

Stainless steel measuring cell (pure water)

as of version 1.0

Operating Manual

LF ... RW



LF 200 RW



WEEE-Reg.-Nr. DE 93889386

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1 Intended use

Measurements of conductivity in pure water applications with conductivities below 200 μ S/cm in combination with the devices GMH 5430/50, GHM Silverline SLC.

Attention: Tap water is no pure water (several 100/ μ S/cm)!

Applications:

- Monitoring of boiler water
 - Functional checking of ion exchangers
 - Checking of distilled / deionised / demineralised water
- etc.

2 General advice

Read through this document attentively and make yourself familiar to the operation of the device before you use it. Keep this document in a ready-to-hand way in order to be able to look up in the case of doubt.

3 Safety instructions

This device has been designed and tested in accordance to the safety regulations for electronic devices. However, its trouble-free operation and reliability cannot be guaranteed unless the standard safety measures and special safety advises given in this manual will be adhered to when using it.

1. Trouble-free operation and reliability of the device can only be guaranteed if it is not subjected to any other climatic conditions than those stated under "Specification".
2. **Warning:** Do not use this product as safety or emergency stop device or in any other application where failure of the product could result in personal injury or material damage. Failure to comply with these instructions could result in death or serious injury and material damage

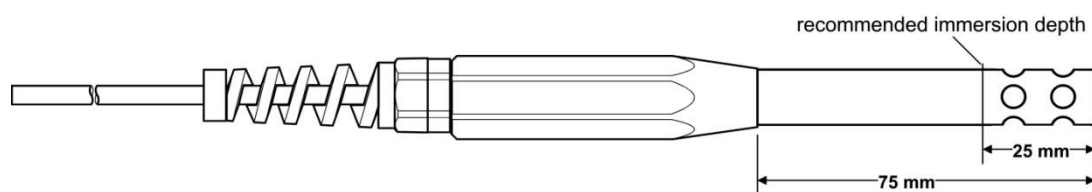
4 Operating and maintenance:

- Treat device and probes carefully. Use only in accordance with above specification. (do not throw, hit against etc.). Protect from soiling.
- The measuring cell must never come into contact with water-repellent materials such as oil or silicone.
- Any soiling of the inner part of the measuring cell has to be avoided!
Clear only with de-ionized/de mineralized water or alcohol.

5 General information about low conductivity measuring

5.1 The Conductivity Measuring Cell

During the measurement, the conductivity measuring cell must be dipped at least in so far, that at least 25 mm beginning from the top of the measuring cell, is located in the medium. The measuring chamber between the inner electrode and the outer electrode must not contain air bubbles during the measuring, a sufficient flow through the measuring chamber is necessary for precise results.



The measuring cell can either be stored dry or in water. If changing over from one liquid to another with conductivities varying widely make sure to properly rinse and shake dry measuring cell.

**Attention: The measuring cell must never come into contact with water-repellent materials such as oil or silicone. Any soiling of the inner part of the measuring cell has to be avoided!
Clear only with de-ionized/de mineralized water or alcohol.**

5.2 Measuring hints

According to the high influence of even smallest contaminations special care has to be taken when handling the measuring cell.

The precision of the instrument is very constant if it is used as intended. Depending on the necessary accuracy the instruments can be used up to one year without recalibration of the cell constant, if treated carefully.

If the accuracy should be controlled or improved, this is done by means of suitable reference solutions, e.g. 84 $\mu\text{S}/\text{cm}$ and the adjusting of the cells scale adjustment.

Attention! Wrong handling of reference solution can make them useless very fast.

General: Tap water is no pure water and commonly has a conductivity of several 100 $\mu\text{S}/\text{cm}$.

5.3 Measuring procedure:

Before immersion to the measuring solution, rinse the electrode with deionised water, dry with a paper towel and shake remaining water out.

The measuring is speeded up considerably, if the electrode is immersed and pulled out the solution several times. Be aware that no air bubbles are in the electrode, if so; repel them by knocking at the electrode.

During the measuring the electrode needs sufficient flow, e.g. via stirring the solution.

When temperature compensation is activated, the electrode needs enough time to adjust to the actual temperature of the measuring solution to work accurate.

When analysing pure water in piping's we suggest the usage of a suitable flow armature.

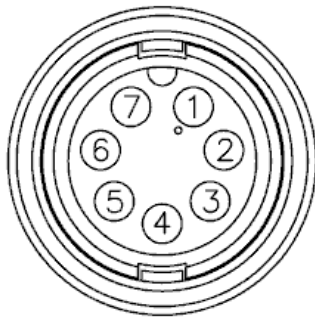
Attention! Pure water solves the carbon dioxide of the ambient air, the resulting carbonic acid increases the conductivity, if an open storage of the solution is used (Value may rise up to several $\mu\text{S}/\text{cm}$)

6 Disposal notes



This device must not be disposed as "residual waste".
To dispose this device, please send it directly to us (adequately stamped).
We will dispose it appropriately and environmentally friendly.

7 Assignments



Front View

Pin	
1	measuring cell 1
2	measuring cell 1
3	measuring cell 2
4	measuring cell 2
5	temperature
6	temperature
7	Not connected

8 Specification

Measuring Cell	Concentric 2 pole stainless steel measuring cell integrated temperature sensor
Number of electrodes	2
Material	stainless steel
Materials in contact to media	4404 stainless steel / PEEK
Cell constant	0.100 ± 0.015 1/cm
Temperature measurement	
Sensor	NTC (10 kΩ / 25 °C)
Meas. Ranges	
Conductivity	0.0 ... 200.0 μS/cm
Temperature	-5.0 ... 100.0 °C
Dimensions	
Shaft diameter	12 mm
Shaft length	
LF 200 RW	75mm
Cable length	1m
Immersion depth	min. 25mm
Guarantee	12 month (assuming appropriate usage)
Accuracy	±1 Digit (at nominal-temperature)
Conductivity:	better than ± (1.0 % of measured value + 0.5 % FS) dependent on indicator
Temperature	±0.2 K
Nominal temperature	25 °C
Ambient	-5 ... +80 °C (short time 100 °C)
Storage temperature	-5 ... +80 °C
Connection	bayonet fitting (IP65)