

ABB MEASUREMENT &amp; ANALYTICS

# Open up a new world of pH measurement



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# A new world of smart pH measurement

## that works the way you want to work

Accurate measurement of pH is a key requirement across a multitude of industries, from drinking water and wastewater treatment through to power, energy generation and industrial process control.

In each instance, it is vital to make sure you select the right type of pH probe that will offer the best levels of performance, accuracy and reliability.

Our next generation range of sensors bring together over 70 years of ABB pioneering pH sensor development and application expertise with the latest advanced digital technology and sensor diagnostics.

The result, a new range of electrodes that are simple to select, own and operate, each offering the perfect combination of performance and price for cost-effective process control.

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The highest reliability  
and most accurate  
measurement in the  
harshest of processes



# Keeping pH measurement simple

## ensuring you get the right solution from the start

To take the uncertainty out of pH probe selection, we've divided our new family of pH and ORP sensors into three distinct ranges based on the applications they have been designed for.

Each electrode is clearly named with color-coding for ease of identification. This enables you to select the best sensor to meet your needs with ease, ensuring optimal plant efficiency, performance and lifetime - every time.



# Introducing our next generation of pH and ORP electrodes

## 100 Series

### 100 E



#### Eco-efficient pH measurement

The 100 E combines economical efficiency with dependable operation in a virtually unbreakable 12mm design. Perfect for low poisoning applications where price is paramount.

### 100 GP



#### Complete confidence in general process applications

Highly accurate with fast response times, the versatile 100 GP provides complete confidence in a wide range of general process applications including drinking water, municipal wastewater and cooling waters.

### 100 ULTRA



#### Simplified measurement in low conductivity applications

With no electrolyte to top-up, the 100 ULTRA reduces the maintenance requirements and costs typically associated with pure water applications. Ideal for measurements down to 2 µS/cm thanks to its super-saturated electrolyte matrix.

## 500 Series

### 500 PRO



#### High performance industrial sensor for harsh applications

The 500 PRO series provides the ultimate combination of performance, functionality, and durability for harsher industrial applications. Featuring a unique triple-junction design with ion traps, reference shielding and Viton® Extreme O-ring protection, the 500 PRO provides enhanced poisoning resistance and chemical protection, extending operational lifetime without compromising performance.



## 700 Series

### 700 ULTRA



#### The ultimate rechargeable sensor for demanding ultra-pure water pH accuracy

Featuring a rechargeable reservoir-fed design, the 700 ULTRA is capable of extended operation in the purest of waters. Enhanced with a triple ceramic junction design, the 700 ULTRA provides ultra-fast response times while maintaining measurement stability in the most demanding high purity applications. Available as a panel-mounted system with integrated sample flow monitoring.

