INSTRUMENTS FOR ANALYSIS IN THE FIELD

Why are the pH, redox, EC and O_2 measured directly in the field?

- The release or sorption of carbon dioxide causes the pH (= acidty) of groundwater to change.
- Precipitation of hydroxides changes the conductivity of groundwater.
- When sampling groundwater the oxygen content rapidly increases.
- The availability of oxygen causes the redox potential to shift rapidly.
- Direct availability of results.
- Less costly than when carried out in a laboratory.

Reduction indicates lower oxidation levels in a medium. Better: the Redox potential is a measure of the capacity of a substance to absorb or release electrons. The **EC** is an indication of the amount of salts dissolved in water. As the concentration of salt may be a limiting or stimulating growth factor, or an indication of soil pollution, it is essential to establish the electrical conductivity.

The measurement of **O_2** refers to the amount of oxygen dissolved in water. It is measured in mg/l of water or indicated as a percentage of saturation. The presence of oxygen is not only of crucial importance to the open water flora and fauna but also to aerobic processes of degradation in the soil.

Measuring the pH (acidity) of the water in a sample bottle.

The interaction of various acids, bases and salts determines the **pH.** The pH of soil and groundwater are important criteria in the selection of plant material, the amount of fertilizer to apply, or the environmental measures to be taken.

Redox is short for Reduction-Oxidation potential. Oxidation stands for an increase of bound oxygen.

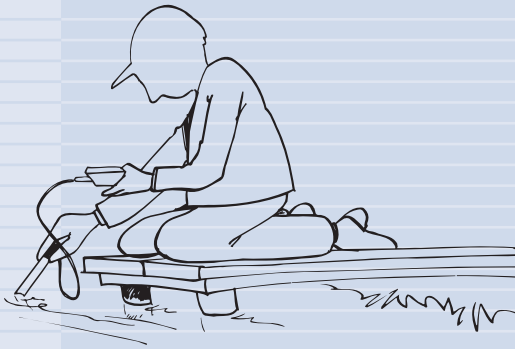
Eijkelkamp Agrisearch Equipment has a varied delivery programme of (multi-)meters and accessories. These CE-approved instruments are specially designed for the purpose of analytic measurements under field conditions or in a demanding laboratory environment. All meters are supplied as complete sets, incl. electrodes.

After drilling a small hole in the soil and putting water and a pH electrode in it, an impression of the pH can be obtained.

Multimeter with electrodes

INSTRUMENTS FOR ANALYSIS IN THE FIELD

Determination of the electrical conductivity in flowing water.



By connecting a temperature probe automatic temperature compensation is possible. Otherwise you risk a measuring error of 3%/°C when measuring the EC.

Multimeters

- ❒ Watertight ABS housing.
- ❒ Simultanous measurement of several parameters possible.
- ❒ Measuring in accordance with 'Good Laboratory Practice'.
- ❒ Display of measurements, temperature and battery status.
- ❒ Menu-driven instructions in Dutch, English, French of German.
- ❒ Automatic adjustion.
- ❒ Polarisation time not required (O_2).
- ❒ Programmable automatic switch-off.
- ❒ Complete in case.
- ❒ Optional: rechargeable batteries and AC adapter, 12 V car connection.

18.21.SA pH/mV/EC/T meter

Standard meter measuring acidity, redox, conductivity and temperature.

- ❒ Measuring range:
  - pH 0-14 pH
  - mV ± 1200 mV
  - °C 0-100°C
  - EC 0-100 mS/cm
- ❒ Resolution: 0.01 pH, 0.1°C, 0.1 µS.
- ❒ No memory.

