Operating Instructions

OAKTON®

pHTestr® 50 and 50S Pocket Testers

CE

Applications

- Aquaculture
- Aquariums
- Boilers
- Car washes
- Ecology
- Food sectors
- Hydroponics
- Labs
- Sanitation plants
- Steam generators
- Spas
- Studies
- Water and wastewater treatment
- Water quality testing in pools and more

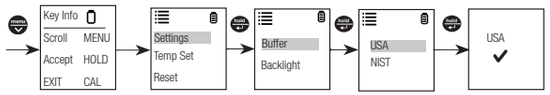
Getting Started

The pH tester has been factory calibrated and usually works well out of the box. However, after extended periods of non-use, it is best to ensure that the sensor is hydrated. Fill the cap with electrode storage solution or pH buffer and soak the sensor as needed to get a stable pH reading. A brief rinse with deionized (DI) water is OK, but avoid soaking or storing in deionized water as this will shorten pH electrode life. Prior to taking the measurements, periodic calibration with certified standards is recommended for best accuracy.

Buffer Set Selection

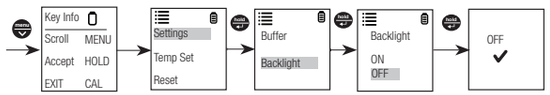
Select either USA (pH 4.01, pH 7.00 and pH 10.01) or NIST (pH 4.01, pH 6.86, and pH 9.18) to match your calibration standard values.

1. Press ON/OFF (⏻) to power on.
2. Press MENU/⩛ to enter setup window. Press HOLD/↵ to select Settings. The display shows Buffer and Backlight.
3. Press HOLD/↵ to select Buffer. The display shows USA and NIST.
4. Press HOLD/↵ to select USA or scroll down by pressing MENU/⩛ to toggle between the two buffer standards.
5. The display shows the selected buffer with a ✔.



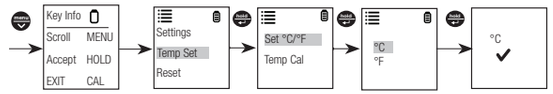
Backlight Settings

1. Press MENU/⩛ to enter setup window. Press HOLD/↵ to select Settings. The display shows Buffer and Backlight.
2. Scroll down by pressing MENU/⩛ to toggle between Buffer and Backlight. Press HOLD/↵ to select Backlight. The display shows ON and OFF.
3. Scroll down by pressing MENU/⩛ to toggle between ON and OFF. Backlight ON increases readability in low-light conditions.
4. Press HOLD/↵ to select the desired backlight option. The display shows the selected backlight option with a ✔.



Temperature Settings

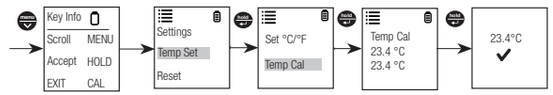
1. Press MENU/⩛ to enter setup window. Scroll down by pressing MENU/⩛ to select Temp Set. Press HOLD/↵ to select Temp Set. The display shows Set °C/°F and Temp Cal.
2. Press HOLD/↵ to select Set °C/°F. Display automatically shows °C and °F.
3. Scroll down by pressing MENU/⩛ to toggle between °C and °F.
4. Press HOLD/↵ to select the desired temperature unit.



Temperature Calibration

1. Press MENU/⩛ to enter setup window. Scroll down by pressing MENU/⩛ to highlight Temp Set. Press HOLD/↵ to select Temp Set. The display shows Set °C/°F and Temp Cal.
2. Scroll down by pressing MENU/⩛ to toggle between Set °C/°F and Temp Cal. Press HOLD/↵ to select Temp Cal.
3. The lower display shows the current measured temperature reading based on the last set offset and the upper display shows the current measured temperature reading based on factory default calibration.
4. Dip the tester into a solution of known temperature and allow time for the temperature sensor to stabilize.
5. Press MENU/⩛ to adjust the temperature value, then press HOLD/↵ to confirm the new temperature value of the solution.

Note: To exit this program without confirming the calibration, press CAL/ESC.



