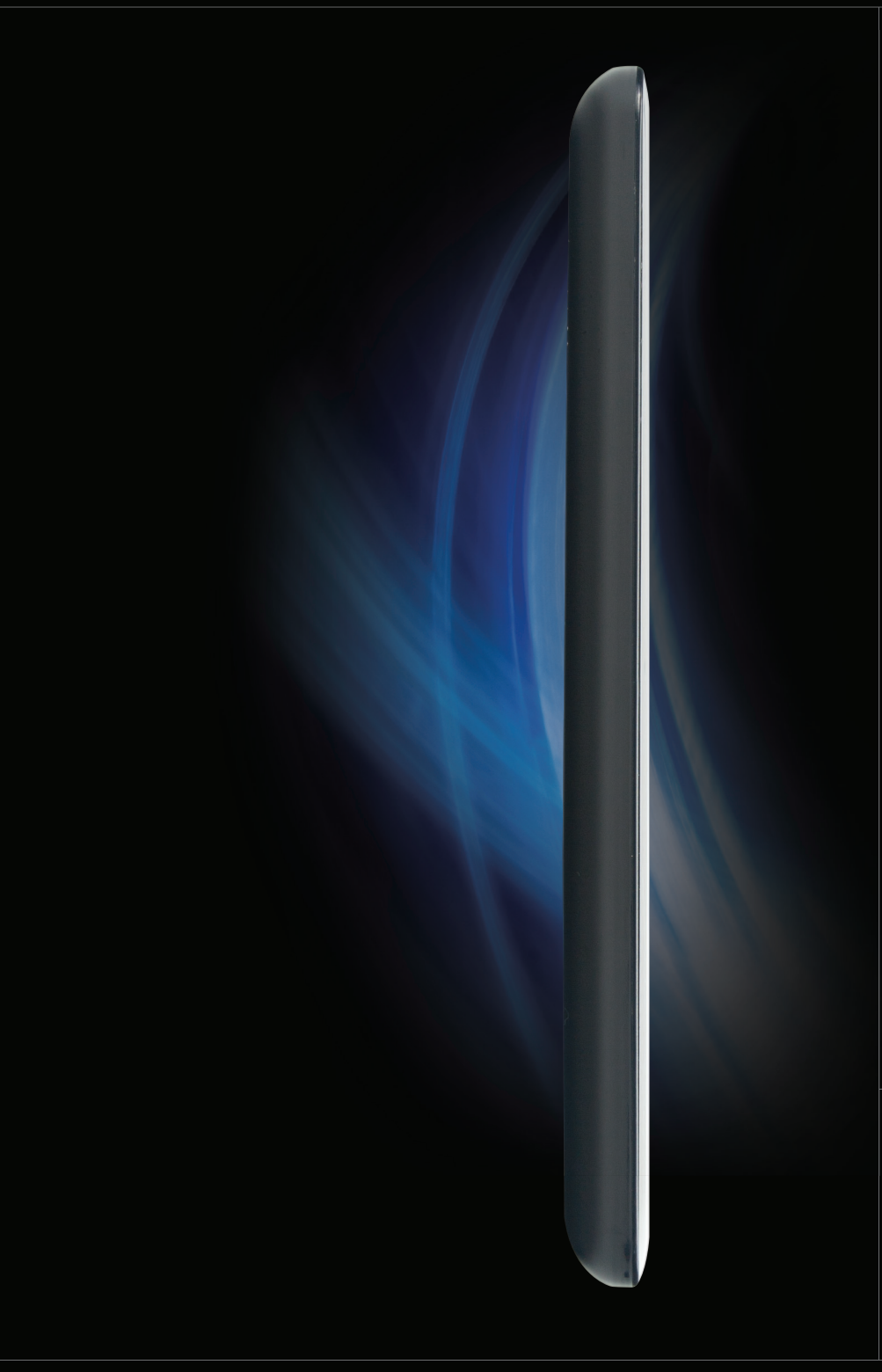
# edge™

pH • EC • DO

HANNA® instruments

# pH



- Resolution selectable from 0.01 and 0.001 pH
- Range -2.000 to 16.000 pH
- Accuracy ± 0.002 pH
- Data logging
  - Manual log on demand
  - Manual log on stability
  - Interval logging
- Temperature readout (°C or °F)
- Automatic Temperature Compensation
- CAL-CHECK® Indicators:
  - Probe condition
  - Response time
  - Check buffer
  - Clean electrode
- Sensor Check Indicators:
  - Broken electrode
  - Clogged junction
- GLP data
  - Records date, time, offset, slope and buffers used during calibration
- 5 point calibration
  - A choice of 7 pre-programmed buffers plus 2 selectable custom buffers
- Calibration tag on screen
  - Identifies buffers used for current calibration
- Calibration expiration warning

