

xylem



Sensors for field & lab

Electrodes, sensors & measurement cells
for your application



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Sensors for field & lab



80

We have been developing and manufacturing glass electrodes for more than 80 years. Our electrodes are used for important tasks in worldwide laboratories with high demands. What began back then with the patent for pH electrodes now includes a range of several hundred different sensors: whether ultra-pure water, jam, wine, creams or drinking water – we offer the right electrode for every conceivable application. Our extensive electrode program is as diverse as the applications.



Sensors - overview



pH field electrodes

- Robust field electrodes
- Plastic shaft
- Optional build-in temperature sensor
- Gel filling or liquid filling
- Also available as digital (IDS) sensors



pH lab electrodes

- High performance lab electrodes
- Glass shaft with precision glass
- Optional build-in temperature sensor
- Penetration- / Surface- / Micro- / Split ring-Electrodes
- Gel filling or liquid filling
- Also available as digital (IDS) sensors



ORP electrodes

- Metal electrode made of stainless steel
- Incl. reference electrode
- Reference system silver/silver chloride
- Also available as digital (IDS) sensors



Conductivity cells

- Two-pole cells
- Four-pole cells
- Graphite
- Stainless steel
- Also available as digital (IDS) sensors



Oxygen sensors

- Galvanic dissolved oxygen sensors
- Self-stirring dissolved oxygen sensors
- Optical dissolved oxygen sensors (DIN ISO 17289)
- Also available as digital (IDS) sensors



Ion-selective electrodes

- Combined ISE & GSE electrodes
- Glass electrodes
- Matrix electrodes
- Solid state electrodes

Analog or digital?

The IDS system: secure – fast – flexible

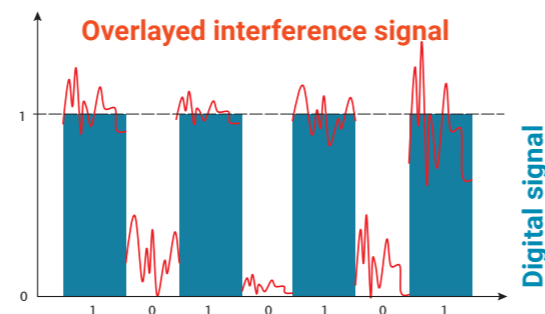
The powerful base

- Analog and digital models are based on the same, proven **quality electrodes**.
- **Low-resistance membrane glasses** guarantee stable measurement signals even at low temperatures.
- **Silver ion-free reference electrolyte** in combination with the unique **platinum wire diaphragm** prevents measurement problems caused by precipitating silver compounds.

What does IDS mean?

The operating principle: While conventional (analog) sensors transmit analog raw signals to external measuring devices via cables, IDS sensors have a **miniaturized measuring device** directly in the sensor head. **Analog-to-digital conversion** takes place directly at the measuring point—before the signal passes through the transmission path, which is susceptible to interference.

The technical advantage: Digital signal transmission **eliminates** electromagnetic interference, noise, and signal-related errors. The result is **fail-safe data transmission** with demonstrably higher signal integrity over cable lengths of up to 100 meters – without signal degradation.



Plug & Measure

IDS sensors are **automatically recognized and configured** by the measuring device – without manual input. Switch IDS sensors between different measuring devices as desired – all calibration data and parameter settings remain stored in the sensor and the calibration is retained in full.

IDS sensors are available in two versions:

- **Fixed cable version:** Integrated, defined cable length for stationary measurement setups
- **Plug-in head version:** Modular system with interchangeable cables or radio modules

The plug-in head electrodes enable the use of Bluetooth radio modules (range up to 10 m, dedicated 1:1 connection) for **wireless measurements** – ideal for spatially flexible measurement tasks, working under fume hoods, or to avoid cable bushings.

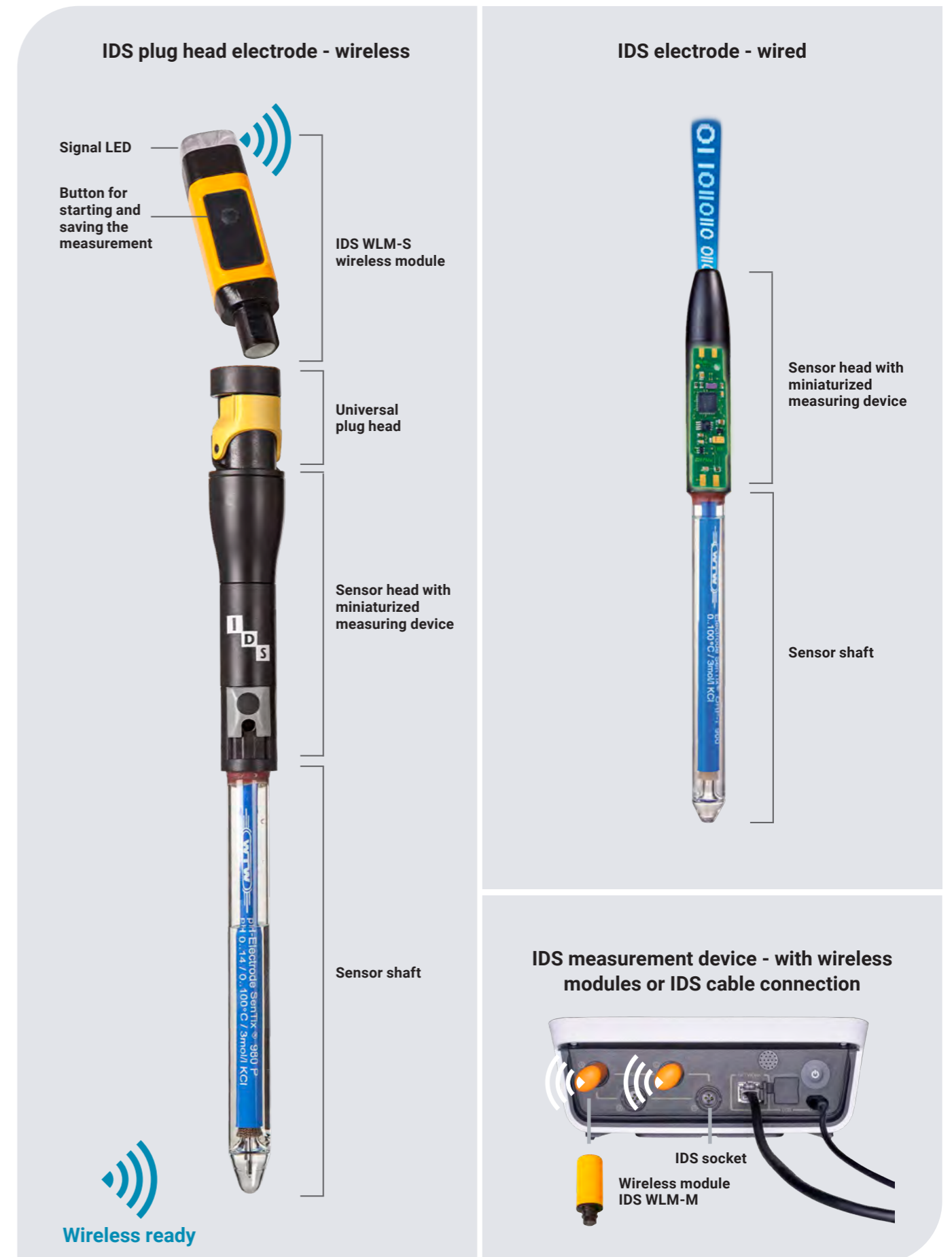
Complete traceability and GxP compliance

All calibration data is permanently stored in the sensor, ensuring **complete traceability** throughout the entire sensor life cycle. In addition to the measured values, IDS sensors automatically transmit the following metadata to the measuring device:

- Sensor designation and serial number (unique identification)
- Complete calibration history with calibration status and expiration dates
- Sensor-specific parameters: Cell constants (K value for LF sensors), temperature coefficients
- Correction data: Membrane correction factors for optical O2 sensors

This automatic metadata transfer ensures complete traceability and **supports GxP-compliant documentation** in accordance with regulatory requirements (FDA 21 CFR Part 11, EU GMP Annex 11).

