

## Applications for SenTix® electrodes

Our pH electrodes are optimised for measurement in aqueous systems. In addition, there is the possibility to also measure samples of a different consistence. The following table provides information about other application fields and electrodes suitable therefor.

- recommended by WTW
- can be used for this application

\* only recommended for the mentioned model

	SenTix® ...											
	20 21-..., 22	41, 41-3, 42, RJD, 940, 940-P	51, 52, 950, 950-P	60, 61 62	81, 82, 980, 980-P, 945, 945-P	91	H	HW, HWD, HW-T 900, HW-T 900-P	Sp, Sp-DIN, Sp-T 900, Sp-T 900-P	Sur	Mic, MIC-D, MIC-B, Micro 900, Micro 900-P	ORP**, ORPT 900**, ORPT 900-P**, PtR, Ag, Au
Aquarium water	●	●	●	○	○	○						ORP...*, PtR*
Beer			●	●	●			●				ORP...*
Beverages			●	●	●	●		○				
Bleaching lye			○	○	○	○	●	○				
Boiler feed water				○	○	○		●				
Bread									●			
Cheese (punch possibly necessary)									●			
Coffee extract			○	●	●	●		●				
Condensate								●				
Cosmetics								●	●	●		
Diluted acids				●	●	●		○				Au, ORP...*
Diluted alkalis							●					
Dispersion colors		RJD*						●				
Distilled water								●				
Drinking water	○	○	●	●	●	●		○				
Electroplating waster water	●	●	○	○	○	○		○				○
Fruit									●			
Fruit juice			●	●	●	●		○				
Fruit juice			●	●	●	●		○				
Fully demineralised water								●				
Galvanic baths		RJD*	●	●	●	●		○				●
Groundwater	●	●	○	○	○							PtR*
H <sub>2</sub> S-containing liquids		RJD*						●				PtR*
Household cleaners	○	○	○	●	●	●	●	○				
Leather										●		
Lemonade			●	●	●	●		○				
Measurement in Eppendorf or NMR vessels											●	
Meat (punch possibly necessary)									●			
Milk				●	●	●		●				
Mineral water	○	○	●	●	●	●		○				
Oil/water emulsions		RJD*						●				
Paints and coatings, water soluble		RJD*						●				
Paper										●		
Paper extract				●	●	●						
Protein-containing liquids				●	●	●		●			MIC-D/-B* Micro 900*	
Rain water				○	○	○		●				
saline solutions	○	○	○	●	●	●	○	●				ORP...*
saliva										●	○	
Sausage (punch possibly necessary)									●			
Seawater				○	○	○	○	●				
Shampoo								●				
Skin										●		
Soil extract				●	●	●		●				
Solids (insertion)									●			
Solids (surface)										●		
Surface water	●	●	●	●	●	●		○				
Suspensions		RJD*						●				ORP...*
Swimming pool water	●	●	●	○	○	○						
Tris buffer solutions				●	●	●		●				
Vegetable juice			○	●	●	●		○				
Vegetables									●			
Waste water	●	●	○	○	○	○						PtR*
Wine			○	●	●	●		●				
Yoghurt				●	●	●		●	●			

1 year warranty for material damages for all pH sensors as per § 10 Terms and Conditions  
\*\* for ORP measurement

# SenTix® pH electrodes analogue

WTW SenTix® quality electrodes - measurement convenience and precision in one.

- Low-resistance membrane glasses warranty stable measurement signals even at low temperatures
- Silver ion-free reference electrolyte together with the proven platinum wire junction prevents measurement problems due to precipitating silver compounds
- Functional slider for opening and safe closing of the refill opening with electrodes with liquid electrolyte.
- Connection possibilities: waterproof DIN plug, BNC plug, fixed cable (1 or 3 m) or plug head (S7)

