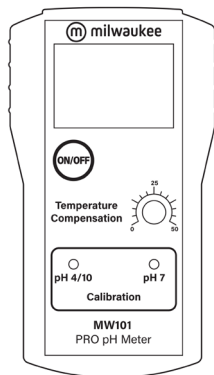




USER MANUAL PORTABLE pH METER for soil Model: MW101-SOIL



WARRANTY:

This instrument is warranted from all effects in materials and manufacturing for a period of **two years** from the date of purchase.

The **electrode is warranted for a period of six months**. If during this period the repair or replacement of parts is required, where the damage is not due to negligence or erroneous operation by the user, please return the parts to either distributor or our office and the repair will be effected free of charge.

Note: We reserve the right to modify the design, construction and appearance of our products without advance notice.

OPERATION:

- The meter is supplied complete with a 9V battery. Slide off the battery compartment cover on the back of the meter. Install the battery into the battery clip connector while observing polarity.
- Always remove the electrode protective cap before taking any measurement. If the electrode has been left dry, soak the tip (bottom 2.5 cm) in rinse solution (**M1000B**) for a few minutes to reactivate it.
- Connect the pH electrode to the BNC socket on the top of the meter.
- Turn the instrument on by pressing the ON/OFF key.
- Make sure that the meter has been calibrated before taking any measurements (see Calibration Procedure).
- Set the temperature knob to the value of testing solution (measured with help of an accurate thermometer).
- Immerse the tip (2.5 cm) of the pH electrode into the sample and stir gently.
- After completing measurements, switch the meter off and store the electrode with a few drops of storage solution (**MA9015**) in the protective cap.



CALIBRATION PROCEDURE:

A) Preparation:

Two calibration buffers are required

1. **pH 7.01 (MA9007)**
 2. **pH 4.01 (MA9004)** if you are measuring in acid range (pH 0 - pH 7) or **pH 10.01 (MA9010)** if you are measuring in alkaline range (pH 7 - pH 14).
- Use two beakers for each pH buffer. One beaker for rinsing the electrode, the other for calibration. Use a thermometer with 1°C accuracy to measure the temperature of calibration solution.

B) Procedure:

- Remove the protective cap from the electrode. Rinse the tip of the electrode with some pH 7.01 solution, then immerse the pH electrode into a pH 7.01 buffer solution.
 - Take the temperature of the buffer solution with a thermometer and set the temperature knob to the measured temperature (e.g. 15°C).
 - Adjust the OFFSET trimmer (pH 7) on the front panel, with a small screwdriver until the LCD shows the pH value at temperature of the buffer (see the pH versus temperature chart).
- E.g. in this case, if the temperature is 15°C, the meter display should be adjusted to read "pH 7.04".
- Now rinse the pH electrode in the first pH 4.01 beaker, then immerse it into the second pH 4.01 beaker or follow the same procedure if using pH 10.01 buffer.
 - Adjust the SLOPE trimmer (pH4/10) on the front panel, with a small screwdriver, until the LCD shows the pH value of the buffer at the temperature of measurement (see the pH versus temperature chart).
- E.g. in this case, if the temperature is 15°C, the meter display should be adjusted to read "pH 4.00" (or pH 10.01 would be adjusted to 10.12 pH).



Calibration is now complete.

pH VERSUS TEMPERATURE CHART:

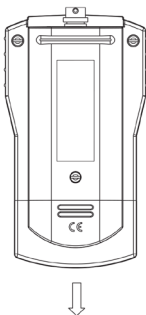
TEMP		pH VALUES		
°C	°F	MA9004	MA9007	MA9010
0	32	4.01	7.13	10.32
5	41	4.00	7.10	10.24
10	50	4.00	7.07	10.18
15	59	4.00	7.04	10.12
20	68	4.00	7.03	10.06
25	77	4.01	7.01	10.01
30	86	4.02	7.00	9.96
35	95	4.03	6.99	9.92
40	104	4.04	6.98	9.85
45	113	4.05	6.98	9.85
50	122	4.06	6.98	9.82
55	131	4.07	6.98	9.79
60	140	4.09	6.98	9.77
65	149	4.11	6.99	9.76
70	158	4.12	6.99	9.75

BATTERY REPLACEMENT:

When the battery becomes weak the meter will display “ ”.

When the low battery indicator appears, only a few hours of battery life remain.

A low battery will result in unreliable measurements. Prompt battery replacement is required. Battery replacement must only take place



in a non-hazardous area using an alkaline

9V battery.

Turn the meter off, slide the battery compartment cover located at the rear of the meter off and replace the 9V battery with a new one. Make sure the battery contacts are fully engaged in the connector, seat the battery in its compartment and replace the cover.

OPTIONAL ACCESSORIES:

MA9004 pH4.01 buffer solution, 220 mL bottle

MA9007 pH7.01 buffer solution, 220 mL bottle

MA9010 pH10.01 buffer solution, 220 mL bottle

MA9015 Electrode storage solution, 220 mL bottle

MA9016 General cleaning solution, 220 mL bottle

M10000B Rinse solution, 20 mL sachet (25 pcs.)

MA920B/1 pH electrode with BNC connector and 1 m cable

SPECIFICATIONS:

RANGE 0.00 to 14.00 pH

RESOLUTION 0.01 pH

ACCURACY (@25°C) ±0.02 pH

TEMPERATURE Manual setting

COMPENSATION 0 to 50°C

CALIBRATION Manual, 2-point

with use of Offset and Slope trimmers

pH ELECTRODE MA920B/1 (included)

ENVIRONMENT 0 to 50°C, 95% RH max.

BATTERY TYPE 1 x 9V alkaline (included)

BATTERY LIFE approx. 70 hours of use

DIMENSIONS 143 x 80 x 32 mm

WEIGHT 220 g (with battery) meter only

SOIL SAMPLE PREPARATION

1. Collect samples of soil.

Take samples from a homogeneous area per 1000m².

In smaller places it is also suggested to take at least two samples (the more samples you have, the measurement will be more accurate)

2. Don't take samples from soil where are obvious disorders.

3. Amount of sample:

Use the same amount of soil for every sample (for example: use identical size sachets)

4. Spot of sample

General: take the top 5 cm of the ground

Annuals: from 20-40 cm deep

Fruits: from 20-60 cm deep

5. Spread the soil on a paper and let it dry out in a shaded place, or put it into a 40C oven.

6. Shread the dry soil and mix the samples. You will get a homogeneous sample. It mustn't contain rocks or organic residues.

7. Take a sample from this mixture for the measurement.

8. Sift the soil through a 2mm sifter.

9. Weigh out 1 unit soil (100g is recommended) and put 2 unit (200g, 2dl) destillated water to it.

10. Stir it for 30 seconds.

11. Wait about five minutes.

12. Stir it again then measure the pH of the solution.