OEM Sensors for Process Analytics

pH Measurements

WHERE PRECISION MEETS RELIABILITY

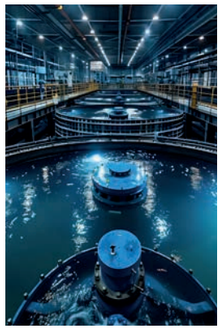
Metroglas

Elevate your process analytics with Metroglas pH sensors

At Metroglas, we are committed to developing and producing pH sensors that set the benchmark for quality and reliability in process analytics. Our dedication to excellence ensures precise and consistent measurements, even in the most demanding industrial environments.

The right choice of each sensor element is crucial for optimal performance and reliability. By focusing on quality, innovation, and customization, we provide pH sensors that not only meet but exceed the expectations of our clients in process analytics.

As a medium-sized company, we pride ourselves on our ability to approach customer projects with exceptional agility and flexibility. Short and direct decision-making channels allow us to adapt quickly to the needs of our customers and deliver tailored solutions efficiently.



Online pH measurements are essential for process analytics in various industries

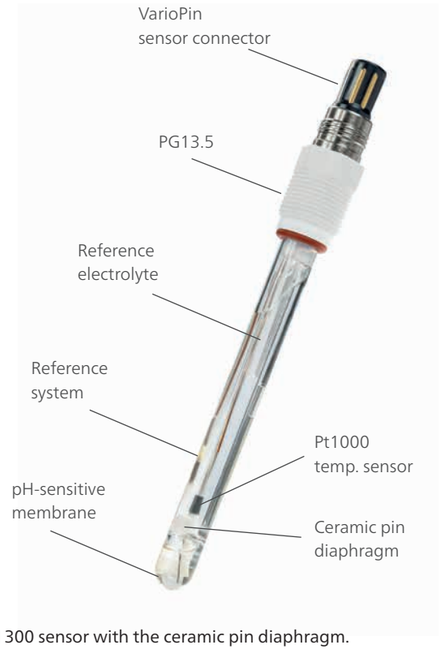
STANDARD PORTFOLIO FOR REUSABLE ELECTRODES

Our standard pH sensors portfolio is designed to cover all major application fields of process analysis. The pH models 200, 250, 300, and 350 are designed to withstand clean-in-place (CIP) and sterilization-in-place (SIP) procedures, as well as the rigorous conditions of autoclaving, ensuring consistent performance and durability.

Proprietary glass membranes for sustainable performance

- **Life science specialists:**
  Equipped with our proprietary highly temperature-resistant HT glass, pH 200 and 300 sensors are ideal for biotechnological applications where frequent sterilization is common.

- **Highly alkaline applications:**
  Featuring our proprietary H glass, pH 250, 350, and 400 sensors deliver reliable results even under harsh, highly alkaline conditions typical during chemical process analysis.



pH 300 sensor with the ceramic pin diaphragm.

Diaphragm types for stable measurement signals

Stable measurement signals in media of different compositions are possible with a selection of diaphragm types:

- Fast and accurate:
  Nowadays, most applications are covered by electrodes with either porous ceramic pin or sleeve diaphragms. The sleeve is a circular glass diaphragm around the inner glass tube. It is easy to clean and is ideal for emulsions and suspensions.

- While the positioning of the electrodes with a sleeve diaphragm is independent of the direction of media flow, the ceramic pin should be positioned against the direction of flow so that the ceramic pin remains free of contamination.

- Unaffected by particles:
  The design of the open junction diaphragm minimizes the risk of clogging, ensuring reliable performance even in media with high particle content, such as slurries.

Close-up view of the diaphragm types (shown in blue) of Metroglas pH sensors.

Advanced reference systems for reliable measurement results and reduced maintenance

The reference system of each Metroglas sensor type is carefully designed to meet the specific requirements of various applications. In addition, our sensors are low maintenance, providing a reliable and efficient solution for your process analytics needs.

- No refilling required:
  The reference electrolyte does not require refilling during the entire life of the electrode.

- Stable measurement results:
  Constant electrolyte flow results in stable measurement results, fast response times, and low drift.

- Keeping silver ions within the reference system:
  The reference system of models 200, 250, 300, and 350 is equipped with an Ag-scavenger, preventing contamination of the measuring solution with silver ions from the reference system.

- **Reliable performance under pressure:**
  The 250, 300, and 350 models have pre-pressurized reference systems that ensure a reliable electrolyte flow even in moderately pressurized environments.

Ensuring compatibility

To ensure that pH sensors can be connected to any transmitter system, Metroglas offers sensors with analog and digital output options.
Metroglas pH sensors can be seamlessly integrated into a wide range of process control systems, ensuring reliable and accurate pH measurement across various applications.

Unique design for best performance with minimal maintenance

- **Model 250:**
  Combines the accuracy and advantages of the sleeve diaphragm with the pre-pressurized reference system, offering long-term stable measurements with minimal maintenance.

pH 250 sensor with the glass sleeve diaphragm.

