EKF

TECHNICAL MANUAL

Surge protective device
OPV Type II EKF

1 DESCRIPTION

The surge protective device OPV Type II EKF is designed to protect electrical installations against transient overvoltages and to divert surge currents for 230/400 V AC networks with 50/60 Hz frequency.

Surge protective device protects power lines 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 of 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

Class OPV	Description
B	Protection against induced pulses from direct lightning strikes to the air-termination system of a building or OHL. Installed in the main distribution switchboard.
C	Protection of the power distribution network of a facility against switching faults; or the second level of lightning protection. Installed in distribution switchboards.
D	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

Table 2 - Main technical data

Parameters	Value		
	B	C	D
Degree of protection by IEC 60529	IP 20		
Cross-section of connected wires, mm^2	from 4 to 25		
Tightening torque, N•m	2,5		
Frequency, Hz	50/60		
Operating temperature Tu, °C	from -15 to +50		
Rated discharge current 8/20 μs, In, kA	30	20	5

Table 2 continued

Parameters	Value		
	B	C	D
Rated operating voltage Un, V	400	400	230
Maximum discharge current 8/20 μs Imax, kA	60	40	10
Maximum operating voltage Uc, V	440	440	275
Protection voltage level Up, kV	2,0	1,8	1,0
Alarm contact parameters	I= 3A, U=250 V, f= 50 Hz		

Table 3 - Main technical data

Name	Rated discharge current 8/20μs, In, kA	Protection voltage, kV	Net weight, kg	Item code
Surge protective device OPV-B/1P In 30kA 440V with alarm EKF	30	2,0	0,173	opv-b1
Surge protective device OPV-B/2P In 30kA 440V with alarm EKF	30	2,0	0,345	opv-b2
Surge protective device OPV-B/3P In 30kA 440V with alarm EKF	30	2,0	0,519	opv-b3

Table 3 continued

Name	Rated discharge current 8/20μs, In, kA	Protection voltage, kV	Net weight, kg	Item code
Surge protective device OPV-B/4P In 30kA 440V with alarm EKF	30	2,0	0,69	opv-b4
Surge protective device OPV-C/1P In 20kA 440V with alarm EKF	20	1,8	0,169	opv-c1
Surge protective device OPV-C/2P In 20kA 440V with alarm EKF	20	1,8	0,338	opv-c2
Surge protective device OPV-C/3P In 20kA 440V with alarm EKF	20	1,8	0,507	opv-c3
Surge protective device OPV-C/4P In 20kA 440V with alarm EKF	20	1,8	0,677	opv-c4
Surge protective device OPV-D/1P In 5kA 275V with alarm EKF	5	1,0	0,158	opv-d1

Table 3 continued

Name	Rated discharge current 8/20μs, In, kA	Protection voltage, kV	Net weight, kg	Item code
Surge protective device OPV-D/2P In 5kA 275V with alarm EKF	5	1,0	0,317	opv-d2
Surge protective device OPV-D/3P In 5kA 275V with alarm EKF	5	1,0	0,474	opv-d3
Surge protective device OPV-D/4P In 5kA 275V with alarm EKF	5	1,0	0,633	opv-d4

