

InPro® 6000 G Sensor Series

Gas Phase Oxygen Sensors

Technical Data



InPro 6800 G



InPro 6850 I G
InPro 6900 I G
InPro 6950 I G

Short description

The InPro 6000 G O₂ sensor series for gas measurement provides high operational availability together with excellent measurement performance. Without the need for an expensive gas sample conditioning, the sensor can be installed directly in the process and sensor maintenance or replacement can be performed without process interruption. Mettler-Toledo Ingold offers a unique easy-to-use and reliable solution for challenging applications like N₂ blanketing, inertization and off-gas monitoring in ex or non-ex applications.

Outstanding features are:

- ATEX and FM certification
- Wide measurement range
- In-situ measurement
- Negligible interference with many organic and inorganic substances
- Insensitive to humidity
- Plug And Measure
- ISM (Intelligent Sensor Management) technology for enhanced diagnostics and predictive maintenance
- 2-minutes maintenance



ISM®

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METTLER TOLEDO

Gas phase oxygen sensors

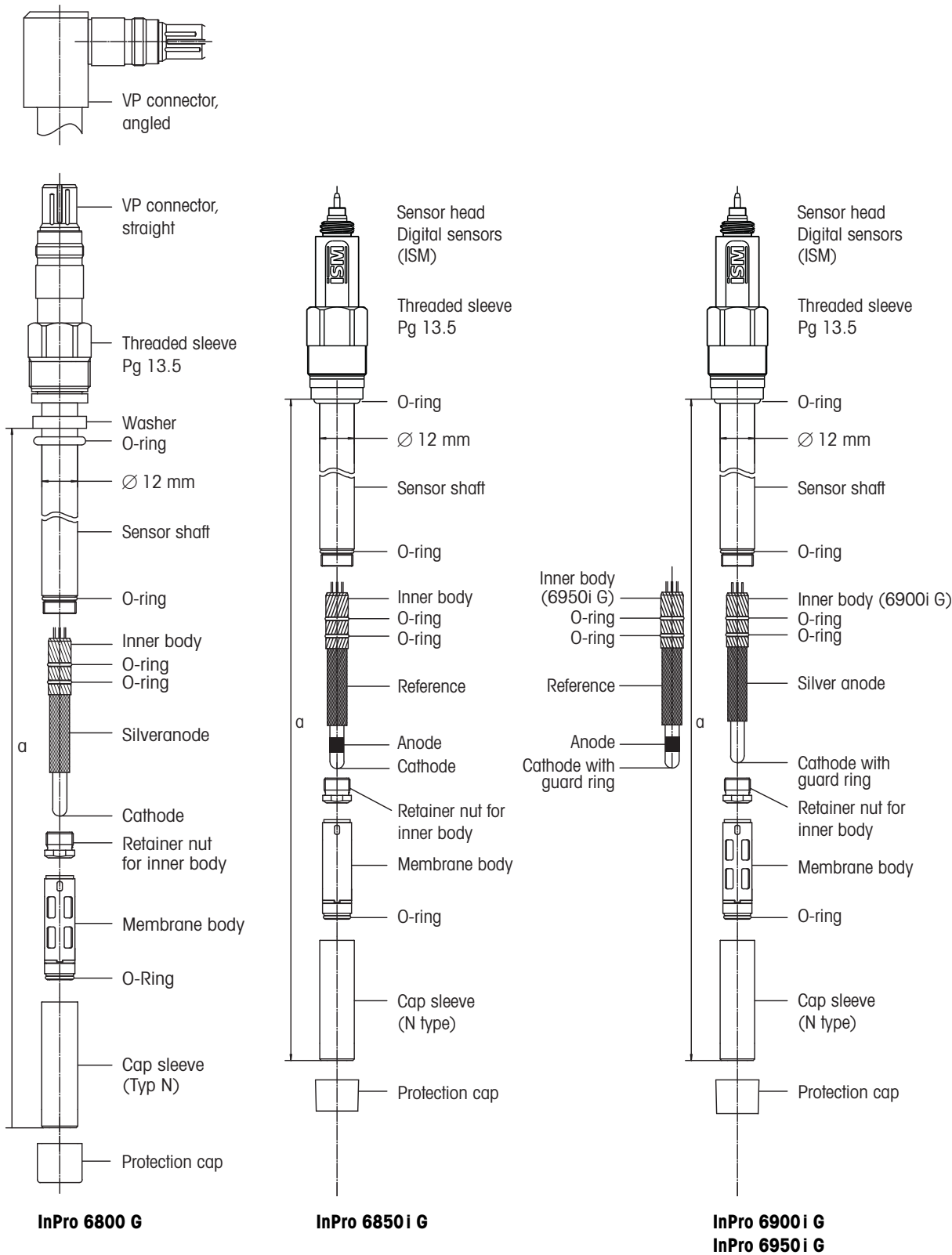
InPro 6000 Sensor Series

Typical applications	InPro 6800 G	InPro 6850 i G	InPro 6900 i G	InPro 6950 i G
Biotechnology/Pharma				
Centrifugation	•	•	—	—
Drying	•	•	—	—
Milling	•	•	—	—
Storage	•	•	•	—
Packaging	•	•	•	—
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	•	•	•	—
Inertization monitoring	•	•	—	—
Centrifugation	•	•	—	—
Drying	•	•	—	—
Storage	•	•	•	—
Packaging	•	•	•	—
Vent gas	•	•	—	—
Pelletizing	•	•	—	—

