

“KIV-500/110” – the Multipurpose Relay for OIP and RIP 110-750 kV Bushing Protection

“KIV-500/110” relay is used for power transformer protection against OIP (Oil Impregnated Paper) insulation bushing and RIP (Resin Impregnated Paper) insulation bushing damaged.

“KIV-500/110” relay is designed to address the two important practical tasks:

- the relay signals about the “warning” and “alarm” bushing condition, which allows to bring the transformer out of service timely;
- the relay allows to operatively diagnose the transformer bushings condition: to locate the defect bushing and to specify the defect type.

“KIV-500/110” relay has unique diagnostic and protection properties:

- “KIV-500/110” can be used for protecting bushings with various types of insulation;
- “KIV-500/110” can be used for monitoring the transformers with different types of bushings, even with the insulation of different type;
- “KIV-500/110” can be used for the bushings of different rated voltages – from 110 up to 750 kV.
- “KIV-500/110” relay has better noise immunity due to the use of digital processing and filtering algorithms for noise signals.
- if some operating level is exceeded, “KIV-500/110” relay gives the signal, and shows which bushing is the reason of it, which considerably facilitates diagnostics.
- “KIV-500/110” relay has modern interfaces for SCADA communication, which allows to



continuously analyze the transformer bushing condition. Thus the defects can be revealed at the early stages of their development.

The modern approach to bushing monitoring and protection considerably changes the equipment operation management in the whole.

The introduction of “KIV-500/110” gives the opportunity

not just to detect an emergency and minimize the consequent damage, but to prevent the failure beforehand.

Structurally the relay is a standalone device which may be installed near the transformer in the protective enclosure, or at the control board. There is no need to use any adapter transformer, which considerably reduces the cost of the equipment and its installation.



The delivery set of “KIV-500/110” is:

- “KIV-500/110” relay in the protective enclosure;
- three «DB-2» partial discharge sensors for the definite high-voltage bushings (the type and the producer of the bushings should be specified while placing the

order);

- the set of coaxial cables in metal hose for connecting the sensors to the switchboard.

If it is necessary, the relay can be supplied in a bigger enclosure with the three adapter transformers also installed inside.

“KIV-500/110” Specifications

№	Parameter	Value
1.	The number of the monitored bushings	3 of 6
2.	Bushing rated voltage, kV	110 ÷ 750
3.	Leakage current range, A	0.005 ÷ 0.200
4.	“Warning” level setting range, %	1 ÷ 10
5.	“Alarm” level setting range, %	3 ÷ 20
6.	Operating levels setting accuracy, %	± 0.1
7.	Time delay, sec.	1 ÷ 20
8.	Time delay setting accuracy, sec.	± 0/1
9.	Temperature range, °C	-60 ÷ +90
10.	Supply voltage, V	AC/DC 80 ÷ 260