InLab® Sensors

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- pH
- ORP
- Conductivity
- Ion Concentration
- Dissolved Oxygen

Origin of Precision

Proven Sensor Technology for Safe Results

METTLER TOLEDO

InLab® Sensors
Developed for Your Applications

The manufacturing of high quality sensors with outstanding performance not only requires technical skills and expertise but also a profound understanding of the various customer applications and their specific requirements. METTLER TOLEDO has built up an enormous treasure trove of experience and knowledge over the last decades, which has resulted in a complete sensor portfolio that supports any of your applications.

Performance to Trust

Measurements have to be fast, precise and reproducible. Tried and trusted technologies combined with state-of-the-art production processes guarantee highest performance for every InLab sensor, providing reliable results at any time.

Easy to Use

All InLab sensors are shipped ready to use. Everything you need for your measurement comes together with the sensor. Your work in the lab will be simplified by application specific sensors, automatic recognition of ISM sensors and the spillfree wetting cap.

Built to Last

The thought-out InLab sensor construction as well as the high-quality materials used for manufacturing guarantee high robustness even in harsh applications. The versatile sensor portfolio ensures the perfectly suited sensor for every application, a match that greatly extends the lifetime of the products.

Quality is more than a promise for us. To guarantee it, we test every single sensor. Only sensors which successfully pass the strict final product inspection receive an individual quality certificate and are ready for delivery.

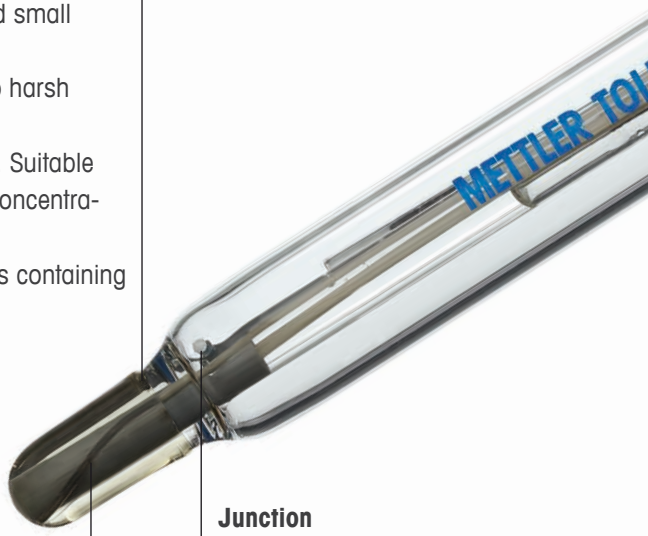
Precision is our Tradition – Since 1948

InLab® Sensor Technology
Proven Reliability

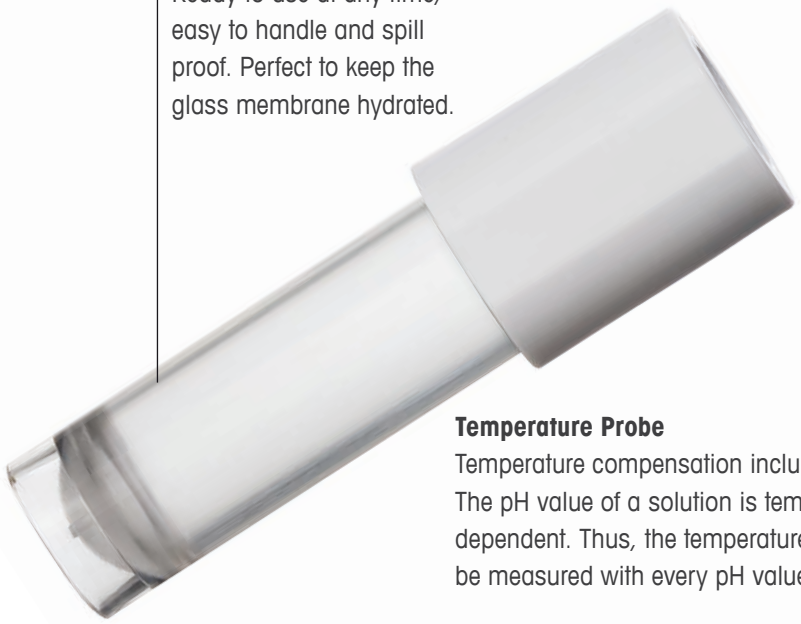
The variety of electrochemical sensors is as diverse as the applications they are used for. Only the right combination of high-quality materials, tried-and-trusted technologies, and the shape of the membrane make a sensor perfectly suited for a specific application.

