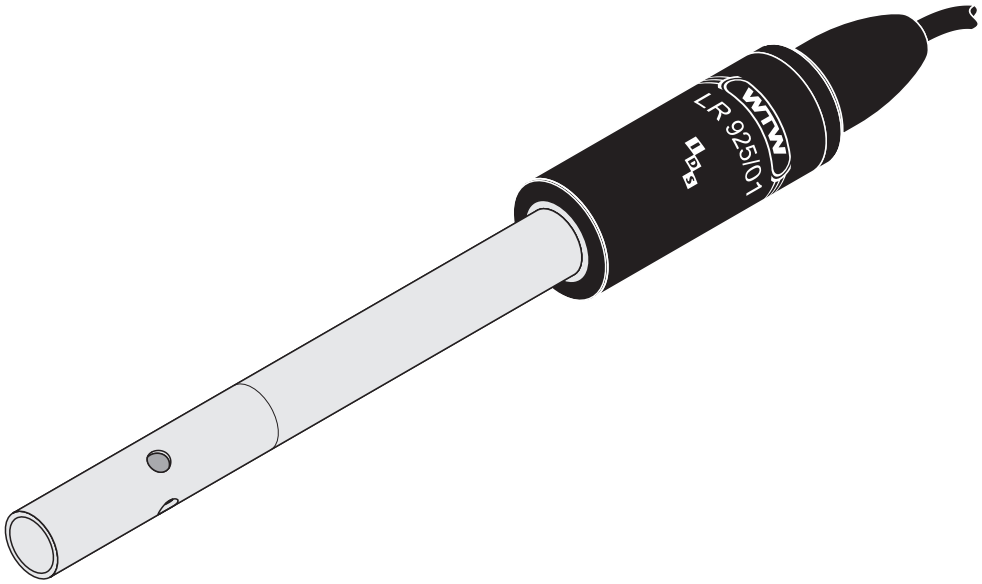
Operating manual

# LR 925/01




MultiLine® IDS

## Ultrapure water conductivity measuring cell

ba75825e02 02/2011

**Note**
The latest version of the present operating manual can be found on the Internet under www.WTW.com.

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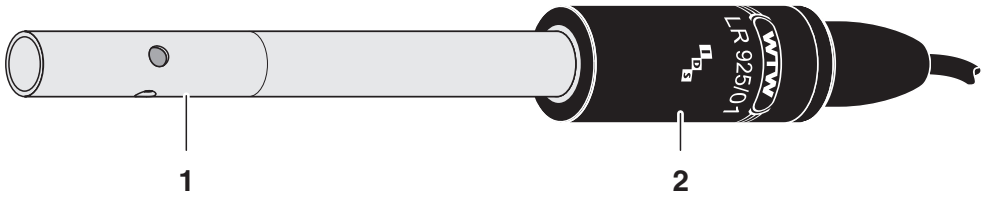
# 1 Overview

## 1.1 Structure and function

**Structure**




| | |
|---|---|
| **1** | Shaft |
| **2** | Connecting head with active electronics |

**Automatic sensor recognition**

The sensor electronics with the stored sensor data is in the connecting head. The data include, among other things, the sensor type and series number. With each calibration, the calibration data is written in the sensor and the calibration history is recorded. The data is recalled by the meter when the sensor is connected and is used for measurement and for measured value documentation. Storing the calibration data in the sensor ensures that the correct cell constant is automatically used if the sensor is operated with several meters.

The digital transmission technique guarantees the failure-free communication with the meter even with long connection cables. If the sensor firmware is enhanced by WTW, it can be updated via the meter.

## 1.2 Recommended fields of application

Measurements in ultrapure water.

# 2 Cleaning

**CAUTION**
**To clean the sensor, disconnect it from the instrument.**

**Outside cleaning**

We recommend to clean the sensor thoroughly, especially before measuring low conductivity values.

| Contamination | Cleaning procedure |
|---|---|
| Lime sediments | Immerse in acetic acid for 5 minutes (volume share = 10 %) |
| Fat/oil | Clean with warm water that contains washing-up liquid |

After cleaning, thoroughly rinse with deionized water and recalibrate if necessary.

**Aging of the conductivity measuring cell**

Normally, the conductivity measuring cell does not age. Special measuring media (e.g. strong acids and bases, organic solvents) or temperatures that are too high may considerably reduce its lifetime or lead to damage. The warranty does not cover failure caused by measuring conditions and mechanical damage.

**Disposal**

We recommend to dispose of the measuring cell as electronic waste.

