




| | GMH 5430 | GMH 5450 | GMH 3431 | GMH 3451 | G 1410 | G 1420 |
|---|---|---|---|---|---|---|
| **APPLICATION:** | | | | | | |
| **Waters measuring, fishkeeping, aquafarming (fresh- / marine waters)** | • | • | • | • | • | |
| **Drinking water-, process monitoring, ground measurements** | • | • | • | • | • | |
| **Cleaning processes** | • | • | • | • | • | • |
| **Ultrapure water** | • | • | | | | • |
| **Food production and -control** | • | • | • | • | • | |
| **Quality management** | • | • | • | • | • | • |
| **Water-proof** | • | • | | | • | • |
| **Electrodes for replacement** | • | • | | | | |
| **EQUIPMENT:** | | | | | | |
| **Measuring range** | | | | | | |
| **Conductivity / Temperature** | • | • | • | • | • | • |
| **esp. Resistance** | • | • | • | • | | • |
| **TDS / Salinity** | • | • | • | • | • | |
| **Sensor connection** | 7-pole bayonet | 7-pole bayonet | fixed | fixed | fixed | fixed |
| **Electrode** | 2- or 4-pol. | 2- or 4-pol. | 2-pole graphite | 4-pole graphite | 2-pole graphite | 2-pole graphite |
| **General functions:** | | | | | | |
| **Min/Max, Hold, Auto-Off** | • | • | • | • | • | • |
| **Illumination** | • | • | | | • | • |
| | | Calibration memory | | | | |
| **Interface** | • | • | • | • | | |
| **Alarm / Data logger** | | • | | • | | |
| **DEVICE INFORMATION:** | | | | | | |
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| | GMH 5530 | GMH 5550 | GMH 3511 | GMH 3531 | GMH 3551 | G 1500 | G 1501 | GMH 5630 | GMH 5650 | GMH 3611 | GMH 3651 | G 1610 | G 7500 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **APPLICATION:** | | | | | | | | | | | | | |
| **Waters measuring, fishkeeping, aquafarming (fresh- / marine waters)** | • | • | • | • | • | • | • | • | • | • | • | • | • |
| **Drinking water-, process monitoring, ground measurement** | • | • | • | • | • | • | • | • | • | • | • | • | • |
| **Food production and -control** | • | • | • | • | • | • | • | | | | | | • |
| **Precision measurement** | • | • | • | • | • | • | • | • | • | | | | • |
| **Laboratory (GLP)** | • | • | | • | • | | | | • | | • | | • |
| **Quality management** | • | • | • | • | • | • | • | | • | | • | | • |
| **Water-proof** | • | • | | | | • | • | • | • | | | • | • |
| **incl. air pressure measuring** | | | | | | | | • | • | • | • | | • |
| **EQUIPMENT:** | | | | | | | | | | | | | |
| **Measuring range** | | | | | | | | | | | | | |
| **pH, mV** | • / rH | | • | • / rH | | pH | • | | | | | | • / ppm, hPa |
| **mg / l, % $O_2$** | | | | | | | | • / ppm, hPa | | • / ppm, hPa | | • | |
| **Temperature** | • | | • | • | | | • | • | | • | | | |
| **Connections** | BNC-socket | | | BNC-socket | | BNC-socket | BNC-socket | 7 pin bayonet connection | | 6-pin Mini-DIN-socket | | Electrode permanently connected to device | BNC-socket |
| **Temperature** | 2 banana-jack | | | 2 banana-jack | | -- | 2 banana-jack | | | | | | 2 banana-jack 7 pin bay. |
| **Temperature compensation** | automatic and manual (Pt1000, NTC 10k) | | automatic and manual (Pt1000) | | | manual | automatic | automatic | | automatic | | automatic | automatic |
| **General functions:** | | | | | | | | | | | | | |
| **Min/Max, Hold, Auto-Off** | • | | | • | | • | • | • | | • | • | • | • |
| **adjustable calibration interval** | • | | | | | | | • | | • | • | | • |
| **Interface** | • | • | • | • | • | | | • | • | • | • | | USB 2.0 |
| **Analog output** | | • | • | • | • | | | • | • | | • | | |
| **Calibration history** | | • | | | • | | | | | | • | | • |
| **Alarm / Data logger** | | • | | | • | | • | | • | | • | | • |
| **DEVICE INFORMATION:** | | | | | | | | | | | | | |
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# WATER-PROOF HANDHELD DEVICE FOR CONDUCTIVITY MEASUREMENT

ISO
AUTOHOLD
AUTOOFF
MIN MAX


WATER-PROOF - GERÄT UND STECKVERBINDUNGEN

HIGHLIGHTS:

- Measurement of conductivity, resistance, salinity, TDS
- Large double display with background illumination
- Automatic cell correction with reference solutions
- Incl. calibration protocol

ADDITIONAL FUNCTIONS GMH 5450:

ALARM LOGG

## GMH 5430

*Art. no. 600035*

Waterproof conductivity handheld device without electrode

## GMH 5450

*Art. no. 600037*

Waterproof conductivity handheld device with logger, without electrode

### Application:

**Mobile use for:**
industry and craft
- measurements of waters and aquaristics, fish farming
- drinking water monitoring, process control, soil measurements
- food production and control
- quality management

**Additional applications at laboratory:**
- medicine, pharmacy, chemistry

### Specifications:

| | |
|---|---|
| **Measuring range** | |
| **Number of measuring ranges:** 5 | |
| **Smallest range:** | 0.000 ... 5.000 µS/cm * or 0.0 ... 500.0 µS/cm ** |
| **Biggest range:** | 0 ... 5000 µS/cm * or 0 ... 1000 mS/cm ** |
| **Resistivity:** | 0.005 ... 500.0 kOhm * cm (depends on cell constant) |
| **TDS:** | 0 ... 5000 mg/l (depends on cell constant) |
| **Salinity:** | 0.0 ... 70.0 (g salt / kg water) |
| **Temperature:** | -5.0 ... +100.0 °C, Pt1000 or NTC 10 k |
| **Supported cell constants:** | 4.000 ... 15.000 / cm - 0.4000 ... 1.5000 / cm - 0.04000 ... 0.15000 / cm - 0.004000 ... 0.015000 / cm |
| **Accuracy (at nominal temperature = 25 °C)** | |
| **Conductivity:** | ±0.5 % of m.v. ±0.1 % FS (depends on electrode) |
| **Temperature:** | ±0.2 K |
| **Connection** | |
| **Conductivity, temperature:** | 1 x 7-pole bayonet connector for connection of different measuring cells, supported temperature sensors: Pt1000 or NTC (10 k) |
| **Interface / ext. supply:** | 4-pole bayonet connector for serial interface and supply (with accessory: USB adapter USB 5100) |
| **Analog output: (GMH 5450 only)** | 0 ... 1 V, freely adjustable, connection with 4-pole bayonet connector, resolution 13 bit, accuracy 0.05 % at nominal temperature |
| **Data logger: (GMH 5450 only)** | cyclic: 10.000 data sets, adjustable cycle time: 1 s ... 60 min manual: 1000 data sets (with measuring point input, 40 adjustable measuring point texts or measuring point numbers) |
| **Display:** | 4 ½ digit 7-segment, illuminated (white) |
| **Operating conditions:** | Device: -25 ... +50 °C, 0 ... 95 % RH (non-condensing) |
| **Storage temperature:** | -25 ... +70 °C |
| **Background illumination:** | duration adjustable (off, 5 s ... 2 min) |
| **Power supply:** | 2 x AAA battery (included), power consumption 6.25 mA |
| **Battery life:** | approx. 160 h (without background illumination) |
| **Protection rating:** | IP65 / IP67 |
| **Housing:** | Impact-resistant ABS plastic housing, integrated pop-up clip |
| **Dimensions:** | 160 x 86 x 37 mm (H x W x D) incl. silicone protection cover |
| **Weight:** | approx. 250 g incl. battery and protection cover |
| **Scope of supply:** | Device, K 50 BL, battery, calibration protocol, manual |

*depends on cell constant of used electrode*
** cell constant 0.01 / cm ** cell constant 0.1 ... 1.2 / cm (standard)*

### Additional functions:

**Cell correction**
Manually or automatically with reference solution

**Automatic temperature compensation**
As conductivity depends strongly on temperature, each conductivity value is only valid at the corresponding temperature. Therefore the device supports temperature compensation, i.e. referring the conductivity to a reference temperature (selectable: 20 °C or 25 °C).

**Supported types of compensation:**
nLF: Non-linear function of natural waters acc. to DIN EN 27888 (ISO 7888) (Reference temperature 25 °C)
Lin: adjustable linear compensation
off: no compensation

**Salinity measurement**
Salinity means the sum of the concentrations of all dissolved salts in water. The unit is g / kg. (equals PSU = Practical Salinity Unit).

**TDS measurement (total dissolved solids)**
TDS means the mass concentration of dissolved media in a liquid. The unit is mg / l.

**GLP (Good Laboratory Practice)**
adjustable calibration intervals
GMH 5450: Calibration memory: latest 16 calibrations

### Accessories and spare parts:

GKL 10... conductivity control solution see next page

**EBS 20M**
*Art. no. 601158*
Measuring data acquisition software for EASYBus & GMH (p.r.t. page 109)

**GSOFT 3050**
*Art. no. 601336*
Windows software for GMH 3000 and GMH 5000 with logger, p.r.t. page 110

**USB 5100**
*Art. no. 601095*
Electrically isolated interface converter, supplied via USB

**GNG 5 / 5000**
*Art. no. 602287*
Plug in power supply for devices of the series GMH 5XXX, p.r.t. page 115

**GKK 5001**
*Art. no. 611606*
with cut-outs for 1 device of the GMH 5xxx-/7500 series and accessories for water analysis (395 x 295 x 106 mm), p.r.t. page 112

# CONDUCTIVITY ELECTRODES

PURE AND ULTRA PURE WATER

## LF 200 RW

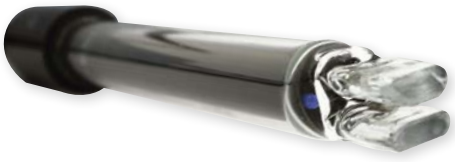
*Art. no. 602841*

Conductivity cell for GMH 5400 / G 7500-Series, stainless steel

| Application: |
|---|
| Pure and ultra pure water |

| Specifications: | |
|---|---|
| **Measuring range:** | 0 ... 200 µS/cm |
| **Temperature range:** | -5 ... +100 °C |
| **Cell constant *:** | approx. 0.1 |
| **Temperature measurement:** | NTC 10 k |
| **Shaft:** | Stainless steel, Ø 12 mm x 75 mm |
| **Electrode:** | 2-pole stainless steel |
| **Cable length:** | 1 m |
| **Scope of supply:** | Measuring cell, manual |

FOR ALCOHOL, FUEL, DIESEL



## LF 210

*Art. no. 602969*

Conductivity cell for GMH 5400 / G 7500-Series, glass / platinum

| Application: |
|---|
| Alcohol, fuel, diesel |

| Specifications: | |
|---|---|
| **Measuring range:** | 0 ... 1000 µS/cm |
| **Temperature range:** | -5 ... +100 °C |
| **Cell constant *:** | approx. 1 |
| **Temperature measurement:** | NTC 10 k |
| **Shaft:** | Glass, Ø 12 mm x 120 mm |
| **Electrode:** | 2-pole glass / platinum |
| **Cable length:** | 1 m |
| **Scope of supply:** | Measuring cell, manual |