edge

## Conductivity

- Four ring potentiometric probe
  - Covers all ranges from 0.00 µS/cm to 500 mS/cm (absolute EC)
- Accuracy
  - ± 1% of the reading ± (0.05 µS/cm or 1 digit, whichever is greater)
- Calibration
  - Offset (0 µS/cm) and cell factor calibration
  - Choice of 5 standards
- Auto-ranging or manual range selection
- EC, TDS and Salinity reading modes
- Temperature Compensation
  - Automatic
  - NoTC (absolute)
- GLP data
  - Records date, time, offset, and cell constant value (K)
- Adjustable EC to TDS conversion factor
- Adjustable temperature correction coefficient

## Dissolved Oxygen

- Clark type polarographic probe with replacement membrane cap
- Ranges:
  - 0.00 - 45.00 mg/L (ppm)
  - 0.0 - 300% oxygen saturation
- Accuracy ± 1.5% full scale
- Calibration at 1 or 2 points 0% and 100% (air)
- Automatic Temperature Compensation from 0 to +50°C
- GLP data
  - Records date, time, calibration standards, altitude value and salinity value
- Altitude Compensation -500 to 4000 metres
- Salinity Compensation 0 to 40g/L

| 0 | 12.7 | 250 | 8 | 140 | 2 |
|---|---|---|---|---|---|
| footprint | mm thick | gram weight | hours battery life | mm display | USB ports |

# edge™ pH • EC • DO

Hanna Instruments is proud to introduce the world's most innovative pH meter... **edge**™.

**edge** is thin and lightweight, measuring just 12.7 mm and weighing 250 grams. **edge** also has an incredibly wide viewing angle, a 140 mm LCD and a sensitive capacitive touch keypad.

**edge** measures pH, conductivity and dissolved oxygen through its unique digital electrodes. These digital electrodes are auto-recognised. Providing sensor type, calibration data and a serial number, they connect to **edge** using an easy plug-in 3.5mm connector. **edge's** versatile design is equally at home in your hand, on a lab bench or mounted on a wall. **edge** simplifies measurement, configuration, calibration, diagnostics, logging and transferring data to a computer or a USB drive.

**edge** features Hanna's exclusive CAL-CHECK® to warn you if the electrode you are using is not clean or if your buffers are contaminated during calibration. We have also added to CAL-CHECK for sensors with matching pin: now it warns you if the pH bulb is cracked and if the junction of the electrode is compromised.

**edge** is the culmination of Hanna's vision, design capabilities, integrated production facilities, and world class R&D teams. With **edge**, Hanna has set the new standard!

## Two USB Ports

**edge** includes one standard USB for exporting data with a flash drive. **edge** also includes one micro USB port for you to connect to a computer for file export and for charging your **edge** when the cradle is not available.

## Large, Easy to Read LCD

**edge** features a 140 mm LCD display that you can clearly view from over 5 metres. The large display and its wide 150° viewing angle provide one of the easiest to read LCD's in the industry.

## Clear, Full Text Readout

**edge** features clear, full text guides displayed on the bottom of the screen. There is no need to decipher scrambled abbreviations or symbols; these helpful messages guide you through every process quickly and easily.

## Great Design

**edge** is incredibly thin and lightweight, measuring just 12.7 mm thick and weighing just 250 grams.

## Capacitive Touch Buttons

**edge** features a capacitive touch keypad that gives a distinctive, modern look. Since the keypad is part of the screen, your buttons can never get clogged with sample residue. The up and down keys move faster when continuously held (ideal for scrolling through numerous logs).

## Cradle and Electrode Holder

**edge** is equipped with a benchtop cradle with an adjustable swivel electrode holder to charge and hold the **edge** securely in place at the optimium viewing angle.

## Basic Mode

You can use **edge** in Basic Mode: ideal for routine measurements, it offers a simplified screen and features.

