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PH ELECTRODES

	GE 100	GE 101	GE 104	GE 108	GE 114	GE 117	GE 120	GE 125	GE 126	GE 151	GE 171	GE 173
Measuring range	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 -5 ... +80 °C	0 ... 14 pH 0 ... 80 °C	0 ... 14 pH 0 ... 140 °C	0 ... 14 pH 0 ... 80 °C
Conductivity	>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	>100 µS/cm	>50 µS/cm
Temperature measuring	no	no	no	no	no	integr. Pt1000 4 mm banana	no	integr. Pt1000 4 mm banana	no	no	no	no
Water-proof	no	no	no	no	optional	no	no	ja	no	no	no	no
Pressure resistant	no	no	no	6 bar	no	6 bar	no	1 bar	5.5 bar	no	10 bar	6 bar
Cable	1 m [1]	1 m [1]	1 m [1]	2 m [1]	1 m	2 m [2]	1 m	2 m	5 m	1 m [1]	ohne	1 m [1]
Electrolyte	3 mol/l KCl	3 mol/l KCl	3 mol/l KCl	gel electrolyte	gel electrolyte	gel electrolyte	gel electrolyte	gel electrolyte	gel electrolyte	3 mol/l KCl	gel electrolyte	gel electrolyte
Diaphragm	2 x ceramic	2 x ceramic	moving joint	2 x ceramic	1 x Pellon	2 x ceramic	2 x ceramic	1 x ceramic	2 x ceramic	1 x ceramic	2 x ceramic	joint
Thread	without	without	without	PG 13.5	without	PG 13.5	without	without	1/2" NPT	without	PG 13.5	PG 13.5
Electrode shaft	tyril, Ø 12 mm x 120 mm	glass, Ø 12 or 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	ABS Ø 26.4 mm x 147 mm	glass, Ø 12 mm x 120 mm	glass, Ø 12 mm x 120 mm	glass, Ø 12 mm x 120 mm
Features	universal electrode	tip Ø 6 mm, small sample volume	for low-ion media	low-maintenance	Low-cost low-maintenance	temperature compen-sated	insertion electrode, blade Ø 13 mm x 60 mm	submersible, water-proof IP67 (also BNC-plug)	extremely low-maintenance	chemicals-resistant glass shaft	for extreme conditions, sterilizable, autoclavable	for process chemistry, bio-che-mistry, alkali-resistant
Connection:												
BNC *Art. no.*	*600704*	*600693*	*602063*	*600713*	*604701*	*600730*	*600698*	*600731*	*610987*	*600727*	-	*600735*
S7*) *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

Options:

Longer cable for [1] [2]
(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

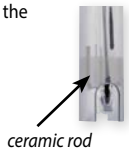
BNC connection


S7 connection at shaft

Diaphragm:

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.


ceramic rod

Joint / movable joint
The roughened surface between the cut glass of the electrode and a cut glass sleeve permits a electrolyte flow of several ml/h.
Application:
low-ion or heavily soiled samples


glass sleeve

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.


Pellon strap

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 ELECTRODES

GR 105-BNC
Art. no. 607798
ORP electrode with BNC connection

GR 105-Cinch
Art. no. 607797
ORP electrode with Cinch connection

GR 175-BNC
Art. no. 607801
ORP electrode with BNC connection

GR 175-S7
Art. no. 607802
ORP electrode incl. S7 connector - without connecting cable *)

**) 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

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 [1)]	without / 1 m
Electrolyte:	3 mol / l KCL	Gel-Elektrolyt
Diaphragm:	2 x ceramic	1 x ceramic
Metal electrode:	Platin dome Ø 5 mm	
Thread:	without	PG 13,5
Electrode shaft:	tyril, 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	

Options:

Longer cable for [1) 2)]
(available cable lengths: up to 5 m)

Accessories:

GRP 100
Art. no. 601424

ELECTRODES - ACCESSORIES

Buffer capsules and buffer solutions:

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.

PHL 4 *Art. no. 601369*
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

Accessories and spare parts:

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

GEAK-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

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

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

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