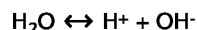


# pH Meters

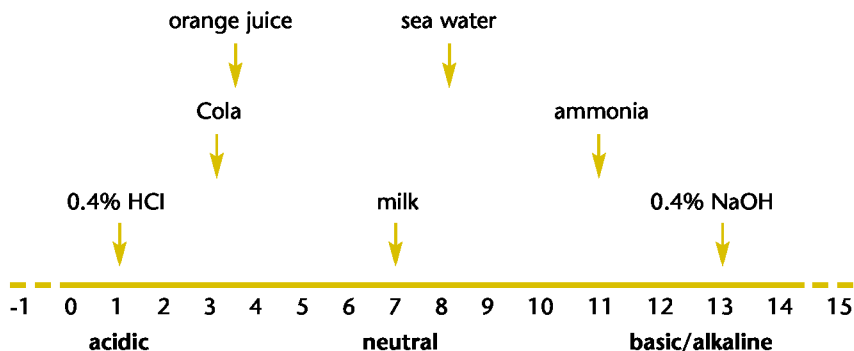
## pH Value

The water molecule has the property of dissociating into two ionic components in aqueous solutions.



The  $\text{H}^+$  ion is termed hydrogen ion or proton, the  $\text{OH}^-$  ion hydroxide ion.

The pH value describes the activity of hydrogen ions in aqueous solutions on a scale of -1 to 15. Based on this scale, liquids are characterized as being acidic, alkaline or neutral: a solution which is neither acidic or alkaline is neutral. This corresponds to a value of 7 on the scale. Acidity indicates a higher activity of hydrogen ions and a pH value lower than 7. Alkaline solutions are characterized by a lower hydrogen ion activity or higher hydroxide ion activity, respectively and a pH value above 7. The graph below uses examples to illustrate the pH scale.



The pH scale is logarithmic. A difference of one pH unit represents a tenfold, or ten times increase or reduction of hydrogen ion activity in the solution. This explains how a solution's aggressiveness increases with the distance from the neutral point.

The pH value can be measured using electrochemical measuring systems, litmus paper, indicators and colorimeters. Of these methods, electrochemical sensors provide the most accurate results.

The pH electrode is an electrochemical sensor which consists of a measuring electrode and a reference electrode. The measuring electrode is made of special glass which, due to its surface properties, is particularly sensitive to hydrogen ions. It is filled with a buffer solution which has a pH value of 7. When placing the pH electrode into a test solution, the change in voltage is measured by the electrode by comparing the measured voltage to the stable reference electrode. This change is recorded by the meter and converted into the pH value displayed.

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## pH Meters

● recommended by WTW   ○ conditionally applicable   – not recommended

Application range	inoLab®					Profiline pH 197i	Handheld Meters				
	pH 720	pH 730	pH/ION 735	pH 740	pH/ION 740		VARIO pH	pH 315i	pH 330i	pH 340i	pH/ION 340i
Routine measurement	●	○	○	○	○	○	●	●	●	○	○
Routine measurement with documentation	-	●	●	●	●	●	-	-	-	●	●
AQA with documentation	-	●	●	●	●	●	-	-	-	●	●
R&D high resolution and precision	-	●	●	●	●	●	-	-	●	●	●
Control measurements	-	●	●	●	●	●	●	-	●	●	●
LIMS connection	-	●	●	●	●	●	-	-	-	○	○
Quality assurance	-	●	●	●	●	●	-	-	●	●	●
Training	●	●	●	●	○	○	●	●	●	○	○
Service	-	-	-	-	-	●	●	●	●	●	●
Laboratory measurements	●	●	●	●	●	●	●	-	-	○	○
Field measurements	-	-	-	-	-	●	-	●	●	●	●
Depth measurements	-	-	-	-	-	●	-	-	-	-	-
External control/PC connection/ PC control	-	●/○/-	-/○/-	●/○/●	●/○/●	●/○/-	-	-	-	●/○/-	●/○/-
pH/ION function	-	-	●	●	●	-	-	-	-	-	●
Ion-specific measurement programs	-	-	●	-	●	-	-	-	-	-	-

see page

14

14

26

15

26

16

18

17

17

17

29

for pH measurement with multi-parameter instruments see page 52



## pH Meters

# Laboratory pH Meters

Along with weighing and temperature measurements, pH is the most measured parameter in the laboratory. With inoLab® WTW offers a family of laboratory instruments which meet all measurement requirements from routine measurements to research applications.

