



HYGRO-THERMOMETER HD2301.0

The **HD2301.0** is a portable instrument with a large LCD display. It measures relative humidity and temperature using a Pt100 sensor or thermocouple humidity/temperature combined probe. Temperature only is measured by immersion, penetration or contact probes. The sensor can be a Pt100, Pt1000 or Ni1000.

When the humidity/temperature combined probe is connected, the instrument calculates and displays the absolute humidity, the dew point, the partial vapour pressure.

The probes are fitted with an automatic detection module, with the factory calibration settings already being memorized inside.

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

Other functions include: the relative measurement REL, the HOLD function, and the automatic turning off that can also be disabled.

The instruments have IP67 protection degree.

INSTRUMENT TECHNICAL CHARACTERISTICS

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

Operating temperature	-5...50°C
Stocking 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

Measuring unit °C - °F - %RH - g/m³ - Td - hPa

Connections

Input module for the probes 8-pole male DIN45326 connector

Measurement of relative humidity by Instrument

Measurement range	0...100%RH
Resolution	0.1%RH
Accuracy	±0.1%RH
Drift after 1 year	0.1%RH/year

Measurement of temperature by Instrument

Pt100 measurement range	-200...+650°C
Pt1000 measurement range	-200...+650°C
Resolution	0.1°C
Accuracy	±0.1°C
Drift after 1 year	0.1°C/year



PROBES AND MODULES TECHNICAL DATA EQUIPPED WITH THE INSTRUMENT

Temperature probes Pt100 sensor using SICRAM module

Model	Type	Working range	Accuracy
TP472I	Immersion	-196°C...+500°C	±0.25°C (-196°C...+350°C) ±0.4°C (+350°C...+500°C)
TP472I.0	Immersion	-50°C...+400°C	±0.25°C (-50°C...+350°C) ±0.4°C (+350°C...+400°C)
TP473P.0	Penetration	-50°C...+400°C	±0.25°C (-50°C...+350°C) ±0.4°C (+350°C...+400°C)
TP474C.0	Contact	-50°C...+400°C	±0.3°C (-50°C...+350°C) ±0.4°C (+350°C...+400°C)
TP475A.0	Air	-50°C...+250°C	±0.3°C (-50°C...+250°C)
TP472I.5	Immersion	-50°C...+400°C	±0.3°C (-50°C...+350°C) ±0.4°C (+350°C...+400°C)
TP472I.10	Immersion	-50°C...+400°C	±0.3°C (-50°C...+350°C) ±0.4°C (+350°C...+400°C)

Common characteristics

Resolution	0.1°C
Temperature drift @ 20°C	0.003%/°C

Relative humidity and temperature probes using SICRAM module

Model	Temperature sensor	Working range		Accuracy	
		%RH	Temperature	%RH	Temp.
HP472AC	Pt100	5...98%RH	-20°C...+80°C	±2% (5...95%RH) ±3% (95...99%RH)	±0.3°C
HP572AC	Thermocouple K	5...98%RH	-20°C...+80°C		±0.5°C
HP473AC	Pt100	5...98%RH	-20°C...+80°C	±2.5% (5...95%RH) ±3.5% (95...99%RH)	±0.3°C
HP474AC	Pt100	5...98%RH	-40°C...+150°C		±0.3°C
HP475AC	Pt100	5...98%RH	-40°C...+150°C	±2.5% (5...95%RH) ±3.5% (95...99%RH)	±0.3°C
HP477DC	Pt100	5...98%RH	-40°C...+150°C		±0.3°C

Common characteristics

Relative humidity

Sensor	Capacitive
Typical capacity @30%RH	300pF±40pF
Resolution	0.1%RH
Temperature drift @ 20°C	0.02%RH/°C
Response time %RH at constant temperature	10sec (10→80%RH; air speed=2m/s)

Temperature with sensor Pt100

Resolution	0.1°C
Temperature drift @ 20°C	0.003%/°C

Temperature with thermocouple K - HP572AC

Resolution	0.1°C
Temperature drift @ 20°C	0.02%/°C



Probes Pt100 4 wires and Pt1000 2 wires

Model	Type	Working range	Accuracy
TP47.100	4 wire Pt100	-50...+400°C	Class A
TP47.1000	2 wire Pt1000	-50...+400°C	Class A

Common characteristics

Resolution	0.1°C
Temperature drift @ 20°C	
Pt100	0.003%/°C
Pt1000	0.005%/°C

ORDER CODES

HD2301.0: The kit is composed of the instrument HD2301.0, **combined probe HP472AC**, 3 1.5V alkaline batteries, operating manual, case.

