

HI99192

## Portable pH Meter

for Drinking Water

- Automatic Temperature Compensation (ATC)
- Two-point calibration
- Battery Error Prevention System (BEPS)
  - Alerts the user of low battery power that could adversely affect readings
- Waterproof
  - Compact, heavy-duty, and waterproof protected casing
- Battery life indicator
  - Battery percentage displayed on startup
- Help feature
  - Tutorial messages displayed on LCD

The Hanna HI99192 is a waterproof portable pH and temperature meter designed specifically for measuring the pH of drinking water.

The HI99192 measures pH from -2.00 to 16.00 pH and temperature from -5.0 to 105.0 °C (23.0 to 221.0 °F). Automatic calibration is performed at one or two points and all readings are automatically compensated. Indicators for stability, battery percentage, and calibration instructions are viewed on the LCD display. The HI99192 uses three 1.5V AAA batteries for an exceptional battery life of 1200 hours of continuous use.





## FC215D Amplified pH Electrode

- Built-in temperature sensor
  - For automatic compensation of temperature variations
- Refillable pH electrode
- Amplified electrode
  - For fast, stable response that is immune to electrical noise due to humidity
- Triple ceramic junction design

The HI99192 drinking water pH meter uses the glass body FC215D amplified pH electrode. The amplified electrode provides a fast stable response that is immune to electrical noise due to humidity. The electrode contains an internal temperature probe to allow for automatic compensation for any variances in temperature. The electrolyte solution in the electrode is refillable.

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  $\mu\text{L}$ /hour of electrolyte to flow. The FC215D has three ceramic junctions providing for 40 to 50  $\mu\text{L}$ /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; this allows for positive head pressure to be created, allowing for the electrolyte to flow more easily into the sample.

## The pH of Drinking Water

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

Most drinking water plants use surface water (lakes, rivers, and streams) or groundwater as their point source. Surface water is typically lower in mineral content, which results in lower EC/TDS readings. Groundwater that has percolated through limestone, dolomite or gypsum will have a relatively higher mineral content. Depending on location, there are sources of groundwater that can be very low in mineral content.

Measuring the pH of water that is low in minerals can be 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. The HI99192 uses the FC215D amplified pH electrode. The FC215D has three ceramic junctions in the outer reference cell that allows for pH measurement in low conductivity solutions.

Specifications	HI99192	
pH*	Range	-2.00 to 16.00 pH
	Resolution	0.01 pH
	Accuracy	$\pm 0.02$ pH
	Calibration	one or two-point calibration, two sets of standard buffers available (4.01, 7.01, 10.01 or NIST 4.01, 6.86, 9.18)
	Temperature Compensation	automatic from -5.0 to 105.0°C (23 to 221°F)
Temperature*	Range	-5.0 to 105.0°C; 23.0 to 221.0°F
	Resolution	0.1°C; 0.1°F
	Accuracy	$\pm 0.5^\circ\text{C}$ (up to 60°C), $\pm 1.0^\circ\text{C}$ (outside); $\pm 1.0^\circ\text{F}$ (up to 140°F), $\pm 2.0^\circ\text{F}$ (outside)
Additional Specifications	Electrode	FC215D pre-amplified pH electrode with internal temperature sensor, DIN connector, 1 m (3.3') cable (included)
	Battery Type / Life	1.5V AAA (3) / approximately 1200 hours of continuous use
	Auto-off	after 8 minutes of non-use
	Environment	0 to 50°C (32 to 122°F); RH max. 100%
	Dimensions / Weight	152 x 58 x 30 mm (6.0 x 2.3 x 1.2") / 205 g (7.2 oz.)
Ordering Information	HI99192 is supplied with FC215D pH and temperature probe, HI70004 pH 4.01 buffer solution sachet, HI70007 pH 7.01 buffer solution sachet, HI700661 electrode cleaning solution sachets (2), HI7082 3.5 KCl filling solution, batteries, instructions and hard carrying case.	

\* Limits will be reduced to actual sensor limits

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