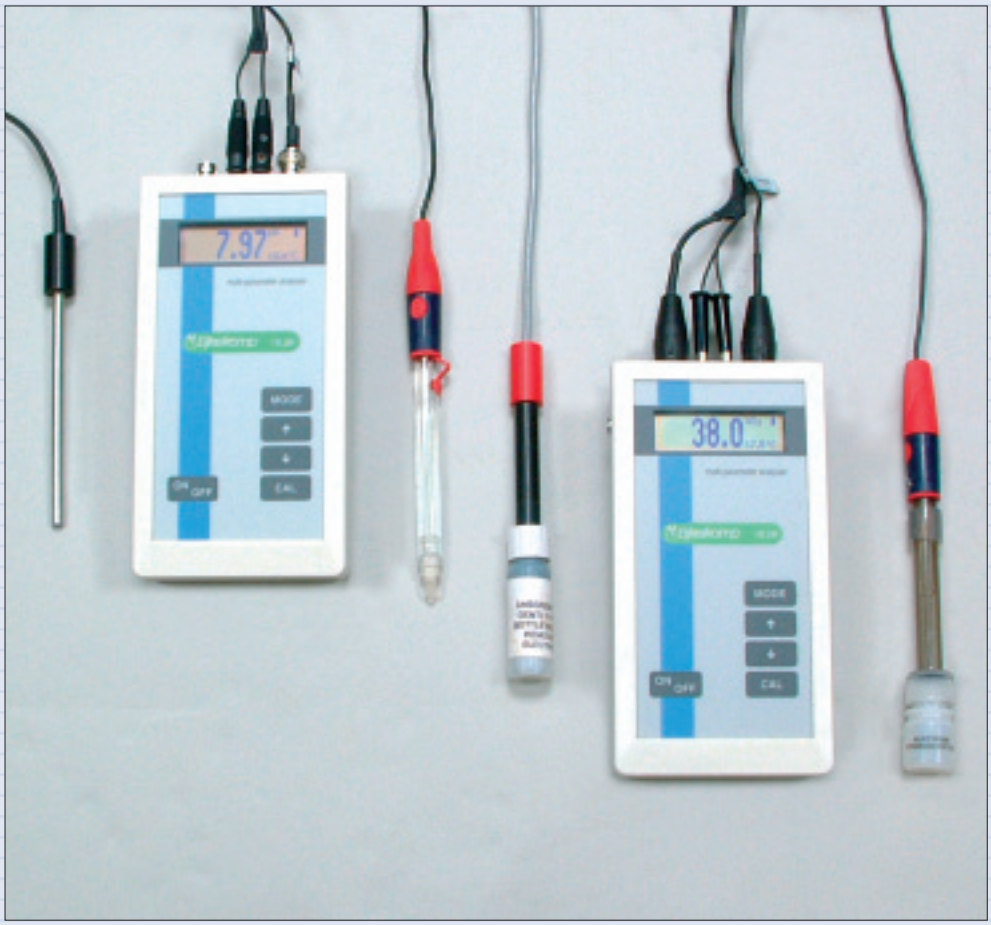
18.26.SA pH/mV/O_2/T meter

Meter measuring oxygen, acicity, redox and the temperature.

- ❒ Measuring range:
  - pH 0-14 pH
  - mV ± 1200 mV
  - °C 0-100°C
  - O_2 0-20 mg/l, 0-200%
- ❒ Resolution: 0.01 pH, 1 mV, 0.1°C, 0.01 mg/l, 0.1%.
- ❒ Memory: 200 values.
- ❒ No polarisation time required (O_2).
- ❒ Calibrates only to the air (O_2).

18.28.SA pH/mV/EC/Sal/T/O_2 meter

This meter combines all parameters mentioned earlier and has a huge conductivity measuring range (up to 1000 mS/cm) and immediate reading of salinity (the salt content in grams per litre).



Multimeter with electrodes

Eijkelkamp Agrisearch Equipment

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INSTRUMENTS FOR ANALYSIS IN THE FIELD

The measuring data are read and processed on the PC.

- Measuring range:
  - pH 0-14 pH
  - mV ± 1200 mV
  - °C 0-100°C
  - EC 0-1000 mS/cm
  - Sal 0-100 g/l
  - O_2 0-20 mg/l, 0-200%
- Resolution: 0.01 pH, 1 mV, 0.1°C, 0.01 µS/cm, 0.01 mg/l, 0.1%.
- Memory: 200 values.
- Cell constants (EC) 1, 10 and 0.1 cm^{-1}.

18.28.SB pH/mV/EC/Sal/T./O_2/redox

Redox sensor for measurements in water and suspensions of soil, etc. Complete with synthetic pH, Redox, EC, O_2 electrodes and T sensor, buffer liquids, redox calibration set and glass fibre pin, in case.

18.28.SC Redox measurement set

Set with separate 75 cm long pt-electrode with Ag/AgCL 3 Mol KCl reference electrode for measurements in soil and pt-Ag/AgCL 3 Mol KCl combination electrode for water with 18.28 multimeter, adjustable, in case, redox calibration liquids, glass fibre. For measurements add. To pin, mineral auger and thumb spatula. ISO/FDIS 11271

18.28.SD EC/TDS/SAL Measuring set

Measurement set for EC (acc. NEN / ISO 7888, EN 27888), TDS (acc. EN 27888, DIN 39404), salinity (acc. 10 T @ 150C)) and temperature. Complete with EC electrodes 1/cm and 10/cm for normal high measuring range, T. electrode and calibration liquids high and normal measuring range, case and operating instructions.

