



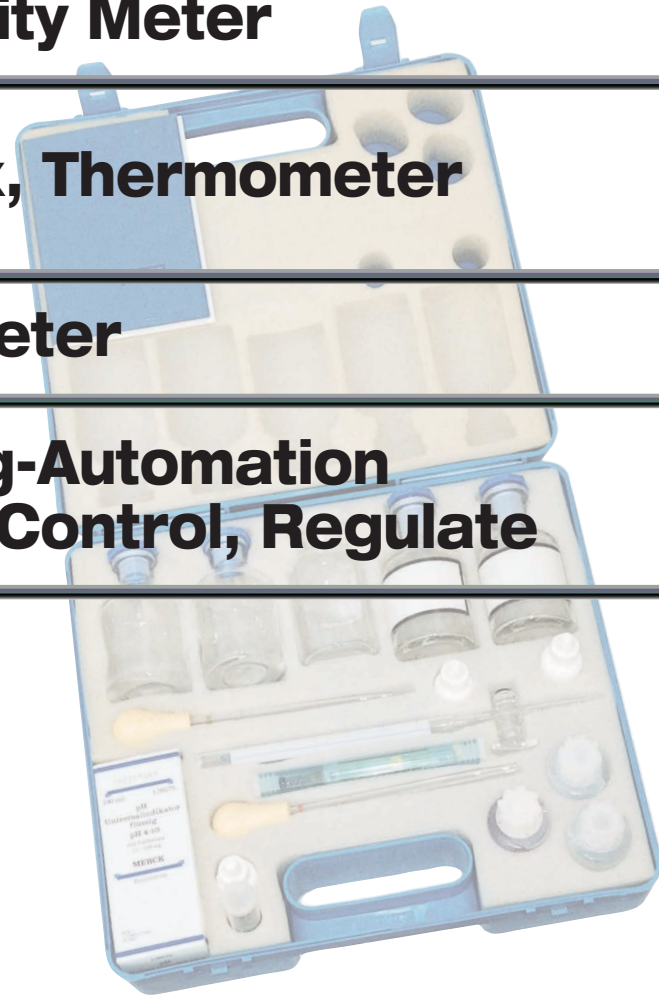
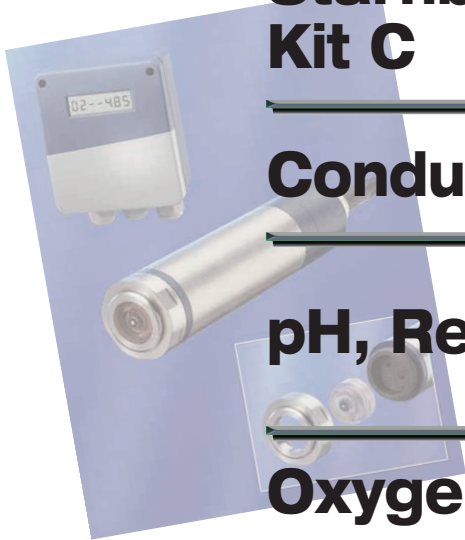
## Starnberger Water Quality Kit C

Conductivity Meter

pH, Redox, Thermometer

Oxygen Meter

Monitoring-Automation  
Measure, Control, Regulate



WATER ANALYSIS / MEASURE / CONTROL / REGULATE

## Starnberger Water Quality kit C

Order No. 3002



According to the rules set forth by the Federal Fishery Education and Research Institute in Starnberg, Bavaria.

*Sturdy plastic briefcase with rubber foam coating 30 x 28 x 11 cm, designed for use at the waterside.*

*Weight 1.9 Kg*

For the determination of the oxygen (pH) content and SBV determination, as well as measurement of ammonia content and temperature.

Complete set with manual containing the rules and regulations.

Order No.	Item	Quantity
3101 a	<b>Determination of oxygen content</b> Oxygen bottle, calibrated	2
3101 b	Oxygen bottle, non-calibrated	2
3102 green	Pipette 0.5 ml with rubber ball	1
3102 red	Pipette 0.5 ml with rubber ball	1
3103	Solution of manganese dichloride 50ml	1
3104	Caustic lye of soda containing potassium iodide 50 ml	1
3105	Oxygen colour chart	1
3201	<b>Determination of pH value</b> Test glass with 5/10 ml mark	1
3202	Universal indicator	1
3301	<b>Determination of SBV</b> Titration flask 50/100 ml	1
3302	Burette 5 ml with 1/10 division	1

Order No.	Item	Quantity
3304	<b>Determination of SBV</b> 1/10 n HCl solution 50 ml	1
3305	Indikator M 10 ml	1
3701 A	<b>Ammonia detection</b> Nessler's reagent 10 ml A	1
3701 B	Nessler's reagent 10 ml B	1
3401	<b>Measuring the temperature</b> Floating thermometer	1
3900	Pocket guide: Water quality determination for the fisherman. (With rules of conduct)	1
4201	Sector screen complete (Not considered content of the kit)	1

## Water Detective

Order No. 3003



Allows the quick and easy assessment of the water quality. This kit lets anyone find out about the oxygen content, oxygen depletion value, pH value and temperature of the water as well as dissolved ammonium compounds.

*Handy pocket sized kit 26 x 17 x 8 cm*

*Water Detective delivered complete with pocket guide*

Order No.	Item	Quantity
3101/25	Oxygen test flask 25 ml	2
3103/10	Solution of manganese dichloride 10ml	1
3104/10	Caustic lye of soda containing potassium iodide 10 ml	1
3106/10	Phosphoric acid 85% 10 ml	1
3107/50 N	Standard solution N 50 ml	1
3201	Test glass 5/10 ml	2
3304/50 N	1/10 n HCl 50 ml	1
3305	Indicator M 10 ml	1

Order No.	Item	Quantity
3701/10 A	Nessler's reagent A 10 ml	1
3701/10 B	Nessler's reagent B 10 ml	1
9533	Neutralization stick 5.0 – 9.0	1
9542	Special indicator stick 6.5 – 10.0	1
9543	Special indicator stick 4.0 – 7.0	1
3900	Fisherman's pocket guide to water tests	1



