HD 2124.1
HD 2124.2

HD2124.1 AND HD2124.2
MANOMETER-THERMOMETER

HD2124.1 and **HD2124.2** are **two inputs** portable instruments with a large LCD display. They perform measure of absolute, relative, differential pressure and temperature. In order to measure the pressure you use the electronic module PP471 that works as an interface between the instrument and Delta Ohm probes series TP704 and TP705. Temperature is measured by means of Pt100 with SICRAM module or direct 4 wires Pt100 probes for immersion, penetration, contact or air. Temperature probes are equipped with SICRAM module and factory calibration data are stored inside so that when the instrument is on it soon recognizes them. The **HD2124.2 is a data logger**. It stores up to 32.000 samples which can be transferred into a PC connected to the instrument through the RS232C and USB 2.0 serial ports. It is possible to configure the storage interval, the printing and the baud rate by the menu.
Both models are equipped with RS232C serial port and they can transfer the acquired measures, in real time, to a PC or a portable printer. Functions Max, Min and Avg calculate maximum, minimum and average values. Peak function detects the presence of pressure peaks; A-B calculates the difference of the pressures or temperatures measured by the two input channels A and B. Further functions are: REL relative measure, HOLD and automatic switching-off system, excludable.
Instruments have IP66 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
Storage temperature	-25…65°C
Working relative humidity	0…90%RH without condensation
Protection degree	**IP66**

Power supply

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

Measuring unit	°C - °F - Pa - hPa - mbar - bar - atm mmHg - mmH_2O - kgf/cm^2 - PSI - inchHg
Security of data stored	Unlimited, independently of battery charge conditions

Time

Date and time	In real time
Accuracy	1min/month max drift

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

Type	2000 pages of 16 samples each
Quantity	32,000 pairs of samples
Storage interval	1,5,10,15,30s; 1,2,5,10,15,20,30min; 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
Print interval	Immediate or 1,5,10,15,30s; 1,2,5,10,15,20,30min; 1hour

*USB interface - model **HD2124.2***

Type	1.1 - 2.0 electrically isolated

Connections

Input module for the probes	2 8-pole male DIN45326 connectors
Serial interface	8-pole MiniDin connector
USB interface - model **HD2124.2**	Mini USB type B
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

TECHNICAL DATA FOR INSTRUMENT EQUIPPED WITH PROBES AND MODULES

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 pressure probes below.

Technical characteristics of PP471 module

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

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)
TP473P.I	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 features

Temperature drift @20°C 0.003%/°C

4 wires Pt100 probes

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

Common features

Temperature drift @20°C

Pt100 0.003%/°C

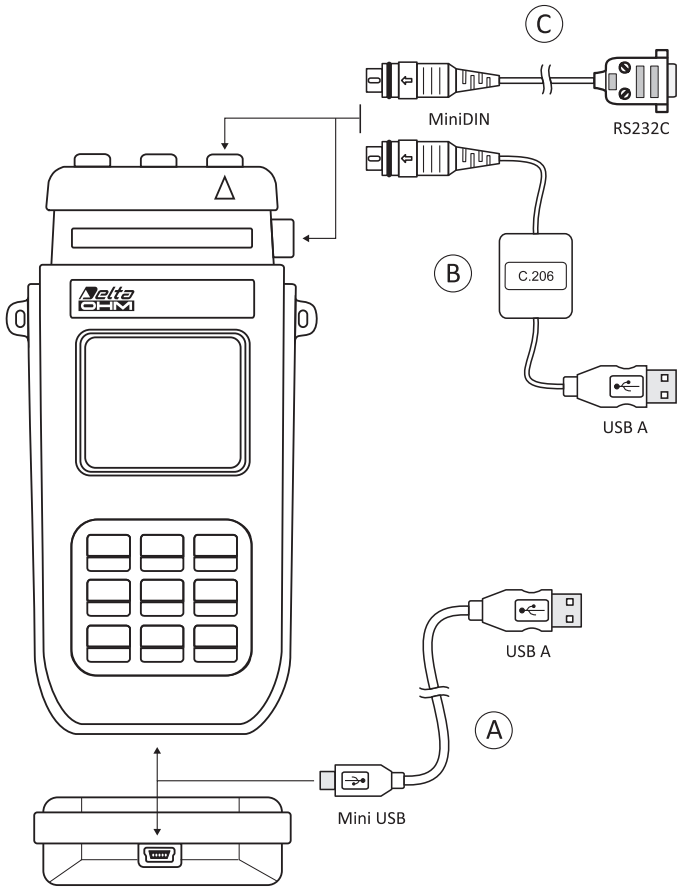
HD2124.2

CP23

A To the portable data loggers of the series **HD21….2** a serial port mini USB type HID (Human Interface Device) has been inserted.
For the connection to a PC with the cable USB type A - MiniUSB type B code CP23, **it is not necessary to load any driver USB**.