## Technical specifications: SenTix® pH electrodes analogue

Models SenTix® ...	pH electrodes with gel electrolyte							pH electrodes with liquid electrolyte							
	20	21	21-3	22	41	41-3	42	51	52	60	61	62	81	82	91
Measurement Range pH	0 ... 14 pH			0 ... 14 pH				0 ... 14 pH		0 ... 14 pH			0 ... 14 pH		0 ... 14 pH
Application area temp.	0 ... 80 °C			0 ... 80 °C				0 ... 80 °C		0 ... 100 °C			0 ... 100 °C		0 ... 100 °C
Reference electrolyte	Gel							KCl 3 mol/l, Ag <sup>+</sup> -free							
Membrane shape	Cylinder			Cylinder				Cylinder		Cone			Cone		sphere
Membrane resistance	<1 GΩ			<1 GΩ				<1 GΩ		<600 MΩ			<600 MΩ		<600 MΩ
Diaphragm	Fibre			Fibre				Ceramics		Platinum			Platinum		Platinum
Shaft material	Plastic			Plastic				Plastic		Glass			Glass		Glass
Shaft length (±2 mm)	120 mm			120 mm				120 mm		120 mm			120 mm		170 mm
Shaft-Ø (±0.5 mm)	12 mm			12 mm				12 mm		12 mm			12 mm		12 mm
Temperature sensor	-			integr. NTC (30 KΩ)				integr. NTC (30 KΩ)		-			integr. NTC (30 KΩ)		integr. NTC (30 KΩ)
Connection	①	②	②	②	②	②	②	②	②	①	②	②	②	②	②
Electrode cable	③*	④	⑤	④	④	⑤	④	④	④	③*	④	④	④	④	④
Electrode plug	⑥/⑦	⑥	⑥	⑦	⑥+⑧	⑥+⑧	⑦+⑧	⑥+⑧	⑦+⑧	⑥/⑦	⑥	⑦	⑥+⑧	⑦+⑧	⑥+⑧

Models SenTix® ...	pH electrodes for special applications										
	H	HW	HWD	SP	SP-DIN	Sur	Mic	Mic-D	Mic-B	RJD	
Measurement Range pH	0 ... 14 pH		0 ... 14 pH	0 ... 14 pH	2 ... 13 pH		2 ... 13 pH		0 ... 14 pH	0 ... 14 pH	2 ... 13 pH
Application area temp.	0 ... 80 °C		0 ... 60 °C	-5 ... 100 °C	0 ... 80 °C		0 ... 50 °C		0 ... 100 °C	-5 ... 100 °C	0 ... 80 °C
Reference electrolyte	KCl 3 mol/l, Ag <sup>+</sup> -free				Polymer			KCl 3 mol/l, Ag <sup>+</sup> -free		Polymer	
Membrane shape	Cylinder		Cylinder	Sphere	Spear		Flat		Cylinder	Cylinder	Calotte
Membrane resistance	< 2 GΩ		< 800 MΩ	< 600 MΩ	< 400 MΩ		< 1 GΩ		< 700 MΩ	< 1 GΩ	< 600 MΩ
Diaphragm	Split ring		Split ring	Split ring	Hole		Split ring		Ceramics	Platinum	Split ring
Shaft material	Glass		Glass	Glass			Glass		Glass	Glass	Glass
Shaft length (±2 mm)	170 mm		170 mm	170 mm	65/25 mm		120 mm		40/80 mm	96 mm **	120 mm
Shaft-Ø (±0.5 mm)	12 mm		12 mm	12 mm	15/5 mm		12 mm		12/5 mm	3 mm	12 mm
Temperature sensor	-		-	integr. NTC (30 KΩ)	-		-		-	-	integr. NTC (30 KΩ)
Connection	①		①	②	①	②	①		①	②	②
Electrode cable	③*		③*	④	③*	④	③*		③*	④	④
Electrode plug	⑥/⑦		⑥/⑦	⑥+⑧	⑥/⑦	⑥	⑥/⑦		⑥/⑦	⑥	⑦

\* not contained in the scope of delivery

①: Plug head, ②: Fixed cable,

\*\* from grinding upper edge

③: AS/DIN, AS/DIN-3 or AS/BNC, ④: Cable length 1 m, ⑤: Cable length 3 m,

⑥: DIN plug, ⑦: BNC plug, ⑧: Banana plug

## Low maintenance analogue pH electrodes with gel electrolyte

Ideal for portable measurement but also for routine measurement in the laboratory. With or without built-in temperature sensor All electrodes have robust plastic shafts and a low-maintenance gel reference system.