## GLP

Data from the last calibration you perform is stored in the sensor: electrode's offset, slope, date, time and buffer/standards. When any sensor (pH, EC, or DO) is connected to the **edge**, GLP data is automatically transferred.

## CAL-CHECK®

**edge** features Hanna's exclusive CAL-CHECK to warn you if the bulb of the electrode is not clean or if the buffers are contaminated during calibration.

## Zero Footprint

Using the wall mount cradle (included), **edge** can be placed on a wall, leaving zero footprint on the benchtop space. The cradle has a built in connector to power **edge** and charge its batteries. **edge's** zero footprint is designed to save you valuable benchtop space.

## Data Logging

**edge** allows you to store up to 1000 log records of data. Data sets include readings, GLP data, date and time.

## Sensor Check (only HI-12301 and HI-11311)

When used with Hanna's electrodes equipped with a matching pin, **edge** constantly checks the impedance of the pH measuring electrode to notify you in real time in the event of glass breakage. During calibration, Sensor Check checks the state of the junction. The reference junction is also evaluated and reported on the display.

## 3.5 mm Probe Input

Plugging an electrode in has never been simpler: no alignments, no broken pins – just connect the 3.5 mm plug and get started.

# Digital Smart Electrodes

The electrodes used with **edge** are nearly as advanced as the **edge** itself. Each electrode features a built-in microchip that stores sensor type, ID and calibration information all of which is automatically retrieved by **edge** once the electrode is plugged in.

Stored pH calibration information includes: calibrated buffers, date, time, offset and slope characteristics of the electrode. Conductivity calibration information includes: calibrated conductivity standards, date, time, and cell constant of the sensor. Dissolved oxygen calibration information includes: standards used for calibration, date, time, altitude and salinity correction.

These digital electrodes also feature an easy to plug in 3.5 mm connector so you never have to worry about the right angle or aligning pin settings.

# Technical Specifications

| | | | | |
|---|---|---|---|---|
| **pH** | **Range** | basic mode: -2.00 to 16.00 pH, -2.000 to 16.000 pH; standard mode: ±1000.0 mV for pH | | |
| | **Resolution** | 0.01 pH; 0.001 pH; 0.1 mV | | |
| | **Accuracy (@25°C/77°F)** | ±0.01 pH; ±0.002 pH; ±0.2 mV | | |
| | **Calibration Points** | 5 in standard mode; 3 in basic mode | | |
| | **Calibration Buffers** | standard mode: 1.68, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45 and two custom buffers<br>basic mode: 4.01, 6.86, 7.01, 9.18, 10.01 | | |
| | **Temperature Compensation** | ATC (-20.0 to 120.0°C; -4.0 to 248.0°F)* | | |
| | **pH Electrode (included)** | HI-11310 glass body pH electrode with 1/8"(3.5mm) connector and 1 m (3.3') cable | | |
| | **Electrode Diagnostics** | standard mode: probe condition, response time and out of calibration range | | |
| **EC** | **Range** | **EC** | **TDS** | **Salinity** |
| | | 0.00 to 29.99 µS/cm; 30.0 to 299.9 µS/cm; 300 to 2999 µS/cm; 30.0 to 200.0 mS/cm; up to 500.0 mS/cm (absolute EC)** | 0.00 to 14.99 mg/L (ppm); 15.0 to 149.9 mg/L (ppm); 150 to 1499 mg/L (ppm); 1.50 to 14.99 g/L; 15.0 to 100.0 g/L; up to 400.0 g/L (absolute TDS)**, with 0.80 conversion factor | 0.0 to 400.0 % NaCl;<br>0.01 to 42.00 PSU<br>0.0 to 80.0 g/L |
| | **Resolution** | 0.01 µS/cm; 0.1 µS/cm; 1 µS/cm; 0.01 mS/cm; 0.1 mS/cm | 0.01 ppm; 0.1 ppm; 1 ppm; 0.01 g/L; 0.1 g/L (0.8 TDS factor) | 0.1 % NaCl; 0.01 PSU; .01 g/L |
| | **Accuracy (@25°C/77°F)** | ±1% of reading ±(0.5 µS or 1 digit, whichever is greater) | ±1% of reading ±(0.03 ppm or 1 digit, whichever is greater) | ±1% of reading |
| | **Calibration** | 1 point offset calibration (0.00 µS/cm in air); 1 point slope calibration in EC standard 84 µS/cm, 1413 µS/cm, 5.00 mS/cm, 12.88 mS/cm, 80.0 mS/cm and 118.8 mS/cm | through EC calibration | 1 point with HI-7037L 100% NaCl sea water standard (other scales through EC calibration) |
| | **Temperature Compensation** | noTC, ATC (-20.0 to 120.0°C; 32.0 to 122.0 °F) | | |
| | **TDS Factor** | 0.40 to 0.80 | | |
| | **EC Electrode (included)** | HI-763100 digital conductivity platinum 4 ring electrode with 1m cable and 3.5mm plug | | |
| **DO** | **Range** | 0.00 to 45.00 ppm; 0.0 to to 300.0 % saturation | | |
| | **Resolution** | 0.01 ppm; 0.1 % saturation | | |
| | **Accuracy** | ± 1.5% of reading ±1 digit | | |
| | **Calibration Points** | one or two points at 0% (HI-7040 solution) and 100% (in air) | | |
| | **Temperature Compensation** | ATC (0 to 50°C; 32.0 to 122.0 °F)* | | |
| | **Salinity Compensation** | 0 to 40 g/L (with 1 g/L resolution) | | |
| | **Altitude Compensation** | -500 to 4000 m (with 100 m resolution) | | |
| | **DO Electrode (included)** | HI-764080 digital dissolved oxygen polarographic electrode with 1m cable and 3.5mm plug | | |
| **Temperature** | **Range** | -20.0 to 120.0°C; -4.0 to 248.0°F | | |
| | **Resolution** | 0.1°C; 0.1°F | | |
| | **Accuracy** | ±0.2°C; ±0.4 °F | | |
| **Additional Specifications** | **Logging** | stores up to 1000 records: 200 records (log-on-demand and stability logging); 600 records interval logging | | |
| | **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 12.7mm (8" x 5.5" x 0.5") | | |
| | **Weight** | 250 g (8.82 oz.) | | |

