# MAXWELL DIGITAL MULTIMETERS 25403B Digital Multimeter with Display User Manual



**MAXWELL DIGITAL MULTIMETERS 25403B Digital Multimeter with Display User Manual**

Contents



## Introduction

A general multimeter designed to make it easier to read the measurement result. Hold with 2 fingers only , „pen” design. The values can be read of a large display. The automatic mode allows easy use, you can start measuring immediately after switching on.

- Ergonomic design
- Large display
- Display backlight
- Accessory carrying case
- Non-contact voltage detection
- Automatic reset
- Polarity indication
- Diode test
- Continuity test
- Data storage
- Overvoltage indication
- Sound indication
- LED indication
- Included: battery (2 x AAA)

### Specifications

| | |
|---|---|
| Display | 3 3/4 digit (4000) |
| DC V | 4 V – 600 V |
| AC V | 4 V – 600 V |
| Resistance | 400 Ω – 40 MΩ |
| Power supply | 2 x 1.5V AAA batteries |
| Dimensions | 205 x 35 x 30 mm |
| Weight | ~ 80 g (with battery) |

## Safety information

This multimeter complies with IEC-61010 electronic standard CAT III 600 V.

### Safety warnings

- To reduce the risk of electric shock or personal injury, follow these instructions:
- Never use the instrument if it is damaged. Check the integrity of the cover before use. Pay special attention to the insulation of the contacts.
- Check the insulation of the test leads or that they do not come into contact with metal. Replace the test leads if they are damaged.
- Do not use the instrument if it operates abnormally.
  If in doubt about the usage of the device, take it to a service center.
- Do not use the device in the presence of flammable, explosive gases, vapors and dusts.
- Never measure more than the maximum permissible measuring range.
- Check the operation of the padlock on a known circuit before use.
- When repairing the device, always use the parts recommended by the manufacturer.
- Measure with extreme caution at 30 V AC RMS, 42 V peak, or 60 V DC, as it could easily cause severe electric shock.
- If you use an additional probe, make sure that your fingers are behind the metal part of the probe in the insulated area during the measurement.
- Connect the secondary test lead (black) first to the object to be measured, then to the primary (red). When the measurement is completed, disconnect the primary from the circuit first and then the secondary.
- Always remove the test leads before opening the battery cover.
- Never use the instrument with the battery cover open or the housing damaged.
- To avoid errors in measurement results or possible personal injury („leaking current”), replace the battery in the device as soon as possible if the icon appears on the display.
- When using the padlock portion of the instrument, remove the test leads.
- Remove the padlock jaws from the circuit before opening the battery cover.
- **CATIII –** Contact protection measurement category III – can be used for indoor measurements, such as distribution cabinets, circuit breakers, wires, busbars, junction boxes, switches, sockets in a fixed design and

for other industrial applications, such as fixed connection of installed motors. Do not use the instrument for CAT IV measurements!

**ATTENTION!**

To avoid damage to the device, always follow the instructions below:
Turn off the power source or discharge the high capacity capacitors before measuring resistance, diode or continuity.
Only perform measurements within the measuring range of the device.
Do not connect to the circuit or object to be measured when turning the function selector knob.

## Description

The MX-25403B is a “pen”, ergonomically designed, 33/4 digit automatic measuring range for measuring digital multimeter, for DC and AC voltage, resistance, diode and circuit continuity measuring.

| | |
|---|---|
|  | Important safety information. Read the description! Presence of dangerous voltage |
| **AC** | AC (alternating voltage) |
| **DC** | DC (direct voltage) |
| **COM** | Ground point |
|  | Complies with EU regulations |
|  | Double insulation |
|  | Diode |
|  | Low battery voltage |

## Display description


- **AUTO** – Automatic measuring range indication
- Diode measurement indication
- Continuity test indication
- Data hold
- Indication of danger
- Low battery indicator

Unit of measurement **(Ω, Hz, V, F)**

### General technical parameters

| | |
|---|---|
| Display | 3 3/4 digit LCD display (4000) |
| Polarity | automatic polarity indicator |
| Overload indication | “OL” line on the display |
| Sampling | aprox. every 0.4 sec |
| Power supply | 2 x 1,5 V AAA batteries |
| Low battery indication | “BATTERY ” symbol on the display |
| Operating temperature | 0 ºC – 40 ºC, <75% humidity |
| Storage temperature | -20 ºC – 60 ºC, <85% humidity |
| Dimensions | 205 x 35 x 30 mm |
| Weight | ~ 80 g (with battery) |

## Specification

The measurement accuracy is valid for one year from calibration at a temperature of 23 °C (± 5 °C) and a max. At 75% relative humidity.

