

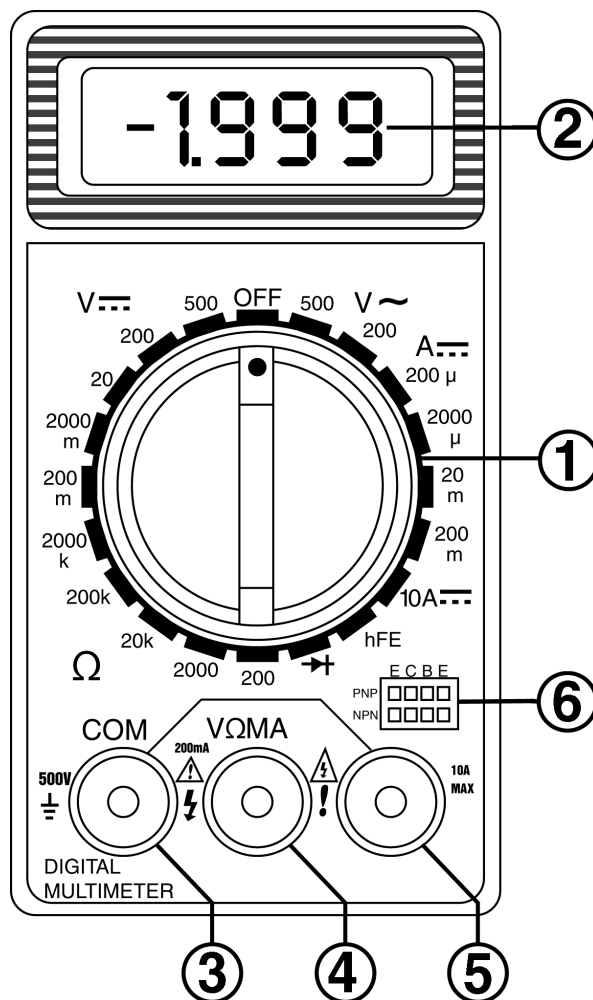
# DVM810

DIGITAL MINI MULTIMETER

DIGITALE MINI MULTIMETER

MINI MULTIMETRE NUMERIQUE

DIGITALES MINIMULTIMETER



**Instruction Manual**  
**Gebruikershandleiding**  
**Manuel d'utilisation**  
**Gebrauchsanleitung**

## 1. INTRODUCTION

The DVM810 is a compact multimeter with a 3 1/2 digit LCD for measuring DC and AC voltages, DC currents, resistance, diodes and transistors (hFE). Full overload protection is provided. It is an ideal instrument for hobbyists, for use in the field, for laboratories and workshops and for domestic applications.

## 2. FRONT PANEL DESCRIPTION

### 1. FUNCTION AND RANGE SWITCH

This switch is used to select the desired function and range. It also activates the instrument. Place the switch in the "OFF" position when the instrument is not in use in order to extend the life of your battery.

### 2. DISPLAY

3 1/2 digit display with 7 segments. Height : 0.5" (12.7mm)

### 3. "COMMON" JACK

Plug in the connector for the black (-) test lead.

### 4. "VΩmA" JACK

Plug in the connector for the red (+) test lead when you wish to measure voltages, resistances and currents (with the exception of 10A-measurements).

### 5. "10A" JACK

Plug in the connector for the red (+) test lead for all your 10A measurements.

### 6. TRANSISTOR JACK

Plug in the transistor for hFE-measurements of a NPN or PNP transistor. Use the correct b.e.c.-connections.

## 3. SPECIFICATIONS

Maximum accuracy is guaranteed for a one-year period after calibration. Ideal circumstances require a temperature of 23°C (± 5°C) and a max. relative humidity of 75%.

### 3.1. DC VOLTAGE

Range	Resolution	Accuracy
200mV	100μV	±0.25% of rdg ± 2 digits
2000mV	1mV	±0.5% of rdg ± 2 digits
20V	10mV	
200V	100mV	
500V	1V	

Overload protection : 220Vrms AC for the 200mV range and 1500V DC or 500Vrms AC for other ranges.

### 3.2. AC VOLTAGE

Range	Resolution	Accuracy
200V	100mV	$\pm 1.2\%$ of rdg $\pm 1$ digit
500V	1V	$\pm 1.2\%$ of rdg $\pm 1$ digit

Overload protection : 500V DC or 500V rms for all ranges.

Response : average response, calibration in rms of a sine wave.

