

The invention relates to the field of electrical and electronic measurements and can be used to measure the linear resistance of insulated wire.

The device comprises two signal generators (1, 2) with output voltages, respectively, U_{G1} , U_{G2} and frequencies F_1 , F_2 , having their output terminals connected to the common wire, two capacitive contacts (4, 6), located near the insulated wire at a distance L from one another, a two-position switch (3) with digital control, connected to the second capacitive contact (6), with the possibility of variable connection respectively to the first (1) and second (2) signal generators, a resistor (5) with resistance R , connected between the common wire and the first capacitive contact (4), an amplifier (7), a detector (8) and a digital-to-analog converter (9), connected in cascade, and the input of the amplifier (7) is connected in parallel with the resistor (5). The device also contains a computing block (10), having its input connected to the output of the digital-to-analog converter (9), and its output – to the controlled input of the switch (3), to calculate the linear resistance R_L of the insulated wire according to the formula:

$$R_L = \frac{R}{L} \times \left(\sqrt{\frac{U_{G1}^2}{U_1^2} - \frac{F_2^2}{F_1^2} \frac{U_{G2}^2}{U_2^2}} / \sqrt{1 - \frac{F_2^2}{F_1^2} - 1} \right), \text{ where } U_1, U_2 \text{ are respectively the voltage values at the input of the}$$

computing block (10) in the first and second positions of the switch (3).

The invention of the invention is to simplify the design and reduce the cost of the device.

Claims: 1

Fig.: 1

