

Foxboro® Smart pH Sensor and Transmitter

PH10 Sensor and 876PH Transmitter

The Foxboro Smart PH10 DolpHin Sensor line provides increased functionality compared to our existing pH sensors, while providing more value to the user. The additional functionality allows our sensors to store sensor specific data, such as calibration parameters, which can then be uploaded into the Foxboro 876PH transmitter in the field.



Foxboro Smart PH10 Sensor and 876PH Transmitter

Features



Product at a Glance

- Sensor stores its calibration through the use of an on-board memory chip
- Calibrations are easier, faster and more reliable, as they can be accomplished in an instrument shop environment
- Sensor stores other parameters, such as glass resistance, reference resistance, date of manufacture, serial number, sales order number and history logs to help manage the deployment and performance of the pH sensor
- Sensor can be calibrated with a PC using optional USB interface
- Nafion ion barrier to protect reference junction; nonmetallic wetted parts, including conductive Kynar solution ground

Increased field calibration reliability with faster results

The largest source of measurement error in electrochemical systems comes from an imperfect field system calibration. Field calibrations can be compromised for many reasons, such as: not allowing the readings to stabilize; performing a single point calibration when a two point is called for; calibrating a sensor whose slope indicates it is approaching end of life; and/or using calibration solutions whose temperatures are changing. Many of these common sources of calibration errors are mitigated by performing a calibration under more controlled conditions, such as those found in an instrument shop or laboratory. However, it is not practical to move the field transmitter to the instrument shop to perform the calibration.

This is where the Smart Sensors play an important role. A Smart Sensor can be calibrated at any time against a “standard” or “reference” transmitter in the instrument shop. The Smart Sensor stores its calibration parameters in an on-board memory chip. When the operator needs to perform a field calibration, they simply take the pre-calibrated Smart Sensor to the field, connect it to the transmitter, and allow the transmitter to upload the calibration parameters. By managing the sensor calibrations in the instrument shop environment, the operator is more likely to perform a valid calibration. This process results in an easier, faster and more reliable field calibration.

Delivering Measurement Value

Unlike other Smart pH sensors, many of which are constructed of glass bodies, the Foxboro Model PH10 incorporates a rugged Polyvinylidene Fluoride (PVDF)* body, flat membrane sensing electrode, no metallic wetted parts, and a Nafion ion barrier to protect the internal reference and reduce fouling. This combination of design features provides unrivaled ruggedness and length of service life. With lower maintenance costs and longer service life, the user benefits from a lower overall cost of ownership compared to other Smart pH sensors.

*Commercially available as Kynar.

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Features

The Foxboro brand PH10 Smart Sensor is a new pH sensor which incorporates digital technology. The pH and temperature signals are converted from analog to digital in the sensor body through the use of on-board electronics. The electronics also provide memory so that the pH calibration can be stored in the sensor. In addition to a new PH10 Smart Sensor, Foxboro has released a new version of the 876PH Transmitter, specifically for use with the PH10 Smart Sensor.



Inherent Value

With the Foxboro Smart sensor technology, customers gain value from easier, faster and more reliable calibrations. Calibrations can be performed from any location, since the calibration information is stored in the sensor electronics. Users can perform calibrations in the instrument shop, where conditions are controlled.

The PH10 sensor is a rugged process pH sensor with a wide selection of measuring electrodes and a reference design that resists fouling. It contains no metallic wetted parts, is easy to install and remove from a process, and has consistently outlasted competitive pH sensors in a broad range of difficult applications. Your benefit is a lower overall cost of ownership compared to other Smart pH sensors.

Smart Transmitter

The Foxboro 876PH is a full featured, 2-wire loop powered transmitter for pH applications. It offers easy configurability, a rugged field-mounted enclosure for the most challenging industrial environments, and agency certifications for hazardous electrical areas. HART communications and a time saving HART Device Type Manager integrates with your plant asset management strategies.

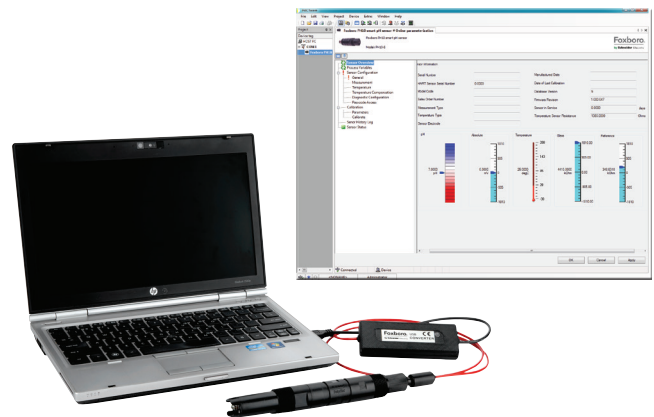
876PH Smart Transmitter Features

Sensor and Transmitter Diagnostics

- Sensor faults such as broken glass and coated reference are continuously checked. This feature allows maintenance to be better managed, reducing costs and ensuring asset availability.

Save and Restore Configurations

- Up to two unique configuration profiles can be saved, facilitating a quick and easy change, saving operator time and cost.



Sensor Management Using PC

- Optional USB cable connects to PC
- Software is FDT (Field Device Tool) Group Certified
- Sensor can be calibrated and history log read and saved to a file
- Simplifies sensor calibration and diagnostic checking

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Functional Specifications

PH10 Smart Sensor

Measuring Electrode:	Domed glass, flat glass, antimony
pH Range:	0-14 (domed glass) 2-12 (flat glass)
Temperature Range:	0 to 121°C (32 to 250°F) (domed glass) 0 to 85°C (32 to 185°F) (flat glass)
Pressure Range:	0 to 6.9 bar (0 to 100 psi)
EMF Efficiency:	99.3% ±0.7% (domed glass)
Stability:	±0.02 pH over 24 hours (domed glass)
Electrometric Response:	< 15 seconds (domed glass)
Temperature Response:	< 1 minute (temperature compensation selection 4)
Process-Wetted Material:	PVDF Glass pH, antimony pH Ceramic reference junction Viton O-rings; options available
Temperature Compensation:	1000 ohm Pt RTD
Cable Connector:	Plastic with fluorosilicon O-ring
Patch Cable:	PFA jacketed; standard and custom lengths available
Electrical Safety:	FM, CSA, IECEx, ATEX. Nonincendive and intrinsically safe. Check status of certifications with Foxboro.

876PH Smart Transmitter

Accuracy:	± 0.009 pH
Stability (After 6 Months):	± 0.009 pH
NAMUR Compliance:	NAMUR NE 43 for analog overrange and underrange NAMUR NE 21 for interference immunity requirements
Electromagnetic Compatibility (EMC):	Complies with European EMC Directive 2004/108/EC by conforming to EN 61326-1:2006
Measurement Range:	-2 to +16 pH
Output Hold:	Hold OFF, Hold at PRESENT value, or Hold at MANUAL value
Auto Buffer Recognition:	Six (6) tables of preprogrammed buffer values
History Log:	100 most recent events stored in nonvolatile memory
Environmental and Corrosion Resistance:	IP66 and NEMA 4X
Electrical Safety:	FM, CSA, IECEx, ATEX. Nonincendive and intrinsically safe. Check status of certifications with Foxboro.

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