



HD 2306.0 CONDUCTIVITY METER - THERMOMETER

The **HD2306.0** is a portable instrument with a large LCD display. It measures conductivity, liquid resistivity, and total dissolved solids (TDS), 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 147µS, 1413µS, 12880µS/cm or 111800µS/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, °C, °F

Instrument

Dimensions

(Length x Width x Height)

Weight

Materials

Display

140x88x38mm

160g (complete with batteries)

ABS

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

Measuring range Kcell=0.1

Measuring range Kcell=1

0.00...19.99µS/cm

0.0...199.9µS/cm

200...1999µS/cm

2.00...19.99mS/cm

20.0...199.9mS/cm

200...1999mS/cm

Measuring range Kcell=10

Accuracy (conductivity)

±0.5%±1digit

Resolution

0.01µS/cm

0.1µS/cm

1µS/cm

0.01mS/cm

0.1mS/cm

1mS/cm

Measurement of resistivity

Measuring range Kcell=0.1

Measuring range Kcell=1

till 100MΩ·cm/(*)

5.0...199.9Ω·cm

200...999Ω·cm

1.00k...19.99kΩ·cm

20.0k...99.9kΩ·cm

100k...999kΩ·cm

1...10MΩ·cm

Measuring range Kcell=10

Accuracy (resistivity)

0.5...5.0Ω·cm

±0.5%±1digit

0.1Ω·cm

1Ω·cm

0.01kΩ·cm

0.1kΩ·cm

1kΩ·cm

1MΩ·cm

0.1Ω·cm

Measurement of total dissolved solids (with coefficient χ /TDS=0.5)

Measuring range Kcell=0.1

Measuring range Kcell=1

0.00...19.99mg/l

0.0...199.9mg/l

200...1999mg/l

2.00...19.99g/l

20.0...99.9g/l

Measuring range Kcell=10

Accuracy (conductivity)

100...999g/l

±0.5%±1digit

0.05mg/l

0.5mg/l

1mg/l

0.01g/l

0.1g/l

1g/l

Measurement of temperature

Pt100 measuring range

Pt1000 measuring range

Resolution

Accuracy

Drift after 1 year

-50...+200°C

-50...+200°C

0.1°C

±0.1°C ±1digit

0.1°C/year

Temperature compensation automatic/manual

0...100°C with α_t selectable from 0.00 to 4.00%/°C

Reference temperature

20°C or 25°C

χ / TDS Conversion factor

0.4...0.8

Preset cell constant values:

K=0.1 - K=0.7 - K=1 - K=10

Standard solutions automatically detected @25°C

147µS/cm

1413µS/cm

12880µS/cm

111800µS/cm



(*) 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

TECHNICAL DATA OF PROBES AND MODULES EQUIPPED WITH INSTRUMENT Temperature probes Pt100 sensor with SICRAM module

Model	Type	Application field	Accuracy
TP472I	Immersion	-196°C...+500°C	±0.25°C (-196°C...+300°C) ±0.5°C (+300°C...+500°C)
TP472I.0 1/3 DIN Thin Film	Immersion	-50°C...+300°C	±0.25°C (-50°C...+300°C)
TP473PI	Penetration	-50°C...+400°C	±0.25°C (-50°C...+300°C) ±0.5°C (+300°C...+400°C)
TP473P.0 1/3 DIN Thin Film	Penetration	-50°C...+300°C	±0.25°C (-50°C...+300°C)
TP474C.I	Contact	-50°C...+400°C	±0.3°C (-50°C...+300°C) ±0.5°C (+300°C...+400°C)
TP474C.0 1/3 DIN Thin Film	Contact	-50°C...+300°C	±0.3°C (-50°C...+300°C)
TP475A.0 1/3 DIN Thin Film	Air	-50°C...+250°C	±0.3°C (-50°C...+250°C)
TP472I.5	Penetration	-50°C...+400°C	±0.3°C (-50°C...+300°C) ±0.6°C (+300°C...+400°C)
TP472I.10	Penetration	-50°C...+400°C	±0.30°C (-50°C...+300°C) ±0.6°C (+300°C...+400°C)
TP49A.0 Class A Thin Film	Immersion	-70°C...+250°C	±0.3°C (-70°C...-50°C) ±0.25°C (-50°C...+250°C)
TP49AC.0 Class A Thin Film	Contact	-70°C...+250°C	±0.3°C (-70°C...-50°C) ±0.25°C (-50°C...+250°C)
TP49AP.0 Class A Thin Film	Penetration	-70°C...+250°C	±0.3°C (-70°C...-50°C) ±0.25°C (-50°C...+250°C)
TP875.I	Globe-thermometer Ø150mm	-30°C...+120°C	±0.25°C
TP876.I	Globe-thermometer Ø50mm	-30°C...+120°C	±0.25°C
TP87.0 1/3 DIN Thin Film	Immersion	-50°C...+200°C	±0.25°C
TP878.0 1/3 DIN Thin Film TP878.1.0 1/3 DIN Thin Film	Photovoltaic	+4°C...+85°C	±0.25°C
TP879.0 1/3 DIN Thin Film	Compost	-20°C...+120°C	±0.25°C

