

InPro 3100 (i) Versatile and Robust



InPro 3100

InPro 3100i



Also available for upside-down installation as InPro 3100 (i) UD.

The InPro 3100 (i) is a combined pH electrode and temperature sensor designed specially for in-line pH measurements in bio-processes where CIP and SIP are used. This rugged gel-filled electrode leads the industry for fast and precise measurements, even after repeated autoclaving or sterilization cycles at 140 °C (284 °F). The electrode utilizes METTLER TOLEDO's silver-ion trap, keeping the reference junction clear even in the presence of sulfide-bearing solutions. With the InPro 3100 (i) UD, upside-down mounting is possible.

Specifications

pH range	0–14 pH	
Temperature	InPro 3100 (i):	0 to 80 °C (32 to 176 °F) for operation 0 to 140 °C (32 to 284 °F) for sterilization
	InPro 3100 (i) UD:	0 to 80 °C (32 to 176 °F) for operation 0 to 130 °C (32 to 266 °F) for sterilization
Operating pressure	0 to 6 barg @ 140 °C (0 to 87 psig @ 284 °F)	
Cable connection	ISM: K8S; Analog: VP	
Process connection	Pg 13.5 thread	
Reference system	Argentinal with silver-ion trap	
Type of junction	Ceramic junction	
Reference electrolyte	Gel	
Lengths	120 mm, 150 mm, 225 mm, 325 mm, 425 mm	
Shaft diameter	12 mm	
Temperature sensor	ISM: Digital; Analog: Pt 100 or Pt 1000	
Sterilizable	Yes	
Autoclavable	Yes	
pH membrane	High alkali glass (HA)	

Certificates and Approvals METTLER TOLEDO Quality Certificate, Pressure Equipment Directive guidelines (PED) 97/23/EC, ATEX: Ex ia IIC T6/T5/T4/T3 Ga/Gb, FM: IS Cl. I, II, III, Div 1, GR ABCDEFG/T6

Intelligent Sensor Management (ISM)

pH electrodes with integrated ISM functionality allow Plug and Measure and advanced diagnostics. ISM simplifies the installation, handling and maintenance of measurement equipment. For more information see ISM introduction pages 10–11.

Features Overview

- Fully autoclavable or sterilizable in-situ
- Gel electrolyte reduces maintenance
- Resistant to poisoning substances
- EHEDG certified
- Pressure resistant up to 6 barg (87 psig)
- Watertight connector (IP68)
- Integral temperature sensor permits automatic temperature compensation

► www.mt.com/InPro3100

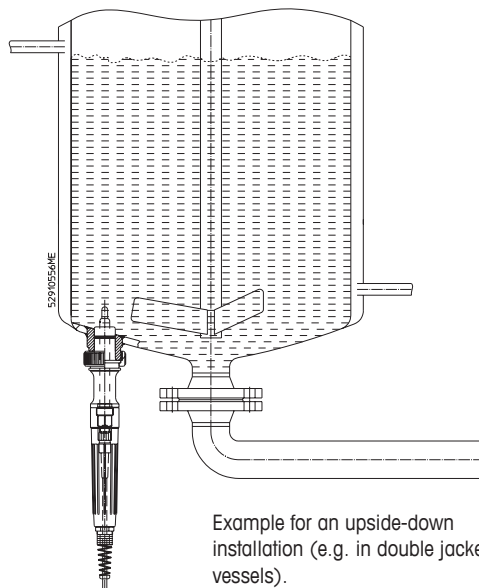
Ordering Information

ISM Electrodes	Length	Temp. Signal	Order Number
InPro 3100i/SG	120 mm	Digital	52 003 515
InPro 3100i/SG	150 mm	Digital	52 003 516
InPro 3100i/SG	225 mm	Digital	52 003 517
InPro 3100i/SG	325 mm	Digital	30 090 877
InPro 3100i/SG	425 mm	Digital	30 091 063
InPro 3100iUD	120 mm	Digital	52 005 433
InPro 3100iUD	225 mm	Digital	52 003 583
Analog Electrodes			
InPro 3100	120 mm	Pt 100	52 000 656
InPro 3100	120 mm	Pt 1000	52 000 658
InPro 3100UD	120 mm	Pt 100	52 002 531
InPro 3100UD	120 mm	Pt 1000	52 002 752
InPro 3100	150 mm	Pt 100	52 000 659
InPro 3100	150 mm	Pt 1000	52 000 660
InPro 3100	225 mm	Pt 100	52 000 661
InPro 3100	225 mm	Pt 1000	52 000 662
InPro 3100UD	225 mm	Pt 100	52 005 354
InPro 3100	325 mm	Pt 100	52 000 663
InPro 3100	325 mm	Pt 1000	52 000 664
InPro 3100	425 mm	Pt 100	52 000 665
InPro 3100	425 mm	Pt 1000	52 000 666



Did You Know

All pH electrodes, even those with gel or solid polymer reference systems, contain a liquid electrolyte in the pH half cell which must be in contact with the internal silver wire in order for the sensor to measure accurately. Sensors therefore must be installed at least 15° from horizontal to prevent air bubble interference. Exception: the InPro 3100 (i) UD “upside-down” electrode.



