

#### 4.15. IMMITANCE METER MNS-1200 (MHC-1200)

It is intended for automatic measurement of immitance parameters (capacitance C, inductance L, active resistance R, mutual inductance M, tangent of loss angle  $\text{tg}\delta$  and tangent of phase shift angle  $\text{tg}\varphi$  (quality factor of  $Q_c$  and  $Q_L$ ) for each of the two-element replacement circuits, as well as percentage deviations with representation of measurement results in digital form).

The meter can be used for performing metrological tasks, monitoring electrical and radio engineering products, in scientific researches, for measuring non-electrical quantities by using measuring converters of different types.



##### *The meter provides:*

- automatic selection of the nature of measurement object's reactivity by "prevailing parameter" criterion;
- accounting of initial parameters;
- averaging of the measurement results;
- elimination of the impact of network interference;
- measurement with a regulation of AC voltage value applied to the measurement object;
- two measurement modes: 1. one-time - to measure unknown quantities; 2. that monitors - for continuous measurement of time-varying quantities;
- work in conjunction with a PC via RS-232 interface using its own top-level program.

##### *Technical specifications:*

<b>Range of measured values:</b>	
- R, $\Omega$	$1 \cdot 10^{-6} \dots 1 \cdot 10^{12}$
- C, F	$1 \cdot 10^{-16} \dots 1 \cdot 10^3$
- L, H	$1 \cdot 10^{-10} \dots 1 \cdot 10^9$
- M	$1 \cdot 10^{-6} \dots 1 \cdot 10^0$
- $\text{tg}\delta$	$1 \cdot 10^{-6} \dots 1 \cdot 10^5$
- $\text{tg}\varphi$	$\pm 1 \cdot 10^{-6} \dots \pm 1 \cdot 10^5$
- percentage of deviations, %	$\pm 100$
Operating frequencies (655 000 discretely set frequency)	0,1Hz – 1000 kHz
Accuracy class at main frequency 1 kHz	0,01/0,0002
Accuracy class when calibrating across an external reference measure	0,003/0,0002
<b>Discreteness of the digital readout (on the lower measuring range):</b>	
- by R, $\Omega$	$1 \cdot 10^{-6}$
- by C, F	$1 \cdot 10^{-17}$
- by L, H	$1 \cdot 10^{-10}$
Measuring range of DC resistance, $\Omega$	$1 \cdot 10^{-6} \dots 1 \cdot 10^{12}$
Given measuring error of DC resistance	less than $2 \cdot 10^{-5}$
Range of values of AC voltage at the measurement object	0,01 ... 4,5
Operating temperature range, $^{\circ}\text{C}$	+10 ... +35
Supply	$\sim (220 \pm 22)\text{B}, (50 \pm 1)\text{Hz}$
Power consumption, VA	no more than 10
Overall dimensions, mm	120x290x300
Weight, kg	no more than 5

##### *The top-level program when working with a PC provides:*

- monitoring of the measurement results by two parameters;
- formation of the databases of measurement results;
- averaging of the measurement results.