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TEMPERATURE, RELATIVE HUMIDITY AND DEW POINT ACTIVE OR PASSIVE TRANSMITTERS

HD48... SERIES (ACTIVE TRANSMITTERS) AND HD49... SERIES (PASSIVE TRANSMITTERS)

HD48.. and HD49.. series of transmitters measure temperature, relative humidity and dew point and provide standard analog output signals for transmission to a remote display, recorder, PLC or data processing unit. The models of the HD48.. series are active transmitters and accept both direct and 24Vac alternating power supply; they have standard current (4...20mA) or voltage (0...10V) outputs, depending on the model. The models of the HD49.. series are passive transmitters instead, and thus suitable to be inserted in a 4...20mA current loop.

The HD48.. and HD49.. series of transmitters are designed for temperature and humidity control in conditioning and ventilation applications (HVAC/BEMS) in the following sectors: pharmacy, museums, clean rooms, ventilation ducts, industrial and civil sectors, crowded places, canteens, auditoria, gyms, high-density farms, greenhouses, etc.

The HD48.. and HD49.. transmitters measure relative humidity with a well proven temperature compensated capacitive sensor that assures precise and reliable measurements in the course of time.

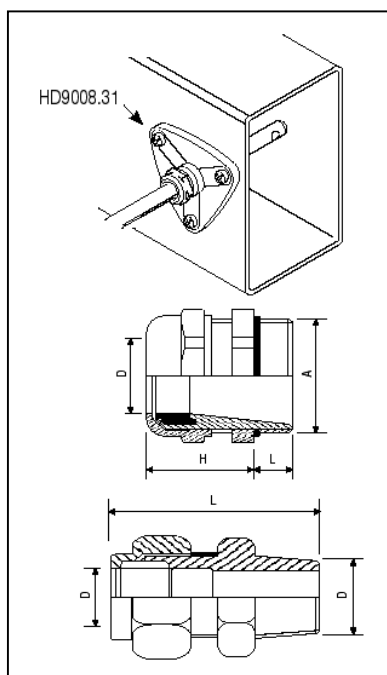
The transmitters of the HD48.. and HD49.. series are available in two probe temperature ranges: standard -20...+80°C and extended -40...+150°C for the most critical applications.

A stainless steel 20µm filter protects the sensors against dust and particles (other filters are available for different applications).

The transmitters are factory calibrated and no further adjustments are required.

Each series is available in three different versions: with horizontal probe for duct mounting (HD48...TO..., HD49...TO...), with vertical probe for wall mounting (HD48...TV..., HD49...TV...) or with remote probe connected to the transmitter by means of a cable (HD48...TC..., HD49...TC...), cable lengths available are 2, 5 and 10m.

The probes can be supplied in two different lengths (135 or 335mm). Various accessories are available for the installation: for example to fix the probe to the duct, it can be used the HD9008.31 flange, a 3/8" universal biconical connection or a PG16 metal cable gland 10..14mm



Anchoring of the probe

HD9008.31 Flange

PG16 metal cable gland

D= 10...14mm
L=6,5mm
H=23mm
A=PG16

Universal biconical connector

L=35mm
D=14mm
A= 3/8"



TECHNICAL SPECIFICATIONS

	Standard Range	Extended Range
Relative Humidity		
Sensor	capacitive 150pF nom.	
Measuring Range	0...100%UR	
Accuracy	±2% (15..90%UR), ±2.5% outside	
Repeatability	0.4%UR	
Sensor working temperature	-20 to 80 °C	-40 to 150 °C
Temperature		
Sensor	NTC 10k	Pt100 class A
Measuring Range	-20 to 80°C	-40 to 150 °C
Accuracy	±0.3°C (0..70°C) ±0.4°C (-20..0°C,70..80°C)	±0,3 °C
Repeatability	0.05°C	0.05°C
Dew Point		
Sensor	Paramenter calculated from relative humidity and temperature	
Measuring Range	-20...80°C DP	-
Accuracy	See table	
Repeatability	0,5 °C DP	
Power supply and connections		
	HD 48...	HD 49..
Power Supply	16...40Vdc o 24 Vac ±10%	12...40 Vcc
Electrical connections	Screw type terminal block, max 1,5mm ² , M16 cableglad for input cable	
General specifications		
	Standard Range	Extended Range
Electronics working temperature	0 a 60 °C	
Probe working temperature	-20 to 100 °C	-40 to 150 °C
Storage temperature	-20 to 80 °C	
electronics protection class	IP66	
Case dimensions	80x84x44 mm	

