

InPro® 7000-VP / InPro® 7100-VP

New sensors with VP connector for very low to medium/high conductivity

Technical Data



InPro 7108-25/40-VP

InPro 7001/120-VP

Short description

InPro 7000-VP Series

Superior 2-electrode sensors for water preparation in the food & beverage industry and in the chemical industry.

- Outstanding measurement accuracy.
- Optimal process safety due to Vario Pin connector and the quality of the materials used.
- MaxCert™: set of certificates incl. individually determined and documented cell constant, FDA suitable materials (certified).

InPro 7100-VP Series

4-electrode sensors for medium/high conductivity values for applications such as phase separation or CIP/SIP cleaning in the food & beverage industry and the pharmaceutical industry.

- WideRange™-technology for wide measuring range and cost-efficient installation.
- Optimal process safety due to Vario Pin connector and the quality of the materials used.
- MaxCert™: set of certificates incl. individually determined and documented cell constant, FDA suitable materials (certified).

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Specifications 2-electrode sensors (InPro 7000-VP Series)

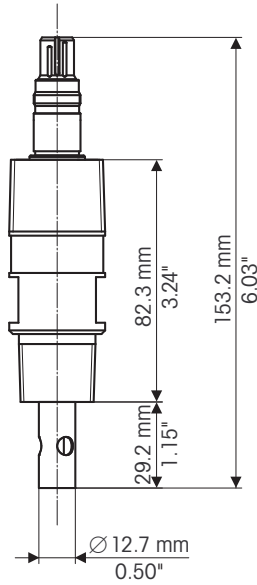
	InPro 7000-VP	InPro 7005-VP	InPro 7001/120-VP InPro 7001/225-VP	InPro 7002/*-VP
Measurement principle	2-electrode sensor	2-electrode sensor	2-electrode sensor	2-electrode sensor
Electrode material	Titanium	Titanium	SS 316L	SS 316L
Body material	PVDF	PTFE-coated SS 316/1.4401	SS 316L	SS 316L
RTD	Built-in Pt 1000	Built-in Pt 1000	Built-in Pt 1000	Built-in Pt 1000
Sensor diameter	See drawing	See drawing	12 mm	See drawing
Insertion length	29 mm (1.15")	34 mm (1.35")	120/225 mm (4.71/8.86")	85/104 mm (3.35/4.09")
Max. sensor length	153.20 mm (6.03")	75 mm (2.95")	194/299 mm (7.64/11.77")	156/175 mm (6.14/6.88")
Process connection	- 3/4" NPT - 1" NPT Conduit	- 3/4" NPT	- Pg 13.5	- Tri-Clamp 1.5" - Tri-Clamp 2" - Tuchenhagen-Varivent DN 40–DN 125
Measuring range	See separate table on page 6			
Cell constant nominal	0.1 cm ⁻¹	0.1 cm ⁻¹	0.1 cm ⁻¹	0.1 cm ⁻¹
Cell constant accuracy	± 1.0%	± 1.0%	± 1.0%	± 1.0%
System accuracy ^a	± 3.0% or better	± 3.0% or better	± 3.0% or better	± 3.0% or better
Working conditions				
Max. pressure at 25 °C (77 °F)	34 bar (500 psi)	17 bar (250 psi)	17 bar (250 psi)	31 bar (449.5 psi)
Max. pressure at 95 °C (203 °F) ^b	7 bar (100 psi)	7 bar (100 psi)	7 bar (100 psi)	10 bar (145 psi)
Measuring temperature range	-10 ... 100 °C (14 ... 212 °F)	-10 ... 100 °C (14 ... 212 °F)	-10 ... 100 °C (14 ... 212 °F)	-10 ... 120 °C (14 ... 248 °F)
Temperature range (sterilization)	N/A	N/A	Sterilizable -10 ... 131 °C (14 ... 268 °F)	Sterilizable -10 ... 155 °C (14 ... 311 °F)
Temperature accuracy at 25 °C (77 °F)	± 0.25 °C (± 0.5 °F)	± 0.25 °C (± 0.5 °F)	± 0.25 °C (± 0.5 °F)	± 0.25 °C (± 0.5 °F)
Design				
Temperature compensation	Pt 1000 IEC class A	Pt 1000 IEC class A	Pt 1000 IEC class A	Pt 1000 IEC class A
Cable connection	Vario Pin (IP 68)	Vario Pin (IP 68) ^c	Vario Pin (IP 68)	Vario Pin (IP 68)
Wetted parts:				
- Metals	Titanium (Grade 2)	Titanium (Grade 2)	SS 316L	SS 316L
- Plastics	PVDF (FDA)	PTFE-coated SS 316/1.4401	-	-
- O-rings	Viton® (FDA)	Viton® (FDA)	Viton® (FDA)	Viton® (FDA)
- Insulation	PEEK (FDA)	PEEK (FDA)	PEEK (FDA)	PEEK (FDA)
- Surface roughness of wetted metal parts ^d	N/A	N/A	Polished Ra < 0.2 µm (< 8 µin)	Electropolished Ra < 0.2 µm (< 8 µin)
Certificates				
Cell constant	•	•	•	•
Material certificate EN 10204 3.1	-	-	•	•
Material specification 2.1	•	•	•	•
Surface roughness	-	-	•	•
ATEX	•	•	•	•

