



EKF



TECHNICAL MANUAL

Surge protective
device Type I+II EKF

1 DESCRIPTION

The surge protective device (SPD) Type I+II EKF is designed to protect electrical installations against transient overvoltages and to divert surge currents in 230/400V AC 50/60Hz networks.

SPD is designed for protection 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.

Table 1

SPD Type	Description
TI	Protection against induced pulses from direct lightning strikes to the air-termination system of a building or OHL. Installed in the main distribution switchboard.
TII	Protection of the power distribution network of a facility against switching faults; or the second level of lightning protection. Installed in distribution switchboards.
TIII	Protection of consumers against residual voltage surges, protection against differential (unbalanced) overvoltages, high-frequency interferences filtering. Installed directly next to the consumer.

2 TECHNICAL DATA

The main technical data are listed in tables 2 and 3.

Table 2

Characteristics	Value
Maximum operating voltage U_c	275 V
Pulse discharge current (10/350 μ s) I_{imp}	12,5 kA
Rated discharge current (8/20 μ s) I_n	20 kA
Protection voltage U_p	$\leq 1,6$ kV
Operating temperature T_u	from -15 °C to $+50$ °C
Degree of protection by IEC 60529	IP20
Cross-section of connected wires	4 mm ² - 35 mm ²
Alarm contact parameters	$I=3$ A, $U=250$ V, $f= 50/60$ Hz



Figure 1 — Alarm contact wiring diagram

Table 3

Name	Net weight, kg	Item code
SPD TI+TII; 1+0 EKF	0,14	OV12-1-501
SPD TI+TII; 1+1 EKF	0,28	OV12-11-505
SPD TI+TII; 2+0 EKF	0,28	OV12-2-502
SPD TI+TII; 3+0 EKF	0,42	OV12-3-503
SPD TI+TII; 3+1 EKF	0,56	OV12-31-506
SPD TI+TII; 4+0 EKF	0,56	OV12-4-504

3 OVERALL DIMENSIONS

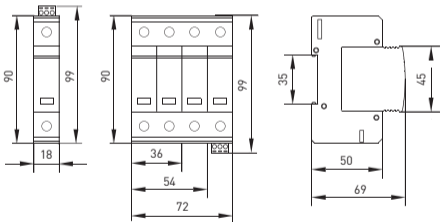


Figure 2 — Overall dimensions, SPD Type I+II EKF

4 INSTALLATION AND OPERATION

The surge protective device 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 are supported.

Do not connect copper and aluminum wires to one terminal concurrently. Power supply shall be connected from the terminals L1 (L2, L3) N (from the top). Tightening torque: max. 2,5 N•m for copper wires; max. 2,2 N•m for aluminum-alloy wires, series 8000.

Connection

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, type C $I_n=125A$ or fuse 200A type gG.) shall be installed in the SPD circuit from the side of power mains.

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 SPD or varistor module. The SPD failure resulting from overvoltage is not covered by the warranty!

Table 4. SPD wiring diagram

Number of poles		
1P	2P	1P+N
<p>Diagram showing a single-phase system with L, N, and PE lines. The SPD is connected between the L and N lines. A switch labeled L2 is on the L line before the SPD.</p>	<p>Diagram showing a two-phase system with L, N, and PE lines. Two SPDs are connected in parallel between the L and N lines. A switch labeled L2 is on the L line before the SPDs.</p>	<p>Diagram showing a single-phase system with L, N, and PE lines. An SPD is connected between L and N, and a separate SPD is connected between N and PE. A switch labeled L2 is on the L line before the first SPD. A test point symbol is shown on the N line.</p>
3P	4P	3P+N
<p>Diagram showing a three-phase system with L1, L2, L3, and PE lines. Three SPDs are connected in parallel between L1, L2, and L3. A switch labeled L1 is on the L1 line before the SPDs.</p>	<p>Diagram showing a three-phase system with L1, L2, L3, N, and PE lines. Four SPDs are connected in parallel between L1, L2, L3, and N. A switch labeled L1 is on the L1 line before the SPDs.</p>	<p>Diagram showing a three-phase system with L1, L2, L3, N, and PE lines. Three SPDs are connected in parallel between L1, L2, and L3, and a fourth SPD is connected between N and PE. A switch labeled L1 is on the L1 line before the first SPD. A test point symbol is shown on the N line.</p>

5 DELIVERY SCOPE

Surge protective device Type I+II EKF is supplied in an individual 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.

7 MAINTENANCE

For SPD Type I+II maintenance, follow national safety rules for operation of electrical installations.

8 TRANSPORTATION AND STORAGE

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

Surge protective devices shall be stored indoors in the original package at the ambient temperature from -40°C to +70°C and relative humidity of max. 90% at +25°C.

9 DISPOSAL

Life-expired and failed products shall be disposed of in compliance with the national and local laws and regulations in force.

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.

10 MANUFACTURER'S WARRANTY

The manufacturer guarantees that the surge protective devices Type I+II 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.



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 SPD or varistor module.

The SPD failure resulting from overvoltage is not covered by the warranty!

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.

11 CERTIFICATE OF ACCEPTANCE

The surge protective device SPD Type I+II EKF complies with IEC 61643-11 and has been approved for operation.

Date of manufacture:

For information, refer to the product package.

Technical control stamp



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