



## HD 22569.2 BENCH-TOP METER FOR pH - CONDUCTIVITY - DISSOLVED OXYGEN

The instrument **HD22569.2** is a bench top instrument for electrochemical measures: **pH, conductivity, dissolved oxygen, and temperature**. It is are fitted with a large backlighted LCD display.

The **HD22569.2** measures **pH, mV, redox potential (ORP)** with pH, redox electrodes or electrodes with separate reference; **conductivity, resistivity** in liquids, **total dissolved solids (TDS)** and **salinity** with combined 4-ring and 2-ring conductivity/temperature probes with direct input or SICRAM module; **concentration of dissolved oxygen** in liquids (in mg/l) and **saturation index** (in %), using SICRAM combined probes of polarographic type with two or three electrodes and integrated temperature sensor.

The instruments is fitted with an input for the measurement of **temperature** with Pt100 or Pt1000 immersion, penetration or contact probes. The temperature probes are equipped with an automatic recognition module and factory calibration data are stored inside.

- The pH electrode calibration can be carried out on one or five points and the calibration sequence can be chosen from a list of 13 buffers Temperature compensation can be automatic or manual.
- The conductivity probe calibration can be performed automatically with automatically detected conductivity calibration solutions: 147 $\mu$ S/cm, 1413 $\mu$ S/cm, 12880 $\mu$ S/cm or 111800 $\mu$ S/cm or manually with calibration solutions having different values.
- The dissolved Oxygen probe's quick calibration function guarantees timely correctness of the performed measurements.
- Conductivity, dissolved oxygen and temperature probes fitted with SICRAM module can store factory and calibration data inside.

The instruments HD22569.2 is a **datalogger**, it can memorize up to 2,000 samples of data:

- pH or mV, conductivity or resistivity or TDS or salinity, concentration of dissolved oxygen and temperature:

The data can be transferred from the instrument connected to a PC via the multi-standard RS232C serial port and USB 2.0. The storing parameters can be configured using the menu. The RS232C serial port can be used to transfer the acquired measurements to a 24 column portable printer in real time (HD40.1 or HD40.2).

The instruments equipped with **HD22BT** (Bluetooth) option can transfer data without any connection to a PC or printer fitted with Bluetooth input or through Bluetooth/RS232C converter. The software DeltaLog11 allows instrument management and configuration, and data processing on PC.

**The instruments have IP66 protection degree.**

### Technical characteristics of HD22569.2

**pH - mV -  $\chi$  -  $\Omega$  - TDS - NaCl - mg/l O<sub>2</sub> - %O<sub>2</sub> - mbar - °C - °F measurement**

#### Instrument

Dimensions (Length x Width x Height)	265x185x70mm
Weight	490g
Materials	ABS, rubber
Display	Back lighted, matrix point display. 240x64 points, visible area: 128x35mm

#### Operating conditions

Working temperature	-5 ... 50°C
Storage temperature	-25 ... 65°C
Working relative humidity	0 ... 90% R.H. without condensate

#### Protection degree

**IP66**

#### Power

Mains adapter (cod. SWD10)  
12Vdc/1A

#### Auxiliary socket

For supplying of electrode holder with built-in stirrer HD22.2

#### Security of memorized data

Unlimited

#### Time

##### Date and hour

Real time schedule with backup battery E  
3.6V - 1/2AA

##### Accuracy

1min/month max drift

#### Measured values storing

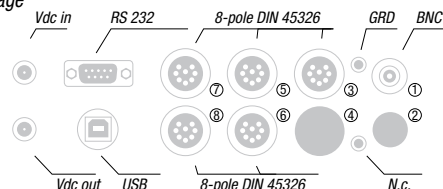
##### Quantity

2000 screens

##### Storage interval

1s ... 999s

#### Calibration storage





## ORDERING CODES

**HD22569.2:** The kit is composed of: instrument HD22569.2 for the measurement of pH - redox - conductivity - resistivity - TDS - salinity - concentration of dissolved oxygen, saturation index - temperature, **datalogger**, stabilized power supply at mains voltage 100-240Vac/12Vdc-1A., calibrator HD9709/20, instructions manual and software DeltaLog11.

