

Sensor InPro® 5000 (i)

In-line dissolved CO₂ sensor for fermentation control

Technical data



InPro 5000i



InPro 5000

Short description

The new ISM InPro 5000i CO₂ sensor combines precise and reliable in-line measurement of dissolved CO₂, with the performance benefits of Intelligent Sensor Management (ISM). InPro 5000 (i) is a fully sterilizable in-place and autoclavable in-line dissolved CO₂ sensor. It features a class N5 surface and EHEDG certification for compliance with hygienic requirements. The sensor's membrane provides an excellent barrier against volatile organic acids, ensuring errorless measurement.

Sensor features/benefits

- Durable and rugged sensor design for increased resistance to SIP/CIP process conditions.
- Suitable for hygienic applications: EHEDG certified
- FDA compliant materials of construction and easy-to-clean high-polished surface finish (Ra ≤ 16 μinch) to satisfy stringent regulatory requirements
- Enhanced membrane (patented) immune to interference from volatile acids found in bioprocesses
- Easy-to-replace membrane body reduces service time

ISM features/benefits

- Pre-calibration of sensors with the Plug and Measure feature
- Pre-batch, advanced sensor self-diagnostics
- SIP/CIP counter
- Full e-documentation of the sensor lifecycle
- Asset Management for sensor administration
- High SIP/CIP cycles thanks to digital system



