

Digital multimeter **DMM1**

The DMM1 module is designed to operate as part of information measuring systems based on the VXI bus as a digital multimeter. The module is a device on the basis of registers and has the dimensions C-1.

The module performs the measurement of direct and alternating voltage, direct and alternating current, resistance, frequency.

When measuring DC voltage in the ranges of 100 mV, 1 V and 10 V; input impedance can be selected 10 MOhm or 10 GOhm. In the ranges of 100 V and 400 V, the input resistance is fixed and equal to 10 MOhm $\pm 1\%$.

Active resistance measurement is performed with the possibility of choosing one of the measurement schemes: 2-wire or 4-wire. The maximum polling current does not exceed 1 mA. The output of the ohmmeter reference current source is protected from applying an external voltage with an amplitude of ± 400 V.

The current is measured using the built-in shunt whose resistance is 0.1 Ohm for the measuring ranges 1 A and 3 A and 5.1 Ohms for the ranges 10 mA and 100 mA. Protection of the input of the ammeter against excessive current is carried out using a fuse, which is accessed from the front panel of the module.

All measurement inputs are galvanically isolated from the housing. Voltage of galvanic isolation is not less than 500 V.

The module contains an internal memory that allows storing up to



4K measurements once. The organization of memory allows reading from it without interrupting the measurement process, which allows an endless measurement mode.

The module has an automatic zero correction mode.

The module has an automatic range detection mode.

Specifications

| | |
|--|---|
| The capacity of the module is 6.5 characters (with an aperture of 1, 10 and 100 periods of the supply network) | Maximum measurement speed - 30,000 measurements / sec (with a digit capacity of 4.5 characters) |
| Input impedance <ul style="list-style-type: none"> 10 MOhm or 10 GOhm (in the range of 100 mV, 1 V, 10 V), 10 MOhm $\pm 1\%$ (in the range of 100 V, 400 V) | 2-wire or 4-wire resistance measurement circuit |
| Built-in Shunt Resistance <ul style="list-style-type: none"> 0.1 Ohm (when measured in the range of 1 A, 3 A), 5.1 Ohm (with a change in the range of 10 mA, 100 mA) | Maximum polling current, no more than 1 mA |
| | Voltage of galvanic isolation of measuring inputs from the housing, not less than 500 V |

Ranges of measurement of direct voltage, direct current and resistance

| Measured function | Range | Error $\pm(A+B)\%$ | |
|-------------------------|---------------|--------------------|--------|
| | | A | B |
| Constant pressure (U) | 100.0000 mV | 0.0040 | 0.0035 |
| | 1.000000 V | 0.0030 | 0.0007 |
| | 10.00000 V | 0.0020 | 0.0005 |
| | 100.0000 V | 0.0035 | 0.0006 |
| | 400.0000 V | 0.0035 | 0.0030 |
| DC (I) | 10.00000 mA | 0.05 | 0.01 |
| | 100.0000 mA | 0.040 | 0.005 |
| | 1.000000 A | 0.130 | 0.010 |
| | 3.000000 A | 0.720 | 0.020 |
| Resistance (R) | 100.0000 Ohm | 0.008 | 0.004 |
| | 1.000000 kOhm | 0.008 | 0.001 |
| | 10.00000 kOhm | 0.008 | 0.001 |
| | 100.0000 kOhm | 0.008 | 0.001 |
| | 1.000000 MOhm | 0.008 | 0.001 |
| | 10.00000 MOhm | 0.035 | 0.001 |
| | 100.0000 MOhm | 0.800 | 0.010 |
| AC voltage | | | |
| 100mV-300V | 3Hz-5Hz | 1.00 | 0.03 |
| 100mV-300V | 5Hz-10Hz | 0.35 | 0.03 |
| 100mV-300V | 10Hz-20kHz | 0.05 | 0.03 |
| 100mV-300V | 20kHz-50kHz | 0.11 | 0.05 |
| 100mV-300V | 50kHz-100kHz | 0.60 | 0.08 |
| 100mV-300V | 100kHz-300kHz | 5.00 | 0.50 |
| AC | | | |
| 1A, 3A | 3Hz-5Hz | 1.5 | 0.06 |
| | 5Hz-10Hz | 0.95 | 0.06 |
| | 10Hz-1kHz | 0.75 | 0.06 |
| | 1kHz-50kHz | 1.00 | 0.06 |