

InPro® 3100 / InPro® 3100UD

pH-electrodes with temperature compensation
for biotechnology and pharmaceutical processes

Technical Data



InPro 3100

Short description

Low-maintenance pH electrodes of the InPro 3100 series from METTLER TOLEDO come complete with a gel electrolyte reference system and built-in temperature sensor to allow reliable and accurate, temperature-compensated pH measurement. It is also possible to install the version InPro 3100UD through the bottom or floor of a vessel or tank, i.e. in an upside-down position. Electrodes of the InPro 3100 series are specially directed towards applications in biotechnological processes under sterile conditions, reflected by the broad scope of technical features incorporated:

- InPro 3100 electrodes are entirely autoclavable or in-situ sterilizable.
- The outstanding pressure-resistance of up to 6 bar fully covers the pressure range normally encountered in industrial bioprocesses, making the electrodes ideal for universal use in this field.
- The built-in temperature sensor allows automatic temperature compensation both during calibration and during actual measurement procedure.
- The patented silver-ion barrier, integrated into the reference system, avoids contamination and clogging of the diaphragm with black silver sulfide during measurement in process media containing sulfur compounds or proteins (e.g. amino acids)
- The InPro3100UD version is intended for bottom-entry installation. An air-cushion system in the reference electrolyte eliminates any possible disturbance at the diaphragm caused by air bubbles in the electrolyte.
- The InPro 3100 is not recommended for measurement tasks in media of low conductivity.
- VarioPin (VP) connector (IP 68) in heavy-duty PEEK-based material
- Certification following the Pressure Equipment Directive (PED) 97/23/EC, Art. 3, §. 3).
- Certification for hazardous areas:
Ex ia IIC T6/T5/T4/T3 Ga/Gb, SEV 14 ATEX 0168 X, IECEx SEV 14.0025X
- FM approval: IS/I, II, III / 1/ABCDEF/T6

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METTLER TOLEDO

Specifications

Measuring range	pH 0...14
Temperature	0...80 °C for operation 0...140 °C for sterilization (0...130 °C for InPro 3100UD)
Pressure resistance	over pressure of max. 6 bar (87 psi)
Reference system	Argenthal (Ag/AgCl)
Reference electrolyte	gel electrolyte
Diaphragm	1 ceramic diaphragm
Glass membrane	HA, high alkali glass quality
Glass shaft	~ 12 mm
Plug head	VarioPin (VP), Pg 13.5 thread
VP protection rating	IP68

Ordering information

pH-electrodes

Temperature sensor Pt 100	Electrode length [a]	Order no.
InPro 3100/120/Pt 100	120 mm (4.70")	52 000 656
InPro 3100UD/120/Pt 100	120 mm (4.70")	52 002 531
InPro 3100/150/Pt 100	150 mm (5.91")	52 000 659
InPro 3100/225/Pt 100	225 mm (8.86")	52 000 661
InPro 3100/325/Pt 100	325 mm (12.80")	52 000 663
InPro 3100/425/Pt 100	425 mm (16.73")	52 000 665

Temperature sensor Pt 1000

InPro 3100/120/Pt 1000	120 mm (4.70")	52 000 658
InPro 3100UD/120/Pt 1000	120 mm (4.70")	52 002 752
InPro 3100/150/Pt 1000	150 mm (5.91")	52 000 660
InPro 3100/225/Pt 1000	225 mm (8.86")	52 000 662
InPro 3100/325/Pt 1000	325 mm (12.80")	52 000 664
InPro 3100/425/Pt 1000	425 mm (16.73")	52 000 666

Cables (open ends)

Standard temperature (-20...80 °C/-4...176 °F)	Order no.	Order no.	Order no.
	VP6-ST/3 m (9.8 ft)	VP6-ST/5 m (16.4 ft)	VP6-ST/10 m (32.8 ft)
	52 300 108	52 300 109	52 300 110
High temperature (-30...140 °C/-22...284 °F)	Order no.	Order no.	Order no.
	VP6-HT/3 m (9.8 ft)	VP6-HT/5 m (16.4 ft)	VP6-HT/10 m (32.8 ft)
	52 300 112	52 300 113	52 300 114

pH buffer solutions

	1 x 250 ml	6 x 250 ml	1 x 1000 ml
Buffer pH=4.01 (red)	51 340 057	51 340 058	51 340 228
Buffer pH=7.00 (green)	51 340 059	51 340 060	51 340 229
Buffer pH=9.21 (blue)	51 300 193	51 300 194	51 340 230

