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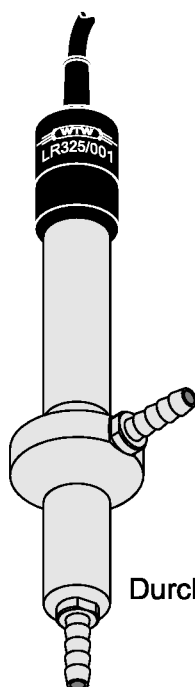
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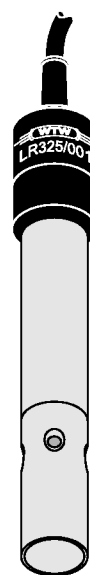
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## Operating manual

# LR 325/001



Durchflussszelle



Tauchzelle

## Ultrapure water conductivity measuring cell

**Accuracy when  
going to press**

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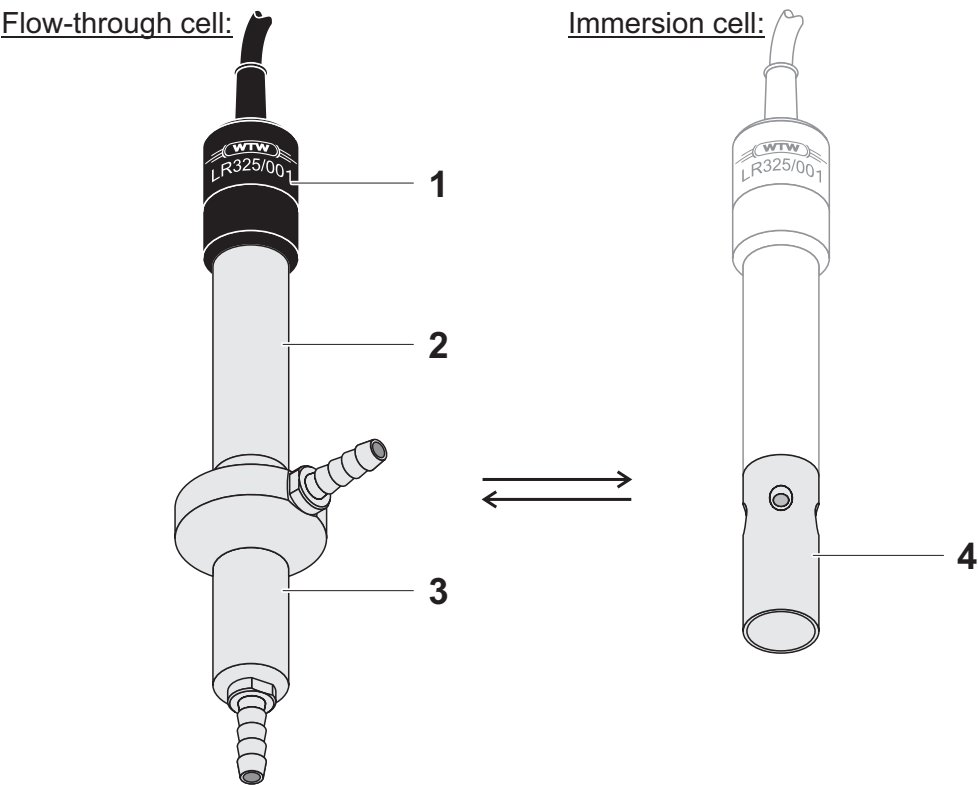
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# 1 Overview

## 1.1 Structure and function

**Structure**



1	Connection head
2	Shaft with inside electrode and temperature sensor
3	Outside electrode of the flow-through cell
4	Outside electrode of the immersion cell

## 1.2 Recommended fields of application

Measurements in ultrapure water in flow-through or immersion operation, depending on the mounted outside electrode.

