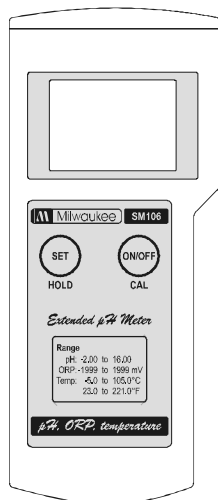




USER MANUAL

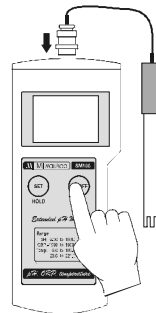
PORTABLE pH/ORP METER WITH EXTENDED RANGE MODEL: SM106

pH, ORP, Temperature Meter



GENERAL OPERATION:

- The meter is supplied complete with a 9V battery. Remove the battery compartment cover on the back of the meter and install the battery while paying attention to its polarity.
- Connect the **MA923D/1** probe to the meter.
- Turn the instrument on by pressing the ON/OFF key. At start-up, the LCD shows the percentage of the remaining battery life for a few seconds, and then the current measurement.
- 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 **M10000** rinse solution for a few minutes to reactivate it.
- The temperature reading can be displayed in °C or °F unit; to select the desired scale, press and hold the "ON/OFF" key until "TEMP" and the current temperature unit are displayed on the secondary LCD. Use the "SET" button to select the unit and then press the "ON/OFF" key a couple of times to return to normal mode.
- To activate the HOLD function, keep pressed the "HOLD" key. The measured value will be frozen on the display and the "HOLD" message appear on the secondary LCD.



- After measurements, switch the meter off by pressing the "ON/OFF" key. The "OFF" message appears on the LCD; release the button.
- After use, replace the electrode protective cap with a few drops of storage solution.

TAKING pH MEASUREMENTS:

- Select the "pH" mode with the "SET" key.
- Immerse the tip (2.5 cm) of the probe in the sample and stir gently.

- Read the pH value when the clock symbol stops blinking.

Note: Before taking any measurement, make sure that the meter has been calibrated (the "CAL" tag is displayed on the left lower corner of the LCD).

pH CALIBRATION PROCEDURE:

It is recommended to recalibrate the meter at least once every three weeks.

A) Preparation:

Buffer solutions:

- pH 7.01 / 6.86 (MA9007 / MA9006)**
- pH 4.01 (MA9004)** for acidic calibration (pH < 7) or **pH 10.01 / 9.18 (MA9010 / MA9009)** for alkaline range (pH > 7).

Use two beakers for each buffer solution: one beaker for rinsing the probe, the other for calibration. In this way the cross contamination between solutions is minimized.

B) Procedure:

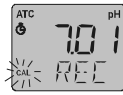
- Select the "pH" mode with the "SET" key.
- Select the calibration buffer set: press and hold the "ON/OFF" key until the LCD shows "TEMP". Press again this key and the "BUFF" message will appear; then select the desired buffer set with the "SET" key: "7.01 pH BUFF" (for standard solutions: pH 4.01, 7.01, 10.01) or "6.86 pH BUFF" (for NIST solutions: pH 4.01, 6.86, 9.18). Press the "ON/OFF" key again to exit.
- Remove the protective cap, then immerse the probe in the first buffer solution (7.01 or 6.86 pH).
- Press and hold the "ON/OFF" key until "CAL" is displayed on the lower LCD.



Release the button and the message "7.01 pH USE" (or "6.86 pH USE" for NIST buffer set) will be displayed.



- The meter automatically recognizes the buffer value: if a valid buffer is detected, then its value is displayed on the LCD together with the "REC" message, and the first calibration point is accepted.



- The meter will then require the second buffer by showing the "pH 4.01 USE" message. Immerse the probe in the second buffer solution (pH 4.01 or 10.01 or 9.18). If a valid buffer is recognized, the meter completes the procedure, shows the "OK 2" message for a few seconds, then returns to the normal mode.



Notes:

- If no valid buffer is detected, the LCD will show the "WRNG" message.
- For exiting the calibration after the first point is accepted, press the "ON/OFF" button: the LCD will show the "OK 1" message for 1 second and then returns to the normal mode.



If using pH 4.01 or 10.01 (or 9.18) buffer for the first calibration point, the meter will exit the calibration mode after recognizing the buffer value and showing the "OK 1" message for 1 second.

