



velleman
components

ANALOGUE POCKET MULTIMETER

USER MANUAL
HANDLEIDING
NOTICE
BEDIENUNGSANLEITUNG
MANUAL DES USUARIO

ordercode **AVM460**

SAFETY

(CAT II 300V MAX to earth)

- Always ensure that the selector switch is set correctly.
- NEVER switch to the current or resistance ranges when measuring voltages.
- Be extremely careful when measuring voltages above 50V.
- Replacement fuses must be of the correct type and rating.
- Test leads, including the probes, must be in good order: clean, with no broken or cracked insulation.

INSTRUCTIONS

This compact and sensitive multimeter can accurately measure AC and DC voltages, DC current, resistance, and there is also a battery checker. The single button function and range control is easy to operate. It has a mirrored scale for making accurate readings with 3 different colours for rapid scale identification. The handy and sturdy case with optional rubber protection makes this meter a user friendly instrument. It will provide many years of trouble free service.

SPECIFICATIONS

- Accuracy in all ranges : $\pm\%$ of full scale value
- Specifications valid for $23^{\circ}\text{C} \pm 5^{\circ}$, 75% RH

Function	Range	Accuracy
DCV	0-2.5 / 10 / 50 / 250 / 500	$\pm 5\%$
ACV	0-10 / 50 / 500	$\pm 5\%$
DCA	0-500 μ / 10m / 250m	$\pm 5\%$
Ω	0-20K / 2M Ω (Rx10 / Rx1K)	$\pm 5\%$
Battery Test	1.5V (110mA) : "AA" / "C" / "D" cell 9V (9mA) : "6F22" cell	$\pm 10\%$ of division between bad and good

- Fuse: 200mA / 250V ($\varnothing 5 \times 20\text{mm}$)
- Sensitivity: 2000 Ω / VAC-DC
- Pointer movement: wide 3-colour mirrored scale / 180 μA movement
- Battery: 1 x 1.5V AA size or UM3 for Ω -measurements
- Dimensions: 120 x 60 x 30 mm
- Weight: 125 g

BEFORE USE

Open the back of the unit and place one AA size battery into the battery holder. Ensure that the polarity corresponds to that shown.

Note: for the best readings, keep the meter flat on a non-metallic surface. Select the range such that the pointer lies in the upper 1/3 of the meter scale.

If the pointer does not rest exactly over "0" to the left of the scale, turn the plastic screw in the lower centre of the meter face to bring the needle to "0".

Ensure that the test leads are the right way around when measuring DC voltage and current.

DC VOLTAGE MEASUREMENT

1. Set the selector switch to one of the DCV positions: it is better to start with a high voltage range and then switch down.
2. Position the ends of the test probes on the circuit under test: ensure they are the right way around.
3. Read the voltage on the black DC scales.

Be extremely careful when measuring voltages above 50V.

AC VOLTAGE MEASUREMENT

1. Set the selector switch to one of the ACV positions: it is better to start with a high current range and then switch down.
2. Position the ends of the test probes on the circuit under test.
3. Read the voltage on the AC/DC scale. (for the 10V range, read from the red 10 VAC scale)

Be extremely careful when measuring voltages above 50V.

RESISTANCE MEASUREMENT

Before making any resistance measurements, disconnect the power from the circuit or unit under test, and discharge all capacitors. If possible, it is best to remove batteries and unplug any mains leads.

1. Set the selector switch to one of the Ω positions. Short the two probes together and adjust the **0 OHM ADJ** knob to set the pointer to the "0" at the right of the resistance scale. If it won't go, replace the battery with a new one.
2. Connect the ends of the probe across the circuit or part under test.
3. Read the resistance from the OHMS scale (GREEN): use the appropriate multiplier to get the correct value (Rx1, x10 or x 1000, depending on the resistance range).

DC CURRENT MEASUREMENT

1. Set the selector switch to the 250m DCA position (always start with a high range and then switch down).
2. Insert the test probes in series with the circuit under test, ensure they are the right way around.
3. Apply power to the circuit under test and read the current from the current scale.

Note : Do not attempt to read AC current.

DECIBEL MEASUREMENT

1. Set the selector switch to one of the ACV ranges.
2. For the 10VAC range, take the dB reading from the dB scale directly, but for other ranges calculate the reading with the table:

dB range	-10 to 22	4 to 36	24 to 56
ACV range	10V	50V	500V
Add value	0	14	34

NOTE: For absolute dB measurement, the circuit impedance must be 600Ω.

0dB = 1mW dissipated in a 600Ω load

3. For signals with a DC component, a capacitor (> 0.1μF) has to be connected between the test probes and the circuit under test.

BATTERY CHECKER

1. Set the selector switch to one of the BATT positions.
2. Connect the probes to the battery, with the red lead to the + end and the black to the - end.
3. Check the battery against the GOOD/BAD scale (green or red).