pH PRO METER
Operation Manual

Catalog #2100A

Spectrum
Technologies, Inc.

Contents

This manual will familiarize you with the features and operation of your new meter. Please read this manual thoroughly before using your meter. For customer support or to place an order call Spectrum Technologies, Inc. at (800) 248-8873 or (815) 436-4440 between 7:30 a.m. and 5:30 p.m. CST, or FAX at (815) 436-4460, or

E-mail: info@specmeters.com.
Website: www.specmeters.com

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General Overview

Congratulations on the purchase of your pH Pro Meter. This manual describes how to use your pH meter and how to keep it working accurately. Read the manual thoroughly in order to make effective use of your meter.

This pH Pro delivers high quality answers, with an accuracy of +/- 0.1 pH. This self-contained digital meter allows you to test the pH levels in water, soil, and other liquids.

The replaceable sensor makes the measurement of small samples much more convenient. The sensor provides a visual indication of when replacement is due.

The meter has a one-point automatic calibration (7.0 pH), with a range of pH 2.0-12.0. The display will show your results to a resolution of 0.1 pH units.

Features:

1. The meter measures pH through a solid-state Ion Sensitive Field Effect Transistor (ISFET) sensor with temperature compensation.
2. The solid-state technology eliminates fragile, bulky glass electrodes.
3. The pH Pro is able to measure small liquid samples.
4. Quick response in measuring pH value.
5. The meter comes with a durable carrying case for field applications.

SPECIFICATIONS

Calibration:	pH 7.0, automatic one point calibration
Display:	Digital LCD. (Resolution: 0.1 pH)
Range:	pH 2.0 - pH 12.0
Accuracy:	+/- 0.1 pH
Operating Temperature:	5 - 40ºC (41 - 104ºF)
Battery:	2 CR2032 3V lithium dry cells
Battery Life:	Approximately 150 hours of continuous use.
Dimensions:	142 x 28 x 15 mm (5.6 x 1.1 x 0.6”)
Weight:	48 g (1.7 oz)
Accessories:	#2139A Replacement Electrode #2117 7.0 Standard Solution

LCD Display Messages

In addition to displaying the pH reading, the LCD of the pH Pro can also display:

-**CAL**
This symbol blinks while the meter is in calibration mode. Measurements cannot be taken while in this mode.

BAT
Indicates that battery power is low.

Er
Indicates a calibration error. This can be due to:

A. No standard solution on the sensor
B. Bubbles on the surface of the ISFET sensor chip.
C. No connection between the ISFET sensor chip and the liquid junction by means of the standard solution.
D. Reference electrode not properly set in the pH meter.
E. Reference electrode service life over.

Measurement cannot be made until this error is addressed. When “Er” is displayed with causes other than the above, contact the distributor.

Calibration and Maintenance

Procedure for calibrating sensor:

1. Remove protective cap
2. Turn power supply on.
3. Rinse the sensor with distilled water and pat dry with tissue or paper towel.
4. Apply a few drops of pH 7.0 standard solution to the sensor. Confirm that the ISFET sensor chip and the liquid junction are covered by the standard solution.
5. Press the CAL button for 1 second using a pointed object such as the tip of a pencil. The “CAL” symbol will blink on the LCD to indicate that the calibration has begun.
6. Calibration is complete when the “CAL” symbol disappears. Confirm that “7.0” is shown on the LCD.
7. Rinse the sensor with distilled water and pat dry.

Caution: The standard solution is a caustic acid. If the standard solution comes in contact with skin, wash the skin thoroughly with water.

Cleaning of the Sensor:

1. Thoroughly wipe any residual moisture from the surface of the meter.
2. Remove sensor from meter.
3. Wipe the ISFET sensor chip with a soft material moistened with water until the ISFET sensor chip shines.
4. Confirm that the watertight o-ring is seated properly on the reference electrode. Insert the sensor firmly. Do not touch the liquid junction.

Sensor Replacement

The sensor should be replaced when:

- the KCI solution has run dry (sensor color has changed from milky white to transparent).
- the meter cannot be calibrated or will not retain the calibration.
- the meter will not give a stable reading.

Procedure for replacing sensor:

1. Ensure that the meter and sensor are dry.
2. Pull the reference electrode out of the pH meter.
3. Confirm that the watertight o-ring is properly seated on the new reference electrode.
4. Firmly insert the new reference electrode in the pH meter. Do not touch the liquid junction.
5. Confirm that the meter can calibrate accurately.

Note: Be sure the seal is watertight and do not remove the reference electrode when the pH meter is wet. Water can damage the meter's electronics.

Liquid/Soil pH Measurement

Liquid pH Measurement:

1. Place sample on the sensor by using pipet or by immersing the sensor in the sample. Confirm that the ISFET sensor chip and the liquid junction are covered by the sample.
2. Wait for the reading to stabilize.
3. Rinse the sensor thoroughly with distilled water between measurements.
4. Replace the sensor cap when finished.