### inoLab® pH 720

#### simple and reliable

Easy to use routine laboratory pH/mV meter with large multifunctional display for pH and temperature, automatic temperature compensation, MultiCal® calibration system; for battery or line power operation.



- Routine meter for precise measurement values (0.001 pH)
- Large display
- Easy-to-clean membrane keypad

### inoLab® pH 730

#### compact and precise

Precision pH/mV meter with large multifunctional display for pH and temperature, automatic temperature compensation, MultiCal® calibration system, built-in measurement storage with GLP-conforming documentation and digital interface. Shown with optional built-in printer.



- Supports all GLP needs
- Built-in printer (optional)
- Datalogger with memory for 800 data sets

IP 43



cETLus

3 Year Warranty

## Laboratory pH Meters

### inoLab® pH 740

#### flexible and powerful

High-performance pH/mV/ION meter with graphic display and digital recorder function for pH, temperature and ion-selective measurement, automatic temperature compensation, high resolution (0.001 pH), MultiCal® calibration system, built-in measurement storage with GLP-conform documentation and digital interface. PC keyboard interface for connecting an external keyboard or a barcode reader. Includes software for direct control by PC. Built-in printer option available.

#### additional features

- 5-point calibration
- Selectable buffers
- Real-Time Graphic Display
- Built-in digital recorder
- Connection for bar-code reader or PC keyboard
- User Selectable Languages
- Multi-Level GLP Functions (password-protected operator levels)
- Free-of-charge downloads for MultiLab® pilot or terminal
- Firmware Updates

- Computer-controlled precision meter
- EMC-stabilized
- Upgradeable firmware/software



### Technical Data

Model	pH 720	pH 730	pH 740
<b>Range/Resolution</b>	pH: -2.000 ... +19.999 pH; -2.00 ... +19.99 pH mV: -999.9 ... +999.9 mV; -1999 ... +1999 mV Temp.: -5.0 ... +105.0 °C (23 ... 221 °F)		-2.000 pH ... +20.000 pH, -2.00 ... +2.00 pH -999.9 ... +999.9 mV, -2000 ... +2000 mV -5.0 °C ... +105.0 °C
<b>Accuracy (±1 digit)</b>	pH: ±0.005 pH ±0.01 pH mV: ±0.3 mV, ±1 mV Temp.: ±0.1 K	±0.005 pH ±0.01 pH ±0.3 mV, ±1 mV ±0.1 K	±0.004 pH ±0.01 pH ±0.2 mV, ±1 mV ±0.1 K
<b>Calibration</b>	<b>MultiCal® automatic calibration:</b>		
AutoCal	2-/3-point	2-/3-point	2-/3-/4-/5-point
AutoCal-Tec	2-/3-point	2-/3-point	2-/3-/4-/5-point
ConCal®	1-/2-point	1-/2-point	1-/2-point
ISECal	-	-	2- and 3-point

### Ordering Information

□ with BNC plug ▲ with DIN plug

inoLab® Laboratory pH Meter SETs – with wide-range power supply 100-240 VAC (50/60 Hz) included	Order No.	▲ Order No.
inoLab® pH 720 Simple and reliable pH meter, including SenTix® 42/41, without passive multifunction box and accessories	1A10-2117	1A10-1112
inoLab® pH 730 Compact precision pH meter with serial interface, including SenTix® 82/81, passive multifunction box and accessories	1A20-2119	1A20-1114
inoLab® pH 740P The intelligent pH measuring station, additionally equipped with built-in printer, incl. terminal, SenTix® 82/81 and accessories	1A31-2119	1A31-1114
Passive multifunction box (not included in pH 720 Set)	109 810	109 810
Other SETs or electrodes in SET see brochure "Product Details"		

For information visit [www.WTW.com](http://www.WTW.com) for a customer care center near you or inside US: call WTW 800 645 5999.