Captions

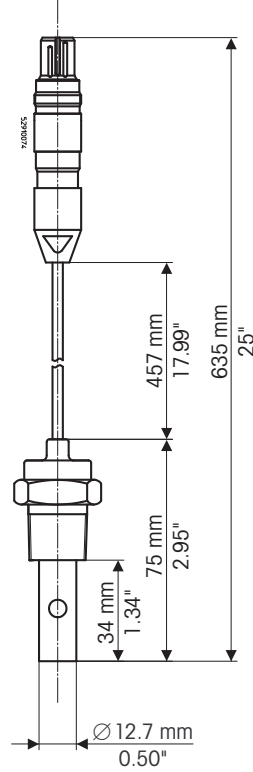
- a The system accuracy depends on the measuring range and the particular transmitter.
- b According to PED (Pressure Equipment Directive, 97/23/EC, Art. 3, Sec. 3).
- c The VP is at the end of an approx. 0.5 m long fixed cable.
- d Except at active electrode areas.

Drawings 2-electrode sensors (InPro 7000-VP Series)

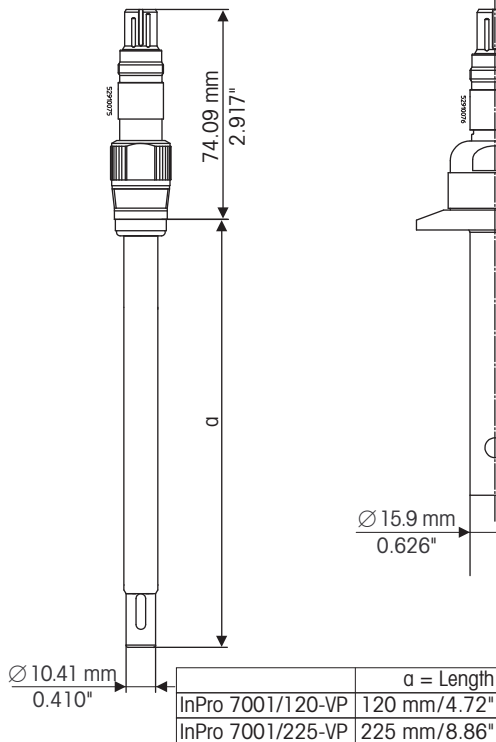
InPro 7000-VP



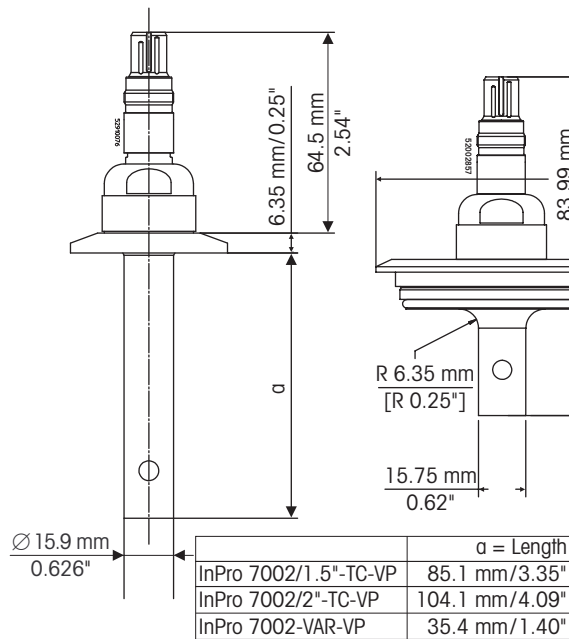
InPro 7005-VP



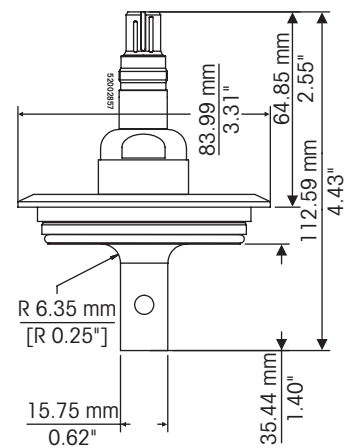
InPro 7001/120-VP
InPro 7001/225-VP



InPro 7002/1.5"-TC-VP
InPro 7002/2"-TC-VP



InPro 7002-VAR-VP



Specifications 4-electrode sensors (InPro 7100-VP Series)

	InPro 7108-VP/ CPVC	InPro 7108-VP/ PEEK	InPro 7108/25/*-VP	InPro 7108-TC-VP InPro 7108-VAR-VP
Measuring principle	4-electrode sensor	4-electrode sensor	4-electrode sensor	4-electrode sensor
Electrode material	SS 316L	SS 316L or HA-C22	SS 316L or HA-C22	SS 316L
Body material	CPVC	PEEK	PEEK	PEEK
RTD	Built-in Pt 1000	Built-in Pt 1000	Built-in Pt 1000	Built-in Pt 1000
Sensor diameter	See drawing	See drawing	See drawing	See drawing
Insertion length	28 mm (1.10")	28 mm (1.10")	40/65 mm (1.57/2.56")	25 mm (0.98")
Max. sensor length	151 mm (5.96")	126.7 mm (4.99")	123/148 mm (4.86/5.84")	105 mm (4.14")
