

HD2106.1 - HD2106.2



HD2106.1, HD 2106.2 CONDUCTIVITY METERS - THERMOMETERS

HD2106.1 and HD2106.2 are portable instruments with LCD display. They measure conductivity, liquid resistivity, total dissolved solids (TDS), and salinity using combined 4-ring and 2-ring conductivity/ temperature probes. Temperature only is measured by Pt100 or Pt1000 immersion, penetration, contact or air probes.

The probe calibration can be performed automatically in one or more than one of the 147 μ S/cm , 1413 μ S/cm , 12880 μ S/cm or 111800 μ S/cm conductivity calibration solutions.

The temperature probes are equipped with an automatic recognition module and factory calibration data are stored inside.

The HD2106.2 is a **datalogger**. It memorizes up to 36,000 conductivity and temperature samples which can be transferred from the instrument connected to a PC via the RS232C and USB 2.0 serial ports. The storing interval, printing, and baud rate can be configured using the menu.

Both models are fitted with an RS232C serial port and can transfer to a PC the acquired measurements or to a portable printer in real time.

The Max, Min and Avg function calculates the maximum, minimum or average values.

Other functions include: the relative measurement REL, the Auto-HOLD function, and the automatic turning off which can also be excluded.

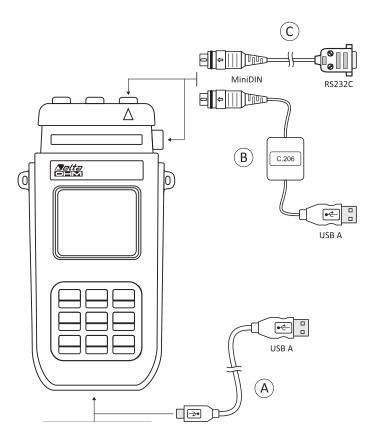
The instruments have IP66 protection degree.

INSTRUMENT TECHNICAL CHARACTERISTICS		
Measured quantities X, Ω, TDS, NaCl, °C, °F		°C, °F
Measurement of conductivity		Resolution
Measuring range Kcell=0.01	0.00001.999 μS/cm	0.001 µS/cm
Measuring range Kcell=0.1	0.0019.99 µS/cm	0.01 µS/cm
Measuring range Kcell=1	0.0199.9 μS/cm	0.1 µS/cm
	2001999 μS/cm	1 µS/cm
	2.0019.99 mS/cm	0.01 mS/cm
	20.0199.9 mS/cm	0.1 mS/cm
Measuring range Kcell=10	2001999 mS/cm	1 mS/cm
Accuracy (conductivity)	±0.5%±1digit	
Measurement of resistivity		
Measuring range Kcell=0.01	till 1 GΩ·cm (*)	
Measuring range Kcell=0.1	till 100 MΩ·cm (*)	
Measuring range Kcell=1	5.0…199.9 Ω·cm	0.1 Ω·cm
	200999 Ω·cm	1 Ω·cm
	1.00 k…19.99 kΩ·cm	0.01 kΩ·cm
	20.0 k…99.9 kΩ·cm	0.1 kΩ·cm
	100 k…999 kΩ·cm	1 kΩ·cm
	110 MΩ·cm	1 MΩ·cm
Measuring range Kcell=10	0.5…5.0 Ω·cm	0.1 Ω·cm
Accuracy (resistivity)	±0.5%±1digit	
Measurement of total dissolved		(/TDS=0.5)
Measuring range Kcell=0.01	0.00019.999 mg/l	0.005 mg/l
Measuring range Kcell=0.1	0.0019.99 mg/l	0.05 mg/l
Measuring range Kcell=1	0.0199.9 mg/l	0.5 mg/l
	2001999 mg/l 2.0019.99 g/l	1 mg/l 0.01 g/l
	20.099.9 g/l	0.01 g/l
Measuring range Kcell=10	100999 g/l	1 g/l
Accuracy	±0.5%±1digit	. 9/ .
(total dissolved solids)		
Measurement of salinity		
Measurement range	0.0001.999 g/l	1 mg/l
	2.00…19.99 g/l	10 mg/l
	20.0199.9 g/l	0.1 g/l
Accuracy (salinity)	±0.5%±1digit	
Measurement of temperature	L	1
Pt100 measuring range	-50+200 °	°C
Pt1000 measuring range	-50+200 °	°C
Resolution	0.1°C	
Accuracy	±0.25 °C	
Drift after 1 year	0.1°C/year	
Temperature compensation automatic/manual	0100 °C with α _r selectable from 0.00 to 4.00%/ °C	
Reference temperature	 20 °C o 25 °C	
λ /TDS conversion factor	0.40.8	
Preset cell constant values: (cm ⁻¹)	K=0.01 K=0.1 - K=0.7 - K=1 - K=10	