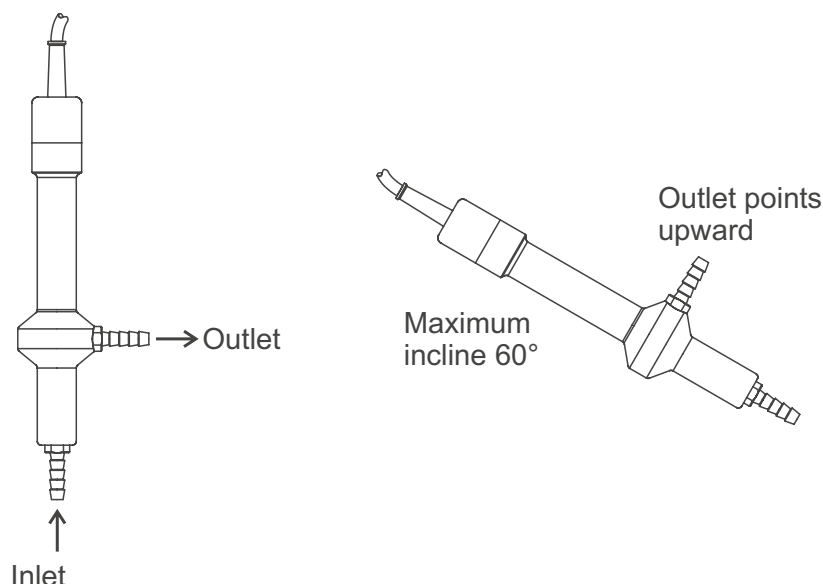
## 2 Installation

### 2.1 Changing between flow-through cell and immersion cell

The outside electrode is connected to the shaft via a screw connection and can be removed and replaced as necessary without using any tools. When mounting the electrode tighten the screw connection by hand as far as it will go.

### 2.2 Use as flow-through cell

To avoid the collection of air bubbles in the electrode area, the flow-through cell should be positioned so that the outlet opening is at the highest point. An incline of the sensor by up to 60° supports the removal of air bubbles (see following figure).



## 3 Cleaning



### Caution

Prior to cleaning, disconnect the sensor from the meter.

**Outside cleaning**

We recommend to clean the sensor thoroughly, especially prior to measuring low conductivity values. If necessary, unscrew the outside electrode from the shaft.

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 lyes, organic solvents) or too high temperatures shorten the operational lifetime considerably or damage the measuring cell. The warranty does not cover cases where such conditions cause failure or mechanical damage.

## 4 What to do if...

Error symptom	Cause	Remedy
No temperature or conductivity display	<ul style="list-style-type: none"> <li>– Connection meter - conductivity measuring cell interrupted</li> <li>– Cable defective</li> </ul>	<ul style="list-style-type: none"> <li>– Check connection meter - conductivity measuring cell</li> </ul>
Measurement delivers implausible conductivity values	<ul style="list-style-type: none"> <li>– Cell constant incorrectly set at the measuring instrument</li> <li>– Measuring range exceeded</li> <li>– Outside electrode not completely screwed on</li> <li>– Dirt in electrode area</li> <li>– Air bubbles in electrode area</li> <li>– Electrodes damaged</li> </ul>	<ul style="list-style-type: none"> <li>– Check / correct the setting</li> <li>– Observe the application range</li> <li>– Tighten outside electrode by hand as far as it will go</li> <li>– Clean the conductivity measuring cell (see Abschnitt 3).</li> <li>– Remove air bubbles by knocking laterally</li> <li>– Return the sensor</li> </ul>
Incorrect temperature display	<ul style="list-style-type: none"> <li>– The temperature sensor is not immersed deep enough in the measuring solution</li> <li>– Temperature sensor defective</li> </ul>	<ul style="list-style-type: none"> <li>– Observe the minimum immersion depth</li> <li>– Return conductivity measuring cell</li> </ul>