IDS electrodes



pH electrodes



pH Electrodes

The electrodes consist of a measuring electrode and a reference electrode. pH electrodes from Xylem Analytics are usually combined pH electrodes or combination electrodes, consisting of a glass and reference electrode built into one unit. The glass membrane of our electrodes is sensitive to hydrogen ions and filled with a buffer solution. There is a reference electrolyte in the reference electrode. Immersion in a measuring solution causes a change in voltage - this change in voltage is recorded as a signal (analog or digital) and converted into a pH value.

Glass

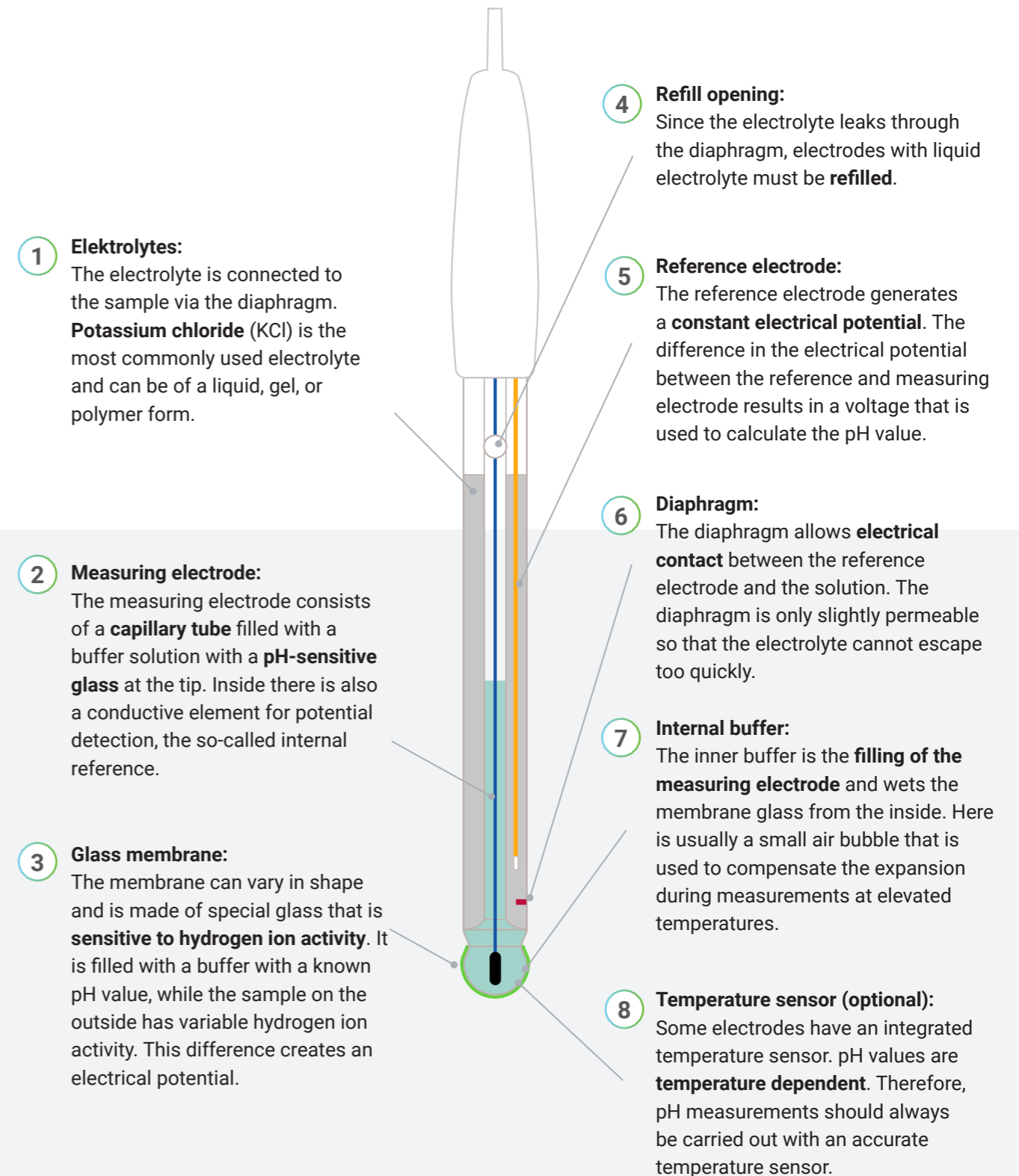
Today there is a large amount of different pH glasses, which should be selected according to the application. Due to the large amount of different purposes, several types of membrane glasses are required to reach the optimum measurement reliability and lifetime.



Precision glassblowing

pH electrodes - design

Glass electrodes consist of three essential components: the glass membrane, the inner buffer and the measuring electrode. While the inner buffer and the measuring electrode can be used universally, the shape and properties of the glass membrane must be selected according to the respective sample type. Important criteria are the consistency, volume and temperature of the sample, which measuring range is expected and the concentration of the ions in the solution to be measured.



pH field electrodes with plastic shaft

For water, wastewater and predominantly aqueous samples

Ideal for portable measurements, but also for routine measurements in the lab; with or without built-in temperature sensor.

pH measurement in **non-aqueous solutions?**

We have the right electrode



Model	Analog										
	SenTix® 20	SenTix® 21	SenTix® 21-3	SenTix® 22	SenTix® 41	SenTix® 41-3	SenTix® 42	SenTix® 43	SenTix® 44	SenTix® 46	SenTix® 47
Order-No.	103630	103631	103632	103633	103635	103636	103637	103805	103806	103807	103808
Type/Application	Low-maintenance pH electrodes without temperature sensor				Low-maintenance pH electrodes with temperature sensor						
Shaft material	Plastic				Plastic						
Temperature sensor	-				NTC 30 kOhm		Pt 1000		NTC 30 kOhm		NTC 10 kOhm
Membrane shape	Cylindric				Cylindric						
Reference electrolyte	Gel				Gel						
Diaphragm	Fiber				Fiber						
Meas. range pH	0 ... 14 pH				0 ... 14 pH						
Temperature range	0 ... 80 °C				0 ... 80 °C						
Membrane resistance	< 1 GΩ				< 1 GΩ						
Shaft length	120 mm				120 mm						
Shaft diameter	12 mm				12 mm						
Connection	S7 plug head	Waterproof DIN plug		BNC plug	Waterproof DIN plug + 4 mm banana plug		BNC plug + 4 mm banana plug	Waterproof DIN plug + 4 mm banana plug	BNC plug + 4 mm banana plug	BNC plug + Cinch plug	BNC plug + 2.5 mm Jack plug (for Sartorius devices)
Cable	withouth cable*	1 m fixed cable	3 m fixed cable	1 m fixed cable	1 m fixed cable	3 m fixed cable	1 m fixed cable				