FOR UNIVERSAL APPLICATION

## LF 400

*Art. no. 602968*

Conductivity cell for GMH 5400 / G 7500-Series , 4-pole graphite

| Application: |
|---|
| for Universal application, Economy Class |

| Specifications: | |
|---|---|
| **Measuring range:** | 0 ... 200 mS/cm |
| **Temperature range:** | 0 ... 100 °C |
| **Cell constant *:** | approx. 0.55 |
| **Temperature measurement:** | NTC 10 k |
| **Shaft:** | Epoxide, Ø 12 mm x 120 mm |
| **Electrode:** | 4-pole graphite |
| **Cable length:** | 2 m |
| **Scope of supply:** | Measuring cell, manual |

** Note:*
*The particular cell constant (appears in calibration protocol and electrode's label) has to be entered to device. Then it is ready-to-use.*

FOR TIGHT TOLERANCES, ROBUST AND PRECISE

## LF 425

*Art. no. 602840*

Conductivity cell for GMH 5400 / G 7500-Series, 4-pole graphite

| Application: |
|---|
| Tight tolerances, robust and precise, High End Class |

| Specifications: | |
|---|---|
| **Measuring range:** | 0 ... 1000 mS/cm |
| **Temperature range:** | -10 ... +80 °C (90 °C - max. 5 min.) |
| **Cell constant *:** | approx. 0.42 |
| **Temperature measurement:** | Pt 1000 |
| **Shaft:** | PVC-C, Ø 16 mm x 145 mm |
| **Electrode:** | 4-pole graphite |
| **Cable length:** | 1 m |
| **Scope of supply:** | Measuring cell, manual |

*HD-22-3 with sensor*

**Accessories and spare parts:**

**HD-22-3**
*Art. no. 700040*
freely positionable laboratory sensor holding arm for sensors Ø12mm

**GKL 100**
*Art. no. 601396*
Conductivity control solution (100 ml bottle with 1413 µS/cm according to DIN EN 27888)

**GKL 101**
*Art. no. 601398*
Conductivity control solution (250 ml bottle with 84 µS/cm)

**GKL 102**
*Art. no. 601400*
Conductivity control solution (100 ml bottle with 50 mS/cm)

**GWZ-01**
*Art. no. 603499*
Flow-through chamber for sensors with Ø 12 mm, tube connection Ø 6 mm

## CONDUCTIVITY MEASUREMENT SET


## HANDHELD INSTRUMENTS INCL. ELECTRODE


### GMH 5430-SET

*Art. no. 611611*

Waterproof conductivity handheld device, measurement set

### GMH 5450-SET

*Art. no. 611246*

Waterproof conductivity handheld device with logger, measurement set

**General:**

With our ready-to-use conductivity measurement set, you have everything you need for your work in a practical case and with the set price, you save 10 % in comparison with the prices for the individual components.

**Application:**

No matter which sector you work in, our comprehensive SET-GMH 5450 never lets you down and stows away in the tidy practical case

**Specifications:**

| | |
|---|---|
| **Measuring range device** | |
| **Number of measuring ranges:** | 5 |
| **Smallest range:** | 0.000 ... 5.000 µS/cm or 0.0 ... 500.0 µS/cm |
| **Biggest range:** | 0 ... 5000 µS/cm or 0 ... 1000 mS/cm |
| **Resistivity:** | 0.005 ... 500.0 kOhm cm (depends on cell constant) |
| **TDS:** | 0 ... 5000 mg/l (depends on cell constant) |
| **Salinity:** | 0.0 ... 70.0 (g salt / kg water) |
| **Temperature:** | -5.0 ... +100.0 °C, Pt1000 or NTC 10 k |
| **Electrode LF 425** | |
| **Measuring range:** | 0 ... 1000 mS/cm |
| **Temperature range:** | -10 ... +80 °C (90 °C - max. 5 min.) |
| **Cell constant:** | approx. 0.42 |
| **Temperature measurement:** | Pt 1000 |
| **Shaft:** | PVC-C, Ø 16 mm x 145 mm |
| **Electrode:** | 4-pole graphite |
| **Application:** | Tight tolerances, robust and precise for highest demands, High End Class |
| **Cable length:** | 1 m |
| **Dimensions:** | 450 x 360 x 123 mm (case) |
| **Weight:** | approx. 1800 g |
| **Scope of supply:** | Device incl. silicone protection cover, measuring cell LF 425, case GKK 5001, battery, calibration protocol, manuals **SET-GMH 5450 only:** Software, interface converter |

**Accessories and spare parts:**

**GMH 5430**
*Art. no. 600035*
Waterproof conductivity handheld device without electrode

**GMH 5450**
*Art. no. 600037*
Waterproof conductivity handheld device with logger, without electrode

**LF 425**
*Art. no. 602840*
Conductivity electrode 4-pole graphite

**GSOFT 3050**
*Art. no. 601336*
Windows software for GMH 3000 and GMH 5000 with logger, (p.r.t. page 110)

**USB 5100**
*Art. no. 601095*
Electrically isolated interface converter, supplied via USB

**GKK 3700**
*Art. no. 601064*
Case with punched lining for universal application (450 x 360 x 123 mm)

**GKK 5001**
*Art. no. 611606*
with cut-outs for 1 device of the GMH 5xxx-/7500 series and accessories for water analysis (395 x 295 x 106 mm), p.r.t. page 112

### GMH 5430-400

*Art. no. 602752*

Conductivity meter including measuring cell, precisely adjusted

### GMH 5450-400

*Art. no. 602754*

Conductivity meter including measuring cell, precisely adjusted, with data logger

### GMH 5430-425

*Art. no. 602753*

Conductivity meter including measuring cell, precisely adjusted

### GMH 5450-425

*Art. no. 602755*

Conductivity meter including measuring cell, precisely adjusted, with data logger

**General:**

All sets get preadjusted and are ready-for-use. They do not include a case.

**Accessories and spare parts:**

**GKK 5001**
*Art. no. 611606*
with cut-outs for 1 device of the GMH 5xxx-/7500 series and accessories for water analysis (395 x 295 x 106 mm), p.r.t. page 112

# CONDUCTIVITY MEASURING DEVICE



*2-pole measuring cell GMH 3431*

*4-pole measuring cell GMH 3451*

HIGHLIGHTS:

- Display of resistivity, salinity or TDS (total dissolved solids)
- Conform to the regulations of the drinking water ordinance (TrinkwV 2001) and DIN EN 27888

ADDITIONAL FUNCTIONS GMH 3451:


## GMH 3431

*Art. no. 601917*

Conductivity handheld device with 2 pole measuring cell

## GMH 3451

*Art. no. 601919*

Conductivity handheld device with measuring cell and data logger

### General:

Intelligent set with 2-pole measuring cell for tap water, etc., 4-pole worry-free package also suitable for continuous measurement in high conductivity ranges (e.g. salt water)

### Specifications:

| | |
|---|---|
| **Measuring range** | |
| **Conductivity:** | 0.0 ... 200.0 µS / cm<br>0 ... 2000 µS / cm<br>0.00 ... 20.00 mS / cm<br>0.0 ... 200.0 mS / cm<br>0 ... 400 mS / cm **(GMH 3451 only)**<br>manually selectable or AutoRange |
| **Temperature:** | -5.0 ... +100.0 °C |
| **Resistivity:** | 0.005 ... 100.0 kOhm * cm |
| **Salinity:** | 0.0 ... 70.0 g / kg water |
| **TDS:** | 0 ... 1999 mg/l |
| **Accuracy (±1 digit) (at nominal temperature = 25 °C)** | |
| **Conductivity:** | ±0.5 % of m.v. ±0.3 % FS or ±2 µS/cm |
| **Temperature:** | ±0.2 % of m.v. ±0.3 K |
| **Cell correction:** | adjustable 0.800 ... 1.200 $cm^{-1}$ manually or automatically with selectable reference solution |
| **Temperature compensation:** | automatically or off, by temperature sensor integrated to electrode |
| **Type of compensation:** | nLF: Non-linear function of natural waters acc. to DIN EN 27888 (ISO 7888) (Reference temperature selectable: 20 °C or 25 °C)<br>Lin: linear compensation from 0.3 ... 3.0 % / K (Reference temperature selectable: 20 °C or 25 °C)<br>off: no compensation. |
| **Display:** | two 4-digit LCD displays (12.4 and 7 mm high) for current conductivity (resistivity, salinity, TDS) and temperature, or for min-, max- value, hold function, etc. and additional indicator arrows |
| **Measuring cell:** | Conductivity measuing cell with integrated temperature sensor in shaft. Electrode material: graphite. Shaft material: PPE, PS (GMH 3431), Epoxide (GMH 3451). The graphite electrodes are the optimum solution for sewage and can be cleaned easily. GMH 3431: 2-pole; GMH 3451: 4-pole |
| **Warranty for sensor element:** | 12 months |
| **Working conditions:** | device: -25 ... +50 °C, 0 ... 95 % RH; measuring cell: -5 ... +80 °C (permanent), up to +100 °C (short-term) |
| **Relative humidity:** | 0 ... +95 % RH (non-condensing) |
| **Interface:** | serial interface; connectable to RS232 or USB interface of PCs via electrically isolated interface converter GRS 3100, GRS 3105 or USB 3100 N (accessories). |
| **Pushbuttons:** | 6 membrane keys for ON/OFF-switch, selection of meas. range, min- and max-value memory, hold-function, etc. |
| **Power supply:** | 9 V-battery as well as additional PSU connector (internal pin Ø 1.9 mm) for external 10.5 ... 12 V DC supply. (suitable power supply: GNG10/3000) |
| **Battery life:** | approx. 150 h |
| **Housing:** | Impact-resistant ABS plastic housing, membrane keyboard, transparent panel, integrated pop-up clip |
| **Dimensions:** | Device: 142 x 71 x 26 mm (H x W x D)<br>Dimensions (electrode shaft): approx. 120 mm long, Ø approx. 12 mm, 1 m of fixed connection cable between electrode and device |
| **Weight:** | approx. 230 g (incl. battery and measuring cell) |
| **Scope of supply:** | Device incl. measuring cell, battery, calibration protocol, manual |

### Additional functions:

**Salinity determination:**
Salinity is understood to be the sum of concentrations of all salts dissolved in water. Displayed in g / kg.

**TDS-determination (total dissolved solids):**
The dry residue of filtrate is understood to be the concentration of substances dissolved in a liquid. Displayed in mg / l.

### Additional functions GMH 3451:

**Analog output:**
0 ... 1 V, freely scalable, connection via 3-pole jack socket, Ø 3.5 mm, resolution 13 bit, accuracy 0.05 % at nominal temperature

**4-pole measuring cell:**
Better long-term stability at high conductivity values (>20 mS / cm) and for harsh environments, stable measuring values even in polluted media (e.g. sewage, salt water)

**Data logger:**
cyclic 10.000 data sets, manual: 1.000 data sets (with measuring point input, 40 adjustable measuring point texts or measuring point numbers)

### Variants:

**GMH 3431-LTG**
*Art. no. 608399*
**GMH 3451-LTG**
*Art. no. 610028*

for organic matter (alcohol, petrol, diesel) up to 1000 µS / cm with glass shaft, platinum electrodes, 1.35 m PUR-cable permanently connected to device

### Accessories and spare parts:

**GKL 100**
*Art. no. 601396*
Conductivity control solution (100 ml bottle with 1413 µS / cm, acc. to DIN EN 27888)

# PRECISE CONDUCTIVITY MEASURING DEVICE

AUTOOFF
HOLD
ISO
MIN MAX

DURABLE AND AFFORDABLE


G 1410 G 1420

HIGHLIGHTS:

- Modern and functional housing
- Outstanding price/performance ratio
- 3-line display / overhead display at the push of a button
- Backlighting
- Waterproof (IP67)
- Durable, long battery life
- High-quality measuring cell for wider range of application included
- rapid measurement detection

SUCCESSOR TO THE **GLF 100...** PRODUCTS

THEY ARE STILL AVAILABLE ON REQUEST - CONTACT US IMMEDIATELY!

