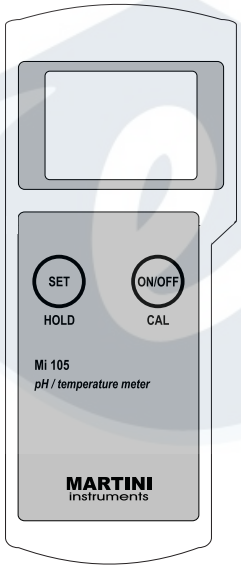
USER MANUAL

MI 105

Portable

pH/Temperature Meter

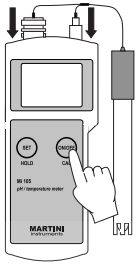


MARTINI
instruments

IST\MI105R1 09/04

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 **MA914BR/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.
- Immerse the tip (2.5 cm) of the probe into the sample and stir gently.
- Read the pH value when the clock symbol stops blinking.
- 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.

Notes:

- 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).
- Always replace the electrode protective cap after use with a few drops of storage solution.

CALIBRATION PROCEDURE

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

A) Preparation, Buffer solutions:

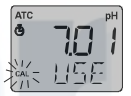
1. **pH 7.01** / **6.86 (MA9007 / MA9006)**
2. **pH 4.01** (**MA9004**) for acidic calibration (pH < 7) or **pH 10.01 / 9.18** (**MA9010 / MA9009**) for alkaline range (pH > 7).

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 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 (pH 7.01 or 6.86).
- Press and hold the "ON/OFF" key until "CAL" is displayed on the lower LCD.

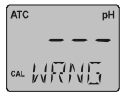
- Release the button and the message "7.01 pH USE" (or "6.86 pH USE" for NIST buffer set) will be displayed.



- 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 calibration 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.

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 rundown 9V battery with a new one.

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

WARRANTY

This instrument is warranted against defects in materials and manufacturing for a period of two years from the date of purchase. Probe is warranted for 6 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 accidents, misuse, tampering or lack of prescribed maintenance are not covered.

ACCESSORIES

MA914BR/1	Combination amplified pH/Temperature probe with BNC & RCA connectors and 1 m cable
M10004B	pH4.01 buffer solution, 20 ml sachet, 25 pcs.
M10006B	pH6.86 buffer solution, 20 ml sachet, 25 pcs.
M10007B	pH7.01 buffer solution, 20 ml sachet, 25 pcs.
M10009B	pH9.18 buffer solution, 20 ml sachet, 25 pcs.
M10010B	pH10.01 buffer solution, 20 ml sachet, 25 pcs.
MA9004	pH4.01 buffer solution, 230 ml bottle
MA9006	pH6.86 buffer solution, 230 ml bottle
MA9007	pH7.01 buffer solution, 230 ml bottle
MA9009	pH9.18 buffer solution, 230 ml bottle
MA9010	pH10.01 buffer solution, 230 ml bottle
MA9015	Electrode storage solution, 230 ml bottle
MA9016	Electrode cleaning solution, 230 ml bottle
M10000B	Electrode rinse solution, 20 ml sachet, 25 pcs.

SPECIFICATIONS

RANGE (*)	-2.00 to 16.00 pH -5.0 to 105.0 ºC or 23.0 to 221.0 °F
RESOLUTION	0.01 pH 0.1 °C or 0.1 °F
ACCURACY (@25°C)	±0.02 pH ±0.5°C up to 60°C; ±1°C outside ±1°F up to 140 °F; ±2°F outside
TYPICAL EMC DEVIATION	±0.02 pH ±0.2 °C or ±0.4 °F
TEMPERATURE COMPENSATION	Automatic, from -5 to 80°C
pH CALIBRATION	Automatic, 1 or 2-point
PROBE (included)	**MA914BR/1** amplified pH/temperature probe
ENVIRONMENT	0 to 50°C; 100% RH max.
BATTERY	1 x 9V alkaline (included)
BATTERY LIFE	approx. 500 hours of use
AUTO-OFF	after 8 minutes of non-use
DIMENSIONS	200×85×50 mm
WEIGHT	260 g (with battery)

(*) The temperature range is limited to 80°C (176°F) if using the **MA914BR/1** probe.