



TECHNICAL MANUAL

Surge protective
device T1+T2 EKF

1 DESCRIPTION

The surge protective device (SPD) T1+T2 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. Voltage surges of electrical installations caused by direct lightning strikes to external circuits, 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
T1	Protection against induced pulses from direct lightning strikes to the air-termination system of a building or OHL. Installed in main distribution switchboards.
T2	Protection of a facility power distribution network against switching faults; or the second level of lightning protection. Installed in distribution switchboards.
T3	Protection of consumers against residual voltage surges, protection against differential (imbalanced) overvoltages, high-frequency interferences filtering. Installed directly next to consumers.

2 TECHNICAL DATA

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

Table 2

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



Fig. 1 — Alarm contact wiring diagram

Table 3

Name	Net weight, kg	Item code
SPD T1+T2; 1+0 EKF	0,14	OV12-1-501
SPD T1+T2; 1+1 EKF	0,28	OV12-11-505
SPD T1+T2; 2+0 EKF	0,28	OV12-2-502
SPD T1+T2; 3+0 EKF	0,42	OV12-3-503
SPD T1+T2; 3+1 EKF	0,56	OV12-31-506
SPD T1+T2; 4+0 EKF	0,56	OV12-4-504

3 OVERALL DIMENSIONS

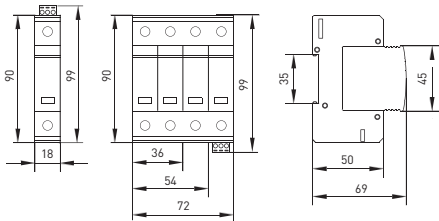


Fig. 2 — Overall dimensions, SPD T1+T2 EKF

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

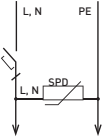
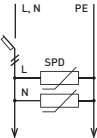
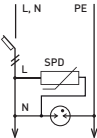
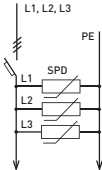
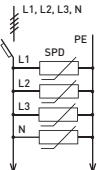
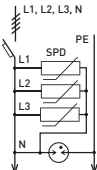
The protective conductor (PE) shall be connected to the bottom terminal of the SPD; and the neutral conductor (N) or the phase conductor (L) shall be connected to the top terminal. A device with a guaranteed tripping function (e.g. compatible input fuse) shall be installed in the SPD circuit from the side of power mains. For compatible fuses, refer to Table 4.

CAUTION! Direct or indirect lightning or surge voltages cause the SPD to trip and fail, with the trip indicator color 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 - Recommended compatible fuse links

SPD model	SPD item code	Fuse link max. rated current	Q-ty	Fuse link	Fuse link holder
SPD T1+T2; 1+0 EKF	OV12-1-501	80A	1	pvc- 22x58-80	pr-22-58-1
SPD T1+T2; 1+1 EKF	OV12-11-505		2		pr-22-58-2
SPD T1+T2; 3+0 EKF	OV12-3-503		3		pr-22-58-3
SPD T1+T2; 3+1 EKF	OV12-31-506		4		pr-22-58-3 + pr-22-58-1
SPD T1+T2; 4+0 EKF	OV12-4-504		4		pr-22-58-3 + pr-22-58-1

Table 5 - SPD wiring diagram

Number of poles		
1P	2P	1P+N
 Diagram showing a 1P SPD connected between the L (Line) and N (Neutral) lines. The PE (Protective Earth) line is also shown.	 Diagram showing a 2P SPD connected between the L (Line) and N (Neutral) lines. The PE (Protective Earth) line is also shown.	 Diagram showing a 1P+N SPD connected between the L (Line) and N (Neutral) lines. The PE (Protective Earth) line is also shown.
3P	4P	3P+N
 Diagram showing a 3P SPD connected between the L1, L2, and L3 lines. The PE (Protective Earth) line is also shown.	 Diagram showing a 4P SPD connected between the L1, L2, L3, and N (Neutral) lines. The PE (Protective Earth) line is also shown.	 Diagram showing a 3P+N SPD connected between the L1, L2, L3, and N (Neutral) lines. The PE (Protective Earth) line is also shown.

5 DELIVERY SCOPE

Surge protective device Type T1+T2 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 visible mechanical damage. By protection method against electric shock, surge protective devices conform to IEC 61140 class 0.

7 MAINTENANCE

For SPD Type T1+T2 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 impacts and weather exposure.

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 T1+T2 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 trip indicator color changing from green to red. Replace the SPD or varistor module.

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

Manufacturer: OOO Electroresheniya, Otravnaya 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.

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 T1+T2 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

EAC

v3



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