## G 1410-1002

*Art. no. 474039*

Universal conductivity measuring device
Device, measuring cell LF 202, 2 pole graphite, fix mounted, in suitcase GKK1002

## G 1420-1002

*Art. no. 474040*

high resolution ultrapure water conductivity measuring device; Device, measuring cell LF 200 RW, 2 pole stainless steel, fix mounted, in suitcase GKK1002

## G 1410

*Art. no. 610006*

Universal conductivity measuring device of up to 100 mS / cm, incl. graphite measuring cell

## G 1420

*Art. no. 610007*

high resolution ultrapure water conductivity measuring device up to 100 µS / cm, incl. stainless steel measuring cell

### General:

The primary focus in the development of the new GMH 1000 series was place on the essential functions of the measurement technology. Pure measurement with a focus on precision, speed and reliability packaged in a compact housing distinguish an impressive price/performance ratio, Made in Germany.
The new handheld measuring devices also impress with their ergonomic design, dust and water-protected design in accordance with IP 65/67 and the illuminated display. The compact conductivity measuring device as a G 1410 is a precise and durable wide-range measuring cell for universal use from DI water to salt water. As a G 1420, it has a specialised measuring cell for high-resolution clean/clea-nest water applications.

### Application:

Freshwater and salt water aquariums, reverse osmosis and similar filters, cleaning processes, cooling/lubricating processes, plant cultivation and agriculture; laboratories, quality assurance, service

| | |
|---|---|
| **Operation:** | 4 long-lasting, easy-to-operate buttons |
| **Additional functions:** | automatic measuring range shifting, automatic temperature compensation |
| **Operating conditions:** | **Device:** -20 ... +50 °C, 0 ... 95 % RH (non condensing)<br>**measuring cell:**<br>-5 ... +80 °C (shorttime 100 °C) |
| **Power supply:** | 2 x AA battery,<br>>1000 h operating time |
| **Protection rating:** | IP65 / IP67 |
| **Housing:** | Break-proof ABS housing |
| **Dimensions:** | 108 x 54 x 28 mm (H x W x D)<br>without sensor connection |
| **Weight:** | approx. 200 g (G 1410)<br>approx. 230 g (G 1420) |
| **Scope of supply:** | Device with measuring cell, calibration log, 2 x battery, manual |

| Specifications: | G 1410 | G 1420 |
|---|---|---|
| | Wide-range measuring device, incl. graphite measuring cell | Cleanest water version, incl. stainless steel measuring cell |
| **Measurement:** | Conductivity, salinity, TDS | conductivity, specific resistance: |
| **Measuring range:** | With automatic measuring range shifting | |
| **Conductivity:** | 0 ... 2000 µS/cm<br>0.00 ... 20.00 mS/cm<br>0.0 ... 100.0 mS/cm | 0.000 ... 2.000 µS/cm<br>0.00 ... 20.00 µS/cm<br>0.0 ... 100.0 µS/cm |
| **Specific resistance:** | -- | 0.0100 ... 0.2000 MOhm*cm<br>0.010 ... 2.000 MOhm*cm<br>0.01 ... 20.00 MOhm*cm |
| **TDS:** | 0 ... 2000 mg/l | -- |
| **Salinity (PSU):** | 0.0 ... 50.0 g/kg | -- |
| **Temperature:** | -5.0 ... +105.0 °C | -5.0 ... +105.0 °C |
| **Accuracy** | | |
| **Conductivity:** | ±0.5 % of m.v. ±0.5 % FS | Typ. ±1 % of m.v. ±0.5 % FS |
| **Temperature:** | ±0.3 °C | ±0.3 °C |
| **Temperature compensation:** | off: deactivated<br>nLF: non-linear, according to EN 27888 | off: deactivated<br>nLF: non-linear, according to EN 27888<br>LIN: linear with variable coefficients<br>NaCl: For weak NaCl solutions in accordance with EN 60746-3 |
| **Reference temperatures:** | 20 and 25 °C | 20 and 25 °C |
| **Sensors / measuring inputs:** | permanently connected 2-pole measuring cell with integrated temperature sensor | |
| **Measuring cell:** | 2-pole measuring cell, Ø 12 mm (graphite), cable 1.2 m (others available for surcharge) | 2-pole measuring cell, Ø 12 mm (stainless steel 1.4404, 1.4435), cable 1.2 m (others available for surcharge) |
| **Display:** | 3-line unit with battery status indicator, background light, protected by an unbreakable pane, overhead display at the push of a button | |

### Accessories and spare parts:

**GKL 100**
*Art. no. 601396*
Conductivity control solution
(100 ml bottle with 1413 µS / cm, in accordance with DIN EN 27888)

**GKL 101**
*Art. no. 601398*
Conductivity control solution
(250 ml bottle with 84 µS / cm)

**GKL 102**
*Art. no. 601400*
Conductivity control solution
(100 ml bottle with 50 mS / cm)

**HD-22-3**
*Art. no. 700040*
freely positionable laboratory sensor holding arm for sensors Ø12mm

**GWZ-01**
*Art. no. 603499*
Flow-through chamber for sensors with Ø 12 mm, tube connection Ø 6 mm

**ST-G1000**
*Art. no. 611373*
Protection bag, leather

**GB AA**
*Art.-Nr: 610049*
Spare battery Mignon (AA) 1,5 V (2 batteries required)

**GKK 1002**
*Art. no. 411907*
Case G1000 series water analysis small

# PH / ORP / TEMPERATURE MEASURING DEVICES


HIGHLIGHTS:

- ORP mode allows for automatic conversion to hydrogen system electrodes
- temperature compensation
- Automatic buffer detection
- Rating function of electrode's quality
- New: analog output for all variants

ADDITIONAL FUNCTIONS GMH 3551:



## GMH 3511

*Art. no. 604953*

pH-/Redox-/Temperature measuring instrument w/o accessories

## GMH 3531

*Art. no. 602076*

pH-/Redox-/Temperature measuring instrument w/o accessories

## GMH 3551

*Art. no. 602817*

pH-/Redox-/Temperature measuring instrument with logger w/o accessories

### Specifications:

| | |
|---|---|
| **Measuring ranges** | |
| **Temperature:** | -5.0 ... +150.0 °C or 23.0 ... +302.0 °F |
| **pH:** | 0.00 ... 14.00 pH |
| **Redox (ORP):** | -1999 ... +2000 mV<br>Based on hydrogen system:<br>-1792 ... +2207 $mV_H$ (DIN 38404) |
| **rH:** | 0.0 ... 70.0 rH (not GMH 3511) |
| **Accuracy (device) ±1 digit at nominal temperature = 25 °C** | |
| **Temperature:** | ±0.2 °C (at range -5 ... +100 °C) |
| **pH:** | ±0.01 pH |
| **Redox (ORP):** | ±0.1 % FS (mV or $mV_H$) |
| **rH:** | ±0.1 rH (not GMH 3511) |
| **Sensor connections** | |
| **Temperature:** | 2 x 4 mm<br>banana socket for Pt1000, 2-wire |
| **pH, Redox:** | BNC socket |
| **Display:** | two 4-digit LCD displays<br>(12.4 and 7 mm high) |
| **Working temperature:** | 0 ... +50 °C |
| **Storage temperature:** | -20 ... +70 °C |
| **Interface:** | serial interface; connectable to RS232 or USB interface of PCs via electrically isolated interface converter GRS 3100, GRS 3105 or USB 3100 N (accessories). |
| **Power supply:** | 9 V battery, additional socket for external 10.5 ... 12 V direct current power supply (adequate PSU: GNG10/3000) |
| **Battery life:** | approx. 300 h |
| **Housing:** | Impact-resistant ABS plastic housing, membrane keyboard, transparent panel, integrated pop-up clip |
| **Dimensions:** | 142 x 71 x 26 mm (H x W x D) |
| **Weight:** | approx. 170 g |
| **Scope of supply:** | Device, battery, calibration protocol, manual |

### Functions:

**Automatic temperature compensation:**
In operation mode „pH" an automatic temperature compensation (ATC) is possible in the range 0 ... 105 °C if a temperature probe is connected. Otherwise a manual input of temperature is possible.

**pH calibration:**
Buffer selection, temperature compensation and sensor rating according to calibration result (from 10 ... 100 %) is done automatically.
**GMH 3511:** 2-point calibration with Greisinger buffer capsules (GPH 4, 7, 10)
**GMH 3531, GMH 3551:** Either 1-, 2- of 3- point calibration with Greisinger standard buffer, buffer according to DIN19266 (A, C, D, F, G) or manual buffer selection.

**Calibration interval (not for GMH 3511):**
The device asks for a recalibration after a selectable time period (1 ... 365 days or inactive)
**GMH 3551:** Calibration history additional

**ORP measurement (Redox):**
There are 2 choices:
„mV": standard ORP or mV measurement
„$mV_H$": temp. compensated conversion to hydrogen system acc. to DIN38404 part 6, table 1 based on the standard ORP electrode (e.g. GE105 with Ag/AgCl system and 3 mol KCl) used.

**rH measurement (not GHM 3511):**
Calculation of the rH value by means of a ORP measurement and by manually entering the pH-value. The pH-value may also be taken from a previous pH measurement.

**Analog output:**
0 ... 1 V, not changeable 0 ... 1 V ≙ 0 ... 14 pH or -2000 ... +2000 mV, connection via 3-pole jack socket Ø 3.5 mm, resolution 13 bit, accuracy 0.05 % at nominal temperature
**GMH 3551:** Analog output freely scalable

**Data logger (GMH 3551 only):**
cyclic 10,000 data sets, manual: 1,000 data sets (with measuring point input, 40 adjustable measuring point texts or measuring point numbers)

### Accessories and spare parts:

**GMH 55 ES**
*Art. no. 603066*
pH addional set for GMH 35xx and GMH 55xx
pH-electrode GE 100 BNC, temperature probe GF 1T-T3-B-BS (Pt1000), case GKK 3500, GAK 1400

**GF 1T-T3-B-BS**
*Art. no. 611088*
compact Pt1000 temperature probe with silicone handle, Pt1000 cl. B, with 2 banana plugs

**GE 100-BNC**
*Art. no. 600704*
pH-electrode, BNC plug

**GE 117-BNC**
*Art. no. 600730*
pH-electrode incl. Pt1000, pressure resistant

**GNG 10/3000**
*Art. no. 600273*
Plug in power supply for devices of the series GMH 3XXX

**GKK 3001**
*Art. no. 611605*
with cut-outs for 1 device of the GMH 3xxx series and accessories for water analysis (395 x 295 x 106 mm)

**USB 3100 N**
*Art. no. 601092*
Interface Converter GMH3xxx <=>PC, USB, electrically isolated

**EBS 20M**
*Art. no. 601158*
Measuring data acquisition software for EASYBus & GMH, see page 109

## GMH3511 SETS


*GMH 3511-SET*

COMFORTABLE MEASUREMENT

### GMH 3511-SET

*Art. no. 605021*

pH-/Redox-/Temperature measuring instrument
Device complete with pH electrode GE 114, GF1T-T3-B-BS, 5x GPH4, 5x GPH7, 2x GPF100

### GMH 3511-G125

*Art. no. 475740*

pH-/Redox-/Temperature measuring instrument
Device complete with pH electrode GE 125 (PT1000)

**General:**

For comfortable measurement of pH value and temperature. Even easier operation with a menu reduced to 5 points in GMH 3511.
Minimum measurement effort with maintenance-free gel electrodes and automatic temperature compensation.

