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Datasheet EE371

Compact Dew Point Sensor

www.epluse.com

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 HMC200 humidity and temperature sensing element together with a sophisticated auto-calibration procedure leads to an accuracy better than ±2°C Td (±3.6 °F Td) and 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.

EE371 compact dew point sensor

EE371 compact dew point sensor with sampling cell (optional)

Features

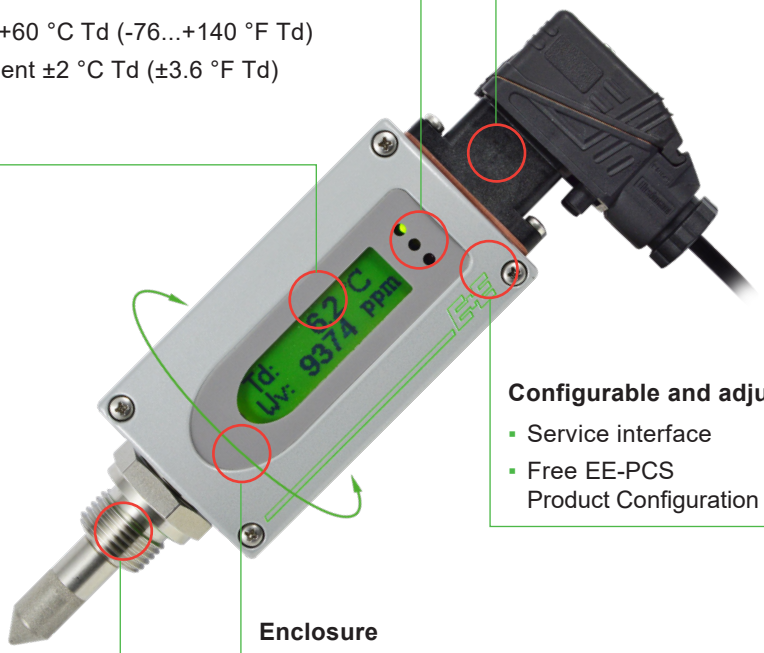
Status LEDs

Outputs

- Two voltage or current outputs
- Industrial connector
  DIN VDE 0627 / IEC 61984

Measurement performance

- Dew point / frost point temperature,
  Volume concentration
- Measuring range -60...+60 °C Td (-76...+140 °F Td)
- Accuracy of measurement ±2 °C Td (±3.6 °F Td)
- Auto-calibration



Configurable and adjustable

- Service interface
- Free EE-PCS
  Product Configuration Software

Enclosure

- IP65 protection rating
- AlSi9Cu3 (Aluminium die-cast)
- Swirling front end

Process connection

- Stainless steel
- G 1/2" ISO or 1/2" NPT
- Pressure rating 20 bar (290 psi)
  or 100 bar (1 450 psi)

