

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 II 1/2G EEx ia IIC/T6/T5/T4, SNCH 00 ATEX 3130X
- FM approval: IS CLI, Div1, GR ABCD

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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	Ø 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 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

Friscolyt™	51 340 053
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Recommended housings

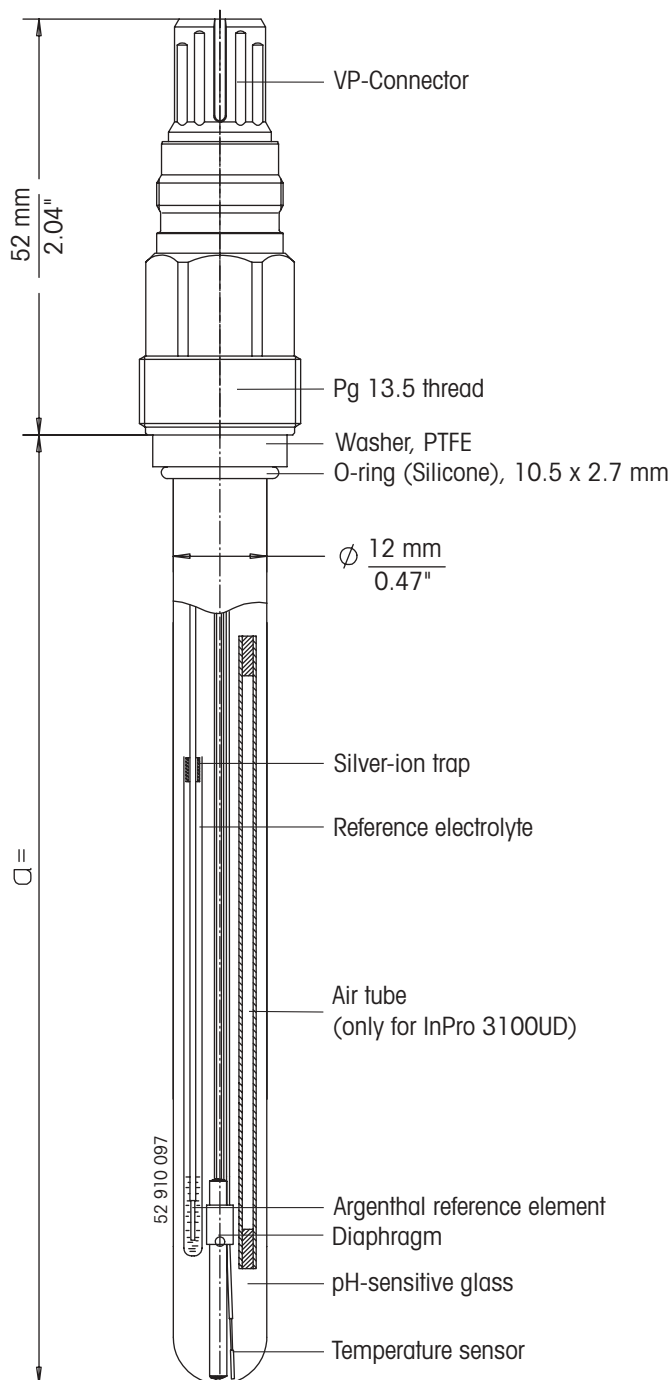
Length	Side mounting	Top mounting	Bottom mounting
120 mm (4.70")	InFit 761-25BT/70	–	InFit 761-25BT/70
120 mm (4.70")	InTrac 798	–	InTrac 798
150 mm (5.91")	InFit 761-25BT/100	–	–
225 mm (8.86")	InFit 761-25BT/175	InFit 761-19BT/175	–
325 mm (12.80")	InTrac 797/75	InFit 761-19BT/275	–
425 mm (16.73")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



METTLER TOLEDO Market Organizations

Sales and Service:

Australia

Mettler-Toledo Ltd.
220 Turner Street
Port Melbourne
AUS - 3207 Victoria
Phone +61 39 644 57 00
Fax +61 39 645 39 35
e-mail mtausprocess@mt.com

Austria

Mettler-Toledo GmbH
Südstrandstrasse 17
AT - 1230 Wien
Phone +43 1 604 19 80
Fax +43 1 604 28 80
e-mail infoprocess.mtat@mt.com

Brazil

Mettler-Toledo Ind. e Com. Ltda.
Alameda Araguaia
451 - Alphaville
BR - 06455-000 Barueri/SP
Phone +55 11 4166 74 00
Fax +55 11 4166 74 01
e-mail sales@mettler.com.br
service@mettler.com.br

China

Mettler-Toledo Instruments
(Shanghai) Co. Ltd.
589 Gui Ping Road
Cao He Jing
CN - 200233 Shanghai
Phone +86 21 64 85 04 35
Fax +86 21 64 85 33 51
e-mail mics@public.sta.net.cn

Croatia

Mettler-Toledo d.o.o.
Mandlova 3
HR - 10000 Zagreb
Phone +385 1 292 06 33
Fax +385 1 295 81 40
e-mail mt-zagreb@mt.com

Czech Republic

Mettler-Toledo spol s.r.o.
Trebohosticka 2283/2
CZ - 100 00 Praha 10
Phone +420 2 72 123 150
Fax +420 2 72 123 170
e-mail sales.mtcz@mt.com

Denmark

Mettler-Toledo A/S
Naverland 8
DK - 2600 Glostrup
Phone +45 43 27 08 00
Fax +45 43 27 08 28
e-mail info.mtdk@mt.com

