

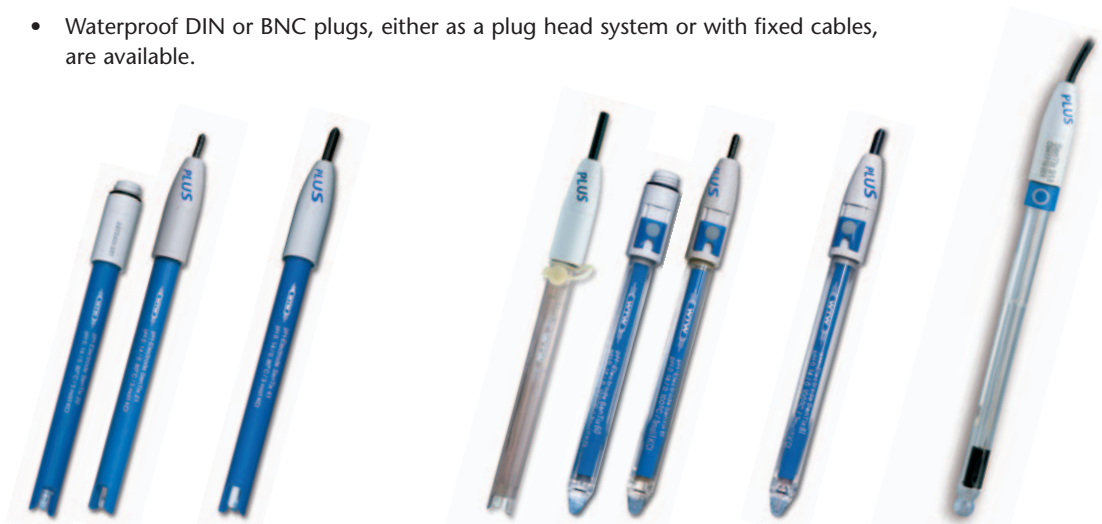
# pH Meters

## pH Electrodes and Accessories

### pH Electrodes

**SenTix® PLUS – the proven and tested pH electrode system from WTW is easier to use and offers more quality and precision.**

- The new optimized membrane glass guarantees quick measurement even at low temperatures
- The silver ion-free reference electrolyte prevents interference by precipitated silver (self-cleaning)
- SenTix® PLUS electrodes with Gel electrolyte and a plastic body are robust and shockproof. The membrane glass is optimally safe-guarded by a protective shield.
- SenTix® PLUS electrodes with liquid electrolyte – the capillary effect of the platinum wire guarantees constant outflow and prevents contamination by precipitates or dirt even during changes in temperature; with new membrane glass for an even quicker response.
- SenTix® H and HW electrodes: electrolyte flow speed can be adjusted for optimal use.
- The easy to use fill-hole cover prevents electrolyte from leaking out during storage.
- Waterproof DIN or BNC plugs, either as a plug head system or with fixed cables, are available.



SenTix® PLUS Electrodes	SenTix® 20 103 630	SenTix® 21 103 631	SenTix® 21-3 103 632	SenTix® 22 103 633	SenTix® 41 103 635	SenTix® 41-3 103 636	SenTix® 42 103 637	SenTix® 51 103 651	SenTix® 52 103 652	SenTix® 60 103 639	SenTix® 61 103 640	SenTix® 62 103 641	SenTix® 81 103 642	SenTix® 82 103 643	SenTix® 91 103 695	SenTix® 92 103 696
Measuring range pH	0 ...14 pH				0 ...14 pH			0 ...14 pH		0 ...14 pH			0 ... 14 pH		0 ...14 pH	
Operating range °C (°F)	0...80 °C (32...176 °F)				0...80 °C (32...176 °F)			0...80 °C (32...176 °F)		0...100 °C (32...212 °F)			0...100 °C (32...212 °F)		0...100 °C (32...212 °F)	
Reference electrolyte	Gel				Gel			KCl 3 mol/l, Ag <sup>+</sup> -free		KCl 3 mol/l, Ag <sup>+</sup> -free			KCl 3 mol/l, Ag <sup>+</sup> -free		KCl 3 mol/l, Ag <sup>+</sup> -free	
Membrane shape	cylindrical				cylindrical			cylindrical		conical			conical		spherical	
Membrane resistance	<1 GΩ at 25 °C (77 °F)				<1 GΩ at 25 °C (77 °F)			<1 GΩ at 25 °C (77 °F)		<600 MΩ at 25 °C (77 °F)			<600 MΩ at 25 °C (77 °F)		<600 MΩ at 25 °C (77 °F)	
Diaphragm	Fiber				Fiber			ceramics		Platinum			Platinum		Platinum	
Shaft material	Noryl				Noryl			ceramics		Glass			Glass		Glass	
Shaft length	4.72 in. ±0.04 (120 mm ±1)				4.72 in. ±0.04 (120 mm ±1)			4.72 in. ±0.04 (120 mm ±1)		4.72 in. ±0.04 (120 mm ±1)			4.72 in. ±0.04 (120 mm ±1)		6.79 in. ±0.04 (170 mm ±1)	
Shaft Ø	0.47 in. ±0.02 (12 mm ±0.5)				0.47 in. ±0.02 (12 mm ±0.5)			0.47 in. ±0.02 (12 mm ±0.5)		0.47 in. ±0.02 (12 mm ±0.5)			0.47 in. ±0.02 (12 mm ±0.5)		0.47 in. ±0.02 (12 mm ±0.5)	
Temperature Sensor	–				built-in NTC (30 KΩ)			built-in NTC (30 KΩ)		–			built-in NTC (30 KΩ)		built-in NTC (30 KΩ)	
Connection	(1)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(1)	(2)	(2)	(2)	(2)	(2)	(2)
Electrode cable	(3)	(4)	(5)	(4)	(4)	(5)	(4)	(4)	(4)	(3)	(4)	(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)	(7)+(8)

