EE371

Compact Dew Point Sensor

The EE371 is dedicated for accurate and reliable monitoring of the dew point temperature (Td) in the range -60...60 °C Td (-76...140 °F Td), with pressure rating up to 100 bar (1 450 psi). It is ideal for compressed air systems and industrial process control. Besides Td, the device measures also frost point temperature (Tf) or volume concentration (Wv).

High Accuracy

The innovative, monolithic E+E HMC01 humidity and temperature sensing element together with a sophisticated auto-calibration procedure leads to accuracy better than ±2°C Td (±3.6 °F Td) and to excellent long term stability.

Analog Outputs and Display

The measured data is available on two freely configurable voltage or current outputs as well as on the LCD display.

Functional Design

The compact, robust metal enclosure, the swirling front-end and various process connections and sampling options allow for easy and comfortable design-in, mounting and operation.

Easy Configuration

An optional adapter and the free EE-PCS Product Configuration Software facilitate easy configuration and adjustment of the EE371.

Features

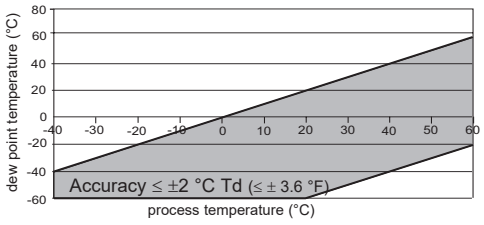
- **Measuring range -60...60 °C Td (-76...140 °F Td)**
- **Accuracy of measurement ±2 °C Td (±3.6 °F Td)**
- **Autocalibration**
- **Pressure tight up to 100 bar (1 450 psi)**
- **360° axial rotable enclosure**
- **Inspection certificate according to DIN EN 10204 – 3.1**

Technical Data

Measurands

Dew point (Td)

Dew point sensor	HMC01
Measuring range	-60...60 °C Td (-76...140 °F Td)
Accuracy [1]	Traceable to intern. standards, administrated by NIST, PTB, BEV...



Response time t_{90}	80 sec. -20 °C Td → -40 °C Td (-4 °F Td → -40 °F Td)
	10 sec. -40 °C Td → -20 °C Td (-40 °F Td → -4 °F Td)

Volume concentration

Measuring range	20...200 000 ppm
Accuracy at 20 °C (68 °F) and 1 013 mbar (14.7 psi)	±(5 ppm + 9 % from measured value)

1) The accuracy statement includes the uncertainty of the factory calibration with an enhancement factor k=2 (2-times standard deviation). The accuracy was calculated in accordance with EA-4/02 and with regard to GUM (Guide to the Expression of Uncertainty in Measurement).

Outputs

Two freely selectable and scaleable analogue outputs for Td, Tf, Wv	0-1 V / 0-5 V / 0-10 V [1]	-1 mA < I_L < 1 mA
	4-20 mA / 0-20 mA, 3-wire	R_L < 500 Ohm[1] R_L = load resistance

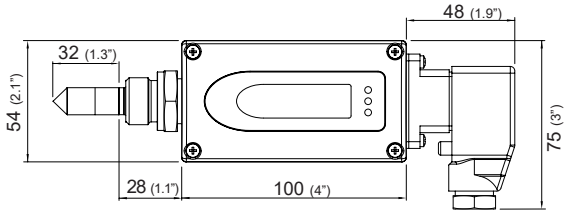
General

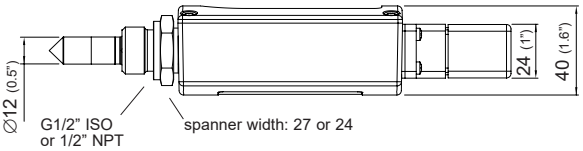
Supply voltage		10...30 V DC
Current consumption (typ.) at 24 V DC	voltage output	40 mA / during autocalibration: 100 mA
	current output	80 mA / during autocalibration: 140 mA
Pressure range		0...20 bar (0...290 psi) / 0...100 bar (0...1450 psi)
Enclosure material		Al Si 9 Cu 3
Protection class		IP65
Electrical connection		7-pole industrial plug: DIN VDE 0627 / IEC 61984 wire cross-section: 0.25 - 1 mm² cable outlet: PG 11
Sensor protection		stainless steel sintered filter
Working temperature range		medium (air): -40...70 °C (-40...158 °F) electronics: -40...60 °C (-40...140 °F) with display: -20...50 °C (-4...122 °F)
Storage temperature range		-40...60 °C (-40...140 °F)
Electromagnetic compatibility		EN61326-1 EN61326-2-3 ICES-003 ClassB Industrial Environment FCC Part15 ClassB

