

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).

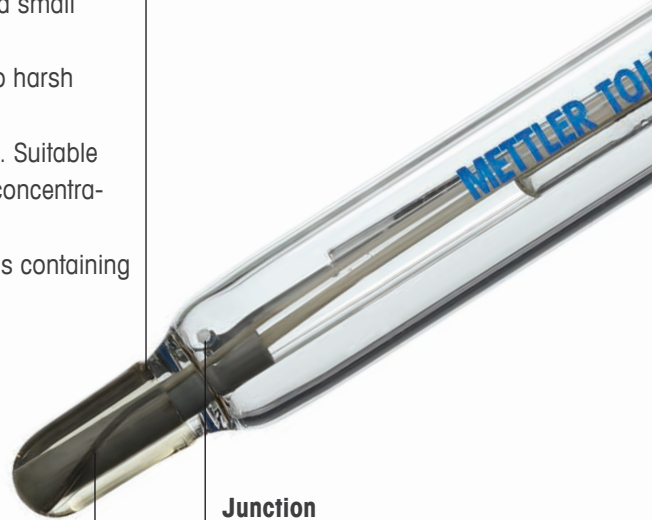
Wetting Cap

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 temperatures. 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:

► www.mt.com/electrode-guide

Nothing is Impossible

Sensors for Small Volumes

The more precious or limited the sample, the greater the challenge to use it for analysis. The narrow sensor shaft of micro pH sensors fits in nearly every sample container and enables measurements of sample volumes down to the lower μL ranges.



Ultra-Micro-ISM



Micro



Micro Pro-ISM



Semi-Micro



Nano



NMR



Flex-Micro

The InLab Ultra-Micro-ISM allows pH measurements of sample volumes down to 15 µL. Key for any lab working with expensive or precious micro samples.



| InLab® | Ultra-Micro-ISM | Micro | Micro Pro-ISM | Semi-Micro | Nano | NMR | Flex-Micro |
|----------------------------|--|---------------------------------------|---------------------------------------|---------------------------------------|-------------------------------|---------------------------------------|---------------------------------------|
| Order number | 30244732 | 51343160 | 51344163 | 51343165 | 30092990 | 59904572 | 51343164 |
| pH range | 1...11 | 0...14 | 0...14 | 0...12 | 1...14 | 0...14 | 0...14 |
| Temperature range | 0...80 °C | 0...80 °C | 0...100 °C | 0...100 °C | 0...80 °C | 0...80 °C | 0...80 °C |
| Temperature probe | | | NTC 30 kΩ | | | | |
| Type of membrane glass | LoT | U | U | A41 | U | U | U |
| Membrane resistance (25°C) | < 700 MΩ | < 1000 MΩ | < 300 MΩ | < 600 MΩ | < 1000 MΩ | < 1000 MΩ | < 600 MΩ |
| Type of junction | Ceramic | Ceramic | Ceramic | Open junction | Ceramic | Ceramic | Porous PTFE |
| Reference system | ARGENTHAL™ with Ag ⁺ -trap | ARGENTHAL™ with Ag ⁺ -trap | ARGENTHAL™ with Ag ⁺ -trap | ARGENTHAL™ with Ag ⁺ -trap | Ag/AgCl | ARGENTHAL™ with Ag ⁺ -trap | ARGENTHAL™ with Ag ⁺ -trap |
| Reference electrolyte | FRISCOLYT-B® | 3 mol/L KCl | 3 mol/L KCl | XEROLYT®EXTRA Polymer | 3 mol/L KCl AgCl saturated | 3 mol/L KCl | Gel |
| Cable and connection | MultiPin™ | S7 | MultiPin™ | S7 | 1.0 m cable; BNC | S7 | 1.0 m cable; BNC |
| Shaft material | Glass | Glass | Glass | Glass | Steel | Glass | Epoxy |
| Shaft length | 40 mm | 60 mm | 130 mm | 100 mm | 30 mm | 200 mm | 180 mm |
| Shaft diameter | 3 mm | 3 mm | 5 mm | 6 mm | 1.7 mm | 3 mm | 6 mm |
| Minimum sample volume | 15 µL | 45 µL | 100 µL | 100 µL | 5 µL | 45 µL | 500 µL |
| Common specifications | Type of electrode: pH-combination / Storage: InLab® storage solution (Order number 30111142) | | | | | | |

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 | InLab® Pt1000 | NTC 30 kΩ |
|-----------------------|--|--|--|
| | Laboratory temperature sensor in glass shaft (120 x 12 mm), with quality certificate | Laboratory temperature sensor in glass shaft (120 x 12 mm), with quality certificate | 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 | BNC |  |  | 30281915 |
| | 3.0 m | | 30281916 | | |
| | 5.0 m | | 30281917 | | |
| | 1.2 m | BNC IP67 |  |  | 30281918 |
| | 1.2 m | DIN 19262 |  |  | 30281919 |
| | 3.0 m | | | | 30281920 |
| 5.0 m | 30281921 | | | | |
| 1.2 m | Lemo 00 |  | | 30281925 | |
| | 3.0 m | no connector | | | 30281926 |
| | 5.0 m | | 30281927 | | |
| | 10.0 m | | 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 | Max | Science | Versatile | Expert | Easy | Power | Nano | 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 & vegetable | | | | | | | | | | |
| | 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 | | | | | ■ | ■ | | | | |



WolfLabs

Pricing on any accessories shown can be found by keying the part number into the search box on our website.

The specifications listed in this brochure are subject to change by the manufacturer and therefore cannot be guaranteed to be correct. If there are aspects of the specification that must be guaranteed, please provide these to our sales team so that details can be confirmed.

www.wolflabs.co.uk

Tel : 01759 301142

Fax : 01759 301143

sales@wolflabs.co.uk

Please contact us if this literature doesn't answer all your questions.