100 GP-D
Digital pH/ORP sensor
Measurement made easy
The ¾ in digital pH/ORP sensor for use in general purpose applications

Increased efficiency
• ABB’s glass formulation provides fast process response without compromising durability and robustness
• Close-coupled temperature measurement ensures high accuracy even with rapid temperature changes

EZLink™ connectivity
• Plug-and-play technology makes sensor integration fast and easy
• Advanced diagnostics providing end-of-life indication and fault analysis
• Improved measurement accuracy with digital communication

Dependable performance
• Enhanced double junction with ion trap delays poisoning effects ensuring the sensor operates longer in your process
• Large PTFE junction promotes fouling resistance and is easy to clean
• Durable Kynar® body provides high chemical- and abrasion-resistance

Modular design
• Common ¾ in sensor design paired with intelligent accessories provides mounting flexibility with safety and convenience in mind
**Introduction**

Making the right sensor selection for your application should be simple and easy. To help you make the right choice, we’ve divided our new family of pH/ORP sensors into three distinct ranges based on the applications they have been designed for; the 100, 500 and 700 ranges.

The 100 range are entry-level sensors designed for light duty use, while the 500 range offer a robust design for industrial applications. The 700 range are a specialty range for target applications.

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

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**The 100 GP-D digital pH/ORP sensor**

Part of the next generation of ABB's pH/ORP sensors, the digital 100 GP-D combines exceptional performance and durability in one efficient, maintenance-free design.

Highly accurate with fast response times, the versatile 100 GP-D provides complete confidence in a wide range of general process applications that include:

- drinking water
- municipal wastewater
- cooling water
- food & beverage

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**Performance you can trust**

The 100 GP-D features ABB’s enhanced diffusion path double junction design with a polymerized gel electrolyte and chemical inhibitor, both slowing down the ion-diffusion rate and extending the length of the diffusion path. This design ensures that poisoning substances take longer to reach the encapsulated reference while the large, porous, chemically-resistant PTFE junction incorporating Viton™ seals protects against sensor fouling.
Improved process efficiency

Varying sample temperature is one of the most common causes of pH measurement error due to its impact on sensor output. The 100 GP-D is equipped with a close-coupled temperature element capable of rapid response to quickly changing process conditions, ensuring a high level of accuracy and confidence in your measurement.

EZLink connectivity

Convenient EZLink technology enables seamless plug-and-play integration when using the 100 GP-D. Automatically recognized, the sensor uploads calibration, diagnostic and manufacturing information to any of ABB’s EZLink-capable transmitters within seconds; significantly reducing commissioning and product maintenance.

Sensor healthcheck

The 100 GP-D provides advanced sensor diagnostics such as the unique perpetual impedance monitoring (patent-pending) that detects electrode faults such as Broken Glass or Out-of-Sample in real-time without the need for a solution earth.

In addition, ABB’s SMART reference electrode monitoring (REM) system provides early warning notification of electrolyte loss enabling the sensor to be replenished when required, saving money without risking process control.

Enhanced accuracy

Instantaneous signal conditioning from analog to digital ensures minimal electrical interference and strengthens signal strength, greatly improving measurement accuracy even with longer cable distances.
Robust glassware

Utilizing ABB's experience in glass manufacturing dating back to the 1950s, the proprietary glass formulations used with the 100 GP-D offer fast response without sacrificing durability. Selectable in several configurations, the robust glassware is made suitable for wide range of general-purpose applications.

Low temperature (LT) glass
For measurement below 15 °C (59 °F), our low temperature blue glass provides ultrafast response in applications such as municipal- and industrial-wastewater treatment. Available in bullet-style.

High-performance (S) glass
Our high-performance yellow glass provides fast response and accurate measurement over the entire pH range. With an extremely low sodium error, the glass can maintain its accuracy even at very high pH levels. Available in flat- or bullet-style.

ORP platinum electrode
Chemically inert, our platinum electrode is designed for conventional ORP/Redox measurement with an RTD element providing process temperature information.
Product adaptability

The 100 GP-D is available in flush- or notched-body design helping extend sensor operation and maintainability in challenging applications.

