

## First pH meter in the world with a Bluetooth® Smart pH electrode

Free yourself from wires when performing pH measurements. Hanna Instruments is proud to introduce edge<sup>blu</sup>, a pH meter that uses HALO® pH electrodes with Bluetooth® Smart technology (Bluetooth 4.0). Bluetooth® Smart technology is energy efficient, allowing for low power consumption to maximize the life of the replaceable battery used in the pH electrode.

HALO electrodes can also connect to a compatible smart phone or tablet running the Hanna Lab App.

pH

edge<sup>blu</sup>

## edge®blu technical features

### Rechargeable Battery

edge blu has a built in rechargeable battery that is charged when the meter plugged into the benchtop or wall mounted cradle. The battery can also be recharged through the micro USB port connected to a computer or directly to a power supply.



### Two USB ports

edge blu includes one standard USB for exporting data to a flash drive and one micro USB port for exporting files to your computer as well as for charging when the cradle is not available.



### Data logging

Log-on-demand, log-on-stability, and interval logging modes are all available. Up to 200 data points can be logged on demand and an additional 200 data points for samples logged upon a stable reading. The logging interval is adjustable from 5 seconds to 180 minutes. Up to 600 records can be stored in a maximum of 100 interval lots. Logging modes can be started from the meter or by simply pressing the button on the HALO pH probe.

### GLP

Data of the last calibration you perform is stored in the sensor including the date, time, and buffers used. When the sensor is connected to edge blu, GLP data is automatically transferred.

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### CAL Check™

Hanna's exclusive CAL Check feature analyzes the pH electrode response in the pH buffers during the calibration process to alert the user of potential problems such as a contaminated buffer or dirty electrode. After calibration, indicators for probe condition are displayed on the measurement screen. The probe condition is based on offset and slope characteristics of the pH electrode.



### Bluetooth Smart Technology

HI11102 HALO® pH electrode use Bluetooth® Smart Technology (Bluetooth 4.0). This technology offers low power consumption allowing for a long 500 hour battery life. The range of the Bluetooth connection is 10 m (33') between the probe and receiving device.



### Auto-detection

At a push of the button, the HALO pH electrode enters discovery mode and will be detected by edge blu. Once connected, the serial number, calibration information including date, time and buffers used, and the electrode specifications will be loaded into the meter. Having this information stored in the electrode allows for hot swapping to other pH electrodes without recalibrating. The details of the electrode and calibration information are stored with any logged readings.

## edge blu design features



### Capacitive touch keypad

edge blu features sensitive capacitive touch buttons for accurate keystrokes when navigating edge's menus and screens. Since they are part of the screen, the buttons can never get clogged with sample residue.



### Easy to read LCD

edge blu features a 5.5" (14 cm) LCD display that you can clearly view from over 5 m (16.4') away. The large display, with its wide 150° viewing angle, provides one of the easiest to read LCDs in the industry.



### Zero footprint

Using the wall mount cradle (included), edge blu can be placed on a wall, leaving zero footprint on the benchtop space. The cradle has a built-in connector to power the meter and charge the batteries.



## A hybrid meter that can be used in portable, wall-mount, and benchtop configurations

The versatile design of edge®blu enables it to be used as a portable, wall-mount, or benchtop meter. edge blu simplifies measurement, wirelessly using compatible HALO® pH electrodes with Bluetooth® Smart technology.



### Portable field unit

edge blu is ideal for field use due to its light weight, large screen, and thin design. It can easily be slipped into a backpack or messenger bag. The battery life lasts up to 8 hours when used as a portable device.



### Wall-mount cradle

The included wall-mount cradle makes it easy to conserve space on the benchtop while also charging edge blu with the AC adapter. The cradle is ideal for continuous monitoring applications.



### Electrode holder with built-in cradle

The electrode holder features a swivel, adjustable arm with a built-in cradle to hold edge blu securely in place at the optimum viewing angle.

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HI181 magnetic stirrer and beaker not included.