					Digital (IDS)									
SenTix® 51	SenTix® 52	SenTix® 57	SenTix® Top 41	SenTix® Top 46	SenTix® Top 940	SenTix® Sp-T 900	SenTix® Sp-T 900-P	SenTix® 940	SenTix® 940-3	SenTix® 940-P	SenTix® 950	SenTix® 950-P		
103651	103652	103809	103816	103817	103744	103752	103766	103740	103741	103760	103750	103761		
pH electrodes with temperature sensor		pH electrodes with double reference system and polymer electrolyte			Digital pH penetraton electrodes		Digital low-maintenance pH electrodes			Digital pH electrodes				
Plastic		PEEK Shaft / Plastic			Plastic		Plastic			Plastic				
NTC 30 kOhm		NTC 10 kOhm	NTC 30 kOhm			NTC 30 kOhm		NTC 30 kOhm			NTC 30 kOhm			
Cylindric		Cylindric			Spear		Cylindric			Cylindric				
KCl 3 mol/l Ag+ free		Duralid®			Referid®		Gel			KCl 3 mol/l Ag+ free				
Ceramic		Double junction / hole			Hole		Fiber			Ceramic				
0 ... 14 pH		0 ... 14 pH			2 ... 13 pH		0 ... 14 pH			0 ... 14 pH				
0 ... 80 °C		-5 ... 100 °C			0 ... 80 °C		0 ... 80 °C			0 ... 80 °C				
< 1 GΩ		< 400 MΩ			< 400 MΩ		< 1 GΩ			< 1 GΩ				
120 mm		120 mm			65/25 mm		120 mm			120 mm				
12 mm		12 mm			15/5 mm		12 mm			12 mm				
Waterproof DIN plug + 4 mm banana plug	BNC plug + 4 mm banana plug	BNC plug + 2.5 mm Jack plug (for Sartorius devices)	Waterproof DIN plug + 4 mm banana plug	BNC plug + Cinch plug	Waterproof digital plug	Waterproof digital plug	Plug head	Waterproof digital plug	Plug head	Waterproof digital plug	Plug head	Waterproof digital plug	Plug head	
1 m fixed cable		1 m fixed cable			1.5 m fixed cable	1.5 m fixed cable	withouth cable*	1.5 m fixed cable	3 m fixed cable	withouth cable*	1.5 m fixed cable	withouth cable*		

*=Suitable connection cables can be found on page 28

pH lab electrodes with glass shaft

For demanding measurements in the lab

Our laboratory electrodes are characterized by fast response, high precision and a long service life and can also be used in difficult samples.

pH measurement in non-aqueous solutions?
We have the right electrode












Model	Analog									
	SenTix® 60	SenTix® 61	SenTix® 62	SenTix® 81	SenTix® 82	SenTix® 83	SenTix® 84	SenTix® 85	SenTix® 86	SenTix® 87
Order-No.	103639	103640	103641	103642	103643	103810	103811	103812	103813	103814
Type/Application	Precision pH electrodes without temperature sensor			Precision pH electrodes with temperature sensor						
Shaft material	Glass			Glass						
Temperature sensor	-			NTC 30 kOhm		Pt 1000		NTC 30 kOhm		NTC 10 kOhm
Membrane shape	Conic			Conic						
Reference electrolyte	KCl 3 mol/l Ag+ free			KCl 3 mol/l Ag+ free						
Diaphragm	Platinum wire			Platinum wire						
Meas. range pH	0 ... 14 pH			0 ... 14 pH						
Temperature range	0 ... 100 °C			0 ... 100 °C						
Membrane resistance	<600 MΩ			<600 MΩ						
Shaft length	120 mm			120 mm						
Shaft diameter	12 mm			12 mm						
Connection	S7 plug head	Waterproof DIN plug	BNC plug	Waterproof DIN plug + 4 mm banana plug	BNC plug + 4 mm banana plug	Waterproof DIN plug + 4 mm banana plug	BNC plug + 4 mm banana plug	BNC plug + 2 x 4 mm banana plug	BNC plug + Cinch plug	BNC plug + 2,5 mm Jack plug (for Sartorius devices)
Cable	without cable*	1 m fixed cable		1 m fixed cable						

Model	Digital (IDS)										
	SenTix® 91	SenTix® H	SenTix® HW	SenTix® HWD	SenTix® HW-T 900	SenTix® HW-T 900-P	SenTix® 945	SenTix® 945-P	SenTix® 980	SenTix® 980-P	SensoLyt® 900-P
Order-No.	103695	103644	103650	103731	103753	103767	103743	103764	103780	103762	103748
Type/Application	Precision pH electrode with temperature sensor	pH special electrode with ground joint diaphragm				Digital low-maintenance precision pH electrodes			Digital precision pH electrodes		pH electrode with polymer electrolyte, pressure resistant up to 10 bar
Shaft material	Glass	Glass		Glass		Glass		Glass		Glass	
Temperature sensor	NTC 30 kOhm	-		NTC 30 kOhm		NTC 30 kOhm		NTC 30 kOhm		NTC 30 kOhm	
Membrane shape	Spheric	Cylindric		Spheric	Cylindric		Spheric		Conic		Cylindric
Reference electrolyte	KCl 3 mol/l Ag+ free	KCl 3 mol/l Ag+ free				Gel		KCl 3 mol/l Ag+ free		Referid®	
Diaphragm	Platinum wire	Ground joint				3 x Ceramic		Platinum wire		Hole	
Meas. range pH	0 ... 14 pH	0 ... 14 pH		0 ... 14 pH		0 ... 14 pH		0 ... 14 pH		2 ... 13 pH	
Temperature range	0 ... 100 °C	0 ... 60 °C		-5 ... 100 °C		0 ... 60 °C		0 ... 80 °C		0 ... 100 °C	
Membrane resistance	<600 MΩ	< 2 GΩ	< 800 MΩ	< 600 MΩ	< 600 MΩ		< 600 MΩ		< 600 MΩ		
Shaft length	170 mm	170 mm		165 mm		120 mm		120 mm		120 mm	
Shaft diameter	12 mm	12 mm		12 mm		12 mm		12 mm		12 mm	
Connection	Waterproof DIN plug + 4 mm banana plug	S7 plug head		Waterproof DIN plug + 4 mm banana plug	Waterproof digital plug	Plug head	Waterproof digital plug	Plug head	Waterproof digital plug	Plug head	
Cable	1 m fixed cable	without cable*		1 m fixed cable	1.5 m fixed cable	without cable*	1.5 m fixed cable	without cable*	1.5 m fixed cable	without cable*	

*=Suitable connection cables can be found on page 28



pH lab electrodes for special applications

Our lab electrodes are characterized by fast response, high precision and long service life and can also be used in difficult samples.