(1): Plug head, (2): Fixed cable, (3): AS/DIN, AS/DIN-3 or AS/BNC, (4): Cable length 3 ft (1 m), (5): Cable length 9 ft (3 m), (6): DIN plug, (7): BNC plug, (8): Banana plug

Parameter

pH

ORP

ISE

Oxygen (D.O.)

Conductivity

Multi-parameter

BOD/Respiration

Photometers

Turbidity

Colony Counter

Software/Printers



## SenTix® PLUS Special Electrodes

	SenTix® H	SenTix® HW	SenTix® SP	SenTix® Sur	SenTix® Mic	SenTix® V	SenTix® FET-D	.../-B
Order No.	103 644	103 650	103 645	103 646	103 647	103 690	103 700	103 702
Measuring range pH	0 ... 14 pH	0 ... 14 pH	2 ... 13 pH	2 ... 13 pH	0 ... 14 pH	0 ... 14 pH	0 ... 14 pH	
Operating range °C	0 ... 80 °C (32 ... 176 °F)	0 ... 60 °C (32 ... 140 °F)	0 ... 80 °C (32 ... 176 °F)	0 ... 50 °C (32 ... 122 °F)	0 ... 100 °C (32 ... 212 °F)	0 ... 80 °C (32 ... 176 °F)	0 ... 60 °C (32 ... 176 °F)	
Reference electrolyte	KCl 3 mol/l, Ag <sup>+</sup> -free	KCl 3 mol/l, Ag <sup>+</sup> -free	Referid®	Referid®	KCl 3 mol/l, Ag <sup>+</sup> -free	Gel	KCl 3,3 mol/l, Ag <sup>+</sup> -free	
Membrane shape	Cylindrical	Cylindrical	Spear	Flat	Cylindrical	Flat	ISFET	
Membrane resistance	<2 GΩ at 25 °C (77 °F)	<800 MΩ at 25 °C (77 °F)	<400 MΩ at 25 °C (77 °F)	<1 GΩ at 25 °C (77 °F)	<700 MΩ at 25 °C (77 °F)	<500 MΩ at 25 °C (77 °F)	—	
Diaphragm	Cut	Cut	Hole	Split ring	Ceramic	Fiber	fritted polyethylene	
Shaft material	Glass	Glass	Glass	Glass	Glass	Noryl	ABS	
Shaft length	6.69 in. ±0.04 (170 mm ±1)	6.69 in. ±0.04 (170 mm ±1)	2.56/0.98 in. ±0.08 (65/25 mm ±2)	4.72 in. ±0.04 (120 mm ±2)	1.57/3.15 in. ±0.08 (40/80 mm ±2)	1.22/0.79 in. ±0.08 (31/20 mm ±2)	3.39 in. ±0.04 (86 mm ±1)	
Shaft diameter	0.47 in. ±0.02 (12 mm ±0.5)	0.47 in. ±0.02 (12 mm ±0.5)	0.59/0.02 in. ±0.02 (15/5 mm ±0.5)	0.47 in. ±0.02 (12 mm ±0.5)	0.47 in. ±0.02 (12 mm ±0.5)	0.67/0.75 in. ±0.02 (17/19 mm ±0.5)	0.67 ... 0.51 in. ±0.02 (17 ... 13 mm ±0.5)	
Connection	Plug head	Plug head	Plug head	Plug head	Plug head	—	DIN	BNC
Electrode cable*	AS/DIN, AS/DIN-3, or AS/BNC	AS/DIN, AS/DIN-3, or AS/BNC	AS/DIN, AS/DIN-3, or AS/BNC	AS/DIN, AS/DIN-3, or AS/BNC	AS/DIN, AS/DIN-3, or AS/BNC	—	fixed cable (39.37 in./1 m)	
Electrode plug	DIN plug or BNC, as selected	DIN plug or BNC, as selected	DIN plug or BNC, as selected	DIN plug or BNC, as selected	DIN plug or BNC, as selected	—	—	
Temperature sensor	—	—	—	—	—	NTC 30 KOhm	NTC 30 KOhm	

\* not included

## Calibration and Maintenance Supplies

The new buffer bottles from WTW

- easy to dispense
- easy to use
- reliable calibration



All WTW Technical buffers are certified accurate and are NIST/DIN traceable (see page 115, Services).

