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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 (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 $\pm 2^{\circ}\text{C}$ 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.

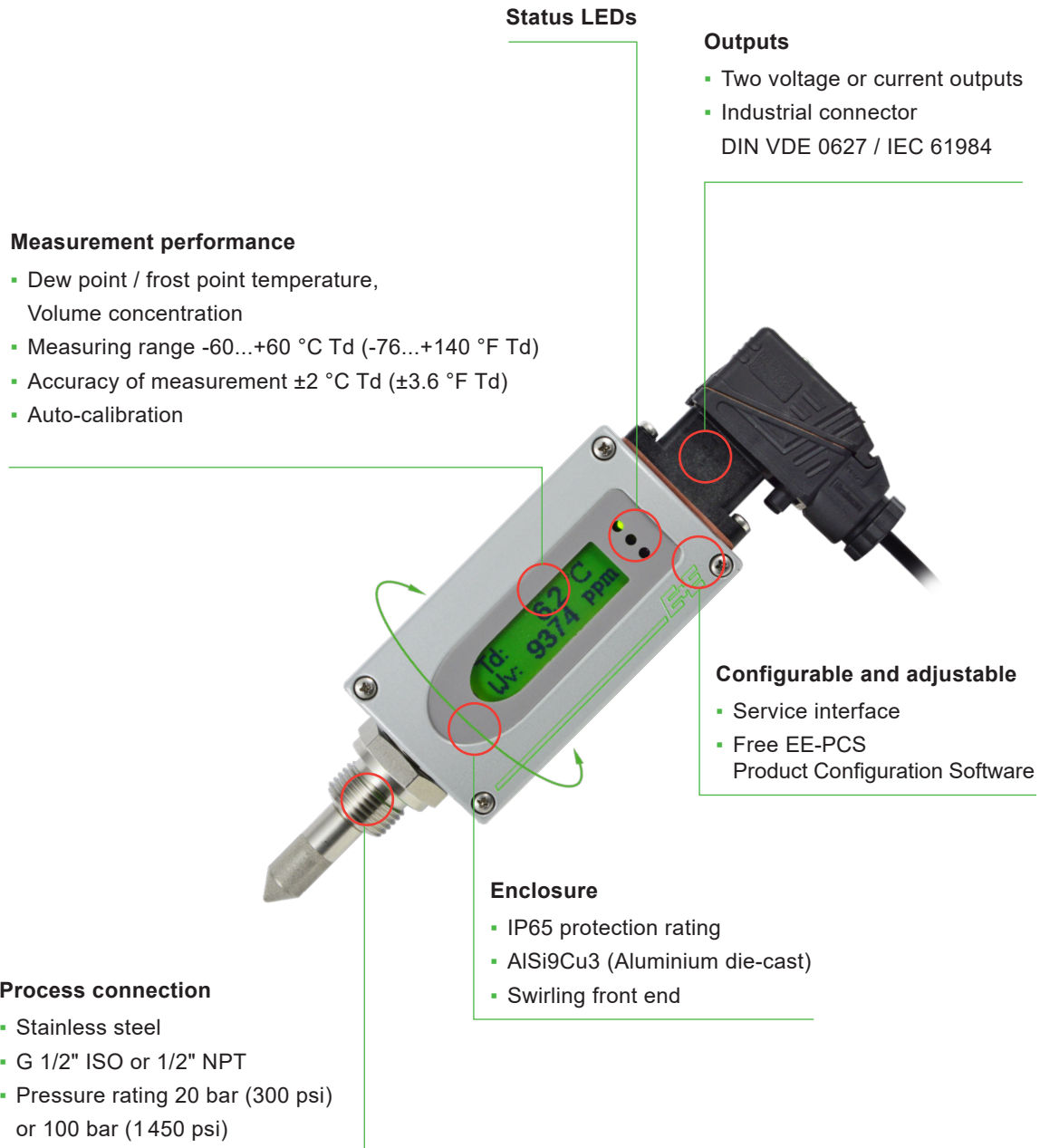


EE371 compact dew point sensor



EE371 compact dew point sensor with sampling cell (optional)

Features



Inspection certificate

According to DIN EN 10204-3.1

Features

Accredited Traceable Calibration Certificate



Internationally recognised certificates for the calibration of measuring instruments from accredited laboratories document the traceability of the measurements to the International System of Units (SI). The E+E Elektronik calibration laboratory offers two levels of traceable calibrations.

- As a Designated Institute (DI) of the Republic of Austria, the E+E calibration laboratory maintains Austria's national measurement standards for humidity, dew point temperature, air velocity and CO₂. This authorises the E+E calibration laboratory to issue calibration certificates at the level of a National Metrological Institute (NMI).
- The E+E calibration laboratory is accredited by Akkreditierung Austria in accordance with DIN EN ISO/IEC 17025 with the identification number 0608. This allows the laboratory to issue ISO 17025 certificates for the measurands humidity, temperature, dew point temperature, air velocity, flow, pressure and CO₂.

Visit www.eplusecal.com for detailed information on calibration and to enquire a certificate of accredited traceable calibration for the EE371 from the Designated Institute.