18.32 Multimeter, type WTW 350i

Robust and waterproof multi-parameter instrument with datalogger (memory for 1800 data sets) and serial interface, incl. gel type pH electrode and combined conductivity / oxygen probe. If desired, pH, oxygen, conductivity and temperature can be measured simultaneously. Complete set with battery charger and software in case.

Multimeter WTW 350i

BENEFITS

18.21, 18.26 & 18.28 Multimeters

- Value for money meters for accurate results
- Measure according to standards
- Waterproof cases, smooth fieldproof keypad
- Menudriven calibrations
- All meters allow redox measurements
- All parameters temperature corrected (not mV)
- Universal pH and redox probes
- Banana connector for redox reference probe
- 18.28 meter allows direct salinity read-out
- 18.28 features high range EC measurements

INSTRUMENTS FOR ANALYSIS IN THE FIELD

18.30 pH-Meter, type WTW pH330i

This robust, waterproof (IP66/67 to IEC 529) pH/mV/T-meter with built-in datalogger, real time clock and GLP-supporting functions is supplied inclusive pH-electrode. Automatic calibration with buffer recognition. The meter can store 500 data sets (measurement, temperature, date/time, identy number). Time-controlled storage of the measurements at intervals from 5 sec. till 60 min. (non-volatile data storage; even when changing batteries). The instrument is provided in a strong synthetic case with integrated measuring-spot with stand, buffers, KCl-fluid, electrode and batteries (for up to 3000 hours of measurements). Measuring range for pH -2 to +19.99 pH (resolution 0.01). A temperature measuring range of -5°C to 105°C (resolution 0.1). The measuring range in mV covers -1999 up to + 1999 mV (resolution 1 mV). Data can be transmitted to a PC. For application under rough conditions the meter can be fitted with a robust, impact resistant field armoring with integrated electrode container and carrying grip.

18.31 EC-meter, type WTW 315i

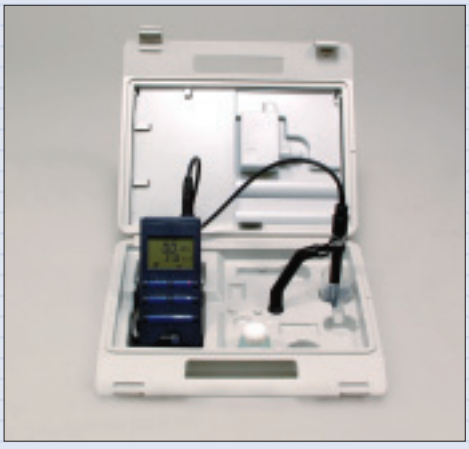
The robust, low-energy consumption EC/T-meter in dust- and waterproof housing (IP66/67 to IEC 529) is provided inclusive EC-electrode (4-electrode measuring technology) with integrated temperature sensor (K=0.475 cm^{-1}). The instrument is capable of simultaneous temperature measurement and automatic temperature compensation. Reference temperature 25°C (ISO and NEN). The meter has a conductivity measuring range of 0 - 500 mS in 5 measuring ranges. For temperature measurement the measuring range -5°C to 105°C is valid (resolution 0.1°C). The instrument has a cell constant of 0.475 cm^{-1}. The meter is provided in a strong synthetic case with integrated measuring-spot with stand, buffers, KCl-calibration fluid, measuring can and batteries (for up to 3000 hours of measurements). For application under rough conditions the meter can be fitted with a robust, impact resistant field armoring with integrated electrode container and carrying grip.

The waterproof meters allow operation under rough field conditions.

pH-meter WTW pH330i with electrode

EC-meter WTW 315i with electrode

pH-meter with field armoring



EC-meter WTW 315i complete set

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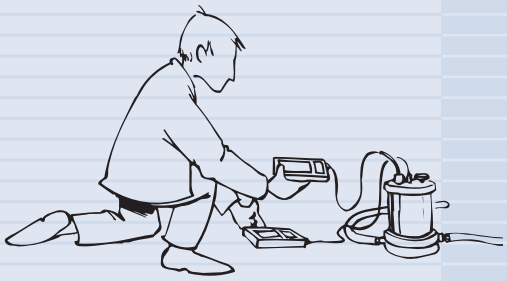
INSTRUMENTS FOR ANALYSIS IN THE FIELD

In order to improve the comfort and precision of in-line field measurements a flow-through cell is used in which the electrodes are placed.