Specifications	InPro 6800 G	InPro 6850 i G	InPro 6900 i G	InPro 6950 i G
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 ... 9 bar abs. (2.9 ... 130 psi abs.)	0.2 ... 9 bar abs. (2.9 ... 130 psi abs.)	0.2 ... 9 bar abs. (2.9 ... 130 psi abs.)	0.2 ... 9 bar abs. (2.9 ... 130 psi abs.)
Mechanical pressure resistance	max. 12 bar abs. (max. 174 psi abs.)	max. 12 bar abs. (max. 174 psi abs.)	max. 12 bar abs. (max. 174 psi abs.)	max. 12 bar abs. (max. 174 psi abs.)
Permissible temp. range during measuring	0 ... 70 °C (32 ... 158 °F)	0 ... 70 °C (32 ... 158 °F)	0 ... 70 °C (32 ... 158 °F)	0 ... 40 °C (32 ... 104 °F)
Mechanical	–5 ... 121 °C (23 ... 250 °F)	–5 ... 121 °C (23 ... 250 °F)	–5 ... 121 °C (23 ... 250 °F)	–5 ... 121 °C (23 ... 250 °F)
Temperature resistance	(steam-sterilizable)	(steam-sterilizable)	(steam-sterilizable)	(steam-sterilizable)
Sensor performance				
Detection limit	0.03 Vol.-% O ₂ 300 ppm Gas	0.03 Vol.-% O ₂ 300 ppm Gas	0.005 Vol.-% O ₂ 50 ppm Gas	0.0005 Vol.-% O ₂ 5 ppm Gas
Accuracy [%]	±±[1%+0.03Vol.-%]	±±[1%+0.03Vol.-%]	±±[1%+0.005Vol.-%]	±±[1%+0.0005Vol.-%]
Response time at 25 °C (77 °F)	t _{90%} ≤ 20 s	t _{90%} ≤ 20 s	t _{90%} ≤ 20 s	t _{90%} ≤ 20 s
Sensor signal in ambient air at 25 °C (77 °F)	50 ... 110 nA	50 ... 110 nA	250 ... 500 nA	2500 ... 6000 nA
Residual signal in nitrogen at 25 °C (77 °F)	≤ 0,1% of signal in ambient air	≤ 0,1% of signal in ambient air	≤ 0,03% of signal in ambient air	≤ 0,025% of signal in ambient air

Specifications	InPro 6800 G	InPro 6850 i G	InPro 6900 i G	InPro 6950 i G
Design features				
Temperature compensation	automatic with built-in RTD	automatic with built-in RTD	automatic with built-in RTD	automatic with built-in RTD
Cable connection	VarioPin (IP68)	K8S	K8S	K8S
Wetted O-rings	Silicone FDA & USP Class VI approved (other materials on request)	Silicone FDA & USP Class VI approved (other materials on request)	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/PTFE FDA compliant (rein- forced with steel mesh)	PTFE/Silicone/PTFE FDA compliant (rein- forced with steel mesh)	PTFE/Silicone/PTFE FDA compliant (rein- forced with steel mesh)	Silicone/PTFE FDA compliant (rein- forced with steel mesh)
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)	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]	Ra <0.4 µm [16 µm in]	Ra <0.4 µm [16 µm in]
Inner body	standard (exchangeable)	ppm with Pt anode (exchangeable)	ppb with guard (exchangeable)	trace with guard and Pt anode (exchangeable)
Cathode	platinum	platinum	platinum	platinum
Anode	silver/silver chloride	platinum	silver/silver chloride	platinum
Guard	—	—	platinum	platinum
Reference	silver/silver chloride	silver/silver chloride	silver/silver chloride	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	Ex ia IIC T6/T5/ T4/T3 Ga/Gb Ex ia IIIC 69°C/ T81°C/T109°C/ T161°C Da/Db	Ex ia IIC T6/T5/ T4/T3 Ga/Gb Ex ia IIIC 69°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	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	yes	yes
FDA/USP Class VI	yes	yes	yes	yes
Material certificate 3.1	yes	yes	yes	yes
Surface finish certificate 2.1	yes	yes	yes	yes
ATEX	yes	yes	yes	yes
FM	yes	yes	yes	yes

Drawings



Ordering information

InPro 6800 G, 12 mm Ø	Order no.	Order no.	Order no.
Membrane module	Gas	Gas	Gas
Wetted material	316L	316L	C22
O-Ring material	Silicone	Kalrez	Kalrez

Immersion length (a)

