

Lab Sensors



InLab® Electrodes

pH electrodes

Conductivity probes

Dissolved oxygen sensors

ORP electrodes

Ion-selective and gas-sensitive electrodes

Reference electrodes

Electrode cables and accessories

Buffers, electrolytes and cleaning solutions



Simply Reliable

The Right Electrode Every Time

METTLER TOLEDO

INGOLD

Leading Process Analytics

INGOLD has been producing electrodes since 1948, a name that has been synonymous with the success of combined pH electrodes ever since. In 1986 INGOLD joined the METTLER TOLEDO group. The result is the development of the InLab® range of laboratory electrodes. InLab® is thus the product of over 60 years of experience in the manufacture of electrochemical sensors. And so the tradition continues with every METTLER TOLEDO sensor: "INGOLD inside"

Intelligent Sensor Management

The SevenGo Duo™ meters incorporate Intelligent Sensor Management (ISM®). This ingenious functionality offers great advantages such as:

- After connection of ISM® sensor immediate transfer of current sensor calibration data and Sensor ID to meter.
- After calibration of ISM® sensor immediate transfer of calibration data from meter to sensor chip.
- When an ISM® sensor is connected, the initial calibration data in the sensor can be reviewed and transferred to a PC or printer.
- The last 5 calibration data stored in ISM® sensor including current calibration can be reviewed and transferred to a PC or printer.
- The maximum temperature that the ISM® sensor has been exposed to during measurement is monitored automatically and can be reviewed for valuation of electrode lifetime.



ISM

InLab® Glossary

Designation	Description
Type of membrane glass	
A41 glass	Particularly resistant to chemicals; suitable for high temperatures up to 130 °C; ideal for biological media.
HA glass	High alkali glass for use at high pH values and high temperatures; extremely low alkali errors; extremely robust membrane.
HF glass	Especially suitable for media containing hydrofluoric acid; up to a HF concentration of 1 g/L.
LoT glass	Low resistance glass for use at low temperatures (LoT = low temperature); also suitable for low ion concentrations (ultra-pure water); the glass of choice for thick membranes (puncture or surface electrodes).
U glass	Universal glass, tried & tested in standard applications; especially suitable for small membranes (microelectrodes).
Type of junction	
Click & Clear™	Thanks to the press mechanism, the sleeve junction is easy to open with combined perfectION™ ISE; quick cleaning and stable measurement values are ensured even in difficult samples.
Movable glass or PTFE sleeve	Movable sleeve junctions that can be easily and thoroughly cleaned.
Immovable glass sleeve	Fixed sleeve junctions for large contact area between reference electrolyte and measurement solution.
Ceramic	Conventional ceramic junctions for liquid electrolytes or in combination with SteadyForce™.
Ceramic ring	Large ring-shaped ceramic junctions for flat membranes.
Open junction	Open connections without junctions together with XEROLYT® polymer electrolyte.
Porous PTFE	Large contact surface polytetrafluoroethylene (PTFE) junctions.
Technologies, reference systems and reference electrolytes	
ARGENTHAL™	AgCl granulate-filled cartridge, which supplies the silver ions for the chemical reaction on the conducting wire. The silver ion trap stops the Ag ⁺ ions from discharging into the electrolyte solution, thus preventing contamination of the junction when using sulfides and proteins.
DPA-Gel	Gel electrolyte for electrodes with SteadyForce™.
driTEK	Reference system for ISFET electrodes.
Equithal®	Symmetrically structured conducting elements guarantee minimum response times and highly stable potentials when fluctuating temperatures are involved.
FRISCOLYT™	Special electrolyte for measurements at low temperatures and for media with organic components (e.g. oil, proteins, etc.). Recommended for storage of electrodes with XEROLYT™.
ISM® (Intelligent Sensor Management)	In sensors with ISM®, important information, such as calibration data, is stored on a chip directly in the sensor and automatically detected by the meter. Only with SevenGo Duo™ meters.
SteadyForce™	Reference system in which the electrolyte is pressurized (3 bar) to ensure discharge of electrolyte even in viscous samples.
XEROLYT®	Solid polymer electrolyte in combination with open connections.
Shaft materials	
Stainless steel	316L (V4A) grade stainless steel.
Epoxy	Very strong plastic with excellent chemical and mechanical resistance. For very robust sensors.
PEEK	Polyetheretherketone: Highly temperature-resistant plastic with excellent chemical and mechanical resistance. For professional and heavy-duty sensors.
Polysulfone	Plastic with good chemical and mechanical resistance.
PPS	Polyphenylene sulfide: Partly crystalline, highly temperature-resistant plastic with excellent chemical and mechanical resistance. For robust dissolved oxygen sensors.





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Irrespective of the industry or application – we have the solution for you

METTLER TOLEDO sensors cover innumerable applications in chemical, pharmaceutical, food-processing, cosmetic, biological and many other laboratory and production facilities. Select the electrode that matches your requirements from the application table on p. 6 or at www.mt.com/electrode-guide.

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Inspirational Solutions

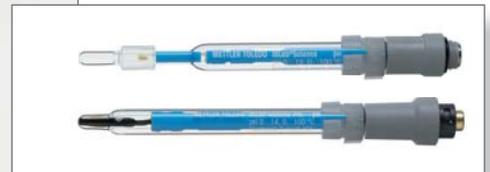
Electrochemical sensors are used in a wide variety of applications. METTLER TOLEDO offers a similarly wide variety of select products to help you find the ideal solution for your precise application. Our range focuses on the correct combination of high-quality materials, tried-and-tested technologies, and innovation. You will therefore find reliable and robust sensors for your routine measurements, as well as powerful specialist products for specific requirements.

For the selection and development of our products, it is important for us to know precisely the requirements of our customers. With this knowledge, combined with many years of experience in the manufacturing of electrochemical sensors, we can therefore proudly present a product range that continues to produce success. Customers with an extremely wide range of requirements have tested, and are inspired by, our sensors. See for yourself!

Solid foundation

The InLab®Routine Pro is a reliable workhorse for any lab. With EQUITHAL® technology and the ARGENTHAL™ reference system including silver ion trap, this sensor fulfills two fundamental requirements for optimum pH measurement. I can rely on fast response behavior and clean junctions. The InLab®Science with sleeve junction is used for more complex sample matrices, such as emulsions or biological media.

For more information, see pages 8-9.



InLab®Science, InLab®Routine Pro

Well-equipped for challenging tasks

For my more technically challenging measurements, I need an electrode such as the InLab®Expert. With its highly resistant PEEK shaft and XEROLYT® polymer electrolyte with open junction, it is built to withstand even the toughest conditions. When the very highest performance is expected, I opt for the InLab®Power with the successful SteadyForce™ reference system.

For more information, see pages 10-11.



InLab®Expert, InLab®Power

When form is a factor

I expect a pH electrode to be optimally equipped for my specific measurements. Electrodes such as the InLab®Solids for penetration measurements, or the InLab®Micro for the measurement of small quantities have the correct combination of form, membrane glass, and reference system, and fulfill these expectations perfectly.

For more information, see pages 12-15.



InLab®Surface, InLab®Solids, InLab®Micro, InLab®Semi-Micro



InLab®Redox, InLab®Redox Pro



Combined power for ORP/Redox measurement

When taking redox measurements in different samples, the right combination of precious metal and junction type is all-important. For my diverse applications I therefore opt for the InLab®Redox platinum electrode. Thanks to the InLab®Redox Pro with glass sleeve junction, blocked junctions in complex samples are no longer an issue.

For more information, see pages 20-21.