CE

1) minimum supply voltage 15V DC

Dimensions in mm (inch)





Sampling Cells

Basic Sampling Cell

The basic sampling cell is suitable for the pressure range 0...64 bar (0...928 psi). It allows a simple installation of the dew point sensor into an existing or self-constructed sampling system.

	ISO	*NPT*
1 =	G 1/2“ or	1/2“
2 =	G 1/4“ or	1/4“
3 =	G 1/4“ or	1/4“

HA050103 ISO
HA050105 NPT

Sampling Cell with Quick Connector and Bleed Screw

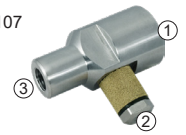
The sampling cell is optimized for the pressure range 0...10 bar (0...145 psi). The air flow can be adjusted with the bleed screw. The G ½” ISO version features a quick connector suitable forstandard DN7.2 connection, which allows for the sampling cell to be mounted and removed without process interruption.

1 = G 1/2“ ISO
2 = Bleed screw
3 = Quick connector

HA050102

1 = 1/2“ NPT
2 = Bleed screw
3 = 1/4” NPT

HA050107



Sampling Cell for Atmospheric Dew Point

The sampling cell is optimized for measuring the athmoperic dew point temperature of compressed air with pressure range 0...10 bar (0...145 psi). It features a quick connector suitable for standard DN7.2 air connection, which allows for the sampling cell to be mounted and removed without process interruption. The pressure in the sampling cell can be set with by the needle valve.

1 = G 1/2“ ISO
2 = Quick connector

HA050106

Ordering Guide

					EE371-
Hardware	**Pressure rating**	20 bar (290 psi)			TE
		100 bar (1450 psi)			TI
	Process connection	G1/2“ male thread			HA03
		1/2” NPT thread			HA07
	Display	without display			no code
		with display			D08
Software	**Output 1**	dew point temperature	Td	[°C/°F]	C
		frost point temperature	Tf	[°C/°F]	D
		volume concentration	Wv	[ppm]	P
	Output 2	dew point temperature	Td	[°C/°F]	C
		frost point temperature	Tf	[°C/°F]	D
		volume concentration	Wv	[ppm]	P
	Output signal	0-1 V			1
		0-5 V			2
		0-10 V			3
		0-20 mA			5
		4-20 mA			6
	Units for Td / Tf	metric / SI			no code
		non metric / US			E01
	Scaling range for Td output 1) in °C or °F	-40...60			Td02
		-10...50			Td03
		-60...20			Td65
	Scaling range for Tf output 1) in °C or °F	-40...60			Tf02
		-10...50			Tf03
		-60...20			Tf65
	Scaling range for Wv 2) output	0...100 ppm			X01
		0...500 ppm			X02
		0...1000 ppm			X03

1) Other Td/Tf scaling refer to data sheet „Scaling of the outputs“ at www.epluse.com/EE371
2) Other scaling upon request

Order Example

EE371-TEHA07D08CC3-Td02-Td02

Pressure rating:	20 bar (290 psi)
Pressure tight feedthrough:	1/2” NPT thread
Display:	with display
Output 1:	dew point temperature [Td]
Output 2:	dew point temperature [Td]
Output signal:	0-10 V
Units:	metric
Scaling range output 1:	-40...60 °C
Scaling range output 2:	-40...60 °C

Accessories

- Basic sampling cell ISO	HA050103
- Basic sampling cell NPT	HA050105
- Sampling cell with quick connector	HA050102
- Sampling cell with 1/4“ NPT	HA050107
- Sampling cell for atmospheric dew point	HA050106
- Product configuration adapter	see data sheet EE-PCA
- Product configuration software	EE-PCS (free download: www.epluse.com/configurator)