**pH/mV electrodes, conductivity probes, dissolved oxygen probes, temperature probes, standard reference solutions for different measurement types, connection cables for pH electrodes with S7 connector, cables for data download to PC or printer have to be ordered separately.**

## Accessories

**9CPRS232:** Connection cable SubD female 9- pole for serial output RS232C.

**CP22:** USB 2.0 connection cable - connector type A - connector type B.

**DeltaLog11:** Software for download and management of the data on PC using Windows 98 to Vista operating systems.

**SWD10:** Stabilized power supply at 100-240Vac/12Vdc-1A mains voltage.

**HD40.1:** Portable, serial input, 24 column thermal printer, 57mm paper width.

**HD40.2:** 24-column portable thermal printer, **Bluetooth and serial interface**, 57mm paper width, four NiMH 1.2V rechargeable batteries, SWD10 power supply, instruction manual, 5 thermal paper rolls. Requires the module HD22BT (**optional**) or the cable HD 2110 CSNM (**optional**).

**HD22.2:** Laboratory electrode holder composed of basis plate with incorporated magnetic stirrer, staff and replaceable electrode holder. Height max. 380mm. Powered by bench-top meters of the series HD22... with cable HD22.2.1 (**optional**) or supplier SWD10 (**optional**).

**HD22.3:** Laboratory electrode holder with metal basis plate. Flexible electrode holder for free positioning. For Ø 12mm probes.

**HD22BT:** Bluetooth module for wireless data transmission from instrument to PC. **The fitting of the module into the instrument is made exclusively by Delta Ohm, at the time of placing the order.**

**TP47:** Module for the connection of Pt100 4-wire and Pt1000 2-wire probes.

## pH electrodes without SICRAM module (Inputs ① and ②)

**KP20:** Combined pH electrode for general use, gel filled with screw connector S7 body in Epoxy.

**KP30:** Combined pH electrode for general use, cable 1 m, gel filled, body in Epoxy.

**KP50:** Combined pH electrode with Teflon collar diaphragm, for emulsions, deionised water, S7 screw connector, gel filled, body in glass.

**KP 61:** Combined pH electrode, 3 diaphragms for milk, cream, etc. Liquid reference filling, with screw connector S7, body in glass.

**KP 62:** Combined pH electrode, 1 diaphragm for pure water, paints, etc. gel-filled, with screw connector S7, body in glass.

**KP 63:** Combined pH electrode for general use, varnish, cable 1 m, electrolyte KCl 3M body in glass.

**KP 64:** Combined pH electrode for water, varnish, emulsions, etc., electrolyte KCl 3M with screw connector S7, body in glass.

**KP 70:** Combined pH micro electrode diam. 4.5 x L=25 mm. Gel filled, with screw connector, body in glass.

**KP 80:** Combined pointed pH electrode, gel filled, with screw connector S7, body in glass.

**CP:** Extension cable 1.5m with BNC connectors on one side and S7 on the other side for electrode with S7 connector.

**CP5:** Extension cable 5m with BNC connectors on one side and S7 on the other side for electrode with S7 connector.

**CE:** S7 screw connector for pH electrode.

**BNC:** Female BNC for electrode extension.

## pH electrodes with SICRAM module (Input ③)

**KP63TS:** Combined pH/temperature electrode with SICRAM module, body in Epoxy, Ag/AgCl sat KCl.

## SICRAM Module with BNC input for pH electrodes (Input ③)

**KP47:** SICRAM module for pH electrode with BNC standard connector.

## ORP Electrodes (Inputs ① and ②)

**KP90:** Redox Platinum electrode, with screw connector S7, electrolyte KCl 3M, body in glass.

**KP91:** Redox Platinum electrode with 1m cable, GEL filled, body in glass.

## pH buffer solutions

**HD8642:** Buffer solution 4.01pH - 200cc.

**HD8672:** Buffer solution 6.86pH - 200cc.

**HD8692:** Buffer solution 9.18pH - 200cc.

## Redox buffer solutions

**HDR220:** Redox buffer solution 220mV 0,5 l.

**HDR468:** Redox buffer solution 468mV 0,5 l.

## Electrolyte solutions

**KCL 3M:** 50cc ready for use solution for electrode refilling.

## Cleaning and maintenance

**HD62PT:** Diaphragm cleaning (tiourea in HCl) - 500ml.

**HD62PP:** Protein cleaning (pepsin in HCl) - 500ml.

**HD62RF:** Regeneration (fluorhydric acid) - 100ml.

**HD62SC:** Solution for electrode preservation - 500ml.

## Conductivity probes and combined conductivity and temperature probes without SICRAM module (Input ④)

**SP06T:** Combined conductivity and temperature 4-electrode cell in Platinum, body in Pocan. Cell constant K = 0.7. Measurement range 5µS/cm ...200mS/cm, 0...90°C.