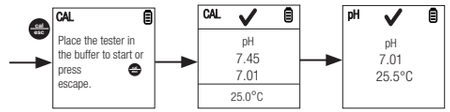
pH Calibration

Calibration should be done regularly, preferably once a week or more if using the tester daily. You can calibrate up to three points using standards from either the USA or the NIST buffer groups. For best results, use a minimum of two pH buffers such as pH 4 and pH 7.

1. Press ON/OFF (⏻) to power the tester on if needed.
2. Dip sensor in about 2 cm to 3 cm into the pH standard buffer solution. If using the supplied cap, fill to the "MAX" line. For best results, allow the reading to stabilize if needed before proceeding.
3. Press the CAL/ESC key to enter calibration mode. The CAL indicator will be displayed. The upper display will show the unadjusted factory default reading while the lower display will search for the corresponding value from the selected buffer group.

Note: All testers have dual display during calibration mode. To abort calibration, press CAL/ESC.

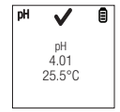
4. The timer icon will blink while the reading stabilizes (allow 1 to 2 minutes). Once the reading is stabilized, the timer stops blinking. The tester will automatically confirm the calibration value and return to the measurement window when successful.
5. Rinse electrode and repeat with other buffers if necessary.



Measurement

1. Press ON/OFF (⏻) to power the tester on if needed.
2. Dip the sensor in about 2 cm to 3 cm into the sample. If using the supplied cap, fill to the "MAX" line. Stir and let the reading stabilize. The timer icon will blink during this time. Once the reading is stable, ✔ will appear.

   CAUTION: Testing dry samples is not recommended and can lead to sensor damage. Soils must be wet and free from particulates that may scratch the glass sensor. Excessive force into dry samples can cause glass breakage.

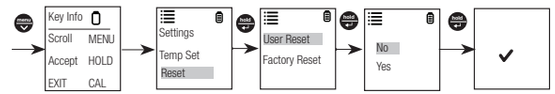


3. Note the pH value or press HOLD/↵ to freeze the reading. To release the reading, press HOLD/↵ again.
4. Press ON/OFF (⏻) for 3 seconds to turn off tester. If you do not press a button for 8.5 minutes, the tester will automatically shut off to conserve batteries.

User Reset

Reset to the user's default settings by using the User Reset function. Buffer selection and temperature user calibration are not affected by the User Reset function.

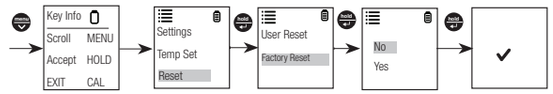
1. Press MENU/⩛ to enter setup window. Scroll down by pressing MENU/⩛ to select Reset. Press HOLD/↵ to select Reset. The display shows User Reset and Factory Reset.
2. Press HOLD/↵ to select User Reset. The display automatically shows No and Yes.
3. Scroll down by pressing MENU/⩛ to toggle between No and Yes.
4. Press HOLD/↵ to confirm either No or Yes. The display shows the User Reset option with a ✔.



Factory Reset

Reset the pH calibration to the factory reset default by using the Factory Reset function.

1. Press MENU/⩛ to enter setup window. Scroll down by pressing the MENU/⩛ to select Reset. Press HOLD/↵ to select Reset. The display shows User Reset and Factory Reset.
2. Scroll down by pressing the MENU/⩛ to toggle between the resets. Press HOLD/↵ to select Factory Reset. The display automatically shows No and Yes.
3. Scroll down by pressing MENU/⩛ to toggle between No and Yes.
4. Press HOLD/↵ to confirm either No or Yes. The display shows the Factory Reset option with a ✔.

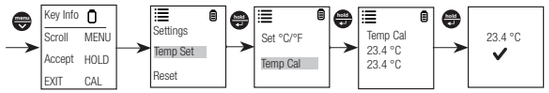


MTS - Manual Temperature Setting (pHTestr 50S only)

The MTS range is 0°C to 60.0°C (32.0°F to140.0°F). User reset will set temperature to default value 25°C or 77°F.