Membrane Glass
The membrane is the pH sensing part of the sensor. Its shape and glass composition are optimized to assure best results for different applications.

HA – High alkali glass with low alkali error for high pH values and high temperatures.
U – Universal glass for standard applications and small membranes.
A41 – highly robust glass particularly resistant to harsh chemicals, suitable for high temperatures.
LoT – Low temperature glass with low resistance. Suitable for samples with low temperatures and low ion concentrations.
HF – Hydrofluoric acid resistant glass for samples containing hydrofluoric acid (up to 1 g/L).



Wetting Cap
Ready to use at any time, easy to handle and spill proof. Perfect to keep the glass membrane hydrated.



Temperature Probe
Temperature compensation included! The pH value of a solution is temperature dependent. Thus, the temperature should be measured with every pH value.

Junction
The junction is the connection between the reference electrolyte and the sample.

Ceramic Junctions
For general applications.

Sleeve Junctions
For fast results, best in dirty samples.

Open Junctions
For easy cleaning and clog-free measurement.

SafeLock™
For refillable sensors: easy to open for measurement, perfectly sealed for storage and transport.

Reference Electrolyte
Liquid electrolytes are typically used for general applications and provide fast results. Polymer or gel electrolytes stand for low maintenance.

Shaft Material
The sensor robustness is dependent on the right shaft material. Glass is highly chemically resistant and allows for measurements at high temeratures. When mechanical robustness is key, plastic is the preferred material.

Reference System
Provides a stable potential against which the pH dependent potential can be compared.

ARGENTHAL™ with silver ion trap
For silver ion free electrolyte. No clogging of the junction due to sulfide or protein containing samples or TRIS buffers.

SteadyForce™
Pressurized (3 bar) electrolyte ensures electrolyte flow even in viscous samples and guarantees highly reproducible results.

ISM

Intelligent Sensor Management
Every ISM marked sensor offers data security and easy handling.

Secure and efficient
Calibration data and sensor ID are automatically transferred to the meter.

Always up to date
New calibration data are stored in the sensor.

Backup certificate guaranteed
Initial factory calibration is stored in the sensor.

Conclusive calibration history
The last five calibrations are stored in the sensor.

Easy lifetime monitoring
The maximum temperature that the sensor has been exposed to is monitored automatically.

Learn more about the InLab sensor portfolio and the various technological aspects at:

Everywhere you Measure
Sensors for Mobile Applications

Portable meters are often used in harsh environments, such as in near-process or outdoor areas. Sensors for mobile use have to be robust and IP67 waterproof, and are, thus, equipped with fixed cables.

Expert Go-ISM | Routine Go-ISM | Solids Go-ISM | 738-ISM | 742-ISM | 605-ISM | OptiOx

The measuring of complex samples like suspended soil is child's play for the InLab Expert Go-ISM. Thanks to the open junction, there is nothing which can contaminate or falsify results.

		pH			Conductivity		Dissolved oxygen	
InLab®		**Expert Go-ISM**	**Routine Go-ISM**	**Solids Go-ISM**	**738-ISM**	**742-ISM**	**605-ISM**	**OptiOx**
Order number ISM version	**1.8 m cable**	51344102	30248832	51343156	51344110	51344116	51344611	51344621
	5 m cable	51344103			51344112	51344118	51344612	51344622
	10 m cable	51344104			51344114		51344613	51344623
Order number non-ISM version	**1.8 m cable**	51340288			51344120	51344126	51340291	
Measuring range		0…14 pH	0…14 pH	1…11 pH	0.01…1000 mS/cm	0.001…500 µS/cm	0…200%, 0…20 mg/L	0…500%, 0…50 mg/L
Temperature range		0…100 °C	0…100 °C	0…80 °C	0…100 °C	0…100 °C	0…60 °C	0…50 °C
Temperature probe		NTC 30 kΩ	NTC 30 kΩ	NTC 30 kΩ	NTC 30 kΩ	NTC 30 kΩ	NTC 22 kΩ	NTC 30 kΩ
Membrane glass / detection		U	HA	LoT			Polargraphic	Optical
Membrane resistance (25 °C)		< 250 MΩ	< 600 MΩ	< 250 MΩ				
Type of junction / Cell type		Open junction	Ceramic	Open junction	4 graphite poles	2 steel poles		
Reference electrolyte		XEROLYT® Polymer	3 mol/L KCl	XEROLYT® EXTRA Polymer				
Cell constant					0.57 cm^{-1}	0.105 cm^{-1}		
Shaft material		PEEK	Glass	Glass	Epoxy	Stainless steel	PPS	PC / ABS
Shaft lenght		120 mm	120 mm	25 mm	120 mm	120 mm	120 mm	65 mm
Shaft diameter		12 mm	12 mm	6 mm	12 mm	12 mm	12 mm	16 mm
Storage		InLab® storage solution (Order number 30111142)			dry	dry	dry	dry
Connections		Fixed cable: BNC / RCA (Cinch)			Fixed cable: LTW	Fixed cable: LTW	Fixed cable: BNC / RCA	Fixed cable: Mini-LTW
Common specifications		IP67						

