

InPro® 6950 Gas/InPro® 6800 Gas

The O₂ sensor family for gaseous oxygen measurement

Technical Data



InPro 6950



InPro 6800 (25 mm)

Short description

The InPro O₂ gas sensor family provides the means for reliable inline measurement of gaseous oxygen in a wide spectrum of inertization, gas vent stream and CO₂ treatment processes. To meet the range of respective requirements, METTLER TOLEDO offers a selection of advanced sensors and measuring systems suitable for a variety of processes.

Outstanding features are:

- Inbeatable price-performance ratio
- Easy maintenance within five minutes
- Wide range of system components
- Use in hazardous areas (Gas and dust)
- Certified according ATEX and FM (InPro 6800 gas)
- ISM (Intelligent Sensor Management)



ISM®

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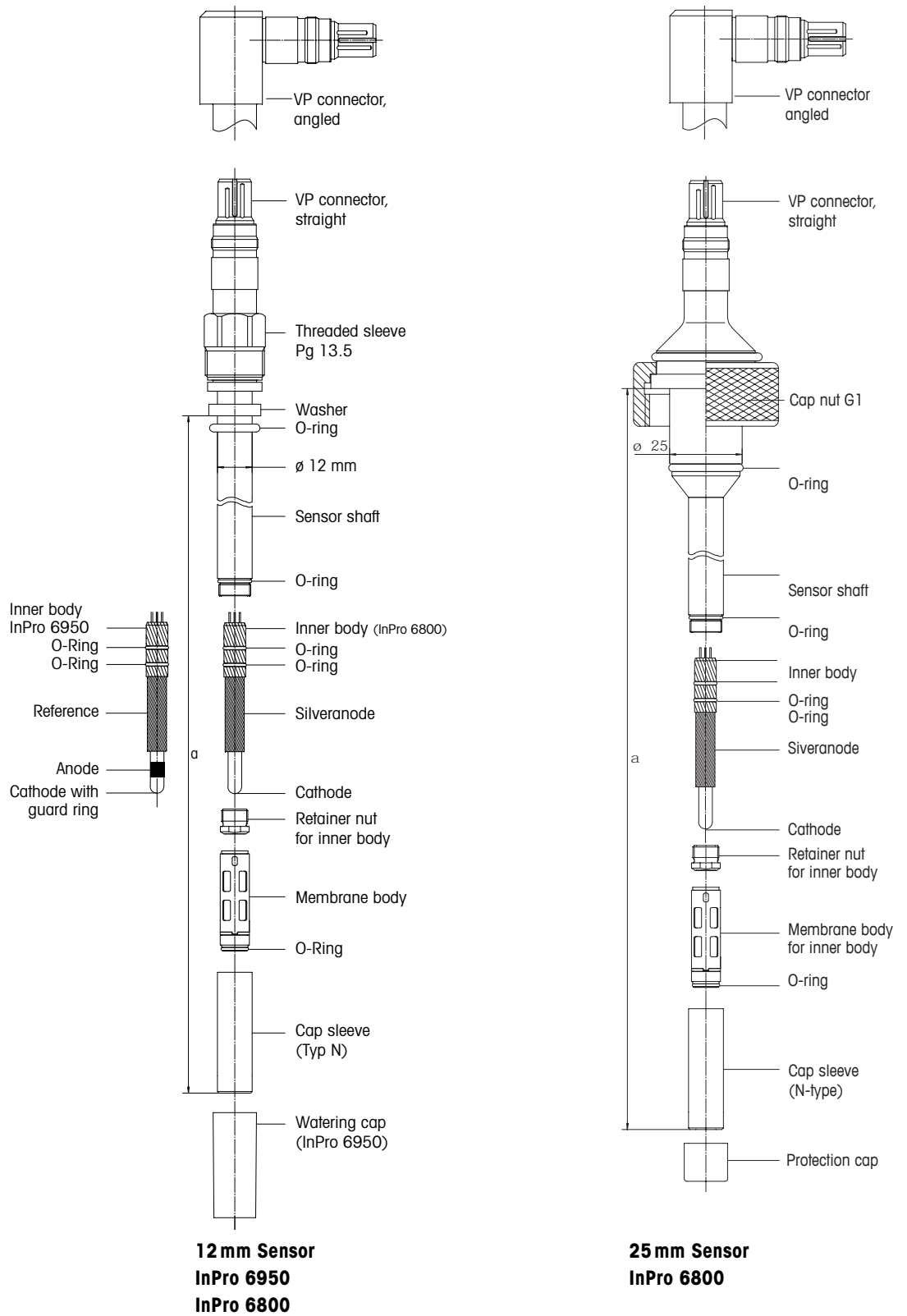
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Typical applications	InPro 6950 Gas	InPro 6800 Gas
Biotechnology/Pharma		•
Centrifugation	–	•
Drying	–	•
Milling	–	•
Storage	(•) trace oxygen application	•
Packaging	(•) trace oxygen application	•
Food powder processing		
Powder storage tanks	–	•
Powder packaging	–	•
Brewery industry		•
CO ₂ purity before recover	–	•
CO ₂ purity after recovery	•	–
CO ₂ purity in CO ₂ mains	•	–
Chemical powder processing		•
Milling	–	•
Powder storage tanks	–	•
Powder packaging	–	•
Chemical manufacturing		
Nitrogen blanketing	(•) trace oxygen application	•
Inertization monitoring	(•) trace oxygen application	•
Centrifugation	–	•
Drying	–	•
Storage	(•) trace oxygen application	•
Packaging	(•) trace oxygen application	•
Vent gas	–	•
Palletizing	–	•