1. Press MENU/⋁ to select setup window. Scroll down by pressing MENU/⋁ to select Temp Set. Press HOLD/↵ to select Temp Set. The display shows Set °C/°F and Temp Cal.
2. Scroll down by pressing MENU/⋁ to toggle between Set °C/°F and Temp Cal. Press HOLD/↵ to select Temp Cal.
3. The lower display shows the current measured temperature reading based on the last set offset and the upper display shows the current measured temperature reading based on factory default calibration.
4. Dip the tester into a solution of known temperature and allow time for the built-in temperature sensor to stabilize.
5. Press MENU/⋁ to adjust the temperature value or press the HOLD/↵ to confirm the calibrated value as new temperature value of the solution.

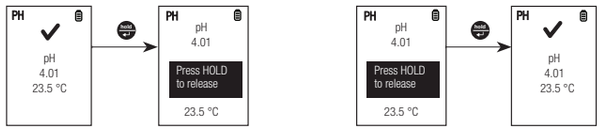
Note: To exit this program without confirming the calibration, press CAL/ESC before the automatic confirmation takes place.



HOLD Function

This feature helps to freeze the display reading for a delayed observation.

1. Press HOLD/↵ button to freeze the measurement.
2. Press HOLD/↵ again to release the measurement.



Sensor Maintenance

1. Before measuring soil pH with the pHTestr 50S, wet your soil sample with distilled water and ensure that the soil is free of particulates. Even though the pHTestr 50S is rugged, hard surfaces such as stones and pebbles can still cause breakage.
2. Rinse the sensor with sensor storage solution after each measurement. Care has to be taken not to damage the sensor's glass electrode especially while rinsing the pHTestr 50S penetrating tip electrode.
3. In aggressive chemicals, dirty or viscous solutions, and solutions with heavy metals or proteins, take readings quickly and rinse electrode immediately afterward. For the pHTestr 50S, the remnants of the semisolid samples on the penetrating electrode can be removed by rubbing it with some table salt and then rinsing. Mild detergent and warm water can be used to wash the penetrating electrode clean.
4. For best results, keep pH electrode stored upright in protective storage cap with electrode storage solution to keep the sensor hydrated. For pHTestr 50S, keep tip moistened in sleeve with electrode storage solution. Never store your pHTestr in deionized water for extended periods. Use deionized water for rinsing only.

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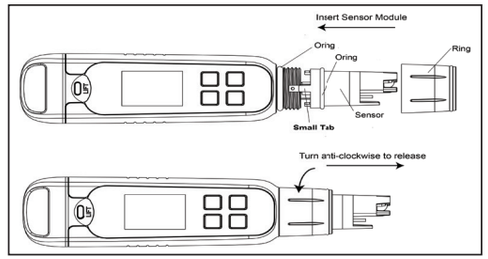
Sensor Replacement

You can replace the sensor module at the fraction of the cost of a new tester. When the tester fails to calibrate or gives fluctuating readings in calibration standards, you need to change the sensor.

1. With dry hands, grip the ring with sensor facing you. Twist the ring counterclockwise. Save the ring for later use.
2. Pull the old sensor module away from the tester.
3. Align the four tabs on the new sensor module so that they match the four slots on the tester.
4. Gently push the module onto the slots to sit it in position. Push the smaller O-ring fully onto the new sensor module. Push the other O-ring over the module and thread sensor ring into place by firmly twisting clockwise.

Note: It is necessary that you recalibrate your tester prior to measurement after a sensor replacement.



Replacing the Batteries

The pH tester uses four AAA 1.5 V batteries.

1. To remove the battery cover, See Figure 1. Clear the front catch and then the back catch, before sliding the cover off.
2. To remove the battery plate, push the center tab towards the front of the tester as shown in Figure 2. Once unlocked, remove the plate to access the batteries.
3. Invert the tester upside down to remove the batteries. Each side uses two AAA batteries. Orient each battery with positive terminal facing downward.
4. To lock the battery plate, align the small tabs (Figure 3) into the guide ribs on the housing and then press down. See Figure 4.

