

# 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 (O<sub>2</sub>)  
O<sub>2</sub>-Concentration  
O<sub>2</sub>-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:

$\pm 55$  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

<b>pH</b>	- 2.000 ... 16.000 pH
<b>Redox / mV</b>	- 1999.9 ... 1999.9 mV
<b>Temperature</b>	- 10.0 ... + 110.0 °C + 14.0 ... + 230.0 °F
<b>rH</b>	0.0 ... 70.0 rH
<b>Accuracy</b>	
<b>pH</b>	± 0.005 pH
<b>Redox / mV</b>	± 0.05 % FS (mV or mVH)
<b>Temperature</b>	± 0.2 °C - 5.0 ... + 100.0 °C)
<b>rH</b>	± 0.1 rH

### Connections

<b>pH, Redox</b>	BNC female connector, compatible to standard BNC plugs and waterproof BNC plugs, additional banana-jack (4 mm) for separate reference electrode input resistance: 10 <sup>12</sup> Ohm
<b>Temperature</b>	2 banana jacks (4 mm) for temperature probe (Pt1000 or NTC 30K)
<b>Interface / Supply</b>	4-pole bayonet connector for serial interface and supply (with accessory USB 300)
<b>Display</b>	two 4.5 - digit seven-segment display (15 mm and 12 mm)

### pH Calibration

<b>Automatically</b>	1, 2 or 3 point calibration, Lovibond® Standard Buffer or Buffer to DIN19266
<b>Manually</b>	1, 2 or 3 point calibration
<b>Protection class</b>	IP67 (housing and connections)
<b>Dimensions</b>	164 x 128 x 37 mm (H x W x D) incl. protection cover
<b>Weight</b>	250 g incl. battery and protective armouring
<b>Housing</b>	impact resistant PA 6 G B30 housing with pop-up clip
<b>Armouring</b>	Shock-absorbing protective armouring
<b>Power supply</b>	2 x AAA-battery (included) power consumption: 2.0 mA
<b>Battery life</b>	500 hours
<b>CE-Conformity</b>	

## Technical Data

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

# 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

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

### Accuracy

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

### Connection

<b>Conductivity, Temperature</b>	1 x 7 pole bayonet connector for connection of different measuring cells
<b>Supported temperature sensors</b>	Pt1000 or NTC (10k)
<b>Interface / ext. supply</b>	4-pole bayonet connector for serial interface and supply (with accessory USB 300)
<b>Display</b>	two 4.5 - digit seven-segment display (15 mm and 12 mm)
<b>Protection class</b>	IP67 (housing and connections)
<b>Dimensions</b>	164 x 128 x 37 mm (W x H x D) incl. protection cover
<b>Weight</b>	250 g incl. battery and protective armouring
<b>Housing</b>	impact resistant PA 6 G B30 housing with pop-up clip
<b>Power supply</b>	2 x AAA-battery (included) power consumption: < 6,25 mA
<b>Battery life</b>	160 hours
<b>CE-Conformity</b>	

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 $\text{mS/cm}$
19805045	Conductivity cell LC 16, measuring range 0 - 1000 $\text{mS/cm}$
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  $\text{mS/cm}$ ), 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  $\text{mS/cm}$ ), manual, warranty information in case