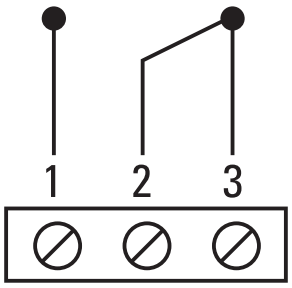


Figure 1 — Alarm contact wiring diagram

3 OVERALL DIMENSIONS

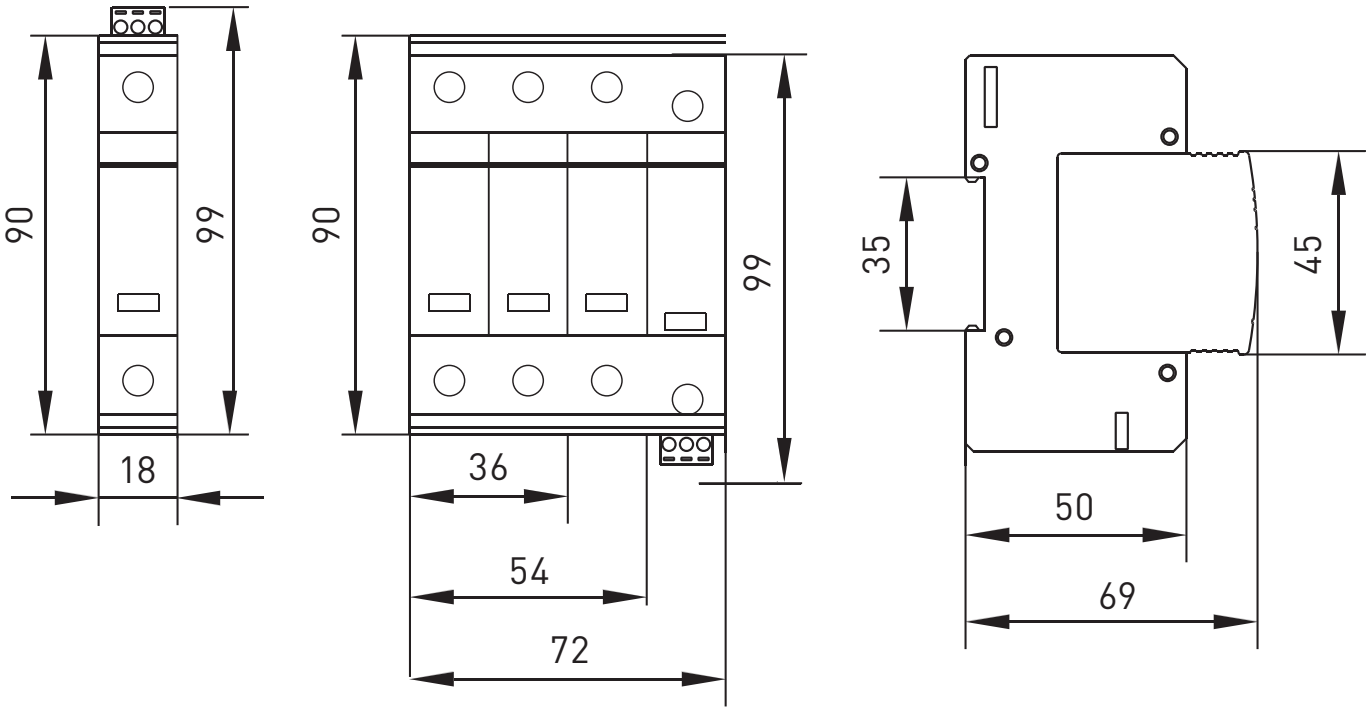


Figure 2 — Overall dimensions

4 INSTALLATION AND OPERATION

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

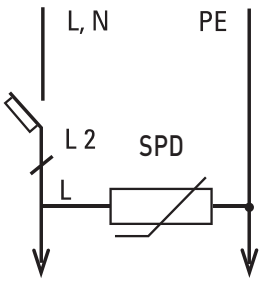
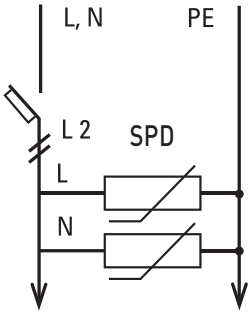
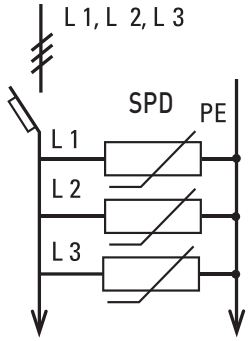
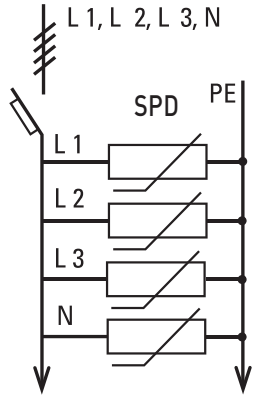
Connection options with copper and aluminum wires are supported. Do not connect copper and aluminum wires to one terminal concurrently.

Power supply shall be connected from the terminals 1N (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 beconnected 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.