InLab®741, InLab®731



Conductivity on all levels

Since my measurements in distilled water require absolute precision, I like to rely on the stainless steel InLab®741, in which the actual cell constant has already been determined for me. For samples with higher conductivity, the InLab®731 delivers the required results.

For more information, see pages 22-23.



InLab®Expert Pro-ISM, InLab®605-ISM, InLab®742-ISM



Equipped for mobile use

Mix-ups can happen easily when on the move. I'm glad that the pH electrode InLab®Expert-Pro-ISM with "Intelligent Sensor Management" technology keeps track at the same time. For use in the factory, I require a robust and watertight sensor such as the InLab®605 for dissolved oxygen, or the InLab®742 for conductivity.

For more information, see pages 24-25.



DX218 NH₄⁺, perfection™ comb F



Sensitive to ions

Thanks to the replaceable membrane module on the DX218 NH₄⁺, I can replace my ammonium half-cell with another half-cell at any time. The perfection™ comb F, with its integrated reference electrode and matching accessories, offers the complete solution for my fluoride measurement.

For more information, see pages 26-29.

Which pH Electrode for Which Application?

		Electrode												
		Routine	Routine-L	Routine Pro	Routine P11000	Routine Pro-L	Science	Science Pro	Expert	Expert Pro	Expert DIN	Expert NTC30	Expert P11	
		See page 8/9					See page 10/11							
Electrode properties as selection criteria	Integrated temperature probe (ATC)			•	•	•		•		•	•	•	•	•
	With cable (attached lead)					•				•	•			•
	Low maintenance (electrolyte)									•	•	•	•	•
	TRIS buffer compatibility	•	•	•	•	•	•	•	•	•	•	•	•	•
Aqueous samples	Cold samples (< 5 °C)													
	Hot samples (> 100 °C)													
	Waste water						•	•	•	•	•	•	•	•
	With average conductivity	•	•	•	•	•	•	•	•	•	•	•	•	•
	Brine, highly saline solutions	•	•	•	•	•	•	•	•	•	•	•	•	•
	Cosmetic or viscous samples	Gels, soaps & shampoos	•	•	•	•	•	•	•	•	•	•	•	•
Hair tinting lotion														
Skin														
Cosmetic creams & mascara														
Natural & synthetic resins														
Pharmaceutical & biological samples		Vials & NMR samples												
	Serums & gastric juice													
	Medicinal formulations						•	•						
	Proteinaceous media	•	•	•	•	•	•	•	•	•	•	•	•	•
	Enzyme solutions						•	•						
Pure and ultrapure water	Soft surface water													
	Sterile purified water													
	Distilled water													
	Water for injection													
	Drinking water	•	•	•	•	•	•	•						
	Beverages and dairy products	Milk & cream						•	•	•	•	•	•	•
Soft drinks & beer		•	•	•	•	•			•	•	•	•	•	•
Wine & vinegar		•	•	•	•	•			•	•	•	•	•	•
Butter, yogurt & ice-cream														
Cheese														
Food & agricultural products	Jam & preserves	•	•	•	•	•								
	Meat & fish													
	Fruit & vegetables													
	Dough & cocoa						•	•						
	Fertilizer & manure								•	•	•	•	•	•
Surface measurements	Skin & leather													
	Textiles & prints													
	Paper & laminates													
	Gelled agar													
	Drop size samples													
Paints, dyes & emulsions	Water-based paint						•	•	•	•	•	•	•	•
	Suspended solids (e.g. soil)						•	•	•	•	•	•	•	•
	Oily samples & emulsions						•	•	•	•	•	•	•	•
	Colorants & dyes						•	•						
	Varnish & glue						•	•						
Chemicals & baths	Alcohols, aldehydes & ketones						•	•						
	HF bearing media (< 1 g/L)													
	Photographic or galvanic baths	•	•	•	•	•	•	•						
	Hydrocarbons						•	•						
	Corrosive & hot acids/bases	•	•	•	•	•	•	•						
Large sample vessels	Pilot reactors													
	Deep vessels													
	Tanks & barrels													
	Boiler feed water	•	•	•	•	•			•	•	•	•	•	•
	Aquariums	•	•	•	•	•			•	•	•	•	•	•

Steady Companions





“The lead-off elements of InLab® glass electrodes consist of symmetrical conducting layers on the inner glass tube. Thanks to this equidistant design, the pH, reference and redox potentials stabilize rapidly and simultaneously. The EQUITHAL® technology by METTLER TOLEDO guarantees shortest response times despite large changes in temperature.”

One prerequisite for accurate measurements is a clean junction. It forms the interface between the reference electrode and the measured medium. If it becomes contaminated, then any measurements will be invalidated by the increased number of diffusion potentials. METTLER TOLEDO offers maximum protection against such inaccuracies: in contrast to conventional electrodes, the electrolyte in InLab® electrodes with an ARGENTHAL™ reference system and silver-ion trap is guaranteed free of silver ions. Thus the possibility of contamination of the junction in sulfide or protein containing media or in TRIS-buffers is precluded.



InLab®	¹⁾ Routine	Routine-L	¹⁾ Routine Pro	Routine Pt1000	Routine Pro-L	Science	Science Pro
Order number	51343050	51343053	51343054	51343056	51343057	51343070	51343071
pH-range	0...14	0...14	0...14	0...14	0...14	0...12	0...12
Temperature probe			NTC 30 kΩ	Pt1000	Pt1000		NTC 30 kΩ
Type of membrane glass	HA	HA	HA	HA	HA	A41	A41
Membrane resistance (25 °C)	< 600 MΩ	< 600 MΩ	< 600 MΩ	< 600 MΩ	< 600 MΩ	< 600 MΩ	< 600 MΩ
Cable and connections	S7	S7	MultiPin™	MultiPin™	1.2 m; DIN 19262/ 4 mm banana gold-plated	S7	MultiPin™
Shaft length	120 mm	170 mm	120 mm	120 mm	170 mm	120 mm	170 mm
Type of junction	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	Movable glass sleeve	Movable glass sleeve
Bridge electrolyte							3 mol/L KCl
¹⁾ Cable kit	51343051 Set InLab®Routine with DIN cable 52300001 51343052 Set InLab®Routine with BNC cable 52300004 51343055 Set InLab®Routine Pro with BNC/RCA (Cinch) cable 52300009						
Common specifications	Type of electrode: pH-combination / Shaft material: Glass / Reference electrolyte: 3 mol/L KCl / Temperature range: 0...100 °C Shaft diameter: 12 mm / Reference system: ARGENTHAL™ with silver-ion trap / Storage: 3 mol/L KCl						

Defying the Laws of Physics





“The new InLab®Power is simply brilliant: The SteadyForce™ reference system is under over-pressure, guaranteeing electrolyte discharge. The constant but controlled gradual discharge of electrolyte by the ceramic junction ensures extremely reliable and reproducible results. At the same time, there is no need to worry about the junction becoming contaminated ... the Steady-Force™ system always ensures a connection to the measurement medium! Thanks to InLab®Power you can just concentrate on measuring.”

Microporous ceramic junctions can become contaminated in critical media. However, InLab® electrodes with solid XEROLYT® polymer electrolyte completely dispense with the need for a junction. With the InLab®Expert, the reference electrode is in direct contact with the measured medium via an open connection. If there is no junction, then there is also no possibility of contamination or blockage! Ideal for critical samples such as suspensions or samples of unknown composition, e.g. waste water. Furthermore, the PEEK shaft is so chemically and mechanically robust that these electrodes perform reliably under the toughest conditions. One of METTLER TOLEDO's most successful inventions.



