



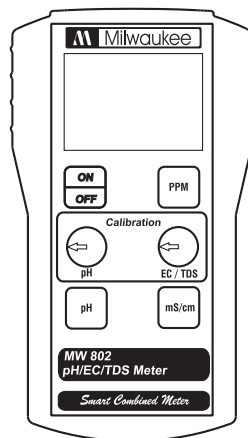
[www.growland.net](http://www.growland.net) / [www.growland-hydroponics.com](http://www.growland-hydroponics.com)  
<https://www.growland.fr> / <https://www.growland.co.uk>  
<https://www.growland.es> / <https://www.growland.at>  
<https://www.growland.nl> / <https://www.growland.it>  
<https://www.growland.se> / <https://www.growland.pl>



## USER MANUAL

### PORTABLE pH/EC/TDS METER MODEL: MW801, MW802

*Smart Combined Meter*



#### **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.

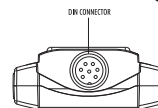
Each meter is supplied complete with:

- **MA850DIN** preamplified non refillable double junction combination pH electrode with built in EC/TDS probe and temperature sensor; 1m (3.3') cable.
- pH7.01, 1413  $\mu\text{S}/\text{cm}$  & 1382 ppm (for **MW801**) or 1500 ppm (for **MW802**) solutions, 20 mL each.
- Instruction Manual.
- 1 x 9V battery.

#### **OPERATION**

Slide the battery compartment cover located on the back of the meter off, and install the battery into the battery clip connector while observing 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 (see calibration procedure).



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

#### **pH MEASUREMENTS**

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

Submerge the tip of the electrode into the sample to be measured, select the pH mode and allow the reading to stabilize before taking measurements.

#### **EC/TDS MEASUREMENTS**

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

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

**AFTER MEASUREMENTS** the instrument should be switched off and the probe cleaned and stored with a few drops of storage solution in the protective cap.

#### **CALIBRATION PROCEDURE:**

Remove the protective cap from the electrode.

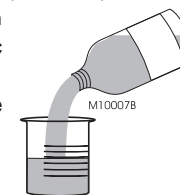
Switch the meter on.

Select the range pressing the appropriate key for pH, EC or TDS.

#### **pH Calibration**

##### A) PREPARATION

Single point manual calibration. Choose buffer. If you are going to measure samples near pH 7 use pH 7.01 buffer solution (**M10007B**) for calibration; use pH 4.01 buffer solution (**M10004B**) for acidic measurements, or pH 10.01 (**M10010B**) for alkaline measurements.

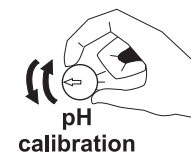


##### B) PROCEDURE

Rinse the tip of the electrode and immerse it in the calibration solution. Wait a couple of minutes for the reading to stabilize.

Measure the temperature of the buffer solution with a thermometer.

Adjust the calibration knob until the LCD shows the pH value of the buffer at the measured temperature (see pH versus temperature chart).



**pH  
calibration**

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



### EC/TDS calibration:

#### A) PREPARATION

Single point EC calibration.

Choose appropriate standard:

Model **MW801**: use 1382 ppm (**M10032B**) for TDS or 1.413  $\mu\text{S}/\text{cm}$  (**M10031B**) for EC calibration.

Model **MW802**: use 1500 ppm (**M10442B**) for TDS or 1.413 mS/cm (**M10031B**) for EC calibration.

#### B) PROCEDURE

Immerse the tip of the electrode in the standard solution.

Wait for the reading to stabilize, and thermal equilibrium be reached.

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.

The instrument should be re-calibrated at least once a month, or when the probe or battery is replaced.

**Note:** The conversion between EC and TDS is made by a built-in circuit. If calibration is made in EC range, TDS range is automatically calibrated (or vice versa).

### **BATTERY REPLACEMENT:**

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

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

Replacement must only take place in a non-hazardous area using an alkaline 9V battery. Slide off the battery compartment cover and replace the old battery with a new one. Make sure that the battery contacts are fully engaged in the connector. Seat the battery in its compartment and replace the cover.



### **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

### **OPTIONAL ACCESSORIES**

<b>M10007B</b>	pH7.01 buffer solution, 25x20 mL sachet
<b>M10004B</b>	pH4.01 buffer solution, 25x20 mL sachet
<b>M10010B</b>	pH10.01 buffer solution, 25x20 mL sachet
<b>M10031B</b>	1413 $\mu\text{S}/\text{cm}$ calibration solution, 25x20 mL sachet
<b>M10032B</b>	1382 ppm calibration solution, 25x20 mL sachet
<b>M10442B</b>	1500 ppm calibration solution, 25x20 mL sachet
<b>MA9015</b>	Electrode storage solution, 220 mL bottle
<b>MA850DIN</b>	pH/EC/TDS spare probe with 1m cable

### **SPECIFICATIONS:**

	<b>MW801</b>	<b>MW802</b>
<b>RANGE</b>	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
<b>RESOLUTION</b>	0.1 pH 10 ppm 10 $\mu\text{S}/\text{cm}$	0.10 pH 10 ppm 0.01 mS/cm
<b>ACCURACY (@ 20°C)</b>	$\pm 0.2$ pH $\pm 2\%$ Full scale	$\pm 0.20$ pH $\pm 2\%$ Full scale
<b>CALIBRATION SOLUTIONS</b>	<b>M10007B</b> (pH 7.01) <b>M10031B</b> (1.413 mS/cm) <b>M10032B</b> (1382ppm)	<b>M10442B</b> (1500ppm)
<b>CONVERSION FACTOR</b>	0.5	0.68
<b>CALIBRATION</b>	Manual, at 1 point	
<b>TEMPERATURE COMPENSATION</b>	Automatic from 0 to 50°C	
<b>PROBE</b>	<b>MA850DIN</b> combination pH/EC/TDS probe	
<b>ENVIRONMENT</b>	0 to 50°C, 95%RH max	
<b>BATTERY LIFE /TYPE</b>	1x9V alkaline approx. 150 hours of use	
<b>DIMENSIONS</b>	143 x 80 x 32 mm	
<b>WEIGHT</b>	220 g (with battery)	