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# + Datasheet EE371

Compact Dew Point Sensor



# 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 (1450 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  $\pm 2^{\circ}\text{C}$  Td ( $\pm 3.6^{\circ}\text{F}$  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



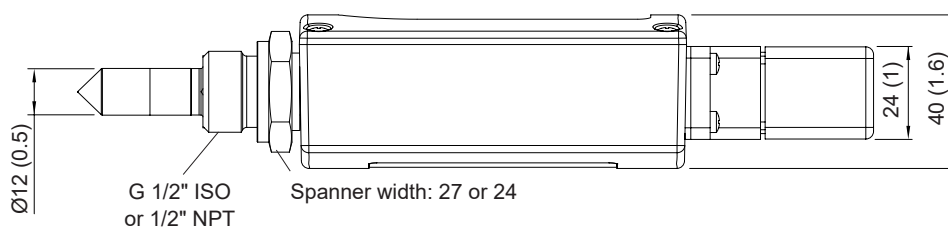
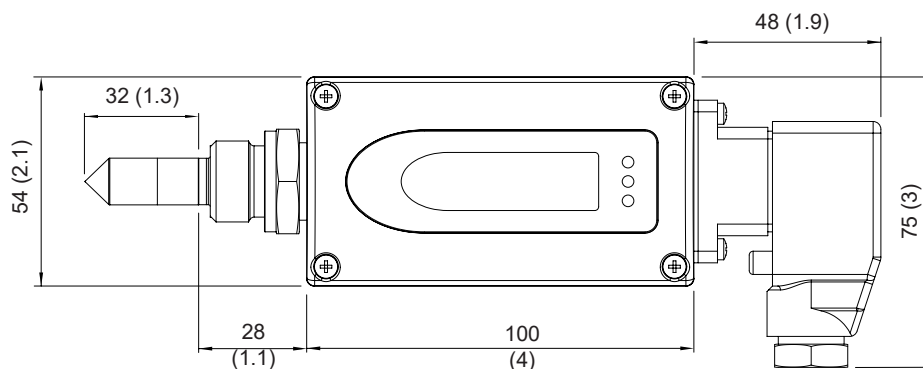
## Inspection certificate

According to DIN EN 10204-3.1

# Dimensions

Values in mm (inch)

## Enclosure



# Technical Data

## Measurands

### Dew Point Temperature (Td)

<b>Measuring range</b>	-60...+60 °C Td (-76...+140 °F Td)
<b>Accuracy<sup>1)</sup></b>	
<b>Response time <math>t_{90}</math></b>	<p>&lt;5 min for step -5 °C Td (+23 °F Td) → -50 °C Td (-58 °F Td)</p> <p>&lt;20 s for step -50 °C Td (-58 °F Td) → -5 °C Td (-23 °F Td)</p>

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)

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




## Outputs

### Analogue

<b>Two freely selectable and scaleable outputs<sup>1)</sup></b> <b>Td, Tf or Wv</b>	0 - 10 V 4 - 20 mA (3-wire)	0 mA < I <sub>L</sub> < 1 mA R <sub>L</sub> < 500 Ω <sup>1)</sup>	I <sub>L</sub> = load current R <sub>L</sub> = load resistance
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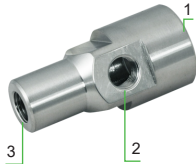
## General

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

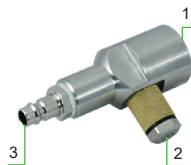


HA050103 ISO / HA050105 NPT

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

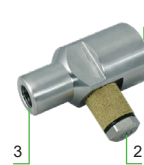
## Sampling Cell with Quick Connector and Bleed Screw

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 1/2" 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 atmospheric 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
Hardw. Conf.			<b>EE371-</b>
	Process connection	G 1/2" ISO thread	<b>PA1</b>
		1/2" NPT thread	<b>PA2</b>
	Pressure rating	20 bar (290 psi)	<b>PN20</b>
100 bar (1450 psi)		<b>PN100</b>	
Display	Display with backlight	<b>D2</b>	
Software Setup - Outputs	Output 1 measurand	Dew point temperature Td [°C]	<b>No code</b>
		Dew point temperature Td [°F]	<b>MA53</b>
		Frost point temperature Tf [°C] (for Td > 0 °C output is Td)	<b>MA65</b>
		Frost point temperature Tf [°F] (for Td > 32 °F output is Td)	<b>MA66</b>
		Volume concentration Wv [ppm]	<b>MA75</b>
	Output signal 1	0 - 10 V	<b>GA3</b>
		4 - 20 mA	<b>GA6</b>
	Output 1 scaling low	-80	<b>No code</b>
		Value	<b>SALValue</b>
	Output 1 scaling high	20	<b>No code</b>
		Value	<b>SAHValue</b>
	Output 2 measurand	Dew point temperature Td [°C]	<b>MB52</b>
		Dew point temperature Td [°F]	<b>MB53</b>
		Frost point temperature Tf [°C] (for Td > 0 °C output is Td)	<b>No code</b>
		Frost point temperature Tf [°F] (for Td > 32 °F output is Td)	<b>MB66</b>
		Volume concentration Wv [ppm]	<b>MB75</b>
	Output signal 2 <sup>1)</sup>	0 - 10 V	<b>GB3</b>
		4 - 20 mA	<b>GB6</b>
	Output 2 scaling low	-80	<b>No code</b>
		Value	<b>SBLValue</b>
Output 2 scaling high	20	<b>No code</b>	
	Value	<b>SBHValue</b>	

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: <a href="http://www.epluse.com/configurator">www.epluse.com/configurator</a> )	EE-PCS
Product Configuration Adapter (available at <a href="http://www.epluse.com/ee371">www.epluse.com/ee371</a> )	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





Company Headquarters &  
Production Site

**E+E Elektronik Ges.m.b.H.**  
Langwiesen 7  
4209 Engerwitzdorf | Austria  
T +43 7235 605-0  
F +43 7235 605-8  
info@epluse.com  
www.epluse.com

Subsidiaries

**E+E Sensor Technology (Shanghai) Co., Ltd.**  
T +86 21 6117 6129  
info@epluse.cn

**E+E Elektronik France SARL**  
T +33 4 74 72 35 82  
info.fr@epluse.com

**E+E Elektronik Deutschland GmbH**  
T +49 6171 69411-0  
info.de@epluse.com

**E+E Elektronik India Private Limited**  
T +91 990 440 5400  
info.in@epluse.com

**E+E Elektronik Italia S.r.l.**  
T +39 02 2707 86 36  
info.it@epluse.com

**E+E Elektronik Korea Ltd.**  
T +82 31 732 6050  
info.kr@epluse.com

**E+E Elektronik Corporation**  
T +1 847 490 0520  
info.us@epluse.com



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