Reference electrolyte

Friscoly™	51 340 053
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Recommended housings

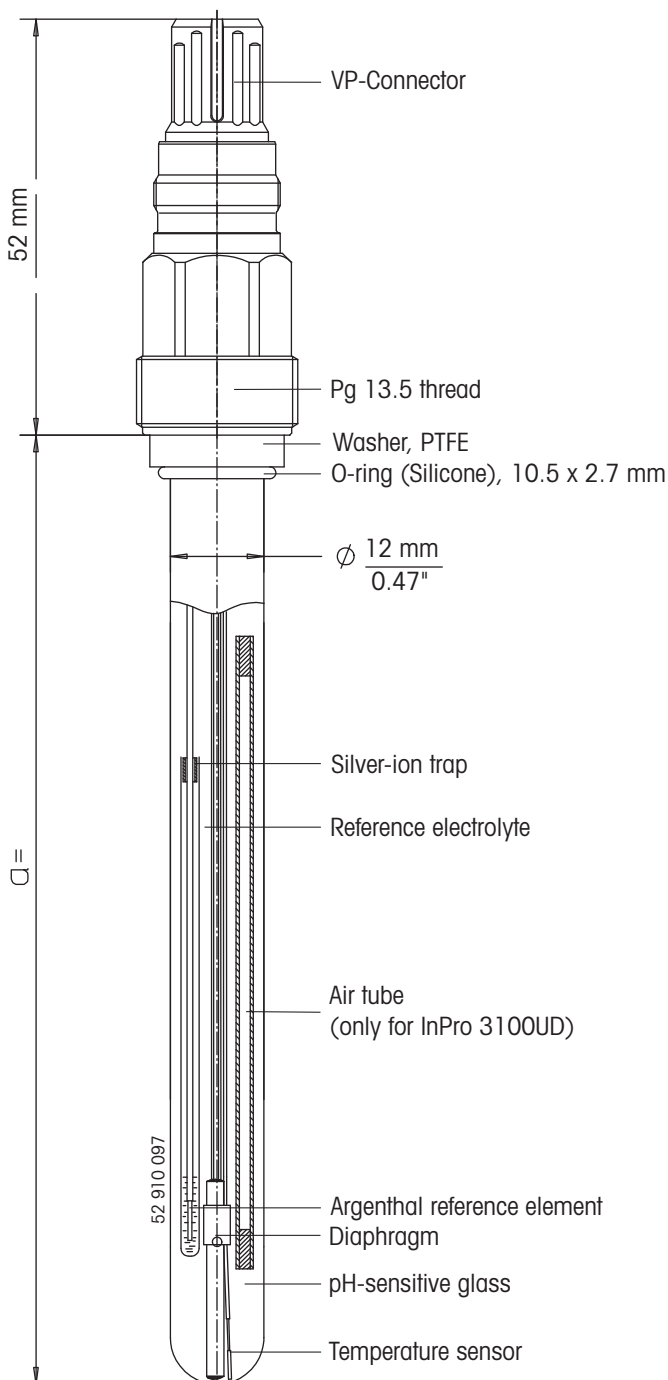
Length	Side mounting	Top mounting	Bottom mounting
120 mm (4.70")	InFit 761-25BT/70	-	InFit 761-25BT/70
120 mm (4.70")	InTrac 798	-	InTrac 798
150 mm (5.91")	InFit 761-25BT/100	-	-
225 mm (8.86")	InFit 761-25BT/175	InFit 761-19BT/175	-
325 mm (12.80")	InTrac 797/75	InFit 761-19BT/275	-
425 mm (16.73")	-	InFit 761-19BT/375	-

Transmitters

A wide range of transmitters can be offered to complete the METTLER TOLEDO/INGOLD measurement system, including a 4 wire version for universal AC/DC power supply, or alternatively in 2-wire versions, with or without HART® or Profibus® communication, of standard or explosion-proof (EEx) design.

Drawings

InPro 3100/InPro 3100UD



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