Process connection	- 1" NPT - 1" NPT Conduit	- 1" NPT	- Cap nut G 1 1/4"	- Tri-Clamp 1.5" - Tri-Clamp 2" - Tuchenhagen- Varivent DN 40–DN 125
Measuring range	See separate table on page 6			
Cell constant nominal	0.25 cm ⁻¹	0.25 cm ⁻¹	0.25 cm ⁻¹	0.25 cm ⁻¹
Cell constant accuracy	± 1.0%	± 1.0%	± 1.0%	± 1.0%
System accuracy ^a	± 5.0% or better	± 5.0% or better	± 5.0% or better	± 5.0% or better

Working conditions

Max. pressure at 25 °C (77 °F)	7 bar (100 psi)	17 bar (250 psi)	17 bar (250 psi)	17 bar (250 psi)
Max. pressure at 95 °C (203 °F) ^b	–	7 bar (100 psi)	7 bar (100 psi)	7 bar (100 psi)
Measuring temperature range	–10...80 °C (14...176 °F)	–10...140 °C ^c (14...284 °F ^c)	–10...140 °C ^c (14...284 °F ^c)	–10...140 °C ^c (14...284 °F ^c)
Temperature range (sterilization)	N/A	Sterilizable –10...140 °C ^c (14...284 °F ^c)	Sterilizable –10...140 °C ^c (14...284 °F ^c)	Sterilizable –10...140 °C ^c (14...284 °F ^c)
Temperature accuracy at 25 °C (77 °F)	± 0.25 °C (± 0.5 °F)	± 0.25 °C (± 0.5 °F)	± 0.25 °C (± 0.5 °F)	± 0.25 °C (± 0.5 °F)

Design

Temperature compensation	Pt 1000 IEC class A	Pt 1000 IEC class A	Pt 1000 IEC class A	Pt 1000 IEC class A
Cable connection	Vario Pin (IP 68)	Vario Pin (IP 68)	Vario Pin (IP 68)	Vario Pin (IP 68)

Wetted parts:

– Metals	SS 316L	SS 316L or HA-C22	SS 316L or HA-C22	SS 316L
– Plastics	CPVC	PEEK (FDA)	PEEK (FDA)	PEEK (FDA)
– O-rings	N/A	N/A	EPDM (FDA)	N/A

