

MICROWIRE RESISTIVE DIVIDER FOR HIGH VOLTAGE MEASUREMENT OF ALTERNATING CURRENT OF 6.3-35 kV

Description

High-voltage voltage dividers on the basis of a microwire in glass insulation are the new measuring equipments with the raised technical characteristics at measurement of alternating current voltage in electric networks. Structurally they represent a set of resistive elements from a microwire placed in the protective case. The divider has a high-voltage and low-voltage shoulder. Output voltage makes 3.5V and for it measurement the special voltage repeater is used. Sources of peak and phase errors are basically parasitic capacities on the case. In the developed design special constructive elements (dielectric) with which help are provided indemnification of peak and phase errors on the set frequency is carried out. Thus, the class of accuracy of voltage divider at level 0.2 can be provided on industrial frequency. In a divider design the built in device for protection against an overvoltage is provided. For dividers with rated voltage more 20kV transformer oil or SF₆ gas is used as the isolating environment. Samples of dividers of type RVD (Resistive voltage divider) have been developed and tested for voltages 6.3kV, 10kV, 24kV and 35kV (Fig.1). Their metrological characteristics in dependence of temperature and design are experimentally defined.



Fig.1. Samples of developed voltage dividers (6-10kV, 24kV and 35kV)

Innovative Aspect and Main Advantages

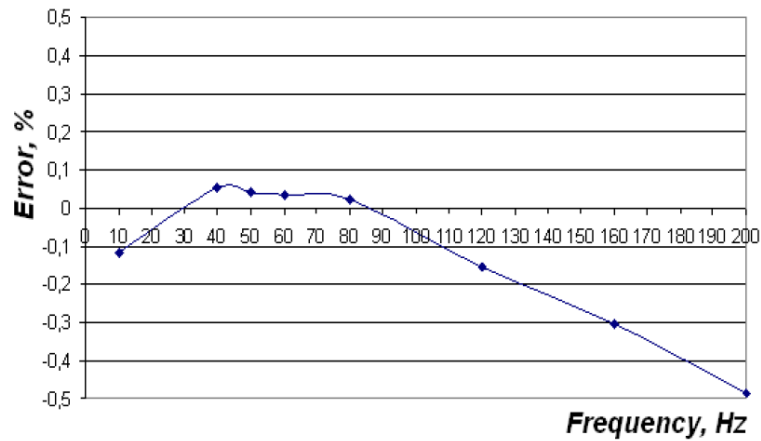
High accuracy of measurement 0,05 % in the temperature range 10-40°C.

Measurement of alternating current of voltage 6-35 kV with frequency of 40-60 Hz.

Opportunity of other parameters measurement: difference of phases, frequencies, factor of voltage distortion.

The weight of the voltage divider is 4-5 times less than weight of the voltage measuring transformer for the given class of accuracy.

Frequency error of the module K_M of a divider DRT 24 kV



Frequency error of a phase K_φ of a divider DRT 24 kV

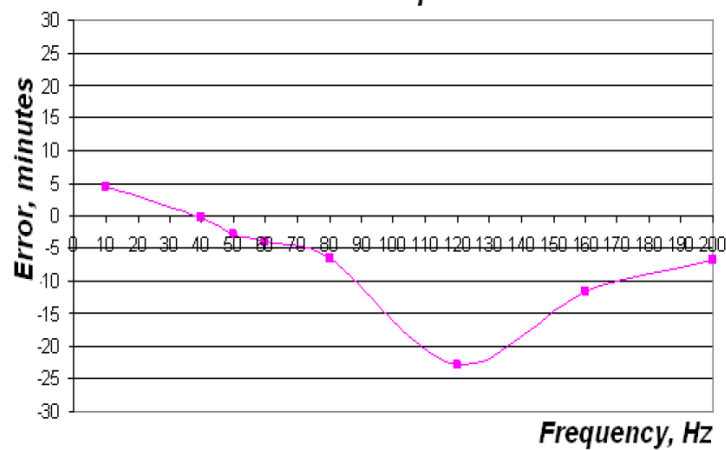


Fig.2. Dependences of errors of the divider DRT 24 kV on frequency

Stage of Development

The proposed technical solution is covered with:

1 Patens: MD2180, MD3239, MD3664, MD3784, US 1712896, MD359C2