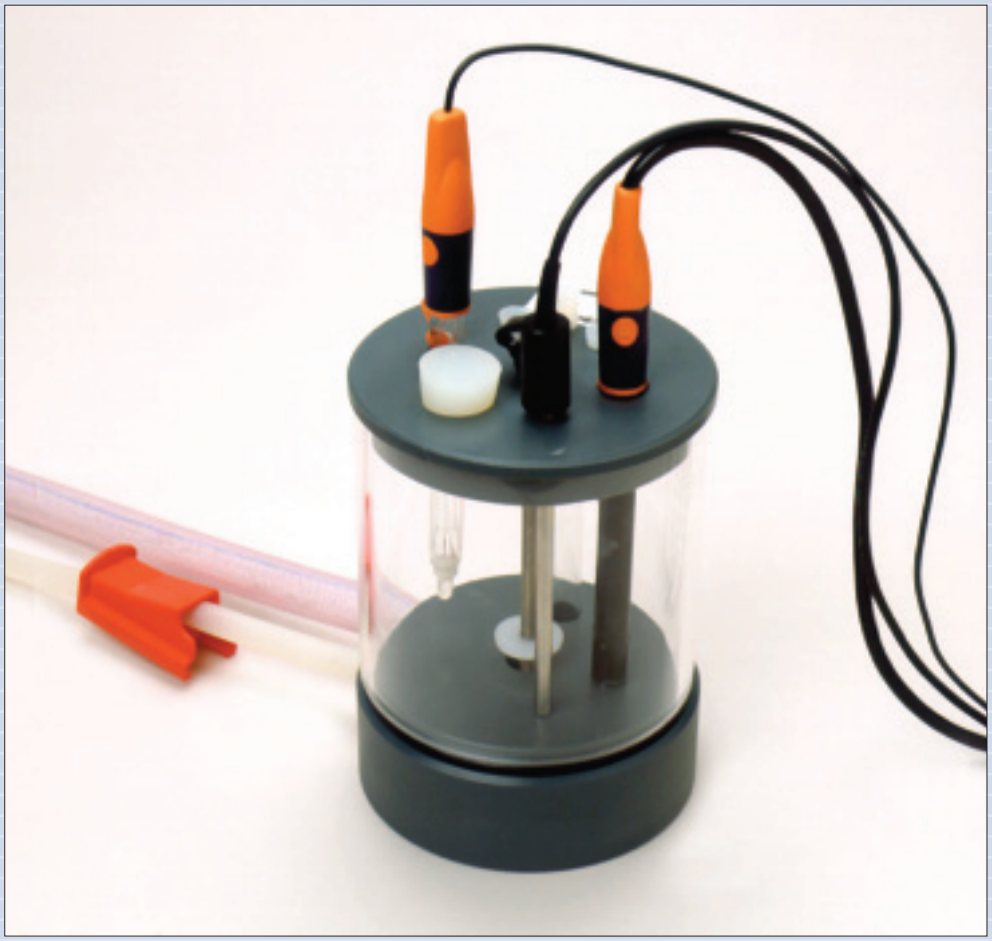


Accessories

Various electrodes are available for all meters, such as: temperature probe Pt 1000, pH or EC electrodes in glass or synthetic, oxygen electrodes with built-in temperature sensor, and redox electrodes. Various buffer liquids, storage liquids, calibration solutions etc. are available for maintenance. The offered sets do include the appropriate electrodes and accessoires.

18.55 Flow-through cell

To improve the comfort and precision of in-line measurements of pH, EC, T, O_2, etc. a flow-through cell is used. The flow-through cell consists of a transparent chamber through which water flows in a constant flow from the bottom to the top. The electrodes measure in water that has not yet been in touch with the air. Various electrodes can be placed in the flow-through cell. The flow-through cell can be demounted and cleaned easily.