# 3 What to do if...

| Error symptom | Cause | Remedy |
|---|---|---|
| No temperature or conductivity display | – No connection between meter and conductivity measuring cell<br>– Cable defective | – Establish connection between meter and conductivity measuring cell |
| Measurement delivers implausible conductivity values | – Measuring range exceeded<br>– Contamination in the area of the electrodes<br>– Electrodes damaged | – Make sure the correct sensor is being used for the application<br>– Clean the conductivity measuring cell (see section 2).<br>– Return the sensor |
| Incorrect temperature display | – The temperature sensor is not immersed deep enough in the measuring solution<br>– Temperature sensor defective | – Observe the minimum immersion depth<br>– Return the conductivity measuring cell |

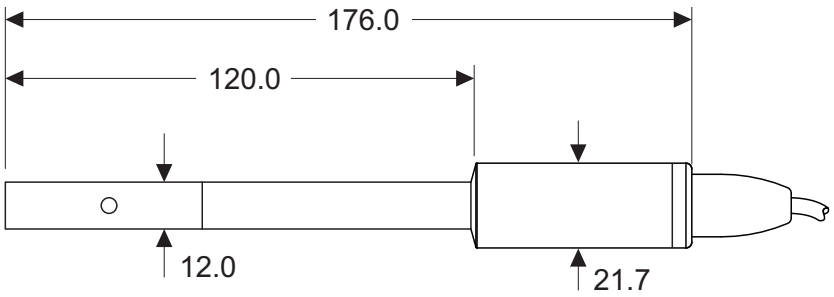
# 4 Technical data

## 4.1 General data

**General features**

| | |
|---|---|
| Measuring principle | 2-electrodes measurement |
| Cell constant | 0.100 $cm^{-1}$ ± 2 % |
| Temperature sensor | Integrated NTC 30 (30 kΩ at 25 °C / 77 °F) |

**Dimensions (in mm)**




**Weight** Approx. 90 g (without cable)

**Materials**

| | |
|---|---|
| Shaft | Stainless steel 1.4571 |
| Connection head | POM |
| Conductivity electrodes | Stainless steel 1.4571 |
| Thermistor enclosure | Stainless steel 1.4571 |

**Connection cable**

| | |
|---|---|
| Lengths | 1.5 m |
| Diameter | 4.3 mm |
| Smallest allowed bend radius | Fixed installation: 20 mm<br>Flexible use: 60 mm |
| Plug type | Socket, 4 pins |

**Pressure resistance**

| | |
|---|---|
| Sensor with connection cable | IP 68 (2 x $10^5$ Pa or 2 bar) |
| Cable plug | IP 67 (when plugged in) |

The LR 925/01 meets the requirements according to article 3(3) of the directive, 97/23/EC ("pressure equipment directive").

| | | |
|---|---|---|
| **Measurement conditions** | Conductivity measuring range | 0.01 µS/cm ... 200 µS/cm |
| | Temperature range | -5 ... 70 °C (100 °C) 23 ... 158 °F (212 °F) |
| | Max. admissible overpressure | 2 x $10^5$ Pa (2 bar) |
| | Minimum depth of immersion | 30 mm |
| | Maximum depth of immersion (at temperature) | Whole sensor + cable up to 70 °C (158 °F)<br>Sensor shaft only (=120 mm) up to 100 °C (212 °F) |
| | Operating position | Any |
| **Storage conditions** | Recommended storing method | In air |
| | Storage temperature | 0 ... 50 °C (32 ... 122 °F) |
| **Characteristic data on delivery** | Temperature responding behavior | $t_{99}$ (99 % of the final value display after)<br>< 20 s |
| | Accuracy of the temperature sensor | ± 0.2 K |

## 4.2 Measuring ranges and resolution

**Measuring ranges, resolution**

| Measured parameter | Measuring range | Resolution |
|---|---|---|
| æ [µS/cm] | 0.01 ... 19.99<br>0.0 ... 199.9 | 0,01<br>0,1 |
| ρ (Resistivity) [kOhm*cm] | 5.00 ... 19.99<br>20.0 ... 199.9<br>200 ... 1999 | 0.01<br>0.1<br>1 |
| ρ (Resistivity) [MOhm*cm] | 2.00 ... 19.99<br>20.0 ... 199.9 | 0.01<br>0.1 |
| T [°C] | – 5.0 ... + 100.0 | 0.1 |

## 4.3 Accuracy of the IDS measuring technique

| Measured parameter | Accuracy (± 1 digit) |
|---|---|
| æ, ρ | ± 0.5 % of measured value |
| T [°C] | ± 0.1 |

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