

Consort

MANUAL

HANDLEIDING

MODE D'EMPLOI

ANLEITUNG



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K912

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Introduction

This instrument is manufactured with the latest technology and needs no particular maintenance. **Consort** certifies that this instrument was thoroughly inspected and tested at the factory prior to shipment and found to meet all requirements defined by contract under which it is furnished. However, dimensions and other physical characteristics may differ.

The normal operating temperature should be between 0° and 40°C. Never use the instrument in a room with high humidity (>95 %) or at very low temperatures (condensation water!).

Manufacturer

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Warranty

This instrument (excluding all accessories) is warranted against defective material and workmanship for a period of thirty-six (36) months from the date of shipment ex factory. **Consort** will repair all defective equipment returned to it during the warranty period without charge, provided the equipment has been used under normal laboratory conditions and in accordance with the operating limitations and maintenance procedures in this instruction manual and when not having been subject to accident, alteration, misuse or abuse. A return authorisation must be obtained from **Consort** before returning any product for warranty repair on a freight prepaid basis!

Consort is not liable for consequential damages arising out of the use or handling of its products.

Servicing

In the event of this instrument being returned for servicing, the owner is requested to remove the power supply lead and **NOT** to send the following items unless they are suspect:

Manual

Cables

Accessories

If serious malfunctioning occurs, stop using the unit immediately and consult your local **Consort** dealer.

Batteries

The batteries can be replaced by opening the bottom compartment of the cabinet. Only use NiMH batteries!

AC adaptor

Connect the AC adaptor (9 V, 300 mA for 230 V- or 120 V-) to the DC socket. **Avoid to use an AC adaptor without NiMH batteries being inserted in the instrument!** Do not hold the adaptor by wet hand!

Keyboard

MODE = Selects all modes or escapes from error traps, calibration procedures, etc..by returning to the original mode.

↔↑↓ = Button for entering a value or for selecting a function.

CAL = Starts or proceeds a calibration or a function.

PRINT = Displayed value is printed through the RS232 output.

HELP = Built-in manual.

HOLD = Holds display when measuring.

ON/OFF = Switches the instrument on or off.

A 4-electrode conductivity cell should be connected to the input connector. Automatic temperature compensation and temperature measurements are possible with the built-in Pt1000 of the cell.

Recorder output

A recorder can be connected to the red (+) and black (-) terminals. Use only laboratory recorders with a high input impedance!

Digital output

A standard RS232 output terminal (DP9) is provided for interfacing the instrument with a printer or computer. Data is sent in the ASCII code at a BAUD rate of 300...9600 bps (8 bit, no parity, 1 stopbit).

Serial port pinout specifications:

- pin 1 : connected to pin 4 and pin 6
- pin 2 : TxD, transmit data
- pin 3 : RxD, receive data
- pin 4 : connected to pin 1 and pin 6
- pin 5 : Gnd, signal ground
- pin 6 : connected to pin 1 and pin 4
- pin 7 : connected to pin 8
- pin 8 : connected to pin 7
- pin 9 : not connected

System

1. Select [MENU] by pressing **MODE**.
2. Select [SYSTEM] and press **CAL**.
3. Follow the instructions on the screen to adjust language, contrast and automatic power-off timer.

Date and Time

1. Select [MENU] by pressing **MODE**.
2. Select [DATE/TIME] and press **CAL**.
3. Adjust the date and press **CAL** to adjust the date.
4. Adjust the time and press **CAL** to adjust the time.

Recorder

1. Select [MENU] by pressing **MODE**.
2. Select [RECORDER] and press **CAL**.
3. Select the desired channel and press **CAL**.
4. Select the desired range and press **CAL** (only for conductivity).
5. Select the desired minimum level corresponding to a 0 V recorder output and press **CAL**.
6. Select the desired maximum level corresponding to a 2 V recorder output and press **CAL**.

Password

1. Select [MENU] by pressing **MODE**.
2. Select [PASSWORD] and press **CAL**.
3. A private code can be programmed to avoid undesired access to the instrument. Choose [YES] and press **CAL** to enter your secret sequence of 5 keys.

Reference temperature:

1. Select the temperature to which all future measurements will be referred to and press **CAL**.

Cell constant:

1. Select automatic cell constant determination or enter manually a fixed value and press **CAL**.

Capacitive compensation:

1. Capacitive compensation increases accuracy in the very low conductivity ranges ($<10 \mu\text{S/cm}$). Select whether this compensation should be applied or not. Verify if the attached cell is completely dry and press **CAL**. Select [COMP.ON] or [COMP.OFF] and press **CAL**. Follow the instructions on the screen.