# Enjoy smarter lifelong pH measurement

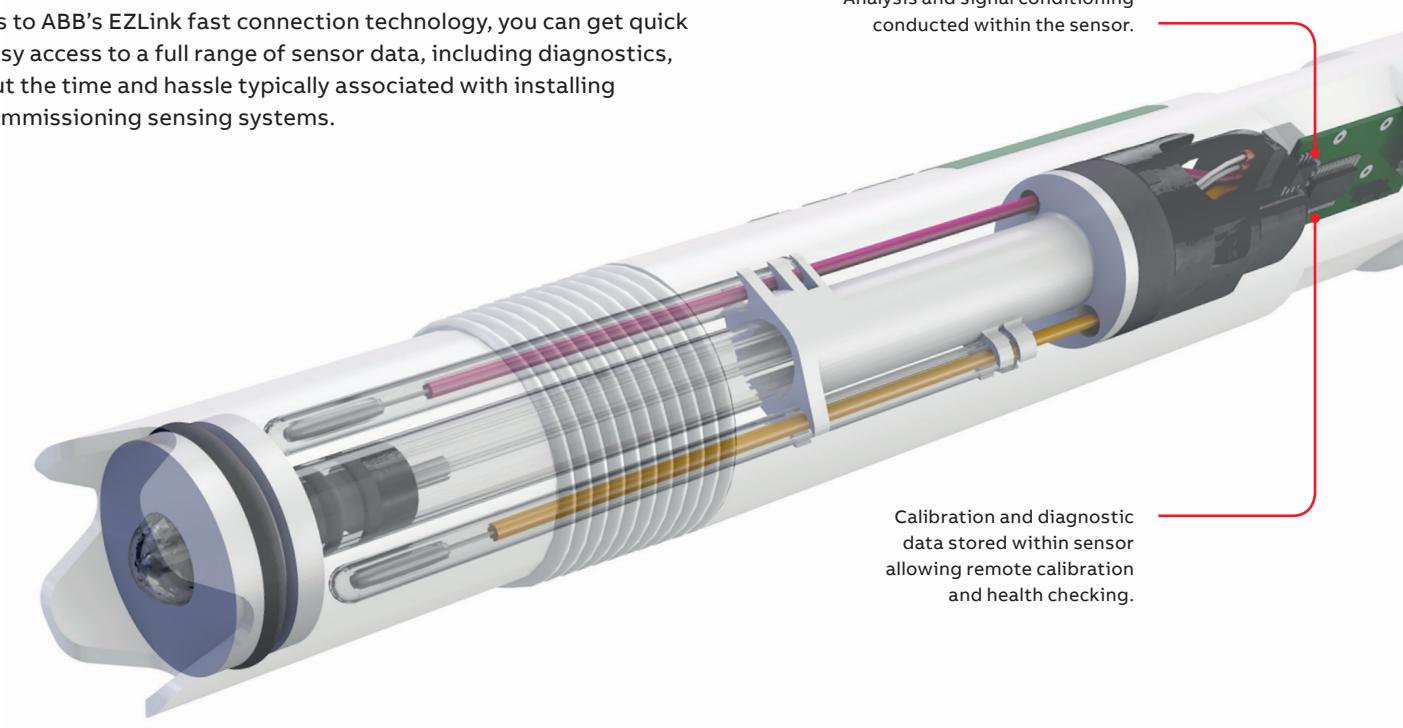
The pH sensor that tells you when it's time to change

The arduous and demanding nature of many pH measurement applications can take their toll on even the most rugged pH sensors.

Our digital pH sensors offer improved process reliability. Patent-pending perpetual impedance diagnostics detect electrode faults in real-time without the need for a solution earth, while our smart Reference Electrode Monitoring (REM) system provides early warning notification of electrode poisoning.

By connecting your sensor to one of our digital transmitters, you can ensure that your sensor is replaced at the optimum time, saving money without risking process control.

Thanks to ABB's EZLink fast connection technology, you can get quick and easy access to a full range of sensor data, including diagnostics, without the time and hassle typically associated with installing and commissioning sensing systems.



## Key benefits of EZLink pH/ORP sensors:



### Plug-and-play technology

- Reduces time needed for installation
- Removes uncertainty during commissioning



### Sensor healthcheck

- Maximizes sensor lifetime
- Improved measurement confidence with reduced process downtime



### Enhanced measurement accuracy

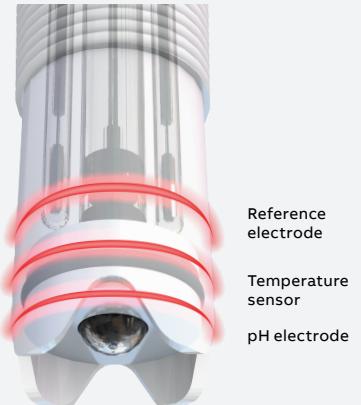
- Fast temperature response
- No degradation of signal integrity through sensor cables or electrical interference

## Enhanced accuracy in temperature varying processes

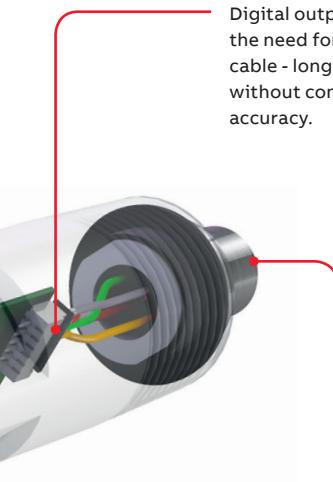
Variation in sample temperature is one of the most common causes of pH measurement error.