Specifications	InPro 6950 Gas	InPro 6800 Gas
Measurement principle	Amperometric/polarographic (in accordance with the requirements of ISO 5814 and EN 25 814)	
Working conditions		
Permissible pressure range during measuring	0.2 ... 6 bar absolute (2.9 ... 130 psi absolute)	0.2 ... 6 bar absolute (2.9 ... 130 psi absolute)
Mechanical pressure resistance	max. 12 bar absolute (max. 174 psi absolute)	max. 12 bar absolute (max. 174 psi absolute)
Permissible temperature range during measuring	0 ... 70 °C (32 ... 158 °F)	0 ... 70 °C (32 ... 158 °F)
Mechanical	–5 ... 121 °C (23 ... 250 °F)	–5 ... 140 °C (23 ... 284 °F)
Temperature resistance	(steam-sterilizable)	(steam-sterilizable autoclavable)
Sensor performance		
Detection limit	0.0005 Vol.-% O ₂ 5 ppm Gas	0.1 Vol.-% O ₂ 1000 ppm Gas
Accuracy	≤ ± [1% + 5 ppm]	≤ ± [1% + 0.1 Vol.-%]
Response time at 25 °C (77 °F)	t _{98%} ≤ 60 s (5000 → 10000 ppm)	t _{90%} ≤ 10 s (N ₂ → 10 Vol.-% O ₂)
Sensor signal in ambient air at 25 °C (77 °F)	2500 ... 6000 nA	50 ... 110 nA
Residual signal in nitrogen at 25 °C (77 °F)	≤ 0,025% of signal in ambient air	≤ 0,03% of signal in ambient air