Frequency range : 45Hz – 450Hz

### 3.3. DC CURRENT

Range	Resolution	Accuracy
200 $\mu$ A	100nA	$\pm 1.0\%$ of rdg $\pm 2$ digits
2000 $\mu$ A	1 $\mu$ A	
20mA	10 $\mu$ A	
200mA	100 $\mu$ A	$\pm 1.2\%$ of rdg $\pm 2$ digits
10A	10mA	$\pm 2.0\%$ of rdg $\pm 2$ digits

Overload protection : 200mA 250V fuse (10A-range is not fuse-protected)

Measuring voltage drop : 200mV

### 3.4. RESISTANCE

Range	Resolution	Accuracy
200 $\Omega$	100m $\Omega$	$\pm 0.8\%$ of rdg $\pm 2$ digits
2000 $\Omega$	1 $\Omega$	
20k $\Omega$	10 $\Omega$	
200k $\Omega$	100 $\Omega$	
2000k $\Omega$	1k $\Omega$	$\pm 1.0\%$ of rdg $\pm 2$ digits

Max. open circuit voltage : 2.8V

Overload protection : max. 220Vrms for 15 seconds on all ranges

## 4. OPERATING INSTRUCTIONS

### 4.1. WARNING

1. Do not measure voltages that exceed the earthing level by more than 500V in order to avoid all risks of electroshocks or damage to the instrument.
2. Make sure the insulation of all test leads, probes and connectors is intact prior to activating the device.

### 4.2. DC VOLTAGE MEASUREMENTS

1. Connect the red test lead to the "V $\Omega$ mA" jack and the black lead to the "COM" jack.
2. Place the RANGE switch in the appropriate VDC position. Set the switch to the highest range and work your way down if the voltage range is unknown beforehand.
3. Connect the test leads to the device or circuit to be measured.
4. Activate the device or circuit to be measured. Both the voltage reading and the polarity will be displayed.

#### 4.3. AC VOLTAGE MEASUREMENTS

1. Connect the red test lead to the "V $\Omega$ mA" jack and the black lead to the "COM" jack.
2. Place the RANGE switch in the appropriate VAC position. Set the switch to the highest range and work your way down if the voltage range is unknown beforehand.
3. Connect the test leads to the device or circuit to be measured.
4. Activate the device or circuit to be measured. The voltage value will appear on the display.

#### 4.4. DC CURRENT MEASUREMENTS

1. Connect the red test lead to the "V $\Omega$ mA" jack and the black lead to the "COM" jack. (Connect the red test lead to the "10A"-jack for measurements between 200mA and 10A).
2. Place the RANGE switch in the appropriate ADC position. Set the switch to the highest range and work your way down if the voltage range is unknown beforehand.
3. Open the circuit to be measured and connect the test leads IN SERIES with the load of which the current is to be measured.
4. Activate the device or circuit to be measured. The current value will appear on the display.

#### 4.5. RESISTANCE MEASUREMENTS

1. Connect the red test lead to the "V $\Omega$ mA" jack and the black lead to the "COM" jack.
2. Place the RANGE switch in the appropriate  $\Omega$  position.
3. If the resistance to be measured is connected to a circuit : disconnect the power and discharge all capacitors prior to measurement.
4. Connect the test leads to the circuit to be measured.
5. The resistance value will be displayed.

#### 4.6. DIODE MEASUREMENTS

1. Connect the red test lead to the "V $\Omega$ mA" jack and the black lead to the "COM" jack.
2. Set the RANGE switch to the  $\rightarrow|+$  position.
3. Connect the red test lead to the anode and the black test lead to the cathode of the diode to be measured.
4. The forward voltage drop will be displayed in mV. "1" will be displayed if the polarity of the diode is reversed.

#### 4.7. TRANSISTOR hFE-MEASUREMENTS

1. Set the RANGE switch to the hFE-position.
2. Determine whether the transistor is NPN or PNP and locate the emitter, base and collector leads. Insert the leads into the proper holes of the hFE-socket on the front panel.
3. The display will show the approximate hFE-value at the moment of testing. Base current 10 $\mu$ A, Vce 2.8V.

## **5. BATTERY AND FUSE REPLACEMENT**

### **CAUTION**

All test leads should be disconnected from energised circuits prior to opening the case. This eliminates the risk of electroshocks.

- The fuse rarely needs to be replaced and a blown fuse is nearly always due to an error on behalf of the operator.
- Replace the battery when the display reads "BAT".
- In order to replace the battery (type GP23GA) or the fuse (200mA/250V) : loosen and remove the 2 screws at the back of the device. Remove the old battery or fuse and insert a new one. Observe the polarity !

## **6. ACCESSORIES**

- instruction manual
- a set of test leads
- a GP23GA-battery of 12V