

TetraCon[®] 925



Standard conductivity measuring cell



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	Voltage electrode (inside, 2x)
2	Current electrode (ring, 2x)
3	Temperature sensor in graphite enclosure
4	Shaft
5	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

- On site measurements in rivers, lakes and wastewater
- Fish farming
- Ground water measurements
- Applications in water laboratories

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...

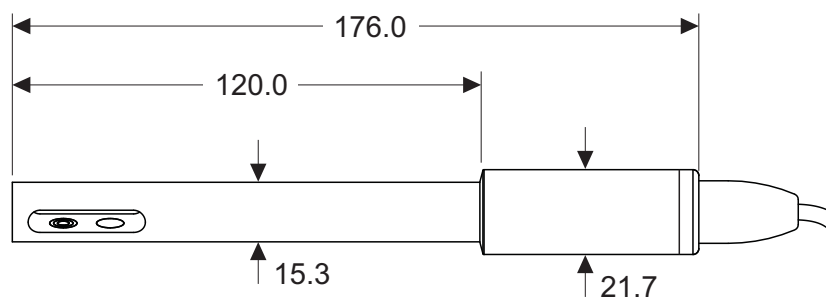
Error symptom	Cause	Remedy
No temperature or conductivity display	<ul style="list-style-type: none"> – No connection between meter and conductivity measuring cell – Cable defective 	<ul style="list-style-type: none"> – Establish connection between meter and conductivity measuring cell
Measurement delivers implausible conductivity values	<ul style="list-style-type: none"> – Measuring range exceeded – Contamination in the area of the electrodes – Electrodes damaged 	<ul style="list-style-type: none"> – Make sure the correct sensor is being used for the application – Clean the conductivity measuring cell (see Abschnitt 2). – Return the sensor
Incorrect temperature display	<ul style="list-style-type: none"> – The temperature sensor is not immersed deep enough in the measuring solution – Temperature sensor defective 	<ul style="list-style-type: none"> – Observe the minimum immersion depth – Return the conductivity measuring cell

4 Technical data

4.1 General data

General features	Measuring principle	Four-electrodes measurement
	Cell constant	0.475 cm ⁻¹ ±1.5 %
	Temperature sensor	Integrated NTC 30 (30 kΩ at 25 °C / 77 °F)

**Dimensions
(in mm)**



Weight Approx. 60 g (without cable)

Materials	Shaft	Epoxy
	Connection head	POM
	Conductivity electrodes	Graphite
	Thermistor enclosure	Graphite

Connection cable	Lengths	1,5 / 3 / 6 / 25 m
	Diameter	4.3 mm
	Smallest allowed bend radius	Fixed installation: 20 mm Flexible use: 60 mm
	Plug type	Socket, 4 pins

Pressure resistance	Sensor with connection cable	IP 68 (2.5 x 10 ⁵ Pa or 2.5 bar)
	Cable plug	IP 67 (when plugged in)

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

Measurement conditions	Conductivity measuring range	1 µS/cm ... 2 S/cm
	Temperature range	-5 ... 70 °C (100 °C) (23 ... 158 °F (212 °F))
	Max. admissible overpressure	2.5 x 10 ⁵ Pa (2.5 bar)
	Minimum depth of immersion	36 mm
	Maximum depth of immersion (at temperature)	Whole sensor + cable up to 70 °C (158 °F) 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
Characteristic data on delivery	Temperature responding behavior	t ₉₉ (99 % of the final value display after) < 20 s
	Accuracy of the temperature sensor	± 0,2 K

4.2 Measuring ranges, resolution, accuracy

Measured parameter	Measuring range	Resolution
æ [µS/cm]	0.0 ... 199.9	0.1
	200 ... 1999	1
æ [mS/cm]	2.00 ... 19.99	0.01
	20.0 ... 199.9	0.1
	200 ... 2000	1
ρ (Resistivity) [Ohm*cm]	0.50 ... 9.99	0.01
	10.0 ... 99.9	0.1
	100 ... 999	1
ρ (Resistivity) [kOhm*cm]	1.00 ... 9.99	0.01
	10.0 ... 99.9	0.1
	100 ... 999	1
ρ (Resistivity) [MOhm*cm]	1.00 ... 9.99	0.01
SAL	0.0 ... 70.0 according to IOT table	0.1
TDS	0 ... 1999 mg/l	1
	0 ... 19.99 g/l	0.01
	0 ... 199.9 g/l	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, SAL, TDS	± 0.5 % of measured value
T [°C]	± 0.1