## GMH3410 / GMH3430 Conductivity meters

GMH3410 Order No. 4 430 000 073

GMH3430 Order No. 4 430 000 074



- Great range of 0.0 mS/m to 200 mS/m manual range preset or Auto-Range function
- Dual display for conductivity and temperature
- Display of resistance, salt content or TDS (boiling point residue)
- Different temperature coefficients selectable
- Very small probe (Size of a pH probe)
- Serial interface
- Min/Max Value memory
- Hold function
- Battery or AC operated

### Technical Specifications:

#### Range:

**Conductivity:** 0.0 – 200.0 mS/cm, 0 – 2000 mS/cm 0.00 – 20.00 mS/cm, 0.0 – 200.0 mS/cm, manually adjustable or auto-range

**Temperature:** GMH3410: 0.0 – 85.0°C, GMH 3430 –5.0 – 100.0°C

**Resistance:** GMH3430: 0.005 – 100.0 KW

**Salinity:** GMH3430: 0.0 – 70.0

**TDS:** GMH3430: 0 – 1999 mg/l

**Resolution:** 0.1 mS/cm, 10mS/cm and 01, mS/cm; 0.1°C; 0.001 KW, 0.01 KW and 0.1KW; 0.1 (salinity); 1 mg/l

**Accuracy:** ±1 Digit (at nominal temperature)

**Conductivity:** ±0.5%, max ±0.3 fS

**Temperature:** ±0.2°C max ±0.3 K

**Cell constant:** adjustable 0.8 – 1.2 cm<sup>-1</sup>

**Temperature compensation:** Automatic, or free of choice (GMH3430)

#### Compensation coefficient:

-nLF: non-linear function of natural waterways according to EN27888

-Lin: linear compensation of 0.3 – 3.0%/K (GMH3430 only)

-off: no compensation (GMH3430 only)

**Display:** two four digit LCDs (12.4 mm and 7 mm) for conductivity (resistance, salinity, TDS) and temperature and Min/Max value, hold respectively.

**Probe:** Dual electrode conductivity cell with built in temperature sensor. Material of the electrodes: graphite. The graphite electrodes are well suited for the use in sewage and are easily cleaned.

**Nominal temperature:** 25°C

**Operation Temperature:** 0 – 50°C (meter)

**Probe:** -5 – 80°C (long term) and up to 100°C (peak)

**Relative humidity:** 0 – 95% r.h. (non-condensing)

**temperature:** -20 – 70°C

**Min/Max memory:** The maximum, as well as the minimal value including the corresponding temperatures are stored.

**Hold:** The momentary true value and the temperature are “frozen” on command.

### Differences between GMH3410 and GMH3430

#### The GMH3430 has additionally

- Resistance, salinity and TDS measurement
- The following temperature coefficients selectable: natural waterways, linear compensation or turned off.
- Increased temperature range
- Base temperature for temperature compensation selectable

**Interface:** serial interface (3.5 mm RCA jack), with galvanic insulated interface adaptor GRS3100 connectible to the RS232 interface of an IBM compatible

**Power supply:** 9V Battery, Type TEC6F22 (supplied) as well as additional power supply jack 1.9 mm for external 9 – 12 V DC supply. (suitable adaptor GNG10/3000)

**Automatic Off function:** The device powers down if there is no user input during the time of the automatic turn-off delay. Delay freely settable 1-120 min or off.

**Low bat signal:** Triangle with exclamation mark and bAt

**Power consumption:** 5 mA (without probe current)

**Size (Meter):** 142 x 71 x 26 mm. Housing made of shock resistant ABS, membrane keyboard, screen. Front IP65.

**Probe size:** length appr. 120 mm, electrode connected to meter through 1 m cable

**Weight:** 255 (including battery and probe)

**Automatic temperature compensation:** The value of the conductivity depends strongly on the ambient temperature which is only valid for the respective temperature. Thus the meter allows to compensate for the temperature and calculate the conductivity for a base temperature (25°C additionally 20°C with the GMH3430) for better comparability

**Auto Range:** When measuring conductivity the meters automatically chose the right range. This can be turned off.

**Salinity determination (only GMH3430):** Salinity is the sum of all dissolved salts. The result is displayed in g/Kg.

**TDS determination (filter residue):** The filter residue is the sum of all non dissolved compounds in a fluid. The result is displayed in mg/l.

WATER ANALYSIS / MEASURE / CONTROL / REGULATE



## pH 2000 digital pH meter

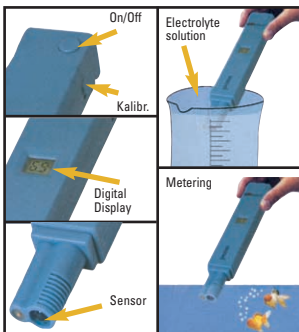
Order No. 4 430 000 006

The great value – slim built pH meter for the shirt pocket. With an electrolyte solution and maintenance accessories. Batteries not included.



Meter without protecting cover

**Technical Specifications:**  
 Meter range: pH 2 – 14  
 Tolerance: < pH 0.2  
 Water temperature: 5 – 65°C  
 Batteries: 3 x 1.4 V SR44  
 Size: L x W x H  
 29 x 24 x 150 mm



## GPH 014 digital pH meter

Order No. 4 430 000 011

Meter completely ready to use including pH electrode type GE 014 and battery (buffer solution not included)



**Technical specifications**  
**Range: (meter)** pH 0.00 – 14.00  
**Resolution:** pH 0.01  
**Accuracy (meter):** (at nominal temperature = 25°C) ±pH 0.02. pH electrode: single rod meter chain type GE 014 with refillable 3 mol KCl electrolyte, pH 2-12, 4 – 45°C  
**Display:** 3? digit 13 mm LCD  
**Power Supply:** 9V battery type IEC 6F22 (included)  
**Battery life time:** approx. 200 hours continual use  
**Low bat:** "BAT" automatically at low battery level  
**Size:** 106 x 67 x 30 mm (H x W x D)  
**Housing made of shock proof ABS**  
**Weight:** approx. 200g incl. battery and electrode

## GAK 1400 work - calibration kit

Work and calibration set consisting of:

Five buffer capsules each GPH 4.0, GPH 7.0, GPH 10.0, three 100 ml plastic bottle GPF 100, 12 3 mol KCL electrolyte, KCL3M and one pepsin cleansing solution GRL 100. If you do not yet own any buffer solutions you need the GAK 1400!

### Accessory

Order No.