Amazing Solutions
For Calibration and Care

Any pH measurement is only as accurate as the buffer solution used for calibration purposes. METTLER TOLEDO buffer solutions are traceable to primary standards and come with a quality inspection certificate, which guarantees the stated values and traceability.

	Order number 250 mL	Order number 6 x 250 mL	Order number 30 sachets 20 mL
Technical pH buffer solutions			
2.00	51350002	51350016	30111134
4.01	51350004	51350018	51302069
7.00	51350006	51350020	51302047
9.21	51350008	51350022	51302070
10.00	51350010	51350024	51302079
11.00	51350012	51350026	30111135
Rainbow bottles I (4.01/7.00/9.21)		30095312	
Rainbow bottles II (4.01/7.00/10.00)		30095313	
Rainbow sachets I (4.01/7.00/9.21)			51302068
Rainbow sachets II (4.01/7.00/10.01)			51302080
NIST/DIN pH buffer solutions			
4.006	51350052		30111136
6.865	51350054		30111137
9.180	51350056		30111138
10.012	51350058		30111139
Certified pH buffer solutions			
4.01	51350032	51350042	
7.00	51350034	51350044	
9.21	51350036	51350046	
10.00	51350038	51350048	
Redox buffer solutions (E (Ag/AgCl) at 25 °C)			
220 mV, pH 7 (U_H = 427 mV)	51350060	51350062	
468 mV, pH 0.1 (U_H = 675 mV)			51350064 (6 x 30 mL)

	Order number 25 mL	Order number 250 mL	Order number 6 x 250 mL
Electrolytes for reference electrodes			
KCl solution 3 mol/L	51343180	51350072	51350080
KCl solution 3 mol/L, AgCl saturated	51343184	51350074	51350082
FRISCOLYT-B®, for media with organic compounds	51343185	51350076	51350084
LiCl solution 1 mol/L in ethanol, for non-aqueous media	51350088 (6 x 30 mL)		
Maintenance solutions			
InLab storage solution		30111142	
Pepsin-HCl for cleaning junctions with protein contamination		51350100	
Thiourea solution for cleaning junctions with silver sulfide contamination		51350102	
Reactivation solution for regeneration of glass electrodes	51350104		

Conductivity standards			
	Order number 250 mL	**Order number 6 x 250 mL**	**Order number sachets 20 mL**
1.3 µS/cm (single use check solution)	30090847		
5 µS/cm	30094617		
10 µS/cm	51300169		30111141 (10 x 20 mL)
84 µS/cm	51302153		30111140 (10 x 20 mL)
500 µS/cm	51300170		
1413 µS/cm	51350092	51350096	51302049 (30 x 20 mL)
12.88 mS/cm	51350094	51350098	51302050 (30 x 20 mL)

The Right Accessory
Extended Possibilities

Separate temperature sensors

Description	**InLab® NTC 30 kΩ** Laboratory temperature sensor in glass shaft (120 x 12 mm), with quality certificate	**InLab® Pt1000** Laboratory temperature sensor in glass shaft (120 x 12 mm), with quality certificate	**NTC 30 kΩ** Laboratory temperature sensor in stainless steel (120 x 3 mm), steel 316
Order Number	51343310	51343312	51300164
Cable and connections	S7	S7	1.2 m; RCA plug

