

## Precision impedance comparator



This computerized precision comparator is intended for precise reproduction of the units of complex impedance, and transfer of the value of a unit in the range of measurement, and also for the measurement of capacity (C), inductance (L), resistance (R), the loss tangent ( $\text{tg}\delta$ ), the phase tangent ( $\text{tg}\phi$ ), the time constant in the process of metrological works on certification and calibration of the units of complex impedance and also for precise measurement of these parameters.

The comparator can be used for:

- The transfer of the units of capacity, inductance, impedance, loss tangent, quality and time constant;
- The reproduction of the capacity unit on the units of impedance and frequency;
- The reproduction of the unit of resistance and inductance on the units of capacity and frequency;
- The reproduction of the units of loss tangent, quality and time constant.

The transfer of the units of measuring quantities is made in the whole range of existing measures of corresponding parameters. The reproduction of the measurement units is made in the center ranges of measurement with minimum error in the whole range of existing measures parameters.

The main purpose of the comparator is the implementation of the metrological works on comparison of the standards, certification and calibration of the standard equipment with the usage of minimum quantity (as a limit – only one arbitrary value measure with higher grade) of the standard measures. The device provides a four terminal connection of the objects of comparison and measurement, the registration of primary parameters, automatic choice of the sub-range measurement with a possibility of fixation of the sub-range, the control of the environment temperature, the possibility of documentation of the results and condition of the measurement.

### SPECIFICATION:

The range of the measurment units :	
R, Ohm	from $1 \times 10^{-7}$ to $1 \times 10^{14}$
C, F	from $1 \times 10^{-20}$ to $1 \times 10^3$
L, H	from $1 \times 10^{-12}$ to $1 \times 10^3$
$\text{tg}\delta$ and $\text{tg}\phi$	from $1 \times 10^{-7}$ to $1 \times 10^7$
$\tau$ , sec	from $1 \times 10^{-9}$ to $1 \times 10^7$
Working frequency , kHz	1,0; 1,592
Comparizon error on R, L, C	$1 \times 10^{-7}$
Non-linearity of a conversion function of $\text{tg}\delta$ , $\text{tg}\phi$	$1 \times 10^{-6}$
Discreteness of digital countdown	$1 \times 10^{-8}$
Consuption power, W	Not more than 10,0
The power supply is made from the power network with AC voltage 220 (+22, -33) V with the frequency (50 $\pm$ 1) Hz with the help of autonomous power supply source.	