



#### Ideal for test tube applications

HI13302 HALO is an innovative, application specific, pH electrode with Bluetooth® Smart technology that allows the use of a compatible Apple or Android smart device to be used as a pH meter. This electrode is designed for taking pH measurements in test tubes that are used by university, pharmaceutical, biotechnology, and food laboratories customers.

- Small diameter bulb and body
  - 5 mm diameter bulb fits easily into test tubes.
- Built-in temperature sensor
  - · Provides accurate temperature compensated pH measurements
- Open junction
  - Permits a predictable flow rate of reference electrolyte for stability
- · Gel-filled reference
  - · Maintenance free with no fill solutions required

### Small 5 mm Diameter Bulb and Body

HI13302 has a small pH-sensing bulb that is only 5 mm in diameter by 80 mm in length. The small diameter of the probe allows for pH measurements in test tubes, vials, and other small containers.

## Built-in Temperature Sensor

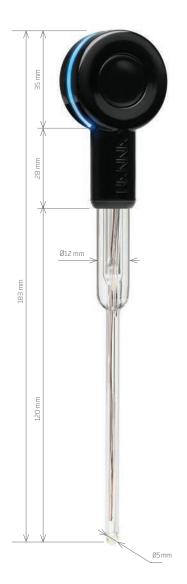
HI13302 has a thermistor temperature sensor built into the tip of the pH electrode. A thermistor based temperature sensor provides for a high accuracy temperature while being in the tip of the electrode allows for a rapid temperature compensated measurement.

## Open Junction Design

The reference half-cell has an open junction design in order to accommodate the 5 mm micro bulb and shaft. The open junction design is resistant to clogging from suspended solids and proteins found in biological samples. Any clogging that occurs will impede the measurement circuit between the indicating electrode and the internal reference resulting in slower response time and erratic readings.

#### Maintenance Free Gel-filled Reference

The open junction design consists of a solid gel (Viscolene) interface between the sample and internal ceramic reference junction. Other than routine calibration and cleaning, this probe is maintenance free.



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|-----------------------------|---|
| Measurement Range           | 0.00 to 12.00 pH  |
| Reference Cell Type         | double, Ag/AgCl   |
| Junction Type               | open junction   |
| Electrolyte                 | Viscolene   |
| Body Material               | glass   |
| Tip / Shape                 | spheric   |
| Temperature Operating Range | -5 to 50°C (23 to 122°F)  |
| Body Length/Overall Length  | 120 mm /183 mm  |
| Temperature Sensor          | integrated  |
| Outer Diameter              | 5 mm (glass)  |
| Connector Type              | Bluetooth Smart (Bluetooth 4.0), 10 m (33') range   |
| Battery Type/Life           | CR2032 3V lithium ion / approximately 500 hours   |
| Environment                 | 0 to 50°C (23 to 122°F); electronic module is not waterproof  |
| Ordering<br>Information     | HI13302 (HALO) is supplied with storage solution, cleaning solution, pH 7.01 buffer solution, pH 4.01 buffer solution, battery, quality certificate and |

instruction sheet.

HI13302

**HALO Specifications** 





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