Common characteristics
Temperature drift @ 20°C 0.003%/°C

4 wires Pt100 and 2 wires Pt1000 Probes

Model	Type	Application field	Accuracy
TP47.100.0 1/3 DIN Thin Film	4 wires Pt100	-50...+250°C	1/3 DIN
TP47.1000.0 1/3 DIN Thin Film	2 wires Pt1000	-50...+250°C	1/3 DIN
TP87.100.0 1/3 DIN Thin Film	4 wires Pt100	-50...+200°C	1/3 DIN
TP87.1000.0 1/3 DIN Thin Film	2 wires Pt1000	-50...+200°C	1/3 DIN

Common features

Temperature drift @20°C

Pt100 0.003%/°C

Pt1000 0.005%/°C

ORDERING CODES

HD2306.0: 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.

HD8711: Standard calibration solution 1mol/l equal to 111800μS/cm @25°C, 200cc.

Temperature probes equipped with SICRAM module

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

TP472I.0: Thin film Pt100 sensor, immersion probe. Stem Ø 3 mm, length 230 mm. Cable length 2 m.

TP473PI: Wire wound Pt100 sensor, penetration probe. Stem Ø 4mm, length 150 mm. Cable length 2 m.

TP473P.0: 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.0: Thin film Pt100 sensor, contact probe. Stem Ø 4mm, length 230mm, contact surface Ø 5mm. Cable length 2 m.

TP475A.0: Thin film Pt100 sensor, air probe. Stem Ø 4mm, length 230mm. Cable length 2 m.

TP472I.5: Thin film Pt100 sensor, penetration probe. Stem Ø 6mm, length 500 mm. Cable length 2 m.

TP472I.10: Thin film Pt100 sensor, penetration probe. Stem Ø 6mm, length 1000mm. Cable length 2 m.

TP49A.0: Thin film Pt100 sensor, immersion probe. Stem Ø 2,7mm, length 150mm. Cable length 2 m. Aluminium handle

TP49AC.0: Thin film Pt100 sensor, contact probe. Stem Ø 4mm, length 150mm. Cable length 2 m. Aluminium handle

TP49AP.0: 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.

TP87.0: Thin film Pt100 sensor, immersion probe. Stem Ø 3 mm, length 70 mm. Cable length 2 m.

TP878.0: Thin film Pt100 sensor, contact probe for solar panels. Cable length 2 m.

TP878.1.0: Thin film Pt100 sensor, contact probe for solar panels. Cable length 5 m.

TP879.0: Thin film Pt100 sensor, penetration probe for compost. Stem Ø 8 mm, length 1000 mm. Cable length 2 m.



HD8747

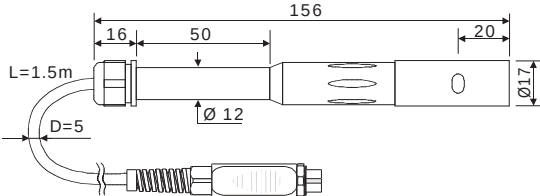
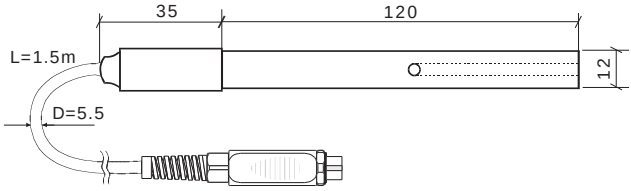
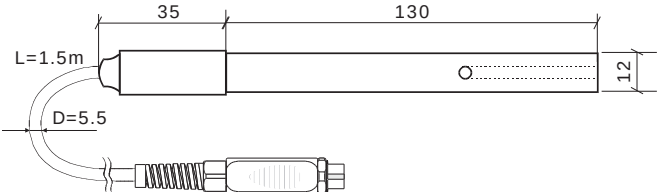
HD8714

HD8712

HD8711

Temperature probes without SICRAM module

- TP47.100.0:** Thin film Pt100 sensor, immersion probe. Stem Ø 3mm, length 230mm.
Connection cable 4 wires with connector, length 2 m.
- TP47.1000.0:** 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.
- TP87.100.0:** Thin film Pt100 sensor, immersion probe. Stem Ø 3mm, length 70mm.
4-wires connection cable with connector, length 1 m.
- TP87.1000.0:** Thin film Pt1000 sensor, immersion probe. Stem Ø 3mm, length 70mm. 2-wires connection cable with connector, length 1 m.

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 Pocer/Platinum Max pressure 5bar	
SPT01G	K=0.1 0.1µS...500µS/cm 0...80°C 2-electrode cell in Glass/Platinum Max pressure 5bar	
SPT1G	K=1 10µS...10mS/cm 0...80°C 2-electrode cell in Glass/Platinum Max pressure 5bar	
SPT10G	K=10 500µS...200mS/cm 0...80°C 2-electrode cell in Glass/Platinum Max pressure 5bar	