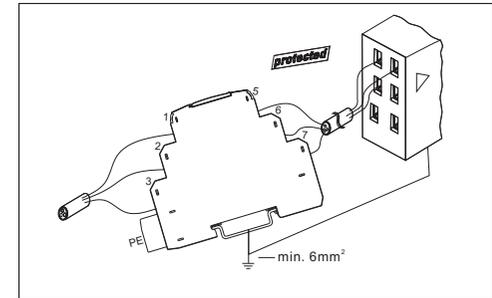
S-FLS-3-5.Ex, S-FLS-3-24.Ex

→ Applications

S-FLS series intrinsic safety SPD is used to protect signals and control equipments, preventing interference caused by lightning or high voltage switch. In a short surge impact by discharging the transient current to the ground to clamp the voltage in a safe level and ensure the transmission. It guarantees the safety for industrial automation equipment. This product is a 7.4 mm ultra-thin design with the advantages of strong surge resistance, low residual, fast response etc. Moreover, it is easy to use and install, can support all kinds of control system, the I/O system, communication network equipment, etc.



Equipotential connection drawing



Connection diagram

→ Grounding

It is necessary to ground the SPD correctly. Each SPD should be grounding by DIN rail.

→ Explosion protection parameters

Parameters certified by China National Quality Supervision and Test Centre for Explosion Protected Electrical Products (CQST):

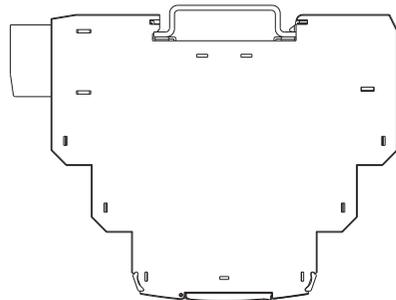
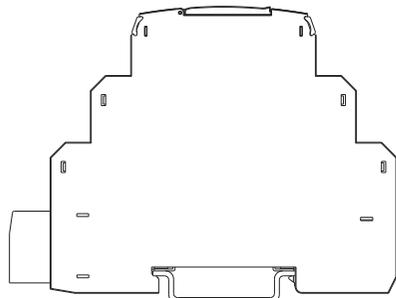
Explosive-proof grade: Ex ia IIC T6 Ga

Explosion proof parameters: (please see the explosion-proof certificate for details)

Type	Intrinsically safe parameter
S-FLS-2-24.Ex	U=30 V DC, I=50 mA, C=0 μF, L=0 mH, P=0.375 W
S-FLS-3-24.Ex	U=30 V DC, I=33 mA, C=0 μF, L=0 mH, P=0.24 W
S-FLS-□-5.Ex	U=6 V DC, I=500 mA, C=0 μF, L=0 mH, P=0.75 W

→ Dimension

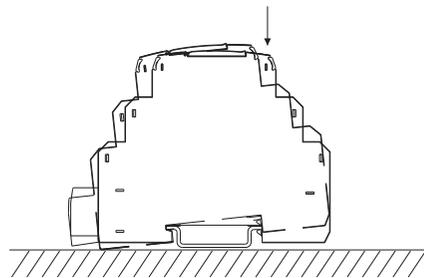
Width × Height × Depth: 7.4 mm × 95.2 mm × 70 mm



→ Installation

- The apparatus can be mounted on a 35 mm standard rail corresponding to DIN IEC 60715. They must be snapped onto the rail, and never slanted or tipped to the side.
- Requirements for installation
In the safe zone, surge protective devices and safety barrier can be installed in the same or different cabinet, but can not be installed on the same track side by side. The cables (and wires) associated with the safety and the hazardous area should be wired and laid separately.

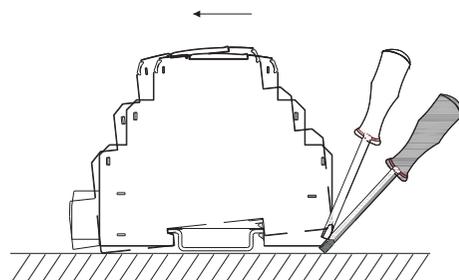
- Installation steps are as follows:



Installation

Make the metal bayonet locked into the guide rail, push the SPD in the rail as the direction of the arrow in the above.

- Removing steps are as follows:



Removing

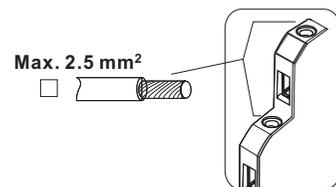
First, pry the metal lock off the rail with screw driver as arrow shown, pull downward the springs, and rotate the SPD, then remove it.

→ Connections

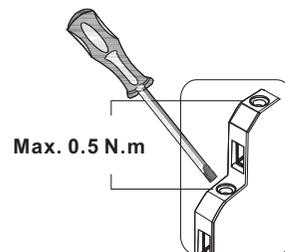
- Using M3 screw driver;



- Wire size is 0.2 mm² ~ 2.5 mm²;



- Maximum torque of the screw is 0.5 N.m;



→ Attention

- The devices degree of protection is IP20 and must be protected from undesirable ambient conditions (waterproofing, small foreign objects). It is suitable for installation in the control room or high density field cabinet, convenient for installation and displacement.
- The devices were designed for use in pollution degree 2 and overvoltage category III as per IEC/EN 60664-1. If used in areas with higher pollution degree, the devices need to be protected accordingly.
- Installation position shall not be affected by strong mechanical vibration; impact and electromagnetic induction from signal terminal and power supply, should conform to the requirements on electromagnetic interference resistance of products in Class 3 industrial field atmosphere stipulated in IEC 61000-4; the atmosphere shall be free from gases that are corrosive to metal and plastic components.
- Before installation, please check the surge protector is intact or not. If have any damage, it should not be installed.
- Only using the SPD according to this document, if more than the rated value, SPD and other device are likely to be damaged.
- Devices must only be repaired directly by the manufacturer. Tampering with the apparatus is dangerous and therefore forbidden.

→ Supplementary instructions

- The apparatus must be installed, connected and adjusted by qualified personnel in non-hazardous area according with the instruction manual.

- If faults cannot be eliminated, the apparatus must be taken out of operation and protected from being placed in service again inadvertently.
- The operator must strictly comply with the relevant local safety standards and guidelines.
- If there is any content difference between the specification and the website or sample, the instructions shall prevail. We reserve the rights to change or update the product information without prior noticing the users.