ABB's electrodes have been designed for optimal temperature compensation by locating the pH electrode, reference electrode and inbuilt temperature sensor together at the electrode tip.

This provides the fastest temperature response as the three elements are at a similar thermal environment, as well as improving accuracy when performing calibration and enhanced process control in applications with changing sample temperatures.



Digital output removes the need for high impedance cable - longer distances without compromising accuracy.



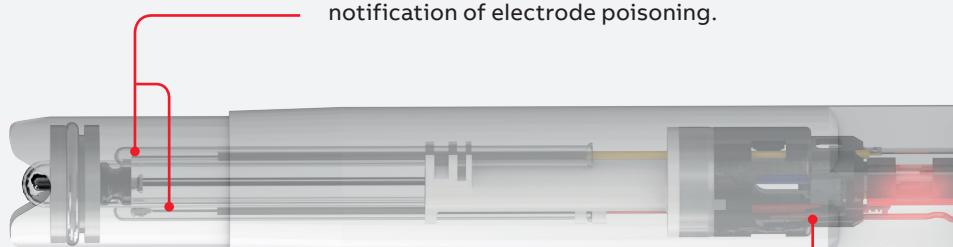
EZLink plug-and-play connection simplifies user set-up with automatic sensor recognition and guidance.

## Continuous sensor diagnostics

Our intelligent diagnostics increase operational confidence and maximize electrode service life. Enabling users to reduce operational expenditure without risking process control.

### Reference Electrode Monitoring

ABB's Reference Electrode Monitoring (REM) technology, uses a dual reference design to provide an early warning notification of electrode poisoning.



### Perpetual impedance diagnostics

Our Perpetual impedance diagnostics (patent pending) analyzes the resistance and impedance between the reference and measuring electrode providing broken glass and out of sample indication without the need for a solution earth.

# Performance you can count on

## using state-of-the-art automation technology

Our automated glass production process provides consistent high quality you can trust.

We use the highest quality materials manufactured to the highest standards to ensure your probe offers lifelong accurate and reliable measurement. Under the care of our highly-skilled engineers, every one of our sensor electrodes goes through a vigorous QA procedure before it leaves our factory to make sure it meets our strict quality guidelines. We also provide a calibration certificate, so you can be sure of accurate performance from the start.



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Using precision technology for precise performance

# Measurement accuracy you can depend on

## from the pioneers of industrial pH measurement

When it comes to getting the most from a pH sensor, it is important to select the right glassware for your application.

Our high-performance glass formulations have acquired a reputation for offering the highest reliability and most accurate measurement in the harshest of processes. We offer a number of different pH glass membranes, each designed to meet your specific application needs.



### High performance (S) glass

ABB's high-performance yellow glass sets the standard in industrial pH measurement. With an extremely low sodium error, the glass can maintain its accuracy even at very high pH levels, making it suited for a variety of industrial applications.



### Hydrofluoric acid resistant (HF) glass

Resistant to attack and etching from hydrofluoric acid, our robust HF glass outperforms in the most aggressive of applications containing up to 1% (10,000 ppm) HF, lasting up to three times longer than other commercially available HF glassware.



### Low temperature (LT) glass

Our world-renowned low temperature blue glass has been specially formulated with a lower impedance to provide ultra-fast response times when measuring pH at low temperatures. It is ideal for municipal and industrial wastewater applications, particularly in cold climates.



### General purpose (E) glass

With its low impedance and large surface area, our general purpose E glass provides excellent response across the entire pH range, making it ideal for measurement in general aqueous media.



### High temperature (HT) glass

High temperature applications can degrade general purpose pH sensors, reducing their accuracy and overall service life. Our durable high-temperature glass provides long-lasting reliable measurement in harsh process applications such as in the pulp and paper and chemical industries.