**Specifications:**

see GHM 3511

**Accessories and spare parts:**

**GE 114-BNC**
*Art. no. 604701*
pH-electrode

**GE 125-BNC**
*Art. no. 600731*
waterproof pH-electrode incl Pt1000, BNC plug

**GKK 3001**
*Art. no. 611605*
with cut-outs for 1 device of the GMH 3xxx series and accessories for water analysis (395 x 295 x 106 mm)

## GMH3531 SETS


*GMH 3531-SET125*

FOR LABORATORY AND FIELD

### GMH 3531-SET125

*Art. no. 474240*

pH-/Redox-/Temperature measuring instrument
Device complete GE 125, 5x GPH4, 5x GPH7, 2x GPF100, GKK 3001

### GMH 3531-SET100

*Art. no. 604591*

pH-/Redox-/Temperature measuring instrument
Device complete GE 100, GF1T-T3-B-BS, 5x GPH4, 5x GPH7, 2x GPF100, GKK 3001

**General:**

Functional scope for elevated demands in the laboratory and field.
Minimum measurement effort with maintenance-free gel electrodes and automatic temperature compensation.

**Specifications:**

see GHM 3531

**Accessories and spare parts:**

**GE 100-BNC**
*Art. no. 600704*
pH-electrode, BNC plug

**GE 125-BNC**
*Art. no. 600731*
waterproof pH-electrode incl Pt1000, BNC plug

**GKK 3001**
*Art. no. 611605*
with cut-outs for 1 device of the GMH 3xxx series and accessories for water analysis (395 x 295 x 106 mm)

## GMH3551 SETS


*GMH 3551-SET100*

WITH DATA LOGGER

### GMH 3551-SET125

*Art. no. 474903*

pH-/Redox-/Temperature measuring instrument with logger; Device complete GE 125, 5x GPH4, 5x GPH7, 2x GPF100, GKK 3001

### GMH 3551-SET100

*Art. no. 475742*

pH-/Redox-/Temperature measuring instrument with logger; Device complete GE 100, GF1T-T3-B-BS, 5x GPH4, 5x GPH7, 2x GPF100, GKK 3001

**General:**

Sets with very good equipment with integrated data logger

**Specifications:**

see GHM 3551

**Accessories and spare parts:**

**GE 100-BNC**
*Art. no. 600704*
pH-electrode, BNC plug

**GE 125-BNC**
*Art. no. 600731*
waterproof pH-electrode incl Pt1000, BNC plug

**GKK 3001**
*Art. no. 611605*
with cut-outs for 1 device of the GMH 3xxx series and accessories for water analysis (395 x 295 x 106 mm)

# WATERPROOF HANDHELD MEASURING DEVICE FOR PH / REDOX



WATER-PROOF DEVICE AND PLUG CONNECTIONS

HIGHLIGHTS:

- GLP-features (Good Laboratory Practice)
- Big dual display with background illumination
- High resolution (0.001pH / 0.1 mV)
- Incl. calibration protocol

ADDITIONAL FUNCTIONS GMH 5550:



## GMH 5530

*Art. no. 600041*

Waterproof pH-/Redox-/Temperature measuring instrument, without electrode

## GMH 5550

*Art. no. 600043*

waterproof pH-/Redox-/Temperature measuring instrument with logger, without electrode

### Application:

- Waters measuring, fishkeeping, aquafarming
- Drinking water monitoring, process control, soil measuring
- Food production and monitoring
- Laboratory: Medicine, pharmaceutics, chemistry
- Quality management

### Specifications:

| | |
|---|---|
| **Measuring ranges** | |
| **pH:** | -2.000 ... 16.000 pH (resolution selectable) |
| **Redox / mV:** | -2000.0 ... 2000.0 mV (resolution selectable)<br>for hydrogen system DIN38404: -1792 ... +2207 mV$_H$) |
| **Temperature:** | -5.0 ... +150.0 °C; 23.0 ... 302.0 °F |
| **rH:** | 0.0 ... 70.0 rH |
| **Accuracy** | |
| **pH:** | ±0.005 pH |
| **Redox / mV:** | ±0.05 % FS (mV or mV$_H$) |
| **Temperature:** | ±0.2 °C (in the range of -5.0 ... 100.0 °C) |
| **rH:** | ±0.1 rH |
| **Connections** | |
| **pH, Redox:** | BNC-female connector, compatible to standard BNC-plugs and waterproof BNC-plugs, additional banana-jack (4 mm) for separate reference electrode, input resistance: $10^{12}$ Ohm |
| **Temperature:** | 2 banana-jacks (4 mm) for temperature probes (Pt1000 or NTC 10K) |
| **Interface / Supply:** | 4-pole bayonet connector for serial interface and supply (with accessory USB 5100) |
| **Operating conditions:** | -25 ... +50 °C; 0 ... 95 % RH (non-condensing) |
| **Display:** | two 4 ½ digit 7-segment displays (15 mm and 12 mm) |
| **pH-Calibration** | |
| **Automatically:** | 1-, 2- or 3- point calibration, GREISINGER standard buffer or buffer to DIN19266 (A, C, D, F, G) |
| **Manual:** | 1-, 2- or 3- point calibration |
| **Power supply:** | 2 x AAA-battery, power consumption: <1.0 mA |
| **Battery life:** | 1000 hours |
| **Housing:** | impact resistant ABS housing with pop-up clip |
| **Protection rating:** | IP65 / IP67 |
| **Dimensions:** | 160 x 86 x 37 mm (H x W x D) incl. protection cover |
| **Weight:** | 250 g incl. battery and protection cover |
| **Scope of supply:** | Device, battery, calibration protocol, manual |

### Additional functions:

**Additional Display for pH-Electrode and Battery:** Bar graph display

**Background illumination:** duration adjustable (off, 5 s ... 2 min)

**Automatic Temperature Compensation:** There is an automatic temperature compensation (ATC) in the range of 0 ... 105 °C for operation mode "pH" and if a temperature probe is connected. Without connected probe the temperature can be input manually.

**pH-Calibration:** 1-, 2- or 3- point calibration with characteristics bend for GREISINGER standard buffer, buffer to DIN 19266 or manual buffer input. The used buffer is detected automatically. The temperature dependency of the buffer is automatically compensated. Permissible electrodes' data: Asymmetry: ±55 mV / Slope: 45 ... 62 mV/pH
The condition of pH-Electrode is checked at each calibration.

**Redox-Measurement (ORP):** 2 choices:
„mV" Standard-Redox-, ORP or mV- measurement
„mV$_H$" Conversion to hydrogen systems according to DIN38404 part 6

**rH-Measurement:** The rH-value is calculated from a measured Redox-value and a manually input pH-value.

**Calibration interval:**
The device asks for a recalibration after a selectable time period (1 ... 365 days or inactive)

**Calibration memory (GMH 5550 only):**
last 16 calibrations

**Analog output (GMH 5550 only):**
0 ... 1 V, freely adjustable, connection with 4-pole bayonet connector, resolution 13 bit, accuracy 0.05 % at nominal temperature

**data logger (GMH 5550 only):**
with measuring point input, adjustable cycle time: 1 s ... 1 h
recording time: 416 days at intervall 1 h,
data logger: cyclic: 10000 data sets, manual: 1000 data sets

### Accessories and spare parts:

**EBS 20M**
*Art. no. 601158*
Measuring data acquisition software for EASYBus & GMH, p.r.t. page 109

**GSOFT 3050**
*Art. no. 601336*
Windows software for GMH 3000 and GMH 5000 with logger (p.r.t. page 110)

**USB 5100**
*Art. no. 601095*
Electrically isolated interface converter with supply of device via USB

**GNG 5 / 5000**
*Art. no. 602287*
Plug in power supply for devices of the series GMH 5XXX (p.r.t. page 115)

**GKK 5001**
*Art. no. 611606*
with cut-outs for 1 device of the GMH 5xxx-/7500 series and accessories for water analysis (395 x 295 x 106 mm), p.r.t. page 112

## PH MEASUREMENT SET

### GMH 5530-SET
*Art. no. 611614*
Waterproof pH-/Redox-/Temperature measuring instrument
Device, GE125-L02, PHL 4, PHL 7, PHL 10, KCL3M, GRL100, GKK 2019

### GMH 5550-SET
*Art. no. 611254*
waterproof pH-/Redox-/Temperature measuring instrument with logger:
Device, GE125-L02, PHL 4, PHL 7, PHL 10, KCL3M, GRL100, Software, USB 5100, GKK 2019

### GMH 5530-G125
*Art. no. 475746*
Waterproof pH-/Redox-/Temperature measuring instrument,
Device complete with pH electrode GE 125 (PT1000)

### GMH 5550-G125
*Art. no. 475747*
waterproof pH-/Redox-/Temperature measuring instrument with logger,
Device complete with pH electrode GE 125 (PT1000)

**General:**

With our ready-to-use pH measurement set, you have everything you need for your work in a practical case and with the set price, you save 23 % in comparison with the prices for the individual components

**Application:**

No matter which sector you work in, our comprehensive SET-GMH 5550 never lets you down and stows away in the tidy practical case

**Specifications:**

| | |
|---|---|
| **Measuring ranges** | |
| **pH:** | -2.000 ... 16.000 pH (resolution selectable) |
| **Redox / mV:** | -2000.0 ... 2000.0 mV (resolution selectable)<br>for hydrogen system DIN38404: -1792 ... +2207 $mV_H$) |
| **Temperature:** | -5.0 ... +150.0 °C; 23.0 ... 302.0 °F |
| **rH:** | 0.0 ... 70.0 rH |
| **Dimensions:** | 450 x 360 x 140 mm (case) |
| **Weight:** | approx. 5700 g |
| **Scope of supply:** | Device with silicone protective sleeve, pH electrode, 3 x buffer solution, KCL electrolyte, pepsin cleaning solution, case, battery, calibration protocol, manual<br>**SET-GMH 5550 only:**<br>Software, interface converter |

**Accessories and spare parts:**

**GMH 5550**
*Art. no. 600043*
waterproof pH-/Redox-/Temperature measuring instrument with logger, without electrode (p.r.t. page 61)

**GSOFT 3050**
*Art. no. 601336*
Windows-software for handheld instruments with logger (p.r.t. page 110)

**USB 5100**
*Art. no. 601095*
galvanically isolated interface converter with device power supply via USB

**GKK 2019**
*Art. no. 611147*
Device case 2 layers, for 1x GMH 5000 and 3 ready to use buffer solutions (450 x 360 x 140 mm)

## PH / REDOX ACCESSORIES

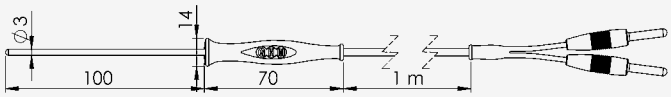
*Supplementary set GMH 55 ES*

**Accessories and spare parts:**

**GMH 55 ES**
*Art. no. 603066*
pH addional set for GMH 35xx and GMH 55xx including pH-electrode (GE 100 BNC), temperature probe (GF 1T-T3-B-BS), case (GKK 3500), working and calibration set (GAK 1400)

**GE 125-BNC**
*Art. no. 600731*
waterproof pH-electrode with integrated Pt1000 temperature sensor incl. waterproof BNC-plug and two banana plugs (p.r.t. page 65)

**GF 1T-T3-B-BS**
*Art. no. 611088*
compact Pt1000 temperature probe with silicone handle
-70 ... +250 °C, Pt1000 cl. B
immersion probe Ø 3 mm made of V4A tube, black silicone handle up to +250 °C, 1 m, silicone cable up to +230 °C permanently / +250 °C for 2 h, 2 x ø 4 mm banana plug
**Response time $T_{90}$:** water 0.4 m/s <2 s, air 2 m/s approx. 40 s




**GE 100-BNC**
*Art. no. 600704*
pH-electrode (p.r.t. page 65)

**GR 105-BNC**
*Art. no. 607798*
ORP / redox electrode (p.r.t. page 66)

**PHL 4**
*Art. no. 601369*
pH buffer solution, ready to use (pH 4.01 / 25 °C), 250 ml

**PHL 7**
*Art. no. 601371*
pH buffer solution, ready to use (pH 7.00 / 25 °C), 250 ml

**PHL 10**
*Art. no. 601373*
pH buffer solution, ready to use (pH 10.01 / 25 °C), 250 ml

**KCL 3 M**
*Art. no. 602477*
3 mol KCL electrolyte for refill or storage (filled in the protective cap) of electrodes with 3 mol KCl electrolyte. 100 ml plastic vial.