## Quick and precise analogue pH electrodes with liquid electrolyte

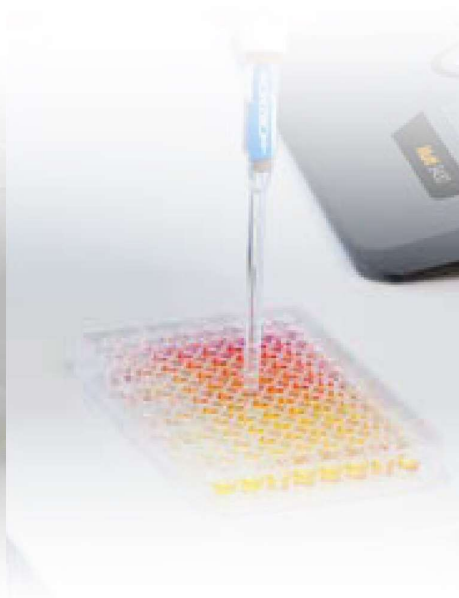
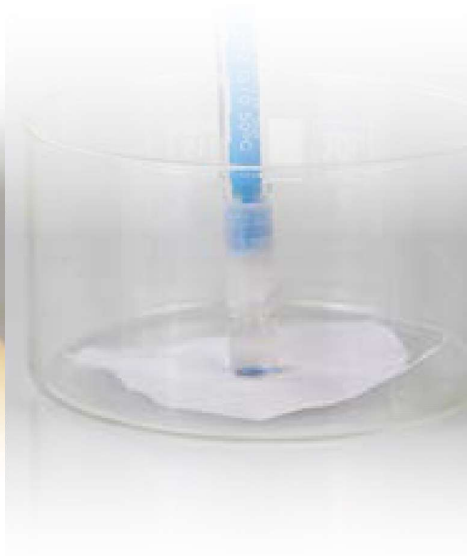
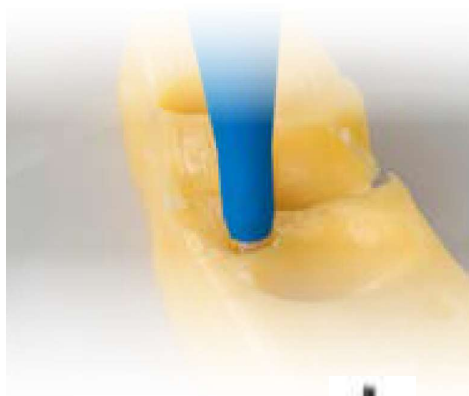
For demanding measurements in the laboratory: SenTix® Electrodes with liquid electrolyte, easy to clean glass shaft and platinum diaphragm. Can also be used in difficult samples. And who needs an electrode with liquid electrolyte for portable measurement: The SenTix® 51/52 with plastic shaft, integrated temperature sensor and ceramic diaphragm masters nearly every measuring task.



## Analogue pH electrodes for special applications: Specialists for all cases

The consistencies of samples in which pH is measured are very different. Liquid or solid, low in ions or highly concentrated, aqueous and non-aqueous phases, with and without suspended solids. Sometimes the smallest volumes have to be determined. All this can be handled easily together with our specialists.

For measurements in or on solids, spear-type and surface electrodes are recommended. pH value measurements in ion-poor or concentrated solutions can be mastered with ground electrodes, as well as in emulsions. Samples with suspended solids can most easily be measured with polymer electrodes. Micro-electrodes help when there is little volume available.



SenTix® HW



SenTix® HWD



SenTix® SP



SenTix® Sur



SenTix® Mic



SenTix® Mic-D



SenTix® RJD