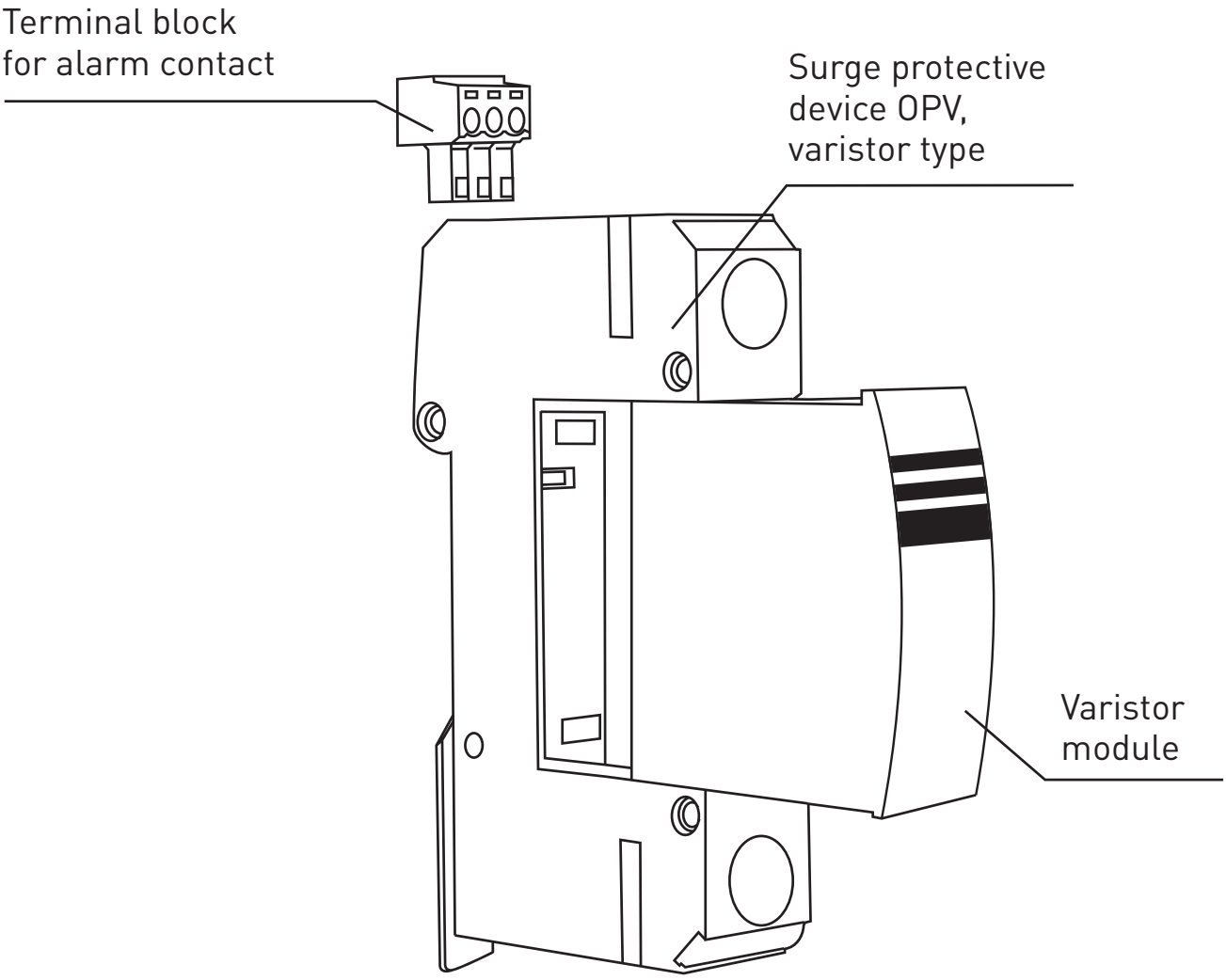
Table 4 - SPD wiring diagram

Number of poles			
1P	2P	3P	4P
			

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!

Replacement of varistor module and connection of alarm contact block.



5 DELIVERY SCOPE

Surge protective device OPV Type 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 maintenance, follow national safety rules for operation of electrical Installations.

8 TRANSPORTATION AND STORAGE

Surge protective devices can be transported by any type of enclosed transport that ensures the 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.

10 MANUFACTURER'S WARRANTY

The manufacturer guarantees the surge protective devices OPV Type EKF comply with IEC 61643-11:2011, 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:
ООО «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:
ТОО «Energoresheniya Kazakhstan», Kazakhstan, Almaty, Bostandyk district, Turgut Ozal st., 247, apt 4.

11 CERTIFICATE OF ACCEPTANCE

The surge protective device OPV Type II EKF complies with IEC 61643-11:2011 and has been approved for operation.

Date of manufacture:
For information, refer to the product package.

Technical control stamp