

INSTRUCTION MANUAL

pHTestr 10, 20, 30, 10BNC, Spear

Large Screen

Waterproof pH / Temperature Tester Double Junction

Introduction

Thank you for selecting our microprocessor waterproof pH tester with USA or NIST buffer set selection. You have one of five models:

- pHTestr10
- pHTestr20
- pHTestr30
- pHTestr10BNC
- pHTestr10BNC

This manual provides a step-by-step guide to operate the testers.

Before you begin:

Condition your pHTestr 10, 20, 30 electrodes by immersing it in electrode storage solution or tap water for at least 30 minutes before use. DO NOT use de-ionized water.

Ensure that your pH/Spear electrode is always soaked in the electrode storage solution or tap water via its protective cap.

Note: For pHTestr10BNC, please refer to the pH electrode's instruction manual.

pH Buffer Set Selection

Your tester features USA (pH 4.01, pH 7.00 and pH 10.01) or NIST (pH 4.01, pH 6.86, and pH 9.18) standards. Select either one to suit your requirements.

1. While pressing the HOLD/ENT button, switch on the tester by pressing the ON/OFF button.
2. Release the HOLD/ENT button. The display will flash either USA or NIST.
3. Press CAL button to toggle between the two buffer set standards.
4. Press the HOLD/ENT button to confirm the selection of the buffer set.

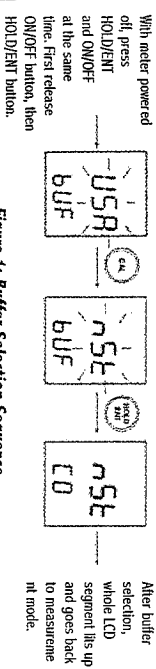


Figure 1: Buffer Selection Sequence

pH Calibration

Calibration should be done regularly, preferably once a week. You can calibrate up to three points using either the USA or the NIST buffer set standards.

1. Press ON/OFF button to switch unit on.
2. Dip electrode about 2 to 3 cm into the pH standard buffer solution.

3. Press the CAL button to enter calibration mode. The 'CAL' indicator will be shown. The upper display will show the measured reading based on the last calibration while the lower display will indicate the pH standard buffer solution.

Note: All testers have dual display during calibration mode
Note: To abort calibration, press the 'CAL' button.

4. Allow about 2 minutes for the tester reading to stabilize before pressing the HOLD/ENT button to confirm the first calibration point. The upper display will be calibrated to the pH standard buffer solution and the lower display will then be logging in between readings of the next pH standard buffer solution.
5. Repeat with other buffers if necessary. Rinse electrode in tap water before dipping into next buffer.

Note: The calibration mode allows you to perform up to three calibration points before returning to the measurement mode automatically. However, if you opted to have only one or two calibration points, simply skip the remaining calibration points by exiting to the measurement mode by pressing the CAL button.

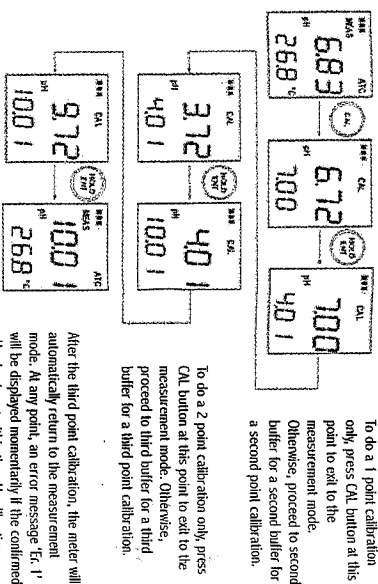


Figure 2: Example of pH Calibration Sequence

pH Measurement

1. Press the ON/OFF button to switch the tester on.
2. Dip the electrode about 2 to 3 cm into the test solution. Stir and let the reading stabilize. For pH/Spear, pierce the penetrating tip electrode through your semi solid sample as per the desired depth. Rotate left and right several times and tilt to ensure sample contact.
3. Note the pH value or press HOLD/ENT button to freeze the reading. To release the reading, press HOLD/ENT again.
4. Press ON/OFF to turn off tester. If you do not press a button for 8.5 minutes, the tester will automatically shut off to conserve batteries.

HOLD Function

This feature lets you freeze the display for a delayed observation

1. Press HOLD/ENT button to freeze the measurement. A 'HOLD' indicator will be displayed and the measurement will be frozen.
2. Press HOLD/ENT again to release the measurement. The 'HOLD' indicator will not be displayed anymore indicating the held measurement is released.

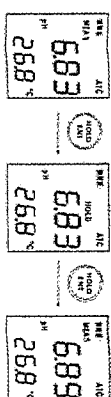


Figure 4: Example of HOLD Function

User Reset

You can reset the pH calibration to the factory default by using the user reset function. Buffer set selection and temperature user calibration (pHTestr30) are not affected by the user reset function.