**Probes complete with SICRAM module
TEMPERATURE MEASUREMENT**

- TP472I:** Immersion probe, sensor Pt100. Stem Ø 3mm, length 300mm. Cable length 2 metres.
- TP472I.0:** Immersion probe, sensor Pt100. Stem Ø 3mm, length 230mm. Cable length 2 metres.
- TP473P.0:** Penetration probe, sensor Pt100. Stem Ø 4mm, length 150mm. Cable length 2 metres.
- TP474C.0:** Contact probe, sensor Pt100. 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.
- TP472I.5:** Immersion probe, sensor Pt100. Stem Ø 6mm, length 500mm. Cable length 2 metres.
- TP472I.10:** Immersion probe, sensor Pt100. Stem Ø 6mm, length 1,000mm. Cable length 2 metres.

RELATIVE HUMIDITY AND TEMPERATURE PROBES

- HP472AC:** Combined probe %RH and temperature, dimensions Ø 26x170mm. Connection cable length 2 metres.
- HP572AC:** Combined probe %RH and temperature - **thermocouple K sensor**. Dimensions Ø 26x170mm. Connection cable length 2 metres.
- HP473AC:** Combined probe %RH and temperature. Handle dimensions Ø 26x130mm, probe Ø 14x110mm. Connection cable length 2 metres.
- HP474AC:** Combined probe %RH and temperature. Handle dimensions Ø 26x130mm, probe Ø 14x210mm. Connection cable length 2 metres.
- HP475AC:** Combined probe %RH and temperature. Connection cable length 2 metres. Handle Ø 26x110mm. Stainless steel stem Ø 12x560mm. Point Ø 13.5x75mm.
- HP477DC:** Combined sword probe %RH and temperature. Connection cable length 2 metres. Handle Ø 26x110mm. Probe's stem 18x4mm, length 520mm.



HD11

HD33

HD75

Temperature probes without SICRAM module

- TP47.100:** Immersion probe sensor Pt100 direct 4 wires. Probe's stem Ø 3mm, length 230mm. 4 wire connection cable with connector, length 2 metres.
- TP47.1000:** Immersion probe sensor Pt1000. Probe's stem Ø 3mm, length 230mm. Connection cable 2 wires with connector, length 2 metres.
- TP47:** Only connector for probe connection: direct 4 wire Pt100, 2 wire Pt1000.

Accessories

- HD11:** Saturated solution at 11.3%RH@20°C for calibration of relative humidity probes, fixing adapter M24x1.5
- HD33:** Saturated solution at 33.0%RH@20°C for calibration of relative humidity probes, fixing adapter M24x1.5
- HD75:** Saturated solution at 75.4%RH@20°C for calibration of relative humidity probes, fixing adapter M24x1.5

Protection for humidity probes HP472AC, HP572AC (M24x1,5)

- P1:** Stainless steel grid protection for probes Ø 26 mm.
- P2:** 20µ sintered polyethylene PE protection for probes Ø 26 mm.
- P3:** 20µ sintered bronze protection for probes Ø 26 mm.
- P4:** 20µ sintered PE complete cap for probes Ø 26 mm.

Protection for humidity probes HP473AC, HP474AC, HP475AC (M12x1)

- P5:** Stainless steel grid protection for probes Ø 14 mm.
- P6:** 20µm sintered complete protection made of stainless steel for probes Ø 14 mm.
- P7:** 10µm sintered complete protection made of PFTE for probes Ø 14 mm.



