

Redox Combination Electrodes

Redox determination by means of a single rod electrode



The redox combination electrodes can be individually adjusted to the specific task and conditions by a wide-ranged modular configuration system including various types of sensor designs and available materials. Thus, in all fields of industrial process technology, monitoring and laboratory applications universal and accurate pH measurements are available.

Features

- gold or platinum sensor with different designs (calotte or ring) available
→ gold uneligibile in case of permanent high cyanide concentrations
- integrated reference system alternatively comprise a ceramics inlay diaphragm, a PTFE ring diaphragm or a glass membrane
- no contamination of the electrode when utilizing a glass membrane acting as diaphragm of the reference system
→ application of special-purpose glass required in presence of hydrogen fluoride acid
- conduction system consisting of an Ag/AgCl wire and various KCl-electrolytes or internal buffer (in case of glass membrane)
- reference system available with an integrated tube clip for connection to an electrolyte refill or pressure compensation vessel
- reference system optional with integrated ion exchanger for increased contamination protection
- automatic temperature compensation by PT100, PT1000 or NTC possible
- high accuracy, measuring rate and long-term stability
- low maintenance required in combination with long service life
- robust, shock-protected design
- various shaft materials available with variable installation length
- universally applicable at temperatures up to +90 °C (depending on shaft material)
- electrical connection by threaded plug head connector PG 13.5, plug head connector S+ or fixed connection
- appropriate for installation in armatures

Application fields

- universal redox measurements for industrial applications and laboratories
- preferred operation in waste water treatment, in galvanic baths as well as in swimming pools

Technical data

Parameter		Description
measuring sensor	material	platinum (99.99 Pt)
		gold (99.99 Au)
	design	platinum calotte
		gold calotte (bonded)
		platinum rod
gold rod		
reference system	glass membrane (hemispheric)	special-purpose glass, hydrofluoric acid resistant
		special-purpose glass, high temperature
	diaphragm	ceramics inlay Ø 1.5 mm
		PTFE ring
	electrolyte	KCl _{3.5m}
		KCl _{3.5m} with ion exchanger
		gel
		polygel
internal buffer E ₀ pH7		
conduction wire	Ag/AgCl	
shaft material	normal-purpose glass	
	plastic (PMMA)	
shaft diameter	12 mm	
installation length	fabrication according to customer request	
temperature compensation	PT100	
	PT1000	
	NTC	
electrical connection	threaded plug head connector PG 13.5	
	plug head connector S+	
	fixed connection	
permitted temperature range	normal-purpose glass shaft: 0 to +90 °C	
	plastic shaft: 0 to +60 °C	
max. permitted pressure	6 bar	

Order options

design measuring system		membrane/diaphragm reference system		electrolyte		electrical connection		design measuring chain	temperature comp.	shaft properties		installation length		electrolyte refilling														
PR		K		G		PA		K	O	D		12		V														
Order example	gold rod	AD	glass membrane	normal-purpose glass	I	internal buffer E ₀ pH7	H	connector	plug head connector S+ ¹	S+	plastic	standard	K	variable, indication in cm	XX	refill opening, sealed by silicone tube	V											
	platinum rod	PD		special-purpose glass, HF acid resistant	F	gel	G		plug head connector S+, 4-pin ²	S4		with sensor protection	S			no refill opening (hermetically sealed)	H											
	gold calotte	AU		special-purpose glass, high temperature	H	polygel	P		no connector ¹	FX		normal-purpose glass	D			refill by tube clip	standard	T										
	platinum calotte	PT	dia-phragm	ceramics inlay	K	KCl _{3.5m}	K	no connector ²	AX	none	O							with necking and PG 13.5	R									
	silver bar	AG		PTFE ring	R	KCl _{3.5m} with ion exchanger	I	BNC connector straight ¹	FXG									AR-glass with integrated KCl storage vessel	large, Ø 32 mm, height 130 mm	VG								
	Silver bar sulfide coated	AGS							BNC connector angled ¹									FXB									med., Ø 32 mm, height 70 mm	VM
									DIN connector ¹									FXD									small, Ø 26 mm, height 70 mm	VK
								thread PG 13.5	threaded plug head connector PG 13.5 ¹	PA																		
									threaded plug head connector PG 13.5, 4-pin ²	C4																		
									no connector ¹	EX																		
									no connector ²	EAX																		
										BNC connector straight ¹	EXG																	
										BNC connector angled ¹	EXB																	
										DIN connector ¹	EXD																	

¹electrode without automatic temperature compensation

²electrode with automatic temperature compensation

Not all options are combinable. We will be pleased to assist you by selecting the suitable options that meet your requirements. In addition to the displayed order options special customized designs are certainly possible. Please contact us!

The necessary accessories such as connecting cables, armatures and wetting caps can be found in the respective technical data sheets.

Specifications are subject to modifications.