Accuracy of dew point measurement:

		DP °C													
		-20	-10	0	10	20	30	40	60	80					
Temperature °C	-20	<±1	DP limit												
	-10	<±1									<±1				
	0	<±1									<±1	<±1			
	10	<±3									<±1	<±1	<±1		
	20	<±4									<±2	<±1	<±1	<±1	
	30	<±3									<±1.5	<±1	<±1	<±1	
	40	Not specified									<±2	<±1	<±1	<±1	
	60										<±5	<±2.5	<±2	<±1	<±1
80	<±4			<±2	<±1	<±1									

ELECTRICAL CONNECTIONS

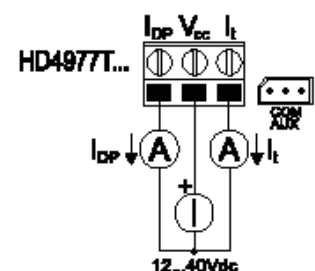
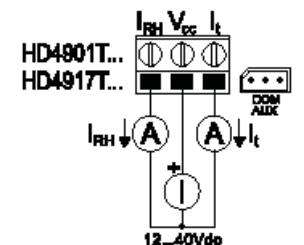
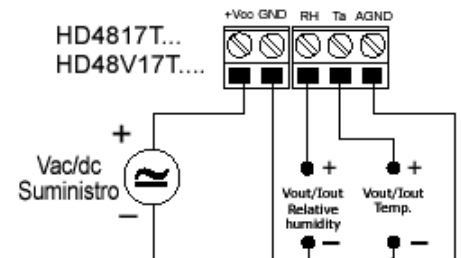
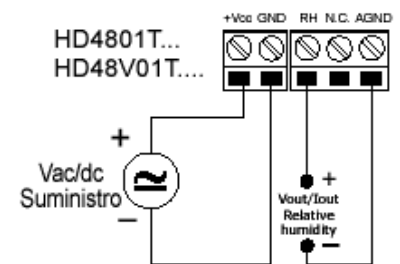
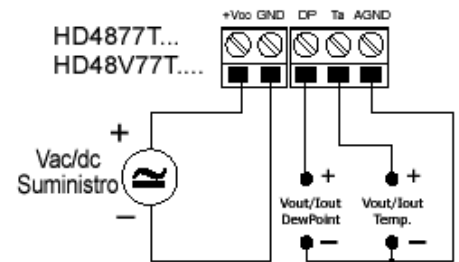
Power Supply

Power the instrument as shown in the below connection schemes, the power supply terminals are marked as +Vcc and GND.

Output signal

Depending on the model,:

- RH% and AGND terminals for the transmitters of the HD4801T.. and HD48V01T.. series
- RH% and AGND, Ta and AGND terminals for the transmitters of the HD4817T.. and HD48V17T.. series
- DP and AGND, Ta and AGND terminals for the transmitters of the HD4877T.. and HD48V77T.. series.



Relative humidity probe calibration

The HD48.. and HD49.. transmitters are supplied factory calibrated and ready to use. If necessary, it is possible to calibrate the relative humidity sensor using the saturated salt solutions HD75 (75% RH saturated salt solution) and HD33 (33% RH saturated salt solution) and connecting the instrument to the PC using the HD48TCAL kit.
The HD48TCAL kit includes the RS27 cable for the serial connection of the HD48.. and HD49.. series transmitters to the PC and a CD-ROM for Windows operating systems, that guides the user in the relative humidity probe calibration procedure..

