Member of GHM GROUP

HD2124.1, HD2124.2

HD2124.1, HD2124.2
MANOMETER - THERMOMETER
HANDHELD - COMMUNICATION - DATA LOGGING

HD2124.1 and **HD2124.2** are **two inputs** portable instruments with 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-wire 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 RS232C and USB 2.0 or into a portable printer.

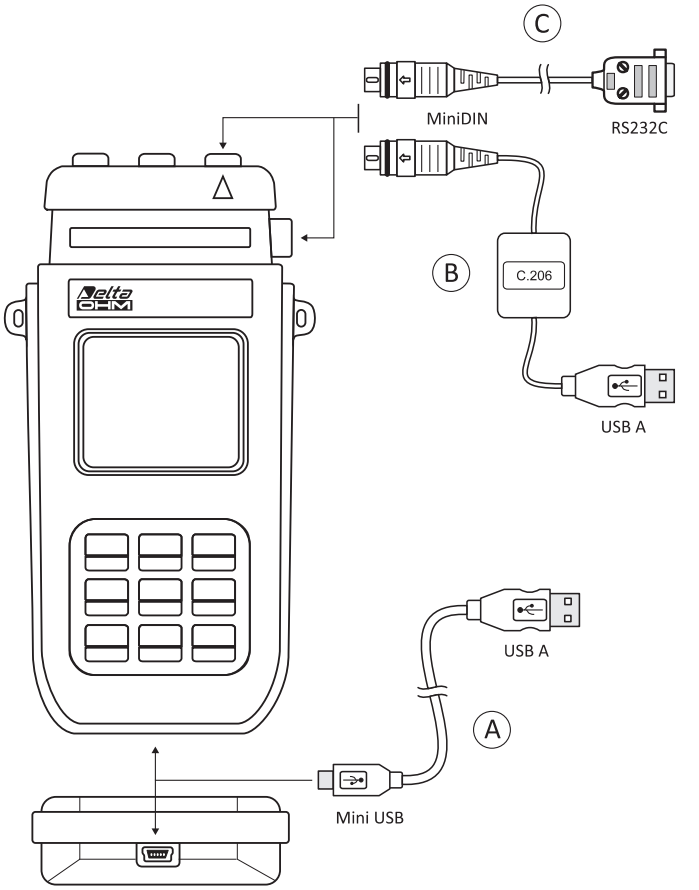
It is possible to configure the storage interval, the printing and the baud rate by the menu.

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 turning off (excludable).

The instruments have IP66 protection degree.

Technical specifications	
For all pressure specifications, see table at page 13	
Measurement of temperature	
Pt100 measurement range	-200…+650 °C
Resolution	0.1 °C
Instrument accuracy	±0.1 °C
Drift after 1 year	0.1 °C/year
Measuring unit	°C - °F - Pa - hPa - mbar - bar -mmHg - mmH_2O - kgf/cm^2 - PSI - inchHg
Measured values storage - model HD2124.2	
Type	2000 pages of 16 samples each
Quantity	32000 pairs of sample
Storage interval	1,5,10,15,30 s; 1,2,5,10,15,20,30 min; 1 hour
Security of data stored	Unlimited, independently of battery charge conditions
Power supply	
Batteries	4 x 1.5V type AA batteries
Autonomy	200 hours with 1800 mAh alkaline batteries
Current consumption with instrument off	20 µA
Mains	Mains adapter 12 Vdc /1000 mA output
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 15 m
Print interval	Immediate or 1,5,10,15,30 s; 1,2,5,10,15,20,30 min; 1 hour
USB interface - model HD2124.2	
Type	1.1 - 2.0 electrically isolated
Connection	
Input module for the probes	2 8-pole male DIN45326 connectors
Serial interface	8-pole MiniDin connector
USB interface - (only) **HD2124.2**	Mini USB type B
Mains adapter	2-pole connector (positive at centre)
Operating conditions	
Operating temperature	-5 … 50 °C
Storage temperature	-25 … 65 °C
Working relative humidity	0…90% RH without condensation
Protection degree	**IP66**
General characteristics	
Dimensions (Length x Width x Height)	185x90x40 mm

Weight	470g (complete with batteries)
Materials	ABS, rubber
Display	2 rows 4½ digits plus symbols Visible area: 52x42 mm
Time	
Date and time	In real time
Accuracy	1min/month max drift



A The portable data logger **HD2124.2** is equipped with HID (Human Interface device) type USB port with mini USB connector.