4.0

Bluetooth®  
Smart

0

footprint

0.5

inch thick  
(12.7 mm)

8.8

oz. weight  
(250 g)

8

hours battery  
life

5.5

inch display  
(14 cm)

2

USB ports

## edge blu additional features

- Resolution selectable from 0.01 and 0.001 pH
- Range -2.000 to 16.000 pH
- Accuracy  $\pm 0.002$  pH for 0.001 pH resolution;  $\pm 0.01$  for 0.01 resolution
- Data logging
  - Manual log-on-demand
  - Manual log-on-stability
  - Interval logging
- Temperature readout (°C or °F)
- Automatic Temperature Compensation (ATC)
- CAL Check™ Indicators:
  - Probe condition
  - Response time
  - Check buffer
  - Clean electrode
- GLP data
  - Records date, time, offset, slope, and buffers used during calibration
- Five-point calibration
  - A choice of seven pre-programmed buffers plus two custom buffers
- Calibration tag on screen
  - Identifies buffers used for current calibration
- Calibration expiration warning
- Basic mode
  - edge®blu Basic Mode is ideal for routine measurements by displaying a simplified screen and features
- Standby mode
  - HALO® can be switched between standby and measurement mode by edge blu. When measurement is resumed, HALO is automatically recognized. Standby mode is ideal for applications such as aquariums when only periodic measurements are needed in the same sample.

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## HI11102 HALO pH electrode with Bluetooth® Smart technology

edge blu® is supplied with the HI11102 HALO® professional pH probe with Bluetooth® Smart technology (Bluetooth 4.0). This probe is compatible with the edge blu and the Hanna Lab App<sup>1</sup>.

The HI11102 HALO pH electrode is a glass body, gel filled, double junction pH electrode that has an indicating probe made with general purpose glass. The glass body is resistant to many chemicals and easy to clean. Being gel filled reduces maintenance since there are no fill solutions to add. The double junction design is suitable for a variety of solutions that can contain substances such as heavy metals or Tris buffer that will cause the silver chloride (AgCl) found in a single junction probe to precipitate and clog the junction.

- Gel filled glass pH electrode
- Double junction reference design
- Integrated temperature sensor
  - Ensures calibration and measurement is automatically temperature compensated, thus eliminating error
- Wide pH (0 to 12) and temperature (-5 to 80°C) range
- Clear the clutter
  - Data is wirelessly transmitted to the edge blu or compatible smart phone or tablet running the Hanna Lab App via Bluetooth® Smart technology<sup>1</sup>. HI11102 HALO provides up to 500 hours of battery life
- Calibration is stored
  - HI11102 HALO stores calibration information; no additional calibration is needed when switching to another edge blu or iPad
- Battery condition
  - The measurement screen of the edge blu and Hanna Lab App displays the name, battery life and condition of the HI11102 HALO probe

## Hanna Lab App

*pH Meter Application for use with HALO*



The Hanna Lab App turns compatible smart phone or tablet into a full-featured pH meter when used with a HALO pH probe via Bluetooth® Smart technology. Functions include calibration, measurement, data logging, graphing, and data sharing. Measurement and logging of pH and temperature at one second intervals start as soon as the probe is connected. Measurements can be displayed alone on the display, with tabulated data or as a graph. The graph can be panned and zoomed with pinch-to-zoom technology for enhanced viewing.



- Connects via Bluetooth® 4.0
- Calibration reminder
- Real-time data
  - Displays updated pH and temperature updated every second
- Measurement alarms
  - Alerts users if the measurement threshold is exceeded
- Basic GLP
  - Displays date and time of current calibration along with probe offset and average slope
- Full GLP
  - Displays date and time of current calibration, probe offset, and average slope along with calibrated buffers, mV values, temperature, and slopes between each buffer
- Fluid, dynamic graphing
  - Measurements can be displayed with tabulated data or as a graph
- One button sample tagging
- Data-logging with custom annotations
  - Data is automatically saved every hour
  - Saved log files may be annotated with measurement specific information
- Four ways to save and share data:
  - All data since last auto save
  - Annotations only
  - All data within a timed interval
  - Annotations within a timed interval
- Share data via email in CSV format
- Help and tutorials

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<sup>1</sup> HALO electrodes can only be used with one compatible device at a time.