Accessories	**Description**	
Accessories for InLab® OptiOx™	OptiOx replacement cap	51344630
	OptiOx calibration tube	51344631
	OptiOx protective guard	51344632
	OptiOx BOD adapter	51344633
	OptiOx adapter for uPlace electrode arm	30246619
Flow cell	Flow cell for sensors with a shaft diameter of 12 mm (material: glass)	51302257
Wetting caps	For electrodes with shaft diameter 12 mm	30243851
	For electrodes with shaft diameter 8 mm and InLab Solids family	51340021
	For electrodes with shaft diameter 6 mm	52000442
	For electrodes with shaft diameter 3 mm	52000441
SafeLock™ blue	SafeLock cover for refill hole of pH electrodes (5 pcs.)	30248827
SafeLock™ white	SafeLock cover for refill hole of pH electrodes (5 pcs.)	30248829
Knick adapter	Adapter for sensors with 12 mm shaft diameter to work with Knick portable meters	30247853
Adapter	Adapter sleeve to NS 14.5 for sensors with 12 – 15 mm shaft diameter (material: PE)	51340024

Plug and Play
Sensor Cables

METTLER TOLEDO pH sensors can easily be connected to various third-party instruments. All you have to do is select the appropriate cable.

Save money and preserve the environment. Detachable cables can be reused when the pH sensor has reached its end of life.

Connection	Length	Designation	Plug	Socket on the meter	Order number
MultiPin™ 	1.2 m 3.0 m 5.0 m	BNC + RCA (Cinch)			30281896 30281897 30281898
	1.8 m	BNC + RCA (Cinch) IP67			30281913
	1.2 m	BNC + 1x4 mm banana			30281899
	1.2 m	DIN + RCA (Cinch)			30281910
	1.2 m	DIN 19262 + 1x4 mm banana			30281911
	1.2 m	Lemo 00 + 2x4 mm banana			30281912

Connection	Length	Designation	Plug	Socket on the meter	Order number
S7 	1.2 m 3.0 m 5.0 m	BNC			30281915 30281916 30281917
	1.2 m	BNC IP67			30281918
	1.2 m 3.0 m 5.0 m	DIN 19262			30281919 30281920 30281921
	1.2 m	Lemo 00			30281925
	3.0 m 5.0 m 10.0 m	no connector			30281926 30281927 30281928
For reference electrodes	1.2 m	4 mm banana			30281922
	1.2 m	2 mm banana			30281923
For temperature probes	1.2 m	RCA (Cinch)			30281924

Which pH Sensor for Which Application?

The table below helps you to find the best sensor for your application. For more detailed information on the individual sensors refer to the indicated pages of the brochure or visit www.mt.com/electrode-guide.

Application		InLab® Routine	InLab® Max	InLab® Science	InLab® Versatile	InLab® Expert	InLab® Easy	InLab® Power	InLab® Nano	InLab® Micro
	See page	6 / 7				8 / 9 and 24 / 25				10
Aqueous samples	Drinking water	■			■					
	Soft surface water									
	Pure and ultrapure water									
	Waste water		■	■		■				
	Highly saline solution, sea water	■								
	Cold sample (< 5 °C)									
	Hot sample (> 100 °C)							■		
Pharmaceutical & biological samples	Vial and microplate								■	■
	NMR tube									
	Test tube								■	■
	Serum and gastric juice									■
	TRIS buffer	■	■	■						
	Micro-biological sample		■	■						■
	Disinfection	■								
	Yeast fermentation solution		■	■		■				
	Starch solution		■	■						
Chemicals & baths	Corrosive acid & base	■						■		
	Galvanic bath	■						■		
	HF bearing sample (< 1 g/L)									
	Organic solvent		■	■						
Food	Fruit & vegtable									
	Meat & fish									
	Dough									
	Milk & cream							■		
	Butter, yogurt & ice cream									
	Cheese									
Beverages	Soft drink				■		■			
	Fruit juice		■			■				
	Beer				■	■	■			
	Wine					■				
Viscous samples	Gel, soap & shampoo									
	Cosmetic									
	Resin									
Emulsion	Paint									
	Oily sample									
	Colorant & dye									
	Varnish and glue									
	Suspended solids (e.g. soil)					■				
Surface measurements	Skin & leather									
	Textil & print									
	Paper									
	Agar plate									
	Drop size sample									
Large sample vessels	Pilot reactor									
	Tank & barrel									
	Aquarium					■	■			