Note: This pH meter is splashproof, so please do not make any measurements by submerging the meter completely in the sample solution. If the meter is inadvertently dropped into the sample solution, recover it immediately and dry it thoroughly.

Soil pH Measurement:

1. Collect a representative soil sample.
2. Make a slurry of 1 part soil to 1 part distilled water. Mix for 30 seconds.
3. Allow 1 to 2 minutes for soil slurry to come into equilibrium.
4. Submerge the sensor into the soil slurry and record the result.
5. Wash the sensor with distilled water.

HANDLING PRECAUTIONS

- Because it is not possible to calibrate to different pH levels, do not calibrate with a standard solution other than pH 7.0.

- If the meter has difficulty calibrating or maintaining a stable reading, the sensor may be need to be replaced.

- When measuring solutions with extremely low ion concentration (i.e. tap water, rainwater, ...), rinse the sensor thoroughly before the measurement. If you are immersing the meter in the solution and cannot get a stable reading, try placing a few drops of the solution on the sensor instead.

- Do not scratch or apply excessive force to the ISFET sensor chip.

- Pulling or applying excessive force to the wick of the liquid junction will damage the reference electrode.

- If the pH meter has fallen into water, remove it immediately. While the pH meter is not water proof, it is splash-proof.

- Do not press the POWER or the CAL switches with a needle-like object.

Handling Precautions (Cont.)

- The following substances may damage the sensor:

  -Organic solvents (thinner, benzene, etc.)
  -strong acid (pH 0-2)
  -strong base (pH 12-14)
  -surface active agent, alcohol, oil, adhesive and cement.

- Keep the ISFET sensor chip away from direct sunlight or strong light during calibration and when taking measurements. Accuracy will also be reduced if the meter is exposed to high temperatures. The meter especially susceptible when it is used outdoors.

- White crystals or solution on the sensor is not a symptom of trouble; especially if the meter has not been used for a period of time. Simply, rinse the sensor before use.

- Accuracy will be increased when the standard solution is at the same temperature as that of sample to be measured.

Battery Replacement

The batteries need to be replaced when the LCD shows “BAT” while the power is turned on or if theLCD shows nothing when you press the POWER button.

Battery Replacement Procedure:

1. Ensure that the meter and sensor are dry.
2. Pull out upper housing of the pH meter.
3. Remove the dry cell holder.
4. Insert two new batteries with the “+” surface facing up.
5. To ensure a watertight seal, check that the housing and o-ring are seated properly and that there is no foreign matter caught between the o-ring and the seal.
6. Re-assemble housing of the pH meter.
7. Turn the meter on.
8. Calibrate the pH meter.

Caution: Do not remove housing of the pH meter when the pH meter is wet. Water entering the meter will damage the meter’s electronics.

PRODUCT RETURN

If for any reason you are not satisfied, or the meter has failed and you need to return the product for service, you need to contact Spectrum Technologies, Inc.

Before returning a failed unit, you must obtain a Returned Goods Authorization (RGA) number from Spectrum Technologies. You must ship the product(s), properly packaged against further damage, back to Spectrum Technologies (at your expense) with the RGA number marked clearly on the outside of the package. Spectrum Technologies is not responsible for any package that is returned without a valid RGA number, or for the loss of the package by any shipping company.

SERVICE AND SUPPORT

For technical service and support call your distributor or Spectrum Technologies, Inc.

When calling for technical support, a detailed explanation of the problem that you are experiencing. The more information you can provide, the faster and easier a technical support person will be able to assist you.

For technical support call (800) 248-8873 or (815) 436-4440.

Warranty

This product has been brought to you having passed strict quality control and inspections. Should any trouble occur during the course of normal use, the meter shall be repaired or replaced free of charge in accordance with the stipulations laid down herein. The term of this warranty shall be for two years from date of purchase. This warranty excludes batteries, reference electrode and accessories.

Warranty Stipulations:

1. The product shall be repaired or replaced free of charge should any trouble occur during the course of normal use if returned within the warranty period (two years from date of purchase). In that event, contact the dealer of purchase. Return the meter with proof of purchase date.

2. Expenses shall be incurred in the following instances within the warranty period. (Costs such as postage shall be born by the customer.)

a) When trouble or damage has been incurred due to misuse, abuse, and/or improper handling.
b) When the meter has been repaired, modified and dismantled by persons other than the designated agent.
c) In the event of changes in external appearance such as scratches or dirt caused during use or battery fluid leakage.
d) In the event of unsuitable movement, dropping or accidents such as fire, earthquakes, floods or a burglary.

Warranty (Cont.)

e) When replacing consumables and accessories.
f) When cause of trouble lies not in the meter itself.

Our obligation under this warranty is to repair or replace the meter free of charge in accordance with the conditions laid down herein. Accordingly, this warranty does not limit your specific legal rights.

Notes

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