



## MANOMETER - THERMOMETER HD2124.1 AND HD2124.2

The **HD2124.1** and **HD2124.2** are portable instruments with **two inputs** and large LCD display. They perform measurements of absolute, relative and differential pressure, and temperature.

The PP471 electronic module is used to measure the pressure. The PP471 electronic module works as an interface between the instrument and the TP704 and TP705 series Delta Ohm probes.

The temperature is detected with immersion, penetration, contact or air Pt100 probe with SICRAM module or 4 wire direct Pt100 probe.

The temperature probes are fitted with SICRAM module and the factory calibration settings are already memorized inside. Upon turning on the instrument automatically detects them.

The HD2124.2 instrument is a **datalogger**. It memorizes up to 32,000 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 HD2124.2 model is also 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, the Peak function detects the presence of pressure peaks, the A-B function calculates the difference of the pressures or temperatures measured by the two inputs A and B. 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)	185x90x40mm
Weight	470g (complete with batteries)
Materials	ABS, rubber
Display	2x4½ characters 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	4 1.5V type AA batteries
Autonomy	200 hours with 1800mAh alkaline batteries

Power absorbed with instrument off	20µA
Mains	Output mains adapter 9Vdc / 250mA
Measuring unit	°C - °F - Pa - hPa - mbar - bar - atm mmHg - mmH <sub>2</sub> O - kg/cm <sup>2</sup> - PSI - inchHg

**Security of memorized data** Unlimited, independently of battery charge conditions

#### Time

Date and time	Schedule in real time
Precision	1min/month max departure

#### Measured values storage - model **HD2124.2**

Type	2000 pages of 16 samples each
Quantity	32,000 pairs of 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 **HD2124.2**

Type	1.1 - 2.0 electrically isolated
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#### Connections

Input module for the probes	2 8-pole male DIN45326 connectors
Serial interface	8-pole MiniDin connector
USB interface - model <b>HD2124.2</b>	8-pole MiniDin connector
Mains adapter	2-pole connector (positive at centre)

#### Measurement of temperature by Instrument

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



## INSTRUMENT EQUIPPED WITH PROBES AND MODULES TECHNICAL DATA

### Measurement of pressure by module PP471

All TP704 and TP705 series Delta Ohm probes can be connected to the PP471 module. For the technical characteristics of the single probes, see the table below.

#### Technical characteristics

Accuracy	±0.05% of bottom scale
Peak duration	≥ 5ms
Peak accuracy	±0.5% of bottom scale
Peak dead band	≤ 2% of bottom scale

#### Temperature probes Pt100 sensor using SICRAM module

Model	Type	Application 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

#### 4 wire Pt100 probes

Model	Type	Application range	Precision
TP47.100	4 wire Pt100	-50°C...+400°C	Class A

#### Common characteristics

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



AF209.60



HD2101/USB



HD2110CSNM

### PRESSURE PROBE TABLE

Bottom scale pressure	Maximum overpressure	Resolution	ORDER CODES			Accuracy From 20 to 25°C	Working temperature	Connection
			Differential pressure	Relative pressure (compared to atmosphere)	Absolute pressure			
			NON insulated membrane	Insulated membrane	Insulated membrane			
10.0 mbar	20.0 mbar	0.01mbar	TP705-10MBD			0.50 % FSO	0...60°C	Tube Ø 5mm
20.0 mbar	40.0 mbar	0.01mbar	TP705-20MBD			0.50 % FSO	0...60°C	Tube Ø 5mm
50.0 mbar	100 mbar	0.01mbar	TP705-50MBD			0.50 % FSO	0...60°C	Tube Ø 5mm
100 mbar	200 mbar	0.1mbar	TP705-100MBD			0.25 % FSO	0...60°C	Tube Ø 5mm
200 mbar	400 mbar	0.1mbar	TP705-200MBD			0.25 % FSO	0...60°C	Tube Ø 5mm
				TP704-200MBGI		0.25 % FSO	0...80°C	¼ BSP
500 mbar	1000 mbar	0.1mbar	TP705-500MBD			0.25 % FSO	0...60°C	Tube Ø 5mm
				TP704-500MBGI		0.25 % FSO	0...80°C	¼ BSP
1.00 bar	2.00 bar	1mbar	TP705-1BD	TP705BARO		0.25 % FSO	0...60°C	Tube Ø 5mm
				TP705-1BGI		0.25 % FSO	0...80°C	¼ BSP
2.00 bar	4.00 bar	1mbar	TP705-2BD			0.25 % FSO	0...60°C	Tube Ø 5mm
				TP704-2BGI	TP704-2BAI	0.40 % FSO	0...80°C	¼ BSP
5.00 bar	10.00 bar	1mbar		TP704-5BGI	TP704-5BAI	0.40 % FSO	0...80°C	¼ BSP
10.0 bar	20.0 bar	0.01bar		TP704-10BGI	TP704-10BAI	0.40 % FSO	0...80°C	¼ BSP
20.0 bar	40.0 bar	0.01bar		TP704-20BGI	TP704-20BAI	0.40 % FSO	0...80°C	¼ BSP
50.0 bar	100.0 bar	0.01bar		TP704-50BGI	TP704-50BAI	0.40 % FSO	0...80°C	¼ BSP
100 bar	200 bar	0.1bar			TP704-100BAI	0.40 % FSO	0...80°C	¼ BSP
200 bar	400 bar	0.1bar			TP704-200BAI	0.40 % FSO	0...80°C	¼ BSP
500 bar	750 bar	0.1bar			TP704-500BAI	0.40 % FSO	0...80°C	¼ BSP

**ORDER CODES**

**HD2124.1K:** The kit is composed of the instrument HD2124.1, **SICRAM interface module PP471**, connection cable for serial output HD2110CSNM, 4 1.5V alkaline batteries, operating manual, case and DeltaLog9 software. **The probes must be ordered separately.**

**HD2124.2K:** The kit is composed of the instrument HD2124.2 **datalogger**, **SICRAM interface module PP471**, connection cable HD2101/USB, 4 1.5V alkaline batteries, operating manual, case and DeltaLog9 software. **The probes 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 XP operating systems.

**AF209.60:** Stabilized power supply at 230Vac/9Vdc-300mA mains voltage.

**S'print-BT:** On request, portable, serial input, 24 column thermal printer, 58mm paper width.

**Probes complete with SICRAM module  
PRESSURE MEASUREMENT PROBES**

**PP471:** SICRAM interface module between instrument and TP704 and TP705 series Delta Ohm probes. Cable length 2 metres.

The list of pressure probes is outlined in the technical data table.

**Probes complete with SICRAM module  
TEMPERATURE MEASUREMENT PROBES**

**TP472I:** Immersion probe, sensor Pt100. Stem Ø 3 mm, length 300 mm. Cable length 2 metres.

**TP472I.0:** Immersion probe, sensor Pt100. Stem Ø 3 mm, length 230 mm. Cable length 2 metres.

**TP473P.0:** Penetration probe, sensor Pt100. Stem Ø 4mm, length 150 mm. 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 500 mm. Cable length 2 metres.

**TP472I.10:** Immersion probe, sensor Pt100. Stem Ø 6mm, length 1,000mm. Cable length 2 metres.

**Temperature probes without SICRAM module**

**TP47.100:** Immersion probe, 4 wire direct Pt100 sensor. Stem Ø 3mm, length 230mm. 4 wire connecting cable with connector, length 2 metres.

**TP47:** Connector for probes connection: 4 wire direct Pt100.

