

Phase comparator UF001

APPLICATION

Phase comparator is adapted to cooperate with voltage indicators and interlocking relays. It can be used to indicate the mutual phase relations between the connecting points of the two systems indicating the presence of the operating voltage, installed in medium voltage switchgears. Phase comparator may be also used as a additional portable voltage indicator.

It is adapted for cooperation with VPIS, which consists of reactance or resistance insulators (output currents from 50 up to 500 μ A) at the rated voltage of the network. Optical element signaling phase incompatibility (the presence of voltage) is electroluminescence diode. In case of phases compatibility diode does not light. Phase comparator is equipped with connection wires of 1 m. length completed in plugs with a diameter of 4 mm.

Phase comparator UF001 is adapted to cooperate with PBL- interlocking relay produced by ELTOM, which is adapted to cooperate with the measurement insulator equipped with capacitive or resistive dividers.

Standard PN-EN 61958:2002 about unequivocation of indications of the phase comparators connected to VPIS (systems consisting of reactance (resistance) insulators and voltage indicators) requires that in three-phase systems:

- » an indication related with the state "phase incompatibility" should occur if the phase shift between the phase voltages exceed 100
- » an indication related with the state "phase compatibility" should occur if the phase shift between the phase voltages does not exceed 100

Foregoing conditions are to be met for a operating phase voltages in the range of $U_n / 3 \pm 8\%$.



TECHNICAL DATA

PARAMETER	VALUE
Current threshold value indicating phase incompatibility	8...90 $\mu\text{A} \pm 10\%$
Cooperation with systems indicating the presence of the voltage (VPIS)	MCL-WS-01, MCL-WS-03, PBL, reactance insulators on output currents (at network rated voltage U_n): 50...500 μA
Ambient temperature: » storage and transport » operating	» -25 - +70°C » -10 - +55°C
Housing	plastic
Level of protection	IP 40

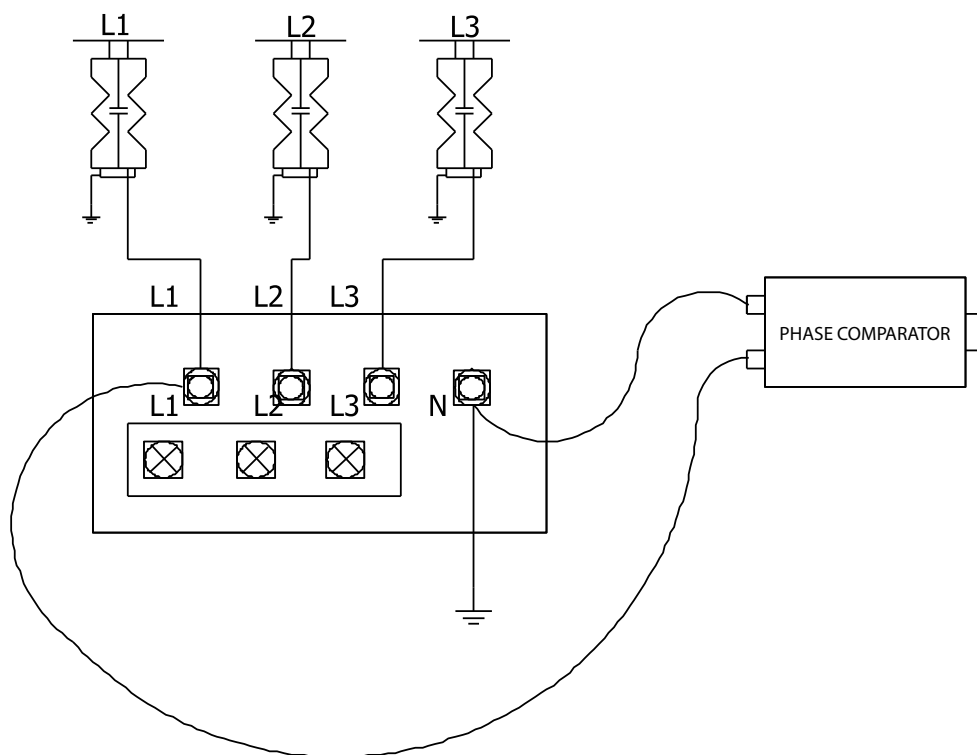
OPERATION

Phase comparator type UF001 is a portable device helping to determine the compatibility of incompatibility of phases between the connecting points of the two VPISes. The comparison of phases should be performed in the following manner:

- » check if the optical elements work correctly by connecting the wires to the voltage indicator - the comparator should indicate the presence of voltage
- » unplug the wire from the indicator's N socket and attach it to the indicator's L1 socket of the second system

The lighting of the optical element (neon lamp) informs about "phases incompatibility" it means, that the phase shift between the phase voltages exceeds 100. The lack of optical signal informs about "compatibility of phases" namely, phase shift between the phase voltages is smaller than 300.

NOTE: In the area of the phase angles 100 to 300 indications can be ambiguous.



validation of indications of optical elements of phase comparator