**SPT401.001:** Combined conductivity and temperature 2- electrode cell in stainless steel AISI 316. Cell constant K = 0.01. Measurement range 0.04µS/cm ...20µS/cm, 0...120°C. Measurement in closed-cell.

**SPT01G:** Combined conductivity and temperature 2-electrode Platinum-wire cell, body in glass. Cell constant K = 0.1. Measurement range 0.1µS/cm ...500µS/cm, 0...80°C.

**SPT1G:** Combined conductivity and temperature 2-electrode Platinum-wire cell, body in glass. Cell constant K = 1. Measurement range 10µS/cm ...10mS/cm, 0...80°C.

**SPT10G:** Combined conductivity and temperature 2-electrode Platinum-wire cell, body in glass. Cell constant K = 10. Measurement range 500µS/cm ...200mS/cm, 0...80°C.

## Combined conductivity / temperature probes with SICRAM module (Input ⑤)

**SPT1GS:** Combined conductivity /temperature 2-electrode Platinum- wire cell, body in glass with SICRAM module. Cell constant K = 1. Measuring range 10µS/cm ...10mS/cm, 0...80°C.

## Standard conductivity calibration solutions

**HD8747:** Standard calibration solution 0.001mol/l equal to 147µS/cm @25°C - 200cc.

**HD8714:** Standard calibration solution 0.01mol/l equal to 1413µS/cm @25°C - 200cc.

**HD8712:** Standard calibration solution 0.1mol/l equal to 12880µS/cm @25°C - 200cc.

**HD87111:** Standard calibration solution 1mol/l equal to 111800µS/cm @25°C - 200cc.

## Combined dissolved oxygen/temperature probes (Input ⑥)

**D09709 SS:** The kit includes: combined probe for measurement of O<sub>2</sub> and temperature with replaceable membrane, three membranes, 50ml of zero solution, 50ml of electrolyte solution. Cable length 2m. Ø12mm x 120mm.

**D09709 SS.5:** The kit includes: combined probe for measurement of O<sub>2</sub> and temperature with replaceable membrane, three membranes, 50ml of zero solution, 50ml of electrolyte solution. Cable length 5m. Ø12mm x 120mm.

## Electrode dimensions and characteristics at page 403

## Accessories

**D09709 SSK:** Accessory kit for the D09709 SS probe consisting of three membranes, 50ml of zero solution, 50ml of electrolyte solution

**D09709.20:** Calibrator for polarographic probes D09709SS and D09709SS.5.

## Temperature probes complete with SICRAM module (Input ⑤)

**TP87:** Pt100 sensor immersion probe. Stem Ø 3 mm, length 70 mm. Cable length 1 metre.

**TP4721.0:** Pt100 sensor immersion probe. Stem Ø 3 mm, length 230 mm. Cable length 2 m.

**TP473P.0:** Pt100 sensor penetration probe. Stem Ø 4mm, length 150 mm. Cable length 2 m.

**TP474C.0:** Pt100 sensor contact probe. Stem Ø 4mm, length 230mm, contact surface Ø 5mm. Cable length 2 m.

**TP475A.0:** Air probe, sensor Pt100. Stem Ø 4mm, length 230mm. Cable length 2 m.

**TP4721.5:** Immersion probe, sensor Pt100. Stem Ø 6mm, length 500 mm. Cable length 2 m.

**TP4721.10:** Immersion probe, sensor Pt100. Stem Ø 6mm, length 1,000mm. Cable length 2 m.

## Temperature probes complete with TP47 module (input ⑤)

**TP47.100:** Direct 4 wires Pt100 sensor immersion probe. Probe's stem Ø 3mm, length 230mm. Connection cable 4 wires with connector, length 2 m.

**TP47.1000:** Pt1000 sensor immersion probe. Probe's stem Ø 3mm, length 230mm. Connection cable 2 wires with connector, length 2 m.

