

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					pHotoFlex® pH
	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	
✓ 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

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* 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:

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SenTix® ORP electrodes – analogue

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

	SenTix® ORP	SenTix® Ag*	SenTix® Au	SenTix® PtR
Order no.	103648	103664	103665	103666
working temperature °C	0 ... 100 °C	-5 ... 100 °C	-5 ... 100 °C	-5 ... 100 °C
Reference electrolyte	KCl 3 mol/l	ELY/ORP/Ag	KCl 3 mol/l	Gel
Sensor	Platinum	Silver	Gold	Platinum
Sensor form	(4 mm)	Cylinder cap	Cylinder cap	(6 mm)
Diaphragm	Ceramics	Ceramics	Ceramics	Split ring
Shaft material	Glass	Glass	Glass	Glass
Shaft length (±2 mm)	120 mm	120 mm	120 mm	120 mm
Shaft-Ø (±0,5 mm)	12 mm	12 mm	12 mm	12 mm
Temperature sensor	-	-	-	-
Connection	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.
RH 28	ORP buffer solution, 1 bottle with 250 ml: pH 7, $U_H = 427$ mV	109740
ELY/ORP/AG	Electrolyte with 2 mol/l KNO_3 + 0.001 mol/l KCl for combined ORP electrode with silver electrode	109735
Accessories & cables see price list or www.WTW.com		