ThermoWorks

8000 / 8100 pH Meters

Operating Instructions

GETTING STARTED

To begin taking measurements, connect the probe(s) to the socket(s) on the instrument and remove the cap or bottle covering the electrode.

Please note: a small amount of 4.01 pH solution is within the cap/bottle to ensure the electrode remains in good moist condition when in storage. White crystals may form on or around the electrode this is normal, remove with a clean damp cloth. Calibrate the unit as per instructions in the Calibration section. Switch the unit on and place the electrode into the solution to be measured. The 8000 or 8100 with probe disconnected will display the set temperature for 10 seconds. With the probe plugged in the 8100 meter will display the temperature continuously. Stir the solution and wait for the measurement to stabilize. To prolong the life of the electrode, please read the Care & Maintenance and Storage & Cleaning sections.

Calibration - It is recommended that you calibrate the unit daily to achieve consistent and accurate results.Turn the meter on and place the electrode and thermometer/probe into 7.00 pH buffer solution. If using the manual temperature adjustment, first measure the solution with a thermometer and adjust the instrument to this reading as per Temperature adjustment 8000/8100 (manual) section. With the electrode in the 7.00 pH solution allow the reading to stabilize. Press and hold down the 'CAL' button for 3 seconds, 'CAL' will be shown in the display and the reading displayed will flash. Place the electrode into 4.01 pH or 10.01 pH solution and allow the reading to stabilize, stir the solution if required to remove air bubbles. If you are measuring approx. 5 pH then calibrate using 7.00 & 4.01 pH buffer solutions. If you are measuring approx. 8 pH then calibrate using 7.00 & 10.01 pH buffer solutions.To finish press the 'CAL' button and the display will show the solution value that it is currently in. To abort calibration at any point press the 'ON/OFF' button - the meter will revert back to any previous calibration values.

INSTRUMENT FUNCTIONS

Auto-Off - The instrument will switch off automatically after 10 minutes. To disable the auto-off function press and hold the '▲' button while switching on the unit – auto-off disabled will scroll across the screen to confirm this.

Please note: When the unit is turned off the auto-off function will be re-enabled.

F/C Selection - With the unit switched off, press and hold the 'ON/OFF' button for 5 seconds to switch the units between °F and °C.

Temperature adjustment 8000/8100 (manual) - To manually adjust the temperature hold down the 'TEMP' button for 3 seconds until 'Set' is displayed. Press or hold the '▲' or '▼' button to adjust the temperature in whole degrees. Press the 'ON/OFF' button to store the temperature change.

Please note: Manual temperature adjustment on 8100 requires the temperature probe not to be plugged in. To view the set temperature press the 'TEMP' button and the temperature will be displayed for 10 seconds on screen.

Temperature adjustment 8100 (ATC only) - When the temperature probe is connected to the 8100 meter it will be automatically detected and upon connection the temperature is displayed continuously. Please note that with the probe attached the meter can measure from 32 to 212°F (0 to 100°C). If the probe is removed from the meter the temperature is displayed for 10 seconds. If the temperature probe is not used with the meter please refer to the manual temperature adjustment.

ERRORS

Calibration - 'Err' will be shown if you do not calibrate at 7.00 pH first. If the probe & buffer solution's combined error is greater than 1 pH then 'Err' will be displayed and calibration aborted. If the probe & buffer solution's combined slope error is greater than 0.5 pH 'Err' will be displayed. To abort calibration press the 'ON/OFF' button - the meter will revert back to any previous calibration values.

pH Electrode - The pH electrode is connected via the BNC connector; if this is not connected the readings displayed are erronious.

If 'Hi' is displayed the readings are higher than 14 pH and if 'Lo' is displayed the readings are below 0 pH.
'Err' is displayed if readings are more significantly outside of the specified measurement range or the electrode is damaged.

Temperature Probe - 'Hi' is displayed if the readings are above 212°F (100°C) and 'Lo' is displayed if readings are below 32°F (0°C).
Please note: The ATC only works between 32°F (0°C) and 140°F (60°C).