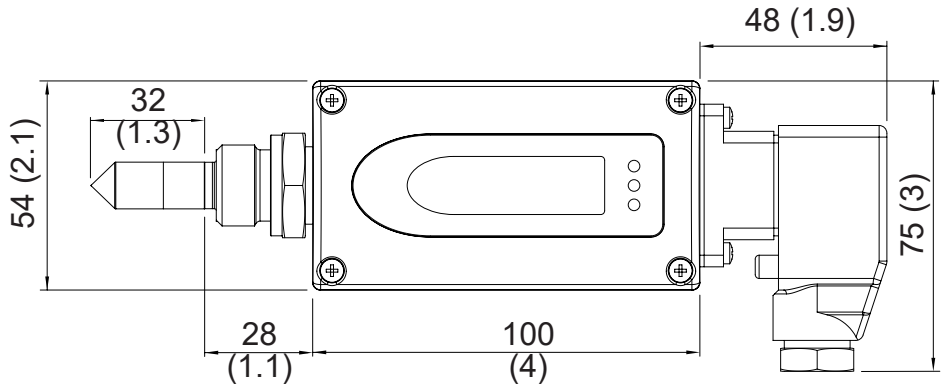
Inspection certificate

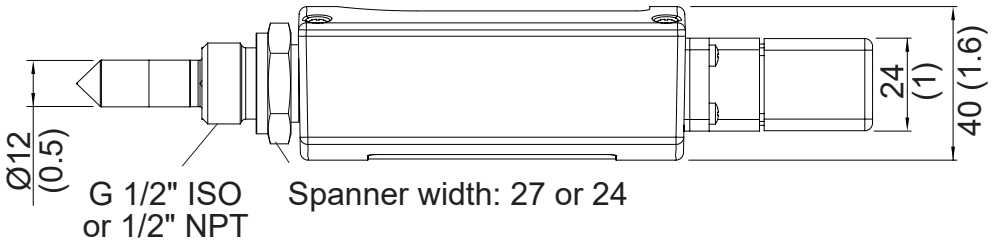
According to DIN EN 10204-3.1

Dimensions

Values in mm (inch)

Enclosure

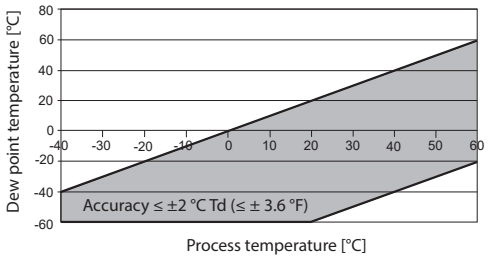




Technical Data

Measurands

Dew Point Temperature (Td)

Measuring range	-60...+60 °C Td (-76...+140 °F Td)
Accuracy[1)]	
Response time t_{90}	80 s for step -20 °C Td (-4 °F Td) → -40 °C Td (-40 °F Td) 10 s for step -40 °C Td (-40 °F Td) → -20 °C Td (-4 °F Td)

1) Traceable to intern. standards, administrated by NIST, PTB, BEV,...
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).

Technical Data

Measurands

Volume Concentration (Wv)

Measuring range @ 1013 mbar (14.7 psi)	20...200 000 ppm
Accuracy @ 20 °C (68 °F) and 1013 mbar (14.7 psi)	±(5 ppm + 9 % from measured value)

Outputs

Analogue

Two freely selectable and scaleable outputs[1)] **Td, Tf or Wv**	0 - 10 V 4 - 20 mA (3-wire)	0 mA < I_L < 1 mA R_L < 500 Ω[1)]	I_L = load current R_L = load resistance

1) Traceable to intern. standards, administrated by NIST, PTB, BEV,...
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).

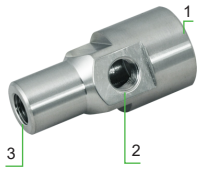
General

Power supply class III USA & Canada: Class 2 supply necessary, max. voltage 30 V DC	15 - 30 V DC
Current consumption, typ. @ 24 V DC **Voltage output** **Current output**	 40 mA / during auto-calibration: 100 mA 80 mA / during auto-calibration: 140 mA
Electrical connection **7-pole industrial plug** **wire cross-section** **cable outlet**	 DIN VDE 0627 / IEC 61984 0.25 - 1 mm² PG 11
Filter	Stainless steel sintered
Pressure working range	0...20 bar (0...290 psi) 0...100 bar (0...1450 psi)
Temperature working range **Medium (air)** **Electronics** **Display**	 -40...+70 °C (-40...+158 °F) -40...+60 °C (-40...+140 °F) -20...+50 °C (-4...+122 °F)
Storage condition	-40...+60 °C (-40...+140 °F)
Enclosure **Material** **Protection rating**	 Aluminium die-cast (AlSi9Cu3) IP65
Electromagnetic compatibility	EN 61326-1 EN 61326-2-3 Industrial environment FCC Part15 Class B ICES-003 Class B
Conformity	CE UKCA
Configuration and adjustment	EE-PCS Product Configuration Software (free download: www.epluse.com/configurator) and configuration adapter

