

Electrochemistry Meters

SD 300 pH SD 310 Oxi SD 320 Con

Waterproof Hand-held Meters for the determination of:
pH/Redox/Temperature, Conductivity, TDS, Salinity,
Temperature, Dissolved oxygen (O₂), O₂-Concentration,
O₂-Saturation, Temperature



Highlights

- Rugged, water resistant (IP 67) designed for field use
- PC interface (USB / serial or analog)
- Automatic buffer detection (SD 300 pH)
- Data logger and alarm function (min./max.)
- Good Laboratory Practice (GLP-features)
- Clear, concise result reading: easy-to-read backlit LCD display
- Automatic temperature compensation
- High resolution (0.001 pH / 0.1 mV) (SD 300 pH)
- Dirt-insensitive up-to-date 4-pole conductivity cell offering highest precision (SD 320 Con)

Applications

- Drinking Water
- Cooling/Boiler Water
- Waste Water
- Pool Water
- Surface Water

Features SD 300 pH

Min / Max Value Memory

highest and lowest measured value is saved.

Auto Hold

freeze and display measurement.

Auto Power Off

if unused, the meter automatically switches off after a selected period (0 to 120 min, or deactivated)

Additional Display for pH Electrode and Battery

Bar graph display

Low Battery Display

"BAT"

Automatic Temperature Compensation

Automatic Temperature Compensation (ATC) in pH mode (in the range of 0 - 105 °C) when the temperature probe is connected.

Temperature can be input manually, when the temperature probe is not attached.

pH Calibration

Automatic Buffer Recognition.

Permissible electrodes' data: Asymmetry: ± 55 mV / Slope: 45 ... 62 mV/pH

The condition of pH Electrode is checked at each calibration.

1, 2 or 3 point calibration with Aqualytic® Standard Buffer, DIN 19266 Buffer or any manually entered Buffer values.

Redox Measurement (ORP)

2 options:

"mV" Standard Redox or mV measurement

"mVH" 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

Features SD 310 Oxi

Measurement of:

Oxygen partial pressure, Oxygen Concentration, Oxygen Saturation, Temperature measurement

Automatic absolute air pressure measurement

Auto Hold Function

Alarm Function

Data Logger + Software

Easy calibration against oxygen in air

Salinity correction

Self-polarising galvanic oxygen probe, allows instant measurement after system is switched on

Low battery and battery change indicator

Sensor evaluation

after calibration in the display

Shock-absorbing rubber protective armouring

Waterproof IP 67

Features SD 320 Con

Min / Max Value Memory

highest and lowest measured value is saved

Auto Hold

freeze and display measurement

Auto Power Off

if unused, the meter automatically switches off after a selected period (0 to 120 min, or deactivated)

Low Battery Display

"BAT"

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).

Salinity measurement

Salinity means the sum of amount of all dissolved salts in water. The unit is g / kg.

TDS measurement (total dissolved solids)

TDS means the mass concentration of dissolved media in a liquid. The unit is mg/l.





SD 300 pH

Technical data

Measuring ranges

pH	- 2.000 ... 16.000 pH
Redox / mV	- 1999.9 ... 1999.9 mV
Temperature	- 10.0 ... + 110.0 °C + 14.0 ... + 230.0 °F
rH	0.0 ... 70.0 rH

Accuracy

pH	± 0.005 pH
Redox / mV	± 0.05 % FS (mV or mVH)
Temperature	± 0.2 °C - 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
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Temperature	2 banana jacks (4 mm) for temperature probe (Pt1000 or NTC 30K)
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Interface / Supply	4-pole bayonet connector for serial interface and supply (with accessory USB 300)
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Display	two 4.5 - digit seven-segment display (15 mm and 12 mm)
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pH Calibration