* temperature limits will be reduced to actual probe/sensor limits
** with temperature compensation function disabled

# Ordering Information

## edge™ is available in 3 configurations: pH, EC and DO

### All Kits Include:

Benchtop docking station with electrode holder

Wall-mount cradle

USB cable

5 VDC power adapter

Instruction manual

**In addition to these components, the following items are also included:**

**The pH kit HI-2020-01 (115V) and HI-2020-02 (230V)** also includes:

**HI-11310**
Glass body, refillable pH electrode with temperature sensor

2 sachets of pH 4 buffer solutions

2 sachets of pH 7 buffer solutions

2 sachets of pH10 buffer solutions

Electrode cleaning solutions

Quality certificate

**The EC kit HI-2030-01 (115V) and HI-2030-02 (230V)** also includes:

**HI-763100**
Conductivity probe

3 sachets of 1413 µS/cm conductivity standard

3 sachets of 12880 µS/cm conductivity standard

Quality certificate

**The DO kit HI-2040-01 (115V) and HI-2040-02 (230V)** also includes:

**HI-764080**
Dissolved Oxygen electrode

HI-7041S
Refill electrolyte solution

2 DO membrane caps

2 DO membrane cap o-rings

Quality certificate

# Electrodes

**HI-11310**
Single ceramic, double junction, refillable pH electrode with temperature sensor

Recommended for laboratory and general purpose

**HI-11311**
Single ceramic, double junction, refillable pH electrode with temperature sensor and matching pin

Recommended for laboratory and general purpose

**HI-12300**
Double junction, gel filled, PEI body, pH electrode with temperature sensor

Recommended for field applications

**HI-12301**
Double junction, gel filled, PEI body, pH electrode with temperature sensor and matching pin

Recommended for field applications

**HI-10530**
Triple ceramic, single junction, low temperature glass, refillable pH electrode with conical tip and temperature sensor

Recommended for fats and creams, and soil samples

**HI-10430**
Single ceramic,double junction, high temperature glass, refillable pH electrode with double junction

Recommended for paints, solvents, strong acids and bases, high conductivity samples, and Tris buffer

**HI-763100**
Conductivity eletrode with temperature sensor

Recommended for general purpose

**HI-764080**
Dissolved Oxygen electrode with temperature sensor

Recommended for general purpose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