HD 2101.1
HD 2101.2

HD2101.1 AND HD2101.2
HYGRO-THERMOMETERS

The **HD2101.1** and **HD2101.2** are portable instruments with a large LCD display. They measure 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 or Pt1000.
When the humidity/temperature combined probe is connected, the instrument calculates and displays the absolute humidity, the dew point, the partial vapour pressure, and the **comfort indices**.
The probes are fitted with an automatic detection module, with the factory calibration data already stored inside.

The HD2101.2 is a **datalogger**. It stores up to 38,000 samples which can be transferred from the instrument connected to a PC via the multi-standard RS232C serial port and USB 2.0. The storing interval, printing, and baud rate can be configured using the menu.
The HD2101.1 and HD2101.2 models are fitted with an RS232C serial port and can transfer the acquired measurements in real time to a PC or to a portable printer.
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 excluded.
The instruments have IP67 protection degree.


HD2101.2


HD2101/USB

INSTRUMENT TECHNICAL CHARACTERISTICS

Instrument

Dimensions (Length x Width x Height)	185x90x40mm
Weight	470g (complete with batteries)
Materials	ABS, rubber
Display	2x4½ digits plus symbols Visible area: 52x42mm

Operating conditions

Operating temperature	-5…50°C
Storage temperature	-25…65°C
Working relative humidity	0…90%RH without condensation
Protection degree	**IP67**

Power

Batteries	4 1.5V type AA batteries
Autonomy	200 hours with 1800mAh alkaline batteries
Power absorbed with instrument off	20µA
Mains	Output mains adapter 12Vdc / 1000mA

Measuring unit	*°C - °F - %RH - g/kg - g/m³ - hPa - J/g - Td Tw - DI - NET*
Security of stored data	Unlimited, independent of battery charge conditions

Time

Date and time	Schedule in real time
Accuracy	1min/month max drift

*Measured values storage - model **HD2101.2***

Type	2000 pages containing 19 samples each
Quantity	Total of 38000 samples
Storage interval	1s…3600s (1hour)

Serial interface RS232C

Type	RS232C electrically isolated
Baud rate	Can be set from 1200 to 38400 baud
Data bit	8
Parity	None
Stop bit	1
Flow Control	Xon/Xoff
Serial cable length	Max 15m
Immediate print interval	1s…3600s (1hour)

*USB interface - model **HD2101.2***

Type	1.1 - 2.0 electrically isolated

Connections

Input module for the probes	8-pole male DIN45326 connector
Serial interface and USB	8-pole MiniDin connector
Mains adapter	2-pole connector (positive at centre)

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

Relative humidity and temperature probes using SICRAM module

Model	Temperature sensor	Working range		Accuracy	
		%RH	Temperature	%RH	Temp
HP472ACR	Pt100	0…100%RH	-20°C…+80°C	±1,5%RH (10…90%RH) ±2,5%RH (in the remaining range)	±0.3°C
HP572ACR	Thermocouple K	0…100%RH	-20°C…+80°C		±0.5°C
HP473ACR	Pt100	0…100%RH	-20°C…+80°C		±0.3°C
HP474ACR	Pt100	0…100%RH	-40°C…+150°C	-40°C…150°C (180°C) ±(1,5+0,02 times the displayed value)	±0.3°C
HP475ACR	Pt100	0…100%RH	-40°C…+150°C		±0.3°C
HP475AC1R	Pt100	0…100%RH	-40°C…+150°C		±0.3°C
HP477DCR	Pt100	0…100%RH	-40°C…+150°C		±0.3°C
HP478ACR	Pt100	0…100%RH	-40°C…+150°C		±0.3°C

Common characteristics
Relative humidity

Sensor	Capacitive
Typical capacity @30%RH	300pF±40pF
Sensor operating temperature (depending on model)	-20°C…+80°C -40°C…+150°C
Measuring range	0÷100%RH
Uncertainty	±1,5%RH (10…90%RH) ±2,5%RH in the remaining range)
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

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

Model	Type	App. 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	Penetration	-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	Contact	-50°C…+400°C	±0.3°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	±0.30°C (-50°C…+350°C) ±0.4°C (+350°C…+400°C)
TP49A	Immersion	-70°C…+400°C	±0.25°C (-50°C…+350°C) ±0.4°C (+350°C…+400°C)
TP49AC	Contact	-70°C…+400°C	±0.25°C (-50°C…+350°C) ±0.4°C (+350°C…+400°C)
TP49AP	Penetration	-70°C…+400°C	±0.25°C (-50°C…+350°C) ±0.4°C (+350°C…+400°C)
TP875	Globethermometer Ø 150mm	-30°C…+120°C	±0.25°C
TP876	Globethermometer Ø 50mm	-30°C…+120°C	±0.25°C
TP87	Immersion	-50°C…+200°C	±0.25°C
TP878 TP878.1	For solar panel	+5°C…+80°C	±0.25°C
TP879	For compost	-20°C…+120°C	±0.25°C

