

CONDUCTIVITY / SALINITY / OXYGEN METER CCO-401

CCO-401 measures: conductivity, resistivity, salinity in KCl or NaCl, TDS, dissolved oxygen in % of saturation or in mg/l, oxygen in the air in %, atmospheric pressure and temperature.

The function is chosen by the "FUNCTION" button.

High accuracy and repeatability in all measuring functions.

The current version has been modified, what results in new functions, which make working easier and fulfil more customer's requirements.

Characteristic features:

- Very high accuracy meter for use in the field and in the laboratory.
- Backlit display enables observation of the chosen function and temperature.
- "HOLD" function to freeze the result on the display.
- Signalisation of the result stabilisation with the "READY" symbol and a sound.
- Possibility of sending the calibration report to a PC - up to 10 last calibrations.
- Standardised procedures in all measuring functions facilitate work.
- Low weight and small size make working in the field easier.
- Waterproof housing (IP-66) facilitates work in difficult conditions.



In the oxygen measurement function:

- Accurate, durable, easy in use and maintenance galvanic oxygen sensor.
- Automatic calculation of the atmospheric pressure influence on the oxygen concentration in water for measurement in mg/l.
- Automatic transfer of the salinity value measured in the conductivity mode to the oxygen measurement mode with calculation of its influence on the oxygen content value.
- 1 or 2 point oxygen sensor calibration.
- When properly handled, the sensor may be efficient for several years.
- Wide measuring range enables measurements in lakes with blooming vegetation.

In the conductivity measurement function:

- Full measuring range enables measurements in ultra pure water as well as in salines.
- 6 sub-ranges switched automatically.
- In case of measurements of natural water with conductivity from 60 $\mu\text{S}/\text{cm}$ to 1 mS/cm the meter enables using non-linear temperature compensation. The parameters of this type of water are determined in norm EN27888:1999 and concern surface waters, deep water and well water. This solution lowers the measurement error.
- The measurement accuracy of the ultra pure water with temperature compensation increased by automatic adjustment of the α coefficient depending on the temperature and kind of trace contaminations.
- Calibration by entering the constant K of the cell or in standard solutions in 1 to 5 points.
- Wide range of α coefficient ($0 \div 10 \% / ^\circ\text{C}$) chosen depending on the kind of measured solution.
- Possibility of changing the reference temperature.
- Possibility to store the constant K of 3 cells which cover the whole measuring range.
- Automatic calculation of conductivity to salinity in NaCl or KCl on the basis of the real characteristics instead of a constant coefficient, what greatly increases accuracy.
- Possibility of defining the TDS value with entering the TDS coefficient in range $0.2 \div 1.0$.
- The solution resistivity measurement option added.
- Possibility to measure electric admittance of tree seedlings (checking the vitality of seedlings with a special sensor).
- High accuracy conductivity cell **ECF-1** Measuring range Range: $0 \div 400 \text{ mS}/\text{cm}$ is sufficient for conductivity measurements in majority of liquids of maximal concentration, e.g. aqueous soil extracts and water with grease or oil. Metal electrodes are easy to clean. Plastic housing protects from mechanical damage.

In the atmospheric pressure measurement function:

- Possibility of observation of atmospheric pressure value on the meter's screen.

Other features:

- Automatic or manual temperature compensation.
- Internal clock with date.
- Datalogger for 4000 data sets
- Non-volatile memory of the stored results and calibration data.
- Storing the next calibration date and signalling it to the user.
- Powered by 2 x AA (1.2 V) internally rechargeable batteries or power adapter with USB cable.
- Connecting with a PC by micro USB connector.
- The meter meets the GLP requirements.
- 24 months of warranty for the meter.

The set includes **COG-1** oxygen sensor, **ECF-1** conductivity cell and **CT2B-121** temperature probe with **Pt-1000B** resistor.

TECHNICAL DATA

Function	Conductivity	Salinity	Resistivity	Oxygen % air	Oxygen % water	Oxygen mg/l water	Temperature
Range	0 ÷ 1999.9 mS/cm	KCl 0 ÷ 239 g/l NaCl 0 ÷ 296 g/l	0.500 Ωcm ÷ 200 MΩcm,	0 ÷ 100 %	0 ÷ 600 %	0 ÷ 60 mg/l	-50.0 ÷ 199.9°C
Accuracy (± 1 digit)	< 19.999 mS/cm ±0,1%*, > 20 mS/cm: ±0,25%*	± 2%*	± 2% of the measured value	±0.1 %*	±0.1%**	±0.01 mg/l*	±0.1 °C***
Temperature compensation	-5 ÷ 70 °C	-5 ÷ 70 °C	-	-	-	0 ÷ 40 °C	-
α coefficient	0 ÷ 10 % /°C	0 ÷ 10 % /°C	0 ÷ 10 % /°C	-	-	-	-
Atmospheric pressure	800 ÷ 1100 hPa, accuracy: ± 2hPa						
Power supply	2 x AA 1,2 V rechargeable batteries, 5 V / 1000 mA USB power adapter						
Dimensions (mm)	L =149 W = 82 H = 22						

* The accuracy of the meter only.

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** The accuracy of the meter only. The total error includes the meters and probe's accuracy. In the range 0 ÷ 100 °C the acceptable error of the probe with Pt-1000B resistor: ±0.8 °C, with Pt-1000A resistor: ±0.35 °C.