

“KIV-500/110” – the Universal Relay for Protection of 110-750 kV Bushings with “paper-oil” Insulation and RIP-Insulation

The “KIV-500/110” Relay is used for protecting of power transformers if high-voltage bushings with “paper-oil” insulation and RIP- insulation are damaged.

The “KIV-500/110” Relay is used for solving the two important practical tasks:

- the Relay signals about alarm and emergency bushing condition for well-timed transformer disconnecting;
- the Relay operatively diagnoses the transformer high-voltage bushings condition, detects the defect bushing and specifies the type of defect.

The “KIV-500/110” Relay has more functions than the wide-spread “KIV-500” relay:

- it can be easy used for protecting bushings with different types of insulation.
- it is implemented on modern microprocessor base and hasn’t the shortcoming of the “KIV-500” relay.
- the “KIV-500/110” Relay can be used with bushings of different rated voltages – from 110 up to 750 kV. The “KIV-500” relay can’t be used for such wide range of bushings as it has low sensitivity at low leakage currents.

• the “KIV-500/110” Relay has better noise immunity thanks to using digital algorithms of noise signals processing and filtration.

• if some danger level is exceeded, the Relay shows which bushing is the reason of it, which considerably facilitates diagnostics works.



- the modern interfaces for SCADA connection allows the “KIV-500/110” Relay to continuously analyze the transformer bushings condition. Thus the defects can be revealed at early stages of their development.

The modern approach to monitoring organization and bushings protection considerably changes the

operation process. The introduction of the “KIV-500/110” system gives the possibility not just to state the failure condition and minimize its consequences, but to prevent the failure.

The Relay is a self-contained unit which can be installed in enclosure near the monitored transformer and on the transformer command console. There is no need to use any adapter transformer if the Relay is installed near the monitored transformer, which reduces the production and installation costs.

The delivery set of the “KIV-500/110” Relay:

- the “KIV-500/110” Relay in the enclosure;
- three PD sensors «DB-2» with the seat manufactured for the definite high-voltage bushings (the type of and the producer of the bushings should be specified before order);
- a set of connecting coaxial cables in metal hose for connecting the sensors to the switchboard.

If it is necessary, the Relay can be supplied in the switch box with the three adapter transformers also installed inside.



Specification of the “KIV-500/110” Relay

No	Parameter	Value
1	Quantity of monitored high-voltage bushings	3 or 6
2	Rated voltage of monitored bushings, kV	110 ÷ 750
3	Conduction current measuring range, A	0,005 ÷ 0,200
4	Alarm threshold installation range, %	1 ÷ 10
5	Alarm threshold installation accuracy, %	± 0,1
6	Pre-alarm threshold installation range, %	3 ÷ 20
7	Pre-alarm threshold installation accuracy, %	± 0,1
8	Operation time delay for each every threshold, sec.	1 ÷ 20
9	Accuracy of operation time delay installation, sec.	± 0,1
10	Temperature range, °C	-60 ÷ +90
11	Supply voltage, V	AC/DC 80 ÷ 260