

MS 300 SERIES METER

USER'S MANUAL

Safety

Meaning of symbol

CAUTION! Please consult the operating instructions before using the device. In these operating instructions, failure to follow or carry out instructions preceded by this symbol may result in personal injury or damage to the device and the installations.

Meaning of symbol

This appliance is protected by double insulation or reinforced insulation. It does not have to be connected to an earth protection terminal for electrical safety.

Thank you for purchasing this MS302 voltmeter.

To obtain the best service from your unit:



- **Read** these operating instructions carefully,

- **Comply** with the precautions for use.



PRECAUTIONS FOR USE

- Never use on a voltage network over 600V with respect to the earth connection. This voltage surge category III voltmeter complies with stringent reliability and availability requirements, corresponding to fixed industrial and domestic installations (see IEC 664-1).
- Do not use on alternative and continuous voltages > 600V.
- Indoor use in environments with a maximum pollution level of 2 (EN 50419:2006) temperature of -10°C to +50°C and relative humidity below 90%.
- Respect the value and type of the fuses to avoid damaging the instrument and canceling the warranty.
- Fuse 500V/0.5A
- Use accessories corresponding to safety standards (EN 61010-1:2001) with 600V minimum voltage and surge category III.
- Before any measurement, ensure correct positioning of the leads on the voltmeter and of the switch. When the value range of a measurement is not known, place the switch at the highest caliber, and then gradually reduce it until the appropriate caliber is achieved: the reading should preferably be in the upper 2/3 of the range.
- The leads must be disconnected to open the lower half of the meter case
- Never connect to the circuit to be measured if the casing is not properly closed.

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1 DESCRIPTION

The MS302 voltmeter is for everyday use by electricity professionals. It offers the following functions:

-Voltmeter: voltage measurement (V_{DC} and V_{AC})

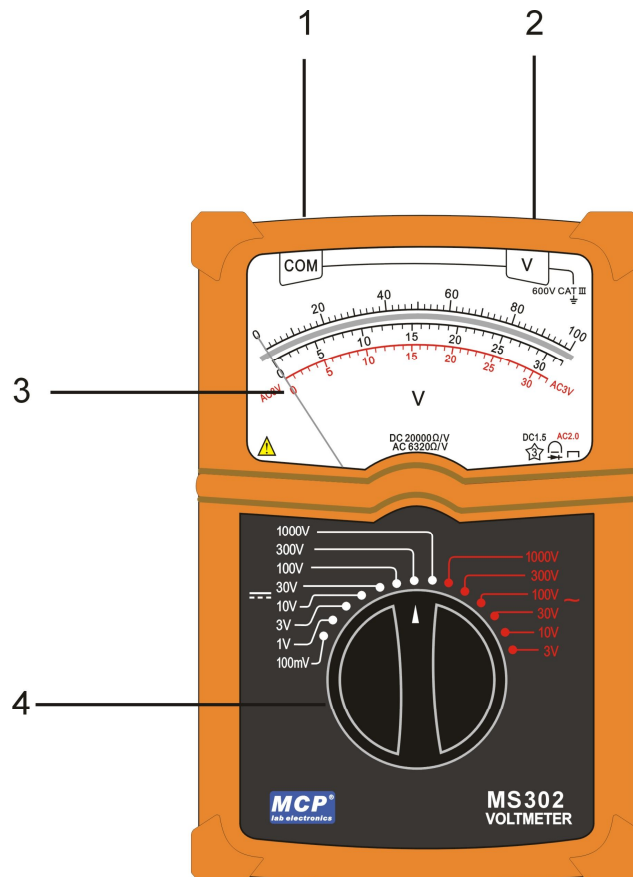
1-1 Safety terminals, $\Phi 4\text{mm}$

- COM common, terminal receiving the black lead (1)
- V for voltage (2)

1-2 3-range dial (3)

2 black, with anti-parallaxe mirror, for the V_{DC} and V_{AC}
1 red for the $V_{AC}3\text{V}$ measurements

1-3 Function selection switch (4)



2 REFERENCE CONDITIONS

Temperature: 23°C±2°C

Humidity: 45%RH±5%

Position: horizontal±2°

Ensure that the pointer is at zero before starting any measurements.

Zero adjustment: open the device. Mechanical zero adjustment is carried out by turning the screw on the back of the null meter.

Ensure that the switch is correctly positioned.

When an estimated measurement is unknown, place the switch at the highest caliber, and then gradually reduce it until the appropriate caliber is achieved: the reading should preferably be in the upper 2/3 of the range.

3 SPECIFICATIONS

1 DC VOLTAGE

Connect the leads to the voltmeter (be careful of switch position, see below) and connect to the circuit to be controlled.

When an estimated measurement is unknown, place the switch at the highest caliber, and then gradually reduce it until the appropriate caliber is achieved.

To obtain voltage in V, multiply the appropriate range value by the reading coefficient indicated in the table.

VDC	100mV	1V	3V	10V	30V	100V	300V	1000V
Range(indication)	100	100	30	100	30	100	30	100
Reading coefficient	×1	×0.01	×0.1	×0.1	×1	×1	×10	×10
Internal resistance	2kΩ	20kΩ	6.32kΩ	200kΩ	632kΩ	2MΩ	6.32MΩ	20MΩ
Accuracy	1.5%							
Admissible overload	600V	600V	220V	380V	600V	600V	600V	1200V

2 AC VOLTAGE

VAC	3V	10V	30V	100V	300V	1000V
Range(indication)	30	100	30	100	30	100
Reading coefficient	×0.1	×0.1	×1	×1	×10	×10
Internal resistance	20kΩ	63.2kΩ	200kΩ	632kΩ	2MΩ	6.32MΩ
Accuracy	2.0%					
Bandwidth	45~1kHz					45~150Hz
Admissible overload	600V	220V	380V	600V	600V	1200V

The presence of a DC component falsifies the measurement.

4 GENERAL CHARACTERISTICS

4-1 Dimensions and weight

Dimensions: 160×105×50mm

Weight: 670g

4-2 Maximum climatic conditions

Temperature use -10°C to +50°C; storage -30°C to +70°C


Relative humidity use ≤80% HR

Altitude use <2000m

4-3 Compliance with international standards

Electrical safety (EN 61010-1:2001)

CEI 1010-1 EN61010 NF-C 42020 VDE 0411

- Double insulation: 
- Pollution level: 2
- Installation category: III according to CEI 664
- Allocated voltage: 600V

4-4 Electromagnetic compatibility

- Emission (EN 61326-1:2006)
- Immunity (EN 61326-1:2006)

Maximum influence in the presence of conducted radio frequencies: 3 times the accuracy class if the length of the measured circuit is >3m

5 SUPPLY

To order **MS302**

Delivery:

- 1 voltmeter
- 1 user's manual

6 MAINTENANCE

Only use the specified spare parts for maintenance. The manufacturer shall not be held liable for any incident occurring following repairs carried out by a party other than its after-sales service or approved repairers.

6-1 Fuse change

Open the device. Use the same type of fuses to ensure the safety of users and of the device.

Fuse: 500V/0.5A

6-2 Cleaning

The voltmeter must be disconnected from all electricity sources.

To clean the casing, use a cloth dampened with soapy water. Wipe over with a damp cloth. Dry quickly with a dry cloth or forced air.