EKF

TECHNICAL MANUAL

Surge protective device T1 EKF

1 DESCRIPTION

Surge protective devices T1 EKF are used for protection against voltage surges (lightning strikes and short circuits) and are installed to protect equipment in places with high probability of direct lightning strikes or as a first line of defence in a lightning protection system. Type I SPDs are tested to withstand impulse discharge current with 10/350 μs waveform, maximum discharge current with 8/20 μs waveform, and conform to voltage protection rating for 1,2/50 μs waveform.

Surge protective devices are designed to protect against:

1. Voltage surges 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, Uc*, V	275			
Voltage protection rating, kV	2			

Table 1 continued

Characteristics	**Value**			
	1P	2P	3P	4P
Impulse discharge current 10/350 μs Iimp, kA	25			
Maximum discharge current 8/20 μs Imax, kA	50			
Rated discharge current 8/20 μs In, kA	25			
Tripping time, ns	⩽100			
Cross-section of connected wires, mm^2	from 6 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			
Alarm contact parameters	I=3 A, U=250 V, f= 50Hz			

* Max. operating voltage Uc means voltage between phase and ground in compliance with IEC 61643-12.

3 OVERALL DIMENSIONS

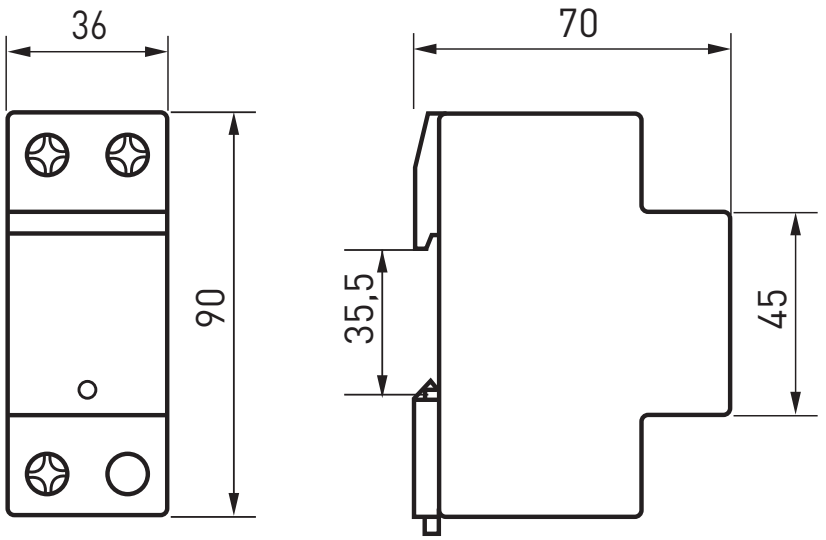

Figure 1 – Overall dimensions of SPD T1 1P

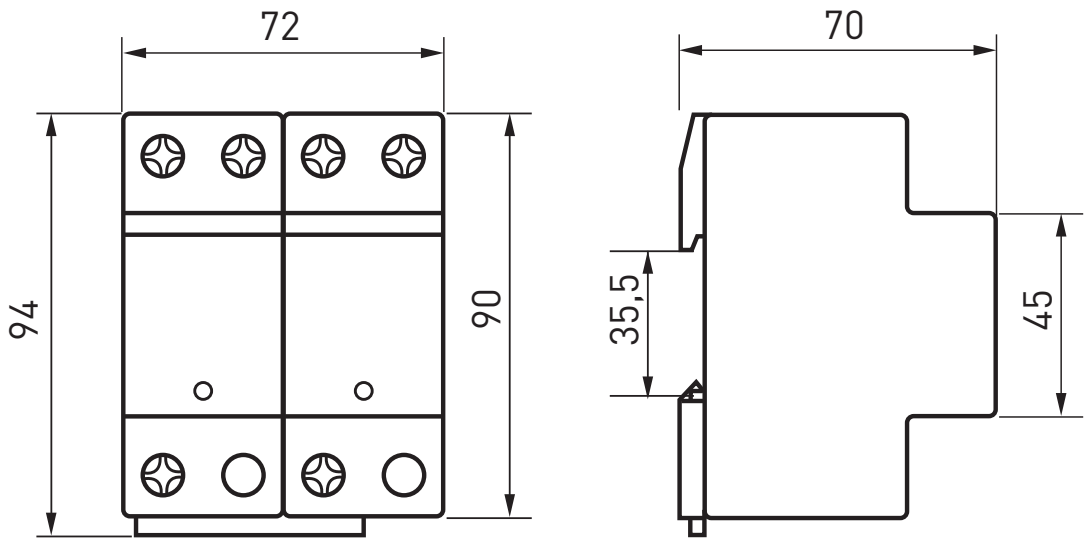

Figure 2 – Overall dimensions of SPD T1 2P

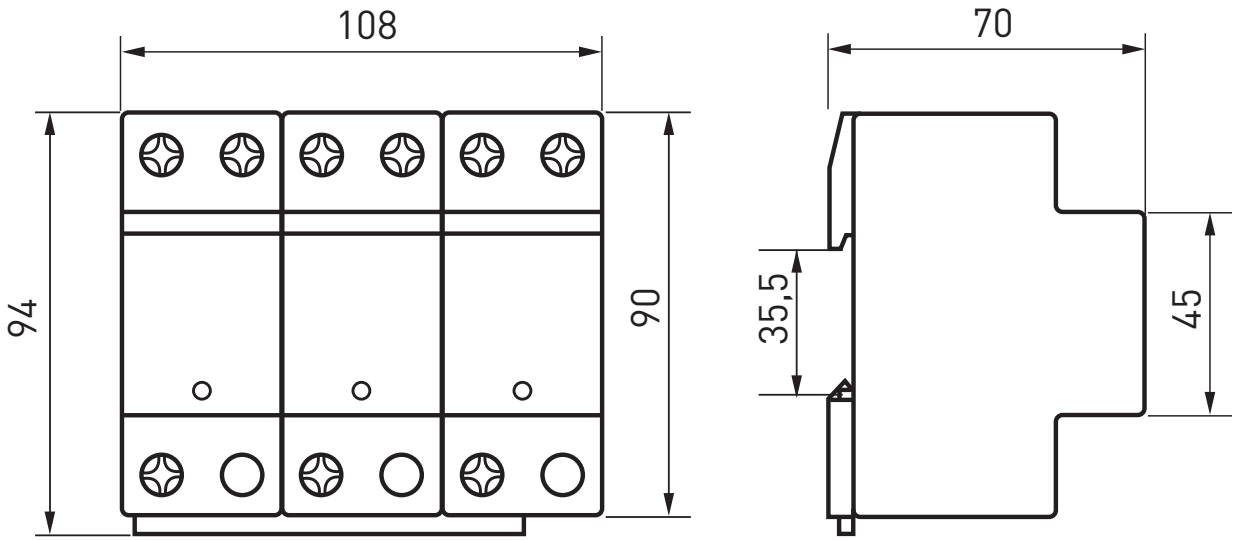

Figure 3 – Overall dimensions of SPD T1 3P

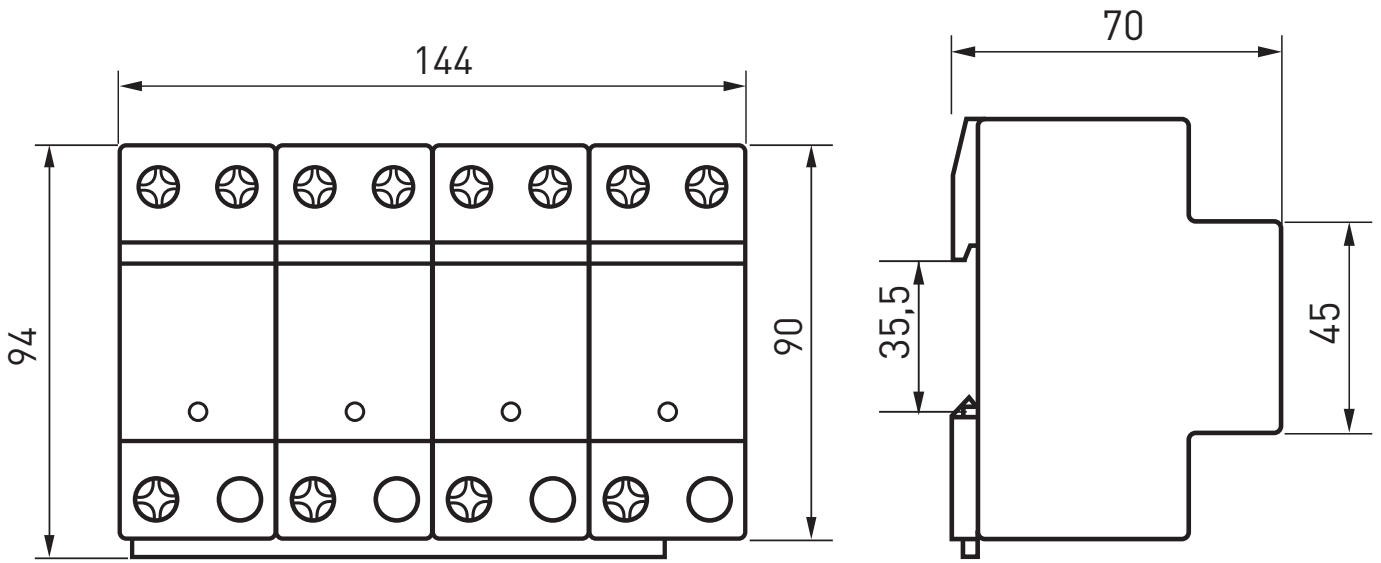

Figure 4 – Overall dimensions of SPD T1 4P

4 INSTALLATION AND CONNECTION

The surge protective device T1 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 (6-35 mm^2) 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 bottom terminal of the SPD; and the neutral conductor (N) or the phase conductor (L) shall be connected to the top terminal.