InLab®	Expert	¹⁾ Expert Pro	Expert DIN	Expert NTC30	Expert Pt1000	Power	Power Pro
Order number	51343100	51343101	51343103	51343104	51343105	51343110	51343111
pH-range	0...14	0...14	0...14	0...14	0...14	0...12	0...12
Temperature probe		NTC 30 kΩ	Pt1000	NTC 30 kΩ	Pt1000		NTC 30 kΩ
Type of membrane glass	U	U	U	U	U	A41	A41
Membrane resistance (25 °C)	< 250 MΩ	< 250 MΩ	< 250 MΩ	< 250 MΩ	< 250 MΩ	< 600 MΩ	< 600 MΩ
Type of junction	Open junction	Open junction	Open junction	Open junction	Open junction	Ceramic	Ceramic
Reference system	ARGENTHAL™	ARGENTHAL™	ARGENTHAL™	ARGENTHAL™	ARGENTHAL™	SteadyForce™	SteadyForce™
Reference electrolyte	XEROLYT® Polymer	XEROLYT® Polymer	XEROLYT® Polymer	XEROLYT® Polymer	XEROLYT® Polymer	DPA-Gel	DPA-Gel
Cable and connections	S7	1.2 m cable; BNC/RCA (Cinch)	1.2 m cable; DIN 19262/4mm	MultiPin™	MultiPin™	S7	MultiPin™
Shaft material	PEEK	PEEK	PEEK	PEEK	PEEK	Glass	Glass
Shaft length	120 mm	120 mm	120 mm	120 mm	120 mm	120 mm	170 mm
Storage	FRISCOLYT-B® (51340053)	FRISCOLYT-B® (51340053)	FRISCOLYT-B® (51340053)	FRISCOLYT-B® (51340053)	FRISCOLYT-B® (51340053)	3 mol/L KCl	3 mol/L KCl
¹⁾ InLab®Expert 2m	The InLab®Expert Pro is also available with a 2 m cable: Order number 51343102						
Common specifications	Type of electrode: pH-combination / Temperature range: 0...100 °C / Shaft diameter: 12 mm						

Through Thick and Thin



InLab®
Order number
pH-range
Temperature range
Temperature probe
Type of membrane glass
Membrane resistance (25 °C)
Type of junction
Reference system
Reference electrolyte
Bridge electrolyte
Cable and connections
Shaft material
Shaft length
Shaft diameter
Storage
Common specifications



“The newly developed InLab®Semi-Micro contains the latest in polymer electrolytes: XEROLYT®EXTRA, which is characterized by high signal stability, a very short response time and high chemical resistance. Service and operation could not be simpler thanks to the polymer electrolyte and the open reference junction. It is the perfect semi-micro electrode for biological media and TRIS buffers, as the question of blockages never arises.”

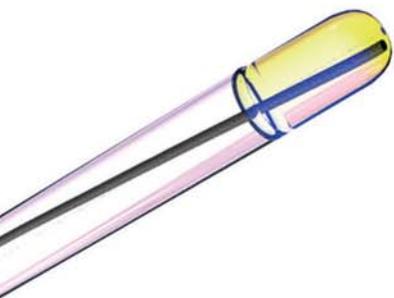
These InLab® electrodes are suitable for small, cold and pure samples, as well as samples containing hydrofluoric acid. All micro and semi-micro electrodes are now equipped with ARGENTHAL™ and a silver-ion trap: This ensures that the electrolyte is silver-ion-free and there is no danger of the junction becoming blocked by sulfides or proteins. The InLab®Micro Pro with integrated temperature sensor supports automatic temperature compensation. With its shaft diameter of only 5 mm it is a little technological marvel. The InLab®Pure has been consciously designed with maximum robustness so that it is also suitable for use in the field or in the factory.



Semi-Micro	Semi-Micro-L	Micro	Micro Pro	Cool	Hydrofluoric	Pure	Pure Pro
51343165	51343161	51343160	51343162	51343174	51343176	51343170	51343171
0...12	0...14	0...14	0...14	1...11	1...11	1...11	1...11
0...100 °C	0...100 °C	0...80 °C	0...100 °C	-30...80 °C	0...100 °C	0...80 °C	0...80 °C
			NTC 30 kΩ				NTC 30 kΩ
A41	U	U	U	LoT	HF	LoT	LoT
< 300 MΩ	< 300 MΩ	< 1000 MΩ	< 300 MΩ	< 50 MΩ	< 100 MΩ	< 150 MΩ	< 50 MΩ
Open junction	Ceramic	Ceramic	Ceramic	immovable glass sleeve	Ceramic	porous PTFE	immovable glass sleeve
ARGENTHAL™	ARGENTHAL™ with Ag ⁺ -trap	Ag/AgCl	ARGENTHAL™ with Ag ⁺ -trap				
XEROLYT®EXTRA Polymer	3 mol/L KCl	3 mol/L KCl	3 mol/L KCl	FRISCOLYT-B® (51340053)	3 mol/L KCl	Gel	3 mol/L KCl
							1 mol/L KCl
S7	S7	S7	MultiPin™	S7	S7	S7	MultiPin™
Glass	Glass	Glass	Glass	Glass	Glass	Polysulfone	Glass
100 mm	230 mm	60 mm	130 mm	120 mm	120 mm	120 mm	170 mm
6 mm	6 mm	3 mm	5 mm	12 mm	12 mm	12 mm	12 mm
FRISCOLYT-B® (51340053)	3 mol/L KCl	3 mol/L KCl	3 mol/L KCl	FRISCOLYT-B® (51340053)	3 mol/L KCl	3 mol/L KCl	3 mol/L KCl
Type of electrode: pH-combination							

Nothing is Impossible





METTLER TOLEDO offers pH electrodes for all imaginable applications. The InLab®Solids is specially designed to cope with solid samples such as sausages or cheese. And if automatic temperature compensation is required, then the InLab®Solids Pro is the solution. The various lengths of the InLab®Reach, with or without integrated temperature probe, make it possible to measure the most difficult to reach samples. The InLab®Surface has been designed to carry out pH measurements on surfaces, such as paper or skin. It is also ideal for measuring drop-sized samples on glass substrates.

The InLab®Viscous has been especially developed for viscous and highly glutinous samples. The SteadyForce™ reference system guarantees the discharge of electrolyte, even with the most glutinous and fatty of samples, e.g. cosmetics, paints or resins. The form has been chosen so that as little of the sample as possible adheres to the shaft and to facilitate cleaning. The result is a problem solver for one of the most difficult sample types, the highly viscous materials.



InLab®	Solids	Solids Pro	Viscous	490	Reach	Reach Pro	Reach P11000	Surface
Order number	51343153	51343154	51343150	51302305	51343060	51343061	51343062	51343157
pH-range	1...11	1...11	0...14	0...14	0...14	0...14	0...14	1...11
Temperature range	0...80 °C	0...80 °C	0...100 °C	0...60 °C	0...100 °C	0...100 °C	0...100 °C	0...50 °C
Temperature probe		NTC 30 kΩ		NTC 30 kΩ		NTC 30 kΩ	P11000	
Type of membrane glass	LoT	LoT	HA	ISFET	HA	HA	HA	LoT
Membrane resistance (25 °C)	< 250 MΩ	< 250 MΩ	< 600 MΩ		< 600 MΩ	< 600 MΩ	< 600 MΩ	< 800 MΩ
Type of junction	Open junction	Open junction	Ceramic	Porous PTFE	Ceramic	Ceramic	Ceramic	Ceramic ring
Reference system	ARGENTHAL™	ARGENTHAL™	SteadyForce™	driTEK	ARGENTHAL™ with Ag ⁺ -trap	ARGENTHAL™ with Ag ⁺ -trap	ARGENTHAL™ with Ag ⁺ -trap	Ag/AgCl
Reference electrolyte	XEROLYT®EXTRA polymer	XEROLYT®EXTRA polymer	FRISCOLYT-C®	Gel	3 mol/L KCl	3 mol/L KCl	3 mol/L KCl	3 mol/L KCl AgCl saturated
Cable and connections	S7	MultiPin™	S7	1.0 m cable; Mini-DIN	S7	MultiPin™	MultiPin™	S7
Shaft material	Glass	Glass	Glass	ABS	Glass	Glass	Glass	Polysulfone
Shaft length	25 mm	25 mm	40 mm	160 mm	300 mm	400 mm	400 mm	110 mm
Shaft diameter	6 mm	6 mm	6 mm	10 mm	12 mm	12 mm	12 mm	12 mm
Storage	FRISCOLYT-B® (51340053)	FRISCOLYT-B® (51340053)	3 mol/L KCl	dry	3 mol/L KCl	3 mol/L KCl	3 mol/L KCl	3 mol/L KCl AgCl saturated
Common specifications	Type of electrode: pH-combination							

