

## pH electrodes



	GE 100	GE 101	GE 104	GE 108	GE 114	GE 117	GE 120	GE 125	GE 151	GE 171	GE 173
<b>Measuring range</b>	0 ... 14 pH 0 ... 80 °C	2 ... 11 pH 0 ... 60 °C	0 ... 14 pH 0 ... 80 °C	0 ... 14 pH 0 ... 80 °C	0 ... 14 pH 0 ... 60 °C	0 ... 14 pH 0 ... 80 °C	0 ... 14 pH 0 ... 60 °C	0 ... 14 pH 0 ... 70 °C	0 ... 14 pH 0 ... 80 °C	0 ... 14 pH 0 ... 140 °C	0 ... 14 pH 0 ... 80 °C
<b>Conductivity</b>	> 100 µS/cm	> 100 µS/cm	> 20 µS/cm	> 100 µS/cm	> 200 µS/cm	> 100 µS/cm	> 200 µS/cm	> 200 µS/cm	> 100 µS/cm	> 100 µS/cm	> 50 µS/cm
<b>Temperature measuring</b>	no	no	no	no	no	integr. Pt1000 4 mm banana	no	integr. Pt1000 4 mm banana	no	no	no
<b>Water-proof</b>	no	no	no	no	no	no	no	ja	no	no	no
<b>Pressure resistant</b>	no	no	no	6 bar	no	6 bar	no	1 bar	no	10 bar	6 bar
<b>Cable</b>	1 m <sup>1)</sup>	1 m <sup>1)</sup>	1 m <sup>1)</sup>	2 m <sup>1)</sup>	1 m	2 m <sup>2)</sup>	1 m	2 m	1 m <sup>1)</sup>	ohne	1 m <sup>1)</sup>
<b>Electrolyte</b>	3 mol/l KCl	3 mol/l KCl	3 mol/l KCl	gel electrolyte	gel electrolyte	gel electrolyte	gel electrolyte	gel electrolyte	3 mol/l KCl	gel electrolyte	gel electrolyte
<b>Diaphragm</b>	2 x ceramic	2 x ceramic	moving joint	2 x ceramic	1 x Pellon	2 x ceramic	2 x ceramic	1 x ceramic	1 x ceramic	2 x ceramic	joint
<b>Thread</b>	without	without	without	PG 13.5	without	PG 13.5	without	without	without	PG 13.5	PG 13.5
<b>Electrode shaft</b>	Tyrl, Ø 12 mm x 120 mm	glass, Ø 12 bzw. 6 mm x 120 mm	glass, Ø 12 mm x 120 mm	PSU, Ø 12 mm x 120 mm	epoxide, Ø 12 mm x 120 mm	PSU, Ø 12 mm x 120 mm	PVC, Ø 22 mm x 110 mm	epoxide, Ø 12 mm x 120 mm	glass, Ø 12 mm x 120 mm	glass, Ø 12 mm x 120 mm	glass, Ø 12 mm x 120 mm
<b>Features</b>	universal electrode	tip Ø 6 mm, small sample volume	for low-ion media	low- maintenance	Low-cost low- maintenance	temperature compensated	insertion electrode, blade Ø 13 mm x 60 mm	submersible, water-proof IP67 (also BNC-plug)	chemicals- resistant glass shaft	for extreme conditions, sterilizable, autoclavable	for process chemistry, bio-chemistry, alkali-resistant
<b>Connection:</b>											
<b>BNC</b>											
Art. no.	600704	600693	602063	600713	604701	600730	600698	600732	600727	-	600735
<b>Cinch</b>											
Art. no.	600702	600690	604504	600711	-	-	600696	-	600724	-	600734
<b>S7*)</b>											
Art. no.	-	-	-	606089	-	-	-	-	-	606375	606572