# pH Meters

## Portable pH Meters

### ProfiLine pH 197i

All WTW meters in the ProfiLine pH 197i series are both waterproof (IP 66) and submersible (IP 67). In addition, these units are able to float providing a high degree of comfort when used in field applications. With GLP memory functions, real-time clock, a display corresponding to the recorder output, 800 data records memory capacity, a carry handle, strap standard, the ProfiLine 197i is a complete pH measuring system. When used with the TA 197 Depth Armature, the ProfiLine 197i with its built-in preamplifier, is accurate to a depth of 330 ft (100m).

**New: Powerful NiMH rechargeable batteries.**

- Robust, shockproof
- Fully waterproof
- Standard pH measurement and pH measurement down to depths of 330 ft (100 m)



### Technical Data

Model	ProfiLine pH 197i
Range/ Resolution	pH: -2.00 ... +19.99 pH, mV: -199.9 ... +199.9 mV; -1999 ... +1999 mV Temp.: -5.0 ... +105.0 °C (23 ... 221 °F)
Accuracy (± 1 digit)	pH: ±0.01 pH, mV: ±0.5 at +15 °C ... +35 °C (59 ... 95 °F), ±1 at +15 °C ... +35 °C (59 ... 95 °F) Temp.: ±0.1 K
Calibration	MultiCal® automatic calibration 1-, 2- and 3-point calibration, AutoCal, AutoCal-Tec and ConCal®

### Ordering Information

Portable pH Meter – with wide-range power supply 100-240 VAC (50/60 Hz) included	Order No.
ProfiLine pH 197i Robust, waterproof, submersible pH/mV meter	3A30-110
Depth armatures for measurements down to depths of 330 ft (100 m) see brochure "Product Details"	

# pH Meters

## Handheld pH Meters

pH Meters

### pH 315i, pH 330i, pH 340i

WTW handheld pH meters are optimized for use on-site and field use, but can also be used in the laboratory. In particular the pH 340i, with its optional line power supply and serial interface, is suitable for applications in which precise measurements are required both in the laboratory and the field.

WTW handheld pH meters are available in three versions:

#### **pH 315i:**

Robust and waterproof battery-operated pH/mV meter. Measuring errors are avoided by the silicone keypad with only 5 keys and a simplified calibration method with automatic buffer recognition and display for standard buffers. AutoRead ensures stable and reproducible results.

#### **pH 330i:**

Robust and waterproof battery-operated pH/mV meter with built-in datalogger, real-time clock, GLP-supporting functions, display for calibration switchable between pH and mV. Configured with MultiCal<sup>®</sup> automatic calibration for buffer recognition, and automatic temperature compensation.

#### **pH 340i:**

Features of pH 330i, with additional analog and digital RS 232 output.



IP 66  
IP 67

CE

cETLus

3 Year  
Warranty



- Robust**
- Waterproof (IP 67)**
- Large silicone keys**

## Technical Data

Model	pH 315i	pH 330i	pH 340i	
<b>Range/Resolution</b>	pH: -2.00 ... +16.00 pH mV: -1999 ... +1999 mV Temp.: -5.0 ... +105.0 °C (23 ... 221 °F)	-2.000 ... +19.999 pH; -2.00 ... +19.99 pH -999.9 ... +999.9 mV; -1999 ... +1999 mV -5.0 ... +105.0 °C (23 ... 221 °F)		
<b>Accuracy (± 1 digit)</b>	pH: ±0.01 pH mV: ±0.3 mV at +15 °C ... +35 °C (59 ... 95 °F) Temp.: ±0.1 K	±0.005 pH at +15 ... +35 °C (59 ... 95 °F) ±0.3 mV at +15 °C ... +35 °C (59 ... 95 °F) ±0.1 K		
<b>Calibration</b>	Simplified 1, 2 or 3-point calibration with automatic buffer recognition AutoCal automatic 3-point calibration with DIN buffers	<b>MultiCal<sup>®</sup> automatic calibration:</b> AutoCal automatic 1-, 2- or 3-point calibration with DIN buffers AutoCal-Tec automatic 1-, 2- or 3-point calibration with WTW technical buffers ConCal <sup>®</sup> conventional 2-point calibration with any buffers		

