



TECHNICAL MANUAL

Surge protective device

Type I EKF

1 DESCRIPTION

Surge protective devices Type I EKF are used for protection against high surge voltages (lightning strike, high surge voltage under short circuits). Surge protective devices (SPD) are installed in locations subject to lightning strike in overhead power lines or as the 1st stage of protection in the air-termination systems. The SPD Type I shall be tested and rated with surge current (I_{imp}) of 10/350 μ s, rated discharge current (I_n) of 8/20 μ s, and surge voltage (1,2/50 μ s).

Surge protective devices are designed to protect against:

1. Surge overvoltages of electrical installations caused by direct lightning strikes to the external circuit, indirect lightning strikes (within or between clouds or nearby facilities), lightning strikes to the ground.
2. Switching overvoltages in electrical installations resulting from:
 - switching in high-capacity power supply systems;
 - switching in power supply systems close to electrical installations;
 - resonant voltage oscillations in electrical circuits;
 - damage to systems, e.g. ground faults, arc faults, etc.

2 TECHNICAL DATA

The main technical data are listed in table 1.

Table 1

Characteristics	Value			
	1P	2P	3P	4P
SPD type	I			
Rated frequency, Hz	50/60			
Maximum operating voltage, U_c^* , V	275			
Protection voltage, kV	2			
Pulse discharge current 10/350 μ s I_{imp} , kA	25			
Maximum discharge current 8/20 μ s I_{max} , kA	50			
Rated discharge current 8/20 μ s I_n , kA	25			
Tripping time, ns	≤ 100			
Cross-section of connected wires, mm ²	from 4 to 35			
Tightening torque, N·m	2,2 - Al; 2,5 - Cu			
Degree of protection by IEC 60529	IP20			
Operating temperature, °C	from -40 to +70			
Mounting	35 mm DIN rail			

* Max. operating voltage U_c means voltage between phase and ground in compliance with IEC 61643-11.

3 OVERALL DIMENSIONS

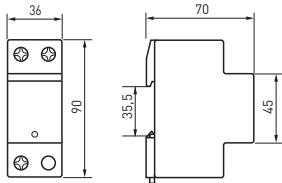


Figure 1 – Overall dimensions of SPD Type I 1P

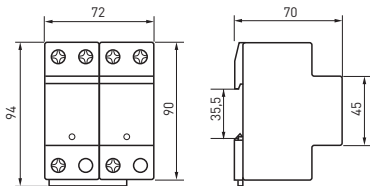


Figure 2 – Overall dimensions of SPD Type I 2P

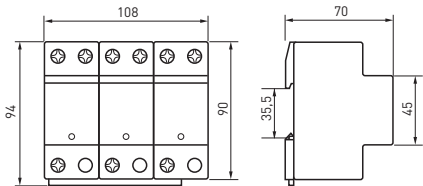


Figure 3 – Overall dimensions of SPD Type I 3P

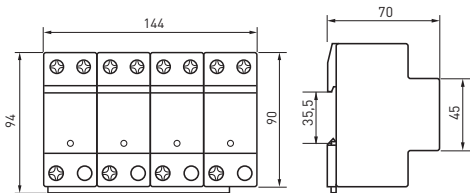


Figure 4 – Overall dimensions of SPD Type I 4P

4 INSTALLATION AND CONNECTION

The surge protective device Type I EKF shall be mounted and connected by qualified electrical personnel.

The surge protective device shall be mounted onto 35 mm DIN rail.

Connection options with copper and aluminum wires (4-35 mm²) are supported. Do not connect copper and aluminum wires to one terminal concurrently. Power supply shall be connected to the upper terminals. Tightening torque: max. 2,5 N·m for copper wires; max. 2,2 N·m for aluminum-alloy wires, series 8000.

CAUTION! Direct or indirect lightning or surge voltages cause the SPD to trip and fail, with the color of the wear indicator changing from green to red. Replace the device. The SPD failure resulting from overvoltage is not covered by the warranty.

For wiring diagrams, refer to figures 5-8.

The protective conductor (PE) shall be connected to the lower terminal of the SPD; and the neutral conductor (N) or the phase conductor (L) shall be connected to the upper terminal.

The device with a guaranteed tripping function (e.g. MCB, RCBO or fuse) shall be installed in the SPD circuit from the side of power mains.

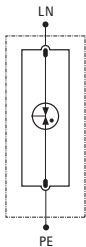


Figure 5 – Wiring diagram of SPD Type I 1P

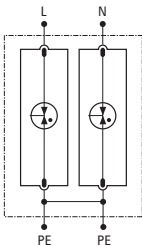


Figure 6 – Wiring diagram of SPD Type I 2P

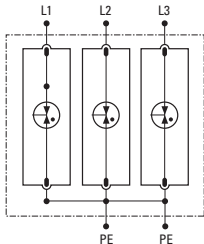


Figure 7 – Wiring diagram of SPD Type I 3P

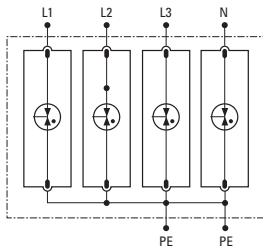


Figure 8 – Wiring diagram of SPD Type I 4P

5 DELIVERY SCOPE

Surge protective devices Type I are supplied in one group package. For all available documentation, scan the QR-code on the insert or on the inside of the package.

6 SAFETY REQUIREMENTS

Do not operate surge protective devices with visual mechanical damage. By protection method against electric shock, surge protective devices belong to protection class "0" according to IEC 61140.

8 MAINTENANCE

For surge protective device maintenance, follow national safety rules for operation of electrical Installations.

9 TRANSPORTATION AND STORAGE

The SPD can be transported by any means of enclosed transport that ensures protection of packed products from mechanical and atmospheric impacts.

The SPD shall be stored in the original package indoors at the ambient temperature from -40°C to $+70^{\circ}\text{C}$ and relative humidity of max. 85% at 25°C .

10 DISPOSAL

Life-expired and failed products shall be disposed of in compliance with the laws and regulations in force in the territory of product sale.

To dispose of the product, send it to an authorized company for recycling in compliance with the national and local laws and regulations in force.

11 MANUFACTURER'S WARRANTY

The manufacturer guarantees that the surge protective devices Type I EKF comply with the requirements of IEC 61643-11, provided that the consumer follows the operation, transportation and storage conditions.

Warranty period: 7 years from the date of sale specified in the sales receipt.

Shelf life: 7 years from the date of manufacture specified on the product package or housing.

Service life: 10 years.

Manufacturer: for information, refer to the product package.

Importer and EKF trademark service representative:

EKF ELECTRICAL SOLUTION – FZCO, Dubai Silicon Oasis, DDP, Building A2, Dubai, United Arab Emirates.

Importer and EKF trademark service representative on the territory of the Russian Federation:

OOO «Electroresheniya», Otradnaya st., 2b bld. 9, 5th floor, 127273, Moscow, Russia. Tel.: +7 (495) 788-88-15.

Importer and EKF trademark service representative on the territory of the Republic of Kazakhstan:

TOO «Energoresheniya Kazakhstan», Kazakhstan, Almaty, Bostandyk district, Turgut Ozal st., 247, apt 4.

12 CERTIFICATE OF ACCEPTANCE

The surge protective device Type I EKF has been manufactured in compliance with laws and regulations in force and has been approved for operation.

Date of manufacture:

For information, refer to the product package.

Quality control stamp



ekfgroup.com

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