ISO 9001 Calibration Certificate

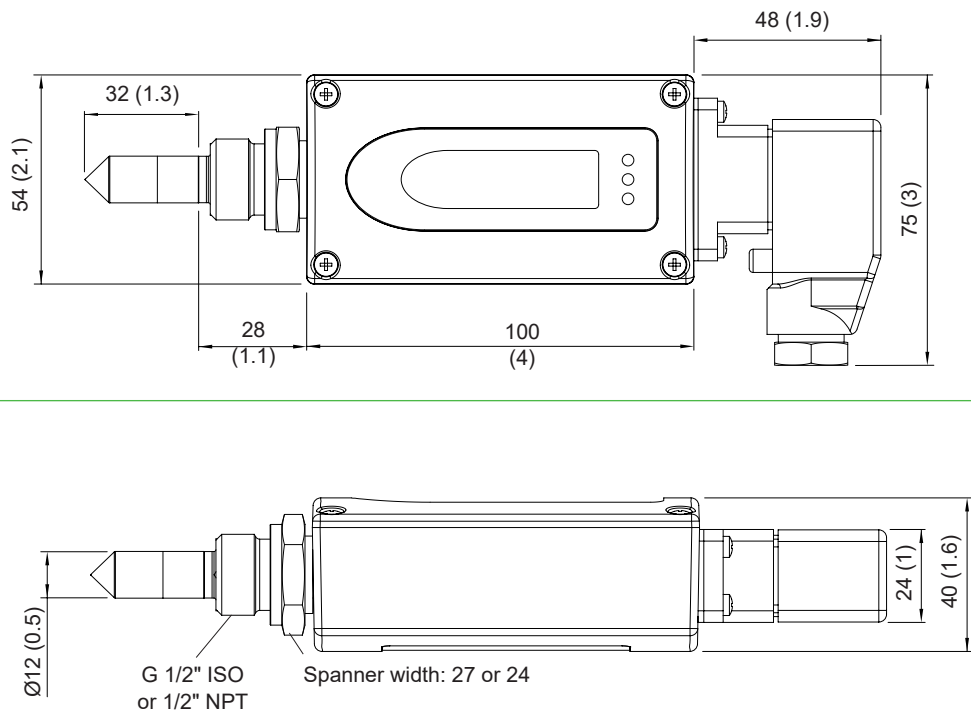
An ISO 9001 calibration certificate documents the comparative measurement of a device against high quality reference equipment (factory level standard). The comparison is performed in accordance with internal procedures that comply with ISO 9001 and provides information on the specimen's measuring accuracy. The reference equipment is traceable to national standards, however, the calibration process is not accredited. Therefore, an ISO 9001 calibration is neither traceable nor internationally comparable.

Visit www.epluse.com/iso9001cal for detailed information on calibration and to enquire an ISO 9001 calibration certificate.

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⁾	<p>The graph plots Dew point temperature [°C] on the y-axis (from -80 to 60) against Process temperature [°C] on the x-axis (from -40 to 60). A shaded region indicates the accuracy range, which is labeled as Accuracy ≤ ±2 °C Td. Below this, a label indicates Accuracy not specified. An arrow points to the lower boundary of the shaded region, labeled as Measuring range limitation dew point.</p>
Response time t ₉₀	<5 min for step -5 °C Td (+23 °F Td) → -50 °C Td (-58 °F Td) <20 s for step -50 °C Td (-58 °F Td) → -5 °C Td (-23 °F Td)

1) Traceable to intern. standards, administrated by NIST, PTB, BEV,...
The accuracy statement includes the uncertainty of the factory calibration with an coverage 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 outputs¹⁾ 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
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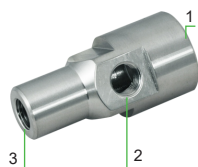
General

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 mm ² PG 11		
Filter	Stainless steel sintered		
Pressure working range	0...20 bar (0...300 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 FCC Part15 Class B	EN 61326-2-3 ICES-003 Class B	Industrial environment
Conformity	 		
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...930 psi). It allows for easy installation of the dew point sensor into an existing or self-constructed sampling system.

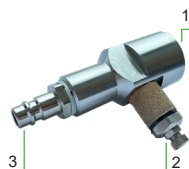


HA050103 ISO / HA050105 NPT

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

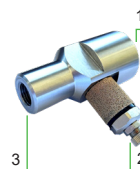
Sampling Cell with Quick Connector and Bleed Screw

The sampling cell is optimised for the pressure range 0...10 bar (0...150 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 optimised for measuring the atmospheric dew point temperature of compressed air with pressure range 0...10 bar (0...150 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.			EE371-
	Process connection	G 1/2" ISO thread	PA1
		1/2" NPT thread	PA2
	Pressure rating	20 bar (300 psi)	PN20
		100 bar (1450 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	SALValue
	Output 1 scaling high	20	No code
		Value	SAHValue
	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	SBLValue
	Output 2 scaling high	20	No code
		Value	SBHValue
	Accredited Traceable Calibration Certificate in accordance with DIN EN ISO/IEC 17025		see www.eplusecal.com
	ISO 9001 Calibration Certificate		see www.epluse.com/iso9001cal

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 ISO G 1/2" with quick connector	HA050102
Sampling cell NPT with bleed screw	HA050107
Sampling cell ISO G 1/2" for atmospheric dew point	HA050106
Basic sampling cell with ISO G 1/2" connector	HA050103
Basic sampling cell with NPT connector	HA050105



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