## Ordering Information

Handheld pH Meter SETs	Order No.
pH 315i Robust and waterproof handheld pH meter, for battery operation, in mobile case set with SenTix <sup>®</sup> 41	2A10-1012
pH 330i Robust and waterproof handheld pH meter with datalogger, for battery operation, in mobile case set with SenTix <sup>®</sup> 41	2A20-1012
pH 340i Robust and waterproof handheld pH meter with datalogger and serial interface, in mobile case set with SenTix <sup>®</sup> 41	2A30-1012
Universal wide-range power supply 100 V - 240 V, 50-60 Hz; for 340i series	902 867
Other electrodes in SET see brochure "Product Details"	

For information visit [www.WTW.com](http://www.WTW.com) for a customer care center near you or inside US: call WTW 800 645 5999.

Parameter

pH

ORP

ISE

Oxygen (D.O.)

Conductivity

Multi-parameter

BOD/Respiration

Photometers

Turbidity

Colony Counter

Software/Printers

## NEW

- Compatible with most electrode types
- One-hand operation
- Twistable display

IP 65



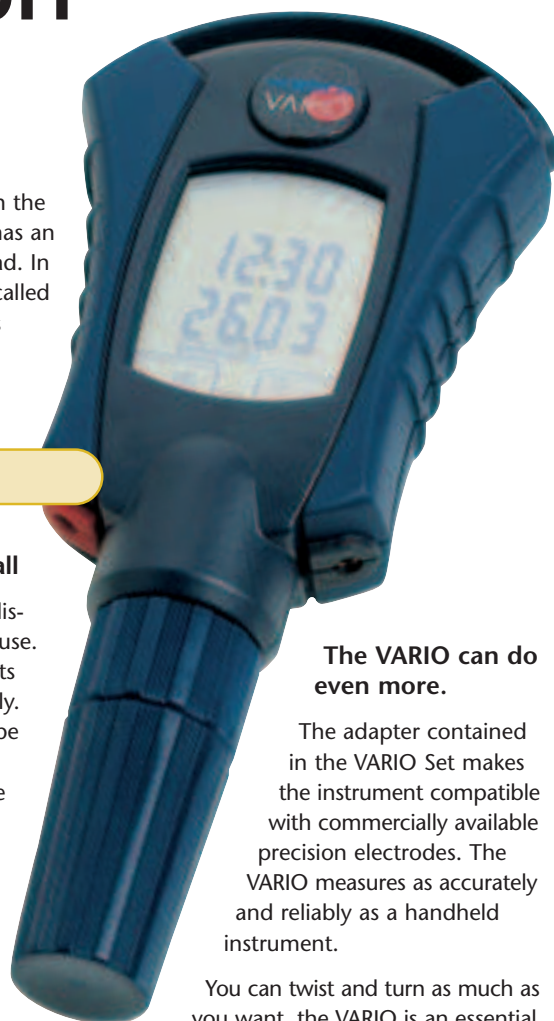
3 Years Warranty



# pH Meters

## VARIO pH

You notice it immediately: apart from its ergonomic form the new VARIO has no keys, but has an innovative touch screen instead. In this way all functions can be called up and set – a simple touch is enough.



### VARIO pH

#### Measuring in no time at all

Just a fingertip touch on the display – and VARIO is ready for use. Immersion in the solution starts the measurement automatically. The stable measurement can be read from the large display together with the temperature and can also be “frozen”. The memory has space for up to 50 measured values for later evaluation.

If the VARIO is not being used for pH measurements then it can be used as a laboratory clock or timer.

Light, handy, robust – it finds a place in every laboratory coat without dripping or leaving nasty stains, as it can be stored without KCl.

The VARIO can operate continuously for 1500 hours on one easily replaceable AA (1.5 V) battery. In addition, the VARIO can operate on line power.

VARIO comes standard with an intelligent glass electrode that is protected by a plastic casing. The conical protective cap does not require KCl which prevents the electrode from dripping and protects it from drying out.

#### The VARIO can do even more.

The adapter contained in the VARIO Set makes the instrument compatible with commercially available precision electrodes. The VARIO measures as accurately and reliably as a handheld instrument.