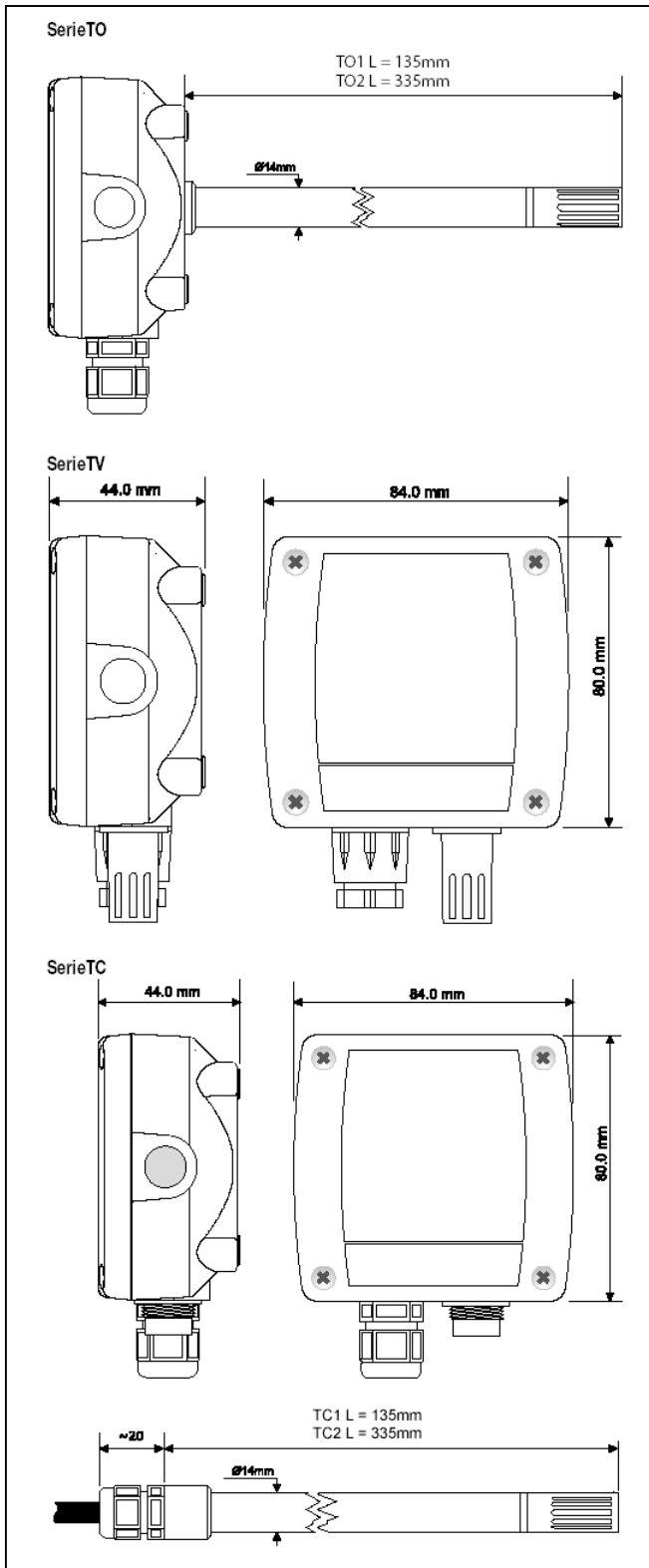
MODELS AVAILABLE

Model	Features	Output	Versions
Active transmitters. Power 16-40 VDC or 24Vca Working Temperature electronics -5 to 60 ° C Operating Temperature Probe -20 to 100 ° C standard version -40 to 150 ° C E version (not available on models of dew point) All models support the option L, LCD display			
HD4807T...	Temperature	4...20 mA	TV, TO1,TO2, TC1.2,TC1.5, TC2.2, TC2.5
HD48V07T...	-20 to 80 °C	0...10V	
HD48S07T...	-40 to 150 °C Versión E	RS485	
HD4801T...	Relative Humidity	4...20 mA	TV, TO1,TO2, TC1.2,TC1.5, TC1.10 TC2.2, TC2.5, TC2.10
HD48V01T...	5 to 98 %HR	0...10V	
HD48S01T...	5 to 98 %HR Versión E	RS485	
HD4817T...	Relative Humidity and temperature	2 x 4...20 mA	TV, TO1,TO2, TC1.2,TC1.5, TC1.10 TC2.2, TC2.5, TC2.10
HD48V17T...	5 to 98 %HR, -20 to 80 °C	2 x 0...10V	
HD48S17T...	5 to 98 %HR, -40 to 150 °C Versión E	RS485	
HD4877T...	Dew point (DP) and temperature	2 x 4...20 mA	TO1,TO2, TC1.2,TC1.5, TC1.10 TC2.2, TC2.5, TC2.10
HD48V77T...	-20 to 80 °C DP	2 x 0...10V	
HD48S77T...	-20 to 80 °C	RS485	
Passive transmitters. Power 12 a 40 Vcc Working Temperature electronics -5 to 60 ° C Operating Temperature Probe -20 to 100 °C standard version -40 to 150 °C E version (not available on models of dew point) All models support the option L, LCD display			
HD4907T...	Temperature	4...20 mA	TV, TO1,TO2, TC1.2,TC1.5, TC2.2, TC2.5
	-20 to 80 °C -40 to 150 °C Versión E		
HD4901T...	Relative Humidity	4...20 mA	TV, TO1,TO2, TC1.2,TC1.5, TC1.10 TC2.2, TC2.5, TC2.10
	5 to 98 %HR 5 to 98 %HR Versión E		
HD4917T...	Relative Humidity and temperature	2 x 4...20 mA	TV, TO1,TO2, TC1.2,TC1.5, TC1.10 TC2.2, TC2.5, TC2.10
	5 to 98 %HR, -20 to 80 °C 5 to 98 %HR, -40 to 150 °C Versión E		
HD4977T...	Dew point (DP) and temperature	2 x 4...20 mA	TO1,TO2, TC1.2,TC1.5, TC1.10 TC2.2, TC2.5, TC2.10
	-20 to 80 °C DP -20 to 80 °C		