Robust and Cost Effective

Cost-effective alternatives for smaller-scale requirements

These electrodes offer an outstanding price/performance ratio. With its maintenance-free gel electrolyte, the InLab®Easy is simplicity itself to operate. Its polysulfone shaft offers a cost-effective alternative for applications that demand a robust electrode.

The InLab®Basics BNC provides a glass electrode alternative for measurements in simple samples. The reference electrolyte is refillable, but must be ordered separately and is not included with the electrode as in other models.



InLab®	Easy	¹⁾ Easy BNC	²⁾ Easy DIN	Basics BNC	³⁾ Basics DIN
Order number	51343010	51343011	51343012	51343020	51343021
Temperature range	0...80 °C	0...80 °C	0...80 °C	0...100 °C	0...100 °C
Temperature probe	Polysulfone	Polysulfone	Polysulfone	Glass	Glass
Type of membrane glass	U	U	U	HA	HA
Membrane resistance (25 °C)	< 250 MΩ	< 250 MΩ	< 250 MΩ	< 600 MΩ	< 600 MΩ
Reference system	Ag/AgCl	Ag/AgCl	Ag/AgCl	ARGENTHAL™ with Ag ⁺ -trap	ARGENTHAL™ with Ag ⁺ -trap
Reference electrolyte	Gel	Gel	Gel	3 mol/L KCl	3 mol/L KCl
Cable and connections	S7	1.2 m cable; BNC	1.2 m cable; DIN 19262	1.2 m cable; BNC	1.2 m cable; DIN 19262
¹⁾ InLab®Easy 3m	The InLab®Easy BNC is also available with a 3 m cable: Order number 51343013				
²⁾ InLab®Easy Pt1000	The InLab®Easy DIN is also available with a Pt1000 temperature probe (DIN 19262 / 4 mm): Order number 51343015				
³⁾ InLab®Basics Pt1000	The InLab®Basics DIN is also available with a Pt1000 temperature probe (DIN 19262 / 4 mm): Order number 51343023				
Common specifications	Type of electrode: pH-combination / pH-range: 0...14 / Shaft length: 120 mm / Shaft diameter: 12 mm / Storage: 3 mol/L KCl / Type of junction: Ceramic				

Useful Helpers

Sometimes two are better than one

pH half-cells are recommended for applications in which the service life of the pH electrode is significantly less than that of the reference electrode.

Moreover in certain highly demanding applications, they achieve better results than combination electrodes as mutual interference is reduced to an absolute minimum. The InLab®Reference Pro is the perfect reference electrode for measurements with ion-selective half-cells (p. 28-29).



InLab®	Mono	Mono Pro	Mono Bridge	Reference	Reference Pro	Reference Flow
Order number	51343195	51343196	51343197	51343190	51343191	51343192
Type of electrode	pH half-cell	pH half-cell	pH half-cell electrolyte bridge			
pH-range	0...14	0...12	0...12			
Temperature range	0...100 °C	0...130 °C	0...130 °C	0...100 °C	0...60 °C	0...130 °C
Type of membrane glass	HA	A41 thick-walled	A41			
Membrane resistance (25 °C)	< 600 MΩ	< 700 MΩ	< 600 MΩ			
Type of junction			Ceramic	Ceramic	Movable PTFE-sleeve	Triple ceramic
Reference system				ARGENTHAL™ with Ag ⁺ -trap	Ag/AgCl	ARGENTHAL™
Reference electrolyte				3 mol/L KCl	Gel	3 mol/L KCl
Bridge electrolyte					3 mol/L KCl	
Storage	3 mol/L KCl	3 mol/L KCl	3 mol/L KCl			
Common specifications	Shaft material: Glass / Cable and connections : S7 / Shaft length: 120 mm / Shaft diameter: 12 mm					

Artistry in Glass





Traditional values

These electrodes are part of the INGOLD tradition: there is no pH application for which there is not an optimal technical solution. These electrodes find their application in several somewhat exotic but nonetheless important applications in the food processing, paper and chemical industries. For the U402-611-DPA there is a specially developed thermostat controllable container for high precision measurements in automated cycles.



Designation	405-60-T-S7/120/9848	LoT403-M8-S7/120	HA425-60-S7/600	U402-M3-S7/200	403-34-S7/165	HA405-60-M8-S7/400	U402-611-DPA-S7/40	Flow-through cell 611
Order number	59904591	59902993	59904764	59904572	59902985	51340262	59902917	59904354
Former order number	114053000	104033199	114253000	114023009	104033178		104023528	106111000
pH-range	0...12	1...11	0...14	0...14	0...12	0...14	1...11	
Temperature range	0...100 °C	0...80 °C	0...130 °C	0...80 °C	0...80 °C	0...100 °C	0...80 °C	
Type of membrane glass	A41	LoT	HA	U	A41	HA	LoT	
Membrane resistance (25 °C)	< 600 MΩ	< 1000 MΩ	< 600 MΩ	< 1000 MΩ	< 2000 MΩ	< 600 MΩ	< 250 MΩ	
Type of junction	Triple ceramic	ceramic	ceramic	ceramic	Quadruple ceramic	ceramic	Double ceramic	Flow-through cell for electrode U402-611-DPA, thermostatable
Reference system	ARGENTHAL™	Ag/AgCl	ARGENTHAL™	Ag/AgCl	Ag/AgCl	ARGENTHAL™	SteadyForce™	
Reference electrolyte	FRISCOLYT-B®	3 mol/L KCl AgCl saturated	3 mol/L KCl	3 mol/L KCl AgCl saturated	3 mol/L KCl AgCl saturated	3 mol/L KCl	DPA-Gel	
Shaft length	120 mm	120 mm	600 mm	200 mm	165 mm	400 mm	40 mm	Measuring volume approx. 0.5 mL
Shaft diameter	12 mm	8 mm	12 mm	3 mm	12 mm	8 mm	7 mm	
Storage	3 mol/L KCl	3 mol/L KCl AgCl saturated	3 mol/L KCl	3 mol/L KCl AgCl saturated	3 mol/L KCl AgCl saturated	3 mol/L KCl	3 mol/L KCl	
Common specifications	pH-combination / Shaft material: Glass / Cable and connections : S7							

High Potentials



Designation
Order number
Former order number
Temperature range
Type of junction
Reference system
Reference electrolyte
Shaft material
Shaft length
Shaft diameter
Metal
Storage
Common specifications



"The problems with ORP samples with a complex composition such as industrial waste water or suspensions are similar to those for pH measurement: a normal ceramic junction becomes blocked and must be cleaned regularly. To facilitate cleaning and increase the electrode's service life when measuring in such critical samples, it is best to use an electrode such as the InLab®Redox Pro. This electrode is equipped with a high quality movable glass junction."

