

The proposed thermal-noise device for measuring temperature can be used in the medicine for measuring temperature of internal organs of a human being or animal. The device contains two partially oxidized needle electrodes, two step-up transformers, an inverting transformer, four capacitors, an automatic switch, and a switching signal generator. The needle electrodes will be inserted into the tested organ. The area between the electrodes is used as the sensitive element of the proposed device. The secondary windings of the step-up transformers are connected in series, and the central terminal of the winding connection is connected to the earth. The first and the second capacitors are connected between the input leads of the electrodes and the primary windings of the transformers, which are connected parallel to the device sensitive element. The third and the fourth capacitors are connected between the input leads of the inverting transformer and the input leads of the automatic switch. Additionally, the device contains two amplifiers with the outputs connected to the leads of the step-up transformer windings, an operational amplifier, and a summing unit. The first input of the summing unit is connected to the output of the first amplifier, and the second input is connected to the output of the second amplifier via the automatic switch and the inverting transformer. The summing unit output is connected to the series-connected square-law detector, a low-frequency amplifier, a synchronous detector, and a low-frequency amplifier. The low-frequency amplifier output is connected to the operational amplifier via the electrodes and the sensitive element. The operational amplifier output is connected to the indicator input. Into the operational amplifier feedback circuit, a constant resistor is connected. The switching signal generator output is connected to the control inputs of the synchronous detector and automatic switch. The device contains also the first and the second constant resistors, a switch, and a squaring converter. The converter input is connected to the operational amplifier output, and the output is connected to the first input of the automatic switch via the switch and the second constant resistor connected in parallel. The third constant resistor is connected in parallel to the second input of the automatic switch.