Model	Analog							Digital (IDS)	
	SenTix® Sp	SenTix® Sp-T	SenTix® Sur	SenTix® RJD	SenTix® Mic	SenTix® Mic-D	SenTix® Mic-B	SenTix® Micro 900	SenTix® Micro 900-P
Order-No.	103645	103733	103646	103732	103647	103660	103661	103751	103765
Type/Application	pH electrodes for penetration measurements		pH electrodes for surface measurement.	RJD pH electrode for polluted probes	pH electrodes for small volumes				
									
Shaft material	Glass		Glass	Glass	Glass				
Temperature sensor	-	NTC 30 kOhm	-	NTC 30 kOhm	-			NTC 30 kOhm	
Membrane shape	Spear		Flat	Calotte	Cylindric				
Reference electrolyte	Referid®		Referid®	Referid®	KCl 3 mol/l Ag+ free				
Diaphragm	Hole		Split ring	Split ring	Ceramic	Platinum wire			
Meas. range pH	2 ... 13 pH		2 ... 13 pH	2 ... 13 pH	0 ... 14 pH				
Temperature range	0 ... 80 °C		0 ... 50 °C	0 ... 80 °C	0 ... 100 °C	-5 ... 100 °C		0 ... 100 °C	
Membrane resistance	< 400 MΩ		< 1 GΩ	< 600 MΩ	< 700 MΩ				
Shaft length	65/25 mm		120 mm	120 mm	40/80 mm	96 mm		65/130 mm	
Shaft diameter	15/5 mm		12 mm	12 mm	12/5 mm	3 mm		12/5 mm	
Connection	S7 plug head	Waterproof DIN plug + 4 mm banana plug	S7 plug head	Waterproof DIN plug + 4 mm banana plug	S7 plug head	Waterproof DIN plug	BNC plug	Waterproof digital plug	Plug head
Cable	withouth cable*	1 m fixed cable	withouth cable*	1 m fixed cable	withouth cable*	1 m fixed cable	1 m fixed cable	1.5 m fixed cable	withouth cable*

ORP electrodes

All ORP electrodes consist of a metal electrode made of precious metal and a reference electrode.

Model	Analog	Digital (IDS)	Analog	Digital (IDS)		Analog	Digital (IDS)
	SenTix® Rx	SenTix® Rx-T 900	SenTix® ORP	SenTix® ORP-T 900	SenTix® ORP-T 900-P	SenTix® Ag	Sensolyt® ORP 900-P
Order-No.	103815	103792	103648	103791	103763	103664	103749
Type/Application	ORP electrodes			ORP electrodes		Special ORP-electrode for Argentometrie	Pressure resistant ORP electrode
							
Shaft material	Plastic	Plastic	Glass	Glass	Glass	Glass	Glass
Temperature sensor	-	NTC 30 kOhm	-	NTC 30 kOhm	NTC 30 kOhm	-	NTC 30 kOhm
Membrane shape	Platinum - Pole 1mm	Platinum - Pole 1mm	Platinum - Round 4mm	Platinum - Round 4 mm	Platinum - Round 4 mm	Argentum - Cylindric cap	Platinum ring
Reference electrolyte	Gel	Gel	KCl 3 mol/l Ag+ free	KCl 3 mol/l Ag+ free	KCl 3 mol/l Ag+ free	2 mol/l KNO3 + 0,001 mol/l KCl	Polymer
Diaphragm	Fiber	Fiber	Ceramic	Ceramic	Ceramic	Ceramic	Hole
Temperature range	-5 ... 80 °C	-5 ... 80 °C	0 ... 100 °C	0 ... 100 °C	0 ... 100 °C	-5 ... 100 °C	0 ... 60 °C
Shaft length	120 mm	120 mm	120 mm	120 mm	120 mm	120 mm	120 mm
Shaft diameter	12 mm	12 mm	12 mm	12 mm	12 mm	12 mm	12 mm
Connection	S7 plug head	Waterproof digital plug	S7 plug head	Waterproof digital plug	Plug head	S7 plug head	Plug head
Cable	withouth cable*	1.5 m fixed cable	withouth cable*	1.5 m fixed cable	withouth cable*	withouth cable*	withouth cable*

*=Suitable connection cables can be found on page 28

Conductivity measurement cells

A selection of two-electrodes and four-electrodes conductivity measuring cells to cover a wide range of applications from ultrapure water to viscous samples.



Model	Analog								
	TetraCon® 325	TetraCon® 325-3	TetraCon® 325-6	TetraCon® 325-10	TetraCon® 325-15	TetraCon® 325-20	TetraCon® 325 S	TetraCon® 325/C	KLE 325
Order-No.	301960	301970	301971	301972	301973	301974	301602	301900	301995
Type/Application	Four electrodes conductivity measurement cell								Two electrodes conductivity measurement cell
Shaft material	Epoxy/POM						Epoxy/PEEK	Epoxy/POM	
Electrode material	Graphite						PEEK	Graphite	
Type	4 Electrodes								2 Electrodes
Temperature Sensor	NTC 30 kOhm								NTC 30 kOhm
Cell constant	0.475 cm ⁻¹ ±1.5 %						0.491 cm ⁻¹ ±1.5 %	0.475 cm ⁻¹ ±1.5 %	0.84 cm ⁻¹ ±1.5 %
Maximum pressure	2 bar								2 bar
Measuring range	1 µS/cm ... 2 S/cm								10 µS/cm ... 20 mS/cm
Temperature range	-5 ... 80 °C (100 °C)**								-5 ... 80 °C (100 °C)**
Min/Max Immersion depth	Min.: 36 mm Max.: Whole cell + cable up to 80 °C Only shaft (=120 mm) up to 100 °C						Min.: 40 mm Max.: Whole cell + cable up to 80 °C Only shaft (=120 mm) up to 100 °C	Min.: 36 mm Max.: Whole cell + cable	Minimal: 36 mm Maximal: Gesamte Zelle + Kabel
Shaft length	120 mm								120 mm
Shaft diameter	15.3 mm								15.3 mm
Connection	Waterproof 8-pin plug						Waterproof 8-pin plug	Waterproof 8-pin plug	
Cable	1.5 m fixed cable	3 m fixed cable	6 m fixed cable	10 m fixed cable	15 m fixed cable	20 m fixed cable	1.5 m fixed cable	1.5 m fixed cable	1.5 m fixed cable