4 430 000 013	GE 014 replacement electrode	4 430 000 017	GE 106 pH electrode for low conductivity water (min 100 µS/cm)
4 430 000 014	GPH 014 GL meter, bulk (without any accessory)	4 430 000 018	GKK 252 briefcase (235x185x48mm) with rubber foam coating
4 430 000 015	GE 100 advanced electrode pH 0-14, 0-80°C	4 430 000 019	GKK 1100 briefcase with rubber foam coating
4 430 000 016	GE 101 piercing electrode pH 0-14, 0-80°C		

## GPRT 1400 A Digital pH – mV – thermometer

Order No. 4 430 000 020

Meter completely ready to use incl. pH electrode GE 100, buffer capsules pH4 and pH7, two 100 ml plastic bottles as well as temperature probe GTF1400. Battery and AC adaptor power. Analogue out: 1 mV/Digit, ATC = Automatic Temperature Compensation.



### Technical Specifications:

**Range:** Setting 1: pH 0.00 – 14.00, setting 2: -20.0 – 110.0°C, setting 3: -1999 – +1999 mV  
**Resolution:** pH 0.01, 0.1°C, 1mV  
**Exactitude:** (meter at nominal temperature = 25°C) pH ±0.02 ±1Digit, ±0.5°C ±1Digit (within -20 – 110°C), ±0.2% ±1Digit  
**Digit pH electrode:** single rod meter chain type GE100 with refillable 3mol KCl electrolyte, pH 0 – 14, 0 – 80°C. Attention with pH electrodes no redox metering possible! If need be order redox electrode separately.  
**Temperature probe type GTF1400:** Silicon temperature sensor (KTY 87-205), potential free casing made of V4A steel, Ø 5mm, length 100mm. 1m silicone cable with RCA jack 3.5 mm  
**Calibration:** 3 built in potentiometers for compensation 0 - 90°C (automatic if temperature probe connected), pH 7 value, pX value (e.g. 4.0, 10.0, 12.0)  
**Ambient temperature:** 0 – 45°C  
**Display:** 3 1/2 digit 13mm LCD  
**Analogue out:** 1mV/digit, connection with 3.5 mm RCA jack  
**Power supply:** 9V battery type IEC 6F22 (included). Additional 2.5 mm jack for AC adaptor (not included)  
**Battery life time:** Approx. 100 h in use  
**Low bat:** "BAT" automatically at low battery level  
**Size:** 150x86x30 mm. Housing made of shock proof ABS with folding tabletop stand. Clips to attach the electrodes  
**Weight:** 330g (ready to use)

### Accessories:

Order No. 4 430 000 021  
 GPRT 1400 A GL  
 Meter, bulk

Order No. 4 430 000 022  
 GTF 1400  
 Replacement temperature probe



## GMH3510 / GMH3530 / GMH35ES

the new generation of pH-/redox-/temperature measuring devices!

**GMH3510** – Order No. 4 430 000 008 without accessories\*

**GMH3530** – Order No. 4 430 000 009 without accessories\*

**GMH35ES** – Order No. 4 430 000 010 additional set consisting of: pH-electrode GE100BNC, temperature probe GTF401 (Pt100 4-wire), case GKK3500 and GAK1400

\*pH-probe, temperature probe, redox probe, calibration accessories etc. please order separately or as additional set.



- Dual display for pH or redox and temperature
- Redox mode allows for automatic conversion to a hydrogen system
- Serial interface
- Automatic or manual temperature compensation
- Automatic buffer detection
- Automatic detection of measuring value stability
- RH-measurements (GMH3530 only)
- Min/Max-value memory, hold function
- Battery and DC operation
- Device can be used as thermometer, too

### Specifications:

#### Measuring ranges:

**Temperature:** -70.0 ... 250.0°C or -94.0 ... 482.0°F

pH: 0.00 ... 14.0

Redox (ORP): -1999 ... +2000 mV, for hydrogen system (DIN38404): -1792 ... 2207 mVH, rH: 0.0 ... 70.0

**Accuracy** (meter  $\pm 1$  digit at nominal temperature):

**Temperature:**  $\pm 0.2^\circ\text{C}$  (-20 ...  $80^\circ\text{C}$ ) otherwise  $\pm 0.4^\circ\text{C}$

pH: pH  $\pm 0.01$

Redox(ORP):  $\pm 0.1\%$  FS

rH: rH  $\pm 0.1$

#### Sensor connections:

**Temperature:** 4 pin screwed mini-DIN-socket for Pt100 4-wire (2-wire connection possible)

pH, redox: BNC-socket

Input impedance (pH, redox):  $10^{12}$  Ohm

**Display,** two four digit LCDs (12.4 and 7 mm high) for pH, redox and temperature, min/max-values, hold etc as well as additional functional arrows.

**Nominal temperature:** 25°C

**Working temperature:** 0 to +50°C

**Relative humidity:** 0 to 95% non-condensing

**Storage temperature:** -20 to +70°C

**Interface:** serial interface (3.5 mm jack connector), direct connection to RS232 interface of a PC via electronically insulated interface adapter.

**Min/Max-value memory:** min. and max. values will be memorised

**Hold-function:** by pressing a button the current meas. Value will be memorised

**Pushbuttons:** 6 membrane keys for ON/OFF, selection of meas. Mode, min- and max-value memory, hold function, calibration etc.

**Power supply:** 9V battery, type IEC 6F22 (included) as well as additional DC connector (internal pin  $\varnothing$  1.9 mm) for external 10-12 V DC supply.

**Low battery warning:** "bAt"

**Power consumption:** approx. 4 mA

**Differences between GMH3530 and GMH3510:**

**Additional equipment for GMH3530**

- choice between 2 or 3 point calibration, with bend of the characteristics
- 3 choices for calibration (standard buffers pH 4.01, pH 7.00, pH 10.01), DIN19266 buffer (A,C,D,F,G) and manual
- rH measurements
- thermometer mode: device used as thermometer, both displays used for temperature (e.g. current value, max/min or hold)

**Power-Off function:** device will be automatically switched off if no key is pressed / no interface communication takes place for the time of the power-off delay. The power-off delay can be set to values between 1 and 120 min or deactivated.