For the connection to a PC with the CP23 cable it is not necessary to load any USB driver.

B For the connection of the models **HD2124.1** to the USB port of a PC the C.206 USB/serial converter is necessary. The converter is supplied with its own drivers which must be installed before the connection of the converter to the PC.

C The port with the miniDin connector 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.

CP23

ORDERING CODES

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

HD2124.2: The kit consists of instrument HD2124.2 **data logger**, 4 x 1.5V alkaline batteries, CP23 USB cable, instruction manual, case and **DeltaLog9 software** downloadable from Delta OHM website. **Probes, PP471 module have to be ordered separately.**

Accessories

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

C.206: Cable for the instrument HD2124.**1** to connect directly to USB input of PC.

SWD10: Stabilized 230 Vac/12 Vdc-1000 mA mains adapter

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

HD2124.1

HD2124.2

PRESSURE PROBE

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.	-30..+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.	-30..+80 °C	¼ BSP
400 mbar	1000 mbar	0.1 mbar		TP704-400MBGI		0.25 % f.s.	-40..+125 °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
					TP704-1BAI	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

All TP704 and TP705 series Delta OHM probes can be connected to the PP471module.	
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

PRESSURE UNITS OF MEASUREMENTS

CONVERSION FACTORS

kPa	Mpa	bar	mbar	mmH₂O	Torr mmHg	at Kg/cm²	Atm	Inch H₂O	Inch Hg	Psi lpf/in²
1	$1 \cdot 10^{3}$	$1 \cdot 10^{3}$	10	102.0	7.501	$10.20 \cdot 10^{3}$	$9.869 \cdot 10^{3}$	4.016	0.2953	0.14505
$1 \cdot 10^{3}$	1	10	$1 \cdot 10^{4}$	$102.0 \cdot 10^{3}$	7501	10.20	9.869	4016	295.3	145.05
100	0.1	1	$1 \cdot 10^{3}$	$10.20 \cdot 10^{3}$	750.1	1.020	0.9869	401.6	29.53	14.505
0.1	$1 \cdot 10^{-4}$	$1 \cdot 10^{-3}$	1	10.20	0.7501	$1.020 \cdot 10^{-3}$	$0.9869 \cdot 10^{-3}$	0.4016	$29.53 \cdot 10^{-3}$	$14.505 \cdot 10^{3}$
$9.807 \cdot 10^{-3}$	$9.807 \cdot 10^{-6}$	$98.07 \cdot 10^{-6}$	$98.07 \cdot 10^{-3}$	1	$73.56 \cdot 10^{-3}$	$1 \cdot 10^{-4}$	$96.78 \cdot 10^{-6}$	0.03937	$2.896 \cdot 10^{-3}$	$1.4224 \cdot 10^{3}$
0.13332	$133.32 \cdot 10^{-3}$	$1.333 \cdot 10^{-3}$	1.333	13.59	1	$1.359 \cdot 10^{-3}$	$1.316 \cdot 10^{-3}$	0.5351	$3.937 \cdot 10^{-2}$	0.01934
98.07	$98.07 \cdot 10^{-3}$	0.9807	980.7	$1 \cdot 10^{4}$	735.6	1	0.9678	393.7	28.96	14.224
101.3	0.1013	1.013	1013	$10.33 \cdot 10^{3}$	760	1.033	1	406.7	29.92	14.68
0.2491	$0.2491 \cdot 10^{-3}$	$2.491 \cdot 10^{-3}$	2.491	25.4	1.8684	$2.54 \cdot 10^{-3}$	$2.458 \cdot 10^{-3}$	1	$7.355 \cdot 10^{-2}$	$36.126 \cdot 10^{3}$
3.386	$3.386 \cdot 10^{-3}$	$3.386 \cdot 10^{-2}$	33.86	345.3	25.4	$3.453 \cdot 10^{-2}$	$3.342 \cdot 10^{-2}$	13.60	1	0.4912
6.8948	$6.8948 \cdot 10^{-3}$	$6.8948 \cdot 10^{-2}$	68.948	703.1	51.715	$70.31 \cdot 10^{-3}$	$68.948 \cdot 10^{-3}$	27.68	2.036	1