**CaCl**
*Art. no. 603254*
Electrolyte for soil-pH measuring, 1000 ml

**GRL 100**
*Art. no. 601422*
HCL/Pepsin cleaning solution, 100 ml

**GRP 100**
*Art. no. 601424*
Redox test solution 220 mV, 100 ml

### GAK 1400
*Art. no. 603523*
pH Working and calibration set
**Scope of supply:**
5 buffer capsules each GPH 4.0, GPH 7.0 and GPH 10.0, 3 x 100 ml-plastic bottle GPF 100, 1 x 3 mol KCL-electrolyte KCL3M and 1 x Pepsin-cleaning agent GRL 100. GAK 1400 is required if no buffer solutions are existing

# PRECISE PH MEASURING DEVICE



DURABLE AND AFFORDABLE

HIGHLIGHTS:

- Modern and functional housing
- 3-line display / overhead display at the push of a button
- Backlighting
- Waterproof (IP65 / IP67)
- Durable, long battery life
- BNC connection for alternating electrodes

*Connection G 1500*

## G 1500

*Art. no. 609850*
Waterproof pH-meter incl. pH electrode GE 114 WD

## G 1500-SET

*Art-Nr: 474035*
Waterproof pH-meter
Device complete with pH electrode GE 114 WD, GAK 1400 and suitcase GKK 1001

### General:

The primary focus in the development of the new G 1000 series was place on the essential functions of the measurement technology.
Pure measurement with a focus on precision, speed and reliability packaged in a compact housing distinguish an impressive price/performance ratio, Made in Germany.
The new handheld measuring devices also impress with their ergonomic design, dust and water-protected design in accordance with IP 65/67 and the illuminated display.
The compact pH-meter is an alternative to pH sticks and elaborate middle-class devices.

### Application:

Aquariums and aquaculture, plant cultivation and agriculture, laboratories, quality assurance, service, foods, etc.

### Specifications:

| | |
|---|---|
| **Measuring range:** | 0.00 ... 14.00 pH |
| **Resolution:** | 0.01 pH |
| **Accuracy (device):** | ±0.02 pH ±1 digit (at nominal temperature 25 °C) |
| **Display:** | 3-line unit, with background light, protected by an unbreakable pane, overhead display at the push of a button |
| **Sensors / measuring inputs:** | pH electrode connectible via BNC, Standard GE 114 WD Temperature compensation which can be set on the device Electrode range of application: 0 ... 60 °C |
| **Working temperature:** | Display unit -20 ... +50 °C |
| **Power supply:** | 2 x AA battery, approx. 3000 h operating time |
| **Housing:** | Break-proof ABS housing |
| **Dimensions:** | 108 x 54 x 28 mm (H x W x D) without sensor connection |
| **Weight:** | approx. 130 g (without electrode) |
| **Scope of supply:** | Device, electrode, calibration log, 2 x battery, manual **G 1500-SET only:** GAK 1400, case GKK 1001 |

### Accessories and spare parts:

**G 1500-GL**
*Art. no. 609851*
Device without electrode

**GE 114-BNC-WD**
*Art. no. 610460*
pH-electrode with waterproof BNC-connector, IP 67

**GE 114-BNC**
*Art. no. 604701*
pH-electrode

**GE 100-BNC**
*Art. no. 600704*
pH-electrode

*for additional electrodes, see the next page*

**GKK 1002**
*Art. no. 411907*
Case G1000 series water analysis small

**GKK 1003**
*Art. no. 411917*
Case for 2x G1000 series water analysis and 2x PHLx 450 x 360 x 106 mm (W x H x D)

**GKK 1100**
*Art. no. 601060*
Case with punched lining for universal application (340 x 275 x 83 mm), suitable to accommodate accessories

**GKK 1001**
*Art. no. 611604*
Case G1000 series water analysis universal 395 x 295 x 106 mm (W x H x D)

**PHL 4**
*Art. no. 601369*
pH buffer solution, ready to use (pH 4.01 / 25 °C), 250 ml

**PHL 7**
*Art. no. 601371*
pH buffer solution, ready to use (pH 7.00 / 25 °C), 250 ml

**PHL 10**
*Art. no. 601373*
pH buffer solution, ready to use (pH 10.01 / 25 °C), 250 ml


**GAK 1400**
*Art. no. 603523*
pH Working and calibration set:
**Scope of supply:**
5 buffer capsules each GPH 4.0, GPH 7.0 and GPH 10.0, 3 x 100 ml-plastic bottle GPF 100, 1 x 3 mol KCL-electrolyte KCL3M and 1 x Pepsin-cleaning agent GRL 100. GAK 1400 is required if no buffer solutions are existing

**ST-G1000**
*Art. no. 611373*
Protection bag, leather

**GB AA**
*Art.-Nr: 610049*
Spare battery Mignon (AA) 1,5 V (2 batteries required)

# PRECISE PH MEASURING DEVICE



ROBUST UND PREISWERT

*GE 114-WD*

*GE 125*

HIGHLIGHTS:

- Modern and functional housing
- 3-line display / overhead display at the push of a button
- Backlighting
- Waterproof (IP65 / IP67)
- Durable, long battery life
- BNC connection for alternating electrodes
- with Redox (ORP) and temperature measurement
- Alarm function


*Connection G 1501*

## G 1501

*Art-Nr: 611725*

Waterproof pH/ORP-meter with Pt1000 input and alarm with pH electrode GE 114-WD

## G 1501-G125

*Art-Nr: 414689*

Waterproof pH/ORP-meter with Pt1000 input and alarm, Device complete with pH electrode GE 125 (PT1000)

### General:

The primary focus in the development of the new GMH 1000 series was place on the essential functions of the measurement technology.
Pure measurement with a focus on precision, speed and reliability packaged in a compact housing distinguish an impressive price/performance ratio, Made in Germany.
The new handheld measuring devices also impress with their ergonomic design, dust and water-protected design in accordance with IP 65/67 and the illuminated display.
The compact pH-meter is an alternative to pH sticks and elaborate middle-class devices.
The G 1501 also enables Redox (ORP) measurement (with temperature-compensated conversion of the Ag/AgCl reference system to a hydrogen system in accordance with DIN 38404 part 6, table 1) and automatic temperature compensation with connected Pt 1000 temperature sensor for pH and $mV_H$ measurements. An optical and visual alarm signal (min/max) is also included.

### Application:

Aquariums and aquaculture, plant cultivation and agriculture, laboratories, quality assurance, service, foods, etc.

### Specifications:

| | |
|---|---|
| **Measuring range:** | 0.00 ... 14.00 pH |
| **Resolution:** | 0.01 pH |
| **Accuracy (device):** | ±0.02 pH ±1 digit (at nominal temperature 25 °C) |
| **Temperature:** | |
| **Measuring input:** | 2 x 4 mm banana for Pt 1000, 2-wire |
| **Measuring range:** | -5.0 ... +105.0 °C or 23.0 ... 221.0 °F |
| **Accuracy:** | ±0.2 °C ±1 digit (at nominal temperature 25 °C) |
| **Redox (OPR)** | |
| **Measuring input:** | BNC socket (Redox or pH measurement adjustable via menu) |
| **Measuring range:** | -1500 ... 1500 mV or -1293 ... 1707 $mV_H$ |
| **Accuracy:** | ±0.1 % FS ±1 digit (at nominal temperature 25 °C) |
| **Display:** | 3-line unit, with background light, protected by an unbreakable pane, overhead display at the push of a button |
| **Sensors / measuring inputs:** | pH electrode connectible via BNC, Standard GE 114 WD Temperature compensation which can be set on the device Electrode range of application: 0 ... 60 °C |
| **Working temperature:** | Display unit -20 ... +50 °C |
| **Power supply:** | 2 x AA battery, approx. 3000 h operating time |
| **Housing:** | Break-proof ABS housing |
| **Dimensions:** | 108 x 54 x 28 mm (H x W x D) without sensor connection |
| **Weight:** | approx. 130 g (without electrode) |
| **Scope of supply:** | Device, electrode, calibration log, 2 x battery, manual |

### Accessories for G 1501:

**G 1501-GL**
*Art. no. 611483*
Device without electrode

**GF 1T-T3-B-BS**
*Art. no. 611088*
compact Pt1000 temperature probe with silicone handle

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

**GRP 100**
*Art. no. 601424*
Redox test solution 220 mV, 100 ml

General accessories see page 66

## G 1501-SET

*Art-Nr: 611385*

Waterproof pH/ORP-meter with Pt1000 input and alarm, Complete set for pH/temperature measurement
Device compl. with pH electrode GE 114-WD + GF1T 3mm + GPH4.0/5+ GPH7.0/5 + 2x GPF100

## G 1501-SET 114

*Art-Nr: 474037*

Waterproof pH/ORP-meter with Pt1000 input and alarm, Device complete with pH electrode GE 114 WD, T-probe GF1T-T3-B-B, GAK 1400 and suitcase GKK 1001

## G 1501-SET 125

*Art-Nr: 474038*

Waterproof pH/ORP-meter with Pt1000 input and alarm, Device complete with pH electrode GE 125, GAK 1400 and suitcase GKK 1001

### General:

Affordable set for temperature-compensated pH measurement

### Application:

The measuring devices can be used in aquarium, water and surface water monitoring, plant husbandry, agricultural, laboratory, quality assurance, service and food applications.

### Accessories and spare parts:

see page 66

**GF 1T-T3-B-BS**
*Art. no. 611088*
compact Pt1000 temperature probe with silicone handle, Pt1000 class B, with 2 banana plugs

**GAK 1400**
*Art. no. 603523*
pH Working and calibration set:
consisting of:
5 of each of GPH 4.0, GPH 7.0 and GPH 10.0 buffer capsules, 3 x 100 ml plastic bottle GPF 100,
1 x 3 mol KCL electrolyte KCL3M and 1 x pepsin cleaning solution GRL 100.