CARE & MAINTENANCE

This pH meter and electrode, if maintained correctly, should give years of service as long as the electrode is maintained. Over time the electrode sensor will degrade but regular calibrating, cleaning and storage of the unit will prolong its life. If the electrode readings are slow or erratic, place the sensor into cleaning solution or 7.00 pH solution for at least half to one hour before testing again.

ELECTRODE STORAGE & CLEANING

Ensure that the electrode glass bulb is kept wet by replacing the storage cap after each use. Storage Solution or 4.01 pH solution can be used in the cap/bottle. Always rinse the pH electrode with cleaning solution or de-ionized before next use, if this is not available tap water can be used. Do not touch the glass bulb or clean with harsh materials.

BATTERY REPLACEMENT

Replace the battery when battery icon is displayed. This meter will continue to measure accurately but after further usage the meter will display “flat bat” and shutdown. Unscrew the screw on the back of the meter and replace with three AAA batteries, ensuring the polarities are correct.

EMC/RFI

Reading may be affected if the unit is operated within radio frequency electromagnetic field strength of greater than 1 volt per meter. Performance of the instrument will not be permanently affected.

BUFFER SOLUTIONS

It is recommended that you use buffer solutions closest to your expected measurement range.

If you are measuring approx. 5 pH then calibrate using 7.00 & 4.01 pH buffer solutions. See ‘Calibration’ section.

Rinse the pH & temperature probes in de-ionised water before placing in each buffer solution, if this is not available tap water is acceptable.

The buffer solution’s value changes with temperature and so the instrument automatically compensates for this during calibration. Therefore only buffer solutions that follow the temperature coefficients shown in the table below should be used with these instruments for best accuracy.

Temperature	4.00 pH	7.00pH	10.00pH
32°F	4.01	7.12	10.32
41°F	4.01	7.09	10.25
50°F	4.01	7.06	10.18
59°F	4.00	7.04	10.12
68°F	4.00	7.02	10.06
77°F	4.01	7.00	10.01
86°F	4.01	6.99	9.97
95°F	4.02	6.98	9.93
104°F	4.03	6.97	9.89
113°F	4.04	6.97	9.86
122°F	4.06	6.97	9.83
131°F	4.08	6.97	9.81
140°F	4.10	6.98	9.79

SPECIFICATIONS

	pH	Temperature
Range:	0 to 14pH	32 to 212°F (0 to 99.9°C)
Resolution:	0.01pH	0.1°
Accuracy:	±0.05pH	±0.9°F (±0.5°C)
Sensor:	Combination electrode	Thermistor
Battery:	3 x 1.5V AAA - 5,000 hours	
Display:	Custom LCD	
Dimensions:	5.04 H x 2.20 W x 0.98 D inches (128 H x 56 W x 25 D mm)	
Weight:	0.29 lb (130g)	

ACCESSORIES

Cleaning Solution

TW-2500-C Electrode Cleaning Solution, 500ml

Storage Solution

TW-2500-S Electrode Storage Solution, 500ml

Buffer Solutions

TW-2500-4 pH Buffer Solution 4.00, 500ml
TW-2500-7 pH Buffer Solution 7.00, 500ml
TW-2500-10 pH Buffer Solution 10.00, 500ml

Buffer Solution Assortments

TW-2500-K pH Solution assortment, 500ml bottles, 1 ea. of 4.00, 7.00, 10.00 and Electrode Storage Solution

TW-2020-K pH Buffer Pouch assortment, 20ml pouches, 4 ea. of 4.00, 7.00, 10.00, Electrode Storage Solution & Electrode Cleaner

pH Electrodes

823-501 Combination pH electrode
823-502 0.48 inch (12mm) Spear Combination pH electrode
823-503 0.24 inch (6mm) Spear Combination pH electrode
823-510 pH meat knife probe

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