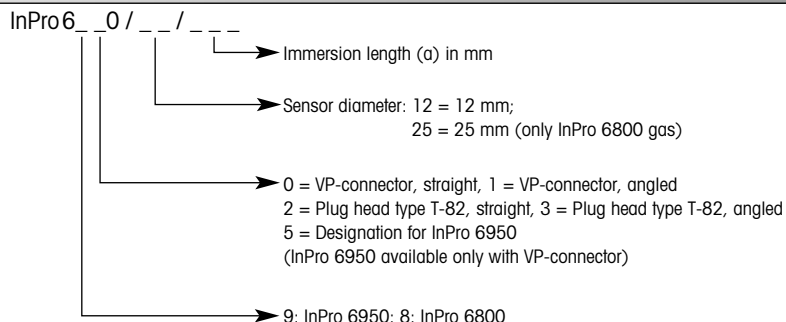
Specifications	InPro 6950 Gas	InPro 6800 Gas
Design features		
Temperature compensation	automatic with built-in RTD	automatic with built-in RTD
Cable connection	VarioPin (IP68)	VarioPin (IP68) or T-82
Wetted O-rings	Silicone FDA & USP Class VI approved (other materials on request)	Silicone FDA & USP Class VI approved (other materials on request)
O ₂ selective membrane material	PTFE/Silicone compliant (reinforced with steel mesh)	PTFE/Silicone/PTFE FDA
Wetted sensor parts	S/steel 1.4404, [AISI 316L] with material certificate 3.1 (other materials on request)	S/steel 1.4404, [AISI 316L] with material certificate 3.1 (other materials on request)
Surface roughness of wetted s/steel parts (EN 1320: 1996)	Ra <0.4 µm [16 µm in]	Ra <0.4 µm [16 µm in]
Inner body	trace with guard and reference (exchangeable)	standard (exchangeable)
Cathode	platinum	platinum
Anode	platinum	silver/silver chloride
Guard	platinum	–
Reference	silver/silver chloride	–
ATEX compatibility	Ⓔ Ex ia IIC T6/T5/T4/T3 Ga/Gb Ⓔ Ex ia IIIC T69°C/T81°C/ T109°C/T161°C Da/Db	Ⓔ Ex ia IIC T6/T5/T4/T3 Ga/Gb Ⓔ Ex ia IIIC T69°C/T81°C/ T109°C/T161°C Da/Db
FM compatibility	IS CL I, II, III, Div 1/ABCDEFG/T6	IS CL I, II, III, Div 1/ABCDEFG/T6
Certificates (MaxCert™)		
Quality (Final inspection Cert.)	yes	yes
EHEDG	yes (pending)	yes
FDA/USP Class VI	yes	yes
Material certificate 3.1	yes	yes
Surface finish certificate 2.1	yes	yes
ATEX	yes	yes
FM	yes	yes

Drawings



Ordering information

Product description



InPro 6950, 12 mm Ø	VP connector	VP connector
Immersion length (a)	Order no. straight	Order no. angled
70 mm (2.8")	52 206 097	52 206 101
120 mm (4.7")	52 206 098	52 206 102
220 mm (8.7")	52 206 099	52 206 103
320 mm (12.6")	52 206 100	52 206 104
Version with flange		
InPro6950/12/060 V80	52 206 110	

Important: The sensor has to be ordered together with the Kit InPro 6950 Gas (or single membrane).

InPro 6800, 12 mm Ø	VP connector	VP connector	T-82 connector	T-82 connector
Immersion length (a)	Order no. straight	Order no. angled	Order no. straight	Order no.angled
70 mm (2.8")	52 200 964	52 200969	–	–
80 mm (3.2")	–	–	–	52 201 020
120 mm (4.7")	52 200 965	52 200 970	52 201 012	52 201 016
220 mm (8.7")	52 200 966	52 200 971	52 201 013	52 201 017
320 mm (12.6")	52 200 967	52 200 972	52 201 014	52 201 018
420 mm (16.5")	52 200 968	52 200 973	52 201 015	52 201 019

Important: The sensor has to be ordered together with the Kit T-6800 Gas (or single membrane).

InPro 6800, 25 mm Ø	VP connector	VP connector	T-82 connector	T-82 connector
Immersion length (a)				
80 mm (3.2")	52 200 974	52 200 978	52 201 023	–
160 mm (6.3")	52 200 975	52 200 979	52 201 021	52 201 024
260 mm (10.2")	52 200 976	52 200 980	52 201 022	52 201 025
360 mm (14.2")	52 200 977	52 200 981	–	–

Important: The sensor has to be ordered together with the Kit T-6800 Gas (or single membrane).

Compatibility with METTLER TOLEDO transmitters

Please ask your local METTLER TOLEDO representative.

	InPro 6950 Gas	InPro 6800 Gas
M 700	• (traces module)	• (O ₂ -4700 module)
M400 2H/2XH/PA/FF	•	•
M400 Type 1/2/3	•	•

Compatibility with METTLER TOLEDO housings

Please ask your local METTLER TOLEDO representative.

	12 mm Ø	25 mm Ø
Static housings		
INGOLD "safety weld-in socket"	–	•
InFit 761 CIP	•	–
Retractable housing		
InTrac 777 e	•	–
InTrac 797 e	•	–
Immersion housing		
InDip 550	•	–

Accessories



O₂ Sensor-Master InPro 6950/6800

The Sensor-Master serves to polarize the connected sensor in air as well as to check functioning of the sensor. Perfect operation of the Sensor-Master can also be verified through a self-check procedure.

