

HD2259.2



HD2259.2 BENCH-TOP DISSOLVED OXYGEN AND pH METER

The **HD2259.2** a bench top instrument for electrochemical measures: **pH, dissolved oxygen, and temperature**. It is fitted with a large backlighted LCD display.

The **HD2259.2** measures **pH, mV, redox potential (ORP)** with pH, redox electrodes or electrodes with separate reference; the **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 or galvanic type, and integrated temperature sensor.

The instrument 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 up to five points and the calibration sequence can be chosen from a list of 13 buffers Temperature compensation can be automatic or manual.
- 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 instrument HD2259.2 is a **datalogger**, it can memorize up to 2,000 samples of data: pH or mV, concentration of dissolved oxygen or saturation index and saturation index and temperature:

The data can be transferred from the instrument connected to a PC via the RS232C and USB 2.0 serial ports. 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 (HD 40.1, HD 40.2).

The instruments equipped with **HD22BT** (Bluetooth) option can transfer data without any connection to a PC or printer fitted with Bluetooth input (HD40.2) 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 HD2259.2

pH - mV - mg/l O₂ - %O₂ - 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 output 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 3.6V - ½AA
Accuracy	1min/month max drift

Measured values storing

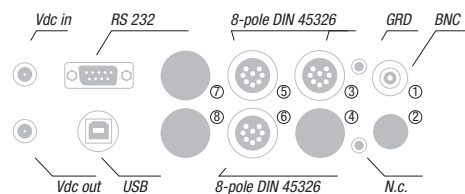
Quantity	2000 screens
Storage interval	1s ... 999s

Calibration storage

Quantity	Last 8 calibrations of each physical quantity
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RS232C serial interface

Type	RS232C electrically isolated
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Baud rate	Can be set from 1200 to 115200 baud
Data bit	8
Parity	None
Stop bit	1
Flow Control	Xon/Xoff
Length of serial cable	Max 15m

USB Interface

Type	1.1 - 2.0 electrically isolated
Bluetooth Interface	optional

Connections

Input for temperature probes with SICRAM modules ⑤	8-pole male DIN45326 connector
pH/mV inputs ①	BNC female
Input SICRAM module	8-pole male DIN45326 connector
pH/ temperature probes ③	
Input dissolved oxygen ⑥	8-pole male DIN45326 connector
Serial interface	DB9 connector (9- pole male)
USB interface	USB connector type B
Bluetooth	Optional
Mains adapter	2-pole connector (Ø5.5mm-2.1mm). Positive at centre
Outlet for power supply of electrode holder with built-in magnetic stirrer	2- pole connector (Ø5.5mm-2.1mm). Positive at centre (output 12Vdc/200mA max).

Measurement of pH by instrument

Measuring range	-9.999...+19.999pH
Resolution	0.01 o 0.001pH selectable from menu
Accuracy	±.001pH ±1digit
Input impedance	>10 ¹² Ω
Calibration error @25°C	Offset > 20mV Slope > 63mV/pH o Slope < 50mV/pH Sensitivity < 85% or sensitivity < 85%
Calibration points	Up to 5 points with 13 automatically detected buffer solutions
Automatically detected pH standard solutions (@25°C)	1.679pH - 2.000pH - 4.000pH - 4.008pH 4.010pH - 6.860pH - 6.865pH - 7.000pH 7.413pH - 7.648pH - 9.180pH - 9.210pH 10.010pH

mV measurement by instrument

Measuring range	-1999.9...+1999.9mV
Resolution	0.1mV
Accuracy	±0.1mV ±1digit
Drift after 1 year	0.5mV/year

Measurement of dissolved oxygen by instrument

Measuring range	0.00...90.00mg/l
Resolution	0.01mg/l
Accuracy	±0.03mg/l±1digit (0...90%RH,±1013mbar, 20...25°C)

Measurement of saturation index of dissolved oxygen

Measuring range	0.0...600.0%
Resolution	0.1%
Accuracy	±0.3% ±1digit (in the range 0.0...199.9%) ±1% ±1digit (in the range 200.0...600.0%)

Automatic temperature compensation

	0...50°C
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Measurement of barometric pressure

Measuring range	0.0...1100.0mbar
Resolution	0.1mbar
Accuracy	±2mbar±1digit between 18 and 25°C ±(2mbar+0.1mbar/°C) in the remaining range

Salinity setting

Setting range	0.0...70.0g/l
Resolution	0.1g/l

Temperature measurement with the sensor inside the dissolved oxygen probe

Measuring range	0.0...50.0°C
Resolution	0.1°C
Accuracy	±0.1°C ±1digit
Drift after 1 year	0.1°C/year