Flow-through cell with electrodes

BENEFITS

18.55 Flow-through cell

- Makes field measuring pH/EC/O_2/Redox easy
- Accepts almost all commercial electrodes
- Principle enables zero% O_2 measurements
- Easy to clean, sand is no problem
- Field proven simplicity and durability

Art.no.	Description	Qty. in set
Instruments for analysis in the field (P2.73)		
18.21.SA	**pH/mV/EC/T-measuring set, complete with synthetic pH, EC electrodes and T sensor, case, liquids and batteries**	
**18.21	pH/mV/EC/T meter, with-out electrodes, 0-14 pH, ±1100 mV, 0-100 mS/cm, 0-100 °C. IP65 housing. Menu-operated calibrations. Simultaneous measurement of pH and EC possible. Graphic display according GLP. In case with adjusting & maintenance liquids +batteries	1
**18.21.21	pH electrode, plastic, BNC plug, gel filled, notre fillable, for pH 0-14, measuring range 0-80°C, Ag/AgCl type, ceramic diaphragme, reduced chemical compatibility, dim. 120x12 mm, cable length 1.2 m, splash proof (IP65)	1
**18.21.23	Temperature probe Pt1000 with stainless steel shaft, measuring range -30 till +130°C, dimensions 120x6 mm, banana plugs, cable length 1 m, splash proof (IP65)	1
**18.21.26	Electrical conductivity electrode, plastic, platina type, cell constant 1 1/cm, max. range 0-200 mS/cm, advised range (acc. to ISO 7888) 10-2000 µS/cm, BNC plug. Cable length 1 m, dimensions 110x12 mm, splash proof (IP65)	1
**18.21.99	Electrode storage bottle. To prevent drying-out of the pH, Redox and O_2 electrodes with Ø 12 mm. Bottle is un-screwable. Cap and O-ring remain on the electrode	
18.26.SA	**pH/mV/O_2/T-measuring set, complete with synthetic pH, EC electrodes and T sensor, case, liquids and batteries**	
**18.26	pH/mV/O_2/T meter, with-out electrodes, 0-14 pH, +/-1100 mV, 0-20 mg/l, 0-100°C., IP65 housing. Menu- operated calibrations. Memory 200 positions. Adjustable switch-off. Graphic display according to GLP. In case with liquids and batteries	1
**18.21.21	pH electrode, plastic, BNC plug, gel filled, notre fillable, for pH 0-14, measuring range 0-80°C, Ag/AgCl type, ceramic diaphragme, reduced chemical compatibility, dim. 120x12 mm, cable length 1.2 m, splash proof (IP65)	1
**18.21.23	Temperature probe Pt1000 with stainless steel shaft, measuring range -30 till +130 °C, dimensions 120x6 mm, banana plugs, cable length 1 m, splash proof (IP65)	1
**18.26.23	Oxygen electrode, type GDO2, QD303T with built-in T probe. Waterproof. Ag/Zn principle acc. to Macreth, no pre-polarizing necessary. 0-60 mg/l, 0-50°. C. With BNC (O_2) and banana plugs (T). Only justify on air. Dimensions 120x12 mm. Cable length 3 m	1
**18.21.99	Electrode storage bottle. To prevent drying-out of the pH, Redox and O_2 electrodes with Ø 12 mm. Bottle is un-screwable. Cap and O-ring remain on the electrode	2
**13.36.02	Zero solution for oxygen meter, 1 bottle of 500 ml	1
18.28.SA	**pH/mV/EC/Sal/T/O_2-measuring set, complete with synthetic pH, EC, O_2 electrodes and T sensor, case, liquids and batteries**	
**18.28	pH/mV/EC/Salinity/T/O_2 meter without electrodes, 0-14 pH, ±1100 mV, 0-1100 mS/cm, 0-100 gr/l, 0-100°C., 0-20 mg/l, IP65 housing. Graphic display according to GLP. Memory 200 positions. Menu-operated. In case with liquids and batteries	1
**18.21.21	pH electrode, plastic, BNC plug, gel filled, notre fillable, for pH 0-14, measuring range 0-80°C, Ag/AgCl type, ceramic diaphragme, reduced chemical compatibility, dim. 120x12 mm, cable length 1.2 m, splash proof (IP65)	1
**18.21.23	Temperature probe Pt1000 with stainless steel shaft, measuring range -30 till +130°C, dimensions 120x6 mm, banana plugs, cable length 1 m, splash proof (IP65)	1
**18.21.26	Electrical conductivity electrode, plastic, platina type, cell constant 1 1/cm, max. range 0-200 mS/cm, advised range(acc. to ISO 7888) 10-2000 µS/cm, BNC plug. Cable length 1 m, dimensions 110x12 mm, splash proof (IP65)	1
**18.26.23	Oxygen electrode, type GDO2, QD303T with built-in T probe. Waterproof. Ag/Zn principle acc. to Macreth, no pre-polarizing necessary. 0-60 mg/l, 0-50°C. With BNC (O_2) and banana plugs (T). Only justify on air. Dimensions 120x12 mm. Cable length 3 m.	1
**18.21.99	Electrode storage bottle. To prevent drying-out of the pH, Redox and O_2 electrodes with Ø 12 mm. Bottle is un-screwable. Cap and O-ring remain on the electrode	2