Certificates

Cell constant	•	•	•	•
Material certificate				
EN 10204 3.1	•	•	•	•
Material specification 2.1	•	•	•	•
ATEX	•	•	•	•

Captions

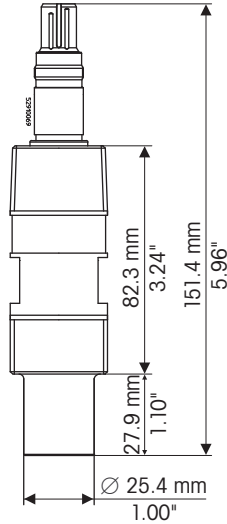
^a The system accuracy depends on the measuring range and the particular transmitter.

^b According to PED (Pressure Equipment Directive, 97/23/EC, Art. 3, Sec. 3).

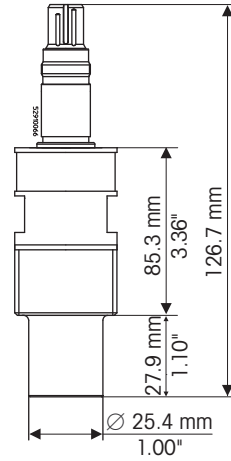
^c Short term 150 °C (302 °F).

Drawings 4-electrode sensors (InPro 7100-VP Series)

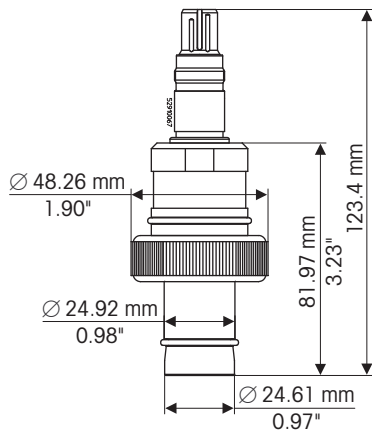
InPro 7108-VP/CPVC



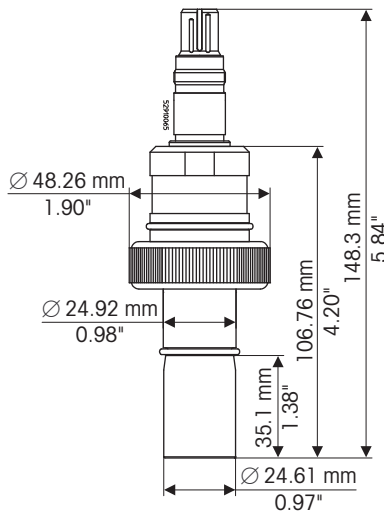
InPro 7108-VP/PEEK



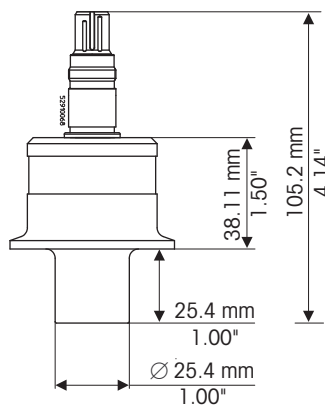
InPro 7108-25/40-VP



InPro 7108-25/65-VP

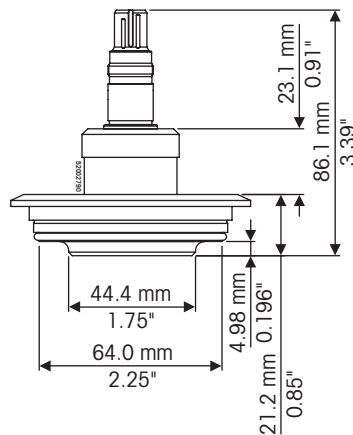


InPro 7108-TC-VP



	Tri-Clamp
52 002 008	1.5"
52 002 009	2"

InPro 7108-VAR-VP



	Tuchenhagen-Varivent®
52 002 790	DN40 - DN125

Measuring ranges

2-electrode sensors (InPro 7000-VP Series)

Sensor	Transmitter	M300	M300 ISM	M400 4-W/2-W	M420	M700	M800 1-channel	System Accuracy
InPro 7000-VP/7005-VP		0.02–2,000	–	0.02–2,000	0.02–10,000	0.02–10,000	0.02–2,000	± 3 %
InPro 7001-VP		0.02–500	–	0.02–500	0.02–500	0.02–500	0.02–500	± 3 %
InPro 7002-VP		0.02–2,000	–	0.02–2,000	0.02–2,000	0.02–2,000	0.02–2,000	± 3 %

All values in µS/cm.