Flush-body design
The flush-body design, when paired with a flat-shaped glass electrode, helps promote self-cleaning when installed perpendicular to sample flow. In addition, the minimal protrusion prevents unwanted buildup, especially in fouling applications.

Notched-body design
The notched-body design provides additional protection for bullet-style glass electrodes; especially from abrasive applications that can damage the glass electrode rendering it unresponsive.

Intelligent accessories
The 100 GP-D is offered with mounting accessories designed to improve adaptability into your process while providing safe and convenient operation. Available with flow-cell, quick-connect bayonet and dip pole assemblies, the 100 GP-D utilizes modular accessories that are compatible with all ABB’s next generation ¾ in threaded sensor bodies.

Optional auto-cleaning functionality is available as an added feature, ensuring extended operation with minimal intervention.

Extended storage
We understand most customers maintain stock of pH/ORP sensors in case of unexpected demand. Ensuring peak performance, even after extended storage, is critical in maintaining product availability and keeping your process running.

The 100 GP-D is stored in a specially-formulated solution with added anti-microbial agent keeping the sensor active for up to 2 years when stored as recommended.
Dimensions

Dimensions in mm (in)

- **Flush sensor body**
  - 1/4 in NPT
  - 3/4 in NPT
  - 7/8 in wrench flats
  - 170.0 (6.7)
  - 23.6 (0.9)
  - 30.0 (1.2)

- **Notched sensor body**
  - 1/4 in NPT
  - 3/4 in NPT
  - 7/8 in wrench flats
  - 170.0 (6.7)
  - 23.6 (0.9)
  - 37.0 (1.5)

Electrical connections

All digital sensors come with EZLink connectivity.
**Specification**

**Measurements**
- pH/ORP (platinum)
- Temperature

**Measurement range**
- **High performance (S) glass**
  - 0 to 14 pH
- **Low temperature (LT) glass**
  - 0 to 10 pH
- **ORP**
  - –2000 to 2000 mV

**Temperature range**
- **High performance (S) glass (bullet)**
  - 0 to 60 °C (32 to 140 °F)
  - (typical glass impedance at 25 °C [77 °F] = 250 MΩ)
- **High performance (S) glass (flat)**
  - 5 to 60 °C (41 to 140 °F)
  - (typical glass impedance at 25 °C [77 °F] = 600 MΩ)
- **Low temperature (LT) glass**
  - –5 to 50 °C (23 to 122 °F)
  - (typical glass impedance at 25 °C [77 °F] = 25 MΩ)
- **ORP platinum electrode**
  - 0 to 60 °C (32 to 140 °F)

**Temperature sensor**
- Pt1000 (Class B, IEC 60751)

**Maximum pressure**
- 6 bar (90 psi)

**Recommended minimum sample conductivity**
- 50 μS/cm

**Recommended sensor storage**
- Between 15 and 35 °C (59 and 95 °F)

**Isothermal point at 25 °C (77 °F)**
- pH 7

**Reference system**
- Ag/AgCl with KCl gel electrolyte, double junction plus ion trap

**Process connections**
- ¾ in NPT

**Wetted materials**
- Electrode body
  - PVDF (Kynar)
- Reference junction system
  - Porous PTFE and Viton O-rings
- Measure system
  - pH: Glass
  - ORP: Platinum

**Approvals, certification and safety**

**CE Mark**
- Covers EMC+LV directives (including latest version of EN61010)

**Regulation 31**
- Drinking water approval: Complies to DWI Regulation 31(4)(b)
- Additional tests: BS6920 parts 2.2 and 2.4 on all wetted parts

**EMC**
- Meets requirements of IEC61326 for an industrial environment

**CRN approval**
- Maximum allowable working pressure (MAWP): 5.58 bar (81 psi)
- Design temperature: –5 °C to 105 °C (23 °F to 221 °F)
- CRN number: 0F22557
## Ordering information

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## Accessories

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For a complete list of spares and accessories refer to Operating Instruction OI/100/500-EN
Notes

Acknowledgements
Kynar is a registered trademark of Arkema Inc.

Viton is a registered trademark of the Chemours Company