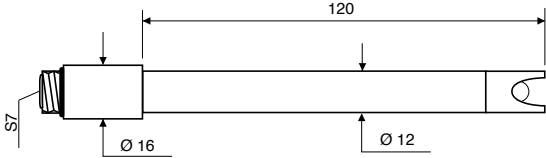
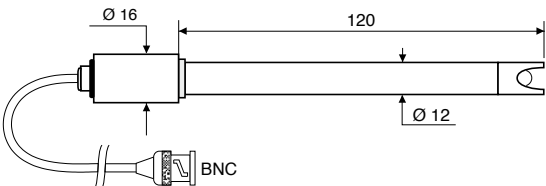
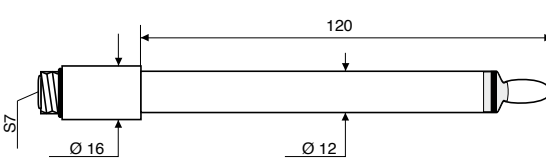
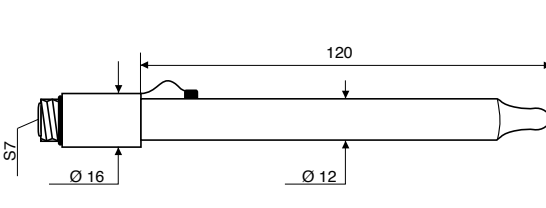
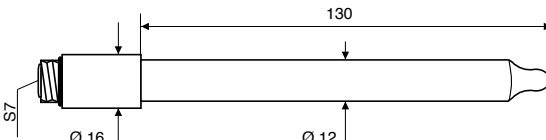
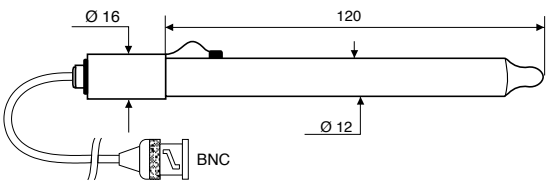
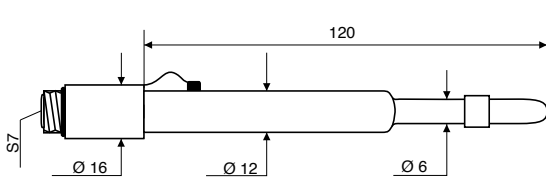
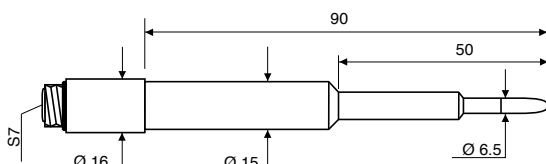
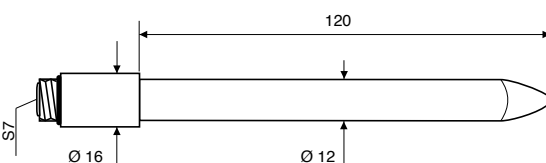
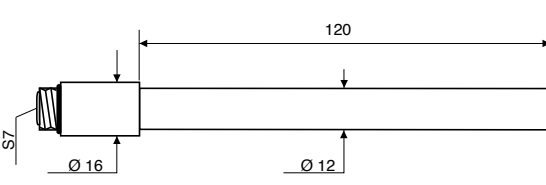
**TP87.100:** Pt100 sensor immersion probe. Probe's stem Ø 3mm, length 70mm. 4 wire connection cable with connector, length 1 m.

**TP87.1000:** Pt1000 sensor immersion probe. Probe's stem Ø 3mm, length 70mm. 2-wire connection cable with connector, length 1 m.

## Accessories

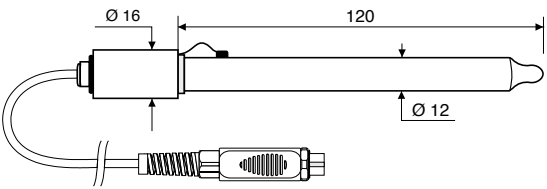
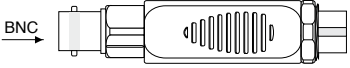
**TP47:** Module for the connection of Pt100 4-wire and Pt1000 2-wire probes.