ORDER CODES HD48abTcdLE Active Transmitter HD49abTcdLE Passive Transmitter

- a** Blank = 4...20mA analog output
V = 0...10Vdc analog output (only HD48.. models)
- b** 07 Temperature outputs
01 RH% outputs
17 = Temperature and RH% outputs
77 = Temperature and dew point DP temperature outputs
- c** Probe length
TO1 = 135mm
TO2 = 335mm
TC1 = 135mm
TC2 = 335mm
TV = vertical wall mounting
- D** Cable length (only for TC models) 2 = 2m
5 = 5m
10 = 10m
- L** Display LCD
- E** Extended Range





Ordering code examples

HD4801TV: Wall mounting digital active relative humidity transmitter. Relative humidity range 0...100%RH.

Analog output: 4...20mA (0...100%RH).

Probe working range -20...+80°C. Power supply 16...40Vdc or 24Vac.

HD4917TO1: Digital passive (current loop) temperature and relative humidity transmitter for duct mounting. AISI 304 steel probe, diameter 14mm and stem length 135mm, joined to the electronics enclosure.

Relative humidity range 0...100%RH, temperature range -20...+80°C.

Analog outputs: 4...20mA (0...100%RH) for RH and 4...20mA (-20...+80°C) for temperature. Probe working range -20...+80°C. Power supply 12...40Vdc.

HD4817TC25L: Digital active temperature and relative humidity transmitter with LCD display. AISI 304 steel probe, diameter 14mm and stem length 335mm, connected to the electronics enclosure through a 5m cable.

Relative humidity range 0...100%RH, temperature range -20...+80°C.

Analog outputs: 4...20mA (0...100%RH) for RH and 4...20mA (-20...+80°C) for temperature. Probe working range -20...+80°C. Power supply 16...40Vdc or 24Vac.

HD48V17ETC25: Digital active temperature and relative humidity transmitter, extended range. AISI 304 steel probe, diameter 14mm and stem length 335mm, connected to the electronics enclosure through a 5m cable.

Relative humidity range 0...100%RH, temperature range -40...+150°C.

Analog outputs: 0...10V (0...100%RH) for RH and 0...10V (-40...+150°C) for temperature. Probe working range -40...+150°C. Power supply 16...40Vdc or 24Vac.

HD4877TO2: Digital active temperature and dew point transmitter for duct mounting. AISI 304 steel probe, diameter 14mm and stem length 135mm, joined to the electronics enclosure.

Dew point range -20...+80°C DP, temperature range -20...+80°C.

Analog outputs: 4...20mA (-20...80°C DP) for DP and 4...20mA (-20...+80°C) for temperature. Probe working range -20...+80°C. Power supply 16...40Vdc or 24Vac

Accessories

HD48TCAL: The kit includes the RS27 serial connection cable, RS232 null modem, with 9-pole sub-D female connector for PC and 3-pole connector for transmitter COM port, and CD-ROM for Windows 98 to Vista operating systems that guides the user in the relative humidity probe calibration procedure.

HD75: 75% RH saturated solution for the verification of the relative humidity sensor, complete with thread for probes with Ø 14mm and Ø 26mm.

HD33: 33% RH saturated solution for the verification of the relative humidity sensor, complete with thread for probes with Ø 14mm and Ø 26mm.

HD9008.31: Wall flange with cable gland to fix Ø 14mm probes.

PG16: AISI 304 steel cable gland for Ø 14mm probes.

P5: Stainless steel grid protection for Ø 14mm probes.

P6: 20 µ sintered stainless steel protection for Ø 14mm probes.

P7: 10 µ PTFE protection for Ø 14mm probes.

P8: Stainless steel grid and Poca protection for Ø 14mm probes.



P5



P6



P7



P8