



HD2114.0  
 HD2114.2  
 HD2134.0  
 HD2134.2  
 HD2164.0  
 HD2164.2  
 HD2114B.0  
 HD2114B.2



**HD2114.0, HD2114.2, HD2134.0, HD2134.2, HD2164.0  
 HD2164.2 MANOMETER - THERMOMETER  
 HD2114B.0, HD2114B.2 BAROMETER - THERMOMETER**

These are portable instruments with a large LCD display. They measure absolute, relative and differential pressure, as well as temperature.

Pressure is measured using an internal module which is differential with respect to the atmosphere with fixed full scale. With the PP471 module acting as an interface, the instrument can use all the TP704 and TP705 series Delta Ohm probes to perform the measurements. **The HD2114B.0 and HD2114B.2 internal module measures the barometric pressure.**

The temperature is detected using immersion, penetration, contact or air probes, with SICRAM module or direct 4 wire probes. The sensor can be a Pt100 or Pt1000. 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 HD2114.2, HD2134.2, HD2164.2 and HD2114B.2 instruments are **dataloggers**. They store up to 36,000 samples which can be transferred to a PC via the RS232C and USB 2.0 serial ports. The storing interval, printing, and baud rate can be configured using the menu. They can transfer the acquired measurements in real time to a PC or to a portable printer (p.e. the HD40.1) with the RS232C serial port.

The **Max, Min** and **Avg** function calculates the maximum, minimum or average values. **The Peak function can be activated with external probes connected to the module PP471** and detects the presence of pressure peaks. Other functions include: the relative measurement REL, the HOLD function, and the automatic turning off which can also be excluded.

**The 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 digits plus symbols  
 Visible area: 52x42mm

*Operating conditions*

Working 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  
 Power absorbed with instrument off 20µA  
 Mains - models **HD21...4.2** Output mains adapter 12Vdc / 1000mA

*Measuring unit*

°C - °F - Pa - hPa - kPa - mbar - bar - atm  
 mmHg - mmH<sub>2</sub>O - kgf/cm<sup>2</sup> - PSI - inchHg

*Security of logged data*

Unlimited, independent of battery charge conditions

*Time*

Date and time Real time  
 Accuracy 1min/month max drift

*Measured values storage - models HD21...4.2*

Type 2000 pages containing 18 samples each  
 Quantity 36000 samples (pressure - temperature)  
 Storage interval 1,5,10,15,30s; 1,2,5,10,15,20,30min; 1hour

*Serial interface RS232C - models HD21...4.2*

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 - models HD21...4.2*

Type 1.1 - 2.0 electrically isolated

*Connections*

Input modules for the probes 2 quick couplings Ø 5mm  
 Serial interface models **HD21...4.2** 8-pole MiniDin connector  
 USB interface models **HD21...4.2** Mini USB type B connector  
 Mains adapter - models **HD21...4.2** 2-pole connector (positive at centre)

Pressure



HD2114.2



PP471

	HD2114.0	HD2134.0	HD2164.0	HD2114B.0	HD2114.2	HD2134.2	HD2164.2	HD2114B.2
<b>Full scale</b>	±20mbar	±200mbar	±2000mbar	600..1100mbar	±20mbar	±200mbar	±2000mbar	600..1100 mbar
<b>Barometer</b>	-	-	-	✓	-	-	-	✓
<b>Datalogger</b>	-	-	-	-	✓	✓	✓	✓
<b>RS232C-USB</b>	-	-	-	-	✓	✓	✓	✓
<b>External power supply</b>	-	-	-	-	✓	✓	✓	✓

## Measurement of pressure using the internal sensor

	HD2114.0 HD2114.2	HD2134.0 HD2134.2	HD2164.0 HD2164.2	HD2114B.0 HD2114B.2
Full scale	±20mbar	±200mbar	±2000mbar	600..1100mbar
Maximum overpressure	±300mbar	±1bar	±6bar	3bar
Resolution	0.001mbar	0.01mbar	0.1mbar	0.1mbar
Accuracy @23°C	±0.3%f.s.	±(0.1%f.s.+0.1% measurement)		±0.3mbar
Working temperature	0...60°C			
Connection	quick couplings Ø5mm			
Compensation temperature	0...60°C			
Drift on zero	±1%f.s.	±0.5%f.s.	±0.5%f.s.	±0.3%f.s.
Drift on span	±1%f.s.	±0.5%f.s.	±0.5%f.s.	±0.3%f.s.
Fluid contacting the membrane	non corrosive air and gas			

### Measurement of temperature by Instrument

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

## TECHNICAL SPECIFICATIONS OF PROBES AND MODULES IN LINE WITH THE INSTRUMENT

### Pressure measurement by module PP471

All TP704 and TP705 series Delta Ohm probes can be connected to the PP471 module. See the table pressure probes at page PR-9 for the technical specifications of the individual probes.