1. Switch off the tester.
2. While pressing the 'CAL' button, press and release the ON/OFF button to enter the 'User Reset' selection menu. The screen will display 'YSt' on the bottom display with a flashing 'n0' selection.
3. Use the 'CAL' button to toggle between 'n0' and 'YES' selection.
 - YES activates the reset selection
 - n0 deactivates reset selection
4. Press the HOLD/ENT button to confirm the selection made.
5. If you have selected 'YES', the unit will show 'C0' momentarily and proceed to the measurement mode with the calibration reset back to factory default value.
6. If 'n0' is selected, the unit will proceed to the measurement mode without any calibration reset performed.

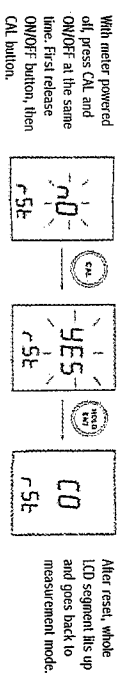


Figure 5: User Reset Sequence

ATC - Automatic Temperature Compensation (Only for pHTestr 10, pHTestr 20 and pHTestr 30)

Through its in-built temperature sensor, the measurement error due to the changes in electrode sensitivity due to changes in temperature is compensated to give the actual pH reading of the sample measured.

MTC - Manual Temperature Compensation (Only for pHTestr 10BNC, pH Spear)

The MTC range is 0 to 50.0 °C (32.0 to 122.0 °F). User reset will set temperature to default value 25 °C or 77 °F.

- While in the measurement mode,
1. Press the HOLD/ENT button to bring the tester to the 'HOLD' mode.
 2. Press the CAL button continuously to switch to the °C or °F mode setting selection screen.
 3. Release the CAL button to confirm your mode selection and the display will go to the manual temperature calibration mode with the upper display flashing. The upper display shows the adjustable temperature value and the lower display shows the last set temperature offset.
 4. Press the HOLD/ENT button to set the upper display to the temperature value of your sample.
 5. Once the setting is reached, release the HOLD/ENT button. The new value is automatically confirmed and returns to the measurement mode if no button is pressed after 5 seconds.

Notes: To exit this program without confirming the calibration, press the CAL button before the automatic confirmation takes place.

Temperature Calibration (Only for pHtest 30)

From the measurement mode.

1. Press the HOLD/ENT button to bring the tester to the 'HOLD' mode.
2. Press the CAL button for 3 seconds to switch to the °C or °F mode setting selection screen. Pressing the CAL button continuously for 3 seconds allows you to toggle in between the °C and °F mode setting selection screen.
3. Release the CAL button to confirm your mode selection and the display will go to the temperature calibration mode with the upper display flashing. The upper display shows the current measured temperature reading based on the last set offset and the lower 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 in built temperature sensor to stabilize.
5. Press the HOLD/ENT button to set the upper display to the temperature value of the solution.
6. Once the new temperature setting is reached, the new value is automatically confirmed and returns to the measurement mode if no button is pressed after 5 seconds.

Notes: To exit this program without confirming the calibration, press the CAL button before the automatic confirmation takes place.

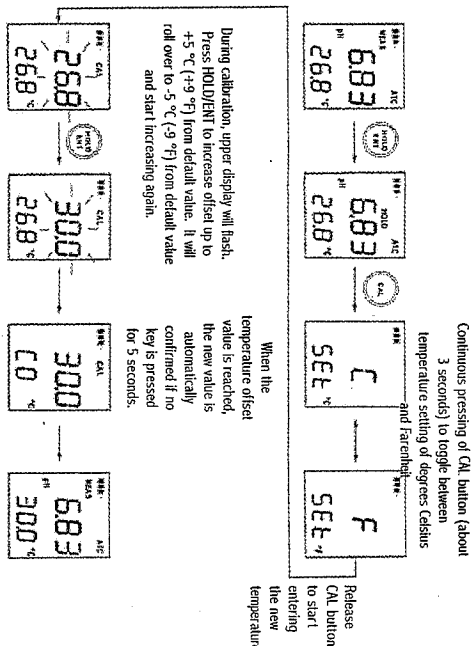


Figure 6: Temperature Calibration Sequence (Only for pHtest 30D)

Electrode Maintenance

1. Rinse the electrode with tap water or electrode storage solution after each measurement. Care has to be taken not to damage the sensor's glass electrode especially while rinsing the pH/Spear penetrating tip electrode.
2. In aggressive chemicals, dirty or viscous solutions, and solutions with heavy metals or proteins, take readings quickly and rinse electrode immediately afterward. For the pH/Spear, the remnants of the semi solid samples on the penetrating electrode can be removed by rubbing it with some table salt and then rinsing. Mild detergent can be used to wash the penetrating electrode clean.
3. If possible, keep a small piece of paper or sponge in the electrode cap – moistened with clean water or electrode storage solution (NOT de-ionized water) – and close the cap over the electrode. For pH/Spear, ensure that the electrode is kept soaked in electrode storage solution or tap water via its protective cap.