Sampling Cells

Basic Sampling Cell

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

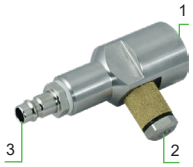


HA050103 ISO / HA050105 NPT

Number	HA050103 ISO	HA050105 NPT
1	G 1/2"	1/2"
2	G 1/4"	1/4"
3	G 1/4"	1/4"

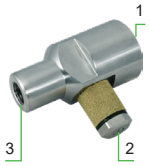
Sampling Cell with Quick Connector and Bleed Screw

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 for standard DN 7.2 connection, which allows for the sampling cell to be mounted and removed without process interruption.



HA050102 ISO

Number	HA050102 ISO
1	G 1/2"
2	Bleed screw
3	Quick connection



HA050107 NPT

Number	HA050107 NPT
1	1/2"
2	Bleed screw
3	1/4"

Sampling Cell for Atmospheric Dew Point

The sampling cell is optimized for measuring the athmospheric 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 adjusted via the needle valve.

HA050106 ISO

Number	HA050106 ISO
1	G 1/2"
2	Quick connection

Ordering Guide

	Feature	Description	Code
			EE371-
Hardw. Conf.	Process connection	G 1/2" ISO thread	PA1
		1/2" NPT thread	PA2
	Pressure rating	20 bar (290 psi)	PN20
		100 bar (1 450 psi)	PN100
	Display	Display with backlight	D2
Software Setup - Outputs	Output 1 measurand	Dew point temperature Td [°C]	No code
		Dew point temperature Td [°F]	MA53
		Frost point temperature Tf [°C] (for Td > 0 °C output is Td)	MA65
		Frost point temperature Tf [°F] (for Td > 32 °F output is Td)	MA66
		Volume concentration Wv [ppm]	MA75
	Output signal 1	0 - 10 V	GA3
		4 - 20 mA	GA6
	Output 1 scaling low	-80	No code
		Value	SAL*Value*
	Output 1 scaling high	20	No code
		Value	SAH*Value*
	Output 2 measurand	Dew point temperature Td [°C]	MB52
		Dew point temperature Td [°F]	MB53
		Frost point temperature Tf [°C] (for Td > 0 °C output is Td)	No code
		Frost point temperature Tf [°F] (for Td > 32 °F output is Td)	MB66
		Volume concentration Wv [ppm]	MB75
	Output signal 2[1)]	0 - 10 V	GB3
		4 - 20 mA	GB6
	Output 2 scaling low	-80	No code
		Value	SBL*Value*
	Output 2 scaling high	20	No code
		Value	SBH*Value*

1) Output signal 1 and 2 must be equal

Order Example

EE371-PA2PN20D2GA3SAL-40SAH60GB3SBL-40SBH60

Feature	Code	Description
Process connection	**PA2**	1/2” NPT thread
Pressure rating	**PN20**	20 bar (290 psi)
Display	**D2**	Display with backligh
Output 1 measurand	**MA53**	Dew point temperature Td [°C]
Output signal 1	**GA3**	0 - 10 V
Output 1 scaling low	**No code**	-80
Output 1 scaling high	**No code**	60
Output 2 measurand	**No Code**	Frost point temperature Td [°F]
Output signal 2	**GB3**	0 - 10 V
Output 2 scaling low	**No code**	-80
Output 2 scaling high	**SBH60**	60

Accessories

For further information see datasheet Accessories.

Description	Code
Product Configuration Software (free download: www.epluse.com/configurator)	**EE-PCS**
Product Configuration Adapter (available at www.epluse.com/ee371)	**EE-PCA**
Sampling cell G 1/2" with quick connector	**HA050102**
Sampling cell NPT with bleed screw	**HA050107**
Sampling cell G 1/2" for atmospheric dew point	**HA050106**
Basic sampling cell G 1/2"	**HA050103**
Basic sampling cell NPT	**HA050105**

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