

Portable pH Meter for Drinking Water - HI99192



The HI99192 is a durable, waterproof, and portable pH and temperature meter designed specifically for measurement of drinking water. Automatic calibration is performed at one or two points with two sets of buffers. All calibration and measurement readings are automatically compensated for temperature variations.

The HI99192 uses the FC2153 glass body, amplified pH electrode that offers numerous features which improve pH testing of drinking water. The split-level LCD displays both pH and temperature readings, along with indicators for reading stability, battery percentage, and calibration instructions.

- Automatic Temperature Compensation
- Automatic Two-Point Calibration
- Waterproof

The pH of drinking water is a vital measurement. If the pH is too low, drinking water will be corrosive to the distribution system and water pipes in homes. The pH of water also influences other properties including taste, odour, clarity, and efficiency of disinfection. In the United States, the pH of water is determined by a meter according to EPA method 150.1 and Standard Methods 4500-H.

Measuring pH of water low in minerals is difficult. The lower the mineral content, the less conductive the water will be. Low conductivity water presents a challenge since the pH meter is an electrochemical system that relies on the solution being measured to be conductive.

Most drinking water plants use either surface water (lakes, rivers, and streams) or groundwater as their point source of water for treatment. Surface water is typically lower in mineral content, resulting in lower conductivity/TDS readings. Groundwater that has percolated through limestone, dolomite, or gypsum, and generally has a higher mineral content than surface water. However, there are sources of groundwater that are also very low in mineral content.

The HI99192 uses the FC2153 amplified pH electrode with glass body. This specialized electrode offers numerous features that improve pH testing in drinking water. An integrated temperature sensor allows for temperature compensated pH measurements without the need for a separate temperature probe. The probe's spheric sensing tip has a wide surface area for measurement in aqueous solutions.

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An integral part of any pH electrode is the reference junction. The reference junction is a part of the electrode that allows for the flow of ions located in the reference cell into the sample being measured. The ions provide for an electrical connection between the reference electrode and the indicating electrode. A standard pH electrode will use a single ceramic junction that allows for 15 to 20 $\mu\text{L}/\text{hour}$ of electrolyte to flow.

The FC2153 has three ceramic junctions providing for 40 to 50 $\mu\text{L}/\text{hour}$ of electrolyte to flow. This increased flow provides a greater continuity between the reference electrode and the indicating electrode making it suitable for water of low ionic strength. To optimize the flow from the electrode the refill cap should be unscrewed so that it is open. This allows for positive head pressure to be created allowing for the electrolyte to flow more easily into the sample.



Glass Body

The glass body of the FC2153 is chemically resistant and quick to reach thermal equilibrium, allowing for a faster, more stable response.



Spherical Glass Tip

A large surface area provides optimal contact between the sensing bulb and aqueous milk sample.



Triple Ceramic Junction

Three ceramic junctions allow 40 to 50 $\mu\text{L}/\text{hour}$ of electrolyte to flow. This increased flow provides a greater continuity between the reference electrode and the indicating electrode, making it suitable for water of low ionic strength.



Built-In Temperature Sensor

Automatic compensation of temperature variations

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Features At-A-Glance

Waterproof – The HI99192 is a waterproof meter rated IP67 for immersion in up to one meter of water for 30 minutes.

Automatic Calibration – One or two-point calibration is automatic to two selectable buffer sets.

Automatic Temperature Compensation – An integrated temperature sensor allows for automatic temperature compensation of pH measurements.

Sensor Check – Using the pH-mV range the user can check the sensor status by reading the mV reading in fresh buffers. At room temperature (25 °C/77°F) the reading should be ± 30 mV in pH 7.01 and greater than 150 mV difference between pH 7.01 and 4.01.

Multi-Level LCD Display – The split-level LCD displays both pH and temperature readings, along with indicators for reading stability, battery percentage, and probe condition.

Probe Condition Indicator – The probe condition indicator is based on the offset and slope characteristic of the electrode. There are 5 bars ranging from all 5 indicating the probe is in excellent condition and 1 bar indicating the probe should be cleaned or replaced.

Battery Error Prevention System – The meter will automatically shut off if there isn't enough power to obtain an accurate measurement.

Battery Life Indicator – The battery percent level is displayed at start up alerting the user to the remaining battery power that is available.

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pH Range	-2.00 to 16.00 pH; -2.0 to 16.0 pH
pH Resolution	0.01 pH; 0.1 pH
pH Accuracy	±0.02 pH; ±0.1 pH
pH Calibration	automatic, at one or two points with two sets of buffers (standard 4.01, 7.01, 10.01 or NIST 4.01, 6.86, 9.18)
pH Temperature Compensation	automatic -5.0 to 105.0 °C/23.0 to 221.0 °F
pH CAL Check (electrode diagnostics)	probe condition indicator
pH Sensor Check	yes
mV Range	±825 mV (pH-mV)
mV Resolution	1 mV (pH-mV)
mV Accuracy	±1 mV (pH-mV)
Temperature Range	-5.0 to 105.0°C / 23.0 to 221.0°F
Temperature Resolution	0.1°C / 0.1°F
Temperature Accuracy	±0.5°C (up to 60°C); ±1.0°C (outside) / ±1°F (up to 140°F); ±2.0°F (outside)
pH Electrode	FC2153 pre-amplified pH electrode with internal temperature sensor, DIN connector, 1 m (3.3') cable
Automatic Shut-Off	user selectable: after 8 min, 60 min or disabled
Battery Type/Life	1.5V (3) AAA / approximately 1400 hours of continuous use
IP Protection	IP67
Dimensions	154 x 63 x 30 mm (6.1 x 2.5 x 1.2")
Weight	196 g (6.91 oz.)