

# ORP measurement



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# Applications and meters overview

The ORP measurement maps the intensity of oxidation and reduction reactions proceeding in aqueous solution. The resulting voltage signal is for example used as a measure of the cleaning power of disinfectants such as chlorine or ozone in the swimming pool.

	Digital			Analogue			Digital			Analogue						
	Laboratory ORP meters						Portable ORP meters									
	inoLab® IDS			inoLab®			MultiLine® IDS			ProfiLine						
	Multi 9630	Multi 9620	Multi 9310	pH/ION 7320	pH 7310	pH 7110	Multi 3630	Multi 3620	Multi 3510	Multi 3320	pH/Cond 3320	pH/ION 3310	pH 3310	pH 3110	pHotoFlex® pH	
✓ yes																
● yes																
✓ recommended																
✓ recommended for some applications																
– not recommended																
2 parameters simultaneously*	✓	✓		✓			✓	✓		✓	✓					
3 parameters simultaneously	✓						✓									
ORP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Additional parameters	●	●	●	●			●	●	●	●	●	●			●*	
Routine measurements	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Routine measurements with documentation	✓	✓	✓	✓	✓	–	✓	✓	✓	✓	✓	✓	✓	–	✓	
AQA with documentation	✓	✓	✓	✓	✓	–	✓	✓	✓	✓	✓	✓	✓	–	✓	
R&D High resolution and precision	✓	✓	✓	✓	✓	–	✓	✓	✓	✓	✓	✓	✓	–	✓	
Control measurements	✓	✓	✓	✓	✓	–	✓	✓	✓	✓	✓	✓	✓	–	✓	
LIMS connection	✓	✓	✓	✓	✓	–	✓	✓	✓	✓	✓	✓	✓	–	✓	
Quality assurance	✓	✓	✓	✓	✓	–	✓	✓	✓	✓	✓	✓	✓	–	✓	
Education	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Service	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Laboratory measurements	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Field measurements	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Depth measurements	–	–	–	–	–	–	✓	✓	✓	–	–	–	–	–	–	
PC connection	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	
Memory	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓			
USB interface	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓			
Graphic display			✓	✓	✓				✓	✓	✓	✓	✓		✓	
Color graphic display	✓	✓					✓	✓								
Compatible sensors																
Digital IDS electrodes																
IDS ORP electrodes	72	✓	✓	✓			✓	✓	✓							
Analogue electrodes																
ORP electrodes	73	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Multi 9630	Multi 9620	Multi 9310	pH/ION 7320	pH 7310	pH 7110	Multi 3630	Multi 3620	Multi 3510	Multi 3320	pH/Cond 3320	pH/ION 3310	pH 3310	pH 3110	pHotoFlex® pH
	see page	40	40	41	56	56	57	44	45	46	49	50	47	61	62	145

\* see chapter "Photometric determination" on page 130

ORP measurements can be carried out with all WTW pH/mV meters.

# ORP electrodes

All ORP electrodes consist of a metal electrode made of a precious metal and a reference electrode. As with all SenTix® and SensoLyt® electrodes, the reference system is silver/silver chloride, typically with a platinum electrode.

WTW meters with pH function also measure the ORP voltage

## IDS ORP electrodes - digital



- Short response time due to ideal contact to the sample
- Precise measurement results due to liquid electrolyte
- Refillable for a long life
- Platinum electrode for universal application

### SenTix® ORP-T900 (-P)

ORP electrodes with liquid electrolyte and ceramic diaphragm



- No maintenance due to life-long KCl supply
- Insensitive to soiling due to open connection
- Wide application range due to universal platinum metal electrode

### SensoLyt® ORP 900-P

ORP electrodes with polymer electrolyte and split ring or hole junction

Technical data and order information:

see page 32

# SenTix® ORP electrodes - analogue

Technical data and order information: SenTix® ORP electrodes - analogue

	SenTix® ORP	SenTix® Ag*	SenTix® Au	SenTix® PtR
<b>Order no.</b>	103648	103664	103665	103666
<b>working temperature °C</b>	0 ... 100 °C	-5 ... 100 °C	-5 ... 100 °C	-5 ... 100 °C
<b>Reference electrolyte</b>	KCl 3 mol/l	ELY/ORP/Ag	KCl 3 mol/l	Gel
<b>Sensor</b>	Platinum	Silver	Gold	Platinum
<b>Sensor form</b>	(4 mm)	Cylinder cap	Cylinder cap	(6 mm)
<b>Diaphragm</b>	Ceramics	Ceramics	Ceramics	Split ring
<b>Shaft material</b>	Glass	Glass	Glass	Glass
<b>Shaft length (±2 mm)</b>	120 mm	120 mm	120 mm	120 mm
<b>Shaft-Ø (±0,5 mm)</b>	12 mm	12 mm	12 mm	12 mm
<b>Temperature sensor</b>	-	-	-	-
<b>Connection</b>	AS/DIN, AS/DIN-3, AS/BNC	AS/DIN, AS/DIN-3, AS/BNC	AS/DIN, AS/DIN-3, AS/BNC	AS/DIN, AS/DIN-3, AS/BNC

\* for argentometry



## SenTix® ORP

Universal ORP electrode with platinum round, glass shaft



## SenTix® Ag

Combined Ag electrode (argentometry)



## SenTix® Au

Au ORP electrode with AU cap, liquid electrolyte



## SenTix® PtR

Maintenance-free Pt ORP electrode with polymer electrolyte

Order information: Test and maintenance agents for the ORP measurement

Model	Description	Order no.
<b>RH 28</b>	ORP buffer solution, 1 bottle with 250 ml: pH 7, U <sub>H</sub> = 427 mV	109740
<b>ELY/ORP/AG</b>	Electrolyte with 2 mol/l KNO <sub>3</sub> + 0.001 mol/l KCl for combined ORP electrode with silver electrode	109735

Accessories & cables see price list or [www.WTW.com](http://www.WTW.com)