# Smart pH measurement made easy

## Modular flexibility, unequalled simplicity

All of our pH sensors can be combined with our range of digital transmitters to help you get the most from your pH data.

Featuring the latest advancements in intelligent sensor diagnostics and management, together with intuitive HMI operation and modular design, they provide a simple, flexible and scalable solution for pH measurement applications.

### 2 wire devices

Two-wire transmitters for measuring and controlling pH/ORP or conductivity in hazardous and non-hazardous area applications.

**AWT210**

Low power, high performance



- Plug-and-play modular design
- Polycarbonate or coated aluminum enclosures
- Intrinsic safety/non-incendive options
- One button calibration

**APA592**

Safe operation, extreme protection



- Explosion-proof design
- Through-the-glass (TTG) programming
- Field-mountable enclosure
- HART communication

### 4 wire devices

Four-wire transmitters with true flexibility for measuring in a range of water quality monitoring applications.

**AWT420**

Versatile design, maximum usability



- Plug-and-play modular design
- Bluetooth connectivity
- Dual-channel PID control
- SD card data archiving

**AWT440**

One design, many possibilities



- Up to 4 EZLink sensor inputs
- Graphical trending
- Full audit trail capability
- USB/SD card data archiving

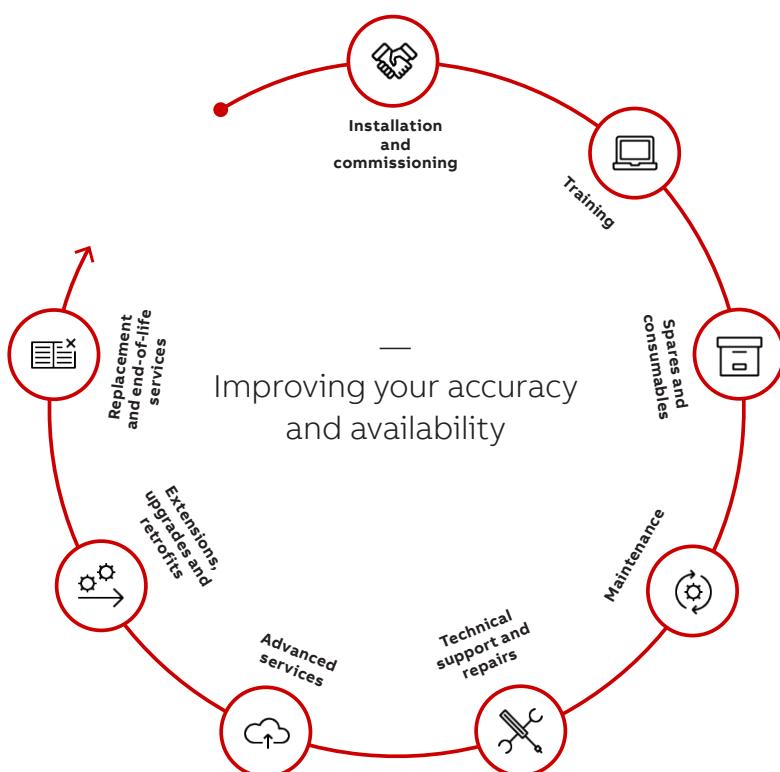
# Precise electrode calibration from ABB

## ensures the best performance from your pH probe

The accuracy of your pH measurement is dependent on the accuracy of the buffer solution used for calibration.

ABB provide a comprehensive range of high quality solutions to calibrate and maintain your sensors ensuring your measurement data is both accurate and reproducible.

Manufactured to the highest standards of quality and traceability and packaged to provide maximum stability, we have the right solution for your application needs.



When you purchase an ABB measurement device, you don't just get a product. You gain access to a trusted and respected authority on industrial automation, operational excellence and digital technologies.

ABB has defined services for every lifecycle stage to make sure you receive the maximum possible benefit from your purchase today, tomorrow and beyond.



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