PARTS LIST

Art.no.	Description	Qty. in set
**13.36.02	Zero solution for oxygen meter, 1 bottle of 500 ml	1
18.28.SB	**pH/mV/EC/Sal/T/O_2/redox measurement set for measurements in water and suspensions of soil, etc. Complete with synthetic pH, Redox, EC, O_2 electrodes and T sensor, buffer liquids, redox calibration set and glassfibre pin, in case**	
**18.28	pH/mV/EC/Salinity/T/O_2 meter without electrodes, 0-14 pH, ±1100 mV, 0-1100 mS/cm, 0-100 gr/l, 0-100°C., 0-20 mg/l, IP65 housing. Graphic display according to GLP. Memory 200 positions. Menu-operated. In case with liquids and batteries	1
**18.21.21	pH electrode, plastic, BNC plug, gel filled, notre fillable, for pH 0-14, measuring range 0-80°C, Ag/AgCl type, ceramic diaphragme, reduced chemical compatibility, dim. 120x12 mm, cable length 1.2 m, splash proof (IP65)	1
**18.21.23	Temperature probe Pt1000 with stainless steel shaft, measuring range -30 till +130 °C, dimensions 120x6 mm, banana plugs, cable length 1 m, splash proof (IP65)	1
**18.21.26	Electrical conductivity electrode, plastic, platina type, cell constant 1 1/cm, max. range 0-200 mS/cm, advised range (acc. to ISO 7888) 10-2000 µS/cm, BNC plug. Cable length 1 m, dimensions 110x12 mm, splash proof (IP65)	1
**18.26.23	Oxygen electrode, type GDO2, QD303T with built-in T probe. Waterproof. Ag/Zn principle acc. to Macreth, no pre-polarizing necessary. 0-60 mg/l, 0-50°C. With BNC (O_2) and banana plugs (T). Only justify on air. Dimensions 120x12 mm. Cable length 3 m.	1
**18.21.28	Redox electrode for water, BNC plug, platinum Ag/AgCl 3 M KCl type, ceramic diafragm, synthetic refillable shaft, dimensions 120x12 mm, cable length 1.2 m, splash-proof (IP65)	1
**18.21.30	Glassfiber pin to make the platina of the redox electrode for soil and water oxide-free	1
**18.21.32	Redox calibration set consisting of 250 ml buffer pH 4.0, 250 ml buffer Ph 7.0, 5 gram Quinhydrone, and 2 waste jars	1
**18.21.99	Electrode storage bottle. To prevent drying-out of the pH, Redox and O_2 electrodes with Ø 12 mm. Bottle is un-screwable. Cap and O-ring remain on the electrode	1

Art.no.	Description	Qty. in set
**13.36.02	Zero solution for oxygen meter, 1 bottle of 500 ml	1
18.28.SC	**Redox measurement set, with separate 75 cm long Pt-electrode with Ag/AgCl 3 Mol KCl reference electrode for measurements in soil and Pt-Ag/AgCl 3 Mol KCl combination electrode for water. With 18.28 multimeter, adjustable, in case, redox calibration liquids, glass-fibre pin, mineral auger and thumb spatula. For measurements acc. to ISO/FDIS 11271.**	
**18.28	pH/mV/EC/Salinity/T/O_2 meter without electrodes, 0-14 pH, ±1100 mV, 0-1100 mS/cm, 0-100 gr/l, 0-100 °C., 0-20 mg/l, IP65 housing. Graphic display according to GLP. Memory 200 positions. Menu-operated. In case with liquids and batteries	1
**18.21.28	Redox electrode for water, BNC plug, platinum Ag/AgCl 3 M KCl type, ceramic diafragm, synthetic refillable shaft, dimensions 120x12 mm, cable length 1.2 m, splash-proof (IP65)	1
**18.21.23	Temperature probe Pt1000 with stainless steel shaft, measuring range -30 till +130 °C, dimensions 120x6 mm, banana plugs, cable length 1 m, splash proof (IP65)	1
**14.36.01	Pt elektrode for oxygen diffusion meter (ODR), stainless steel, length 70 cm, with 2 m BNC cable. Surface platinum probe 0.226 cm^2	1
**18.28.26	Reference electrode to be used in combination with a singular Redox (Eh) or ion-selective electrode. Ag/AgCl/KCl type, 3 Mol KCl/AgCl electrolyte, glass with ceramic diafragm on bottom, refillable. Dimensions: Ø 12 mm, operational length 100 mm. Fixed cable 1 m with banana plug. To be connected to the reference-input of pH/mV 1 m with banana	1
**18.21.99	Electrode storage bottle. To prevent drying-out of the pH, Redox and O_2 electrodes with Ø 12 mm. Bottle is un-screwable. Cap and O-ring remain on the electrode	1
**18.21.30	Glassfiber pin to make the platina of the redox electrode for soil and water oxide-free	1
**18.21.32	Redox calibration set consisting of 250 ml buffer pH 4.0, 250 ml buffer pH. 7.0, 5 gram Quinhydrone, spatula, 2 small mixing jars and 2 waste jars	1
**04.06.06	Mineral gouge auger, Ø 13 mm, operational length 60 cm, total length 110 cm, graduation 5 cm, operational	1