### Technical specifications of the 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	Photovoltaic	+4°C...+85°C	±0.25°C
TP878.1.0 1/3 DIN Thin Film			
TP879.0 1/3 DIN Thin Film	Compost	-20°C...+120°C	±0.25°C

### Common features

Temperature drift @20°C	0.003%/°C
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## 4 wires Pt100 and 2 wires Pt1000 Probes

Model	Type	Application field	Accuracy
TP47.100.0 1/3 DIN Thin Film	4 wires Pt100	-50...+250°C	1/3 DIN
TP47.1000.0 1/3 DIN Thin Film	2 wires Pt1000	-50...+250°C	1/3 DIN
TP87.100.0 1/3 DIN Thin Film	4 wires Pt100	-50...+200°C	1/3 DIN
TP87.1000.0 1/3 DIN Thin Film	2 wires Pt1000	-50...+200°C	1/3 DIN

### Common features

Temperature drift @20°C

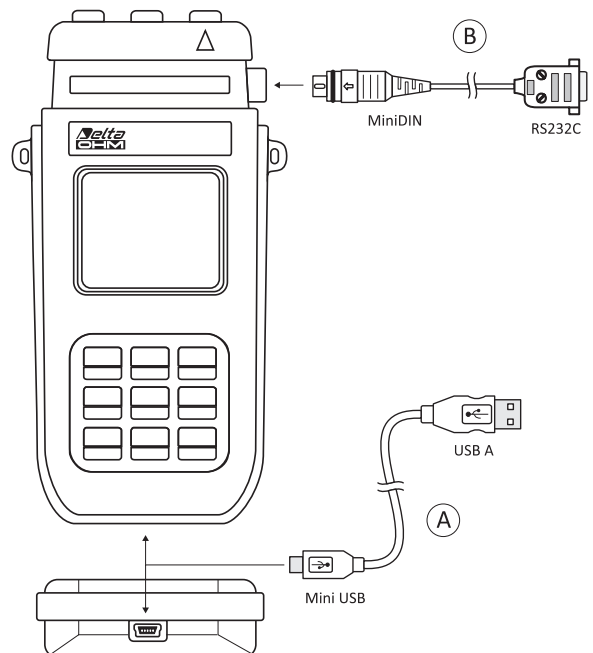
Pt100	0.003%/°C
Pt1000	0.005%/°C

**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 install any driver USB**.

**B** The port with the miniDin connector in all HD21...2 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

**HD2114.0:** The kit consists of the HD2114.0 with built-in 20mbar full scale probe, 4 1.5V alkaline batteries, operating manual, case. **Other probes and PP471 module have to be ordered separately.**

**HD2114.2:** The kit consists of the HD2114.2 datalogger with built-in 20mbar full scale probe, 4 1.5V alkaline batteries, operating manual, case and DeltaLog9 software. **Other probes, PP471 module and cables have to be ordered separately.**

**HD2134.0:** The kit consists of the HD2134.0 with built-in 200mbar full scale probe, 4 1.5V alkaline batteries, operating manual, case. **Other probes and PP471 module have to be ordered separately.**

**HD2134.2:** The kit consists of the HD2134.2 datalogger with built-in 200mbar full scale probe, 4 1.5V alkaline batteries, operating manual, case and DeltaLog9 software. **Other probes, PP471 module and cables have to be ordered separately.**

**HD2164.0:** The kit consists of the HD2164.0 with built-in 2000mbar full scale probe, 4 1.5V alkaline batteries, operating manual, case. **Other probes and PP471 module have to be ordered separately.**

**HD2164.2:** The kit consists of the HD2164.2 datalogger with built-in 2000mbar full scale probe, 4 1.5V alkaline batteries, operating manual, case and DeltaLog9 software. **Other probes, PP471 module and cables have to be ordered separately.**

**HD2114B.0:** The kit consists of the HD2114B.0 with 600...1100mbar range barometric sensor, 4 1.5V alkaline batteries, operating manual, case. **Other probes and PP471 module have to be ordered separately.**

**HD2114B.2:** The kit consists of the HD2114B.2 datalogger with 600...1100mbar range barometric sensor, 4 1.5V alkaline batteries, operating manual, case and DeltaLog9 software. **Other probes, PP471 module and cables have to be ordered separately.**

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

**CP23:** Connection cable USB 2.0 connector type A - Mini USB type B.  
**DeltaLog9:** Software for download and manage of the data on PC by 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.

**Pressure probes equipped with SICRAM module**

**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 PP471 module technical data table.**

**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.



HD2110CSNM

Pressure

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
			TP705-1BD			0.25 % F.S.	0..60 °C	Tube Ø 5 mm
1.00 bar	2.00 bar	1 mbar			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
			TP705-2BD			0.25 % F.S.	0..60 °C	Tube Ø 5 mm
2.00 bar	4.00 bar	1 mbar			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