# LABORATORY OXYGEN METER CO-502, pH / OXYGEN METER CPO-502, CONDUCTIVITY / SALINITY / OXYGEN METER CCO-502

All the models measure: concentration of oxygen dissolved in water and sewage in % or mg/l, oxygen saturation in air, temperature and atmospheric pressure. The most recent model has been improved with more possibilities providing easier operation.

The meters are equipped with a built-in thermal printer (60 mm).

CCO-502 model additionally measures conductivity and salinity.

**CPO-502 model** additionally measures pH and redox potential.

Standardised operating procedures for all functions make working easier.

### **Characteristic features**

- Easy-to-read backlit LCD facilitates working.
- Standardised procedures in all measuring functions make working easier.
- "HOLD" function enables freezing the result on the display.
- Signalisation of the result stabilisation with the "READY" symbol and a sound.
- Possibility of sending a calibration report to a PC up to 10 last calibrations.

### Oxygen measuring function

- Galvanic oxygen sensor, accurate and easy to operate.
- When properly maintained, the sensor may be efficient for several years.
- Possibility to measure oxygen dissolved in water in % or mg/l and oxygen saturation in air in %.
- Calibration of the oxygen sensor in 1 or 2 points.
- Automatic or manual temperature compensation.



All the models have the same housing, they differ in number of buttons and colours.

- Each model equipped with a function of automatic atmospheric pressure measurement with calculation of its influence on the oxygen measurement readout in mg/l.
- In **CO-502** and **CPO-502** models possibility of introducing the salinity value with automatic calculation of its influence on the result of oxygen measurement.
- **CCO-502** model automatically calculates the influence of salinity measured in the conductivity mode on the oxygen measurement result.

# Conductivity measuring function in CCO-502

- Full conductivity measuring range enables measurements in ultra pure water as well as saline.
- 6 sub-ranges switched automatically.
- In case of measurements of natural water with conductivity from 60 µS/cm to 1 mS/cm the meter enables using non-linear temperature compensation. The parameters of this type of water are determined by the norm EN27888:1999 and concern surface water, deep water and well water. This solution lowers the measurement error.
- The measurement accuracy of the ultra pure water with temperature compensation has been improved by automatic adjustment of the  $\alpha$  coefficient depending on the kind of trace contaminations and temperature.
- Calibration by entering the K constant in range 0.01 ÷ 19.999 cm<sup>-1</sup> or in standard solutions in 1 5 points.
- Wide range of  $\alpha$  coefficient chosen depending on a kind of measured liquid.
- Possibility of changing the reference temperature.
- Converting the conductivity into salinity in NaCl and KCl proceeds according to the real characteristics, what greatly increases accuracy.
- Possibility of determining the TDS by entering the TDS coefficient (0.2 to 1.0).
- Resistivity measurement.
- In set with high accuracy conductivity cell **ECF-1**. Measuring range 0÷400 mS/cm is sufficient for measurements in ultra pure water and high salt concentration samples. Metal electrodes are easy to clean.

# pH measuring function in CPO-502

- The pH and conductivity measurement circuits are isolated.
- pH calibration in 1 ÷ 5 points.
- Automatic detection of the buffer solutions' values entered by the user.
- Automatic correction of the standard solution's pH value changes along with the temperature changes for NIST standards, what eliminates the necessity of the standards' temperature adjustment.
- Storing of 3 pH electrodes characteristics enables to replace them quickly.
- Automatic evaluation of the electrode's condition.
- Readout of the electrode's characteristic (slope, offset).
- Depending on the kind of applied pH electrode it may be used for clear water, sewage, soil measurements etc.

# Redox potential (mV) measuring function in CPO-502

- Precise redox potential measurement (accuracy 0.1mV).
- Relative measurement function.

#### Other features

- Automatic or manual temperature compensation.
- Stores the next calibration date
- Internal clock with date. •
- Internal data-logger enables storing up to 4000 measurements taken as single or in series with time, temperature and date.
- The results and calibration data are stored in non-volatile memory.
- USB output for connecting with a PC. •
- Change of the date protected by a password
- The data transmission software enables printout of the data in a form protected • against any changes.
- The meters meet the GLP requirements. •
- 24 months of warranty for the meter.

In comparison with the 505 series meters, the 502 models is equipped with a smaller display.

The standard set includes CT2B-121 temperature sensor with Pt-1000B resistor and COG-1 oxygen sensor. Other accessories depend on the chosen model of the meter.

### **Technical Data**

| Function             | O2 (%)  | O2 (mg/l)    | Temperature     | рН<br>(СРО-505)     | mV<br>(CPO-505)    | Conductivity / Salinity<br>(CCO-505)                        |
|----------------------|---|--------------|-----------------|---------------------|--------------------|---|
| Range                | 0 ÷ 600%,<br>0 ÷ 100%<br>in the air   | 0 ÷ 60 mg/l  | -50.0 ÷ 199.9⁰C | - 6.000 ÷ 19.999 pH | 1999.9mV           | 0 ÷ 1999.9 mS/cm /<br>0 ÷ 239 g/l KCl,<br>0 ÷ 296 g/l NaCl  |
| Accuracy (± 1 digit) | ±0.1%**   | ±0.01 mg/l** | ±0.1 °C***      | ±0.002 pH*          | ±0.1 mV*           | <19.99 mS/cm: ±0.1%*<br>>20 mS/cm: ±0.25%*<br>salinity: 2%* |
| Temp. compensation   | -   | 0 ÷ 40 °C    | -               | -5 ÷ 110 ℃          | -                  | -5 ÷ 70 °C  |
| Input impedance      | -   | -            | -               | 10 <sup>12</sup> Ω  | 10 <sup>12</sup> Ω | -   |
| α coefficient        | -   | -            | -               | -                   | -                  | 0.00 ÷ 10.00% / °C  |
| Atm. press.          | 800 ÷ 1100 hPa, accuracy: ±2 hPa  |              |                 |                     |                    |   |
| Resistivity          | Range: 0.500 $\Omega$ cm ÷ 200 M $\Omega$ cm, accuracy: ±2% of the measured value |              |                 |                     |                    |   |
| Printer              | thermal, width = 60 mm  |              |                 |                     |                    |   |
| Power supply         | 6 V / 2 A power adapter   |              |                 |                     |                    |   |
| Weight               | 660 g (CPO-505)   |              |                 |                     |                    |   |
| Dimensions (mm)      | L = 200, W = 180, H = 20/50   |              |                 |                     |                    |   |
| PC connection        | USB   |              |                 |                     |                    |   |

\*The accuracy of the meter only.
\*\*The accuracy of the meter only. With COG-1 or COG-2 oxygen sensor the accuracy at calibration temperature: ±1%. By the difference ±5 °C accuracy: ± 3%, by the difference ±10°C accuracy: ±5%.
\*\*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.



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