

HI99111

Portable pH Meter

for Wine Analysis

- Simultaneous pH and temperature measurements on a large dual-line LCD display
- User-friendly two button design
- Application specific probe
- Durable IP67 waterproof casing
- Watertight probe connection
- Probe condition indicator
- Automatic pH calibration at one or two points within two memorized buffer sets (standard or NIST)
- On-screen calibration tags
- mV measurement for electrode check
- Selectable temperature unit (°C or °F)
- Auto-off function
- Battery life indication and low battery detection



HI99111 is a portable, microprocessor-based pH and temperature meter. Main features include: extended pH and temperature ranges; waterproof and compact casing; large dual-line display; low battery detection; automatic pH calibration at one or two points within two memorized buffer sets (standard or NIST); selectable temperature unit (°C or °F).

The FC10483 pH probe features an open junction with Clogging Prevention System (CPSTM) technology, has a built-in temperature sensor for simultaneous temperature compensated pH and temperature readings, and also contains a pH sensor preamplifier to provide measurements impervious to noise and electrical interferences.



- **Optional shockproof silicon rubber boot**
- Specially designed to protect your instrument from damage or impact

HI710028 Orange
HI710029 Blue
HI710030 Green

Specifications

HI99111

pH	Range*	-2.00 to 16.00 pH / -2.0 to 16.0 pH
	Resolution	0.01 pH / 0.1 pH
	Accuracy (@25°C/77°F)	±0.02 pH / ±0.1 pH
pH-mV	Range*	±825 mV
	Resolution	1 mV
	Accuracy (@25°C/77°F)	±1 mV
Temperature	Range*	-5.0 to 105.0°C; 23.0 to 221.0°F
	Resolution	0.1°C; 0.1°F
	Accuracy (@25°C/77°F)	±0.5°C (up to 60°C), ±1.0°C (outside); ±1.0°F (up to 140°F), ±2.0°F (outside)
Additional Specifications	Temperature Compensation	automatic, from -5.0 to 105.0°C (23.0 to 221.0°F)
	Probe (included)	FC10483 preamplified pH and temperature probe with a flat tip, DIN connector, and 1 m (3.3') cable
	Battery Type / Life	1.5V AAA (3) approx. 1400 hours of continuous use
	Auto-off	user selectable: after 8 min, 60 min, or disabled
	Environment	0 to 50°C (32 to 122°F); RH max. 100%
	Meter Dimensions	154 x 63 x 30 mm (6.1 x 2.5 x 1.2")
	Meter Mass (with batteries)	196 g (6.91 oz.)
Case Ingress Protection Rating	IP67	
Ordering Information	<p>HI99111 is supplied with FC10483 pH/temperature probe with flat tip and Quick Connect DIN connector with 1m (3.3') cable, pH 3.00 and 7.01 buffer sachets, HI700635 Cleaning solution for wine deposits sachets (2), HI700636 Cleaning solution for wine stains (2), 100 mL beaker, 1.5V AAA batteries (3), calibration certificate of meter, calibration certificate of probe, instruction manual, and HI710142 rugged carrying case.</p>	

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FC10483 pH electrode

- PE sleeve for cleaning
- Refillable pH electrode
- Clogging prevention system (CPS™)

The HI99111 portable pH meter for wine uses the glass body FC10483 pH electrode with Hanna's unique Clogging Prevention System (CPS™). This electrode provides a fast stable response and resists clogging. The electrolyte solution in the electrode is refillable.

An integral part of any pH electrode is the reference junction. The reference junction 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; however, the CPS™ (Clogging Prevention System) is an innovation in electrode technology. Conventional pH electrodes use ceramic junctions that clog quickly when used in wine. When the junction is clogged, the electrode does not function. CPS™ technology utilizes the porousness of ground glass coupled with a PE sleeve to prevent clogging of the junction. The ground glass allows proper flow of the liquid, while the PE sleeve repels dirt. As a result, pH electrodes with CPS™ stay fresh up to 20 times longer than conventional electrodes.

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 drain more easily from the reference electrode.

The Importance of pH in Wine Making

The pH of wine is important to determine because it will affect the quality of the final product in terms of taste, color, oxidation, chemical stability, and other factors. Generally in winemaking, the higher the pH reading, the lower amount of acidity in the wine. Three important factors in determining the pH of wine include the ratio of malic acid to tartaric acid, the amount of potassium, and the total amount of acid present.

Most wines optimally have a pH between 2.9 and 4.0, with values differing based on the type of wine. Values above pH 4.0 indicate that the wine may spoil quickly and be chemically unstable. Lower pH values allow the wine to stay fresher for a longer period and retain its original color and flavor. High pH wine is more likely to breed bacteria and become unsuitable to drink.

For finished white wines, the ideal pH is between pH 3.00 and pH 3.30, while the final pH for red wine is ideally between pH 3.40 and pH 3.50. The optimal pH before the fermentation process is between pH 2.9 and pH 4.0. The pH of wine therefore not only affects the color of wine, but also the oxidation, yeast fermentation, protein stability, and bacterial growth and fermentation.