120 mm (4.7")	52 206 425	52 206 427	52 206 429
220 mm (8.7")	52 206 426	52 206 428	52 206 430

InPro 6850 i G

Membrane module	Gas	Gas	Gas
Wetted material	316L	316L	C22
O-Ring material	Silicone	Kalrez	Kalrez

Immersion length (a)

120 mm (4.7")	52 206 431	52 206 433	52 206 435
220 mm (8.7")	52 206 432	52 206 434	52 206 436

InPro 6900 i G

Membrane module	Gas	Gas
Wetted material	316L	316L
O-Ring material	Silicone	Kalrez

Immersion length (a)

120 mm (4.7")	52 206 437	52 206 439
220 mm (8.7")	52 206 438	52 206 440

InPro 6950 i G

Membrane module	Gas
Wetted material	316L
O-Ring material	Silicone

Immersion length (a)

120 mm (4.7")	52 206 443
220 mm (8.7")	52 206 444

Compatibility with METTLER TOLEDO transmitters

Please ask your local
METTLER TOLEDO
sales representative.

	InPro 6800 G	InPro 6850 i G	InPro 6900 i G	InPro 6950 i
M700	• (4700i)	• (4700i)	• (4700i ppb)	• (4700i traces)
4100 PA, FF	•	•	• ¹	—
M300	•	•	—	—
M400	•	•	•	—
M420	•	•	• (TAN)	• (TAN)

¹ limited functions

Compatibility with METTLER TOLEDO housings

Please ask your local
METTLER TOLEDO
sales representative.

Static housings	12 mm
INGOLD "safety weld-in socket"	—
InFit 761 series	•
Retractable housing	
InTrac 777 e	•
InTrac 797 e	•

Accessories

**O₂ sensor master**

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. This device can be used to simulate all amperometric analog O₂ sensors.

Sensor	Order no.
O ₂ sensor master InPro 6800	52 200 892
O ₂ sensor master ISM	52 206 329
O ₂ sensor simulator	52 200 891
Zeroing gel for zero-point control	34 100 1032

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

AK9 coax cables with K8S connector

1 m (3.3 ft)	10 000 0102
3 m (9.8 ft)	10 000 0302
5 m (16.4 ft)	10 000 0502
10 m (32.8 ft)	10 000 1002
20 m (65.6 ft)	52 300 204

Spare parts

Inner body



InPro 6800 G InPro 6850i G

InPro 6800 G	Order no.
Membrane body InPro 6800 Gas (single unit)	52 201 151
Membrane kit InPro 6800 Gas (4 membrane bodies, 1 O-ring set, 25 ml electrolyte)	52 201 149
Membrane body InPro 6800 Gas Ka (single unit)	52 201 158
Membrane kit InPro 6800 Gas Ka (4 membrane bodies, 1 O-ring set, 25 ml electrolyte)	52 201 159
Membrane body InPro 6800 Gas C22 Ka (single unit)	52 201 163
Membrane kit InPro 6800 Gas C22 Ka (4 membrane bodies, 1 O-ring set, 25 ml electrolyte)	52 201 164
Inner body InPro 6800 G (exchangeable)	52 206 449
Electrolyte 25 ml	341 002 016

Membrane body

6800 Gas 6850i G
6900i G

InPro 6850i G	Order no.
Membrane body InPro 6850i G (single unit)	52 206 453
Membrane kit InPro 6850i G (4 membrane bodies, 1 O-ring set, 25 ml electrolyte)	52 206 454
Membrane body InPro 6850i G Ka (single unit)	52 206 455
Membrane kit InPro 6850i G Ka (4 membrane bodies, 1 O-ring set, 25 ml electrolyte)	52 206 456
Membrane body InPro 6850i G C22 Ka (single unit)	52 206 457
Membrane kit InPro 6850i G C22 Ka (4 membrane bodies, 1 O-ring set, 25 ml electrolyte)	52 206 458
Inner body InPro 6850i G (exchangeable)	52 206 450
Electrolyte 25 ml	341 002 016

Cap sleeve



P type N type

InPro 6900i G	Order no.
Membrane body InPro 6900i G (single unit)	52 206 459
Membrane kit InPro 6900i G (4 membrane bodies, 1 O-ring set, 2 × 5 ml electrolyte)	52 206 460
Membrane body InPro 6900i G Ka (single unit)	52 206 461
Membrane kit InPro 6900i G Ka (4 membrane bodies, 1 O-ring set, 2 × 5 ml electrolyte)	52 206 462
Inner body InPro 6900i G (exchangeable)	52 206 451
Electrolyte 5 ml	52 201 005

InPro 6950i G	Order no.
Membrane body InPro 6950i G (single unit)	52 206 465
Membrane kit InPro 6950i G (4 membrane bodies, 1 O-ring set, 2 × 5 ml electrolyte)	52 206 466
Inner body InPro 6950i G (exchangeable)	52 206 452
Electrolyte 5 ml	52 206 111

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Management System
certified according to
ISO 9001 / ISO 14001



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