Suitable Housings

	p.
InFit 761 e	110
InFit 762 e	112
InDip	113
InTrac 777 e	119
InTrac 797 e	120
InTrac 781	121
InTrac 785/787	122

InPro 3250 (i) Highest Performance, Highest Accuracy



InPro 3253

InPro 3250i

Features Overview

- Fully autoclavable or sterilizable in-situ (InPro 3250 (i), InPro 3253 (i))
- Pressurized electrolyte reduces maintenance
- MaxCert™, including biocompatibility according to USP 26, Chapter 87

The InPro 3250 (i) family is a pre-pressurized, liquid-filled, low-maintenance pH sensor and temperature sensor for in-line measurements in demanding applications. Its durable design is well suited for harsh chemical process conditions or to meet the stringent demands of sterile biotech applications where CIP and SIP are used. These rugged electrodes lead the industry for fast and precise measurements, even after repeated autoclaving or sterilization cycles at 140 °C (284 °F). The InPro 3250 (i) family is available with an expanded selection of different pH-sensitive glass membranes. This guarantees the best possible measurement performance under the most diverse operating conditions, both in chemical and biotech processes. The platinum-auxiliary electrode (solution ground) which functions to eliminate ground loop problems, allows for use of advanced sensor diagnostics, or can be used as an ORP (redox) sensor. Also available with Intelligent Sensor Management (ISM) for Plug and Measure and advanced diagnostics.

Specifications

pH range	0 – 14 pH InPro 3250 (i); 0 – 12 pH InPro 3253 (i); 1 – 11 pH InPro 3251 (i), InPro 3252
Temperature	0 to 100 °C (32 to 212 °F) InPro 3250 (i), InPro 3253 (i); –25 to 80 °C (–13 to 176 °F) InPro 3251 (i); 0 to 80 °C (32 to 176 °F) InPro 3252
Operating pressure	0 to 4 barg (0 to 58 psig)
Cable connection	ISM: K8S; Analog: VP
Process connection	Pg 13.5 thread
Reference system	Argenthal with silver-ion trap
Type of junction	Ceramic junction
Reference electrolyte	Pre-pressurized liquid
Lengths	120 mm, 225 mm, 325 mm, 425 mm
Shaft diameter	12 mm
Temperature sensor	ISM: digital Analog: Pt 100 or Pt 1000
Sterilizable	Yes, up to 140 °C (284 °F)
Autoclavable	Yes
pH membrane	Various by applications
Certificates and Approvals	METTLER TOLEDO Quality Certificate, Pressure Equipment Directive guidelines (PED) 97/23/EC, ATEX: Ex ia IIC T6/T5/T4/T3 Ga/Gb, FM: IS Cl. I, II, III, Div 1, GR ABCDEFG/T6

Intelligent Sensor Management (ISM)

pH electrodes with integrated ISM functionality allow Plug and Measure and advanced diagnostics. ISM simplifies the installation, handling and maintenance of measurement equipment. For more information see ISM introduction pages 10–11.