With the six combined ORP electrodes and the four metal half-cells, the full spectrum of applications is covered. The measuring signal of the redox electrode is generated on the surface of the precious metal by an exchange of electrons with the oxidation-reduction system of the measuring medium. Platinum electrodes cover the majority of applications. In the case of highly oxidizing samples, it is best to use a gold electrode. Silver electrodes are primarily used for silver-based electrochemistry, e.g. chloride determination.



Combined metal electrodes						Metal half-cells			
InLab® Redox	InLab® Redox-L	InLab® Redox Pro	InLab® Redox Micro	InLab® Redox Au	InLab® Redox Ag	Pt805-S7/120	Au805-S7/120	Ag805-S7/120	Ag850-S7/120
51343200	51343202	51343201	51343203	51343204	51343205	59904377	59904381	59904391	59904408
						108053117	108053121	108053152	108503079
0...100 °C	0...100 °C	0...100 °C	0...100 °C	0...100 °C	0...100 °C	-30...130 °C	-30...130 °C	-30...130 °C	-30...80 °C
Ceramic	Ceramic	Movable glass sleeve	Ceramic	Ceramic	Ceramic				
ARGENTHAL™ with Ag ⁺ -trap	ARGENTHAL™ with Ag ⁺ -trap	ARGENTHAL™ with Ag ⁺ -trap	ARGENTHAL™	ARGENTHAL™ with Ag ⁺ -trap	ARGENTHAL™ with Ag ⁺ -trap				
3 mol/L KCl	3 mol/L KCl	3 mol/L KCl	3 mol/L KCl	3 mol/L KCl	1 mol/L KNO ₃				
Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Polypropylene
120 mm	170 mm	120 mm	100 mm	120 mm	120 mm	120 mm	120 mm	120 mm	120 mm
12 mm	12 mm	12 mm	6 mm	12 mm	12 mm	12 mm	12 mm	12 mm	12 mm
Platinum ring	Platinum ring	Platinum ring	Platinum ring	Gold ring	Silver ring	Platinum ring	Gold ring	Silver ring	Silver tip
3 mol/L KCl	3 mol/L KCl	3 mol/L KCl	3 mol/L KCl	3 mol/L KCl	1 mol/L KNO ₃	dry	dry	dry	dry
Cable and connections: S7									

Ions in Motion





"Each conductivity sensor is supplied with a certificate specifying the nominal cell constant. With the InLab®741, the actual cell constant is fixed, which makes calibration superfluous."

Flow cells are recommended for measuring conductivity in pure water or in samples with low conductivity to rule out the falsification of results by carbon dioxide (order no. 51302257).

The InLab®710 to 741 conductivity cells are primarily designed for use in the laboratory. A temperature sensor is integrated in all models to enable correction of the result to the desired reference temperature. All conductivity cells are shipped in a ready-to-use condition and come equipped with plug and cable.

The InLab®731 general purpose conductivity cell is suitable for a variety of applications in aqueous samples over 10 µS/cm. For samples that contain solvents, it is best to use measuring cells that are made of glass and platinum such as the InLab®710 or the InLab®720. With the high-performance InLab®741, samples down to 0.001 µS/cm can be measured.



Designation	¹⁾ InLab®731	²⁾ InLab®741	InLab®710	InLab®720	950-K19/120/ 1m/2x-27.4	980-0.1-K19/120/ 1m/2x-27.4	980-K19/120/ 1m/2x-27.4
Order number	51344020	51344024	51302256	51302255	59904438	59904440	59904442
Former Order number					109503000	109803002	109803007
Compatibility	SevenEasy™, SevenMulti™ FiveEasy™, FiveGo™	SevenEasy™, SevenMulti™	SevenEasy™, SevenMulti™ FiveEasy™, FiveGo™	SevenEasy™, SevenMulti™ FiveEasy™, FiveGo™	Instruments from other manufacturers	Instruments from other manufacturers	Instruments from other manufacturers
Measuring range	0.01...1000 mS/cm	0.001...500 µS/cm	0.01...500 mS/cm	0.1...500 µS/cm	Measuring range depends on instrument model		
Temperature range	0...100 °C	0...100 °C	0...100 °C	0...100 °C	0...60 °C	0...80 °C	0...80 °C
Shaft material	Epoxy	Stainless steel	Glass	Glass	Polysulfone	Glass	Glass
Cell constant	0.57 cm ⁻¹	0.105 cm ⁻¹	0.80 cm ⁻¹	0.06 cm ⁻¹	1.00 cm ⁻¹	0.10 cm ⁻¹	1.00 cm ⁻¹
Cell type	4 graphite poles	2 steel poles	4 platinum poles	2 platinum poles	2 platinum poles	2 platinum poles	2 platinum poles
Cable and connections	1 m; Mini-DIN	1 m; Mini-DIN	1 m; Mini-DIN	1 m; Mini-DIN	1 m; 4 mm banana	1 m; 4 mm banana	1 m; 4 mm banana
¹⁾ InLab®731 – 2m	The InLab®731 is also available with a 2 m cable: Order number 51344022						
²⁾ InLab®741 – 5m	The InLab®741 is also available with a 5 m cable: Order number 51344026						
Common specifications	Type of electrode: Conductivity cell / Shaft length: 120 mm / Shaft diameter: 12 mm						

The Right Electrode Every Time



ISM

METTLER TOLEDO supplies pH electrodes for all possible applications. The most important electrodes are also available with ISM®. The specifications are the same as for the corresponding non-ISM® model.

InLab®	Order number	Specifications
Science Pro-ISM	51344072	See page 9
Routine Pro-ISM	51344055	See page 9
Power Pro-ISM	51344211	See page 11
Pure Pro-ISM	51344172	See page 13
Micro Pro-ISM	51344163	See page 13
Solids Pro-ISM	51344155	See page 15
ISM® electrode cable 2 m	51344291	
ISM® electrode cable 5 m	51344292	



"It's great when the sensor keeps track of what you are doing, thereby preventing unnecessary errors: This is now possible thanks to the "Intelligent Sensor Management" technology (ISM®). The InLab®Expert Pro-ISM has an integrated chip on which important information, such as the current calibration data or the maximum temperature to which the sensor was exposed, can be stored automatically. When it is next connected to a meter in the SevenGo Duo™ series, the sensor is automatically detected, all data is transferred, and the measurement can begin immediately."

The InLab®605 with replaceable DO membrane and extremely robust, chemically-resistant PPS shaft is perfectly suited for the measurement of dissolved oxygen. The SevenGo™ meters are fitted with high-performance electrodes as standard. An integrated temperature sensor enables automatic temperature compensation (ATC). Thanks to the special fixed cable, these sensors are waterproof to IP67 and are therefore suitable for mobile use. All sensors are based on products which have proved themselves time and again, combining robustness with precise measurement technology. Their simple maintenance and long service life make them an attractive choice.