Standard solutions automatically detected @25°C1113 12880 µ5/cm 111800 µ5/cmPower SupplyBatteries4 1.5V type AA batteriesAutonomy200 hours with 1800 mAh alkaline batteriesPower absorbed with instrumment off20 µASecurity of memorized dataUnlimited, independent of battery charge conditionsMeasured values storage - mouto charge conditions11, 5, 10, 15, 30 s 1, 2, 5, 10, 15, 20, 30 min 1, 10000Quantity2000 pages containing 18 samples each 36000 pairs of measurements [N-C], [C] ^C], (TDS-C] or [Sal-C]Type2000 pages containing 18 samples each 1, 5, 10, 15, 30 s 1, 2, 5, 10, 15, 20, 30 min 1, 10000Selectable storage interval1, 5, 10, 15, 30 s 1, 2, 5, 10, 15, 20, 30 min 1, 10000Baud ratecan be set from 1200 to 38400 baud 0 ata bitBaud ratecan be set from 1200 to 38400 baud 10000Data bit8 10000ParityNoneStop bit1Flow ControlXon/XoffSerial cable lenghtMax 15m 1, 5, 10, 15, 20, 30 min 1, 1, 10, 15, 20,		147 µS/cm			
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Operating conditionsWorking temperature-550 °CStorage temperature-2565 °CWorking relative humidity090% RH without condensationProtection degreeIP66InstrumentINS5 x 90 x 40 mmDimensions (Length x Width x Height)185 x 90 x 40 mmWeight470 g (complete with batteries)MaterialABS, rubberDisplay2x4½ digits plus symbols	Date and time	in real time			
Working temperature-550 °CStorage temperature-2565 °CWorking relative humidity090% RH without condensationProtection degreeIP66InstrumentINSTANCEDimensions (Length x Width x Height)185 x 90 x 40 mmWeight470 g (complete with batteries)MaterialABS, rubberDisplay2x4½ digits plus symbols	Accuracy	1min/month max error			
Storage temperature-2565 °CWorking relative humidity090% RH without condensationProtection degreeIP66InstrumentINSTRUMENTDimensions (Length x Width x Height)185 x 90 x 40 mmWeight470 g (complete with batteries)MaterialABS, rubberDisplay2x4½ digits plus symbols	Operating conditions				
Working relative humidity 090% RH without condensation Protection degree IP66 Instrument INSTRUMENT Dimensions (Length x Width x Height) 185 x 90 x 40 mm Weight 470 g (complete with batteries) Material ABS, rubber Display 2x4½ digits plus symbols	Working temperature	-550 °C			
Protection degree IP66 Instrument I85 x 90 x 40 mm Dimensions (Length x Width x Height) 185 x 90 x 40 mm Weight 470 g (complete with batteries) Material ABS, rubber Display 2x41/2 digits plus symbols	Storage temperature	-25…65 ℃			
Instrument Dimensions (Length x Width x Height) Weight 470 g (complete with batteries) Material ABS, rubber Display	Working relative humidity	090% RH without condensation			
Dimensions (Length x Width x Height) 185 x 90 x 40 mm Weight 470 g (complete with batteries) Material ABS, rubber Display 2x4½ digits plus symbols	Protection degree	IP66			
(Length x Width x Height) 185 x 90 x 40 mm Weight 470 g (complete with batteries) Material ABS, rubber Display 2x4½ digits plus symbols	Instrument				
Weight 470 g (complete with batteries) Material ABS, rubber Display 2x4½ digits plus symbols		185 x 90 x 40 mm			
Material ABS, rubber Display 2x4½ digits plus symbols		470 g (complete with batteries)			
Display 2x4½ digits plus symbols	_				
	Display	2x4½ digits plus symbols			

(*) The resistivity measurement is obtained from the reciprocal of conductivity measurement. Close to the bottom of the scale, the indication of resistivity appears like reported in the table below:

K cell = 0.01 cm ⁻¹		K cell = 0.1 cm^{-1}	
Conductivity (µS/cm)	Resistivity (MΩ·cm)	Conductivity (µS/cm)	Resistivity (MΩ·cm)
0.001 µS/cm	1000 MΩ·cm	0.01 µS/cm	100 MΩ·cm
0.002 µS/cm	500 MΩ·cm	0.02 µS/cm	50 MΩ·cm
0.003 µS/cm	333 MΩ·cm	0.03 µS/cm	33 MΩ·cm
0.004 µS/cm	250 MΩ·cm	0.04 µS/cm	25 MΩ·cm



- A In the HD2106.2 models of portable data logger, a new serial port miniUSB type HID (Human Interface Device) has been implemented. When making the connection to the PC by the USB cable Type A Mini USB B-type coded CP23, no USB driver installation is requested.
- **B** For the connection of the models **HD2106.1** to the RS232 port of your PC, the USB/serial converter is available (code **C.206**). The converter is equipped with its own drivers that have to be installed before connecting the converter to the PC.
- **C** The port with the MiniDIN connector which is present on every model is an RS232C type. By means of the cable coded HD2110CSNM, an RS232 port of a PC or the HD40.1. printer can be connected.





	CONDUCTIVITY PROBES		
ORDER CODE	MEASUREMENT RANGE	DIMENSIONS	
SP06T	K=0.7 5 µS/cm100 mS/cm 090 °C 4-electrode cell in PBT/Platinum General use No heavy tasks Max pressure 5 bar	L=1.5m	
SPT01G	K=0.1 0.1 µS/cm500 µS/cm 080 ℃ 2-electrode cell in Glass/Platinum Pure water Max pressure 5 bar	L=1.5m 0	
SPT1G	K=1 10 µS/cm10 mS/cm 080 °C 2-electrode cell in Glass/Platinum General heavy tasks, average conductivity Max pressure 5 bar	L=1.5m □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	
SPT10G	K=10 500 μS/cm200 mS/cm 080 °C 2-electrode cell in Glass/Platinum General heavy tasks, high conductivity Max pressure 5 bar	L=1.5m	

ORDERING CODES

- HD2106.1: The kit is composed by the instrument HD2105.1, 4 1.5V alkaline batteries, operating manual, case and DeltaLog9 software downloadable from Delta OHM website.
- HD2106.2: The kit is is composed by the instrument HD2105.2 data logger, 4 1.5V alkaline batteries, USB cable CP23, operating manual, case and DeltaLog9 software downloadable from Delta OHM website
- Conductivity probes, calibration solutions and temperature probes have to ordered separately.

Accessories

- HD2110CSNM: 8-pole connection cable MiniDin Sub D 9-pole female for RS232C.
- **C.206:** Cable for instruments of the series HD21...1 for direct connection to the USB input of a PC.
- SWD10: Stabilized power supply at 100-240Vac/12Vdc-1A mains voltage.
- HD40.1: The kit includes: 24-columm portable thermal printer, serial interface RS232, 57mm paper width, four NiMh 1.2V rechargeable batteries, SWD10 power supply, instruction manual, 5 thermal paper rolls. It uses the optional cable HD2110 CSNM.
- HD8700C: ACCREDIA ISO 17025 certified standard solutions kit: 0.001mol/l (147 μS/cm @ 25 °C) + 0.01mol/l (1413 μS/cm @ 25 °C) + 0.1mol/l (12880 μS/cm @ 25 °C).
 - Two 50 ml bottles for each type (6 bottles in total).
- HD22.2: Laboratory electrode holder composed of base plate with builtin magnetic stirrer, shaft and replaceable electrode hold-er. Suitable diameter 12mm. It holds up to 5 electrodes at the same time. Powered by power supplier SWD10 (optional).
- HD22.3: Laboratory electrode holder composed of base plate. Flexible arm for free positioning. Suitable for electrodes with diameter 12mm. It holds up to 5 electrodes at the same time.

Conductivity Probes

SP06T: Conductivity and temperature combined probe. Cell constant 0.7.

- SPT01G: Conductivity and temperature combined probe, glass body, 2 platinum wire electrodes, cell constant 0.1.
- SPT1G: Conductivity and temperature combined probe, glass body, 2 platinum wire electrodes, cell constant 1.
- SPT10G: Conductivity and temperature combined probe, glass body, 2 platinum wire electrodes, cell constant 10.

Temperature probes of the series TP87 and TP47... are suitable.