Measurement:

1. Select [MAIN MENU], [S/cm] by pressing **MODE**. The display will immediately show the measured value according to the previous calibration. Should you want to recalibrate, press **CAL**.
 2. Select the proper standard from one of the values in memory (1413 $\mu\text{S/cm}$, 12.88 mS/cm, 111.8 mS/cm) or enter manually a special value and press **CAL**. Also select the temperature to which all future measurements will be referred to.
 3. After rinsing the cell several times with the standard solution, immerse it in that standard. The solution temperature is not so critical but should lie between 0°C and 30°C . When no Pt1000 is used, do not forget to compensate manually first! Select [CALIBRATE], press **CAL** and follow the instructions on the screen until the calibration is finished.
 4. Rinse the cell several times with the sample, immerse it in that solution and read the display.
 5. Rinse the cell always after use and store it in distilled water (add some detergent to keep the spongy platinum surface in perfect condition).
- *A blinking decimal point warns you for unstable measurements. Wait to read the display!*
 - *Stirring the solution during the measurements promotes the homogeneity and is obligatory!*
 - *The instrument will refuse automatic standardisation when the electrode is unstable. Insufficient stirring or a worn electrode may be the cause.*
 - *When starting a titration, press \downarrow to lock the actual range and avoid cross-over errors due to differences in the measuring frequency. Press **MODE** to return to the normal measuring mode.*

Relative measurements:

1. While in the conductivity or salinity mode, press \uparrow . At that moment the instrument stores the actual value and automatically subtracts it from all next measurements. You can repeat this as many times as required. A [REL] in the display appears.
2. To cancel relative readings, press **MODE** and you will be in the normal measuring mode again.

Specifications		K912
CONDUCTIVITY	<i>Range</i>	0...1000 mS/cm
	<i>Resolution</i>	0.01 µS/cm
	<i>Accuracy</i>	0.5% f.s. of range
	<i>Calibration</i>	1...3 points
	<i>Standards</i>	0.01/0.1/1 M KCl, 3 user specified
	<i>Cell Constant</i>	0.3...1.3 cm ⁻¹ , aut. or man.
	<i>Temperature Compensation</i>	-30...+130°C
	<i>Reference Temperature</i>	20° or 25°C
	<i>Temperature Coefficient</i>	natural waters (EN27888), 5 individual curves, or linear: 0...3.5%/K
	<i>Range Lock</i>	✓
<i>Capacitive Compensation</i>	✓	
RESISTIVITY	<i>Range</i>	0...20 MΩ.cm
	<i>Resolution</i>	1 Ω.cm
SALINITY	<i>Range</i>	0...70 ppt
	<i>Resolution</i>	0.1 ppt
TDS	<i>Range</i>	0...100 g/l
	<i>Resolution</i>	0.01 mg/l
TEMPERATURE	<i>Range</i>	-30...+130°C
	<i>Resolution</i>	0.1°C
	<i>Accuracy</i>	0.3°C
	<i>Calibration</i>	±10°C
INPUT	<i>Conductivity/Temperature</i>	DIN-8, for 4-pole electrode
CALIBRATION	<i>Reminder</i>	0...999 h
	<i>GLP</i>	✓
DISPLAY	<i>LCD</i>	128x64 pixels
	<i>Relative Readings</i>	✓
	<i>Absolute Readings</i>	✓
	<i>Hold Function</i>	✓
	<i>Real Time Clock</i>	✓
	<i>Languages</i>	EN, NL, FR, DE
RECORDER	<i>Output</i>	0...2 V, programmable
RS232	<i>Baud Rate</i>	300...19200 b/s
	<i>Interval</i>	1...9999 s
DATA-LOGGING	<i>Values</i>	3600 + °C/date/time
	<i>Modes</i>	all (4)
	<i>Manual or Timed</i>	✓
	<i>Interval</i>	1...9999 s
SECURITY	<i>Identification Number</i>	✓
	<i>Password Protection</i>	✓
POWER SUPPLY	<i>Mains</i>	210...250 VAC
	<i>Low Voltage</i>	9...15 VDC
	<i>Batteries</i>	4x1.2 V, AA, NiMH
DIMENSIONS	<i>WxDxH</i>	12x25x5 cm
WEIGHT	<i>Meter</i>	600 g



DECLARATION OF CONFORMITY

We declare under our sole responsibility that the product

Multi-channel analysers

content of the type numbers

K912

to which this declaration relates is in conformity

with the following standards

EN61010

LOW VOLTAGE DIRECTIVE 73/23/EEG

EN50081-1

EN50082-1

EN60555-2

EMC DIRECTIVE 89/336/EEG

Turnhout, March 31, 1998

A handwritten signature in black ink, appearing to be 'G. Ooms', is located below the date.

on behalf of Consort

WARRANTY CERTIFICATE

This instrument (excluding all accessories) is warranted against defective material and workmanship for a period of thirty-six (36) months from the date of shipment ex factory. Accessories and breakable items such as electrodes are not warranted unless proven to be defective before shipment.

The original purchase order numbers, Consort invoice numbers and serial numbers of the products must be provided.

CONSORT will repair all defective equipment returned to it during the warranty period without charge (CIF Turnhout prepaid by sender), provided the equipment has been used under normal laboratory conditions and in accordance with the operating limitations and maintenance procedures described in the instruction manual and when not having been subject to accident, alteration, misuse or abuse.

If the products have been used with or have come into contact with fluids, an MSDS (material safety data sheet) must be supplied prior to issuing a return authorisation.

A return authorisation must be obtained from **CONSORT** before returning any product for warranty repair on a freight prepaid basis!

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