

**HD 9817T1, HD 9817T2, HD 9817T3
RELATIVE HUMIDITY AND TEMPERATURE TRANSMITTERS
WITH DIGITAL OR ANALOGUE OUTPUT**

Dual relative humidity and temperature transmitter for HVAC applications, environmental monitoring, pharmaceutical storage, food transport, greenhouse automation, etc. Equipped with an IP65 stainless steel AISI 304 housing, it is suitable even for severe environments; besides, its ultra-compact dimensions (Ø 14 x 133 mm) and wide range of outputs (analogue 0...1V or digital RS232C, USB 1.1-2.0) make it ideal for integrating into a variety of OEM applications. It is supplied with the HD9817TC software for reading measurements and calibrating the relative humidity sensor.

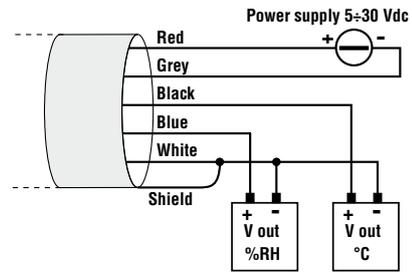
Versions, outputs and connections

	HD9817T1	HD9817T1.1	HD9817T2	HD9817T3
Output	0...1V = 0...100%RH 0...1V = -40...+60°C (-20...+80°C on request)		RS232C non insulated, 2400 baud rate	USB 1.1-2.0 non insulated
Temperature sensor	Pt100	NTC 10kΩ	Pt100	Pt100
Load resistance	$R_L > 10k\Omega$			
Cable Connection	L=1,5m (7 wires + shield)		L= 2m DB9 female connector	L= 2m USB connector type A



Connections

HD9817T1 and HD9817T1.1 models with 0...1Vdc analogue output.



The instrument is equipped with a 7 wire + shield cable. The **Yellow** and **Green** wires are used during calibration only for PC connection through the HD9817T1.CAL interface module (see the paragraph about the RH sensor calibration).

Power is supplied to the **Red (+)** and **Grey (-)** wires.

The output signal voltage is taken from:

- **Black (+)** and **White (-)** wires for temperature,
 - **Blue (+)** and **White (-)** wires for relative humidity.
- The **shield** must be connected to the White wire.

HD9817T2 model with RS232C output and HD9817T3 model with USB output.

The HD9817T2 cable ends in a RS232C 9-pole subD female connector, while the HD9817T3 cable ends in a USB type A connector.

The following set of commands is available for both instruments.

Command	Response	Description
G0	HD9817T_Pt100_RH_RS232	Model
G3	Firm.Ver.=01-00	Firmware version
HAnn.n	&	75% calibration point where nn.n stands for the actual humidity value
HBnn.n	&	33% calibration point where nn.n stands for the actual humidity value
S0	0072.7 063.9	It sends the current measurement (tttt.t hhh.h) t = temperature h = RH
U0	&	International System of units
U1	&	Imperial units

Note for HD9817T3 model with USB output

This model requires that you install USB drivers first in order to ensure a correct PC connection: **don't connect the instrument to your PC before installing the drivers.** For further details, see the guide in the CDROM which is supplied with the instrument.

Relative humidity calibration

The instruments are supplied factory calibrated and ready to use. The CDROM supplied with the instruments includes a relative humidity calibration procedure. The online help describes this procedure in detail.

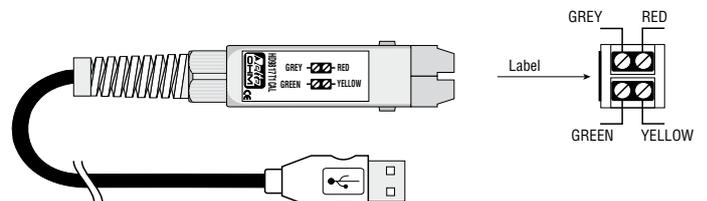
No procedure exists for temperature calibration.

To connect HD9817T1 and HD9817T1.1 models to your PC, use the HD9817T1.CAL interface module: the module is equipped with a USB type A connector for your PC USB port connection as well as a 4-pole terminal board to connect the transmitter.

Before connecting the module to your PC, you need to install the USB drivers: **don't connect the module to your PC before installing the drivers.** For further details, see the guide in the CDROM which is supplied with the instrument.

Please connect the **Red** (power supply positive), **Grey** (power supply negative), **Yellow** (Tx) and **Green** (Rx) wires as shown in the figure below.

The terminal board is seen from above: in order to direct the clamps correctly, make sure that the label on the side of the module is placed as shown in the figure below.

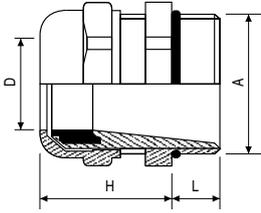


Installation notes

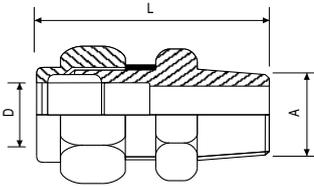
To fix the probe in a ventilation duct, pipe ,etc. you can use, for example, the HD9008.31.12 flange, a PG16 metal cable gland (Ø10...14mm) or a 3/8" universal biconical connection.



HD9008.31 Flange



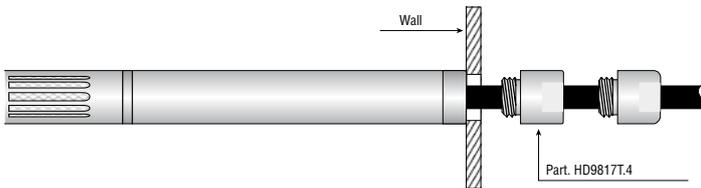
PG16.12 Metal cable gland
 D = 10...14mm
 L = 6.5mm
 H = 23mm
 A = PG16



Universal biconical connector
 L = 35mm
 D = 14mm
 A = 3/8"

For wall-mounted installation, the HD9008.21.1 (distance from wall 250mm) and HD9008.21.2 (distance from wall 125mm) supports are available. Both require the HD9008.26/14 adapter.