B For the connection of the models **HD21….1** to the USB port of a PC, is necessary the USB/serial converter **C.206**. The converter is supplied with its own drivers which must be installed before the connection of the converter to the PC.(see details in the Cd-Rom supplied with the converter).

C The port with the miniDin connector in all included models, is a serial port type RS232C.
The serial port RS232C of a PC or the printer HD40.1 can be connected by the cable HD2110CSNM.



ORDERING CODES

HD2124.1: The kit consists of instrument HD2124.1, 4 per 1.5V alkaline batteries, instruction manual, case and DeltaLog9 software. **Probes, PP471 module and cables have to be ordered separately.**

HD2124.2: The kit consists of instrument HD2124.2 **data logger**, 4 per 1.5V alkaline batteries, instruction manual, case and DeltaLog9 software. **Probes, PP471 module and cables have to be ordered separately.**

HD2110CSNM: 8-pole connection cable MiniDin - Sub D 9-pole female for RS232C.

C.206: Cable for instruments of the series HD21…1 to connect directly to USB input of PC.

CP23: Connection cable USB 2.0 connector type A - MiniUSB type B.

DeltaLog9: Software for download and management of data on a PC using Windows operating systems.

SWD10: Stabilized power supply at 230Vac/12Vdc-1000mA mains voltage.

HD40.1: Portable serial input, 24 column thermal printer, 58mm paper width. It uses the cable HD2110 CSNM (optional).

Pressure probes equipped with SICRAM module

PP471: Interfacing SICRAM module between instrument and Delta Ohm probes of the series TP704 and TP705. Cable 1.5 meters long.

The list of pressure probes is outlined in the table below.

Temperature probes equipped with SICRAM module

TP472I: Immersion probe, Wire Wound Pt100 sensor. Stem Ø 3 mm, length 300 mm. Cable 2 meters long.

TP472I.0: Immersion probe, Thin Film Pt100 sensor. Stem Ø 3 mm, length 230 mm. Cable 2 meters long.

TP473P.I: Penetration probe, Wire Wound Pt100 sensor. Stem Ø 4mm, length 150 mm. Cable 2 meters long.

TP473P.0: Penetration probe, Thin Film Pt100 sensor. Stem Ø 4mm, length 150 mm. Cable 2 meters long.

TP474C.I: Contact probe, Wire Wound Pt100 sensor. Stem Ø 4mm, length 230mm, contact surface Ø 5mm. Cable 2 meters long.

TP474C.0: Contact probe, Thin Film Pt100 sensor. Stem Ø 4mm, length 230mm, contact surface Ø 5mm. Cable 2 meters long.

TP475A.0: Air probe, Thin Film Pt100 sensor. Stem Ø 4mm, length 230mm. Cable 2 meters long.

TP472I.5: Penetration probe, Thin Film Pt100 sensor. Stem Ø 6mm, length 500 mm. Cable 2 meters long.

TP472I.10: Penetration probe, Thin Film Pt100 sensor. Stem Ø 6mm, length 1000mm. Cable 2 meters long.

TP49A.0: Immersion probe, Thin Film Pt100 sensor. Stem Ø 2.7mm, length 150mm. Cable 2 meters long. Aluminium handle.

TP49AC.0: Contact probe, Thin Film Pt100 sensor. Stem Ø 4 mm, length 150mm. Cable 2 meters long. Aluminium handle.

TP49AP.0: Penetration probe, Thin Film Pt100 sensor. Stem Ø 2.7mm, length 150mm. Cable 2 meters long. Aluminium handle.

TP875.I: Globe thermometer Ø 150 mm with handle. Wire Wound Pt100 sensor complete of SICRAM module. Cable 2 meters long.

TP876.I: Globe thermometer Ø 50 mm with handle. Wire Wound Pt100 sensor complete of SICRAM module. Cable 2 meters long.

TP87.0: Immersion probe, Thin Film Pt100 sensor. Stem Ø 3 mm, length 70 mm. Cable 2 meters long.

TP878.0: Contact probe for solar panels. Thin Film Pt100 sensor. Cable 2 meters long.

TP878.1.0: Contact probe for solar panels. Thin Film Pt100 sensor .Cable 5 meters long

TP879.0: Penetration probe for compost. Thin Film Pt100 sensor. Stem Ø 8 mm, length 1000mm. Cable 2 meters long.