\*) Note: cable GEAK-2S7-BNC or GEAK-5S7-BNC is needed for connection S7, for devices with cinch connection adapter GAD 1 BNC is necessary. Electrodes are consumption objects. Lifetime under careful treatment: > 2 years; warranty: 12 months

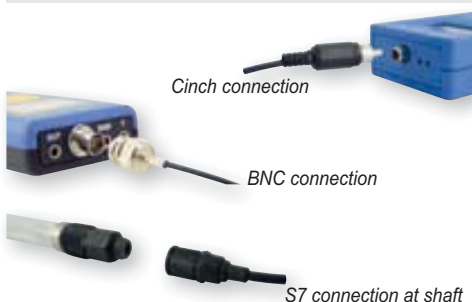
**Optionen:**

**Longer cable for** <sup>1)2)</sup>  
(available cable lengths: up to 5 m)  
**Special designs**  
(electrodes with thread, other lengths,  
special applications etc.)

**Accessories and spare parts:****Kabel-BNCM/BNCF**

Art. no. 606158

Extension cables for electrodes with BNC connector,  
Cable length: 3 m

**Diaphragma:**

The diaphragm makes the electric connection between reference system and sample. Additionally it should prevent the spoiling of the reference electrolyte by the measured medium.

**Ceramic diaphragm**

Porous ceramic rods ensure low leak rates.

**Application:**

General applications in clean till lightly soiled media.

**Joint / movable joint**

The roughened surface between the cut glass of the electrode and a cut glass sleeve permits an electrolyte flow of several ml/h.

**Application:**

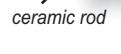
low-ion or heavily soiled samples

**Pellon diaphragm**

A permeable diaphragm made of Pellon texture is used for fast response times and stable measuring values

**Application:**

Clean till lightly soiled media.

**Reference electrolyte:**

The reference electrolyte offers a constant voltage of the reference system and makes the electrical connection between sample and reference electrode.

**Liquid electrolyte**

Mainly 3 mol/l KCl is used. Liquid electrolytes offer fast response times in general and can be replaced if contaminated.

**Gel electrolyte**

The electrolyte is solidified for low-maintenance electrodes able to measure irrespective to its position. Under normal measurement conditions no noticeable electrolyte leakage is observable.

**Electrodes with S7 connection:**

The electrodes are offered with an S7 industrial screw plug fitted, also known as industrial-S8 Plug head. In contrast to S7 lab plug head this one is for direct installation in fittings with PG 13.5 suitable thread.

Application areas: Electrodes

Application	GE 100	GE 101	GE 104	GE 108	GE 114	GE 117	GE 120	GE 125	GE 151	GE 171	GE 173	GR 105	GR 175
Sewage											•		
Aquarium water	•		•	•	•	•			•			•	•
Soil testing		•											
Emulsions		•	•										
On-site measurements				•	•	•		•				•	
Fish farming	•		•	•	•	•		•	•			•	•
Galvanic baths													•
Beverages								•	•			•	•
Low-ion media			•										•
Cosmetics			•										
Food sample		•					•						
Sea water	•	•	•	•	•	•	•	•	•	•	•	•	•
Online measuring										•	•		•
Process chemistry									•	•	•		•
Swimming pool water	•			•	•	•		•				•	•
Suspensions		•	•										•
Drinking water	•		•	•	•	•		•				•	•
Water-based lacquers			•										•

Note: The set information are to provide general recommendations. It needs to be checked, which electrodes for each area of application are suitable.