Designation	pH			Conductivity				Dissolved oxygen		
	InLab® Expert Pro-ISM	InLab® 413 SG	InLab® Solids Pro IP67	InLab® 738-ISM	InLab® 738	InLab® 742-ISM	InLab® 742	InLab® 605-ISM	InLab® 605	
Order number	1.8 m cabel	51344102	51340288	51343156	51344110	51344120	51344116	51344126	51344611	51340291
	5 m cabel	51344103	51340297		51344112	51344122	51344118	51344128	51344612	51340298
	10 m cabel	51344104	51340289		51344114	51344124			51344613	51340292
Measuring range	0...14 pH		0...11 pH	0.01...1000 mS/cm		0.001...500 µS/cm		0...200%, 0...20 mg/L		
Temperature range	0...100 °C		0...80 °C	0...100 °C		0...100 °C		0...60 °C		
Temperature probe	NTC 30 kΩ			NTC 30 kΩ		NTC 30 kΩ		NTC 22 kΩ		
Type of membrane glass	U		LoT							
Membrane resistance (25 °C)	< 250 MΩ									
Type of junction / Cell type	Open junction			4 graphite poles		2 steel poles				
Reference system / -electrolyte	ARGENTHAL™ / XEROLYT® Polymer		ARGENTHAL™ / XEROLYT®EXTRA							
Cell constant				0.57 cm ⁻¹		0.105 cm ⁻¹				
Shaft material	PEEK		Glass	Epoxy		steel V4A		PPS		
Shaft lenght	120 mm		25 mm	120 mm		120 mm		120 mm		
Shaft diameter	12 mm		6 mm	12 mm		12 mm		12 mm		
Storage	FRISCOLYT-B®			dry		dry		dry		
Connections	Fixed cable: BNC / RCA (Cinch)			Fixed cable: LTW		Fixed cable: LTW		Fixed cable: BNC / RCA (Cinch)		
Common specifications	IP67									

Precise Determinations





"ISE measurement has never been so simple! The new Click & Clear™ junction of the combined ion-selective electrodes (with the exception of perfectION™ comb Na⁺) combines three advantages in one tool: The electrolyte solution can flow easily through the junction by pressing the electrode head downwards. This ensures that the junction is optimally cleaned between the measurements and the electrolyte can be simply emptied and refilled if necessary. Click & Clear™ is a sleeve junction that enables optimum contact between the electrolyte and measurement solution, even in difficult samples."

perfectION™ combined ISE: Complete solutions

All combined ion-selective electrodes consist of a measuring electrode complete with an integrated reference. There is therefore no need for an additional reference electrode. In electrodes with a polymer membrane, the membrane module can also be replaced. One replacement module is supplied with every new electrode; all at no extra cost! To ensure an unproblematic start to your ISE measurement, the required calibration standards and ISA solutions (Ionic Strength Adjuster) can be ordered at the same time (page 32).



Measuring ion	perfectION™	Order number	Cable and connections	Measuring range	Temperature range	Optimal pH range	Type of membrane	Reference electrolyte	Order no. membrane module	Order no. ISA solution
Ag ⁺ /S ²⁻	comb Ag ⁺ /S ²⁻	51344700	1.2 m; BNC	10 ⁻⁷ ...1 mol/L	0...80 °C	2...12	Solid state	Ion Electrolyte B 51344751		Ag ⁺ : 51344760 S ²⁻ : see manual
		51344800	1.2 m; Lemo	Ag ⁺ : 0.01...108000 mg/L S ²⁻ : 0.003...32000 mg/L						
Ca ²⁺	comb Ca ²⁺	51344703	1.2 m; BNC	5 * 10 ⁻⁷ ...1 mol/L	0...40 °C	2.5...11	Polymer	Ion Electrolyte A 51344750	51344850	51344761
		51344803	1.2 m; Lemo	0.02...40100 mg/L						
Cl ⁻	comb Cl ⁻	51344706	1.2 m; BNC	5 * 10 ⁻⁵ ...1 mol/L	0...80 °C	2...12	Solid state	Ion Electrolyte B 51344751		51344760
		51344806	1.2 m; Lemo	1.8...35500 mg/L						
CN ⁻	comb CN ⁻	51344709	1.2 m; BNC	8 * 10 ⁻⁶ ...10 ⁻² mol/L	0...80 °C	10... 14	Solid state	Ion Electrolyte B 51344751		10 mol/L NaOH
		51344809	1.2 m; Lemo	0.2...260 mg/L						
Cu ²⁺	comb Cu ²⁺	51344712	1.2 m; BNC	10 ⁻⁸ ...0.1 mol/L	0...80 °C	2...12	Solid state	Ion Electrolyte D 51344753		51344760
		51344812	1.2 m; Lemo	6.4 * 10 ⁻⁴ ...6354 mg/L						
F ⁻	comb F ⁻	51344715	1.2 m; BNC	10 ⁻⁶ mol/L... saturated	0...80 °C	4.5 ... 5.5	Solid state	Ion Electrolyte A 51344750		51344765
		51344815	1.2 m; Lemo	0.02 mg/L... saturated						
I ⁻	comb I ⁻	51344718	1.2 m; BNC	5 * 10 ⁻⁸ ...1 mol/L	0...80 °C	0...12	Solid state	Ion Electrolyte D 51344753		51344760
		51344818	1.2 m; Lemo	0.005...127000 mg/L						
K ⁺	comb K ⁺	51344721	1.2 m; BNC	10 ⁻⁶ ...1 mol/L	0...40 °C	2.5...11	Polymer	Ion Electrolyte E 51344754	51344851	51344762
		51344821	1.2 m; Lemo	0.04...39000 mg/L						
¹⁾ Na ⁺	comb Na ⁺	51344724	S7	10 ⁻⁷ ...1 mol/L 0.002...23000 mg/L	0...80 °C	8...11	Na ⁺ -Glass	3 mol/L KCl 51340049		NH ₄ Cl / NH ₄ OH
NO ₃ ⁻	comb NO ₃ ⁻	51344727	1.2 m; BNC	7 * 10 ⁻⁶ ...1 mol/L NO ₃ ⁻	0...40 °C	2.5...11	Polymer	Ion Electrolyte F 51344755	51344852	51344763
		51344827	1.2 m; Lemo	0.1...14000 mg/L NO ₃ ⁻ as N						
Pb ²⁺	comb Pb ²⁺	51344730	1.2 m; BNC	10 ⁻⁶ ... 0,1 mol/L	0...80 °C	4...7	Solid state	Ion Electrolyte B 51344751		5 mol/L NaClO ₄
		51344830	1.2 m; Lemo	0.2...20700 mg/L						

Common specifications: ion selective electrode (ISE) with built-in reference, Type of junction: Click & Clear™, Shaft material: Epoxy
¹⁾ **exception:** perfectION™ comb Na⁺: S7 screw cap, ceramic diaphragm, ARGENTHAL™, Shaft material: Glass

Tried and Trusted





ISE half-cells: Modular and versatile

METTLER TOLEDO ion-selective half-cells (exception: Sodium-sensitive electrode) consist of two elements: a universal shaft and an ion-specific membrane module. This module may be exchanged allowing you to measure the ion of your choice.

Just order the membrane kit (contents: 1 membrane, 1 vial of electrolyte) specific for that ion, mount the new module onto the shaft of your ISE half-cell, and you have a new ISE! What is more, the membrane kit also comes with an identification ring (ID ring) and an adapter sleeve which will fit any METTLER TOLEDO titration stand.

Each ion-selective electrode (ISE) and each membrane module has been tested for wet-chemistry applications. It has to pass the stringent requirements of several direct measurements as well as a typical titration application. Each ISE is issued with its own serial number and quality certificate. There is no better quality assurance than this.

The METTLER TOLEDO ISE's are delivered in the same condition, as when they were tested. Therefore, they are already filled with electrolyte and ready for use.

Important: requires the use of a separate reference electrode and appropriate cables.