Automatically	1, 2 or 3 point calibration, Aqualytic® Standard Buffer or Buffer to DIN 19266
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Manually	1, 2 or 3 point calibration
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Protection class	IP67 (housing and connections)
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Dimensions	164 x 128 x 37 mm (H x W x D) incl. protection cover
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Weight	250 g incl. battery and protection cover
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Housing	impact resistant ABS housing with pop-up clip
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Power supply	2 x AAA-battery (included) power consumption: 2.0 mA
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Battery life	500 hours
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Delivery Content

SD 300 pH, Order Code: 4724600

instrument in carrying case, **without** electrode, with batteries, protective armouring, instruction manual and warranty information

SD 300 pH (SET 1), Order Code: 4724610

instrument in carrying case, with batteries, pH/temp. plastic-electrode type 231, pH-buffer-set (pH 4.01/7.00/10.01), in case, manual and warranty information

SD 300 pH (SET 2), Order Code: 4724611

as SET 1, but with pH / temperature plastic-electrode type 226, temperature sensor Pt 1000, manual and warranty information

Accessories

Code	Article
721231	pH/temp.-electrode type 231 plastic/gel/temperature NTC30kOhm (SET 1)
721226	pH-electrode plastic/gel-type 226 (SET 2)
721235BNC	pH-electrode glass/gel-type 235
721240BNC	Redox-electrode plastic-type 240
721245	PT1000Temperature sensor (SET 2)
418609	KCl-solution, 3 molar saturated with AgCl, 100 ml
721250	pH buffer-set 4.01/7.00/10.01 (25°C)
721252	pH buffer 4.01 (25°C) 1 litre
721254	pH buffer 7.00 (25°C) 1 litre
721256	pH buffer 10.01 (25°C) 1 litre
195070	Redox calibration solution, 470 mV, 100 ml
724620	USB 300 cable, for connection to a computer
724625	GSOFT 3050 data transmission software with logger for setting, reading and printing of stored data
725060	Case with foam inlet



SD 310 Oxi

Technical Data

O ₂ concentration	0.0 ... 70.0 mg/l
O ₂ partial pressure	0 ... 1200 hPa O ₂ 0.0 ... 427.5 mm Hg
O ₂ saturation	0 ... 600 %
Ambient air pressure	10...1.200 hPa abs.
Sensor temperature	- 5 ... 50 °C = 23 ... 122 °F
Accuracy O ₂ concentration	0 ... 25 mg/l ± 1.5 % ± 0.2 mg/l 25 ... 70 mg/l ± 2.5 % ± 0.3 mg/l
Temperature accuracy	± 0.1 °C
Ambient air pressure accuracy	3 hPa bzw. 0.1 % full scale (higher value relevant)
Ambient conditions sensor	0 to 40 °C = 32 to 104 °F 0 to 95 % relative density (non-condensing)
Storage temperature	Instrument: - 25 ... 70 °C = - 13 ... 158 °F Sensor: 0 ... 40 °C = 32 ... 104 °F
Nominal temperature	25 °C
Display	Backlit LCD
Data storage	1,000 data sets manually 8,000 data sets cyclically
Power supply	2 x AAA Batteries
Dimensions	164 x 98 x 37 mm (H x W x D) protective armouring
Weight	287 g incl. batteries and protective armouring
Power consumption	6.25 mA (with Out = Off, corresponding to 160 h), backlight: 10 mA (switches off automatically)
Auto-Off	0 - 120 minutes
Electrode connection	7-pin bayonet connection. Interface/ ext. supply: 4-pin bayonet connection for serial interface and supply

CE-Conformity

Accessories

Order Code	Code
19805050	Oxygen sensor with 1.5 m cable, platinum cathode / Lead anode
19805051	Oxygen sensor with 10 m cable, platinum cathode / Lead anode
19805052	Oxygen sensor with 30 m cable, platinum cathode / Lead anode
724670	Service Set for oxygen sensor consisting of 3 pcs. spare membrane heads and 100 ml KOH (1.18 mol/l) electrolyte solution
19805055	Protection cap for oxygen sensor for depth measurement (PVC)
19805056	Protection cap for oxygen sensor for depth measurement (brass)
724620	USB cable, for connection to a computer
725020	Case with foam inlet