Fig. 1: Removing battery cover

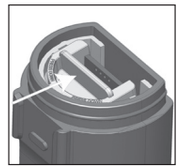


Fig. 2: Push to unlock

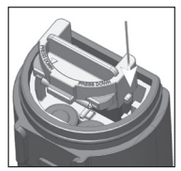


Fig. 3: Align tabs


Fig. 4: Push down to lock

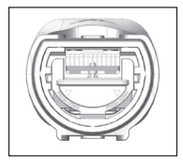


Fig. 5: Battery plate unlocked

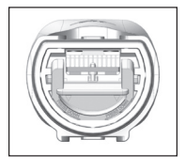


Fig. 6: Battery plate locked

Warranty

This instrument is supplied with a warranty against manufacturing defects for a period of one year from the date of purchase.

Return of Items

Authorization must be obtained from your distributor before returning items for any reason. When applying for authorization, please include information regarding the reason the item(s) are to be returned. We reserve the right to make improvements in design, construction and appearance of products without notice. Prices are subject to change without notice.

Self-Diagnostic Messages

	Batteries are weak and need replacement soon.
stable error	Appears when calibration is attempted but the reading is not yet stable. Wait for the reading to stabilize or manually confirm the calibration by pressing enter.
buffer error	The buffer is outside of the calibration range.
slope error	The 2nd or 3rd calibration point is not within 80% to 120% slope range.
over range	The reading is above the measuring range of tester.
under range	The reading is below the measuring range of tester.

Accessories

Ordering Code	Product Description
35634-15	pHTestr 50 pocket tester with case, lanyard, and batteries
35634-25	pHTestr 50S spear-tip pocket tester with case, lanyard, and batteries
35634-17	Replacement sensor module for pHTestr 50
35634-27	Replacement sensor module for pHTestr 50S
35634-09	Replacement sensor cap for pHTestr 50 only
09376-00	Replacement alkaline batteries; AAA, 1.5 V. Pack of 12
17101-45	NIST-traceable calibration with data for pH testers

Specifications	pHTestr 50	pHTestr 50S (spear tip)
pH		
pH range	–1.00 to 15.00 pH	–1.00 to 15.0 pH
Resolution	0.01 pH	0.01 pH
Relative accuracy	± 0.01 pH	± 0.01 pH
Calibration points	Up to 3 points	Up to 3 points
Buffer set standard selection	USA 4.01/7.00/10.01 NIST 4.01/6.86/9.18	USA 4.01/7.00/10.01 NIST 4.01/6.86/9.18
Calibration window	±1.00 pH	±1.00 pH
Calibration type	Point to Point	Point to Point
Temperature		
Temperature range	0 to 60°C / 32 to 140.0°F	0 to 60°C / 32 to 140.0°F
Temp. resolution	0.1°C / 0.1°F	0.1°C / 0.1°F
Temperature accuracy	From 0 to 50°C (±0.5°C / ±0.9°F + 1 LSD); From 50 to 60°C (±1.0°C / ±1.8 °F + 1 LSD)	NA
Temperature compensation	Yes (Automatic Temperature Compensation)	Yes (Manual Temperature Compensation)
General		
Display	Graphics, dot matrix 80 x 100 pixel	Graphics, dot matrix 80 x 100 pixel
Auto off	8.5 minutes (from last key press)	8.5 minutes (from last key press)
Reset	User / Factory	User / Factory
Power requirement	Four AAA 1.5 V batteries	Four AAA 1.5 V batteries
Battey life	>250 hours	>250 hours
Waterproofing	IP67	IP67
Ambient operating temperature	5 to 45°C / 41 to 113°F	5 to 45°C / 41 to 113°F
Relative humidity	5% to 85% noncondensing	5% to 85% noncondensing
Storage temp.	–20 to 60°C / –4 to 140°F	–20 to 60°C / –4 to 140°F
Storage humidity	5% to 85% noncondensing	5% to 85% noncondensing

OAKTON® INSTRUMENTS

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