Art.no.	Description	Qty. in set
	part not zinc plated, shaft zinc plated	
**04.06.03	Thumb spatula	1
18.28.SD	**EC/TDS/SAL measurement set for EC (acc. NEN/ISO 7888, EN 27888), TDS (acc. EN 27888, DIN 39404), salinity (acc. IOT @ 15°C) and temperature. Compl. with EC electrodes 1/cm and 10/cm for normal and high measuring range, T electrode and calibration liquids high and normal measuring range, case and operating instructions.**	
**18.28	pH/mV/EC/Salinity/T/O_2 meter without electrodes, 0-14 pH, ±1100 mV, 0-1100 mS/cm, 0-100 gr/l, 0-100°C., 0-20 mg/l, IP65 housing. Graphic display according to GLP. Memory 200 positions. Menu-operated. In case with liquids and batteries	1
**18.21.23	Temperature probe Pt1000 with stainless steel shaft, measuring range -30 till +130°C, dimensions 120x6 mm, banana plugs, cable length 1 m, splash proof (IP65)	1
**18.21.26	Electrical conductivity electrode, plastic, platina type, cell constant 1 1/cm, max. range 0-200 mS/cm, advised range(acc. to ISO 7888) 10-2000 µS/cm, BNC plug. Cable length 1 m, dimensions 110x12 mm, splash proof (IP65)	1
**18.28.23	Electrical conductivity electrode, glass platina type. With BNC plug. Cell constant 10 cm/-1. Max. range 0-1000 mS/cm. Advised range acc. to ISO 7888 100-20000 microS/cm. With built-in temperature sensor. Dimensions 130x12 mm. Cable length 1 m.	1
**18.28.24	Adjusting liquids for electrical conductivity meters with high measuring range. Three concentrations: 1413 microS/cm, 12.88 mS/cm and 111.8 mS/cm. Total 18 ampullas of 25 ml.	1
	Optional electrodes for all meters:	
18.21.22	pH electrode, glass, BNC plug, reinforced top, refillable, for pH 0-14, measuring range 0-80 °C, Ag/AgCl 3 M KCl type, ceramic diafragm, dim. 120x12 mm, cable length 1.2 m, splash proof (IP65)	
18.21.27	Redox electrode for soil and water, BNC plug, platinum Ag/AgCl 3 M KCl type, ceramic ring diafragm, glass, refillable shaft, dim. 120x12 mm, cable length 1.2 m, splash-proof (IP65)	
	Calibration liquids for all meters.	
18.36.10	Buffer solutions 4,01 and 6,87, 6 ampullas of 25ml each, for calibration of pH meters	
18.36.12	KCL electrolyte, bottle 500 ml, concentration 3 M, for maintenance/storage of pH electrodes or reference electrode of oxygen diffusion meter (ODR)	
18.34.15	Calibration liquid for EC-meters 1413 microS/cm (0.01 Mol) KCL (composed according to DIN 38404, part 8), in glass bottle 250 ml	
18.34.16	Calibration liquid 1413 microS/cm (0.01 Mol) KCL (composed according to DIN 38404, part 8), in glass bottle of 1 liter	
18.28.24	Adjusting liquids for electrical conductivity meters with high measuring range. Three concentrations: 1413 microS/cm, 12.88 mS/cm and 111.8 mS/cm. Total 18 ampullas of 25 ml	
	Accessories for (all) meters:	
99.80.02	Battery Penlite (AA, LR6), 1.5 Volt, alkaline, low in mercury and cadmium free, blister pack of 4 pieces	
99.80.03	Battery, 9 V	
99.80.06	Battery Penlite (AA), recharge-able without memory-effect, 1.2 Volt, 1100 mAh, nickel-manganesehydrid type (cadmium free). Charging 14 hours with 110 mA. Blister pack of 2 pieces	
99.08.04	Sprayer, transparent polyethylene. Content 1 liter	
20.05.15	Tissues, odourless, professional type, box of 100 pcs.	
18.26.23.01	Membrane cup, set of 3 pieces, incl. electrolyte, for Z10 electrode	
18.26.23.02	Galvanic electrolyte for oxygen electrode (18.26.23), bottle of 500 ml	
18.26.23.03	Membrane cups for galvanic oxygen electrode Macreth types S341T, GDO2 and QD303T. Set of 3 pieces, without electrolyte.	
	Maintenance and repair for all meters:	
18.38.90	Inspection of Multimeter Composition of calibration certificate/test report, cleaning the electrodes and upply of repair advice for deviations. Incl. report and approval label	
	Flow through cell:	
18.55	**Flow-through cell, special design for minimal air contact. For measurements under anaerobic conditions with max. 6 electrodes with various diameters (electrodes and meters not included)**	
	Accessories to be used with flow-through cell.	

