

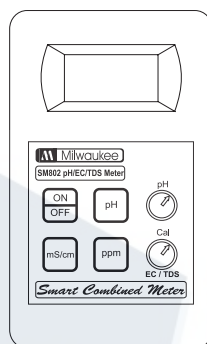
Milwaukee

USER MANUAL

PORTABLE pH/EC/TDS METER

MODEL: SM801. SM802

Smart Combined Meter



WARRANTY

These instruments are warranted from all defects in materials and manufacturing for a period of **two years** from the date of purchase.

The probes are 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.

PRELIMINARY EXAMINATION

Remove the instrument from the packing material and examine it carefully to make sure that no damage has occurred during shipment.

If noticeable damage is found, notify your Dealer.

Each meter is supplied complete with:

- **MA850** combination, amplified, double-junction, gel pH-electrode with incorporated EC/TDS probe and built-in temperature sensor; 1 m cable
- pH7.01, 1413 $\mu\text{S}/\text{cm}$ & 1382 ppm (for **SM801**) or 1500 ppm (for **SM802**) solutions, 20 mL each
- 1x9V battery
- Instruction Manual.

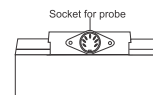
OPERATION

Slide off the battery compartment cover on the back of the meter. Install the battery while paying attention to its polarity.

Connect the probe to the meter securely by aligning the pins with the socket and pushing the plug in. Always remove the electrode protective cap before use.

Make sure that the meter has been calibrated before taking any measurements.

Turn the instrument on by pressing the ON/OFF key.



pH MEASUREMENTS

If the probe has been left dry, soak the tip in a pH7 (**M10007**) buffer solution for a few minutes to reactivate it.

Submerge the tip into the sample to be measured, select the pH mode and allow the reading to stabilize before taking any measurement.

EC/TDS MEASUREMENTS

Immerse the tip of the probe into the sample to be tested.

Select the desired measurement range (EC or TDS) and wait for the temperature sensor to reach thermal equilibrium with the sample before taking any measurement.

AFTER MEASUREMENTS, switch the instrument off, clean the probe and store it with a few drops of storage solution in the protective cap.

CALIBRATION PROCEDURE

Remove the protective cap from the probe.

Switch the meter on.

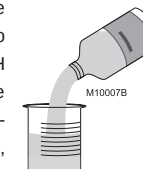
Select the desired range (pH, EC, TDS) by pressing the appropriate key.

pH Calibration

The instrument can be manually calibrated at one point for pH.

A) PREPARATION

If the samples to be measured are neutral or close to neutral pH, to obtain accurate readings use pH 7.01 buffer solution (**M10007**). The pH 4.01 buffer (**M10004**) is suitable for acidic measurements, while the pH 10.01 (**M10010**) buffer should be used for alkaline samples.



B) PROCEDURE

Rinse the tip of the probe and immerse it in the buffer chosen for calibration. Wait a couple of minutes for the reading to stabilize.

With an accurate thermometer measure the temperature of the buffer solution.

Adjust the calibration knob until the LCD shows the pH value at the measured temperature (see the "pH versus temperature" chart for reference).



The calibration is now complete and the meter is ready for use.

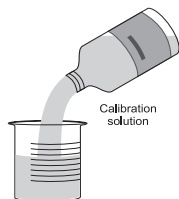
EC/TDS calibration

The instrument can be manually calibrated at one point for conductivity range.

A) PREPARATION

For performing TDS calibration, use 1382 ppm (**M10032**) solution for **SM801** and 1500 ppm (**M10442**) solution for **SM802**.

For performing EC calibration, use 1413 $\mu\text{S}/\text{cm}$ (**M10031**) solution for both meters.



B) PROCEDURE

Immerse the tip of the probe in the calibration solution.

Wait for the reading to stabilize, and then turn the EC/TDS calibration knob until the display shows the EC or TDS reading at 25°C.



The calibration is now complete and the meter is ready for use.

Note: Since the conversion between EC and TDS is made by a built-in circuit, it is request to calibrate the meter only in EC or TDS range, and the other range will be automatically calibrated.

The instrument should be recalibrated at least once a month, or whenever the probe or battery is changed.

BATTERY REPLACEMENT

The meters are powered by a 9V battery that is located on the rear of the instrument.

When the battery becomes weak, the instrument automatically switches off.

Battery replacement must only take place in a non-hazardous area using an alkaline 9V battery.

Slide off the battery compartment cover and replace the rundown battery with a new one. Make sure that the battery contacts are tight and secure before inserting the cover.

pH VERSUS TEMPERATURE CHART

TEMP		pH VALUES		
°C	°F	M10004B	M10007B	M10010B
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

ACCESSORIES

M10004B	pH 4.01 buffer solution, 20 mL sachet (25 pcs)
M10007B	pH 7.01 buffer solution, 20 mL sachet (25 pcs)
M10010B	pH 10.01 buffer solution, 20 mL sachet (25 pcs)
M10031B	1413 $\mu\text{S}/\text{cm}$ cal. solution, 20 mL sachet (25 pcs)
M10032B	1382 ppm cal. solution, 20 mL sachet (25 pcs)
M10442B	1500 ppm cal. solution, 20 mL sachet (25 pcs)
MA9015	Electrode storage solution, 220 mL bottle
MA850	pH/EC/TDS spare probe with 1 m cable

SPECIFICATIONS

	SM801	SM802
RANGE	0.0 to 14.0 pH 0 to 1990 ppm 0 to 1990 $\mu\text{S}/\text{cm}$	0.00 to 14.00 pH 0 to 4000 ppm 0.00 to 6.00 mS/cm
RESOLUTION	0.1 pH 10 ppm 10 $\mu\text{S}/\text{cm}$	0.10 pH 10 ppm 0.01 mS/cm
ACCURACY (@ 20°C)	± 0.2 pH $\pm 2\%$ Full scale $\pm 2\%$ Full scale	± 0.20 pH $\pm 2\%$ Full scale $\pm 2\%$ Full scale
CAL.SOLUTIONS	M10007 (pH 7.01) M10031 (1413 $\mu\text{S}/\text{cm}$) M10032 (1382 ppm)	M10442 (1500 ppm)

CONVERSION FACTOR	0.5	0.68
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CALIBRATION	Manual, at 1 point
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TEMPERATURE COMPENSATION	Automatic, from 0 to 50°C
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PROBE	MA850 combination pH/EC/TDS probe
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ENVIRONMENT	0 to 50°C, 95%RH max
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BATTERY TYPE	1x9V alkaline
BATTERY LIFE	approx. 150 hours of use

DIMENSIONS	185 x 82 x 45 mm
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WEIGHT	165 g
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