

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 Lovibond® 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 65 and 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 in case



SD 310 Oxi in case



SD 320 Con in case

SD 300 pH

SD 310 Oxi

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
72 12 45	PT1000Temperature sensor (SET 2)
41 86 09	KCl-solution, 3 molar saturated with AgCl, 100 ml
72 12 50	pH buffer-set 4.00/7.00/10.00 (25 °C)
72 12 52	pH buffer 4.00 (25 °C) 1 litre
72 12 54	pH buffer 7.00 (25 °C) 1 litre
72 12 56	pH buffer 10.00 (25 °C) 1 litre
19 50 70	Redox calibration solution, 470 mV, 100 ml
72 46 20	USB cable, for connection to a computer
72 46 25	GSOFT 3050 data transmission software with logger for setting, reading and printing of stored data
72 50 60	Case with foam inlet

Delivery Content

Order Code: 72 46 00

SD 300 pH

without electrode, with batteries, protective armouring, instruction manual, warranty information

Order Code: 72 46 10

SD 300 pH (SET 1)

instrument, batteries, pH/temp. plastic-electrode type 231, pH-buffer-set (pH 4.00/7.00/10.00), in case, manual, warranty information

Order Code: 72 46 11

SD 300 pH (SET 2)

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

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
Temperature	2 banana jacks (4 mm) for temperature probe (Pt1000 or NTC 30K)

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, Lovibond® Standard Buffer or Buffer to DIN19266
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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 protective armouring
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Housing	impact resistant PA 6 G B30 housing with pop-up clip
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Armouring	Shock-absorbing protective armouring
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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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CE-Conformity	
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Technical Data

O₂ concentration	0.0 ... 70.0 mg/l
O₂ partial pressure	0 ... 1200 hPa O ₂ 0.0 ... 427.5 mm Hg
O₂ saturation	0 ... 600 %
Ambient air pressure	10...1.200 hPa abs.
Sensor temperature	- 5 ... 50 °C = 23 ... 122 °F
Accuracy O₂ 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	

SD 320 Con

Accessories

Code	Article
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: 72 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

Order Code: 72 46 60
SD 310 Oxi (SET 1)
 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

Order Code: 72 46 65
SD 310 Oxi (SET 2)
 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

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 $\text{k}\Omega\text{m} / \text{cm}$ (depends on cell constant)
TDS	0 ... 5000 mg/l (depends on cell constant)
Salinity	0.0 ... 70.0 (g salt / kg water equals PSU = Practical Salinity Unit)
Temperature	- 5.0 ... + 150.0 $^{\circ}\text{C}$, Pt1000 or NTC (10 $\text{k}\Omega\text{m}$)
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 PA 6 G B30 housing with pop-up clip
Power supply	2 x AAA-battery (included) power consumption: < 6,25 mA
Battery life	160 hours
CE-Conformity	

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

Accessories

Code	Article
19805040	Conductivity cell LC 12, measuring range 0 - 200 mS/cm
19805045	Conductivity cell LC 16, measuring range 0 - 1000 mS/cm
72 22 50	Calibration solution 1413 $\mu\text{S/cm}$
72 46 20	USB cable, for connection to a computer
72 46 25	GSOFT 3050 data transmission software with logger for setting, reading and printing of stored data
72 50 60	Case with foam inlet

Delivery Content

Order Code: 72 47 00
SD 320 Con (SET 1)
 instrument, batteries, conductivity cell LC 12 (measuring range 0 - 200 mS/cm), manual, warranty information in case

Order Code: 72 47 20
SD 320 Con (SET 2)
 instrument, batteries, conductivity cell LC 16 (measuring range 0 - 1000 mS/cm), manual, warranty information in case