MULTIFUNCTION METER CX-601

CX-601 belongs to the newest generation of highly accurate measuring devices. The meter is designed for accurate measurements of: pH, redox (mV), Ion concentration, conductivity, resistivity of the measured liquid, salinity, TDS, oxygen dissolved in water or oxygen saturation in the air, atmospheric pressure and temperature.
It is distinguished by a large 7” colour graphic touch screen.

Characteristic features:

- The meter enables simultaneous measurement and displaying of the chosen functions.
- Unification of operating procedures for all functions makes working easier.
- The meter is equipped with connectors which enable simultaneous measurement of: pH (redox potential or ions), conductivity or salinity, oxygen saturation in air or dissolved in water 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 a calibration report to a PC - up to 10 last calibrations.
- Except work with power adapter the meter may be powered with external rechargeable battery, what enables long-lasting measurements in the field conditions with use of special carrying case with batteries (optional) or during work in field measuring stations without power sources.

In the pH measuring mode:

- Calibration of the pH electrode in 1 ÷ 5 points.
- Automatic detection of buffer solutions, their values may be set by the user.
- Automatic correction of the pH sample solution value changes along with the temperature changes for NIST standards, there is no necessity of adjusting the temperature.
- Possibility of storing characteristics of 3 pH electrodes enables replacing them quickly, very useful feature during field work.
- Automatic control of the electrode's condition.
- Possibility of viewing the electrode's parameters (buffer and slope).
- The pH and conductivity measuring circuits are isolated what enables accurate and error free simultaneous pH and conductivity measurements in the same vessel.
- Depending on the kind of applied electrode it may be used for clean water, sewage, soil, pastes, etc.

In the mV and redox potential measurement mode:

- Precise redox potential measurement (accuracy 0.1 mV).
- Possibility of mV measurement in relation to the set or measured reference (Vref).

In the conductivity measuring mode:

- Full measuring range enables making measurements in ultra pure water as well as in very high conductivity samples.
- 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 in norm EN27888:1999 and concern surface water, deep water and well water. This solution lowers the measurement error.
- The measurement accuracy of ultra pure water with temperature compensation was increased by automatic adjustment of the **α** coefficient depending on the temperature and kind of trace contaminations.
- Wide range of α coefficient 0 ÷ 10 % / °C chosen depending on the measured solution.
- Possibility of changing the reference temperature.
- Calibration by entering the constant K in range 0.010 ÷ 20.000 cm^{-1} or in buffer solution.
- Possibility to store constants K of 3 cells which cover whole measuring range.
- Automatic calculation of conductivity into salinity in NaCl or KCl on the basis of the actual characteristics instead of a constant coefficient, what greatly increases accuracy.
- Possibility of defining the TDS with use of conductivity measurement by entering the TDS coefficient in range 0.2-1.0.
- The liquid resistivity measurement option added.
- High accuracy **ECF-1** conductivity cell available as additional equipment. Measuring range: 0 ÷ 400 mS/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 Ion measuring mode:

- Enables ion concentration measurements of monovalent, bivalent, negative and positive ions.
- The measuring range of the meter enables co-operation with all ion selective electrodes (ISE) chosen depending on the measured Ion, equipped with BNC connector.
- Molar weight and valence of measured ion is automatically introduced.
- Possibility to choose the unit among pX, g/l, M/l, ppm.
- Automatic conversion of units – e.g. M/l to mg/l.
- Possibility of entering a freely chosen standard solution value.
- The Ion measuring electrode or Ion combination electrode (ISE) are connected to the pH/mV (BNC-50) connector and the reference electrode to separate connector (banana).

In the oxygen measuring mode:

- Automatic calculation of atmospheric pressure influence on oxygen concentration in water in mg/l.
- Automatic transfer of the salinity 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.
- Wide measuring range enables measurements in lakes and tanks with blooming vegetation.
- In case of oxygen measurements it is recommended to buy an accurate, easy in use and maintenance galvanic **COG-1** oxygen sensor.