**Housing dimensions:** 142 x 71 x 26 mm (H x W x D), impact resistant ABS plastic housing, membrane keyboard, transparent panel. Front side IP65, integrated pop-up clip for table to or suspended use

**Weight:** approx. 155g

**Automatic temperature compensation (ATC):** ATC if temperature probe is plugged in and operating mode is "pH". Manual temperature input if probe is not connected.

**pH-calibration:** automatic buffer detection. ATC of the buffer according to DIN38404 part 6, table 1 based on the standard redox electrode

**Acceptable electrode data:** asymmetry:  $\pm 55$  mV

**slope:** 45 ... 62 mV/pH

**Sensor evaluation** depending on calibration results (10 to 100%), displayed by pressing a key.

**GMH3510:** 2-point calibration with standard buffers (pH4.01, 7.00, 10.01 included in GAK1400)

**GMH3530:** optional 2- or 3-point calibration with bend of the characteristics for standard buffers (pH4.01, 7.00, 10.01), buffers according to DIN19266 (A,C,D,F,G) or manual buffer entry

**Redox-Measurements (ORP):** you have two choices:

"mV" standard redox or mV measurements

"mVH" temperature compensated conversion to hydrogen system

according to DIN38404 part 6, table 1 based on the standard redox electrode (e.g. GE105 with Ag/AgCl system and 3 mol KCl) used.

**rH-measurements (GMH3530 only):** calculation of the rH value by means of redox measuring and by manually entering the pH-value. The pH-value can also be taken from a previous pH-measurement.

**Temperature measurements:**

**GMH3510:** Device can be used as Pt100 4-wire temperature measuring device only. Display on 4 digit 7 mm high LCD (current value only, no min/max-value)

**GMH3530:** Display of current value on 12.4 mm high LCD in thermometer mode. Min/Max-values can be displayed in the second 7 mm high display.

WATER ANALYSIS / MEASURE / CONTROL / REGULATE



## GOX20 digital oxygen meter

Order No. 4 430 000 023



Device ready for use incl. oxygen probe and battery.

**Specifications:**

**Measuring range:**

**Temperature:** 0.0 ... 40.0°C

**Oxygen:** 0.0 ... 20.0 mg/l

**Accuracy:**

**Temperature:** ±0.3°C (range 0 ... 30°C)

**Oxygen:** ±2%

**Electrode:** active diaphragm type, front Ø 12 mm, length approx. 170 mm, connecting cable approx. 2 m, permanently connected to meter.

**Response time:** 95% in 10 sec. Depending on temperature

**Temperature compensation:** automatically via temperature sensor built into the probe

**Calibration:** simple quick-calibration in atmospheric air

**Display:** 3 1/2 digit LCD, 13 mm high

**Power supply:** 9V battery, type IEC6F22 (included)

**Power consumption:** max. 1 mA

**Low battery warning:** automatic "bAt" displayed in case of low voltage

**Dimensions:** 106 x 67 x 30 mm impact resistant ABS plastic housing

**Weight:** approx. 250 g (ready for use)

**Accessories:**

Order No.

4 430 000 024 GAS3600 working set (consisting of 3 spare diaphragm heads and 100ml KOH-electrolyte)

4 430 000 025 GWOK01 spare diaphragm head

4 430 000 026

KOH100 replacement electrolyte KOH, bottle 100 ml

4 430 000 018

GKK 252 case (235 x 185 x 48 mm) with foam lining

4 430 000 019

GKK 1100 case (340 x 275 x 83 mm) with foam lining



## GMH3610 / GMH3630 The new generation of oxygen measuring devices (for dissolved Oxygen in liquids)

GMH 3610 – Order No. 4 430 000 027  
GMH 3630 – Order No. 4 430 000 028

The new generation of oxygen measuring devices (for dissolved Oxygen in liquids)



- Dual display for oxygen and temperature
- Meas. Units: O<sub>2</sub>-concentration, O<sub>2</sub>-saturation, O<sub>2</sub>-partial pressure (GMH3630 only)
- Serial interface
- Automatic temperature compensation
- Automatic barometric compensation by means of integrated pressure sensor
- Salinity correction
- Extremely small probe (dimensions as for pH-probe)
- Min/Max value memory
- Hold function
- Battery and DC operation
- Simple calibration in atmospheric air

### Specifications:

#### Measuring Ranges:

O<sub>2</sub>-concentration: GMH3610: 0.0 ... 25.0 mg/l, GMH3630: 0.0 ... 70.0 mg/l or 0.0 ... 25mg/l

O<sub>2</sub>-saturation: GMH3610: 0 ... 300 %, GMH3630: 0 ... 600 % or 0.0 ... 250.0 %

O<sub>2</sub>-partial pressure: GMH3630: 0.0 ... 570 hPa or 0 ... 1200 hPa (0 ... 427.5 mmHg or 0 ... 900 mmHg)

Temperature: GMH3610: 0.0 ... 50.0°C, GMH3630: -5.0 ... 50.0°C

Pressure: GMH3630: 500 ... 1100 hPa abs.

Accuracy: (at nominal temperature)

Oxygen: GMH3610: ±1.5% ±0.2mg/l, GMH3630: ±1.5% ±0.2mg/l (0 ... 25 mg/l) or ±2.5% ±0.3mg/l (25 ... 70 mg/l)

Temperature: ±0.1°C ±1digit

Pressure: ±0.5% FS ±1digit

Sensor connection: 6-pin screened Mini DIN socket.

Electrode: active membrane type. Electrode-Ø front: approx. 12 mm,

overall length: approx. 120 mm, anti buckling glanding, neck collar:

Ø approx. 20 mm, 4 m connection cable with mini DIN plug.

Response time: 95% in 10 sec., depending on temperature.

Service life: 3 years or more depending on maintenance

Display: 2 four digit LCDs (12.4 mm and 7 mm high) for oxygen, temperature and for min/max values, hold function etc as well as additional functional arrows.

Nominal temperature: 25°C

Working temperature: 0 to 5°C

Relative humidity: 0 to 95% non condensing

Storage temperature: -20 to 70°C (electrode 0 to 60°C)

Interface: serial interface (3.5 mm jack connector), direct connection to RS232 interface of PC via electrically insulated interface adapter GRS3100

Min/max-value memory: min/max-values will be memorised

Hold function: by pressing a button the current measurement will be memorised

Pushbuttons: 6 membrane keys for ON/OFF, selection of meas. Mode, min- and max-value memory, hold function, calibration etc.