Measuring ion	Designation	Order number electrode	Measuring range	Temperature range	Optimal pH range	Type of membrane	Shaft material	Order no. membrane kit	Order no. electrolyte	Electrolyte for reference electrode	ISA solution
Ba ²⁺	DX337-Ba ²⁺	51107674	10 ⁰ ...4*10 ⁻⁷ mol/L	0...50 °C	2...12	Polymer	POM/PVC	51107688	51107892	3 mol/L KCl	1 mol/L Tris ₂ HCl
BF ₄ ⁻	DX287-BF ₄ ⁻	51107676	10 ⁰ ...3*10 ⁻⁷ mol/L	0...50 °C	2...12	Polymer	POM/PVC	51107690	51107890	2 mol/L MgSO ₄	0.5 mol/L MgSO ₄
Br ⁻	DX280-Br ⁻	51340300	10 ⁰ ...1*10 ⁻⁶ mol/L	0...80 °C	2...13	Solid state	POM	51340006	51340029	1 mol/L KNO ₃	1 mol/L KNO ₃
Ca ²⁺	DX240-Ca ²⁺	51340600	10 ⁰ ...1*10 ⁻⁶ mol/L	0...50 °C	2...12	Polymer	POM/PVC	51340009	51340032	2 mol/L MgSO ₄	0.5 mol/L MgSO ₄
Cd ²⁺	DX312-Cd ²⁺	51107672	10 ⁰ ...1*10 ⁻⁶ mol/L	0...50 °C	2...8	Polymer	POM/PVC	51107686	51107891	1 mol/L KNO ₃	1 mol/L KNO ₃
Cl ⁻	DX235-Cl ⁻	51340400	10 ⁰ ...2*10 ⁻⁵ mol/L	0...80 °C	2...13	Solid state	POM	51340007	51340030	1 mol/L KNO ₃	1 mol/L KNO ₃
CN ⁻	DX226-CN ⁻	51107681	10 ⁰ ...2*10 ⁻⁶ mol/L	0...80 °C	4...13	Solid state	POM	51107695	51107893	1 mol/L KNO ₃	10 mol/L NaOH
Cu ²⁺	DX264-Cu ²⁺	51107678	10 ⁰ ...5*10 ⁻⁷ mol/L	0...80 °C	2...8	Solid state	POM	51107692	51107889	1 mol/L KNO ₃	1 mol/L KNO ₃
F ⁻	DX219-F ⁻	51340500	10 ⁰ ...5*10 ⁻⁷ mol/L	0...80 °C	4...10	Solid state	POM	51340008	51340031	3mol/L KCl	TISAB III
I ⁻	DX327-I ⁻	51107680	10 ⁰ ...2*10 ⁻⁸ mol/L	0...80 °C	1...13	Solid state	POM	51107694	51107898	1 mol/L KNO ₃	1 mol/L KNO ₃
K ⁺	DX239-K ⁺	51340700	10 ⁰ ...1*10 ⁻⁶ mol/L	0...50 °C	2...12	Polymer	POM/PVC	51340010	51340033	2 mol/L MgSO ₄	0.5 mol/L MgSO ₄
Li ⁺	DX207-Li ⁺	51107673	10 ⁰ ...1*10 ⁻⁶ mol/L	0...50 °C	2...9	Polymer	POM/PVC	51107687	51107881	3 mol/L KCl	0.5 mol/L MgSO ₄
Na ⁺	DX223-Na ⁺	51340263	10 ⁰ ...1*10 ⁻⁷ mol/L	0...80 °C	8...11	Na Glass	Glass			0.1 mol/L NH ₄ Cl	NH ₄ Cl / NH ₄ OH
NH ₄ ⁺	DX218-NH ₄ ⁺	51340900	10 ⁰ ...4*10 ⁻⁷ mol/L	0...50 °C	2...9	Polymer	POM/PVC	51340012	51340035	2 mol/L MgSO ₄	0.5 mol/L MgSO ₄
NO ₃ ⁻	DX262-NO ₃ ⁻	51340800	10 ⁰ ...3*10 ⁻⁵ mol/L	0...50 °C	2...12	Polymer	POM/PVC	51340011	51340034	2 mol/L MgSO ₄	0.5 mol/L MgSO ₄
Pb ²⁺	DX407-Pb ²⁺	51107873	10 ⁰ ...3*10 ⁻⁶ mol/L	0...50 °C	2...8	Polymer	POM/PVC	51107874	51107875	1 mol/L KNO ₃	1 mol/L KNO ₃
S ²⁻ /Ag ⁺	DX232-S ²⁻	51107675	10 ⁰ ...1*10 ⁻⁸ mol/L	0...80 °C	4...13	Solid state	POM	51107689	51107894	1 mol/L KNO ₃	10 mol/L NaOH
SCN ⁻	DX258-SCN ⁻	51107870	10 ⁰ ...2*10 ⁻⁶ mol/L	0...80 °C	2...10	Solid state	POM	51107871	51107872	1 mol/L KNO ₃	1 mol/L KNO ₃
Common specifications		Type of electrode: ion selective half-cell; Cable and connections: S7									

Amazing Solutions



Buffer solutions with a quality inspection certificate

Any pH measurement is only as accurate as the buffer solution used for calibration purposes. The internationally recognized pH scale is based on standard reference materials (SRM) selected by NIST (National Institute of Standards and Technology, USA). METTLER TOLEDO buffer solutions are traceable to these primary standards and come with a quality inspection certificate, which guarantees the stated values and traceability. They are particularly suitable, therefore, for use in quality assurance systems.

Download your detailed test certificate at www.mt.com/buffer.

Buffers, Standards	pH-Value at 25 °C	Order no. 250 mL	Order no. 6 x 250 mL	Order no. 1000 mL	Order no. 30 sachets 20 mL
Standard pH buffer solutions	2.00	51340055	51319010	51319011	
	4.01	51340057	51340058	51340228	51302069
	7.00	51340059	51340060	51340229	51302047
	9.21	51300193	51300194	51340230	51302070
	10.00	51340056	51340231	51340232	51302079
	11.00	51340063	51319018	51319019	
	Rainbow I (3 x 10 sachets 20 mL 4.01 / 7.00 / 9.21)				
Rainbow II (3 x 10 sachets 20 mL 4.01 / 7.00 / 10.01)					51302080
pH buffer solutions NIST (NBS) and DIN 19266	4.006	51340039			
	6.865	51340041			
	9.180	51340042			
	10.012	51340044			
DKD-certified buffer solutions	4.01	52118093	51319059		
	7.00	52118094	51319060		
	9.21	52118095	51319061		
	10.00	52118096	51319062		
	E (Ag/AgCl) 25 °C			Order number 250 mL	Order number 6 x 250 mL
Redox buffer solutions	220 mV U _H = 427 mV			51340065	51340081



Electrolytes for reference electrodes	Order number 25 mL	Order number 250 mL	Order number 6 x 250 mL
KCl-solution 3 mol/L for ARGENTHAL™ reference systems	51343180	51340049	51340050
KCl-solution 3 mol/L, AgCl saturated, for Ag/AgCl reference systems	51343184	51340045	51340046
FRISCOLYT-B®, for measurement at low temperature and for media with organic compounds (oil, proteins etc.)	51343185	51340053	51340054
LiCl Solution 1 mol/L in ethanol, for measurement in non-aqueous media		51340052	
Cleaning solutions		Order number 250 mL	Order number 25 mL
Pepsin-HCl for cleaning junctions with protein contamination. Treatment time about 1 h.		51340068	
Thiourea solution for cleaning junctions with silver sulfide contamination. Treatment until discoloration.		51340070	
Reactivation solution for regeneration of glass electrodes. Treatment time about 1 min.			51340073
Conductivity standards	Order number 6 x 250 mL	Order number 250 mL	Order number 30 sachets 20 mL
10 µS/cm		51300169	
84 µS/cm		51302153	
500 µS/cm		51300170	
1413 µS/cm	51300259	51300138	51302049
12.88 mS/cm	51300260	51300139	51302050
DO Accessories			Order number
Zero oxygen tablets (20 pcs)			51300140

