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The invention relates to the field of measuring technology and can be used in measuring instruments that use sensors based on nanostructured semiconductor oxides.

The device for measuring the resistance of a sensor based on nanostructured semiconductor oxides in the range of the order of microwatts comprises an adjustable reference voltage source U_{ref}, connected to the output of a microcontroller and connected in series to the investigated nanostructured sensor R_x and a reference resistor R_o, the connection point of which to the investigated sensor R_x is connected to the input of the microcontroller, at the same time the common circuits of the reference resistor R_o, the reference voltage source U_{ref} and the microcontroller are connected to ground.

The method for measuring the resistance of a sensor based on nanostructured semiconductor oxides in the range of the order of microwatts consists in that it is measured the voltage U_{ref} of the reference voltage source, is measured the voltage drop across the reference resistor U_{ro}, is calculated the voltage drop across the investigated nanostructure by the formula $U_{R_x} = U_{ref} - U_{ro}$, is calculated the amount of current passing through the nanostructure by the formula = $I_{R_x} = U_{R_x}/R_o$, is calculated the power applied to the nanostructure $P_{R_x} = I_{R_x} * U_{R_x}$, is set the value of the reference voltage U_{ref} so that the power P_{R_x} may not exceed the maximum permissible value P_m according to the expression $P_{R_x} \leq P_m$. Calculation of the R_x sensor resistance value is performed in accordance with the Ohm's law, using the obtained U_{R_x} and I_{R_x} values.

Claims: 2
Fig.: 1