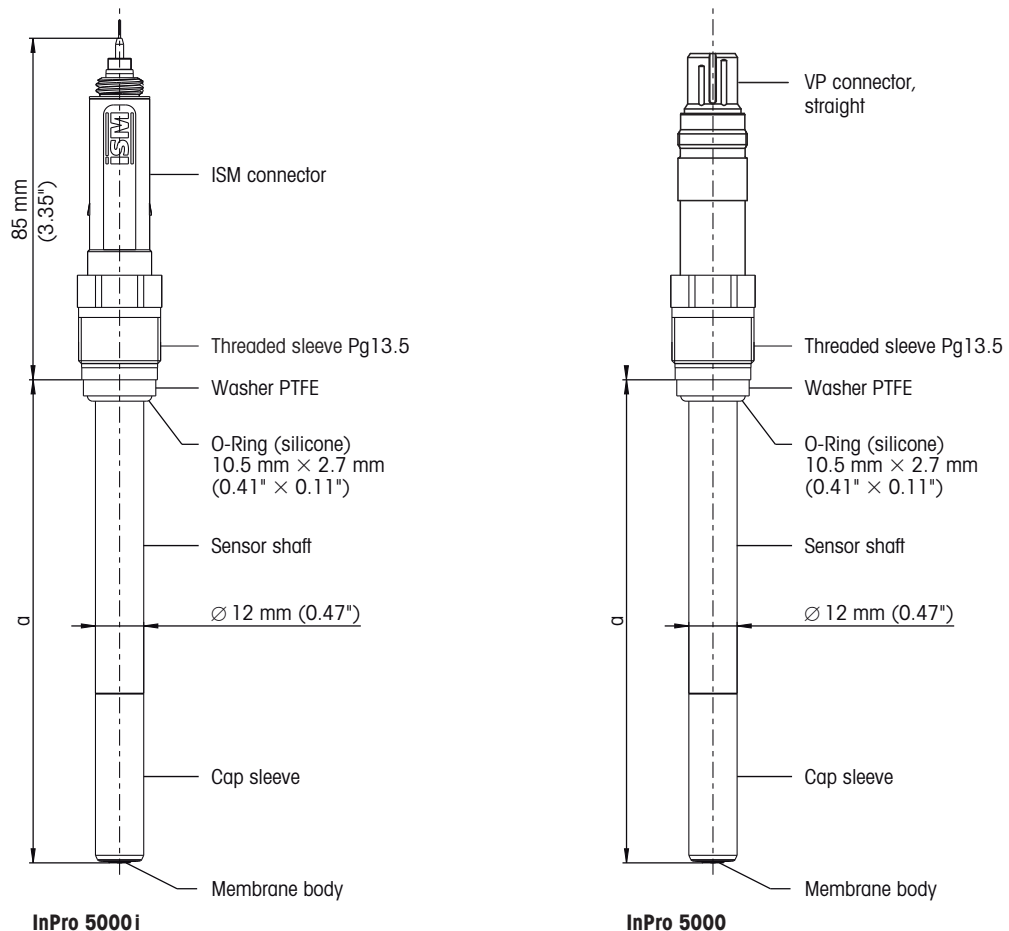
Contents

Specifications	2
Drawings	2
Ordering information	3

Technical specifications

Measuring range	0 ... 1000 mbar pCO ₂ (1 mbar = 1 hPa)	
Lower detection limit	10 mbar pCO ₂	
Accuracy	± 10 % (pCO ₂ 10 – 900 mbar)	
	≥ ± 10 % (pCO ₂ > 900 mbar)	
Response time	90 % of final value < 120 sec (at 25 °C [77 °F] from air to CO ₂)	
Temperature range	0 ... 60 °C (32 ... 140 °F) for measurement	
Sterilization temperature	≤ 130 °C (266 °F) in-situ or autoclavable	
Pressure range	0.2 ... 2 bar absolute for measurement (3 ... 30 psi)	
Mechanical pressure resistance max.	3 bar at 25 °C (77 °F) (max. 42 psi)	
Known interferences	SO ₂ , NH ₃ , H ₂ S	
Measuring principle	potentiometric (Severinghaus)	
Wetted metal parts	stainless steel DIN 1.4435 (similar AISI 316L)	
	surface roughness N5 Ra < 0.4 µm (16 µ inch)	
Membrane material	silicone reinforced/PTFE	
O-ring materials	Viton®, silicone (FDA compliant)	
Temperature sensor	InPro 5000:	Pt 1000
	InPro 5000i:	NTC
Plug head	InPro 5000:	VarioPin (VP)
	InPro 5000i:	K8S
Certificate	Pg 13.5 thread, washer PTFE, O-ring Viton®	
	3.1B for stainless steel parts EHEDG	

Drawings



Ordering information

Description	Sensor length (a)	Connector	Order number
InPro 5000i/12/120	120 mm	AK9	30 013 606
InPro 5000i/12/220	220 mm	AK9	30 019 005
InPro 5000i/12/320	320 mm	AK9	30 019 006
InPro 5000/12/120	120 mm	VP	52 206 067
InPro 5000/12/220	220 mm	VP	52 206 068
InPro 5000/12/320	320 mm	VP	52 206 069

Spare parts

	Sensor length (a)	
Interior body InPro 5000i	120 mm	30 019 049
	220 mm	30 019 170
	320 mm	30 019 175
Interior body InPro 5000	120 mm	52 206 057
	220 mm	52 206 084
	320 mm	52 206 085
Membrane kit InPro 5000i	4 membrane bodies, 1 O-ring set, 25 ml electrolyte	52 206 055
Cap sleeve without protective cage, N type 1.4435		52 201 153
Cap sleeve with protective cage, P type 1.4435		52 201 154

Cables

	Cable length	
VP6-ST	3 m (9.8 ft)	52 300 108
VP6-ST	5 m (16.4 ft)	52 300 109
VP6-ST	10 m (32.8 ft)	52 300 110
AK9	1 m (3.3 ft)	10 000 0102
AK9	3 m (9.8 ft)	10 000 0302
AK9	5 m (16.4 ft)	10 000 0502
AK9	10 m (32.8 ft)	10 000 1002
AK9	20 m (65.6 ft)	52 300 204

Transmitter

InPro 5000 i	InPro 5000
M400 Type 3	M400 Type 3
M800	M700 with CO ₂ module
M400 2-wire*	
M100 2-wire*	
*pending	

Accessories

pH buffer 7.00 (250 ml)	51 340 059
pH buffer 9.21 (250 ml)	51 300 193
pH-Simulator 112	31 112 3003
VP-Simulator	52 120 939
AK9-Simulator	30 031 035
CalBox	52 300 400