## Technical data of pH electrodes without SICRAM module

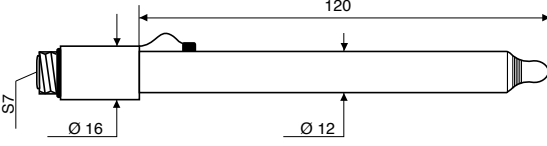
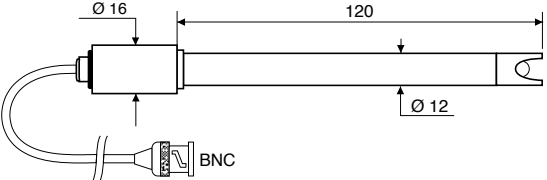
ORDERING CODE	MEASUREMENT RANGE AND USE	DIMENSIONS
<b>KP20</b> 0...14pH / 0...80°C / 3bar Body in Epoxy - GEL filled 1 ceramic diaphragm Waste water, drinking water, paints, water emulsions, galvanic baths, fruit juices, water suspensions, titration, varnishes.		
<b>KP30</b> 0...14pH / 0...80°C / 3bar Body in Epoxy - GEL filled 1 ceramic diaphragm Cable L=1m with BNC Waste water, drinking water, water emulsions, galvanic baths, paints, varnishes, water suspensions, fruit juices, titration.		
<b>KP50</b> 0...14pH / 0...80°C / 3bar Body in glass - GEL filled 1 Teflon ring diaphragm Varnishes, cosmetics, water emulsions, galvanic baths, creams, deionised water, TRIS solutions, drinking water, fruit juices, low-ion-content solutions, mayonnaise, preserved food, paints, titration, titration in non-water solutions, water suspensions, detergents, waste water, viscous samples.		
<b>KP61</b> 2...14pH / 0...80°C / 3bar Body in glass Liquid reference filling Triple ceramic diaphragm Waste water, paste, bread, fruit juices, varnishes, cosmetics, creams, deionised water, drinking water, water emulsions, galvanic baths, detergents, yoghurt, milk, titration, preserved food, titration in non-water solutions, water suspensions, mayonnaise, wine, low ion-content solution, butter, proteic substances, paints, viscous samples		
<b>KP62</b> 0...14pH / 0...80°C / 3bar Body in glass - GEL filled 1 ceramic diaphragm Paints, varnishes, drinking water, water emulsions, fruit juices, galvanic baths, water suspensions, titration, waste water.		
<b>KP63</b> 0...14pH / 0...80°C / 1bar Body in glass Reference filling solution KCl 3M 1 ceramic diaphragm Cable L=1m with BNC Paints, varnishes, drinking water, water solutions, fruit juices, galvanic baths, water suspensions, titrations, waste water.		
<b>KP64</b> 0...14pH / 0...80°C / 0.1bar Body in glass Liquid reference KCl 3M Teflon collar diaphragm Paints, varnishes, cosmetics, creams, deionised water, drinking water, water emulsions, fruit juices, detergents, low ion-content solutions, preserved food, water suspensions, titration, titration in non-water solutions, TRIS solutions, waste water, viscous samples, wine.		
<b>KP70</b> 2...14pH / 0...50°C / 0.1bar Body in Epoxy - GEL filled 1 open junction Paste, bread, paints, varnishes, cosmetics, creams, drinking water, water emulsions, fruit juices, galvanic baths, detergents, mayonnaise, preserved foods, cheese, milk, water suspensions, viscous samples, waste water, butter, yoghurt.		
<b>KP80</b> 2...14pH / 0...60°C / 1bar Body in glass - GEL filled 1 open junction Paste, bread, paints, varnishes, cosmetics, creams, drinking water, water emulsions, fruit juices, galvanic baths, detergents, mayonnaise, preserved food, water suspensions, titration, titration in non-water solutions, viscous samples, waste water, yoghurt, milk, butter.		
<b>KP100</b> 2...14pH / 0...80°C / 1bar Body in glass Liquid reference KCl 3M Teflon ring diaphragm Flat membrane gel combined pH electrode, S7 connector, for skin, leather, paper.		



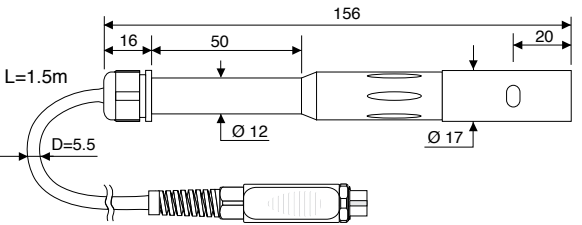
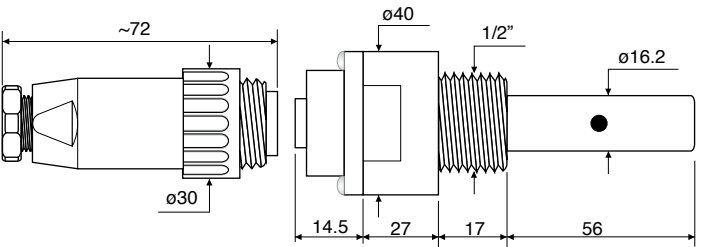
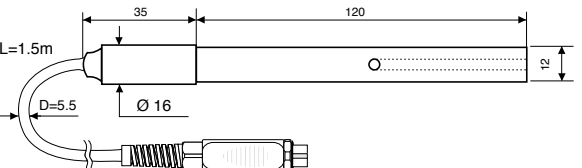
pH electrodes

ORDERING CODE	MEASUREMENT RANGE AND USE	DIMENSIONS
KP63TS	0...14pH / 0...80°C / 1bar Pt100 sensor Body in glass Reference filling solution KCl 3M 1 ceramic diaphragm Cable L=1m <b>with SICRAM module</b> Paints, varnishes, drinking water, water solutions, fruit juices, galvanic baths, water suspensions, titrations, waste water.	
KP47	Please refer to employed electrode.	