Measurement of temperature by instrument

Pt100 measuring range	-50...+150°C
Pt1000 measuring range	-50...+150°C
Resolution	0.1°C
Accuracy	±0.1°C ±1digit
Drift after 1 year	0.1°C/year

Ordering codes

HD2259.2: The kit is composed of: instrument HD2259.2 for the measurement of pH - redox - concentration of dissolved oxygen, saturation index - temperature, **datalogger**, stabilized power supply at mains voltage 100-240Vac/12Vdc-1A, calibrator HD9709/20 (for polarographic probe) or D09709/21 (for galvanic probe), instructions manual and software DeltaLog11.

pH/mV electrodes, 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 typo A - connector type B.

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

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

HD40.1: 24-column portable thermal printer, serial interface, 57mm paper width, four NiMH 1.2V rechargeable batteries, SWD10 power supply, instructions manual, 5 thermal paper rolls. Requires the cable 9CPRS232 (optional).

HD40.2: 24-column portable thermal printer, **Bluetooth and serial interface**, 57mm paper width, four NiMH 1.2V rechargeable batteries, SWD10 power supply, instructions manual, 5 thermal paper rolls. Requires the module HD22BT (**optional**) or the cable 9CPRS232 (**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: Connector for Pt100 4-wire and Pt1000 2-wire probes without SICRAM module.

Accessories

pH electrodes without SICRAM module (Inputs ①)

KP 20: Gel pH combined electrode for general use, with S7 screw connector, EPOXY body.

KP 30: Gel pH combined electrode for general use, 1m cable with BNC, EPOXY body .

KP 50: Gel pH combined electrode, porous Teflon ring junction, suitable for emulsions, demineralised water and waste water with S7 screw connector, glass body.

KP 61: 3 diaphragm liquid filled pH combined electrode for wine, milk, cream, etc., S7 screw connector, liquid reference filling, glass body.

KP 62: 1 diaphragm gel pH combined electrode for general use, pure water, varnishes, gel filled, S7 screw connector, glass body.

KP 63: liquid filled pH combined electrode for general use, varnishes, 1m cable with BNC, glass body.

KP 64: Liquid filled pH combined electrode, Teflon ring diaphragm, for wine, varnishes, emulsions, S7 screw connector, glass body.

KP 70: Pointed gel combined pH microelectrode diam. 6 x L=70 mm., with S7 screw connector, EPOXY body, glass tip, open junction for meat and cheese.

KP 80: Pointed gel pH combined electrode, with S7 screw connector, glass body, for cream, milk, viscous material, open junction.



pH



mg/l

KP100: Flat membrane gel combined pH electrode with S7 screw connector, glass body, for skin, leather, paper.

pH electrodes with SICRAM module (Input ③)

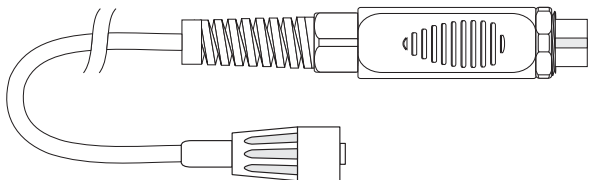
KP63TS: Combined pH/temperature electrode with SICRAM module, body in glass, 1m cable, 1 diaphragm, for general use, internal liquid reference.

SICRAM Module with S7 input for pH electrodes (Input ③)

pH 471.1: SICRAM module for pH electrodes with S7 standard connection, cable L=1m.

pH 471.2: SICRAM module for pH electrodes with S7 standard connection, cable L=2m. **pH**

471.5: SICRAM module for pH electrodes with S7 standard connection, cable L=5m.



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 and BNC connector, GEL filled, body in Epoxy.

Electrode dimensions and characteristics at page WA-76

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.

CP 10: 10m extension cable with BNC/S7 connector for electrode without cable, thread S7.

CP 15: 15m extension cable with BNC/S7 connector for electrode without cable, thread S7.

CE: S7 screw connector for pH electrode.

BNC: Female BNC for cable extension.

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: Ready for use solution for refilling of the electrodes.

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.

Solutions

D09700: zero oxygen solution.

D09701: electrolyte solution for polarographic probes D09709 SS and D09709 SS.5.

D09701.1: electrolyte solution for galvanic probes D09709 SS.1 and D09709 SS.5.1.

Combined dissolved Oxygen/temperature probes

DO 9709 SS Polarographic combined oxygen and temperature probe with possibility of membrane replacement. Ø12mm x 120mm. 2m cable. The code includes: probe, 2 membranes, electrolyte solution and zero point solution.

