



HD 2259.2

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 backlit 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 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 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 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;
- 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 (S'print-BT).

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 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

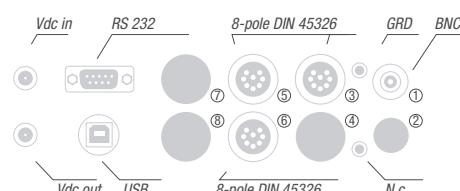
Auxiliary socket	Mains adapter (cod. SWD10) 12Vdc/1A
	For supplying of electrode holder with built-in stirrer HD22.2

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	Automatic temperature compensation	0...50°C
<i>Measured values storing</i>			
Quantity	2000 screens	<i>Measurement of barometric pressure</i>	0.0...1100.0mbar
Storage interval	1s ... 999s	Measuring range	0.1mbar
<i>Calibration storage</i>	Last 8 calibrations of each physical quantity	Resolution	±2mbar±1digit between 18 and 25°C
Quantity		Accuracy	±(2mbar+0.1mbar/°C) in the remaining range
<i>RS232C serial interface</i>			
Type	RS232C electrically isolated	<i>Salinity setting</i>	directly from menu or automatically by conductivity measurement
Baud rate	Can be set from 1200 to 115200 baud	Setting	0.0...70.0g/l
Data bit	8	Setting range	0.1g/l
Parity	None	Resolution	
Stop bit	1		
Flow Control	Xon/Xoff	<i>Temperature measurement with the sensor inside the dissolved oxygen probe</i>	
Length of serial cable	Max 15m	Measuring range	0.0...50.0°C
<i>USB Interface</i>		Resolution	0.1°C
Type	1.1 - 2.0 electrically isolated	Accuracy	±0.1°C
<i>Bluetooth Interface</i>	optional	Drift after 1 year	0.1°C/year
<i>Connections</i>			
Input for temperature probes with SICRAM modules ^⑤	8-pole male DIN45326 connector	<i>Measurement of temperature by instrument</i>	
pH/mV inputs ^①	BNC female	Pt100 measuring range	-50...+150°C
Input SICRAM module	8-pole male DIN45326 connector	Pt1000 measuring range	-50...+150°C
pH/ temperature probes ^③	8-pole male DIN45326 connector	Resolution	0.1°C
Input dissolved oxygen ^⑥	DB9 connector (9- pole male)	Accuracy	±0.1°C±1digit
Serial interface	USB connector type B	Drift after 1 year	0.1°C/year
USB interface	Optional		
Bluetooth	2-pole connector (Ø5.5mm-2.1mm).		
Mains adapter	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).		
<i>Measurement of pH by instrument</i>			
Measuring range	-9.999...+19.999pH		
Resolution	0.01 o 0.001pH selectable from menu		
Accuracy	.001pH±1digit		
Input impedance	10ffset > 20mV		
Calibration error @25°C	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		
<i>mV measurement by instrument</i>			
Measuring range	-1999.9...+1999.9mV		
Resolution	0.1mV		
Accuracy	±0.1mV±1digit		
Drift after 1 year	0.5mV/year		
<i>Measurement of dissolved oxygen by instrument</i>			
Resolution	0.01mg/l		
Measuring range	0.00...90.00mg/l		
Accuracy	±0.03mg/l±1digit (60...110%, 1013mbar, 20...25°C)		
<i>Measurement of saturation index of dissolved oxygen</i>			
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%)		



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

Accessories

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.

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

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

pH electrodes with SICRAM module (Input ③)

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

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.

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.

SICRAM module with BNC input for pH electrodes (input ③)

KP47: Sicram module for pH electrode with standard BNC connector.

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.

Combined dissolved oxygen/temperature probes (Input ⑥)

D09709 SS: The kit includes: combined probe for measurement of O₂ 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 O₂ and temperature with replaceable membrane, three membranes, 50ml of zero solution, 50ml of electrolyte solution. Cable length 5m. Ø12mm x 120mm.

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 metres.

TP473P.0: PT100 sensor penetration probe. Stem Ø 4mm, length 150 mm. Cable length 2 metres.

TP474C.0: PT100 sensor contact probe. Stem Ø 4mm, length 230mm, contact surface Ø 5mm. Cable length 2 metres.

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

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

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

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 metres.

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

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

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

Accessories

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