**GKK 1001**
*Art. no. 611604*
Case G1000 series water analysis universal
395 x 295 x 106 mm (W x H x D)

# 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<br>0 ... 80 °C | 2 ... 11 pH<br>0 ... 60 °C | 0 ... 14 pH<br>0 ... 80 °C | 0 ... 14 pH<br>0 ... 80 °C | 0 ... 14 pH<br>0 ... 60 °C | 0 ... 14 pH<br>0 ... 80 °C | 0 ... 14 pH<br>0 ... 60 °C | 0 ... 14 pH<br>0 ... 70 °C | 0 ... 14 pH<br>-5 ... +80 °C | 0 ... 14 pH<br>0 ... 80 °C | 0 ... 14 pH<br>0 ... 140 °C | 0 ... 14 pH<br>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**<br>*Art. no.* | *600704* | *600693* | *602063* | *600713* | *604701* | *600730* | *600698* | *600731* | *610987* | *600727* | - | *600735* |
| **S7*)**<br>*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

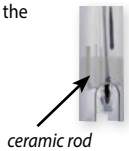
*BNC connection*


*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 | GE 126 | 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 / redox electrode with BNC 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 treatment: >2 years; warranty: 12 months*

| 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 electrolyte |
| **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*
Redox test solution 220 mV, 100 ml

## ELECTRODES - ACCESSORIES

**Buffer capsules and buffer solutions:**

**GPH 4,0 / 5** *Art. no. 602614*
pH buffer capsules (5 pieces), pH 4.0

**GPH 4,0 / 10** *Art. no. 602615*
pH buffer capsules (10 pieces), pH 4.0

**GPH 7,0 / 5** *Art. no. 602616*
pH buffer capsules (5 pieces), pH 7.0

**GPH 7,0 / 10** *Art. no. 602617*
pH buffer capsules (10 pieces), pH 7.0

**GPH 10,0 / 5** *Art. no. 602618*
pH buffer capsules (5 pieces), pH 10.0

**GPH 10,0 / 10** *Art. no. 602619*
pH buffer capsules (10 pieces), pH 10.0

**GPH 12,0 / 5** *Art. no. 602620*
pH buffer capsules (5 pieces), pH 12.0

**GPH 12,0 / 10** *Art. no. 602621*
pH 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*
pH buffer solution, ready to use (pH 4.01 / 25 °C), 250 ml

**PHL 7** *Art. no. 601371*
pH buffer solution, ready to use (pH 7.00 / 25 °C), 250 ml

**PHL 10** *Art. no. 601373*
pH buffer solution, ready to use (pH 10.01 / 25 °C), 250 ml

**PHL 4-1000** *Art. no. 415029*
pH buffer solution, ready to use, (pH 4.01 / 25 °C), 1000 ml

**PHL 7-1000** *Art. no. 415030*
pH buffer solution, ready to use, (pH 7.00 / 25 °C), 1000 ml

**PHL 10-1000** *Art. no. 415031*
pH buffer solution, ready to use, (pH 10.01 / 25 °C), 1000 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*
HCL/Pepsin cleaning solution, 100 ml

**Accessories and spare parts:**

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

**GEAK-5S7-BNC**
*Art. no. 601998*
Adapter cable pH S7-BNC, 5 m

**VD120**
*Art. no. 601380*
injection aid for injection electrode GE101

**GAD 1 BNC**
*Art. no. 601382*
Adapter for the plug-in of electrodes with Cinch plug to devices with BNC socket.

**GPF 100**
*Art. no. 601417*
Plastic bottle with wide neck, 100 ml

**GAK 1400**
*Art. no. 603523*
pH Working and calibration set: GPH 4,0, GPH 7,0, GPH 10,0 (5 capsules of each type); 3 x GPF 100; 1 x KCL 3M; 1 x GRL 100

**GWA1Z**
*Art. no. 602914*
pressure accessories, plastic adapters PG13.5 to G1"

**PG 13.5**
*Art. no. 603205*
Thread Adapter, pluggable, Pg 13,5 for sensors with shaft Ø 12 mm

**GWA 11 PG** *Art. no. 605379*
pressure accessories, plastic adapters 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

**HD-22-3** *Art. no. 700040*
freely positionable laboratory sensor holding arm for sensors Ø12mm

**SDW 500** *Art. no. 606171*
Deionized water in refillable 500 ml bottle

# WATERPROOF HANDHELD MEASURING DEVICE FOR MEASURING DISSOLVED OXYGEN IN WATER


HIGHLIGHTS

- Waterproof and durable (protective silicone case)
- Large double display with background lighting
- New oxygen sensor GWO 5610
- Environmental pressure compensation with integrated barometer

ADDITIONAL HIGHLIGHTS GMH 5650

- Data logger and alarm function
- Analogue output, pressure connection

ADDITIONAL FUNCTIONS GMH 5650:

ALARM LOGG

## GMH 5630

*Art. no. 606880*

Handheld instrument for dissolved oxygen without accessories

## GMH 5650

*Art. no. 606882*

Handheld instrument for dissolved oxygen with data logger without accessories

**Application:**

Oxygen monitoring in aquaculture and aquaria. Testing of well water, sewer systems and in wastewater treatment plants, also suitable for harsh environments. Delivery can take place ready for use (filled) or dry. Electrodes delivered try are long lasting and ready for use within about 1 h after filling.

| Specifications: | GMH 5630 | GMH 5650 |
|---|---|---|
| **Measuring channels:** | $O_2$, T, air pressure (integrated) | $O_2$, T, air pressure (integrated) /measuring depth *1) |
| **Measuring ranges** | | |
| **$O_2$-concentration:** | 0.00 ... 70.00 mg/l (ppm) (Variable resolution) | |
| **$O_2$-saturation:** | 0.0 ... 600.0 % $O_2$ (Variable resolution) | |
| **$O_2$-partial pressure:** | 0 ... 1200 hPa $O_2$ (0.0 ... 427.5 mmHg) | |
| **Temperature:** | 0.0 ... 50.0 °C | |
| **Air pressure:** | 10 ... 1200 hPa abs | 300 ... 5000 hPa abs |
| **Measuring depth:** | - | 0 ... 40.0 m water column *1) |
| **Accuracy** | | |
| **Oxygen:** | ±1.5 % of m.v. ±0.2 mg/l (0 ... 25 mg/l) or ±2.5 % of m.v. ±0.3 mg/l (25 ... 70 mg/l) | |
| **Temperature:** | 0.0 ... 50.0 °C | |
| **Air pressure:** | 10 ... 1200 hPa abs | 300 ... 5000 hPa abs |
| **Sensor:** | GWO 5610, active diaphragm type with platinum cathode, Ø 12 mm, standard cable length 2 m, 7 pin bayonet connection | |
| **Response time:** | 90 % in 10 s | |
| **Service life:** | approx. 3 years, depending on usage and care | |

| | |
|---|---|
| **Display:** | 4 ½ digit, 7-segment, illuminated (white) |
| **Working temperature:** | Device: -25 ... +50 °C<br>Sensor: 0 ... 40 °C |
| **Sensor operating pressure:** | max. 3 bar corresponds to max. 30 m water depth |
| **Inward flow:** | min. 20 cm / s |
| **Power supply:** | 2 x AAA-battery, power consumption: 0.9 mA |
| **Battery life:** | approx. 1000 h (without lighting) |
| **Protection rating:** | IP65 / IP67 |
| **Housing:** | Impact-resistant ABS, with stand/ hanging bracket |
| **Dimensions:** | 160 x 86 x 37 mm (H x W x D) including protective silicone case |
| **Weight:** | approx. 250 g, including battery and protective case |
| **Scope of supply:** | Device incl. batteries (2 x AAA), protective silicone case, calibration protocol, manual, quick guide |

**Additional Functions:**

**Salinity correction:** 0.0 ... 70.0

**Pabs / height correction:**
Automatic with integrated sensor

**Measuring depth (GMH 5650 only):**
Hydrostatic depth measurement *1)

**Output / external supply:**
OUT jack: 38400 baud interface, 5 V external supply
**Additional with GMH 5650:**
Analogue output 0 ... 1 V, adjustable

**Calibration:** 1 point air, easy calibration to air at the push of a button
**Additional with GMH 5650:** 1 point water, 2 point or 3 point (air and zero point and 100 % $O_2$)

**GLP:** Calibration interval
**Additional with GMH 5650:** Calibration history

**Data logger (only GMH 5650):** Cyclical: 10,000, Single: 1000, single value logger with measuring point input

**Alarm (only GMH 5650):** 2 alarm channels ($O_2$ and temperature) with separate alarm thresholds alarm notification horn / visual / interface

**1) A simple hydrostatic depth measurement can be made with special accessories. For instance, oxygen profiles in waste water can be recorded very conveniently together with the logger function.*

## GMH 5630-L02

*Art. no. 607470*

Handheld instrument for dissolved oxygen including sensor GWO 5610, 2 m cable

## GMH 5650-L02

*Art. no. 607474*

Handheld instrument for dissolved oxygen with data logger including sensor GWO 5610, 2 m cable

**Varianten:**

**GMH 5630-L04**
*Art. no. 606881*
Handheld instrument for dissolved oxygen with sensor with 4 m cable length

**GMH 5630-L10**
*Art. no. 607471*
Handheld instrument for dissolved oxygen with sensor with 10 m cable length

**GMH 5630-L30**
*Art. no. 607472*
Handheld instrument for dissolved oxygen with sensor with 30 m cable length

**GMH 5650-L04**
*Art. no. 606883*
Handheld instrument for dissolved oxygen with data logger with sensor with 4 m cable length

**GMH 5650-L10**
*Art. no. 607478*
Handheld instrument for dissolved oxygen with data logger with sensor with 10 m cable length

**GMH 5650-L30**
*Art. no. 607479*
Handheld instrument for dissolved oxygen with data logger with sensor with 30 m cable length

**Accessories and spare parts:**

**GKK 5001**
*Art. no. 611606*
with cut-outs for 1 device of the GMH 5xxx-/7500 series and accessories for water analysis (395 x 295 x 106 mm), p.r.t page 112

## DISSOLVED OXYGEN SENSOR

HIGHLIGHTS:

- Significantly lower inward flow required than with the predecessor model
- Dry storage possible for long-term storage needs
- Compact 12 mm diameter retained!

## MEASUREMENT SET FOR DISSOLVED OXYGEN

### GWO 5610-L02

*Art. no. 607386*
replacement sensor for dissolved oxygen, GMH 56 & GMH 75, Sensor with 2 m cable

**General:**

Standard, for laboratory use, electrode is delivered filled, dry delivery available on request

**Accessories and spare parts:**

**GWO 5610-L04**
*Art. no. 607764*
replacement sensor for dissolved oxygen, GMH 56 & GMH 75 with 4 m cable (field use)

**GWO 5610-L10**
*Art. no. 607765*
replacement sensor for dissolved oxygen, GMH 56 & GMH 75 with 10 m cable (field use)

**GWO 5610-L30**
*Art. no. 607766*
replacement sensor for dissolved oxygen, GMH 56 & GMH 75 with 30 m cable (field use)

**GSKA 3600**
*Art. no. 601414*
Protection hat for depth measuring for sensors Ø 12 mm, PVC

**GSKA 3610**
*Art. no. 607267*
Protection hat for depth measuring for sensors Ø 12 mm, red brass

**GWOK 02**
*Art. no. 608012*
Spare membrane head for GWO 5610

**GAS 5610**
*Art. no. 608032*
Working set, includes 3 GWOK 5610, 1 KOH100, 1 Pipette

**KOH 100**
*Art. no. 603356*
spare electrolyte KOH 100 ml

**GCAL 3610**
*Art. no. 611371*
Calibration vessel for dissolved oxygen sensors with Ø 12 mm

**GKK 5001**
*Art. no. 611606*
with cut-outs for 1 device of the GMH 5xxx-/7500 series and accessories for water analysis (395 x 295 x 106 mm), p.r.t page 112

### GMH 5630-SET

*Art. no. 611613*
Measurement set
Device, GWO5610-L02, GWOK 02, KOH 100, GSKA 3610, GKK 5001

### GMH 5650-SET

*Art. no. 611255*
Measurement set
Device, GWO5610-L02, GWOK 02, KOH 100, GSKA 3610, Software, USB 5100, GKK 5001

**General:**

With our ready-to-use measurement set for dissolved oxygen, you have everything you need for your work in a practical case and with the set price, you save 13 % in comparison with the prices for the individual components

**Application:**

No matter which sector you work in, our comprehensive set never lets you down and stows away in the tidy practical case