**AC Voltage**

| | | | |
|---|---|---|---|
| | Measuring range | Resolution | Accuracy |
| | 4 V | 1 mV | ± (0.8%+3d) |
| | 40 V | 10 mV | ± (0.8%+3d) |
| | 400 V | 100 mV | ± (0.8%+3d) |
|  | 600 V | 1 V | ± (1%+3d) |
| | Overvoltage protection | 100 mV measuring range: 250 V DC / AC RMS 4 V – 600 V<br>measuring range: 600 V DC / AC<br>Max. input voltage: 600 V DC / AC | |
| | Input Independence | 10 MΩ | |
| | Frequency range | 40 Hz ~ 400 Hz | |
| | Max. input voltage | 600 V DC / AC | |

**DC Voltage**

| | | | |
|---|---|---|---|
| | Measuring range | Resolution | Accuracy |
| | 4 V | 1 mV | ± (0.8%+3d) |
| | 40 V | 10 mV | ± (0.8%+3d) |
| | 400 V | 100 mV | ± (0.8%+3d) |
| | 600 V | 1 V | ± (1%+3d) |
| | Overvoltage protection | 100 mV measuring range: 250 V DC / AC RMS<br>4 V – 600 V measuring range: 600 V DC / AC<br>Max. input voltage: 600 V DC / AC | |
| | Input inpendace | 10 MΩ | |
| | Frequency range | 40 Hz ~ 400 Hz | |
| | Max. input voltage | 600 V DC / AC | |

**Resistance**

| | | | |
|---|---|---|---|
| **Ω** | Measuring range | Resolution | Accuracy |
| | 4 kΩ | 1 Ω | ±(1.0%+5d) |
| | 40 kΩ | 10 Ω | ±(1.0%+5d) |
| | 400 kΩ | 100 Ω | ±(1.0%+5d) |
| | 4 MΩ | 1 kΩ | ±(1.0%+5d) |
| | 40 MΩ | 10 kΩ | ±(1.2%+8d) |

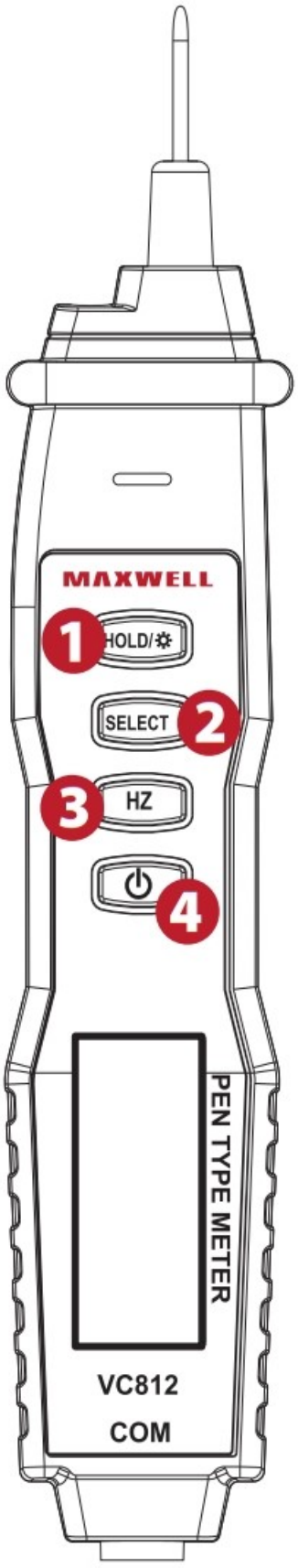
**Capacity**

| | | | |
|---|---|---|---|
| **C** | Measuring range | Resolution | Accuracy |
| | 4 nF | 1 pF | ±(3%+5d) |
| | 40 nF | 10 pF | ±(3%+5d) |
| | 400 nF | 100 pF | ±(3%+5d) |
| | 4 µF | 1 nF | ±(3%+5d) |
| | 40 µF | 10 nF | ±(3%+5d) |
| | 400 µF | 100 nF | ±(3%+5d) |
| | 4 mF | 1 µF | ±(5%+10d) |

