

Reference Electrodes

for the combination with measurement electrodes



The reference 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. Combined with the respective measuring system (e. g. metal electrodes) in all fields of industrial process technology, monitoring and laboratory applications universal and precise measurements are available.

Features

- utilization in combination with a respective measuring electrode
- alternatively with ceramics inlay diaphragm, PTFE ring diaphragm or a glass membrane available
- optional with integrated ion exchanger for increased contamination protection
- no contamination of the electrode when utilizing a glass membrane acting as diaphragm, the reference is then pH-dependent
→ application of special-purpose glass required in presence of hydrofluoric acid
- conduction system consisting of an Ag/AgCl wire and various KCl-electrolytes or internal buffer (in case of glass membrane)
- system available with an integrated tube clip for connection to an electrolyte refill or pressure compensation vessel
- high accuracy and long-term stability
- low maintenance required in combination with long service life
- robust, shock-protected design
- installation length variable
- various shaft materials available
- 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

- universally applicable as reference system for pH and redox measurements for industrial applications and laboratories
- utilization in combination with a measuring system

Technical data

Parameter		Description
reference system	diaphragm	ceramics inlay \varnothing 1.5 mm
		PTFE ring
	glass membrane (hemispheric)	normal-purpose glass, green
		special-purpose glass, hydrofluoric acid resistant
		special-purpose glass, high temperature
	electrolyte	KCl _{3,5m}
		gel
		polygel
		KCl _{3,5m} with ion exchanger
		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	
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

type of reference		membrane/diaphragm		electrolyte		electrical connection		shape of membrane		tempera- ture comp.		shaft properties		installation length		electrolyte refilling					
BA		K		G		PA		-		O		D		12		V					
order example	by glass membrane	G1	glass membrane	normal-purpose glass	I	internal buffer E ₀ pH7	H	no thread	plug head connector S+	S+	hemis- pheric	HK	plastic	standard	K	variable, indi- cation in cm	XX	refill opening, sealed by silicone tube	V		
	by dia- phragm			BA	special-purpose glass, HF acid resistant	F	gel		G	no connector	FX	not applicable		-				with sensor protection	S	no refill opening (hermetically sealed)	H
					special-purpose glass, high temperature	H	polygel		P	BNC connector straight	FXG	normal-purpose glass		D				refill by tube clip	standard	T	
					ceramics inlay	K	KCl _{3.5m}		K	BNC connector angled	FXB								with necking and PG 13.5	R	
	PTFE ring	R	KCl _{3.5m} with ion exchanger	I	DIN connector	FXD	AR-glass with integrated KCL storage vessel		large, Ø 32 mm, height 130 mm	VG											
	thread PG 13.5	thread PG 13.5	fixed connection, X=cable length in m, measuring transducer with...	threaded plug head connector PG 13.5	PA	no connector	EX		medium, Ø 32 mm, height 70 mm	VM											
				BNC connector straight	EXG	small, Ø 26 mm, height 70 mm	VK														
				BNC connector angled	EXB																
				DIN connector	EXD																

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 cable, armatures and wetting caps can be found in the respective technical data sheets.

Specifications are subject to modifications.