Power supply: 9V battery, type IEC 6F22 (included) as well as additional DC connector (internal pin Ø 1.9 mm) for external 10-12 V DC supply.

Differences between GMH3630 and GMH3610:

Additional features of GMH3630:

- measuring of air pressure by means of integrated air pressure sensor

- extended meas. Range for O<sub>2</sub> and temperature

- O<sub>2</sub>-partial pressure measurement

- Correction of salinity

Low battery warning:  $\Delta$  "bAt"

Power consumption: approx. 3.5 mA

Power-Off function: device will be automatically switched off if no key is pressed / no interface communication takes place for the time of the power-off delay. The power-off delay can be set to values between 1 and 120 min or deactivated.

Housing dimensions: 142 x 71 x 26 mm (H x W x D), impact resistant ABS plastic housing, membrane keyboard, transparent panel. Front side IP65, integrated pop-up clip for table to or suspended use

Weight: approx. 300g (complete with battery and probe)

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

Air pressure compensation:

GMH3610: enter current air pressure by means of keyboard

GMH3630: automatic via integrated pressure sensor. Display of current air pressure.

Correction of salinity (GMH3630): automatic. Salinity value can be set via keyboard to 0.0 ... 70.0

Calibration: 1-point calibration: extremely simple and quick calibration in atmospheric air. 2 point calibration (GMH3630 only): first point atmospheric air, second point upper measuring range (with calibration set GKS3600)

### Accessories:

#### Order No.

4 430 000 029 GWO3600 spare electrode  
4 430 000 030 electrode with 10 m cable  
4 430 000 031 electrode with 30 m cable  
4 430 000 032 GKS3600 calibration set  
(consisting of calibration device,  
100 ml

4 430 000 033

calibration solution, 10 ml  
catalytic solution, measuring  
pipette and measuring bottle  
GKN3600 calibration refill set  
(consisting of 100 ml calibration  
solution, 10 ml catalytic solution,  
meas. Pipette)

4 430 000 024

4 430 000 025  
4 430 000 026

GAS3600 working set (consisting  
of 3 spare diaphragm heads and  
100ml KOH-electrolyte)  
GWOK01 spare diaphragm head  
KOH100 replacement electrolyte  
KOH, bottle 100 ml

## Pocket pH-Meter handy, waterproof, GLP-conform

pH 330 – Order No. 4 430 000 034

pH 340 – Order No. 4 430 000 035

pH 340 A – Order No. 4 430 000 036

WTW handheld pH meters are dust-proof and waterproof, they can also be submersed. The large and clear multifunctional display allows the values to be read off safely and comfortably. The silicone keypad with tactile response ensures simple operation. Automatic switch-off combined with an energy-saving system permits continuous operation for up to 3000 h. WTW handheld pH meters are available in three versions:

### pH 330:

Very robust and waterproof battery-operated pH/mV meter with built-in datalogger, real-time clock, GLP-supporting functions, display for calibration selectable between pH and mV. MultiCal<sup>®</sup> automatic calibration with buffer recognition, automatic temperature compensation.

### pH 340:

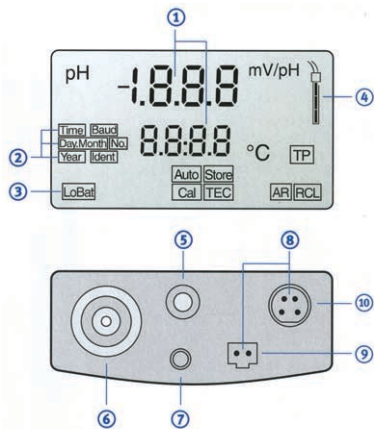
Very robust and waterproof pH/mV meter for battery or mains supply operation with built-in datalogger, real-time clock, GLP-supporting functions, display for calibration selectable between pH and mV. MultiCal<sup>®</sup> automatic calibration with buffer recognition, automatic temperature compensation and additional RS 232 analogue and digital output.

### pH 340 A:

like pH 340 but with additional mains power supply



### closely observed:



**CAL** MultiCal<sup>®</sup> automatic calibration

**RCL** GLP-conform documentation for calibration and measurement

**AR** AutoRead automatic drift control for stable and reproducible measurements

**STO** Integrated datalogger for more than 200 measurements, time-controlled storage, individual sample identification

- ① large LCD display for measurement and temperature
- ② built-in real-time clock for documentation and monitoring calibration intervals
- ③ battery condition display
- ④ sensor condition display
- ⑤ connection for temperature sensor
- ⑥ connection for electrode according to DIN 19262

- ⑦ connection for reference electrode
- ⑧ corrosion-protected, gold-plated plug contacts
- ⑨ connection for mains power supply (only 340)
- ⑩ bi-directional RS 232 interface and analogue plotter output (340 only) with automatic recognition of the connected PC or printer.

### Protective armouring



- ① **SM 325** Shock-absorbing, rubber protective armoring with support handle and sensor cable clamping device – **Order No. 4 430 000 075**
- ② **TG/pH** Sleeve set, suitable for SM 325 protective armoring, consisting of 2 sensor sleeves, holding device and additional carrying strap for field use. Can also be used for storing the sensor – **Order No. 4 430 000 076**
- ③ **FM325/pH** Field armoring, specially designed for rough use on-site and in industry, extremely robust and shock-resistant thanks to protective armoring with 2 sensor sleeves, carrying handle and additional carrying strap with holding device, sensor cable clamping device and folding support for laboratory measurements – **Order No. 4 430 000 077**

### Technical Specifications

	pH 330	pH 340	pH 340-A
<b>Measuring range</b>			
pH	-2.00 ... +16.00 pH		
Voltage	-1250...+1250 mV		
Temperature	-5,0...+99,9°C		
<b>Accuracy (± 1 digit)</b>			
pH	±0.01 pH		
Voltage	±0.3 mV		
Temperature	at +15 °C ... +35 °C ±0.1 K		
<b>Temperature compensation</b>	Automatic for pH electrodes with built-in temperature sensor, TFK 325 / Pt 1000		