DO 9709 SS.5 Polarographic combined oxygen and temperature probe with possibility of membrane replacement. Ø12mm x 120mm. 5m cable. The code includes: probe, 2 membranes, electrolyte solution and zero point solution.

DO 9709 SS.1 Galvanic combined oxygen and temperature probe with possibility of membrane replacement. Ø12mm x 120mm. Ø16mm tip with membrane. 2m cable. The code includes: probe, 2 membranes in total, electrolyte solution and zero point solution. **DO**

9709 SS.5.1 Galvanic combined oxygen and temperature probe with possibility of membrane replacement. Ø12mm x 120mm. Ø16mm tip with membrane. 5m cable. The code includes: probe, 2 membranes in total, electrolyte solution and zero point solution.

Accessories

DO 9709/20: Calibrator for polarographic probes DO 9709SS and DO 9709SS.5

DO 9709/21: Calibrator for galvanic probes DO 9709SS.1 and DO 9709SS.5.1

DO 9709 SSK: Kit of accessories for probes DO 9709SS and DO 9709SS.5: 3 membranes, zero point solution and electrolyte.

DO 9709/21K: Kit of accessories for probes DO 9709SS.1 and DO 9709SS.5.1: 3 membranes, zero point solution and electrolyte.

Temperature probes equipped with SICRAM module

TP472I: Wire wound Pt100 sensor, immersion probe. Stem Ø 3 mm, length 300 mm. Cable length 2 m.

TP472L0: Thin film Pt100 sensor, immersion probe. Stem Ø 3 mm, length 230 mm. Cable length 2 m.

TP473P.I: Wire wound Pt100 sensor, penetration probe. Stem Ø 4mm, length 150 mm. Cable length 2 m.

TP473P.O: Thin film Pt100 sensor, penetration probe. Stem Ø 4mm, length 150 mm. Cable length 2 m.

TP474C.I: Wire wound Pt100 sensor, contact probe. Stem Ø 4mm, length 230mm, contact surface Ø 5mm. Cable length 2 m.

TP474C.O: Thin film Pt100 sensor, contact probe. Stem Ø 4mm, length 230mm, contact surface Ø 5mm. Cable length 2 m.

TP475A.O: Thin film Pt100 sensor, air probe. Stem Ø 4mm, length 230mm. Cable length 2 m. **TP472L.5:** Thin film Pt100 sensor, penetration probe. Stem Ø 6mm, length 500 mm. Cable length 2 m.

TP472L.10: Thin film Pt100 sensor, penetration probe. Stem Ø 6mm, length 1000mm. Cable length 2 m.

TP49A.O: Thin film Pt100 sensor, immersion probe. Stem Ø 2,7mm, length 150mm. Cable length 2 m. Aluminium handle

TP49AC.O: Thin film Pt100 sensor, contact probe. Stem Ø 4mm, length 150mm. Cable length 2 m. Aluminium handle

TP49AP.O: Thin film Pt100 sensor, penetration probe. Stem Ø 2,7mm, length 150mm. Cable length 2 m. Aluminium handle

TP875.I: Wire wound Pt100 sensor, 150mm diameter globe-thermometer equipped with handle. Cable length 2 m.

TP876.I: Wire wound Pt100 sensor, 50mm diameter globe-thermometer equipped with handle. Cable length 2 m.

TP87.O: Thin film Pt100 sensor, immersion probe. Stem Ø 3 mm, length 70 mm. Cable length 2 m.

TP878.O: Thin film Pt100 sensor, contact probe for solar panels. Cable length 2 m.

TP878.1.O: Thin film Pt100 sensor, contact probe for solar panels. Cable length 5 m.

TP879.O: Thin film Pt100 sensor, penetration probe for compost. Stem Ø 8 mm, length 1000 mm. Cable length 2 m.

Temperature probes without SICRAM module

TP475.100.O: Thin film Pt100 sensor, immersion probe. Stem Ø 3mm, length 230mm. Connection cable 4 wires with connector, length 2 m.

TP47.1000.O: Thin film Pt1000 sensor, immersion probe. Probe's Stem Ø 3mm, length 230mm. Connection cable 4 wires with connector, length 2 m.

TP47: Connector for Pt100 4-wire and Pt1000 2-wire probes without SICRAM module.

TP87.100.O: Thin film Pt100 sensor, immersion probe. Stem Ø 3mm, length 70mm. 4-wires connection cable with connector, length 1 m.

TP87.1000.O: Thin film Pt1000 sensor, immersion probe. Stem Ø 3mm, length 70mm. 2-wires connection cable with connector, length 1 m.

connection cable with connector, length 1 m.