- To quit the calibration procedure and return to the last data, press "ON/OFF" after entering the calibration mode and before the first point is accepted. The secondary LCD shows the "ESC" message for 1 second and the meter returns to the normal mode.
- To clear a previous calibration and reset to the default value, press the "SET" key after entering the calibration mode and before the first point is accepted. The secondary LCD shows the "CLR" message for 1 second, the meter resets to the default calibration and the "CAL" tag on the LCD disappears.

TAKING ORP MEASUREMENTS:

- Remove the protective cap and immerse the electrode in MA9016 cleaning solution for a few minutes.

- Select the ORP (mV) mode with the "SET" key.
- Place the probe into the sample to be tested, stir gently and wait for reading stabilization (the clock symbol on the LCD disappears).

Note: The ORP range is factory calibrated. Contact your dealer for recalibration, if needed.

Note: ATC tag turns off because the mV readings are not temperature compensated.

BATTERY REPLACEMENT:

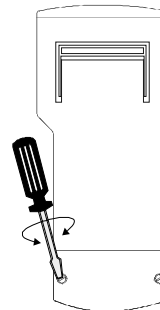
The meter shows the remaining battery percentage every time it is switched on. When the battery level is below 5%, the battery symbol on the bottom left of the LCD lights up to indicate a low battery condition.

The meter is also provided with BEPS (Battery Error Prevention System), which automatically switches the meter off if the battery level is so low to cause erroneous readings.

It is recommended to replace immediately the battery.

Turn the meter off, remove the battery compartment cover from the rear of the meter and replace the run-down 9V battery with a new one.

Install the battery while paying attention to its polarity and reattach the cover.



WARRANTY:

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

The probe 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.

Damages due to accident, misuse, tampering or lack of prescribed maintenance are not covered.

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

ACCESSORIES:

MA9004	pH 4.01 buffer, 230 ml bottle
M10004B	pH 4.01 buffer, 25 x 20 ml sachet
MA9006	pH 6.86 buffer, 230 ml bottle
M10006B	pH 6.86 buffer, 25 x 20 ml sachet
MA9007	pH 7.01 buffer, 230 ml bottle
M10007B	pH 7.01 buffer, 25 x 20 ml sachet
MA9009	pH 9.18 buffer, 230 ml bottle
M10009B	pH 9.18 buffer, 25 x 20 ml sachet
MA9010	pH 10.01 buffer, 230 ml bottle
M10010B	pH 10.01 buffer, 25 x 20 ml sachet
MA9015	Electrode storage solution, 230 ml
MA9016	Cleaning solution, 230 ml bottle
M10016B	Cleaning solution, 25 x 20 ml sachet
M10000B	Rinse solution, 25 x 20 ml sachet
MA923D/1	Combination amplified pH/ORP/ Temperature probe with DIN connector and 1 m cable.

SPECIFICATIONS:

RANGE	pH	-2.00 to 16.00 pH
	ORP	-2000 to +2000 mV
	Temp (*)	-5.0 to 105.0 °C 23.0 to 221.0 °F
RESOLUTION	pH/ORP	0.01 pH / 1mV
	Temp	0.1 °C or 0.1 °F
ACCURACY (@25°C)	pH / ORP	±0.02pH / ±2mV
	Temp	±0.5 °C up 60 °C; ±1 °C outside ±1 °F up to 140 °F; ±2 °F outside
TYPICAL EMC DEVIATION	pH / ORP	±0.02 pH / ±2 mV
	Temp	±0.2 °C or ±0.4 °F

TEMPERATURE COMPENSATION

Automatic from -5 to 80°C

pH CALIBRATION Automatic, at 1 or 2 points

ORP CALIBRATION Factory calibrated

PROBE (included) **MA923D/1**
amplified pH/ORP/temperature probe

ENVIRONMENT 0 to 50°C; 100% RH max.

BATTERY TYPE 1 x 9V alkaline (included)

BATTERY LIFE approx. 500 hours of use

AUTO-OFF after 8 minutes of non-use

DIMENSIONS 200 x 85 x 50 mm

WEIGHT 260 g (with battery)

(*) The temperature range is limited to 80°C (176°F) if using the MA923D/1 probe.