France

Mettler-Toledo
Analyse Industrielle Sàrl
30, Boulevard de Douaumont
BP 949
F - 75829 Paris Cedex 17
Phone +33 1 47 37 06 00
Fax +33 1 47 37 46 26
e-mail mtpro-f@mt.com

Germany

Mettler-Toledo GmbH
Prozeßanalytik
Ockerweg 3
D - 35396 Gießen
Phone +49 641 507 333
Fax +49 641 507 397
e-mail prozess@mt.com

Great Britain

Mettler-Toledo LTD
64 Boston Road, Beaumont Leys
GB - LE4 1AW Leicester
Phone +44 116 235 7070
Fax +44 116 236 5500
e-mail enquire.mtuk@mt.com

Hungary

Mettler-Toledo Kereskedelmi KFT
Teve u. 41
HU - 1139 Budapest
Phone +36 1 288 40 40
Fax +36 1 288 40 50

India

Mettler-Toledo India Private Limited
Amar Hill, Saki Vihar Road
Powai
IN - 400 072 Mumbai
Phone +91 22 2857 0808
Fax +91 22 2857 5071
e-mail sales.mtin@mt.com

Italy

Mettler-Toledo S.p.A.
Via Vialba 42
I - 20026 Novate Milanese
Phone +39 02 333 321
Fax +39 02 356 2973
e-mail customercare.italia@mt.com

Japan

Mettler-Toledo K.K.
Process Division
5F Tokyo Ryutsu Center, Annex B
6-1-1 Heiwajima, Ohta-ku
JP - 143-0006 Tokyo
Phone +81 3 5762 07 06
Fax +81 3 5762 09 71
e-mail helpdesk.ing.jp@mt.com

Malaysia

Mettler-Toledo (M) Sdn Bhd
Bangunan Electroscon Holding
Lot 8 Jalan Astaka U8/84
Seksyen U8, Bukit Jelutong
MY - 40150 Shah Ahm Selangor
Malaysia
Phone +60 3 78 45 57 73
Fax +60 3 78 45 87 73
e-mail ahmad.rashidi@mt.com

Mexico

Mettler-Toledo S.A. de C.V.
Pino No. 350, Col. Sta.
MA. Insurgentes, Col Atlampa
MX - 06450 México D.F.
Phone +52 55 55 47 57 00
Fax +52 55 55 41 22 28
e-mail mario.roca@mt.com

Poland

Mettler-Toledo (Poland) Sp.z.o.o.
ul. Iwonicka 39
PL - 02-924 Warszawa
Phone +48 22 651 92 32
Fax +48 22 651 71 72
e-mail polska@mt.com

Russia

Mettler-Toledo ZAO
Sretenskij Bulvar 6/1
Office 6
RU - 101000 Moscow
Phone +7 095 921 92 11
Fax +7 095 921 63 53
+7 095 921 78 68
e-mail inforus@mt.com

Singapore

Mettler-Toledo (S) Pte. Ltd.
Block 28
Ayer Rajah Crescent #05-01
SG - 139959 Singapore
Phone +65 6890 00 11
Fax +65 6890 00 12
+65 6890 00 13
e-mail ashley.kong@mt.com

Slovakia

Mettler-Toledo s.r.o.
Bulharska 61
SK - 82104 Bratislava
Phone +421 743 42 74 96
Fax +421 743 33 71 90
e-mail predaj@mt.com

Slovenia
Mettler-Toledo d.o.o.
Peske 12
SI - 1236 Trzin
Phone +386 1 530 80 50
Fax +386 1 562 17 89
e-mail cipot@mtslo.mt.com
racman@mettler-toledo.si

South Korea

Mettler-Toledo (Korea) Ltd.
Yeil Building 1 & 2 F
124-5, YangJe-Dong
SeCho-Ku
KR - 137-130 Seoul
Phone +82 2 3498 3500
Fax +82 2 3498 3555
e-mail Sales_MTKR@mt.com

Spain

Mettler-Toledo S.A.E.
C/ Miguel Hernández, 69-71
ES - 08908 L'Hospitalet de Llobregat
(Barcelona)
Phone +34 93 223 76 00
Fax +34 93 223 76 01
e-mail montserrat.santalices@mt.com

Sweden

Mettler-Toledo AB
Virkesvägen 10
Box 92161
SE - 12008 Stockholm
Phone +46 8 702 50 00
Fax +46 8 642 45 62
e-mail sales.mts@mt.com

Switzerland

Mettler-Toledo (Schweiz) AG
Im Langacher
Postfach
CH - 8606 Greifensee
Phone +41 44 944 45 45
Fax +41 44 944 45 10
e-mail info.ch@mt.com
info.ola.ch@mt.com

Thailand

Mettler-Toledo (Thailand) Ltd.
272 Soi Soonvijai 4
Rama 9 Rd., Bangkok
Kuay Kwang
TH - 10320 Bangkok
Phone +66 2 723 03 00
Fax +66 2 719 64 79
e-mail mettler@samarf.co.th

USA/Canada

Mettler-Toledo Ingold, Inc.
36 Middlesex Turnpike
Bedford, MA 01730, USA
Phone +1 781 301 8800
Toll free +1 800 352 8763
Fax +1 781 271 0681
e-mail mtprous@mt.com
ingold@mt.com



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Mettler-Toledo GmbH, Process Analytics
Industrie Nord, CH-8902 Urdorf
Tel. +41 44 736 22 11, Fax +41 44 736 26 36

www.mtpro.com