Temperature probes without SICRAM module

TP47.100.0: Immersion probe, Thin Film Pt100 sensor probe. Stem Ø 3 mm, length 230mm. 4 wires connection cable with connector, 2 meters long.

TP47: Only connector for probe connection without SICRAM module: direct 3 and 4 wires Pt100, 2 wires Pt1000.

TP87.100.0 Immersion probe, Thin Film Pt100 sensor. Stem Ø 3 mm, length 70mm. Cable 2 meters long. 4 wires connection cable with connector 1 meter long.

mbar

PRESSURE PROBE TABLE

Full scale pressure	Maximum overpressure	Resolution	ORDERING 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	0.01 mbar	• **TP705-10MBD**			0.5 % F.S.	0..60 °C	Tube Ø 5 mm
20.0 mbar	40.0 mbar	0.01 mbar	• **TP705-20MBD**			0.5 % F.S.	0..60 °C	Tube Ø 5 mm
50.0 mbar	100 mbar	0.01 mbar	**TP705-50MBD**			0.5 % F.S.	0..60 °C	Tube Ø 5 mm
100 mbar	200 mbar	0.1 mbar	**TP705-100MBD**			0.25 % F.S.	0..60 °C	Tube Ø 5 mm
				TP704-100MBGI		0.25 % F.S.	-10..+80 °C	¼ BSP
200 mbar	400 mbar	0.1 mbar	**TP705-200MBD**			0.25 % F.S.	0..60 °C	Tube Ø 5 mm
				TP704-200MBGI		0.25 % F.S.	-10..+80 °C	¼ BSP
400 mbar	1000 mbar	0.1 mbar		**TP704-400MBGI**		0.25 % F.S.	-10..+80 °C	¼ BSP
500 mbar	1000 mbar	0.1 mbar	**TP705-500MBD**			0.25 % F.S.	0..60 °C	Tube Ø 5 mm
600 mbar	1000 mbar	0.1 mbar		**TP704-600MBGI**		0.25 % F.S.	-40..125 °C	¼ BSP
1.00 bar	2.00 bar	1 mbar	**TP705-1BD**			0.25 % F.S.	0..60 °C	Tube Ø 5 mm
					TP705BARO	0.25 % F.S.	0..60 °C	Tube Ø 5 mm
				TP704-1BGI		0.25 % F.S.	-40..125 °C	¼ BSP
					TP704-1BA	0.25 % F.S.	-40..125 °C	¼ BSP
2.00 bar	4.00 bar	1 mbar	**TP705-2BD**			0.25 % F.S.	0..60 °C	Tube Ø 5 mm
				TP704-2BGI		0.25 % F.S.	-40..+125 °C	¼ BSP
					TP704-2BAI *	0.25 % F.S.	-25..+85 °C	¼ BSP
5.00 bar	10.00 bar	1 mbar		**TP704-5BGI**		0.25 % F.S.	-40..+125 °C	¼ BSP
					TP704-5BAI *	0.25 % F.S.	-25..+85 °C	¼ BSP
10.00 bar	20.0 bar	0.01 bar		**TP704-10BGI**		0.25 % F.S.	-40..+125 °C	¼ BSP
					TP704-10BAI *	0.25 % F.S.	-25..+85 °C	¼ BSP
20.0 bar	40.0 bar	0.01 bar		**TP704-20BGI**		0.25 % F.S.	-40..+125 °C	¼ BSP
					TP704-20BAI *	0.25 % F.S.	-25..+85 °C	¼ BSP
50.0 bar	100.0 bar	0.01 bar		**TP704-50BGI**		0.25 % F.S.	-40..+125 °C	¼ BSP
					TP704-50BAI *	0.25 % F.S.	-25..+85 °C	¼ BSP
100 bar	200 bar	0.1 bar		**TP704-100BGI**		0.25 % F.S.	-40..+125 °C	¼ BSP
					TP704-100BAI *	0.25 % F.S.	-25..+85 °C	¼ BSP
200 bar	400 bar	0.1 bar		**TP704-200BGI**		0.25 % F.S.	-40..+125 °C	¼ BSP
					TP704-200BAI *	0.25 % F.S.	-25..+85 °C	¼ BSP
500 bar	1000 bar	0.1 bar		**TP704-500BGI**		0.25 % F.S.	-40..+125 °C	¼ BSP
	700 bar	0.1 bar			**TP704-500BAI ***	0.25 % F.S.	-25..+85 °C	¼ BSP

* Ceramic diaphragm
• Only report of calibration, no Accredia certificate