You can twist and turn as much as you want, the VARIO is an essential aid whenever speed is required in the laboratory or in production.

### Technical Data

	VARIO pH
pH range	-2.00 ... 16.00
pH accuracy	±0.01 pH
Temperature range	-5.0 ... 100.0°C (23 ... 212 °F)
Automatic buffer recognition	TEC/NIST
Calibration points	3 (MultiCal®)

### Ordering Information

VARIO	Order No.
VARIO Set	VARIO in the mobile case set, incl. short electrode with built-in temperature sensor and technical buffer 4 and 7
	2V00-001V
	Other electrodes see brochure “Product Details”

# pH Meters

## pH Electrodes and Accessories



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 (±0.08 in./±2 mm)	4.72 in. (120 mm)				4.72 in. (120 mm)			4.72 in. (120 mm)		4.72 in. (120 mm)			4.72 in. (120 mm)		6.79 in. (170 mm)	
Shaft Ø (±0.02 in./±0.5 mm)	0.47 in. (12 mm)				0.47 in. (12 mm)			0.47 in. (12 mm)		0.47 in. (12 mm)			0.47 in. (12 mm)		0.47 in. (12 mm)	
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)



SenTix® PLUS Electrodes	SenTix® L 103 655	SenTix® Mic-D 103 660	Mic-B 103 661	SenTix® HWS 103 662	SenTix® RJS 103 663	SenTix® pH 103 667	SenTix® R 103 668	SenTix® B 103 669
Measuring range pH	0 ... 14 pH	0 ... 14 pH	0 ... 14 pH	0 ... 14 pH	2 ... 13 pH	0 ... 14 pH	-	-
Operating range °C (°F)	10...100 °C (50...212 °F)	-5...100 °C (23...212 °F)	-5...100 °C (23...212 °F)	-5...100 °C (23...212 °F)	0 ... 80 °C (32...176 °F)	0 ... 80 °C (32...176 °F)	-5...100 °C (23...212 °F)	-5...100 °C (23...212 °F)
Reference electrolyte	KCl 3 mol/l	KCl 3 mol/l	KCl 3 mol/l	KCl 3 mol/l	Referid®	-	KCl 3 mol/l	Double electrolyte system
Membrane shape	Spherical	Cylindrical	Cylindrical	Spherical	Calotte	Spherical	-	-
Membrane resistance	<600 MΩ 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	Platinum	Platinum	Platinum	Cut	Split ring	-	Platinum	Cut
Shaft material	Glass	Glass	Glass	Glass	Glass	Glass	Glass	Glass
Shaft length (±0.08 in./±2 mm)	16.73 in. (425 mm)	3.78 in. (96 mm)	3.78 in. (96 mm)	6.69 in. (170 mm)	4.72 in. (120 mm)	4.72 in. (120 mm)	4.72 in. (120 mm)	4.06 in. (103 mm)
Shaft-Ø (±0.02 in./±0.5 mm)	0.47 in. (12 mm)	0.12 in. (3 mm)	0.12 in. (3 mm)	0.47 in. (12 mm)	0.47 in. (12 mm)	0.47 in. (12 mm)	0.47 in. (12 mm)	0.47 in. (12 mm)
Temperature sensor	built-in NTC (30 KΩ)	-	-	built-in NTC (30 KΩ)	built-in NTC (30 KΩ)	-	-	-
Connection	(9)	(6), (7)	(6), (7)	(9)	(9)	(3)	(10)	(10)

(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, (9) AS S/D1 or AS S/D3 or AS S/B1 or AS S/B3, (10) AS S/R

For information visit [www.WTW.com](http://www.WTW.com) for a customer care center near you or inside US: call WTW 800 645 5999.





## SenTix® PLUS Special Electrodes

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

\* 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	●	●	●	●	—	●	●	—
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".

For information visit [www.WTW.com](http://www.WTW.com) for a customer care center near you or inside US: call WTW 800 645 5999.

## pH Electrodes and Accessories

### Applications for SenTix® PLUS Electrodes

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

● recommended by WTW ○ suitable for this application

\* recommended for the mentioned type only

\*\* for ORP Measurement see page 22