O₂ Sensor-Simulator

The sensor simulator is used to perform a function check of transmitter and cable. It simulates the behavior of the sensor in air and in an oxygen-free medium.

Sensor	Order. no
O ₂ Sensor-Master InPro 6950	52 206 113
O ₂ Sensor-Master InPro 6800	52 200 892
O ₂ Sensor-Simulator	52 200 891
Zeroing gel for zero-point control	30 300 435
Adapter T-82 bushing -VP connector	52 200 939
Adapter VP bushing T-82 connector	52 200 940

VP cable	Order. no	Order. no	
Temperature range –30...80 °C (–22...176 °F)		Temperature range –30...130 °C (–22...266 °F)	
VP6-ST/ 1 m	52 300 107	VP6-HT/ 1 m	52 300 111
VP6-ST/ 3 m	52 300 108	VP6-HT/ 3 m	52 300 112
VP6-ST/ 5 m	52 300 109	VP6-HT/ 5 m	52 300 113
VP6-ST/10 m	52 300 110	VP6-HT/10 m	52 300 114
VP6-ST/15 m	52 300 144	VP6-HT/15 m	52 300 237
VP6-ST/35 m	52 300 184		

Spare parts

InPro 6950	Order. no
Membrane body InPro 6950 Gas (singly)	52 206 108
Membrane kit InPro 6950 Gas (4 membrane bodies, 1 O-ring set silicone, 2×5 ml electrolyte, wetted parts SS 316 L)	52 206 109
InPro 6950 electrolyte pack (3×5 ml)	30 298 426
Inner body InPro 6950 (exchangeable)	52 206 112

InPro 6950/6800 Gas	Order. no
Cap sleeve N, s/steel 1.4404 (AISI 316L)	52 200 037
Cap sleeve N, s/steel 1.4435 (AISI 316L)	52 201 153
Cap sleeve P, s/steel 1.4404 (AISI 316L)	52 200 038
Cap sleeve P, s/steel 1.4435 (AISI 316L)	52 201 154

Please ask our local METTLER TOLEDO representative for 2.4602 (C 22) or titanium (Ti) cap sleeves.

InPro 6950/6800 Gas	Order. no
Membrane kit T-6800 Gas (4 membrane bodies, 1 O-ring Set silicone, 25 ml electrolyte)	52 201 149
Membrane body T-6800 Gas, single	52 201 151
Membrane kit T-6800 Gas Ka (4 membrane bodies, 25 ml electrolyte)	52 201 159
Membrane body T-6800 Gas Ka, single	52 201 158
Membrane kit T-6800 Gas C22 Ka (4 membrane bodies, 25 ml electrolyte)	52 201 164
Membrane body T-6800 Gas C22 Ka, single	52 201 163
Membrane kit T-6800 Gas Ti Ka (4 membrane bodies, 25 ml electrolyte)	52 201 167
Membrane body T-6800 Gas Ti Ka, single	52 201 166
O ₂ electrolyte pack (3×25 ml)	30 298 424
Inner body InPro 6800 (exchangeable)	52 200 899



InPro 6950 InPro 6800

Inner body

The inner body is the virtual heart of an oxygen sensor. Over and above that of the standard InPro 6800 version, the inner body of the InPro 6950 sensor is equipped with an ancillary annular protective cathode and reference to provide increased signal stability. This makes it possible to achieve detection limits of 5 ppm.



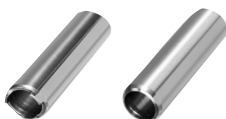
T-6800 Gas

Membrane body

Both the InPro 6800 Gas and the InPro 6950 Gas membrane bodies are PTFE-coated and are reinforced with a mesh, and therefore optimally protected against harsh pressure conditions.

Cap sleeve

In contrast to the cap sleeve Type N, the P version is equipped additionally with a protective cage and 3 standoffs to provide increased protection for the sensitive measuring tip of the O₂ sensor. Cap sleeves are supplied complete with material certificate.



Typ P

Typ N

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