## Technical Specifications

	pH 330	pH 340	pH 340-A
<b>Calibration alarm</b>	1 ... 999 days, adjustable		
<b>AutoRead</b>	For reproducibility better than 0.02 pH		
<b>Calibration</b>	MultiCal ® automatic calibration: AutoCal automatic 2 or 3-point calibration with DIN buffers AutoCal-TEC automatic 2 or 3-point calibration with WTW technical buffers ConCal ® conventional 1-point calibration with any buffers		
<b>Calibration protocol</b>	- GLP-conform calibration protocol; last protocol stored in memory		
<b>Data storage</b>	200 data sets (measurement, temperature, date/time, identity no.); time-controlled storage at intervals 5 s ... 60 min, non-volatile data storage (even when changing batteries)		
<b>Data output</b>	Via display	Via display or interface, time-controlled at intervals 5 s ... 60 min	
<b>Interface</b>	- Self-configuring as analog output according to electrode potential, i.e. 50 - 60 mV/pH unit, or RS 232 bi-directional interface		
<b>Operational time</b>	5000 hours with normal 4 x 1.5 V batteries with AutoSwitchOff after 1 h (except logger operation)		1500 hours continuous operation with rechargeable batteries, optional mains (power supply)
<b>Protection class</b>	IP 66 and IP 67 to IEC 529		
<b>Dimensions</b>	172 x 80 x 37 mm (H x B x D)		
<b>Weight</b>	Approx. 300 g		
<b>Certified to</b>	CE, TÜV/GS, UL, CUL		
<b>Warranty</b>	3 years		

## Set Equipment

Each handheld pH meter is available in a complete application-oriented set

### Basic equipment:

- Professional case with built-in measuring set-up and separate compartment for electrode and accessories
- STH 320 stand
- WTW technical buffers pH 4.01 - 7.00
- KCl solution (3 mol/l)
- Beaker
- Plug-in power supply (only pH 340i)
- Operating instructions

### Set-0

#### Basic Set without Temperature Probe

Order No. 4 430 000 037

- basic equipment
- pocket pH meter model pH 330
- electrode SenTix 21, combination electrode with gel electrolyte, plastic shaft and waterproof connector (IP67) incl. 1 m cable

### Set-1

#### Comfort Set with built-in Temperature Sensor

Order No. 4 430 000 038

- basic equipment
- pocket pH meter model pH 330, pH 340 or pH 340 A
- electrode SenTix 41, combination electrode with gel electrolyte and built in temperature sensor, plastic shaft and waterproof connector (IP67) incl. 1 m cable

### Set-2

#### Universal Set with separate Temperature Probe for Maximum Flexibility

Order No. 4 430 000 039

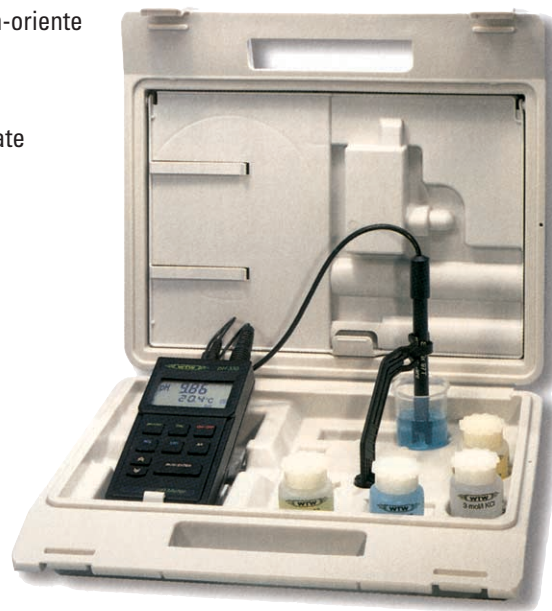
- basic equipment
- pocket pH meter model pH 330, pH 340 or pH 340 A
- electrode SenTix 21, combination electrode with gel electrolyte, plastic shaft and waterproof connector (IP67) incl. 1 m cable
- temperature probe TFK 325/HC

### Set-TRW

#### Special Set for Measurements in Drinking Water

Order No. 4 430 000 040

- basic equipment
- pocket pH meter model pH 330
- electrode SenTix 81 with built in temperature sensor, combination electrode with gel electrolyte suitable for drinking water, plastic shaft and waterproof connector (IP67) incl. 1 m cable
- water test-glass



WATER ANALYSIS / MEASURE / CONTROL / REGULATE



## Portable pH Meters sturdy, waterproof, submersible

pH 197 – Order No. 4 430 000 041

pH 197-S – Order No. 4 430 000 042

The WTW pH meters of the ProfiLine pH 197 series are both hose-proof (IP 66) and submersible (IP 67). They convince because of their high degree of operator comfort and safe operator guidance via the large multifunctional display. They are equipped with a carrying/support handle and carrying strap as standard.



The portable pH meters are available in 2 versions:

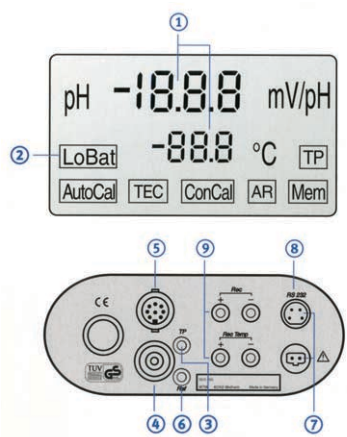
### ProfiLine pH 197:

Indestructible pH/mV meter. With rechargeable battery and mains operation, measurement storage, GLP-supporting functions, MultiCal®, automatic calibration, automatic temperature compensation... Also suitable for pH depth measurements down to 100 m with TA 197 pH depth armature.

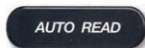
### ProfiLine pH 197-S:

As ProfiLine pH 197 but with additional analogue recorder outputs corresponding to display for pH/mV and temperature values.

### Closely Observed:



**MultiCal®** - automatic calibration



**AutoRead** - automatic drift control for stable and reproducible measurements



**Measurement storage** - for up to 50 pairs of measurements

- ① Large LCD display for measurement and temperature
- ② Battery condition display
- ③ Connection for temperature sensor
- ④ Connection for standard probe according to DIN 19262
- ⑤ Connection for depth armature TA 197 pH (upto 100 m of cable)

- ⑥ Connection for reference electrode
- ⑦ Corrosion-protected, gold-plated plug contacts (interface, power supply)
- ⑧ Unidirectional RS 232 interface
- ⑨ 2 analogue outputs corresponding to display, for measurement and temperature (only ProfiLine pH197-S)

### Accessories for measurement at depths down to 100 m



Please consult the accessories list

Depth armatures TA 197 with built-in temperature sensor, up to 100 m cable with waterproof plug (IP 67), steel armoring (material no. 1.4571) with screw-off protective hood, pressure-resistant to max. 10 bar, fits into 2" wells.