For direct wall mounting on a metal support, the HD9817T.4 part is available as shown in the figure below (for HD9817T1 and HD9817T1.1 versions only).



The wall can be 2mm thick at most while the hole in the wall can be 10.5mm.

Electrical connection

HD9817T1 and HD9817T1.1 models

Power supply

The power supply voltage must be as per the electrical specifications (5...30Vdc) between the wires:

Red = (+) power supply positive

Grey = (-) power supply negative.

Analogue output

The voltage output signals are taken from the following wires:

Blue = (+)%RH output positive

Black = (+)Temperature output positive

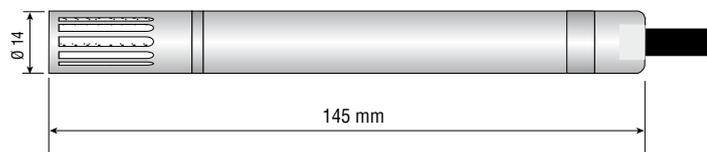
White = (-) ground. Common reference between %RH and Temperature outputs.

Shield = the braid is connected to the common ground (White wire).

HD9817T2 and HD9817T3 models

These models are powered directly from your PC port and no external power supply is required.

HD9817T... Dimensions



Technical data		
HD9817T1R - HD9817T1.1R- HD9817T2R - HD9817T3R		
Relative humidity	Sensor	Capacitive
	Sensor protection	P8, stainless steel grid and PTFE, 20µ
	Measuring range	0..100%RH
	Sensor working range	-40...+80°C
	Accuracy	±2% (10...90%RH), ±2,5% in the remaining range
	Temperature dependence	2% on the whole temperature range
	Hysteresis and repeatability	1%RH
	Long term stability	1%/year
Temperature	Sensor type	Pt100 1/3 DIN (on request, NTC 10kΩ: code HD9817T1.1
	Measuring range	-40...+60°C
	Accuracy	±0.2°C ±0.15% of the measured value
General	Long term stability	0.2°C/year
	Power voltage	5...30Vdc
	Consumption	Typically 2mA
	Max. operating temperature	-40...+80°C (for short periods)
Housing	Operating humidity	0...100%RH
	Dimensions	Ø14x138mm
	Degree of protection	IP65

Order codes

HD9817T1R: Dual relative humidity and temperature transmitter, Pt100 sensor. 0...1Vdc analogue outputs. Temperature measuring range -40...+60°C (-20...+80°C on request). Power supply 5...30Vdc. AISI 304 housing. Probe protection class IP65. Dimensions Ø14x133mm. Output with cable L=1,5m (7 wires + shield). Max. working temperature -40°+80°C. **Supplied with HD9817TC software.**

HD9817T1.1R: Dual relative humidity and temperature transmitter, NTC sensor 10kΩ. 0...1Vdc analogue outputs. Temperature measuring range -40...+60°C (-20...+80°C on request). Power supply 5...30Vdc. AISI 304 housing. Probe protection class IP65. Dimensions Ø14x133mm. Output with cable L=1,5m (7 wires + shield). Max. working temperature -40°+80°C. **Supplied with HD9817TC software.**

HD9817T2R: Dual relative humidity and temperature transmitter, Pt100 sensor. RS232C digital output. Temperature measuring range -40...+60°C (-20...+80°C on request). Powered directly from your PC RS232C port. AISI 304 housing. Probe protection class IP65. Dimensions Ø14x133mm. Output with cable L= 2m with DB9 female connector. Max. working temperature -40°+80°C. **Supplied with HD9817TC software.**

HD9817T3R: Dual relative humidity and temperature transmitter, Pt100 sensor. USB1.1-2.0 digital output. Temperature measuring range -40...+60°C (-20...+80°C on request). Powered directly from your PC USB port. AISI 304 housing. Probe protection class IP65. Dimensions Ø14x133mm. Output with cable L= 2m with USB type A connector. Max. working temperature -40°+80°C. **Supplied with HD9817TC software.**

HD9817T.4: Wall-mounting adapter. Only for HD9817T1 and HD9817T1.1 on request.

HD9817T1CAL: USB interface module for connecting HD9817T1 and HD9817T1.1 transmitters to your PC USB port as well as calibrating or checking the humidity sensor. USB connector type A, cable L=1.5m. Connection through 4-pole terminal board.

HD75: saturated salt solution 75% R.H. thread M 12x1.

HD33: saturated salt solution 33% R.H. thread M 12x1.

HD9008.21.1: holder for vertical sensor, wall distance 250mm, hole Ø 26.

Adapter is required HD9008.26.14

HD9008.21.2: holder for vertical sensor, wall distance 125mm, hole Ø 26.

Adapter is required HD9008.26.14

HD9008.26/14: holders for Ø 26 and Ø 14mm holes, for HD9008.21.1 and HD9008.21.2

HD9008.31: flange with sensor block Ø 14mm for duct sensorsTC and TO series.

P5: 20µ stainless steel grid protection for probes Ø 14mm, thread M 12x1.

P6: 20µ sintered stainless steel protection for probes Ø 14mm, thread M 12x1.

P7: 10µ PTFE protection for probes Ø 14mm, thread M 12x1.

P8: 20µ stainless steel and PTFE grid protection, thread M 12x1.

Humidity