*=Suitable connection cables can be found on page 28



**=Value in brackets only shaft




Digital (IDS)						Analog		Digital (IDS)	
TetraCon® 925	TetraCon® 925 -3	TetraCon® 925 -P	TetraCon® 925 /C	TetraCon® 925/LV-P	TetraCon® 925/LV	LR 325/01	LR 325/001	LR 925/01	LR 925/01-P
301710	301711	301716	301721	301719	301718	301961	301962	301720	301722
Digital four electrodes conductivity measurement cell						Digital conductivity measurement cell for small volumes		Digital ultrapure water conductivity measurement cell	
PPSU (polyphenylsulfone)		Epoxy/PEEK		Epoxy/POM	Epoxy/POM	Stainless steel/POM		Stainless steel/POM	
Graphite		Graphite		Graphite	Graphite	POM	Stainless steel	Graphite	
4 Electrodes				4 Electrodes	4 Electrodes	2 Electrodes		2 Electrodes	
NTC 30 kOhm						NTC 30 kOhm		NTC 30 kOhm	
0.475 cm ⁻¹ ±1.5 %		0.469 cm ⁻¹ ±1.5 %		0.469 cm ⁻¹ ±1.5 %		0.1 cm ⁻¹ ± 2 %	0.01 cm ⁻¹ ± 2 %	0.100 cm ⁻¹ ± 2 %	
Cable connection: 2 bar, plug head: 10 bar						2 bar		2 bar	
1 µS/cm ... 2000 mS/cm						0.001 µS/cm ... 200 µS/cm		0.0001 µS/cm ... 30 µS/cm	
-5 ... 70 °C (100 °C)**						-5 °C ... 80 °C (100 °C)		-5 ... 70 °C (100 °C)	
Min.: 36 mm Max.: Whole cell + cable				Min.: 16 mm Max.: Whole cell + cable		Min.: 30 mm Max.: Whole cell + cable	Min.: 40 mm (Immersion cell) Max.: Whole cell + cable	Min.: 30 mm Max.: Whole cell + cable up to 70 °C Only shaft (=120 mm) up to 100 °C	
120 mm						120 mm		120 mm	
15.3 mm						12 mm		12 mm	
Waterproof digital plug		Plug head	Waterproof digital plug	Plug head	Waterproof digital plug	Waterproof 8-pin plug		Waterproof digital plug	Plug head
1.5 m fixed cable	3 m fixed cable	withouth cable*	1.5 m fixed cable	withouth cable*	1.5 m fixed cable	1.5 m fixed cable		1.5 m fixed cable	withouth cable*

Oxygen sensors

Optical measurement is the most modern method of determining dissolved oxygen. The so-called fluorescence quenching is used, which means that the fluorescence signal of suitable dyes changes according to the law depending on the oxygen concentration and is converted accordingly.



Model	Analog			
	CellOx® 325	CellOx® 325-3	CellOx® 325-6	DurOx® 325-3
Order-No.	201533	201545	201546	201570
Type/Application	Universal galvanic dissolved oxygen sensors			Galvanic oxygen sensor for the field
				
Shaft material	POM			POM
Temperature sensor	NTC 30 kOhm			NTC 30 kOhm
Sensor head	Epoxy, PEEK			Epoxy, PEEK
Measuring range at 20 °C	0 ... 50 mg/l O2 concentration 0 ... 600 % O2 saturation 0 ... 1250 mbar O2 partial pressure			0 ... 50 mg/l O2 concentration 0 ... 600 % O2 saturation 0 ... 1250 mbar O2 partial pressure
Max. permissible overpressure	6·10 ⁵ Pa (6 bar)			-
Temperature range	0 ... 50 °C			0 ... 40 °C
Min/Max Immersion depth	min. 6 cm / max. 20 m (depending on cable length)			min. 4 cm / max. 6 m (depending on cable length)
Shaft length	145 mm			110 mm
Shaft diameter	15.25 mm			17.5 mm
Connection	Waterproof 8-pin plug			Waterproof 8-pin plug
Cable	1.5 m fixed cable	3 m fixed cable	6 m fixed cable	3 m fixed cable

Model	Analog	Digital (IDS)		
	StirrOx® G	FDO® 925	FDO® 925-3	FDO® 925-P
Order-No.	201425	201300	201301	201306
Type/Application	Self-stirring dissolved oxygen sensor	Digital optical dissolved oxygen sensor		
				
Shaft material	POM	POM		
Temperature sensor	NTC 30 kOhm	NTC 30 kOhm		
Sensor head	Epoxy, PEEK	POM, Stainless steel		
Measuring range at 20 °C	0 ... 50 mg/l O2 concentration 0 ... 600 % O2 saturation 0 ... 1250 mbar O2 partial pressure	0 ... 20 mg/l O2 concentration 0 ... 200 % O2 saturation 0 ... 400 mbar O2 partial pressure		
Max. permissible overpressure	corresponding to an immersion measurement up to the maximum immersion depth	1 x 10 ⁶ Pa (10 bar)		
Temperature range	0 ... 50 °C	0 ... 50 °C		
Min/Max Immersion depth	min. 49 mm / max. 83 mm (with stirring paddle)	min 6 cm / max. 100 m (depending on cable length)		
Shaft length	83 mm	150 mm		
Shaft diameter	12 mm - 43 mm	15.3 mm		
Connection	Waterproof 8-pin plug, Western plug	Waterproof digital plug		Plug head
Cable	1.5 m fixed cable	1.5 m fixed cable	3 m fixed cable	without cable*

*=Suitable connection cables can be found on page 28







Ion-selective electrodes

Combined ISE and GSE electrodes

Ion-selective and gas-sensitive electrodes are used to measure the dissolved concentration of specific ions or gases in water. Similar to the pH electrode, the membrane interacts with the dissolved ions and delivers a concentration-dependent voltage signal that is converted into the respective measurement result.



	Analog					
Model	NH 500/2	Na 800/S7	Ag/S 800 DIN	Br 800 DIN	Ca 800 DIN	Cl 800 DIN
Order-No.	106395	106649	106651	106653	106655	106661
Ions/gases	Ammonia gases	Sodium	Silver / Sulfide	Bromide	Calcium	Chloride
						
Measuring range	10 ⁻⁶ ... 5 · 10 ⁻² mol/l NH ₄ ⁺ 0.02 ... 900 mg/l NH ₄ ⁺	10 ⁻⁶ ... 1 mol/l Na ⁺ 0.01 ... 23000 mg/l Na ⁺	0.01 ... 108000 mg/l Ag ⁺ 0.003 ... 32000 mg/l S ²⁻	0.4 ... 79000 mg/l Br	0.02 ... 40000 mg/l Ca ²⁺	2 ... 35000 mg/l Cl ⁻
Reference electrolyte	-	3 mol/l KCl	-	-	-	-
Diaphragm	-	Platinum wire	-	-	-	-
pH range	4 ... 12	8 ... 11	2 ... 12	1 ... 12	2.5 ... 11	2 ... 12
Temperature range	0 ... 50 °C	-10 ... +80 °C	0 ... 80 °C	0 ... 80 °C	0 ... 40 °C	0 ... 80 °C
Membrane resistance	-	< 500 MΩ	< 1 MΩ	< 0.1 MΩ	1 bis 4 MΩ	< 1 MΩ
Membrane	-	Glass electrode	Solid state electrode	Solid state electrode	Matrix electrode	Solid state electrode
Immersion depth	Min.: 5 mm, Max.: 50 mm	Min.: 20 mm, Max.: 100 mm	Min.: 20 mm, Max.: 80 mm			
Shaft length	120 mm					
Shaft diameter	12 mm					
Add. scope of delivery	3 exchange heads, 50 ml electrolyte solution	-	Electrolyte	Electrolyte	Electrolyte and exchange head	Electrolyte
Connection	S7 plug head		Waterproof DIN plug			
Cable	without cable*		1 m fixed cable			

	Analog					
Model	CN 800 DIN	Cu 800 DIN	F 800 BNC	F 800 DIN	K 800 DIN	NO 800 DIN
Order-No.	106663	106665	106666	106667	106671	106675
Ions/gases	Cyanide	Copper	Fluoride	Fluoride	Potassium	Nitrate
						