## Technical Specifications

	ProfiLine pH 197	ProfiLine pH 197-S
<b>Measuring range/ resolution</b>		
pH	pH -2.00 ... +16.00 pH	
mV	mV -1250 ... +1250 mV	
Temperature	-5,0...+99,9°C	
<b>Accuracy (± 1 digit)</b>		
pH	pH ±0.01 pH	
mV	mV ±2 mV	
Temperature	± 0,1 K	
<b>Temperature compensation</b>	Automatic for pH electrodes with built-in temperature sensor TFK 325 / Pt 1000 manual by entering sample temperature	
<b>Display</b>	LCD display 60 x 35 mm visible area, simultaneous display of measurement, temperature, special characters	
<b>AutoRead</b>	For reproducibility better than 0.02 pH	
<b>Calibration</b>	MultiCal ® automatic calibration	
	AutoCal	automatic 2-point calibration with DIN buffers
	AutoCal-TEC	automatic 2-point calibration with WTW technical buffers
	ConCal ®	conventional 1 or 2-point calibration with any buffers
<b>Data Storage</b>	Ring memory for 50 pairs of measurements with data protection	
<b>Data Output</b>	Via display or interface	
<b>Interface</b>	Unidirectional RS 232 interface	Unidirectional RS 232 interface 2 analogue recorder outputs for measurement and temperature output corresponding to display
<b>Operational Time</b>	Continuous operation from mains supply; 1500 hours with rechargeable batteries with AutoSwitchOff after 1 h	
<b>Protection type</b>	IP 66 and IP 67 to IEC 529	
<b>Dimensions</b>	230 x 185 x 90 mm (B x D x H)	
<b>Weight</b>	Approx. 1.5 kg	
<b>Certified to</b>	CE, TÜV/GS, UL, CUL	
<b>Warranty</b>	3 years	

### Accessories:

#### Standard pH combination electrode

##### Order No.

4 430 000 044 SenTix ® 41 pH combination electrode with built-in temperature sensor an dwaterproof plug, immersion depth 120 mm

Measurements at depths down to 100 m with ProLine pH 197 and pH 197-S

Depth armatures TA 197 with built-in temperature sensor, up to 100 m cable with waterproof plug (IP 67), steel armoring (material no. 1.4571) with screw-off protective hood, pressure-resistant to max. 10 bar, fits into 2" wells.

Order No.	Item	cable length
4 430 000 045	TA 197 pH-4	4 m
4 430 000 046	TA 197 pH-6	6 m
4 430 000 047	TA 197 pH-10	10 m

4 430 000 048	TA 197 pH-15	15 m
4 430 000 049	TA 197 pH-20	20 m
4 430 000 050	TA 197 pH-25	25 m
4 430 000 051	TA 197 pH-40	40 m
4 430 000 052	TA 197 pH-60	60 m
4 430 000 053	TA 197 pH-100	100 m

#### Combination Electrodes for depth armature TA 197 pH

##### Order No.

4 430 000 054	SensLyt® SEA	pH combination electrode for heavily polluted waters
4 430 000 055	SensLyt® GDA	pH combination electrode for surface waters and slightly polluted waters
4 430 000 056	SensLyt® PtA	ORP combination electrode

WATER ANALYSIS / MEASURE / CONTROL / REGULATE

## Pocket Oxygen-Meters handy, waterproof, conform with GLP

**Oxi 330 – Order No. 4 430 000 057**

**Oxi 340 – Order No. 4 430 000 058**

**Oxi 340 A – Order No. 4 430 000 059**

WTW handheld oxygen meters are both dust-proof and waterproof as well as being submersible. The large clear display with operator guidance allows the measurements to be read off unambiguously and comfortably. The silicone keys with tactile answer-back guarantee simple operation.

The WTW handheld oxygen-meters are available in three versions:

### Oxi 330

Proven robust battery-operated handheld meter with manual input functions, built-in datalogger, GLP-supporting functions, automatic temperature, air pressure and salinity compensation....

### Oxi 340

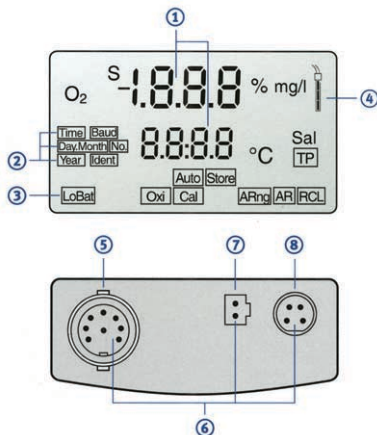
As Oxi 330, but with additional analogue and digital RS 232 output and mains power supply as option

### Oxi 340 A

As Oxi 340, but with included power supply and rechargeable batteries.



### closely observed:



**OxiCal®**  
automatic calibration



**GLP-conform**  
documentation for calibration and measurement



**AutoRead**  
automatic drift control for stable and reproducible measurements



**Integrated datalogger**  
for more than 200 measurements, time-controlled storage, individual sample identification

- ① large LCD display for measurement and temperature
- ② built-in real-time clock for documentation and monitoring calibration intervals
- ③ battery condition display
- ④ sensor condition display
- ⑤ connection for electrode
- ⑥ corrosion-protected, gold-plated plug contacts
- ⑥ connection for mains power supply (only 340)
- ⑦ bi-directional RS 232 interface and analogue plotter output (340 only)

### Protective armouring



Protective armouring

- ① **SM 325** Shock-absorbing, rubber protective armoring with support handle and sensor cable clamping device – **Order No. 4 430 000 075**
- ② **TG/Oxi-LF** Sleeve set, suitable for SM 325 protective armoring, consisting of 2 sensor sleeves, holding device and additional carrying strap for field use. Can also be used for storing the sensor – **Order No. 4 430 000 078**
- ③ **FM325/Oxi-LF** Field armoring, specially designed for rough use on-site and in industry, extremely robust and shock-resistant thanks to protective armoring with 2 sensor sleeves, carrying handle and additional carrying strap with holding device, sensor cable clamping device and folding support for laboratory measurements – **Order No. 4 430 000 079**