4-electrode sensors (InPro 7100-VP Series)

Sensor	Transmitter	M100	M300	M300 ISM	M400 4-W/2-W	M420	M700	M800	System Accuracy
InPro 7108		–	0.02–650	–	0.02–650	0.02–250	0.02–500	0.02–650*	± 5 %
InPro 7100		–	0.02–400	–	0.02–400	0.02–310	0.02–400	0.02–400*	± 5 %
InPro 7100i		0.02–500	–	0.02–500	0.02–500	–	–	0.02–500	± 5 %

All values in mS/cm.

* M800 1-channel only.

Recommended METTLER TOLEDO housings

Captions

^a Please note that each housing is available in a wide variety of materials, process connections, etc. Please contact your distributor to get the right ordering information.

Stationary housing

Stationary housing	Order no.	Suitable sensor
InFit 761e Series	various ^a	InPro 7001/120-VP InPro 7001/225-VP InPro 7100/120
InFit 762e Series	various ^a	InPro 7001/120-VP InPro 7100/120

Retractable housing

Retractable housing	Order no.	Suitable sensor
InTrac 777e	various ^a	InPro 7001/225-VP InPro 7100/425

Immersion housing

Immersion housing	Order no.	Suitable sensor
InDip 550 (not in US)/InDip 508 (US only)	various ^a	InPro 7000-VP InPro 7108-VP/CPVC

Accessories

Accessories	Order no.	Suitable sensor
Safety weld-in socket – straight	52 400 518	InPro 7108-25/40-VP InPro 7108-25/65-VP
Safety weld-in socket – inclined	52 400 462	InPro 7108-25/40-VP InPro 7108-25/65-VP
Milk pipe adapter InPro 7108	52 403 761	InPro 7108-25/40-VP InPro 7108-25/65-VP

Ordering information

Designation 2-electrode sensors (InPro 7000-VP Series)	Order no.
InPro 7000-VP	52 001 995
InPro 7005-VP	52 001 996
InPro 7001/120-VP 3.1	52 001 997
InPro 7001/225-VP 3.1	52 001 998
InPro 7002/1.5" TC-VP 3.1	52 001 999
InPro 7002/2" TC-VP 3.1	52 002 000
InPro 7002-VAR-VP 3.1	52 002 857

Designation 4-electrode sensors (InPro 7100-VP Series)	Order no.
InPro 7108-VP/CPVC 3.1	52 002 001
InPro 7108-VP/PEEK 3.1	52 002 002
InPro 7108-VP/PEEK/HA-C22 3.1	52 002 003
InPro 7108-25/40-VP 3.1	52 002 004
InPro 7108-25/40/HA-C22-VP 3.1	52 002 005
InPro 7108-25/65-VP 3.1	52 002 006
InPro 7108-25/65/HA-C22-VP 3.1	52 002 007
InPro 7108/1.5" TC-VP 3.1	52 002 008
InPro 7108/2" TC-VP 3.1	52 002 009
InPro 7108-VAR-VP 3.1	52 002 790

Designation patch cables	Order no.
1.5 m (5 ft)	58 080 201
3.0 m (10 ft)	58 080 202
4.6 m (15 ft)	58 080 203
7.6 m (25 ft)	58 080 204
15.2 m (50 ft)	58 080 205
22.9 m (75 ft)	58 080 206
30.5 m (100 ft)	58 080 207
Max. recommended cable length for all 2-electrode sensors:	60 m (200 ft)
Max. recommended cable length for 4-electrode sensors used with Cond 7050 e:	15 m (50 ft)
With all other transmitters:	60 m (200 ft)

Designation adapter	Order no.
Adapter from VP (female) to 8-pin Conxall connector (male), 0.9 m (3 ft)	58 080 101

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Management System
certified according to
ISO 9001 / ISO 14001



Subject to technical changes.
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Printed in Switzerland. 52 002 183

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