Measuring range	0.2 ... 260 mg/l CN ⁻ (recommended 0.2 ... 25 mg/l CN ⁻) 8 x 10 ⁻⁶ ... 1 x 10 ⁻² mol/l CN ⁻ (recommended 8 x 10 ⁻⁶ ... 1 x 10 ⁻³ mol/l CN ⁻)	6 x 10 ⁻⁴ ... 6350 mg/l Cu ²⁺	0.02 mg/l F ⁻ (10 ⁻⁶ mol/l) until saturation	0.02 mg/l F ⁻ (10 ⁻⁶ mol/l) until saturation	0.04 ... 39000 mg/l K ⁺	0.4 ... 62000 mg/l NO ₃ ⁻
Reference electrolyte	-					
Diaphragm	-					
pH range	0 ... 14	2 ... 6	5 ... 7		2 ... 12	2.5 ... 11
Temperature range	0 ... 80 °C					
Membrane resistance	< 30 MΩ	< 1 MΩ	0.15 ... 0.2 MΩ	0.15 ... 0.2 MΩ	< 50 MΩ	1 bis 5 MΩ
Membrane	Solid state electrode	Solid state electrode	Solid state electrode	Solid state electrode	Matrix electrode	Matrix electrode
Immersion depth	Min.: 20 mm, Max.: 80 mm					
Shaft length	120 mm					
Shaft diameter	12 mm					
Add. scope of delivery	Electrolyte				Electrolyte and exchange head	Electrolyte and exchange head
Connection	Waterproof DIN plug		BNC plug	Waterproof DIN plug		
Cable	1 m fixed cable					

*=Suitable connection cables can be found on page 28

pH electrodes guide - applications

SenTix®		Field					Lab											
		2x	4x / 940	5x / 950	Top	Sp-T	6x	8x / 980	9x	H	HWx	Micx	SpX	Sur	RJD	945	Sensolyt® 900P	
Application																		
Chemistry	Diluted acids						●	●	●		○						●	
	Diluted alkalis																	
	Emulsions, water-based						●	●	●		●						●	●
	Non-aqueous liquids										○	○						
	Oil/water emulsions				●		●	●	●		●				●	●	●	
	Sulfide-containing liquids				●						●					●		
Industry	Boiler feed water						○	○	○		●					○		
	Cooling water						●	●	●		●					●		
	Cutting oil emulsions				●										●		●	
	Dye solutions						●	●	●		●					●		
	Galvanic wastewater	●	●	○	●		○	○	○		○					○	●	
	Galvanic baths				●		●	●	●		○				●	●		
	Waste water	●	●	○	●		○	○	○							○	●	
Paper extract						●	●	●								●		
Water	Aquarium water	●	●	●	●		○	○	○									
	Condensate										●							
	Distilled water										●							
	Fully desalinated water										●							
	Saline solutions	○	○	○	○		●	●	●		○					●	●	
	Suspensions				●						●				●		●	
	Swimming pool water	●	●	●	●		●	●	●							●		
	Waster water, general	●	●	○	●		○	○	○							○	●	
	Drinking water	○	○	●	○		●	●	●		○					●	●	
	Groundwater	●	●	○	●		○	○								○	●	
Field Measurements	Lake water	○	○	○	○		●	●	●		●					●	●	
	Rain water						○	○	○		●					○		
	Sea water						○	○	○		○					○		
	Soil extract						●	●	●		●					●		
	Surface water	●	●	●	●		●	●	●		○					●	●	
Cosmetics/Cleaning	Hair color				●		●	●	●		●					●		
	Hair gel						●					●				●		
	Lotions / Creams				●	●					●	●	●			●		
	Make-up				●						●	●						
	Mouthwash						●	●	●		●					●		
	Shampoo				●						●				●	●		
	Toothpaste				●	●						●			●	●		
	Household cleaners	○	○	○	○		●	●	●	●	○					●	●	

● recommended for this application ○ applicable for this application

SenTix®		Field					Lab												
		2x	4x / 940	5x / 950	Top	Sp-T	6x	8x / 980	9x	H	HWx	Micx	SpX	Sur	RJD	945	Sensolyt® 900P		
Application																			
Paints	Bleach																○		
	Dispersion paints										●						●	●	
	Paints & varnishes, water-soluble										●	○	○		○		●	○	
Solids / Surfaces	Leather (Surface)																●		
	Paper																●		
	Skin (Surface)																●		
	Solids (Penetration)																●		
Beverages	Solids (Surface)																●		
	Beer																●		
	Lemonade																●		
	Sparkling Water																●		
	Fruit juice																●		
	Vegetable juice																●		
	Wine																●		
	Milk																●		
	Bread																	●	
	Coffee extract																	●	
Food	Fish																●		
	Honey																○		
	Marmalade																○		
	Butter / margarine																●	●	
	Mayonnaise																●	●	
	Meat																●		
	Sausage																●		
	Vinegar																●		
	Fruits / vegetabels																●		
	Cheese																●		
	Yogurt																●	○	
	Pharma, Biology, Medicine	Agar-agar gel																●	
		Bacterial cultures																●	
Enzyme solutions																	●		
Gastric juice																	●		
Infusion solutions																	●		
Protein-containing liquids																	●		
Saliva																	○		
Serum																	●		
Tris buffer solutions																	●		
Urine																	●		
Vials																	●		