### Technical Specifications

	Oxi 330	Oxi 340	Oxi 340-A
<b>Measuring range/ resolution</b>			
Oxygen Concentration	0,00 ... 19,99 mg/l 0,0 ... 90,0 mg/l		
Oxygen Saturation	0,0 ... 199,9 % 0 ... 600 %		
Temperature	- 5,0 ... +50,0 °C		
<b>Accuracy (±1 digit)</b>			
	O 2 concentration ±0.5% of value		
	O 2 saturation ±0.5% of value		
	Temperature ±0.1 K		





## Technical Specifications

	Oxi 330	Oxi 340	Oxi 340-A
<b>Air pressure compensation</b>	Automatic with built-in pressure sensor (500 ... 1100 hPa)		
<b>Salinity correction</b>	Automatic from 0.0 ... 70.0, adjustable via display		
<b>Display</b>	LCD display 60 x 45 mm visible area, simultaneous display of measurement, temperature, special characters		
<b>Sensor evaluation</b>	Depends on calibration results, shown on display		
<b>Calibration alarm</b>	1 ... 999 days, adjustable		
<b>AutoRead</b>	For reproducibility better than 0.05 mg/l		
<b>Calibration</b>	OxiCal® rapid calibration in OxiCal® -SL or OxiCal® -D		
<b>Calibration Protocol</b>	GLP-conform calibration protocol; last protocol stored in memory		
<b>Data Storage</b>	200 data sets (measurement, temperature, date/time, identity no.); time-controlled storage at intervals 5 s ... 60 min, non-volatile data storage (even when changing batteries)		
<b>Data Output Interface</b>	Via display or interface Self-configuring analog output 0 ... 2 V corresponding to display, or RS 232 bi-directional interface		
<b>Operational Time</b>	2000 hours with normal 4 x 1.5 V batteries with AutoSwitchOff after 1 h (except logger operation)		Continuous operation from mains supply; 600 hours with battery operation with AutoSwitchOff after 1 h (except logger operation)
<b>Protection Type</b>	IP 66 and IP 67 to IEC 529		
<b>Dimensions</b>	172 x 80 x 37 (H x B x D)		
<b>Weight</b>	Approx. 300 g		
<b>Certified to</b>	CE, TÜV/GS, UL, CUL		
<b>Warranty</b>	3 years on the instrument		

## Set Equipment

Order No. 4 430 000 060

Each handheld oxygen meter is available in a complete equipment set.

### Basic equipment:

- Professional case with built-in measuring set-up and separate compartment for sensor and accessories
- Oxygen meter with batteries
- Oxygen sensor as chosen
- Calibration and storage vessel, e.g. OxiCal® -SL
- 3 exchange membrane heads, e.g. WP 90/3
- Cleaning solution RL/G
- Electrolyte solution ELY/G
- Abrasive film SF 300
- Plug-in power supply (only Oxi 340i)
- Operating instructions



## Oxygen Sensor Cellox® 325

Order No. 4 430 000 061

### Covered membrane galvanic oxygen sensor:

- Immediately ready for measuring - no polarisation period required
- IMT temperature compensation with 2 built-in temperature sensors
- Long working life - 6 months with one electrolyte filling
- Zero-current free
- High signal resolution
- Rapid response
- Waterproof sensor (IP 68 – 2 bar)
- With 1.5 m cable and waterproof plug (IP 67) as standard
- With calibration and storage vessel OxiCal® -SL as standard



## Portable Oxygen Meters sturdy, waterproof, submergible

**ProfiLine Oxi 197 – Order No. 4 430 000 062**

**ProfiLine Oxi 197-S – Order No. 4 430 000 063**

The WTW oxygen meters of the ProfiLine Oxi 197 series are both hose-proof (IP 66) and submergible (IP 67). They convince because of their high degree of operator comfort and foolproof operator guidance via the large multifunctional display. They are equipped with a carrying/support handle and carrying strap as standard.

The portable oxygen meters are available in 2 versions:

### ProfiLine Oxi 197:

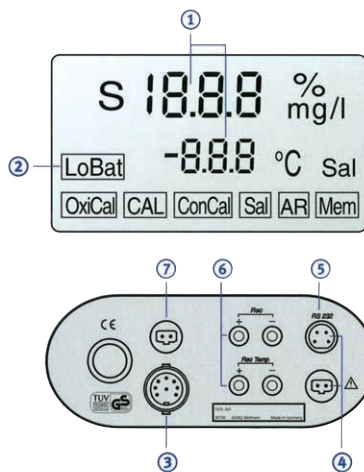
Indestructible oxygen meter. With re-chargeable battery and mains operation, measurement storage, GLP-supporting functions, OxiCal® rapid calibration, AutoBar automatic air pressure compensation by built-in pressure sensor, automatic temperature compensation by IMT compensation... Additional connection for self-stirring oxygen sensor StirrOx® G. Also suitable for oxygen depth measurements down to 100 m with TA 197 Oxi depth armature.

### ProfiLine Oxi 197-S:

As ProfiLine Oxi 197 but with additional analogue recorder outputs corresponding to display for oxygen and temperature values.



### Closely Observed:



**OxiCal®**  
automatic calibration



**AutoRead** automatic drift control for stable and reproducible measurements



**Measurement storage** for up to 50 pairs of measurements

- ① Large LCD display for measurement and temperature
- ② Battery condition display
- ③ Probe CellOx® 325 or depth armature TA 197 connection (cable length up to 100 m)
- ④ Corrosion-protected, gold-plated plug contacts (interface, power supply)
- ⑤ Unidirectional RS 232 interface
- ⑥ 2 analogue outputs corresponding to display, for measurement and temperature (only ProfiLine 197-S)
- ⑦ Connection for the built-in stirrer of the probe StirrOx® G

### Accessories for oxygen measurement at depths down to 100 m

#### Oxygen depth armature TA 197 Oxi Please consult the accessories list

with built-in temperature sensor, up to 100 m cable with waterproof plug (IP 67), pressure-resistant steel armoring with screw-off protective hood, fits into 2" wells.



**Battery-powered stirrer BR 325**  
**Order No. 4 430 000 065**  
for profile and depth measurements.



WATER ANALYSIS / MEASURE / CONTROL / REGULATE