Delivery Content

Order Code	Code
472 46 50	SD 310 Oxi (Set 1) instrument, batteries, oxygen sensor with 1.5 m cable, electrolyte solution (KOH) 30 ml and 2 pcs. spare membrane heads, instruction manual, warranty information
472 46 60	SD 310 Oxi (Set 2) as SET 1, but with oxygen sensor with 10 m cable, electrolyte solution (KOH) 30 ml and 2 pcs. spare membrane heads, instruction manual, warranty information
472 46 65	SD 310 Oxi (Set 3) as SET 1, but with oxygen sensor with 30 m cable, electrolyte solution (KOH) 30 ml and 2 pcs. spare membrane heads, instruction manual, warranty information



SD 320 Con

Technical Data

Measuring ranges

Number	5
Smallest range	0.000 ... 5.000 $\mu\text{S} / \text{cm}^*$ or 0.0 ... 500.0 $\mu\text{S} / \text{cm}^{**}$
biggest range	0 ... 5000 $\mu\text{S} / \text{cm}^*$ or 0 ... 1000 $\text{mS} / \text{cm}^{**}$
Resistivity	0.005 ... 500.0 $\text{k}\Omega / \text{cm}$ (depends on cell constant)
TDS	0 ... 5000 mg/l (depends on cell constant)
Salinität	0.0 ... 70.0 (g salt / kg water equals PSU = Practical Salinity Unit)
Temperature	- 5.0 ... + 150.0 $^{\circ}\text{C}$, Pt1000 or NTC (10k Ω)
Supported cell constants	4.000 ... 15.000 / cm^{-1} 0.4000 ... 1.5000 / cm^{-1} 0.04000 ... 0.15000 / cm^{-1} 0.004000 ... 0.015000 / cm^{-1}

Accuracy

Conductivity	$\pm 0.5\%$ of reading $\pm 0.1\%$ FS (depends on electrode)
Temperature	$\pm 0.2\text{ }^{\circ}\text{C}$ (- 5.0 ... + 100.0 $^{\circ}\text{C}$)

Connection

Conductivity, Temperature	1 x 7 pole bayonet connector for connection of different measuring cells
Supported temperature sensors	Pt1000 or NTC (10k)
Interface / ext. supply	4-pole bayonet connector for serial interface and supply (with accessory USB 300)
Display	two 4.5 - digit seven-segment display (15 mm and 12 mm)
Protection class	IP67 (housing and connections)
Dimensions	164 x 128 x 37 mm (W x H x D) incl. protection cover
Weight	250 g incl. battery and protective armouring
Housing	impact resistant ABS housing with pop-up clip
Power supply	2 x AAA-battery (included) power consumption: < 6,25 mA
Battery life	160 hours

depends on cell constant of used electrode

* cell constant 0.01 / cm

** cell constant 0.1 ... 1.2 / cm

Accessories

Order code	Article
19805040	Conductivity cell LC 12, measuring range 0 - 200 mS/cm
19805045	Conductivity cell LC 16, measuring range 0 - 1000 mS/cm
722250	Calibration solution 1413 $\mu\text{S/cm}$
724620	USB 300 cable, for connection to a computer
724625	GSOFT 3050 data transmission software with logger for setting, reading and printing of stored data
725060	Case with foam inlet

Delivery Content

SD 320 Con (SET 1), Order Code: 4724700

instrument in carrying case with batteries, conductivity cell LC 12 (measuring range 0 - 200 mS/cm), manual and warranty information

SD 320 Con (SET 2), Order Code: 4724720

instrument in carrying case with batteries, conductivity cell LC 16 (measuring range 0 - 1000 mS/cm), manual and warranty information

SD 320 Con (Set 3), Order Code: 472 47 10

instrument, batteries, pure water conductivity cell (measuring range 0 - 100 mS/cm-1), manual, warranty information in case