ORP electrode



**GR 105-BNC**

Art. no. 607798  
with BNC connection

**GR 105-Cinch**

Art. no. 607797  
with Cinch connection



**GR 175-BNC**

Art. no. 607801  
with BNC connection

**GR 175-S7**

Art. no. 607802  
incl. S7 connector - without connecting cable \*)

Specifications:	GR 105	GR 175
Measuring unit:	ORP	
Measuring range:	± 2000 mV, 0 ... 80 °C	
Conductivity:	> 100 µS/cm	
Temperature measurement:	no	
Water-proof:	no	
Pressure resistant:	no	6 bar
Cable:	1 m <sup>1)</sup>	without/1 m
Electrolyte:	3 mol/l KCL	gel electrolyte
Diaphragm:	2 x ceramic	1 x ceramic
Metal electrode:	Platin dome Ø 5 mm	
Thread:	no	PG 13.5
Electrode shaft:	Tyrl, Ø 12 mm x 120 mm	Glass, Ø 12 mm x 120 mm
Minimal depth of immersion:	15 mm	
Scope of supply:	ORP electrode, manual	

**Optionen:**

Longer cable for <sup>1) 2)</sup>  
(available cable lengths: up to 5 m)

**Accessories:**

**GRP 100**  
Art. no. 601424  
ORP test solution (220 mV at 25 °C), 100 ml

Electrodes - accessories

**Accessories and spare parts:**

**GKAK-2S7-BNC**

Art. no. 601996  
Adapter cable S7-BNC, 2 m

**GKAK-5S7-BNC**

Art. no. 601998  
Adapterkabel S7-BNC, 5 m

**VD120**

Art. no. 601380  
Pricker for insertion electrode GE 101



**GAD 1 BNC**

Art. no. 601382  
Adapter to connect electrodes with Cinch plug to devices with BNC socket.

**GPF 100**

Art. no. 601417  
Plastic wide mouth bottle, 100 ml

**GPH 4,0 / 5**

Art. no. 602614  
Buffer capsules (5 pieces), pH 4.0

**GPH 4,0 / 10**

Art. no. 602615  
Buffer capsules (10 pieces), pH 4.0

**GPH 7,0 / 5**

Art. no. 602616  
Buffer capsules (5 pieces), pH 7.0

**GPH 7,0 / 10**

Art. no. 602617  
Buffer capsules (10 pieces), pH 7.0

**GPH 10,0 / 5**

Art. no. 602618  
Buffer capsules (5 pieces), pH 10.0

**GPH 10,0 / 10**

Art. no. 602619  
Buffer capsules (10 pieces), pH 10.0

**GPH 12,0 / 5**

Art. no. 602620  
Buffer capsules (5 pieces), pH 12.0

**GPH 12,0 / 10**

Art. no. 602621  
Buffer capsules (10 pieces), pH 12.0

All buffer capsules are traceable to NIST standards and have ±0.02 pH at 25 °C.

**GAK 1400**

Art. no. 603523  
Working and calibration set; GPH 4.0, GPH 7.0, GPH 10.0 (5 capsules of each type); 3 x GPF 100; 1 x KCL3M; 1 x GRL 100

**PHL 4**

Art. no. 601370  
ready-to-use buffer solution (pH 4.01 / 25 °C), 250 ml

**PHL 7**

Art. no. 601371  
ready-to-use buffer solution (pH 7.00 / 25 °C), 250 ml

**PHL 10**

Art. no. 601373  
ready-to-use buffer solution (pH 10.01 / 25 °C), 250 ml

**KCL 3 M**

Art. no. 602477  
3 mol KCl electrolyte for refilling and storage (fill into protective cap) of electrodes with 3 mol KCl electrolyte, injection bottle, 100 ml

**CaCl**

Art. no. 603254  
1000 ml, solution for measuring the pH value of soil

**GRL 100**

Art. no. 601422  
Pepsin cleaning solution, 100 ml

**GWA1Z**

Art. no. 602914  
Thread adapter PG13.5 to G1", plastic



**PG 13.5**

Art. no. 603205  
Plug-on thread adapter for pressure-less use, for any electrode



**GWA 11 PG**

Art. no. 605379  
Thread adapter from PG11 external thread to PG 13.5 internal thread incl. sealing and PG11 counter nut, material: polyamide, fiber glass reinforced, O-ring: NBR, temperature range: -10 ... +100 °C