Specifications	edge®blu*	
pH	Range <sup>2</sup>	-2.00 to 16.00 pH; -2.000 to 16.000 pH <sup>†</sup>
	Resolution	0.01 pH; 0.001 pH <sup>†</sup>
	Accuracy (@25°C/77°F)	±0.01 pH; ±0.002 pH <sup>†</sup>
	Calibration	Basic mode: Automatic, up to 3 points calibration 5 standard buffer Standard mode: Automatic up to 5 points calibration 7 standard buffers (1.68i, 4.01 or 3.00, 6.86, 7.01, 9.18, 10.01, 12.45i) and 2 custom buffers†
	Temperature Compensation <sup>2</sup>	automatic, -5.0 to 100.0°C (23.0 to 212.0°F) (using built-in temperature sensor)
mV pH	Range	±1000 mV
	Resolution	0.1 mV
	Accuracy (@25°C/77°F)	±0.2 mV
Temperature	Range <sup>2</sup>	-20.0 to 120.0°C; -4.0 to 248.0°F
	Resolution	0.1°C; 0.1°F
	Accuracy	±0.5°C; ±0.9°F
Additional Specifications	Probe	HI11102 HALO® glass body pH electrode with Bluetooth® Smart technology
	Logging	up to 1000 <sup>†</sup> (400 for basic mode) records organized in: manual log-on-demand (max. 200 logs), manual log-on-stability (max. 200 logs), interval logging <sup>†</sup> (max. 600 samples; 100 lots)
	Connectivity	1 USB port for storage; 1 micro USB port for charging and PC connectivity
	Environment	0 to 50°C (32 to 122°F); RH max 95% non-condensing
	Power Supply	5 VDC adapter (included)
	Dimensions	202 x 140 x 12 mm (7.9" x 5.5" x 0.5")
Weight	250 g (8.82 oz.)	
Ordering Information	<b>HI2202-01</b> (USA plug) and <b>HI2202-02</b> (European plug) edge blu includes: HI11102 HALO pH electrode with Bluetooth® Smart technology, pH 4 buffer solution sachets (4), pH 7 buffer solution sachets (2), pH 10 buffer solution sachets (2), electrode cleaning solution sachets (2), battery for HALO, benchtop docking station with electrode holder, wall-mount cradle, USB cable, 5 VDC power adapter, quality certificates, and instruction manual.	

HALO Specifications	HI11102 HALO (included)
Reference	double, Ag/AgCl
Junction	ceramic
Electrolyte	gel
Range	0.00 to 12.00 pH ±420 mV
Bulb Shape	spheric
Outer Diameter (glass)	12 mm (glass)
Overall Length	183 mm
Solution Temperature	-5.0 to 80.0°C (23.0 to 176.0°F)
Body Material	glass
Environment	0.0 to 50.0°C (32.0 to 122.0°F), electronic module is not waterproof
Temperature Sensor	integrated
Connection	Bluetooth® Smart (Bluetooth® 4.0), 10 m (33') range
Battery Type / Life	CR2032 3V lithium ion / approximately 500 hours

#### Hanna Lab App Specifications\*

Range <sup>2</sup>	-2.000 to 16.000 pH ±800 mV -20.0 to 120.0°C (-4.0 to 248.0°F)
Resolution	0.1; 0.01; 0.001 pH 1; 0.1 mV 0.1°C (0.1°F)
Accuracy (@25°C/77°F)	±0.005 pH ±0.3 mV ±0.5°C (±1.0°F)
Calibration Points	up to five-point calibration with seven standard buffers (1.68, 3.00 or 4.01, 6.86, 7.01, 9.18, 10.01, 12.45 pH)
Temperature Compensation <sup>2</sup>	automatic from -5.0 to 100.0°C; 23.0 to 212.0°F
Compatibility/System Requirements	see www.hannainst.com for latest compatibility requirements

Download Information



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<sup>2</sup> Limits will be reduced to actual probe/sensor limits.

\* HALO required for measurement use.

† Standard mode only