In the atmospheric pressure measuring mode:

- Possibility of continuous observation of atmospheric pressure value on the meter's screen.
- Possibility to choose the unit: hPa, Bar, mmHg.

In the temperature measuring mode:

- Choice of the unit: ^{0}C, ^{0}F, K.
- Introducing the number of the group of the selected temperature sensor what increases accuracy.

Other features:

- Automatic or manual temperature compensation.
- Internal clock with date.
- Datalogger for 2000 data sets of all currently chosen functions.
- Storing of measurements results with time and date, taken as single or in series with set time interval.
- The results and calibration data are stored in non-volatile memory.
- Possibility of screen brightness control depending on the external conditions.
- Economy mode of screen backlight to preserve batteries when working in the field.
- Storing of the set date of the next calibration and signalising it to the user.
- USB output to connect with a PC.
- Possibility to choose the language: Polish, English or German.
- Powered with power adapter.
  Apart from working with power adapter, the meter may be also powered with external rechargeable battery, what enables long-lasting measurements in the field conditions with use of special carrying case with batteries (optional) or during work in field measuring stations without power sources.
- The meter meets the GLP requirements.
- 24 months of warranty.

The additional equipment should be chosen by the user depending on the predicted parameters which will be measured and type of measured solutions.
The standard set includes **CT2S-121** temperature probe with **Pt-1000S** resistor.

TECHNICAL DATA

Function	pH	mV	Conductivity / Salinity	O_2 (mg/l)	O_2 (%)	Temperature
Range	-6.000 ÷ 20.000 pH	±2000.0 mV	0 ÷ 2000.0 mS/cm 0 ÷ 239 g/l KCl 0 ÷ 296 g/l NaCl	0 ÷ 60 mg/l	0 ÷ 600% in air: 0 ÷ 100%	-50.00 ÷ 200.00 ºC -58.00 ÷ 392.00 ºF 223.15 ÷ 473.15 K
Accuracy (⌖ 1 digit)	±0.002 pH*	±0.1 mV*	< 19.99 mS/cm ±0.1%* > 20 mS/cm: ±0.25%* / salinity: 2%*	±0.01 mg/l**	±0.1%**	±0.1 ºC*** ±0.18ºF* ±0.1 K*
Temp. compensation	-5 ÷ 110 ºC	-	-5 ⏲ 70 ºC	0 ÷ 40 ºC	-	-
Input impedance	$10^{12}\Omega$	$10^{12}\Omega$	-	-	-	-
α coefficient	-	-	0.00 ÷ 10.00 % / ºC	-	-	-
K constant	-	-	0.010 ÷ 20.000 cm^{-1}	-	-	-
Resistivity	Range: 0.500 Ωcm ÷ 200 MΩcm, accuracy: ±2% of the measured value*					
Air pressure range	800 ÷ 1100 hPa					
Power	9 V / 500 mA power adapter or external rechargeable battery (optional)					
Weight	530 g					
Dimensions (mm)	L = 188 W = 134 H = 58					

*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 ^{0}C accuracy: ± 3%, by the difference ±10^{0}C accuracy: ±5%.
**The accuracy of the meter only. The total error includes the meters and probe's accuracy.
In the range 0 ÷100 ºC the acceptable error of the probe with Pt-1000S resistor: ±0.27^{0}C.

Ion selective measurements

Function	Ion (M/l)	Ion (g/l)	Ion (ppm)	Ion (pX)
Range	0 ÷ 100	0 ÷ 1 000	0 ÷ 1 000 000	-2.000 ÷ 16.000 pX
Resolution	0.01 / 0.1	0.01 / 0.1	0.01 / 0.1	0.001 / 0.01
Accuracy (± 1 digit)	± 0.25 %*	± 0.25 %*	± 0.25 %*	± 0.002 pX*
Temperature compensation	-5 ÷ 110 ºC	-5 ÷ 110 ºC	-5 ÷ 110 ºC	-5 ÷ 110 ºC

*The accuracy of the meter only.

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