Changing Batteries

1. Open battery compartment lid (with attached lanyard loop).
2. Remove old batteries; replace with fresh ones. Note polarity.

Self-Diagnostic Messages

Low battery indicator	Or / Ur (5m)	3 Bars indicates Battery is full (100%)
		2 Bars indicates 50% of the battery life is left
		1 Bar indicates 25% of the battery life is left
		Blinking battery casing indicates the need to replace batteries with fresh ones as specified by manufacturer
		Electrode is not in contact with solution or electrode is failing.
		Replacement sensor is not connected properly to the tester during sensor replacement
		Measured pH value or temperature value (pHtest30) exceeds its specified maximum or minimum value
		Blinking 'ATC', 'Or', or 'Ur' indicates that there is a short or open circuit at the built in temperature sensor
		Temperature calibration error of attempting to calibrate tester to a value which is out of range or under range
		pH calibration error of attempting to confirm a calibration value which is not within the specified calibration window
Over range / Under range signal	ATC / Or / Ur (Blinking)	
Error Message	Er1	

Electrode Replacement

You can replace the electrode 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 electrode.

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

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

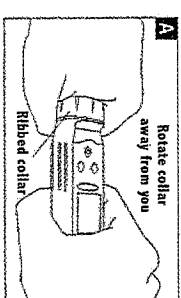


Figure 7: Removal of collar from tester

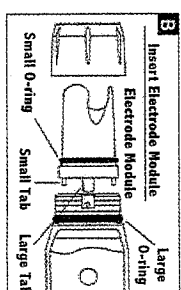


Figure 8: Example of electrode module fitting alignment

Applications

Water quality testing • pools • spas • aquariums • aquaculture • hydroponics • ecology studies • water and wastewater treatment • boilers • steam generators • car washes • sanitation plants • labs • food sectors and more!

Warranty

The waterproof testers are warranted to be free from manufacturing defects for 1 year and electrode module for 6 months, unless otherwise specified. If repair, adjustment or replacement is necessary and has not been the result of abuse or misuse within the time period specified, please return the tester - freight prepaid - and correction will be made without charge. Out of warranty products will be repaired on a charge basis.

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.

Note: We reserve the right to make improvements in design, construction and appearance of products without notice. Prices are subject to change without notice.

Accessories

Item	Eutech Instruments Order Code	Datlon Instruments Order Code
pHtestr 10, 20, 30 replacement sensor	PHSENS030	WD-35624-38
pHtestr 10BNC replacement sensor	PHSENS0BNC	ONPWHSENSBNC
pH/Spear replacement sensor	PHSENS004	WD-35624-50

Tester Specifications

Large Screen Testers	pHtestr10	pHtestr20	pHtestr30	pHtestr 10BNC	pH/Spear
pH Range	-1.0 to 15.0 pH	-1.00 to 15.00 pH	-1.00 to 15.00 pH		
Resolution	0.1 pH	0.01 pH	0.01 pH		
Rebale Accuracy	0.1 pH	0.01 pH	0.01 pH		
Calibration Points	Up to 3 points	Up to 3 points	Up to 3 points		
Bufile Set	USA - 4.01/7.00/10.0	USA - 4.01/7.00/10.01	USA - 4.01/6.86/9.18		
Standard Selection	MST - 4.006/9.92	MST - 4.01/6.86/9.18	MST - 4.01/6.86/9.18		
Calibration Window	+/-1.0 pH (pH 4.0 & pH 10.0)	+/-1.00 pH (pH 4.01 & pH 10.01), +/-1.50 pH (pH 7.00)	+/-1.00 pH (pH 4.01 & pH 9.18), +/-1.50 pH (pH 7.00)		
Calibration Window (MST Buffer Set Standard)	+/-1.0 pH (pH 4.0 & pH 9.2)	+/-1.00 pH (pH 4.01 & pH 9.18), +/-1.25 pH (pH 6.86)			
Temperature	No Display	0-50.0°C or 32.0-122.0°F			
Temperature Compensation	ATC				
Temperature Resolution	No	0.1 °C / °F			
Temperature Accuracy	No	0.5 °C / 0.9 °F			
Temperature Calibration Window	No	+/- (5°C / 9 °F) from default value	0-50.0°C or 32.0-122.0°F (MTC)		
Auto Off	After 8.5 minutes from last key press				
User reset	Yes				
Non Volatile Memory Backup	Yes				
LCD Display	4 x 1.5V 76" mldo Matrix Batteries				
Power Requirement	More than 500 hrs				
Battery life	0-50 °C				
Operating temperature	6.5 °C x 1.5 °F db. (65 x 38 mm)				
Tester Dimensions					
Weight	3.25 oz (90 gm)				
Penetrating electrode total length	Not applicable				
Shaft length	Not applicable				
Penetrating electrode upper diameter	Not applicable				
Shaft diameter	Not applicable				