Harsh and demanding applications

- **Model 400:**
  Best suited for applications with pressures above 4 bar, increased temperature, and media containing particles.

pH 400 sensor with the open junction diaphragm.

By choosing Metroglas pH sensors, you are investing in precision, reliability, and innovation. Our sensors are designed to meet the highest standards and provide exceptional performance in a wide range of industrial applications. Contact us today to learn more about how our pH sensors can enhance your process analytics.

HIGHLIGHTS OF METROGLAS PH SENSORS

- **Reliable measurement results** even after use in demanding operating conditions, regular autoclaving, or sterilization cycles.
- **Robustness** ensured by carefully selected materials and proven technologies.
- **Low maintenance and stable reading results** over the entire sensor lifespan due to the use of pre-pressurized reference systems and maintenance-free electrolytes.
- **Sustainable performance** thanks to prevention of contamination by Ag with the integrated Ag-scavenger.

Single-Use pH Sensors

In addition to the standard portfolio of reusable pH sensors, Metroglas customizes single-use sensors for specific customer applications. These are disposable sensors designed for one-time use, primarily in industries such as pharmaceutical or biotechnology.

Metroglas single-use sensors maintain the same high quality and precision as our multiple-use sensors. They are engineered to deliver reliable and accurate measurements, ensuring consistent performance even in demanding applications.

They are often integrated into other single-use systems, such as single-use bioreactors (SUBs) or tubings, due to their cost-efficiency, and reduced risk of contamination.

KEY FEATURES OF METROGLAS SINGLE-USE SENSORS

Easy system integration:
Metroglas single-use sensors can be easily installed in single-use plastic bags or tubing systems, using either standard ports or customized connectors.

These sensors are supplied with standardized electrical connectors and an output signal identical to that of reusable sensors, which ensures seamless integration into existing process control systems.

Cost-effective:
The pH sensors are pre-calibrated and certified during production. This ensures that each sensor is ready for immediate use, eliminating the need for time-consuming and therefore costly calibration procedures on-site.

Sterilizable:
Our single-use sensors are compatible with common sterilization methods like gamma or X-ray irradiation. An additional benefit is that single-use sensors help minimize the risk of cross-contamination in pharmaceutical production.

Dry storage and quick wetting time:
Metroglas single-use pH electrodes can be stored dry for months without compromising their performance. They have a short wetting time after dry storage, allowing for rapid deployment and quick use in critical applications.

We design and produce the ideal sensor for your single-use applications. Whether you require a smaller diameter to optimize port space or a specialized sensor connector, we tailor our solutions to your unique requirements without compromising quality.

TECHNICAL SPECIFICATIONS

Model	200	300	250	350	400
Industry / Application	Pharmaceuticals, Biotechnology	Pharmaceuticals, Biotechnology	Pharmaceuticals, Biotechnology, Chemistry	Pharmaceuticals, Biotechnology, Chemistry	Chemistry
Measuring range	0-12 pH	0-12 pH	0-14 pH	0-14 pH	0-14 pH
Membrane	HT glass	HT glass	H glass	H glass	H glass
Shaft material	Glass	Glass	Glass	Glass	Glass
Diaphragm	Glass sleeve	Ceramic pin	Glass sleeve	Ceramic pin	Open junction
Temperature sensor	Pt1000	Pt1000	Pt1000	Pt1000	Pt1000
Electrolyte	KCl saturated gel	3 mol/L KCl gel (pre-pressurized)	3 mol/L KCl gel (pre-pressurized)	3 mol/L KCl gel (pre-pressurized)	KCl saturated polymer, hydrogel
Reference system	Ag/AgCl with Ag-scavenger	Ag/AgCl with Ag-scavenger	Ag/AgCl with Ag-scavenger	Ag/AgCl with Ag-scavenger	Ag/AgCl
Operating temperature	0-80 °C	0-120 °C	0-120 °C	0-120 °C	0-130 °C
Autoclaving	<20 min @135 °C	<20 min @135 °C	<20 min @135 °C	<20 min @135 °C	N/A
Max. operating pressure	1 bar	4 bar	4 bar	4 bar	10 bar
Shaft diameter	12 mm	12 mm	12 mm	12 mm	12 mm
Sensor connector	VarioPin, PG13.5	VarioPin, PG13.5	VarioPin, PG13.5	VarioPin, PG13.5	VarioPin, PG13.5
Output signal	Analog / Digital	Analog / Digital	Analog / Digital	Analog / Digital	Analog / Digital
Min. immersion depth	25 mm	25 mm	25 mm	25 mm	25 mm
Lengths	120, 225, 325, 425 mm	120, 225, 325, 425 mm	120, 225, 325, 425 mm	120, 225, 325, 425 mm	120, 225, 325, 425 mm
Certificates and approvals*	IP68, CE	IP68, CE	IP68, CE, ATEX	IP68, CE, ATEX	IP68, CE, ATEX

*additional certificates on request

Customized sensor solutions are possible upon request

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