● recommended for this application ○ applicable for this application

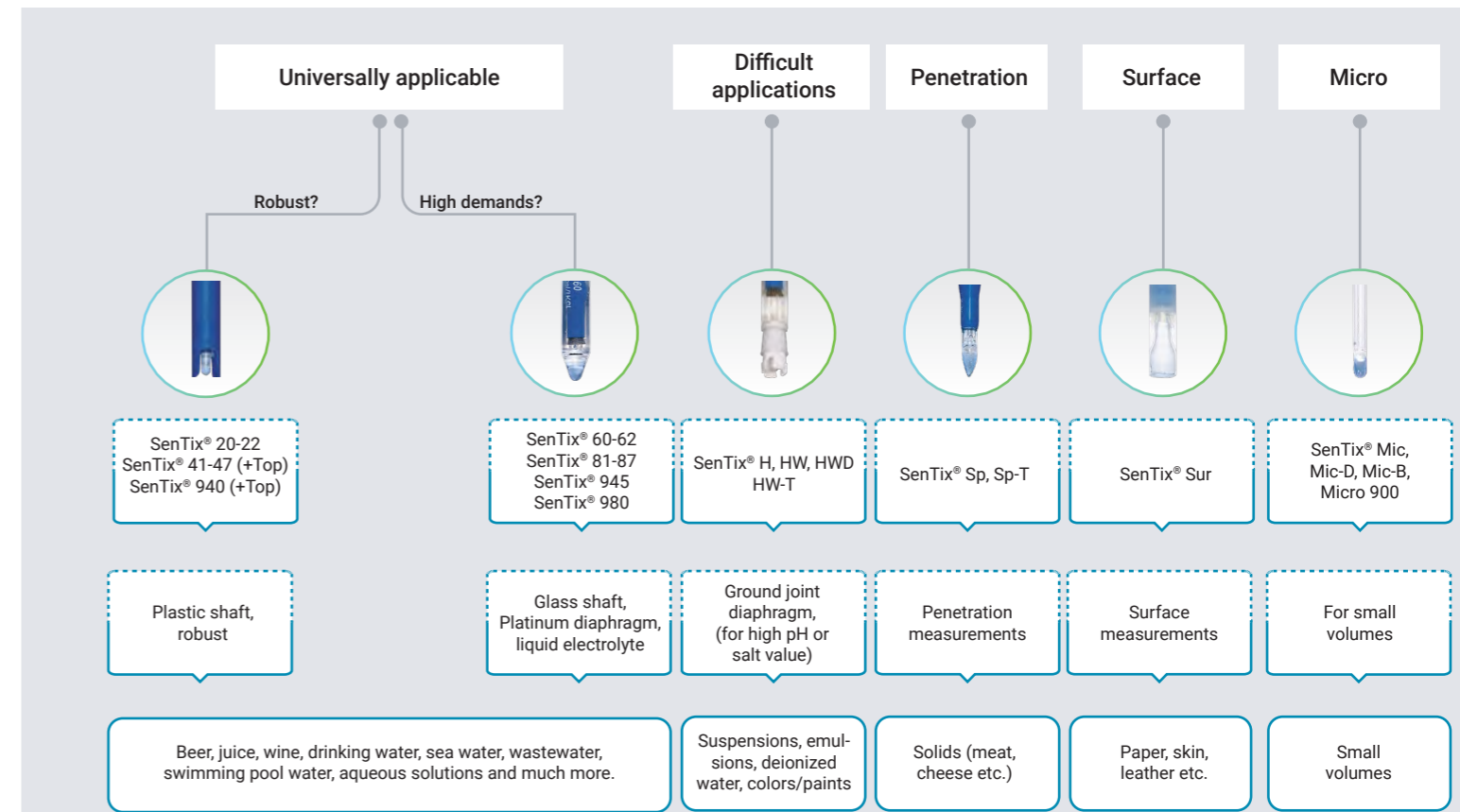
pH electrodes guide - membranes

Head	Shape	Application
	Sphere	Constant quality, low resistance due to large surface area, suitable for most applications
	Cone	Shockproof , easy to clean
	Calotte	Easily wetted , shockproof, easy to clean
	Cylindric	Shockproof , for general applications
	Spear	Shockproof, for penetration of semi-solid samples
	Flat	Shockproof, easy to clean, primarily for measurements on surfaces
	Micro	Measurement in small volumes , suitable for general applications

pH electrodes guides - diaphragms

Type	Resistance	Outflow	Application
	1 kOhm	up to 0.2 ml/d	General purpose, robust
	0.5 kOhm	up to 1 ml/d	Universally applicable, quick adjustment, constant, insensitive to pollution
	0.2 kOhm	up to 3 ml/d	Suitable for emulsions, ultrapure water, easy to clean
	0.1 kOhm	-	Symmetrical, easy to handle, insensitive to pollution , suitable for wastewater, suspensions
	1 kOhm	-	Quick adjustment, easy handling

pH electrodes guide - selection guide



pH electrodes guide - online tool

Simply answer 5 questions in our new online tool and you will receive the right pH electrode for your application.



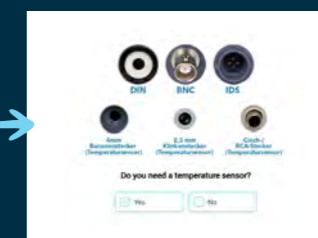
To our selector



Question 1:
Where do you measure?



Questions 2+3:
Application area?
Measuring medium?







Questions 4+5:
Connections?
Temperature sensor?






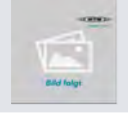

Result:
Clear recommendation!

Accessories



Standard buffers

Name	Art.-No.	Description
 PL 2 (pH 1.679 /1.68) PL 4 (pH 4.006 /4.01) PL 7 (pH 6.865 /6.87) PL 9 (pH 9.180 /9.18) PL 12 (pH 12.47)	109000 109110 109120 109130 109400	Standard (DIN/NIST) buffer solution for special applications 1 x 250 ml
 SORT/K	109415	Calibration and maintenance set with standard (DIN/NIST) buffer solution: <ul style="list-style-type: none"> 3 bottles with 250 ml each: pH 4.006 - 6.865 - 9.180 1 bottle with 250 ml pepsin cleaning solution 1 bottle with 250 ml KCl solution 3 mol/l
 L 4798	285138238	DIN buffer solutions in FIOLAX® ampoules <ul style="list-style-type: none"> 3 x 20 FIOLAX® ampoules (17 ml each): pH 4,01, pH 6,87, pH 9,18 (traceably certified to PTB/NIST, hot steam sterilized)
 QSC Kit	109830	Initial calibration kit for IDS pH electrodes: <ul style="list-style-type: none"> 3 ampoules pH 4.01; pH 6.86; pH 9.18

KCl, cleaning and references

Name	Art.-No.	Description
 PEP/pH (3x250ml)	109648	Pepsin cleaning solution (<i>only for electrodes with liquid electrolytes</i>), to remove protein-containing contamination from the diaphragm, 3 x 250 ml
 KCl-50	109706	KCl solution, 3 mol/l, 1 x 50 ml
 KCl-250	109705	KCl solution, 3 mol/l, 1 x 250 ml
 ELY/ORP/Ag	109735	Electrolyte with 2 mol/l KNO ₃ + 0.001 mol/l KCl (<i>for combined Ag-electrode</i>), 1 x 250 ml
 RH 28	109740	ORP buffer solution pH 7, U _H = 427 mV, 1 x 250 ml




Storage

Name	Art.-No.	Description
 Z 453	285123170	Plastic container with compression ring seal and bayonet lock for electrodes with a diameter of 12 mm
 pH-Cap	108065	Replacement watering cap for SenTix® pH electrodes (12 mm shaft)

