



HI 99151

pH Meter for Beer Analysis



Features

- Easy to clean and keep clean
- Application specific electrode
- Multi-level LCD display
- On-screen tutorial messages for calibration and set up
- Automatic Temperature Compensation
- Automatic one or two point calibration
- BEPS - Alerts the user in the event that low battery power could adversely affect the readings
- Battery % displayed on startup
- Compact, heavy duty, and waterproof

HI 99151

The Hanna Instruments HI 99151 is a rugged, waterproof, and portable pH/temperature meter designed specifically for the brewing industry. The HI 99151 uses the FC 214D, a titanium bodied, gel filled pH electrode that features high temperature glass and an extendable cloth junction. The HI 99151 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 done at 1 or 2 points with 2 sets of buffers and all readings are automatically compensated for temperature variations. Indicators for stability, battery percentage, and calibration instructions are viewed on the primary display. The HI 99151 uses three 1.5V AAA batteries for an exceptional battery life of 1200 hours of continuous use.

In all grain brewing the enzymes required to convert the starch into sugar are pH sensitive with an optimal pH of 5.2 - 5.6. Different compounds are used to adjust the pH including phosphoric acid, lactic acid and gypsum.

Wort clarity and break formation are also affected by pH. Protein coagulation occurs during wort boiling. The optimum pH is around a pH of 4.9 even though a common boil pH is 5.2. A pH too high will not only inhibit coagulation but also promote browning due to the interaction of amino acids and reducing sugars.

Hop utilization during the wort boil is affected by pH. As pH increases the solubility of hop resins increase. Unfortunately for hop lovers a high pH also increases the release of tannins resulting in a harsher taste. Higher pH also favors microbial activity.



*Product shown actual size

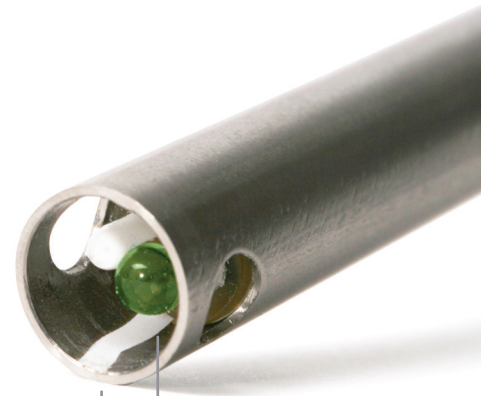


FC 214D

- Amplified electrode for fast, stable response that is immune to electrical noise due to humidity
- Maintenance free gel filled electrode. No fill solution required
- Unbreakable titanium body
- Extendable cloth junction to prevent clogging
- High temperature glass that is ideal for a sample at an elevated temperature

The HI 99151 beer pH meter uses the titanium body FC 214D amplified pH electrode with built in temperature sensor. The amplified electrode provides a fast stable response that is immune to electrical noise due to humidity. The body of the electrode is made from titanium, which provides an unbreakable structure that allows the transfer of heat to the internal temperature sensor for rapid temperature compensation.

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. It is vital that this flow occurs in order to complete an electrical circuit. Any clogging of the reference junction will prevent the circuit from being completed and will result in readings that are erratic and/or constantly drifting. A typical pH electrode has a junction made of ceramic material. This ceramic material can be easily clogged by samples, such as mash with a high solids content and wort that is viscous. With the Hanna Instruments cloth junction it is possible to clear the clog by simply extracting 1/8" of the junction from the electrode. This exposes a new portion resulting in a renewed junction.



Extendable Cloth Junction
High Temperature Glass Electrode



HI 99151 Specifications

pH

Range	-2.00 to 16.00 pH
Resolution	0.01 pH
Accuracy @ 20°C	±0.02 pH
Electrode	FC 214D pre-amplified pH electrode with internal temperature sensor, DIN connector, 1 m (3.3') cable

Temperature

Range	-5.0 to 105.0°C/23.0 to 221.0°F
Resolution	0.1°C/0.1°F
Accuracy @ 20°C	±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, -5.0 to 105.0°C (23 to 221°F)
Battery Type / Life	1.5V (3) AAA / 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	152 x 58 x 30 mm (6.0 x 2.3 x 1.2")
Weight	205 g (7.2 oz.)

Ordering Information

HI 99151 is supplied with FC 214D pH/temperature probe, HI 70004 pH 4.01 buffer solution sachet, HI 70007 pH 7.01 buffer solution sachet, HI 700642 electrode cleaning solution sachets (2), batteries, instructions and hard carrying case.

Accessories

HI 7004L	4.01 pH Buffer Solution 500 mL bottle	HI 7073L	Protein Cleaning Solution 500 mL bottle
HI 7007L	7.01 pH Buffer Solution 500 mL bottle	HI 710023	Shockproof Rubber Boot, Orange
HI 70004P	4.01 pH Buffer Solution (25) 20 mL	HI 710024	Shockproof Rubber Boot, Blue
HI 70007P	7.01 pH Buffer Solution (25) 20 mL sachets	HI 145-20	Digital Thermometer with CAL CHECK®, -50.0 to 220°C, 300mm (11.8 in)
HI 77400P	4.01 & 7.01 pH (10) 20 mL Sachets	HI 145-30	Digital Thermometer with CAL CHECK®, -58.0 to 428°F, 300mm (11.8 in)
HI 70300L	Electrode Storage Solution 500 mL bottle		



HI 710024 Shockproof Rubber Boot, Blue



HI 145-30 Digital Thermometer with CAL CHECK®, -50.0 to 220°C, 300mm (11.8 in)