


HD 2306.0
CONDUCTIVITY METER - THERMOMETER

The **HD2306.0** is a portable instrument with a large LCD display. It measures 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 or contact probes. The probe calibration can be performed automatically in one or more than one of the $147\mu\text{S}$, $1413\mu\text{S}$, $12880\mu\text{S}$ or $111800\mu\text{S}/\text{cm}$ conductivity calibration solutions. The temperature probes are equipped with an automatic recognition module and factory calibration data are stored inside.

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 disabled.

The instrument has **IP67** protection degree.

INSTRUMENT TECHNICAL CHARACTERISTICS

Measured quantities: χ , Ω , TDS, $^{\circ}\text{C}$, $^{\circ}\text{F}$

Instrument
Dimensions

(Length x Width x Height)

140x88x38mm

Weight

160g (complete with batteries)

Materials

ABS

Display

2x4½ digits plus symbols

Visible area: 52x42mm

Operating conditions
Working temperature

-5...50°C

Storage temperature

-25...65°C

Working relative humidity

0...90%RH without condensation

Protection degree

IP67

Power
Batteries

3 1.5V type AA batteries

Autonomy

200 hours with 1800mAh alkaline batteries

Power absorbed with instrument off

< 20µA

Connections

Conductivity input/temperature probes 8-pole male DIN45326 connector

Measurement of conductivity

		<i>Resolution</i>
Measuring range	0.00...19.99µS/cm	0.01µS/cm
Kcell=0.1	0.0...199.9µS/cm	0.1µS/cm
Measuring range	200...1999µS/cm	1µS/cm
Kcell=1	2.00...19.99mS/cm	0.01mS/cm
Measuring range	20.0...199.9mS/cm	0.1mS/cm
Kcell=10	200...1999mS/cm	1mS/cm
<i>Accuracy (conductivity)</i>	±0.5%1digit	

Measurement of resistivity

Measuring range	till 100MΩ·cm/(*)	
Kcell=0.1	5.0...199.9Ω·cm	0.1Ω·cm
Measuring range	200...999Ω·cm	1Ω·cm
Kcell=1	1.00k...19.99kΩ·cm	0.01kΩ·cm
Measuring range	20.0k...99.9kΩ·cm	0.1kΩ·cm
Kcell=10	100k...999kΩ·cm	1kΩ·cm
Measuring range	1...10MΩ·cm	1MΩ·cm
Kcell=100	0.5...5.0Ω·cm	0.1Ω·cm
<i>Accuracy (resistivity)</i>	±0.5%±1digit	

Measurement of salinity

	<i>Resolution</i>
Measurement range	1 mg/l
0.000...1.999g/l	10mg/l
2.00...19.99g/l	0.1g/l
20.0...199.9g/l	
<i>Accuracy (salinity)</i>	±0.5%1digit

Measurement of total dissolved solids (with coefficient $\chi/TDS=0.5$)

Measuring range	0.00...19.99mg/l	0.05mg/l
Kcell=0.1	0.0...199.9mg/l	0.5mg/l
Measuring range	200...1999mg/l	1mg/l
Kcell=1	2.00...19.99g/l	0.01g/l
Measuring range	20.0...99.9g/l	0.1g/l
Kcell=10	100...999g/l	1g/l
<i>Accuracy (conductivity)</i>	±0.5%±1digit	

Measurement of temperature

Pt100 measuring range	-50...+200°C
Pt1000 measuring range	-50...+200°C
<i>Resolution</i>	0.1°C
<i>Accuracy</i>	±0.25°C
<i>Drift after 1 year</i>	0.1°C/year

Temperature compensation

automatic/manual $0...100^{\circ}\text{C}$ with α_{T} selectable from 0.00 to 4.00%/ $^{\circ}\text{C}$

20°C or 25°C

0.4...0.8

Cell constant K (cm^{-1}) 0.1, 0.7, 1.0 and 10.0

Standard solutions automatically detected @25°C

147µS/cm

1413µS/cm

12880µS/cm

111800µS/cm

Preset cell constant values:

K=0,01 - K=0,1 - K=1, K=10



(*) 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 = 0.1 cm ⁻¹	
Conductivity (µS/cm)	Resistivity (MΩ·cm)
0.01 µS/cm	100 MΩ·cm
0.02 µS/cm	50 MΩ·cm
0.03 µS/cm	33 MΩ·cm
0.04 µS/cm	25 MΩ·cm

4 wire Pt100 and 2 wire Pt1000 Temperature probes

Model	Type	Working range	Accuracy
TP47.100	Pt100 4 wires	-50...+200°C	Class A
TP47.1000	Pt1000 2 wires	-50...+200°C	Class A
TP87.100	Pt100 4 wires	-50...+200°C	Class A
TP87.1000	Pt1000 2 wires	-50...+200°C	Class A

Temperature drift @20°C 0.005%/°C

ORDER CODES

HD2306.0K: The kit is composed of: instrument HD2306.0, 3 1.5V alkaline batteries, operating manual, case. **Other conductivity probes, temperature probes, calibration solutions must be ordered separately.**

HD22.2: Laboratory electrode holder composed of base plate with built-in magnetic stirrer, shaft and replaceable electrode holder. Suitable diameter 12mm. Powered by bench-top meters of the series HD22...with cable HD22.2.1 (optional) or power supplier SWD10 (optional).

HD22.3: Laboratory electrode holder composed of base plate. Flexible arm for free positioning. Suitable for electrodes with diameter 12mm.

Conductivity probes

Please see the order codes reported in the probes' technical specifications.

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.

Temperature probes complete with SICRAM module

TP87: PT100 sensor immersion probe. Stem Ø 3 mm, length 70 mm. Cable length 1 m.

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 without SICRAM module

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.

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



TECHNICAL DATA OF PROBES AND MODULES EQUIPPED WITH INSTRUMENT			
2 and 4 electrode conductivity probes			
ORDER CODE	MEASUREMENT RANGE	DIMENSIONS	
SP06T	K=0.7 5µS...200mS/cm 0...90°C 4-electrode cell in Pocan/Platinum		
SPT01G	K=0.1 0.1µS...500µS/cm 0...80°C 2-electrode cell in Glass/Platinum		
SPT1G	K=1 10µS...10mS/cm 0...80°C 2-electrode cell in Glass/Platinum		
SPT10G	K=10 500µS...200mS/cm 0...80°C 2-electrode cell in Glass/Platinum		