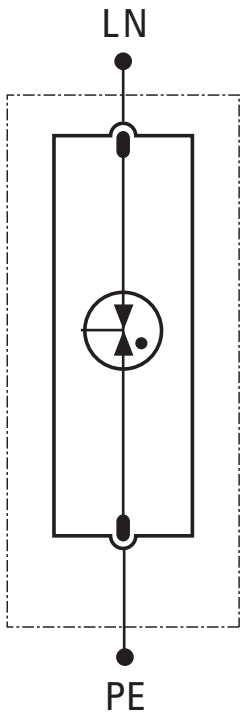

Figure 5 – Wiring diagram of SPD T1 1P

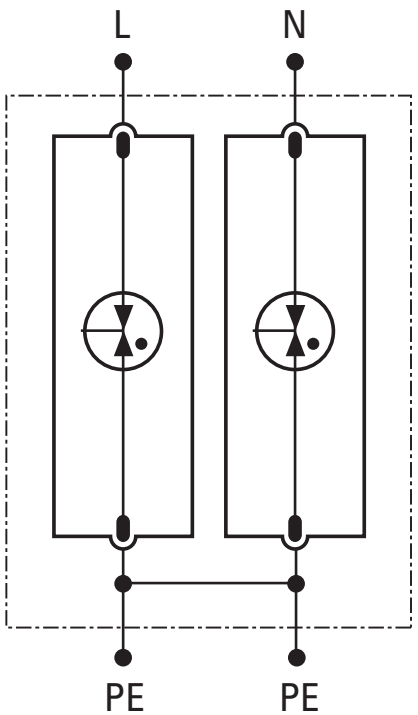

Figure 6 – Wiring diagram of SPD T1 2P

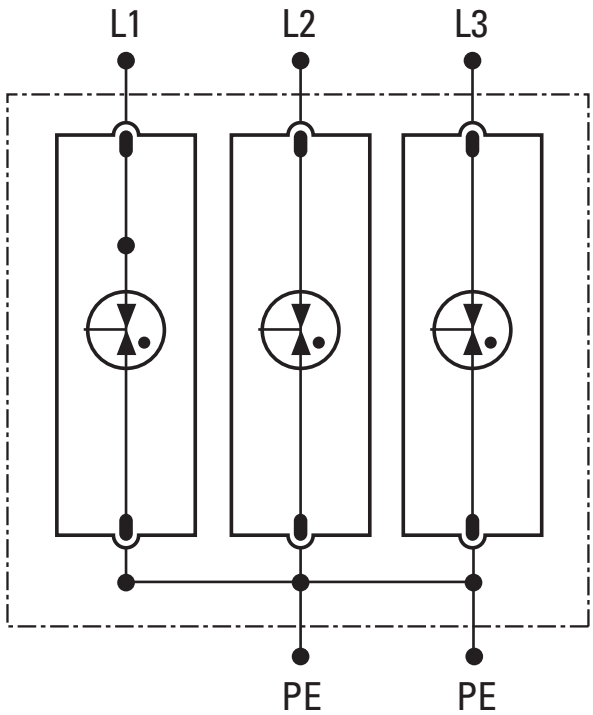

Figure 7 – Wiring diagram of SPD T1 3P

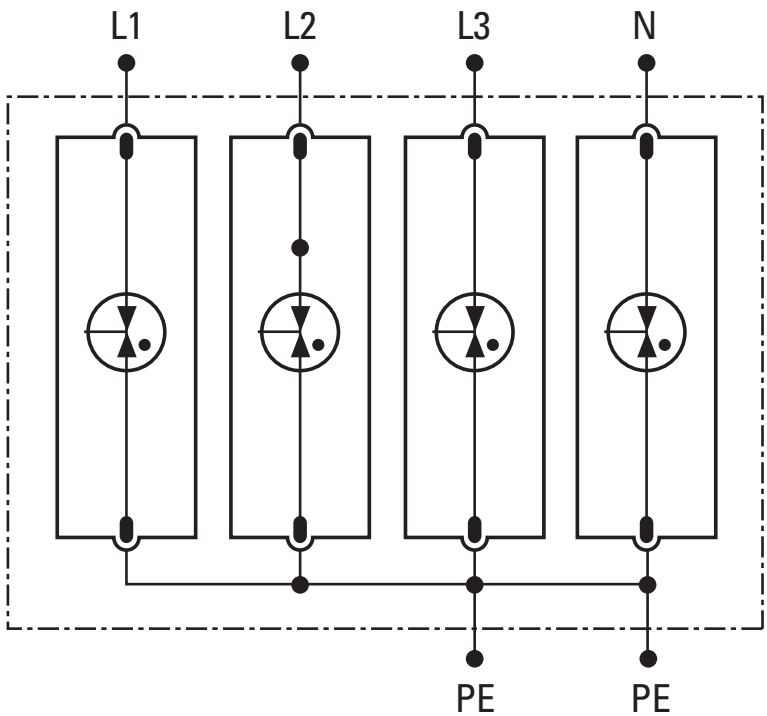

Figure 8 – Wiring diagram of SPD T1 4P

5 DELIVERY SCOPE

Surge protective devices T1 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 visible mechanical damage. By protection method against electric shock, surge protective devices conform to IEC 61140 class 0.

7 SPD protection

Surge protective devices require additional protection by means of a fuse in case of short circuit, e.g. due to excessive discharge current.

For compatible fuses, refer to Table below,

Item code	Name	Fuse rated (max.) current, A	Q-ty	Fuse link	Fuse link holder
spd-t1-1p	SPD T1 Iimp 25kA (10/350µs) 1P EKF	125	1	pvc-22x58-125	df221-e
spd-t1-2p	SPD T1 Iimp 25kA (10/350µs) 2P EKF		2		df222-e
spd-t1-3p	SPD T1 Iimp 25kA (10/350µs) 3P EKF		3		df223-e
spd-t1-4p	SPD T1 Iimp 25kA (10/350µs) 4P EKF		4		df224-e

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°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 T1 EKF comply with the requirements of IEC 61643-12, 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: OOO Electroresheniya, Otradnaya st., 2b/9, 127273, Moscow, Russia, tel. +7 (495) 788-88-15.
MEA regional headquarters: EKF ELECTRICAL SOLUTION FZCO, Office 249, Techno Hub-2, Dubai Silicon Oasis, P.O. box 341079, Dubai, United Arab Emirates, tel. +971-4-547-06-18.

12 CERTIFICATE OF ACCEPTANCE

The surge protective device T1 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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