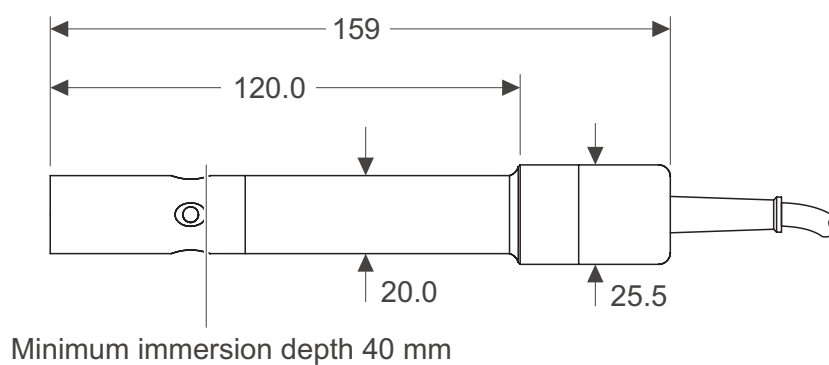
## 5 Technical data

### General features

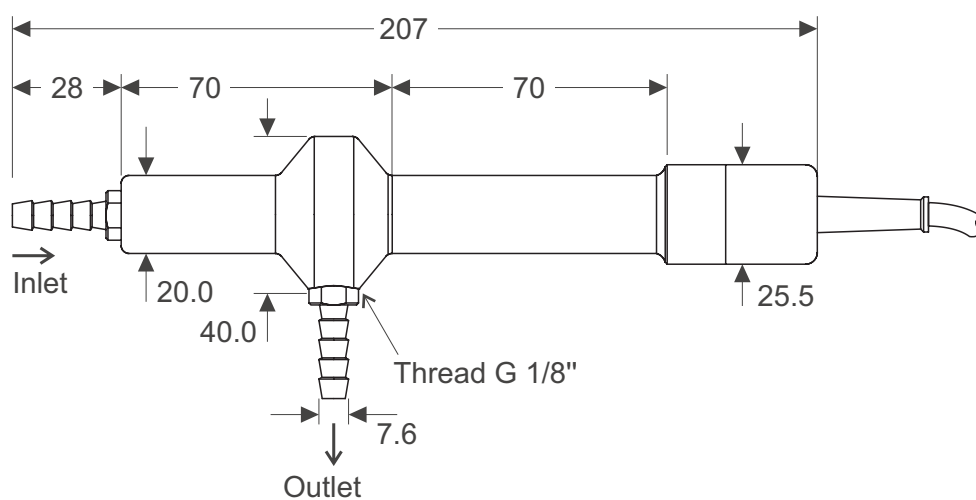
Measuring principle	Two-electrode measurement
Cell constant	$0.0100\text{ cm}^{-1} \pm 2\%$
Temperature sensor	integrated NTC 30 (30 k $\Omega$ /25 °C)

### Dimensions (in mm)

#### Immersion cell:



#### Flow-through cell:



### Weight

Immersion cell	225 g
Flow-through cell	435 g

**Materials**

Shaft	Stainless steel 1.4571
Connection head	POM (printed) and PPO
Inside electrode / temperature sensor	Stainless steel 1.4571
Insulator	POM
Outside electrodes, hose nozzles	Stainless steel 1.4571
Cable	PUR
Seals	NBR

**Connection cable**

Length	1.5 m
Diameter	6 mm
Smallest allowed bend radius	Permanent bend: 80 mm Single time or short time bend: 50 mm
Plug type	Socket, 8 pins

**Pressure resistance**

Sensor with connection cable	IP 68 (2 x 10 <sup>5</sup> Pa or 2 bar)
Cable plug	IP 67 (when plugged in)

The LR 325/001 meets the requirements according to article 3(3) of the 97/23/EC directive ("Pressure equipment directive").

**Measurement conditions**

Conductivity measuring range	0.0001 µS/cm ... 30 µS/cm
Temperature range	-5 ... 80 °C (100 °C) / 23 ... 176 °F (212 °F)
Max. allowed overpressure	2 x 10 <sup>5</sup> Pa (2 bar)
Minimum immersion depth in immersion cell operation	40 mm
Maximum immersion depth (at temperature)	Total sensor+cable (up to 80 °C / 176 °F) Sensor shaft only = 120 mm (up to 100 °C / 212 °F)
Operating position	Immersion cell: Any Flow-through cell: Vertical or inclined by up to approx. 60°, inlet pointing downward

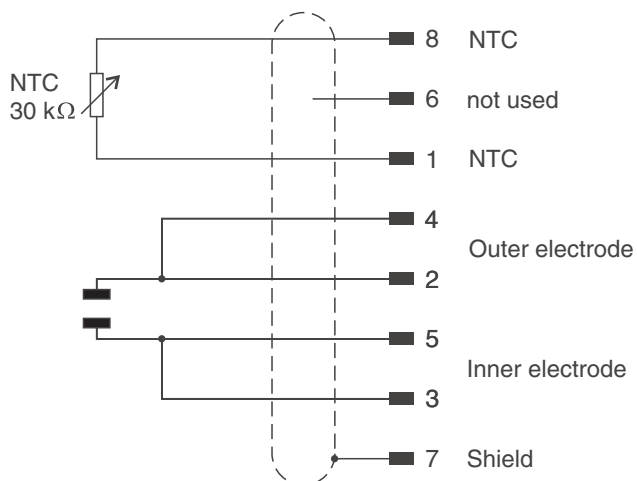


**Storage conditions**Recommended storing  
method

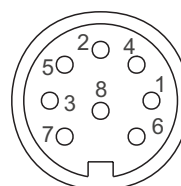
in air

Storage temperature

0 ... 50 °C / 32 ... 122 °F

**Characteristic data  
on delivery**Temperature responding  
behavior $t_{99}$  (99 % of the final value display after)  
< 100 sPrecision of the temperature  
sensor $\pm 0.2$  K**Pin-assignment**

Plug from the front:









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