



pH Combination Electrodes

pH determination by means of a single rod measuring cell



The pH 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, laboratory applications as well as in field work with battery-operated portable measuring devices universal and accurate pH measurements are available.

Features

- hemispheric membrane made of various types of special-purpose glass for the application in difficult conditions (e. g. in fluids containing hydrogen fluoride)
- integrated reference system alternatively comprise a ceramics inlay diaphragm, a PTFE ring diaphragm or a circular gap
- conduction system consisting of an Ag/AgCl wire and alternatively various KCl-electrolytes
- 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 and long-term stability
- low maintenance required in combination with long service life
- robust, shock-protected design (depending on shaft material)
- installation length individually selectable
- 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

- universal pH measurements for industrial applications and laboratories
- swimming pools
- operation in waste water treatment, water purification and exhaust air plants
- application even in demanding conditions such as fluctuating pressure and temperature within the fluid or highly abrasive slurry
- utilization in emulsions and suspensions requiring a high measuring rate
- operation in field work with battery-operated portable measuring devices

Technical data

Parameter		Description
measuring sensor	membrane design	hemispheric
	zero point E ₀	7.00 pH (4.66 pH)
	internal resistance	approx. 150 MΩ (at 25 °C)
	membrane glass and measuring ranges	hydrofluoric acid resistant (<2000ppm free fluoride):
special-purpose glass, high alkaline:		pH 0 to pH 14
reference system	diaphragm	ceramics inlay Ø 1,5 mm
		PTFE ring
		circular gap
	electrolyte	KCl _{3,5m}
		gel
polygel		
conduction wire	KCl _{3,5m} with ion exchanger	
	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
conductivity	> 50 μS/cm	
max. permitted pressure	6 bar	

Order options

glass type measuring system		electrolyte reference system		electrical connection			membrane shape		diaphragm		shaft properties		temperature comp.		Installation length		electrolyte refilling																																										
GKF		G		PA			H		K		D		O		12		V																																										
special-purpose glass, high alkaline	GKA	gel	G	connector	plug head connector S+ ¹	S+	hemispheric	H	ceramics inlay	K	plastic	standard	K	PT100	P	variable, indication in cm	XX	refill opening, sealed by silicone tube	V																																								
special-purpose glass, HF acid resistant	GKF	polygel	P		plug head connector S+, 4-pin ²	S4						PTFE ring	R	circular gap	S			with sensor protection	S	PT1000	L	no refill opening (hermetically sealed)	H																																				
		KCl _{3.5m}	K		no connector ¹	FX												normal-purpose glass	D	NTC	N	none	O	refill by tube clip	standard	T																																	
		KCl _{3.5m} with ion exchanger	I		no connector ²	AX																		special-purpose glass, wall thickness 1.33 mm	P	none	O	O	O	with necking and PG 13.5	R																												
					BNC connector straight ¹	FXG																								AR-glass with integrated KCL storage vessel	large, Ø 32 mm, height 130 mm	VG	VM	VK	VK	VK																							
					BNC connector angled ¹	FXB																															threaded plug head connector PG 13.5 ¹	PA	C4	EX	EAX	EXG	EXB	EXD															
					DIN connector ¹	FXD																																							no connector ¹	EX	EAX	EXG	EXB	EXD									
					threaded plug head connector PG 13.5, 4-pin ²	C4																																													no connector ²	EAX	EXG	EXB	EXD				
					no connector ¹	EX																																																		BNC connector straight ¹	EXG	EXB	EXD
					no connector ²	EAX																																																					
				BNC connector straight ¹	EXG	DIN connector ¹	EXD																																																				
				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.