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

4 wire Pt100 and 2 wire Pt1000 Probes

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

Common characteristics
Temperature drift @ 20°C

Pt100	0.003%/°C
Pt1000	0.005%/°C

ORDER CODES

HD2101.1: The kit is composed of the instrument HD2101.1, 4 1.5V alkaline batteries, operating manual, case and DeltaLog9 software. **Probes and cable must be ordered separately.**

HD2101.2K: The kit is composed of the HD2101.2 **datalogger,** 4 1.5V alkaline batteries, operating manual, case and DeltaLog9 software. **The probes and cable must be ordered separately.**
HD2110CSNM: 8-pole connection cable MiniDin - Sub D 9-pole female for RS232C.
HD2101/USB: Connection cable USB 2.0 connector type A - 8-pole MiniDin.
DeltaLog9: Software for download and management of the data on PC using Windows 98 to Vista operating systems.
SWD10: Stabilized power supply at 230Vac/12Vdc-1000mA mains voltage.
HD40.1: On request, portable, serial input, 24 column thermal printer, 58mm paper width.

Relative humidity and temperature probes complete with SICRAM module

HP472ACR: %RH and temperature combined probe, dimensions Ø 26x170 mm. 2 m connecting cable.
HP572ACR: %RH and temperature combined probe, **K thermocouple sensor**. Dimensions Ø 26x170 mm. 2 m connecting cable.
HP473ACR: %RH and temperature combined probe. Dimensions: handle Ø 26x130 mm, probe Ø 14x110 mm. 2m connecting cable.
HP474ACR: %RH and temperature combined probe. Dimensions: handle Ø 26x130 mm, probe Ø 14x210 mm. 2m connecting cable.
HP475ACR: %RH and temperature combined probe. 2 m connecting cable. Handle Ø 26x110 mm. Stainless-steel tube Ø 12x560 mm. Terminal tip Ø 13.5x75 mm.
HP475AC1R: %RH and temperature combined probe. 2 m connection cable. Handle Ø 26x110 mm. Stainless steel stem Ø 14x480 mm.
HP477DCR: %RH and temperature combined sword probe. 2 m connecting cable. Handle Ø 26x110 mm. Probe tube 18x4 mm, length 520 mm.
HP478ACR: %RH and temperature combined probe. Dimensions Ø 14x130 mm. 5m connection cable.

Temperature PROBES complete with SICRAM module

TP472I: Immersion probe, Pt100 sensor. Stem Ø 3 mm, length 300 mm. Cable length 2 metres.
TP472I.0: Immersion probe, Pt100 sensor. Stem Ø 3 mm, length 230 mm. Cable length 2 metres.
TP473P: Penetration probe, Pt100 sensor. Stem Ø 4mm, length 150 mm. Cable length 2 metres.
TP473P.0: Penetration probe, Pt100 sensor. Stem Ø 4mm, length 150 mm. Cable length 2 metres.
TP474C: Contact probe, Pt100 sensor. Stem Ø 4mm, length 230mm, contact surface Ø 5mm. Cable length 2 metres.
TP474C.0: Contact probe, Pt100 sensor. Stem Ø 4mm, length 230mm, contact surface Ø 5mm. Cable length 2 metres.
TP475A.0: Air probe, Pt100 sensor. Stem Ø 4mm, length 230mm. Cable length 2 metres.
TP472I.5: Immersion probe, Pt100 sensor. Stem Ø 6mm, length 500 mm. Cable length 2 metres.
TP472I.10: Immersion probe, Pt100 sensor. Stem Ø 6mm, length 1000mm. Cable length 2 metres.
TP875: Globe thermometer Ø 150mm with handle, cable length 2 metres.
TP876: Globe thermometer Ø 50mm with handle. Cable 2 metres.
TP87: Immersion probe, Pt100sensor. Stem Ø 3mm, length 70mm. Cable 2 metres.
TP878: Contact probe for solar panels. Cable 2 metres
TP878.1: Contact probe for solar panels. Cable 5 metres.

Temperature probes without SICRAM module

TP47.100: 4 wire direct 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.
TP47: Only connector for probe connection: direct 4 wires Pt100 and 2 wires Pt1000.

Accessories

HD11: Saturated solution at 11.3%RH@20°C for calibration of relative humidity probes, fixing adapter M24x1.5, M12x1.
HD33: Saturated solution at 33.0%RH@20°C for calibration of relative humidity probes, fixing adapter M24x1.5, M12x1.
HD75: Saturated solution at 75.4%RH@20°C for calibration of relative humidity probes, fixing adapter M24x1.5, M12x1.

Protection for humidity probes Ø 26 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 Ø 14 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 PTFE for probes Ø 14 mm.
P8: Stainless steel grid and Pocan protection for probes Ø 14 mm.