Ordering Information

ISM Electrodes	Length	Temp. Signal	Order Number		
– with alkali resistant glass					
InPro 3250i/SG	120mm	Digital	52 005 373		
InPro 3250i/SG	225mm	Digital	52 005 374		
InPro 3250i/SG	325mm	Digital	52 005 375		
InPro 3250i/SG	425mm	Digital	52 005 376		
– for applications at low temperatures					
InPro 3251 i/SG	120mm	Digital	52 003 693		
– with steam sterilizable glass					
InPro 3253i/SG	120mm	Digital	52 005 377		
InPro 3253i/SG	225mm	Digital	52 005 378		
InPro 3253i/SG	325mm	Digital	52 005 379		
InPro 3253i/SG	425mm	Digital	52 005 380		
Analog Electrodes	Length	Temp. Signal	Order Number	Temp. Signal	Order Number
– with alkali resistant glass					
InPro 3250	120mm	Pt 100	52 002 547	Pt1000	52 002 548
InPro 3250	225mm	Pt 100	52 002 552	Pt1000	52 002 553
InPro 3250	325mm	Pt 100	52 002 554	Pt1000	52 002 555
InPro 3250	425mm	Pt 100	52 002 556	Pt1000	52 002 557
InPro 3250 SG	120mm	Pt 100	52 002 558	Pt1000	52 002 559
InPro 3250 SG	225mm	Pt 100	52 002 560	Pt1000	52 002 561
InPro 3250 SG	325mm	Pt 100	52 002 562	Pt1000	52 002 563
InPro 3250 SG	425mm	Pt 100	52 002 564	Pt1000	52 002 565
– for applications at low temperatures					
InPro 3251	120mm	Pt 100	52 002 585	–	–
InPro 3251	225mm	Pt 100	52 002 586	–	–
– for applications in hydrofluoric acid cont. media					
InPro 3252	120mm	Pt 100	52 002 587	–	–
InPro 3252	225mm	Pt 100	52 002 588	–	–
InPro 3252	250mm	Pt 100	52 002 589	–	–
– with steam sterilizable glass					
InPro 3253	120mm	Pt 100	52 002 566	Pt1000	52 002 567
InPro 3253	225mm	Pt 100	52 002 568	Pt1000	52 002 569
InPro 3253	250mm	Pt 100	52 002 570	–	–
InPro 3253	325mm	Pt 100	52 002 571	Pt1000	52 002 572
InPro 3253	425mm	Pt 100	52 002 573	Pt1000	52 002 574
InPro 3253 SG	120mm	Pt 100	52 002 576	Pt1000	52 002 577
InPro 3253 SG	225mm	Pt 100	52 002 578	Pt1000	52 002 579
InPro 3253 SG	325mm	Pt 100	52 002 580	Pt1000	52 002 581
InPro 3253 SG	425mm	Pt 100	52 002 582	Pt1000	52 002 583

**InPro Sensor Designation**

The last digit of the InPro designation indicates the

pH glass type:

00: High alkali glass (HA)

01: Low temperature glass (LoT)

02: Hydrofluoric acid resistant glass (HF)

03: Steam sterilizable glass (A41)

Suitable Housings**p.**

InFit 761 e	110
InFit 762 e	112
InFlow	114
InDip	113
InTrac 777 e	119
InTrac 797 e	120
InTrac 781	121
InTrac 785/787	122



InPro 3300

The Non-Glass Solution



The InPro 3300 is a solid-state, non-glass pH sensor utilizing Ion Selective Field Effect Transistor (ISFET) technology. The unbreakable design eliminates the risk of broken glass, making this sensor ideally suited for the food and beverage industry. Combining the ISFET with Ingold's Argenthal reference system, this sensor is designed to provide accurate results after repeated sterilization cycles. The use of on-line pH measurement allows for automated process control, and eliminates costly and time consuming grab sample analysis.

Specifications

pH range	0–14 pH (retract during CIP)
Temperature	0 to 80 °C (32 to 176 °F)
Operating pressure	0 to 5 barg @ 80 °C (0 to 72 psig @ 176 °F)
Cable connection	VP
Process connection	Pg 13.5 thread
Reference system	Gel electrolyte, Argenthal
Type of junction	Ceramic junction
Lengths	120 mm, 225 mm, 325 mm
Shaft diameter	12 mm
Temperature sensor	Pt 1000
Sterilizable	Yes, up to 130 °C (266 °F)
Autoclavable	Yes
pH membrane	ISFET (solid state), requires ±3VDC

Certificates and Approvals METTLER TOLEDO Quality Certificate, Quality certificate, Pressure Equipment Directive guidelines (PED) 97/23/EC

Ordering Information

Product Description	Length	Order Number
InPro 3300/Pt1000	120 mm	52 002 253
InPro 3300/Pt1000	225 mm	52 002 496
InPro 3300/Pt1000	325 mm	52 002 497
M700 ISFET option*		52 121 274

* Only for transmitter M700

For pH buffers, refer to "pH and Redox Accessories" section.

For cables, cable lengths and for terminating connectors, refer to "Cables" section on pages 132–135.

Features Overview

- Non-glass ISFET design – ensures process safety by eliminating possibility of broken glass
- Sterilizable to 130 °C (266 °F)
- Gel electrolyte results in extended operational life and reduced maintenance costs

Suitable Housings	p.
InFit 761 e.....	110
InTrac 777 e.....	119
InTrac 797 e.....	120
InTrac 781	121

▶ www.mt.com/InPro3300