**Specifications:**

| | |
|---|---|
| **Measuring channels:** | $O_2$, T, air pressure (integrated) / measuring depth |
| **Measuring range:** | |
| **$O_2$-concentration:** | 0.00 ... 70.00 mg/l (ppm) (Variable resolution) |
| **$O_2$-saturation:** | 0.0 ... 600.0 % $O_2$ (Variable resolution) |
| **$O_2$-partial pressure:** | 0 ... 1200 hPa $O_2$ (0.0 ... 427.5 mmHg) |
| **Temperature:** | 0.0 ... 50.0 °C |
| **Air pressure:** | 300 ... 5000 hPa abs |
| **Measuring depth:** | 0 ... 40.0 m water column |
| **Dimensions:** | 450 x 360 x 123 mm (case) |
| **Weight:** | approx. 1900 g |
| **Scope of supply:** | Device incl. protective silicone case, sensor, protective cap, 2 pipetts, spare membrane cap, spare electrolyte, case, battery, calibration protocol, manuals **SET-GMH 5650 only:** Software, interface converter |

**Accessories and spare parts:**

**GMH 5630**
*Art. no. 606880*
Handheld instrument for dissolved oxygen without accessories

**GMH 5650**
*Art. no. 606882*
Handheld instrument for dissolved oxygen with data logger without accessories

**GWO 5610-L02**
*Art. no. 607386*
replacement sensor for dissolved oxygen, GMH 56 & GMH 75 with 2 m cable

**GSKA 3610**
*Art. no. 607267*
Protection hat for depth measuring for sensors Ø 12 mm, red brass

**GSOFT 3050**
*Art. no. 601336*
Windows software for GMH 3000 and GMH 5000 with logger, p.r.t. page 110

**USB 5100**
*Art. no. 601095*
Interface converter GMH 5xxx <=>PC, Galvanic isolation

**GWOK 02**
*Art. no. 608012*
Spare membrane head for GWO 5610

**KOH 100**
*Art. no. 603356*
spare electrolyte KOH 100 ml

**GKK 5001**
*Art. no. 611606*
with cut-outs for 1 device of the GMH 5xxx-/7500 series and accessories for water analysis (395 x 295 x 106 mm), p.r.t page 112

# PRECISE DISSOLVED OXYGEN MEASURING DEVICES (DO)

HOLD
MIN MAX
O/S-CORR


DURABLE AND AFFORDABLE

HIGHLIGHTS:

- Modern and functional housing
- 3-line display / overhead display at the push of a button
- Backlighting
- Waterproof (IP65 / IP67)
- Durable, long battery life
- Including galvanic oxygen sensor
- Easy calibration to air at the push of a button

SUCCESSOR TO THE **G0X 20**

IT IS STILL AVAILABLE ON REQUEST - CONTACT US IMMEDIATELY!

## G 1610

*Art. no. 610003*

Waterproof handheld for dissolved oxygen incl. sensor, 2 m cable

## G 1610-4

*Art. no. 408380*

Waterproof handheld for dissolved oxygen incl. sensor, 4 m cable

**General:**

The primary focus in the development of the new GMH 1000 series was place on the essential functions of the measurement technology. Pure measurement with a focus on precision, speed and reliability packaged in a compact housing distinguish an impressive price/performance ratio, Made in Germany.
The new handheld measuring devices also impress with their ergonomic design, dust and water-protected design in accordance with IP 65/67 and the illuminated display.
The Oxymeter with maintenance-friendly galvanised sensor is an entry-level device suitable for everyday use. Concentrations in mg/l(ppm) and saturation in percentage can be read directly without using tables.
Calibration with environmental air takes place at the push of a button. Use of a GSKA protective cap is recommended for field use in bodies of water in order to protect the membrane.

**Application:**

Freshwater and salt water aquariums, aquaculture / fish breeding, monitoring of wells and bodies of water

**Specifications:**

| | |
|---|---|
| **Measuring range / Resolution:** | 0.0 ... 20.0 mg / l (or ppm) $O_2$ concentration<br>0 ... 200 % $O_2$ saturation |
| **Accuracy** | |
| **Oxygen:** | ±1,5 % of m.v. ±0.2 mg / l or ±1,5 % of m.v. ±2 % $O_2$ saturation |
| **Temperature:** | ±0.3 °C |
| **Sensors / measuring inputs:** | Galvanic sensor (active membrane type), KOH electrolyte<br>2 m or 4 m cable, permanently connected to the device, with integrated temperature sensor |
| **Response time $T_{95}$:** | 10 s at nominal temperature |
| **Operating pressure:** | max. 3 bar (~30 m water depth) |
| **Sensor range of application:** | 0 ... 40 °C |
| **Compensation** | |
| **Temperature:** | automatic with integrated temperature measurement |
| **Air pressure:** | Compensation possible with manual input (normally not necessary) |
| **Salinity:** | with manual entry |
| **Display:** | 3-line unit with battery status indicator, background light, protected by an unbreakable pane, overhead display at the push of a button |
| **Operation:** | 4 long-lasting, easy-to-operate buttons |
| **Additional functions:** | stability recognition, automatic adjustment to environmental air |
| **Display unit environment:** | -20 ... +50 °C, 0 ... 95 % RH |
| **Power supply:** | 2 x AA battery, battery life >3000 h |
| **Protection rating:** | IP65 / IP67 |
| **Housing:** | Break-proof ABS housing |
| **Dimensions:** | 108 x 54 x 28 mm (H x W x D) without sensor |
| **Weight:** | approx. 240 g (device incl. sensor) |
| **Scope of supply:** | Device, sensor, GWOK 02 spare membrane cap and KOH 100 spare electrolyte, 2 x battery, manual |


## G 1610-1002

*Art. no. 474287*

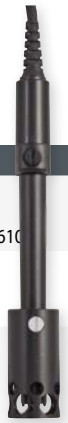
Waterproof handheld for dissolved oxygen incl. sensor
Device with fix mounted sensor 4 m: GWO5610-L02 and case GKK 1002

**Accessories and spare parts:**

**GWOK 02**
*Art. no. 608012*
Spare membrane head for GWO 561(

**KOH 100**
*Art. no. 603356*
spare electrolyte KOH 100 ml

**GSKA 3600**
*Art. no. 601414*
Protection hat for depth measuring for sensors Ø 12 mm, PVC



*GSKA 3600 mounted on the sensor*

**GSKA 3610**
*Art. no. 607267*
Protection hat for depth measuring for sensors Ø 12 mm, red brass

**GCAL 3610**
*Art. no. 611371*
Calibration vessel for dissolved oxygen sensors with Ø 12 mm

**ST-G1000**
*Art. no. 611373*
Device protection bag with 1 round cut-out

**GB AA**
*Art.-Nr: 610049*
Spare battery Mignon (AA) 1,5 V (2 batteries required)

**GKK 1002**
*Art. no. 411907*
Case G1000 series water analysis small

**GKK 1003**
*Art. no. 411917*
Case for 2x G1000 series water analysis and 2x PHLx 450 x 360 x 106 mm (W x H x D)

# OXYGEN MEASURING DEVICES FOR DISSOLVED OXYGEN IN LIQUIDS

AUTOOFF HOLD MIN MAX


HIGHLIGHTS:

- Automatic air pressure compensation
- Salinity correction
- Simple calibration in atmospheric air

MEAS. UNITS: $O_2$-CONCENTRATION $O_2$-SATURATION AND $O_2$-PARTIAL PRESSURE (GMH3651 ONLY)

ADDITIONAL FUNCTIONS GMH 3651:

ALARM LOGG

## GMH 3611

*Art. no. 605922*

Handheld instrument for dissolved oxygen incl. sensor, sensor with 4 m cable

## GMH 3651

Art. no. 605924

Handheld instrument for dissolved oxygen with data logger incl. sensor, sensor with 4 m cable

**Specifications:**

| | |
|---|---|
| **Measuring range: (device)** | |
| **$O_2$-concentration:** | 0.00 ... 70.00 mg / l (ppm) (resolution selectable) |
| **$O_2$-saturation:** | 0.0 ... 600.0 % $O_2$ (resolution selectable) |
| **$O_2$-partial pressure:** | 3651: 0 ... 1200 hPa $O_2$ (0.0 ... 427.5 mmHg) |
| **Temperature:** | 0.0 ... 50.0 °C |
| **Pressure:** | 3611: 10 ... 1200 hPa abs.<br>3651: 300 ... 5000 hPa abs. or 0 ... 100.0 m water column* (with pressure port) |
| **Accuracy: (at nominal temperature = 25 °C)** | |
| **Oxygen:** | ±1.5 % of m.v. ±0.2 mg / l (0 ... 25 mg / l) or ±2.5 % of m.v. ±0.3 mg / l (25 ... 70 mg / l) |
| **Temperature:** | ±0.1 °C ±1 digit |
| **Pressure:** | ±0.5 % FS ±1 digit<br>±3 hPa or 0.1 % of m.v.<br>±2 hPa (750 ... 1100 hPa) |
| **Sensor connection:** | 6-pin screened Mini-DIN-socket |
| **Sensor:** | Active membrane type. Electrode-Ø front: approx. 12 mm, overall length: approx. 220 mm, anti buckling glanding, neck collar: Ø approx. 20 mm, 4 m connection cable with Mini-DIN-plug |
| **Response time:** | 95 % in 10 s, depends on temperature |
| **Operation life:** | approx. 3 years, depends on maintenance |
| **Working temperature:** | 0 ... +40 °C |
| **Working pressure:** | max. 3 bar<br>Operating pressure sensor GWO 3600 max. 3000 hPa rel. or 4000 hPa pay attention to abs.! |
| **Flow rate:** | min. 30 cm/s |
| **Display:** | 2 x 4 digit LCDs (12.4 / 7 mm high) |
| **Interface:** | serial interface, direct connection to RS232 or USB interface of a PC via electrically isolated interface converter. |
| **Power supply:** | 9 V-battery as well as additional d.c. connector for external 10.5 ... 12 V direct voltage supply. (suitable power pack: GNG10/3000) |
| **Battery life:** | approx. 500 h |
| **Housing:** | impact-resistant ABS, membrane keyboard, transparent panel, integrated pop-up clip for table top or suspended use. |
| **Dimensions:** | 142 x 71 x 26 mm (H x W x D) |
| **Weight:** | approx. 300 g (incl. battery and probe) |
| **Scope of supply:** | Device incl. electrode, GWOK01 and KOH electrolyte, battery, calibration protocol, manual |

**Additional functions:**

**Temperature compensation:**
automatic via temperature sensor integrated in electrode.

**Air pressure compensation:**
automatic via integrated pressure sensor. Display of current air pressure.

**Correction of salinity:**
autom. salinity value can be set via keyboard from 0.0 ... 70.0

**Calibration:**
1-point calibration: extremely simple quick calibration in atmospheric air.
additional at GMH 3651: 2- and 3-point-calibration

**Calibration interval:**
The device asks for a recalibration after a selectable time period (1 - 365 days or inactive).
GMH 3651: additional calibration history

**Analog output (GMH 3651 only):**
0 ... 1 V, freely adjustable

**Alarm (GMH 3651 only):**
2 Alarm ($O_2$ and temperature) with separate alarm limits, Alarm horn / visual / interface

**Data logger (GMH 3651 only):**
cyclic: 10.000 data sets, manual: 1.000 data sets
(with measuring point input, 40 adjustable measuring point texts or measuring point numbers)

**Variants:**

**GMH 3611-L10**
*Art. no. 606233*
Handheld instrument for dissolved oxygen with sensor with 10 m cable length

**GMH 3611-L30**
*Art. no. 415157*
Handheld instrument for dissolved oxygen with sensor with 30 m cable length

**GMH 3651-L10**
*Art. no. 606105*
Handheld instrument for dissolved oxygen with data logger with sensor with 10 m cable length

**GMH 3651-L30**
*Art. no. 606106*
Handheld instrument for dissolved oxygen with data logger with sensor with 30 m cable length

**Accessories and spare parts:**

see next page

** There is the possibility for hydrostatic depth measurements with special accessories (upon request / pressure connection). This allows in combination with the logger function e.g. comfortable recordings of oxygen profiles in waters.*

## ACCESSORIES

**Accessories and spare parts:**

**GMH 3611-GL**
*Art. no. 606310*
Handheld instrument for dissolved oxygen without accessories

**GMH 3651-GL**
*Art. no. 606312*
Handheld instrument for dissolved oxygen with data logger without accessories

**GWO 3600-L04**
*Art. no. 603895*
replacement sensor for dissolved oxygen, GMH 36 / OXY 36 with 4 m cable

**GWO 3600-L10**
*Art. no. 603258*
replacement sensor for dissolved oxygen, GMH 36 / OXY 36 with 10 m cable

**GWO 3600-L30**
*Art. no. 603259*
replacement sensor for dissolved oxygen, GMH 36 / OXY 36 with 30 m cable

**GWOK 01**
*Art. no. 601411*
Spare membrane head for GWO 3600

**GAS 3600**
*Art. no. 603497*
Working set(3 spare Membrane heads and 100 ml of KOH electrolytes)

**GSKA 3600**
*Art. no. 601414*
Protection hat for depth measuring for sensors Ø 12 mm, PVC

**GSKA 3610**
*Art. no. 607267*
Protection hat for depth measuring for sensors Ø 12 mm, red brass

**KOH 100**
*Art. no. 603356*
spare electrolyte KOH 100 ml

**GCAL 3610**
*Art. no. 611371*
Calibration vessel for dissolved oxygen sensors with Ø 12 mm

**GKK 3001**
*Art. no. 611605*
Case for GMH 3000 series water analysis / universal with cut-outs for 1 device of the GMH 3xxx series and accessories for water analysis (395 x 295 x 106 mm)

*GCAL 3610 on the sensor*

## OXYGEN MEASURING DEVICE SETS

NEW!