**Frequency**

| | | |
|---|---|---|
| **Hz** | Measuring range | Accuracy |
| | 40.00 Hz | 0.01 Hz |
| | 400.0 Hz | 0.1 Hz |
| | 4.000 kHz | 1 Hz |
| | 40.00 kHz | 10 Hz |
| | 400.0 kHz | 100 Hz |
| | 4.000 MHz | 1 kHz |
| | Maximum input voltage | 110 V or AC effective value |
| | Frequency response | 40 Hz ~ 400 Hz |

## Controls




1. **HOLD:** Short press data hold, long press display backlight and work light
2. **SELECT:** Select function
3. **Hz:** Frequency / Switching between auto measurement mode
4. **On/off switch:** Press briefly to switch on – long press to switch of

### Using the multimeter

**DCV and ACV Measurement**

1. Select „AUTO” mode, in „AUTO” mode the voltage and resistance can be detected automatically.
2. Connect the black test lead to the „COM” connector.
3. Connect the test pen to the measuring point and read the value on the display.
   **Note:** Never try to measure a voltage above 600 V.

**Resistance measurement and continuity test**

To prevent electric shock or damage to the meter, make sure the power is off and all capacitors are discharged before measuring.

1. Connect the black test lead to the „COM” connector
2. Select „AUTO” mode. In „AUTO” mode, voltage and resistance can be detected automatically.
3. Parallel the meter with the tested resistance and read the display value.
4. If the detected resistance is less than 50 ohms, the „continuity test” will start automatically and the device will sound an alarm.

**Note:**

1. **a)** The polarity of the built-in measuring tip of the pen is „+”.
2. **b)** If the input is not connected, ie with an open circuit, figure „1” is displayed for the timeout condition.

**Capacity measurement**

To avoid damaging the device, disconnect the power supply and discharge all high-voltage capacitors before measuring the capacity.

1. Press the **„SELECT”** button and select the capacitance measurement mode.
2. Connect the test pen to both ends of the capacitor being tested and read the displayed value.
   **Note:** The tested capacitor must always be discharged before the test procedure!

**Frequency measurement**

1. Press the **„Hz”** button and select the Frequency measurement mode.
2. Connect the black test lead to the **„COM”** connector;
   **Note:** The polarity of the built-in measuring tip of the pen is **„+”.**
3. Connect the pen to the measuring point and the display will show the frequency value.

**Non-contact induced voltage test (NCV)**

1. Press the **„SELECT”** button to select the **„EF”** mode.
2. Place the top of the multimeter near the AC body
3. When the sensor on the top of the multimeter detects the presence of an AC electric field, the internal buzzer will sound an alarm and the corresponding induced voltage intensity will appear on the LCD screen.

**Note:** This function is only used in the presence of an inductive electric field, so it is not possible to judge whether the measured circuit is safe. Risk of electric shock!

**Measuring tip:** Positive measuring point, peak at the front of the device.
**Test lead:** Negative measuring point

#### Battery change

To replace the battery, remove the battery cover, replace the same type again, and screw the cover back on.

**Remark:** Before replacing the battery, remove the test tip and test lead from the circuit to be measured and turn the device OFF. Make sure the polarity is correct when inserting the battery. Replacing the battery incorrectly may damage the device. Use only the specified type of battery (2 x AAA)

## Accessory

1. 2 pcs battery (AAA battery)
2. 1 pc user manual

## Documents / Resources

| | |
|---|---|
|  | MAXWELL DIGITAL MULTIMETERS 25403B Digital Multimeter with Display [pdf] User Manual<br>25403B Digital Multimeter with Display, 25403B, Digital Multimeter with Display |