



# ProTrode pCO<sub>2</sub> sensor

Inline dissolved carbon dioxide (pCO<sub>2</sub>) sensor

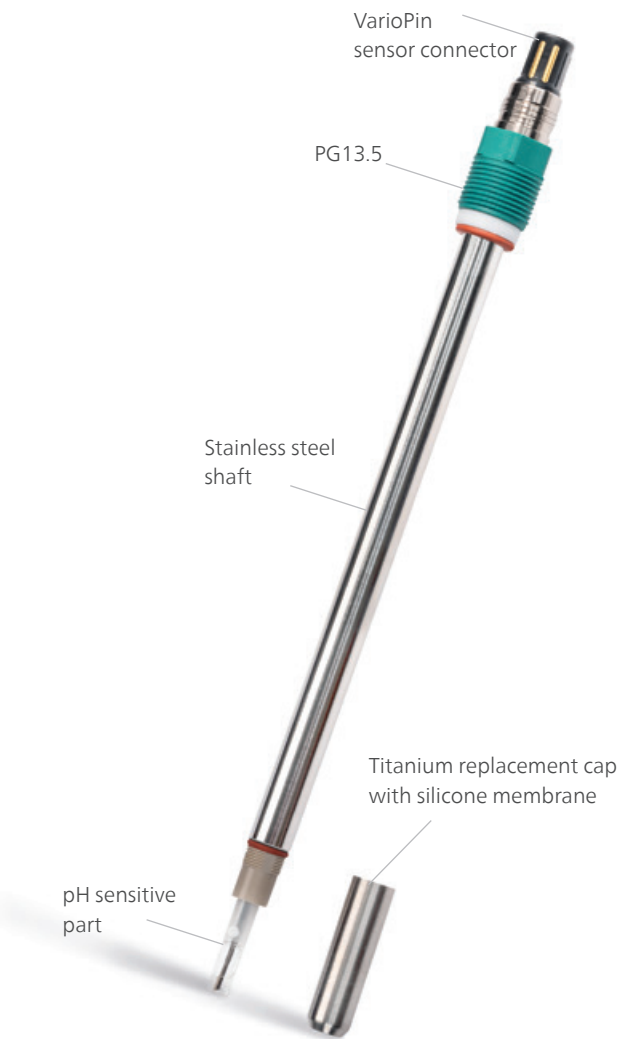
## HIGHLIGHTS

- **Reliable and accurate CO<sub>2</sub> measurement** under demanding process conditions
- **Designed for hygienic environments;** compatible with CIP, SIP, and autoclaving
- **Corrosion-resistant titanium cap** enhances sensor lifetime
- **Easy maintenance** with replaceable membrane caps

# Optimize your bioprocess by monitoring CO<sub>2</sub> in «real-time»

The Metrohm Process Analytics sensor for dissolved carbon dioxide (pCO<sub>2</sub>) delivers consistent and accurate results under the demanding conditions of pharmaceutical and biotechnology production. It withstands clean-in-place (CIP), sterilization-in-place (SIP) procedures, and autoclaving, ensuring consistent performance and durability.

The ProTrode pCO<sub>2</sub> sensor operates on the Severinghaus principle. The electrode consists of a glass pH sensor inserted into a membrane cap filled with bicarbonate electrolyte. Carbon dioxide from the measuring solution diffuses through the gas-permeable membrane into the electrolyte solution and changes the pH value.



The membrane cap is made of titanium grade 2 (3.7025) for corrosion resistance. The complete cap can be replaced as soon as the silicone membrane is used-up, which occurs after 6–10 autoclaving cycles and can be recognized by an increasing response time.

## TECHNICAL SPECIFICATIONS

Applications	Pharmaceuticals, biotechnology, fermentation	
Measuring technology	Severinghaus principle	
Measuring range	10 – 950 mbar pCO <sub>2</sub> 0.145 – 13.779 psi pCO <sub>2</sub>	
Accuracy	± (10 % of the reading + 10 mbar)	
Wetted membrane	Silicone	
Wetted metallic materials	Titanium, grade 2 (3.7025) Stainless steel (316S), Ra ≤ 0.4	
O-ring materials	Viton®, silicone	
Temperature sensor	Pt1000	
Operating temperature	0 – 60 °C	
Autoclaving	<20 min @135°C	
CIP / SIP	yes	
Certificates & approvals	Upon request	
Operating pressure	0.2 – 2 bar	
Shaft diameter	12 mm	
Sensor connector	VarioPin, PG13.5	
Output signal	Analog	
Min. immersion depth	10 mm	
Length	120 mm	609339010
	220 mm	609339020
	Other lengths on request	

Figure 1. ProTrode pCO<sub>2</sub> sensor.