### GMH 3611-SET04
*Art. no. 474202*
Handheld instrument for dissolved oxygen
Device, sensor 4 m: GWO 3600-L04, spare GWOK 01, KOH 100, protection GSKA3610, case GKK3001

### GMH 3651-SET04
*Art. no. 474203*
Handheld instrument for dissolved oxygen with data logger
Device, sensor 4 m: GWO 3600-L04, spare GWOK 01, KOH 100, protection GSKA3610, case GKK3001

| Specifications: | |
|---|---|
| **Measuring range: (device)** | |
| **$O_2$-concentration:** | 0.00 ... 70.00 mg / l (ppm) (resolution selectable) |
| **$O_2$-saturation:** | 0.0 ... 600.0 % $O_2$ (resolution selectable) |
| **$O_2$-partial pressure:** | 3651: 0 ... 1200 hPa $O_2$ (0.0 ... 427.5 mmHg) |
| **Temperature:** | 0.0 ... 50.0 °C |
| **Pressure:** | 3611: 10 ... 1200 hPa abs.<br>3651: 300 ... 5000 hPa abs. or<br>0 ... 100.0 m water column* (with pressure port) |
| **Accuracy: (at nominal temperature = 25 °C)** | |
| **Oxygen:** | ±1.5 % of m.v. ±0.2 mg / l (0 ... 25 mg / l) or<br>±2.5 % of m.v. ±0.3 mg / l (25 ... 70 mg / l) |
| **Temperature:** | ±0.1 °C ±1 digit |
| **Pressure:** | ±0.5 % FS ±1 digit<br>±3 hPa or 0.1 % of m.v.<br>±2 hPa (750 ... 1100 hPa) |

*futher specifications p.r.t. GMH 3611 and GMH 3651*

# MULTISENSOR WATER ANALYSIS HANDHELD MEASURING DEVICE

ISO
AUTOHOLD
AUTOOFF
HOLD
MIN MAX

NEW!


HIGHLIGHTS:

- simultaneous measurement of pH / oxygen or pH / conductivity and the corresponding temperatures
- integrated galvanic isolation enables simultaneous measurement with affordable standards sensors
- the display enables convenient reading of several values simultaneously and the measurement curve in diagram form
- the data logger can be read directly via USB – with standard smartphone cable or software
- simple and convenient battery charging via USB connection

## G 7500
*Art. no. 414318*
MultiSensor water analysis handheld instrument

## G 7500-PH/O2
*Art. no. 414787*
MultiSensor water analysis handheld instrument
Device, GE125-L02+accessories, GWO 5610-L02+accessories, GKK 2021

## G 7500-PH/CON
*Art. no. 414788*
MultiSensor water analysis handheld instrument
Device, GE125-L02+accessories, LF425-L02+accessories, GKK 2021

## G 7500-PH/CON/O2
*Art. no. 414789*
MultiSensor water analysis handheld instrument
Device, GE125-L02+accessories, LF425-L02+accessories, GWO5610-L02+accessories, GKK 2021

### General:

The G 7500 is a comfortable multi-channel water analysis device for simultaneous measurement of two measurement variables and the corresponding temperature. All significant electrochemical measurements can be combined:
- pH/ Redox + conductivity/salinity
- pH/ Redox + dissolved oxygen

The backlit graphic display shows all parameters in plain text in German or English; other languages can be integrated (additional charges indicated on request). Large display or measurement diagram can also be represented. Use of our proven standard plug connectors guarantees that you can use our standard sensors – without additional costs due to complicated technology in the sensors. The device is distinguished by its impressive performance and the affordable system price (refer also to our sets). The state-of-the-art device platform uses the standard USB cable to charge the internal batteries (interchangeable) and read the data logger without the need for additional software or adapters. The logger is read conveniently like a USB 2.0 memory stick.

### Application:

Therefore, you have applications such as surface water monitoring, neutralisation processes or agricultural measurements ready to hand in a compact format.
- monitoring of bodies of water
- drinking water preparation
- sewage treatment plants
- fish husbandry and aquaculture
- vertical/ urban farming
- conventional agriculture

### Specifications:

| | |
|---|---|
| **Input no.1 pH/ Redox** | |
| **Connection:** | BNC waterproof |
| **Measuring range:** | -2.00 ... +16.00 pH (±0.25 % FS @ 25 °C)<br>or -1500 ... +1500 mV Redox voltage (±0.25 % FS @ 25 °C) |
| **Temperature:** | -10.0 ... +150.0 °C (Pt1000)<br>±0.25 % FS connection via 4 mm banana or $O_2$ / LF sensor |
| **Temperature compensation:** | Manual, automatic |
| **Input no. 2** | |
| **Connection:** | 7-pole bayonet jack |
| **Temperature:** | -10.0 ... +110.0 °C (NTC or Pt1000) measuring range (Pt 1000)<br>-10.0 ... +110.0 °C measuring range (NTC 10k)<br>-10.0 ... +110.0 °C (integrated in $O_2$ / LF sensor) |
| **Conductivity** | |
| **Measuring range:** | 0 µS / cm ... 500 mS / cm (±0.5 % FS @ 25 °C)<br>Salinity/PSU: 0.0 ... 70.0 g/kg<br>Cell constant 0.3 ... 1.6000 1/cm |
| **Temperature compensation** | Off, linear (0.300 ... 3.000 %/K), NLF (according to DIN EN 27888), Reference temperature: 20 °C or 25 °C (adjustable) |
| **Dissolved oxygen** | |
| **Measuring range:** | Oxygen saturation: 0.0 ... 500.0 % sat<br>Oxygen concentration: 0.0 ... 50.0 mg/l<br>Oxygen partial pressure: 0 ... 1013 mbar $O_2$<br>(accuracy depending on sensor and calibration with flow >20 cm/s, add. ±1.5 % FS @ 25 °C, 100 % sat, $O_2$) |

# MULTISENSOR WATER ANALYSIS HANDHELD MEASURING DEVICE


A multi-channel measuring device was developed based on our proven G 1000/ GMH 3000/ GMH 5000 individual-parameter devices. This combines multi-channel measurement with the proven housing of the GMH 5000 series.

Numerous applications demand simultaneous measurement of multiple measured variables. For example, simultaneous measurement of pH and oxygen is desired when monitoring bodies of water – the G 7500 determines both measurements in one device. A very interesting application area for the combination of pH and conductivity is the current trend market of vertical farming/ urban farming.

A daylight-compatible backlit graphic display is used for optimal visualization. At the same time, simple measurement and easy calibration are guaranteed with the plain text display with various language settings. There are no longer any limitations on the measurement recording, because the buffer size of the data logger is very large. Our proven sensor connections are installed in the devices. As a result, system costs are kept in check and the flexibility of the free sensor selection adapted to your emphases is guaranteed.

| | |
|---|---|
| **Temperature compensation:** | Automatically via connected sensor |
| **Pressure compensation** | Manual, automatic via int. sensor: 500 ... 1100 hPa ±4 hPa |
| **Salinity compensation:** | Manual PSU 0 ... 70 g/kg |
| **Additional functions:** | Text-base user guidance (DE/EN), Charging via USB jack (3 x AAA batteries integrated, interchangeable) |
| **Display:** | LCD (180 x 128 pixel), monochromatic, adjustable backlighting |
| **Interface:** | USB 2.0, Micro USB jack |
| **Calibration:** | pH 1...5 point calibration (PHL buffer, DIN buffer)<br>LF cell constant<br>$O_2$: Water-saturated air |
| **Data logger:** | Yes (8 GB with FAT file system) |
| **Alarm:** | Yes, acoustic alerting (horn)<br>Visual (red LCD background) |
| **Power supply:** | 3 x NiMh AAA (max. 750 mAh) |
| **Current requirement:** | On: approx. 75 mA in operation;<br>Off: approx. <0.1 mA |
| **Housing:** | Impact-resistant ABS, with stand/hanging bracket |
| **Protection rating:** | IP67 |
| **Dimensions:** | 160 x 86 x 37 mm (H x W x D) incl. protection cover |
| **Weight:** | 300 g incl. battery and protection cover |
| **Scope of supply:** | Device with 3 AAA batteries, quick reference guide, operating manual and test report as pdf on mass storage device |



**Accessories and spare parts:**

**GWO5610-L04**
*Art. no. 607764*
replacement sensor for dissolved oxygen, GMH 56 & GMH 75, Sensor with 4 m cable

**GWOK 02**
*Art. no. 608012*
Spare membrane head for GWO 5610

**KOH 100**
*Art. no. 603356*
spare electrolyte KOH, 100 ml

**GCAL 3610**
*Art. no. 611371*
Calibration vessel for dissolved oxygen sensors with Ø 12 mm

**LF452-L02**
*Art. no. 608773*
Conductivity cell for GMH 5400 / G 7500-Series, 4-pole graphite measuring cell, Ø 16 mm

**LF400-L02**
*Art. no. 602968*
Conductivity cell for GMH 5400 / G 7500-Series, 4-pole graphite measuring cell

**GKL-100**
*Art. no. 601396*
Conductivity control solution, Control solution 1413 µs/cm, 100 ml bottle

**GKL-102**
*Art. no. 601400*
Conductivity control solution, Control solution 50 ms/cm, 100 ml bottle

**GE117-BNC-L02**
*Art. no. 600729*
pH-electrode incl. Pt1000, pressure resistant, BNC plug

**GE125-BNC-L02**
*Art. no. 600731*
Waterproof pH electrode with Pt1000 to 4 mm banana

**PHL 4**
*Art. no. 601369*
pH buffer solution, ready to use, Buffer solution pH 4 in 250 ml dosing bottle

**PHL 7**
*Art. no. 601371*
pH buffer solution, ready to use, Buffer solution pH 7 in 250 ml dosing bottle

**PHL 10**
*Art. no. 601373*
pH buffer solution, ready to use, Buffer solution pH10 in 250 ml dosing bottle

**GRL100**
*Art. no. 601422*
HCL/Pepsin cleaning solution, 100 ml

**GKK 5001**
*Art. no. 611606*
kompakter Koffer für Feldeinsatz 395 x 295 x 106 mm (W x H x D)