Applicable buffers	PL 4/7/9 DIN/NIST	APL 4/7/9 STAPL 4/7/9 DIN/NIST	TEP 4/7 Trace	TEP 10 Trace	TEP 10 Tec	TPL 4/7 Trace	TPL 10 Trace	TPL 10 Tec
inoLab® 7xx/197i/ Multi 350i	●	●	●	●	—	●	●	—
VARIO pH	●	●	●	●	—	●	●	—
pH 315i, 330i, 340i, pH/ION 340i	●	●	●	●	—	●	●	—
pH/Cond 340i, pH/Oxi 340i, Multi 340i	not Multi 340i	not Multi 340i	●	●	—	●	●	—
inoLab® Level 1,2,3/ pH 197	●	●	●	—	●	●	—	●
pH 330, 340, pH/ION 340	●	●	●	—	●	●	—	●
MultiLine P3/P4	—	—	●	—	●	●	—	●

Ordering informations for calibration and maintenance supplies see brochure "Product Details".

## Applications for SenTix® PLUS Electrodes

	SenTix® V	SenTix® 20 21-..., 22	SenTix® 41, 41-3, 42	SenTix® 51, 52	SenTix® 60, 61 62	SenTix® 81, 82	SenTix® 91, 92	SenTix® H	SenTix® HW	SenTix® Sp	SenTix® Sur	SenTix® Mic	SenTix® FET	SenTix® ORP*
Acids				○	●	●	●	○	○					
Ammonia				○	○	○	○	●						
Aquarium water	●	●	●	●	○	○	○							○
Beer				●	●	●	●	○						
Beverages				●	●	●	●	○	○				○	
Bleach solution				○	○	○	○	●						
Boiler feedwater					○	○	○		●					
Bread										●			●	
Cheese										●			●	
Coffee extract				○	●	●	●	○		○			●	
Condensate									●					
Cosmetics	○							○	●				●	
Demineralized water									●					
Developer				○	○	○	○	●	○					
Dispersion colors	○							○	●					
Distilled water									●					
Drinking water	○	○	○	●	●	●	●	○	○					
Electroplating baths	○			●	●	●	●	○	○					
Electroplating wastewater	●	●	●	○	○	○	○	○	○					○
Extracts				○	○	○	○	○	●					
Fat								○	●					
Fixing baths				○	○	○	○	●	●					○
Fruit										●			●	
Fruit juice	○			●	●	●	●	○	○				○	
Groundwater		○	○	○	○	○	○		○					
Household cleansers	○	○	○	○	○	○	●	●	○					
Juice	○			●	●	●	●	○	○				○	
Leather	○										●			
Lemonade				●	●	●	●	○	○				○	
Lyes								●						
Margarine										●			●	
Meat										●			●	
Milk								○	●				○	
Mineral water	○	○	○	●	●	●	●	○	○				○	
Non-aqueous liquids				○	○	○	○		○					
Oil/water emulsions								○	●					
Paint, water-soluble	○							○	●				●	
Paper	○										●			
Paper extract				○	●	●	●							
Protein-containing liquids					●	●	●	○	●					
Rainwater				○	○	○	○		●					
Saliva	●										●	○	●	
Salt solutions	○	○	○	○	●	●	●	○	○					
Sausage										●			●	
Seawater				○	○	○	○	●						
Shampoo	○								●				●	
Skin	○										●			
Soil extract	●	●	●	●	○	○	○	○						
Solids (penetration)										●			●	
Solids (surface)	○										●			
Sulfide-containing liquids								○	●					
Surface water	○	○	○	●	●	●	●	○	○					
Suspensions								●	●					
Swimming pool water	●	●	●	●	○	○	○							
Tapwater	○	○	○	●	●	●	●	○	○					
Tris buffer solutions							●		●					
Vegetable juice	○	○	○	●	●	●	●	○	○				○	
Vegetables										●			●	
Wastewater	○	●	●	●	○	○	○							
Wine				●	●	●	●							
Yogurt	○	○	○	○	●	●	●			●			●	

● recommended by WTW ○ suitable for this application

\* for ORP Measurement see page 22

Parameter

pH

ORP

ISE

Oxygen (D.O.)

Conductivity

Multi-parameter

BOD/Respiration

Photometers

Turbidity

Colony Counter

Software/Printers

For more information, please contact us:

[ExpotechUSA](#)  
[10700 Rockley Road](#)  
[Houston, Texas 77099](#)  
[USA](#)

[281-496-0900 \[voice\]](#)

[281-496-0400 \[fax\]](#)

E-mail: [sales@expotechusa.com](mailto:sales@expotechusa.com)

Website: [www.ExpotechUSA.com](http://www.ExpotechUSA.com)