Technical buffer solutions










Name	Art.-No.	Description
 STP 4 (pH 4.01) STP 7 (pH 7.00) STP 10 Trace (pH 10.01)	108706 108708 108722	Technical buffer solution, 1 x 50 ml
 TPL 4 (pH 4.01) TPL 7 (pH 7.00) TPL 10 Trace (pH 10.01)	108800 108802 108805	Technical buffer solution, 1 x 250 ml
 TPL 4/10 (pH 4.01) TPL 7/10 (pH 7.00) TPL 10 Trace/10 (pH 10.01)	108801 108803 108809	Technical buffer solution, 10 x 250 ml
 TPL 4/25 (pH 4.01) TPL 7/25 (pH 7.00) TPL 10 Trace/25 (pH 10.01)	108811 108812 108814	Technical buffer solution, 25 x 250 ml
 TEP 2 (pH 2.00) TEP 4 (pH 4.01) TEP 7 (pH 7.00) TEP 10 Trace (pH 10.01)	108698 108700 108702 108703	Technical buffer solution, 1 x 1 Liter
 TEP 4/10 (pH 4.01) TEP 7/10 (pH 7.00) TEP 10 Trace/10 (pH 10.01)	108701 108725 108727	Technical buffer solution, 10 x 1 Liter
 TEP 4/25 (pH 4.01) TEP 7/25 (pH 7.00) TEP 10 Trace/25 (pH 10.01)	108728 108729 108731	Technical buffer solution, 25 x 1 Liter
 SORT/TPL/TRACE	108824	Calibration and maintenance set technical buffer solution: <ul style="list-style-type: none"> 3 bottles with 250 ml each: pH 4.01/7.00/10.01 Trace 1 bottle with 250 ml KCl solution 3 mol/l 1 bottle with 250 ml pepsin cleaning solution
 SORT/TPL/G/TRACE	108825	Calibration and maintenance set technical buffer solution (Gel electrodes): <ul style="list-style-type: none"> 3 bottles with 250 ml each: pH 4.01/7.0/10.01 Trace 2 bottles with 250 ml each: KCl solution 3 mol/l
 SORT/TEP/TRACE	108826	Calibration and maintenance set technical buffer solution: <ul style="list-style-type: none"> 3 bottles with 1 l each: pH 4.01/7.0/10.01 Trace 1 bottle with 250 ml: pepsin cleaning solution 1 bottle with 250 ml KCl solution 3 mol/l
 SORT/TEP/G/TRACE	108827	Calibration and maintenance set technical buffer solution (Gel electrodes): <ul style="list-style-type: none"> 3 bottles with 1 l each: pH 4.01/7.0/10.01 Trace 2 bottles with 250 ml each: KCl-Lösung 3 mol/l

Conductivity standard


Name	Art.-No.	Description
 E-SET Trace	300572	Calibration set for conductivity measurement <ul style="list-style-type: none"> 6 bottles with 50 ml each: calibration and control standard, KCl 0.01 mol/l, 1413 µS/cm bei 25 °C (traceable to PTB/NIST)
 LF 990 (KCl 0,001 mol/l) LF 991 (KCl 0,01 mol/l) LF 992 (KCl 0,1 mol/l)	285126503 285126528 285126511	Conductivity test solution in FIOLAX® ampoules <ul style="list-style-type: none"> 3 x 6 FIOLAX® ampoules (17 ml each): KCl 0,01 mol/l (1,41 mS/cm) (traceably certified to PTB/NIST, hot steam sterilized)
 LF 995	285126293	Conductivity test solution in FIOLAX® ampoules <ul style="list-style-type: none"> 3 x 6 FIOLAX® ampoules (17 ml each): KCl 0,01/0,1/1 mol/l (1,41 mS/cm / 12,9 mS/cm / 112 mS/cm) (traceably certified to PTB/NIST, hot steam sterilized)

Accessories



Cable & plugs

	Name	Art.-No.	Description	
Analog	 AS/DIN AS/DIN - 3	108110 (1m) 108112 (3m)	Connection cable with DIN plug (for pH/ORP electrodes with plug head)	
	 AS/BNC	108114	Connection cable with BNC plug (for pH/ORP electrodes with plug head) 1 m cable	
	 ADA-DIN-BNC	108509	Adapter for connecting pH electrodes with BNC plug to a meter with DIN socket	
IDS	 IDS WLM-S	108141	Wireless module for IDS plug head sensors for radio transmission of measurement values. Includes rechargeable LiPo-battery. Splash water protected according IP 66.	
	 IDS WLM-M	108142	Wireless module for connecting to MultiLine® 3310/3510/36x0 IDS and inoLab® Multi IDS. Connects up to three sensors at the same time (depends on meter capabilities). Also for operation of OxiTop®-IDS.	
	 WLM Charger	108143	Charger without external power supply for charging IDS WLM-S modules, with USB plug, cascable, with USB cable. For charging via PC or external USB power supply.	
	 IDS WLM Kit	108144	Kit consisting of one of each IDS WLM-S, IDS WLM-M and WLM Charger including USB power supply for wireless operation of IDS plug head sensors.	
		AS/IDS-1.5 903850 (1.5m) AS/IDS-3 903851 (3m) AS/IDS-10 903853 (10m) AS/IDS-15 903854 (15m) AS/IDS-20 903855 (20m) AS/IDS-40 903857 (40m) AS/IDS-60 903858 (60m) AS/IDS-100 903859 (100m)	Connection cable for MPP IDS respectively IDS sensors with waterproof plug head	
		ADA S7/IDS	108130	Adapter cable 1.5 m with digital connector, for connecting a SenTix® combination electrode with S7 plug head to a MultiLine® or inoLab® IDS.






Flow-through vessel

Name	Art.-No.	Description
 D 3Sen	903842	Flow-through vessel for up to three pH, ORP, D.O. or conductivity sensors (also IDS). With tube adapter for commercially available garden hoses inner diameter 19 mm (3/4"). Including clamp also for mast mounting.



Case sets

Name	Art.-No.	Description
 KS Universal	2F0001	Universal Case set for all analog and digital handhelds (<i>without meter and sensors</i>) incl. <ul style="list-style-type: none"> • Armoring SM Pro • Buffer STP 4 und STP 7 • Stand & beaker • Conductivity standard 1413 µS/cm at 25° C
 KS MultiLine® 2	2F0004	Case set for MultiLine® multiparameter systems with 3 IDS sensors (large field case) (<i>without meter and sensors</i>) incl.: <ul style="list-style-type: none"> • Armoring SM Pro • Buffer STP 4 and STP 7 • Stand & beaker • Conductivity standard 1413 µS/cm at 25° C

Armorings

Name	Art.-No.	Description
 A pHLab/K	903841	Plastic armor for protecting pH and ORP electrodes with length 120 mm in the field and in a plant
 A 325/K	903830	Plastic armor with protective hood for oxygen sensor CellOx® 325 and conductivity cell TetraCon® 325
 A 925/K	903836	Armor for IDS field sensors including guard, suitable for TetraCon® 925, SensoLyt® 900, FDO® 925, material: POM .
 A 925-P/K	903839	Armor for IDS field sensors including guard designed for TetraCon® 925-P, SensoLyt® 900-P, SensoLyt® ORP 900-P, FDO® 925-P, Viso-Turb® 900-P, material: POM .
 A 925-P/S	903840	Armor for IDS field sensors including guard designed for TetraCon® 925-P, SensoLyt® 900-P, SensoLyt® ORP 900-P, FDO® 925-P, material: Stainless steel .

Stands

Name	Art.-No.	Description
 STH 650	109809	Benchtop stand for pH electrodes, ion-sensitive electrodes, reference electrodes, temp sensors, oxygen sensors and TetraCon® 325 cond cells
 STH 9400	109813	Stand including electrode holder for right or left mounting, for inoLab® 94x0

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Diverse parameters

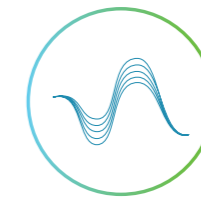
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pH



Multiparameter



Photometry



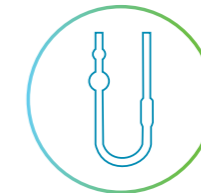
Temperature



Titration



Refractometry



Viscometry



Respirometry

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pH electrodes - blog

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Xylem | 'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

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The information in the current operating instructions is decisive for safe operation.

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February 2026

The Xylem logo, featuring a stylized green and blue wave-like graphic followed by the word 'xylem' in a lowercase, sans-serif font.