PARTS LIST

Art.no.	Description	Qty. in set
12.20.95	Clamp with ground pin, for tubes and bottles	
	WTW Meters (three standard equipment sets)	
18.30	**pH/mV/T meter, WTW pH330i, incl. gel-type pH-electrode, water-proof housing (IP67), automatic calibration, data-logger with date + time for 500 measure-ments. Acc. to G.L.P. Complete in multi-functional case**	
18.31	**EC/T-meter WTW 315i, range 0-200 mS/cm, with EC/T-electrode (K=0.475 1/cm), Ø 15 mm, cable length 1.5 m. Dust- and water proof housing (IP66), auto T-compensation. In kit with calibration liquids and batteries**	
18.32	**Multimeter set WTW Multi 350i. Instrument with datalogger and serial interface, incl. gel type pH electrode and combined conductivity/oxygen probe. Complete with battery charger and software in case.**	
	Optional items for pH meter 18.30:	
18.30.05	Field armoring for pH meter (WTW), for use under rough conditions in the field and the plant, very strong and shock proof, rubber elastic protection, with integrated electrode beaker and carrying handle, incl. holder and stand for lab. use.	
18.30.10	NTC temperature probe for WTW pH/mV/T meter, stainless steel, with integrated clip for pH electrode, Ø 6 mm, cable length 1 m, measuring range 0-100°C	
	Spare electrode for pH meter 18.30:	
18.30.23	pH electrode WTW Sentix 21, plastic, with water proof DIN plug, gel filled, not-refill-able, for pH 0-14, measuring range -5-80°C, dimensions 120x12 mm, cable length 1 m	
	Optional items for EC meter 18.31:	
18.31.05	Field armoring for EC/T meter (WTW), for use under rough conditions in the field and the plant, very strong and shock proof, rubber elastic protection, with integrated electrode beaker and carrying handle, incl. holder and stand for lab. use Spare electrode	
	for EC-meter 18.31:	
18.31.23	Electrical conductivity electrode WTW Tetracon 325, plastic, graphite type, with waterproof (IP67) DIN-plug, cell constant K = 0,475 cm-1, range 1 uS/cm - 2 S/cm, temperature range 0-90°C. Dimensions 15.3x120 mm, cable length 1.5 m	
	Spare electrodes for multimeter 18.32:	
18.32.23	pH electrode WTW Sentix 41-3, synthetic, gel filled, for pH 0-14, operating temperature range 0-80°C, dimensions 120x12 mm, cable length 3 m.	
18.32.25	Combined conductivity/oxygen probe WTW ConOx-3, synthetic, graphite type, cell constant K=0.475 cm-1, range 1 microS/cm till 2 S/cm, temperature 0-50°C, galvanic oxygen sensor, range 0-90 mg/l, dimensions 145x15,3 mm, cable length 3 m, with accessories.	
18.30	**WTW Meters (three standard equipment sets)**	