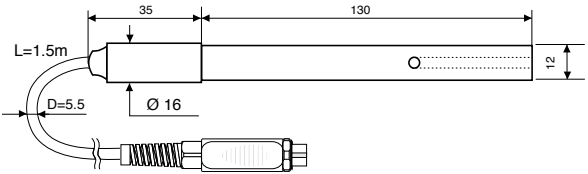
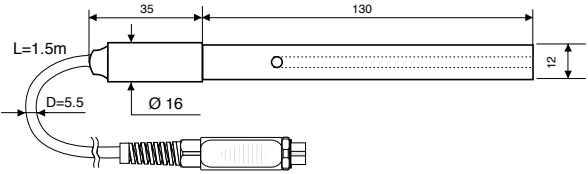
Redox Electrodes without SICRAM module

ORDERING CODE	MEASUREMENT RANGE AND USE	DIMENSIONS
KP90	±2000mV 0...80°C 5bar Body in glass Reference filling solution KCl 3M General use	
KP91	±1000mV 0...60°C 1bar Body in Epoxy - GEL Cable L=1m with BNC General use No heavy tasks	

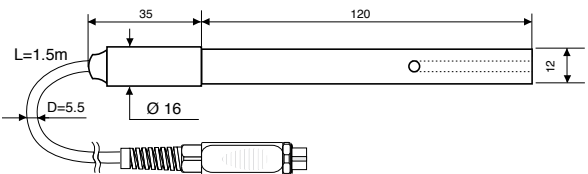
Combined 2-ring or 4-ring conductivity probes without SICRAM module

ORDERING CODE	MEASUREMENT RANGE AND USE	DIMENSIONS
SP06T	K=0.7 5µS/cm ... 200mS/cm 0...90°C 4-electrode cell in Pocan/Platinum Probe material Pocan General use No heavy tasks	
SPT401.001	K=0.01 0.04µS/cm ... 20µS/cm 0...120°C 2-electrode cell in AISI 316 Ultrapure water Measurement in closed-cell	
SPT01G	K=0.1 0.1µS/cm ... 500µS/cm 0...80°C 2-electrode cell in Platinum-wire Probe material glass Pure water	

### 2-ring or 4-ring conductivity probes without SICRAM module

ORDERING CODE	MEASUREMENT RANGE AND USE	DIMENSIONS
SPT1G	K=1 10µS/cm ... 10mS/cm 0...80°C 2-electrode cell in Platinum wire Probe material glass General heavy tasks, average conductivity	
SPT10G	K=10 500µS/cm ... 200mS/cm 0...80°C 2-electrode cell in Platinum wire Probe material glass General heavy tasks, high conductivity	

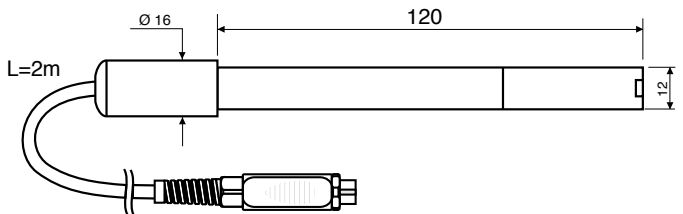
### Conductivity probes with SICRAM module

ORDERING CODE	MEASUREMENT RANGE AND USE	DIMENSIONS
SPT1GS	K=1 10µS/cm ... 10mS/cm 0...80°C 2-electrode cell Glass/Platinum	

### Dissolved oxygen probe

Model	D09709 SS	D09709 SS.5
Type	Polarographic probe, Silver anode, Platinum cathode	
Application range		
Application range	0.00...60.00mg/l	
Working temperature	0...45°C	
Accuracy	±1%f.s.	
Membrane	Replaceable	
Cable length	2m	5m (*)

(\*)Cable with connector

D09709SS	
D09709SS.5	