Accessories	Description	Order number
Wetting caps (Minimum order amount 5 units)	For electrodes with shaft diameter 12 mm	51340020
	For electrodes with movable sleeve junction	51340022
	For electrodes with shaft diameter 8 mm and InLab®Solids / InLab®Solids Pro	51340021
	For electrodes with shaft diameter 6 mm	51340019
	For electrodes with shaft diameter 3 mm	51340018
Separate temperature sensors	InLab® NTC 30 kΩ laboratory temperature sensor in glass shaft (120 x 12 mm), with quality certificate	51343310
	InLab® Pt1000 laboratory temperature sensor in glass shaft (120 x 12 mm), with quality certificate	51343312
	NTC 30 kΩ laboratory temperature sensor in stainless steel (120 x 3 mm), steel 316	51300164
	Pt1000 laboratory temperature sensor in stainless steel (120 x 3 mm), steel 316	51300165
	IP67 temperature sensor for MP120/125/MA130 (120 x 3 mm)	51302034
	IP67 needle temperature sensor for MP120/125/MA130	51302036
Storage vial	Vial for storage of pH electrodes	51343320
SafeLock™	SafeLock™ (5 pcs.)	51343315
Adapter	NS 14.5 / 15-12 PE	51340024

Solutions for ISE



Solutions for perfection™ combined ISE

Reference electrolyte solutions	Order number 5 x 60 mL	
Ion Electrolyte A (calcium, fluoride, sulfide)	51344750	
Ion Electrolyte B (chloride, cyanide, lead, silver/sulfide)	51344751	
Ion Electrolyte C (silver)	51344752	
Ion Electrolyte D (copper, iodide)	51344753	
Ion Electrolyte E (potassium)	51344754	
Ion Electrolyte F (nitrate)	51344755	
ISA solutions	Order number 475 mL	Order number 3790 mL
ISA solid state ISE (chloride, copper, iodide, silver)	51344760	
Calcium ISA	51344761	
Potassium ISA	51344762	
Nitrate ISA	51344763	
Nitrate ISS (for suppressing interference)	51344764	
Fluoride TISAB II with CDTA		51344765
Fluoride TISAB III with CDTA (concentrate)	51344766	

Solutions for DX series ISE half-cells

Bridge electrolyte	Order number 25 mL	Order number 250 mL	Order number 6 x 250 mL
1 mol/L KNO ₃	51343182	51340047	51340234
3 mol/L KCl	51343180	51340049	51340050
1 mol/L KCl	51343181		
ISA solutions			
TISAB 3, for fluoride determinations	51340064		
0.9 mol/L Al ₂ (SO ₄) ₃	51340072		

ISE calibration standards

ISE calibration standards	Order number 500 mL
Silver ISE standard solution 1000 mg/L	51344770
Calcium ISE standard solution 1000 mg/L	51344771
Chloride ISE standard solution 1000 mg/L	51344772
Cyanide ISE standard solution 1000 mg/L	51344773
Copper ISE standard solution 1000 mg/L	51344774
Fluoride ISE standard solution 1000 mg/L	51344775
Iodide ISE standard solution 1000 mg/L	51344776
Potassium ISE standard solution 1000 mg/L	51344777
Sodium ISE standard solution 1000 mg/L	51344778
Nitrate ISE standard solution 1000 mg/L	51344779
Lead ISE standard solution 1000 mg/L	51344780
Sulfide ISE standard solution 1000 mg/L	51344781

Simple and Accurate Measurements

Seven is a product line that combines precise electrochemical measuring technologies with innovative design and ease of use. It fulfills the highest demands for pH, conductivity and ion measurements and meets the latest requirements for quality control, data management and legal regulations (GxP, USP/EP). The self-explanatory user interface allows intuitive operation at all stages.

You can obtain information about METTLER TOLEDO's modern Seven meter series at www.mt.com/pH or from the separate **Seven Benchtop Meters** (51725133) and **SevenGo™ Portable Meters** (51725122).



SevenEasy™ – for quick and reliable measurements

- Single-channel meter for routine measurements
- pH/mV or conductivity
- Excellent price/performance ratio



SevenMulti™ – for a wide range of accurate measuring solutions

- Professional dual-channel meter
- pH, conductivity, ISFET and ions – with modular expansion capability
- Full GLP support



ISM

SevenGo™ – Pure flexibility

- Portable meters for pH, conductivity, ion and dissolved oxygen determination
- Robust, watertight single- and dual-channel meters for use under demanding conditions
- Efficiency thanks to unique ergonomics and extremely simple operation

Plug 'n play...

Connection	Length	Designation	Plug	Socket on the meter	Order number
MultiPin™ 	1.2 m	BNC/RCA (Cinch)			52300009
	2.5 m	BNC/RCA (Cinch)			51340290
	1.2 m	BNC/1 x 4 mm			52300011
	1.2 m	DIN/RCA (Cinch)			52300007
	1.2 m	DIN 19262/1 x 4 mm			52300005
	5.0 m	DIN 19262/1 x 4 mm			52300139
S7 gray 	1.2 m	Lemo 00/2 x 4 mm (Metrohm)			59902371
	1.2 m	BNC			52300004
	1.2 m	DIN 19262			52300001
	1.2 m	DIN 19262 gold plated			52300036
	1.2 m	Radiometer type 7			52300013
	1.2 m	US-Standard			52300014
	1.2 m	BNC (IP67)			52300046
	1.2 m	no connector			52300025
	5.0 m	DIN 19262 gold plated			52300037
	5.0 m	no connector			52300002

Universal

METTLER TOLEDO pH electrodes can easily be connected to various third-party instruments. All you have to do is select the appropriate cable. We offer a wide choice of cable lengths and plug combinations.

Connection	Length	Designation	Plug	Socket on the meter	Order number
For reference electrodes and temperature probes 	1.2 m	4 mm banana			52300015
	1.2 m	2 mm banana			52300016
	1.2 m	RCA (Cinch)			51343314
	1.2 m	2 x 4 mm			59902399
S7 red 	1.0 m	BNC			59902392
	1.0 m	DIN 19262			59902382
	1.0 m	4 mm banana			59902434
	1.0 m	Radiometer type 7			59902390
	1.0 m	Lemo 00 (Metrohm)			59902398
	3.0 m	BNC			59902417
	3.0 m	DIN 19262			59902408
	3.0 m	Radiometer type 7			59902416
	3.0 m	Lemo 00 (Metrohm)			59902409
	3.0 m	no connector			59902414
	5.0 m	BNC			59902427
	5.0 m	DIN 19262 gold plated			52300037
	5.0 m	DIN 19262 detachable			59902425
	10.0 m	no connector			59902431

METTLER TOLEDO

a World of Possibilities ...

100% quality control

Each METTLER TOLEDO electrode is individually tested before it leaves our factory. A quality certificate is enclosed with each electrode, which guarantees traceability under ISO 9000. The serial number is engraved in the electrode head to ensure easy identification even after years of use.



www.mt.com

For more information



Fisher Scientific

For customer service, call 1-800-766-7000.
To fax an order, use 1-800-926-1166.
To order online: www.fishersci.com



Quality certificate. Development, production and testing according to ISO 9001.



Environmental management system according to ISO 14001.



“European conformity”. The CE conformity mark provides you with the assurance that our products comply with the EU directives.