DPT146 Dew Point and Pressure Transmitter

For compressed air

Features

- The first transmitter that monitors both dew point and process pressure
- A simple and convenient transmitter for monitoring of compressed air
- Highly accurate humidity information thanks to dew point data coupled with live pressure input
- Proven sensor technology
- Compatible with Vaisala Handheld Meter DM70 for easy spot-checking, local display, and data logging

Vaisala Dew Point and Pressure Transmitter DPT146 for compressed air makes monitoring compressed air simple and convenient. DPT146 measures both dew point and process pressure simultaneously, and is the ideal choice for anyone using or monitoring compressed air.

Simple and efficient installation

One transmitter providing two of the most important compressed air measurements means reduced installation costs and a much easier setup – with only one instrument needing connection and wiring.

Make more informed decisions

Dew point measurement combined with process pressure measurement offers further unique advantages. When dew point data is coupled with live pressure input, conversions to atmospheric pressure or ppm are available online, leaving no ambiguity in the information. As an example, regulative requirements of medical gas can be fulfilled easily and quickly.

A unique combination of two world-class sensors

DPT146 combines the knowledge of more than 20 years of sensor technology development. Proven measurements from DRYCAP® sensor for dew point and BAROCAP® sensor for pressure are now combined into one easy-to-use transmitter.

Convenience with proven performance

Well-developed technology brings both proven results and convenience. Spot-checking and verification of dew point is easy thanks to fully compatible Vaisala DRYCAP® Handheld Dew Point Meter DM70. The meter can also be used as a local display and data logger. Temperature measurement is available when RS-485 is in use.

Output and performance

- Pressure: 1 ... 12 bar
- Dew point: −70 ... +30 °C (−94 ... +86 °F)
- Digital output RS-485 with Modbus

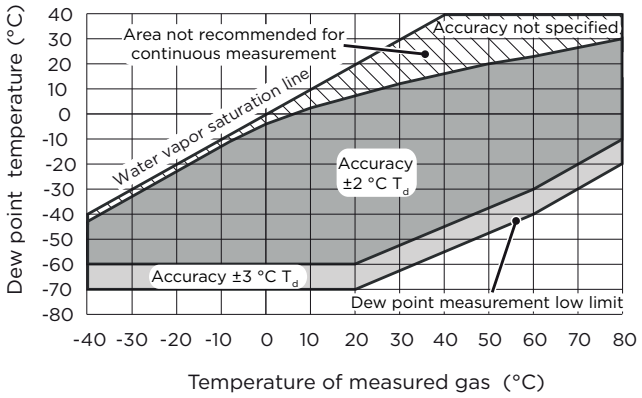
Technical data

Parameters

Measured parameters	
Dew point	−70 ... +30 °C (−94 ... +86 °F)
Pressure, absolute	1 ... 12 bar (14.5 ... 174 psi)
Temperature (available if output RS-485 only selected)	−40 ... +80 °C (−40 ... +176 °F)
Calculated parameters	
ppm moisture, by volume	1 ... 40 000 ppm
Dew point, converted to atmospheric pressure	−75 ... +30 °C (−103 ... +86 °F)

Measurement performance

Sensor	Vaisala MPS1 multiparameter sensor
Dew point accuracy	±2 °C (±3.6 °F)
Pressure accuracy at 23 °C (73.4 °F)	±0.4 %FS
Pressure temperature dependence	±0.01 bar / 10 °C (18 °F)
ppm accuracy (7 bar)	±(14 ppm + 12 % of reading)
Temperature accuracy	
0 ... 40 °C (+32 ... +104 °F)	±0.5 °C (±0.9 °F)
−40 ... 80 °C (−40 ... +176 °F)	±1 °C (±1.8 °F)
Sensor response time	
Pressure response time	< 1 s
Dew point response time 63 % [90 %] at 20 °C and 1 bar:	
−50 → −10 °C Tdf	5 s [10 s]
−10 → −50 °C Tdf	10 s [2.5 min]



Operating environment

Operating temperature of electronics	−40 ... +60 °C (−40 ... +140 °F)
Operating pressure	1 ... 12 bar (14.5 ... 174 psi)
Mechanical durability	0 ... 50 bar (0 ... 725 psi)
Relative humidity	0 ... 100 %
Measured gases	Air/non-corrosive gases
Sample flow rate	No effect on measurement accuracy
Storage temperature	
Transmitter only	−40 ... +80 °C (−40 ... +176 °F)
Shipment package	−20 ... +80 °C (−4 ... +176 °F)

Compliance

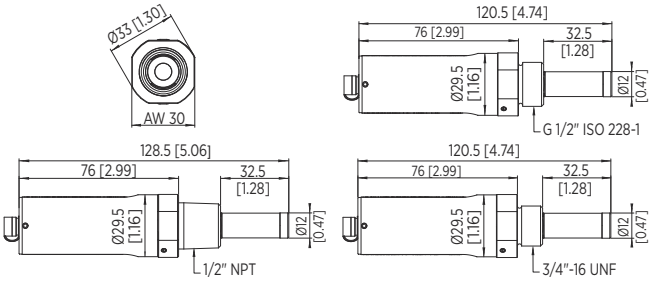
IP rating	IP66
EMC compliance	EN 61326-1, Basic electromagnetic environment

Inputs and outputs

Accuracy of analog outputs	±0.01 V / ±0.01 mA
Digital output	RS-485, non-isolated, Vaisala protocol, Modbus RTU protocol
Connector	M8 4-pin male
Operating voltage	
Current output	21 ... 28 VDC
Voltage output and/or use in cold temperatures (−40 ... −20 °C (−40 ... −4 °F))	20 ... 28 VDC
RS-485 only	15 ... 28 VDC
Analog outputs (2 channels)	
Current output	0 ... 20 mA, 4 ... 20 mA
Voltage output	0 ... 5 V, 0 ... 10 V
Supply current	
During normal measurement	20 mA + load current
During self-diagnostics	300 mA + load current
External load for	
Current output	Max. 500 Ω
Voltage output	Min. 10 kΩ

Mechanical specifications

Housing material	AISI316L
Mechanical connection	ISO G1/2", NPT 1/2", UNF 3/4"-16
Recommended calibration interval	2 years
Sensor protection	Mesh filter AISI303, grade 18 µm
Weight (ISO1/2")	190 g (6.70 oz)



Dimensions in mm (inches)

Spare parts and accessories

Connection cable for MI70 indicator / DM70 meter	219980
USB connection cable	219690
Sampling cells	DMT242SC, DMT242SC2, DSC74, DSC74B, DSC74C
Flange	DM240FA
Loop-powered external display	226476
ISO 1/2" plug	218773
NPT 1/2" plug	222507

CE

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Published by Vaisala | B211159EN-J © Vaisala Oyj 2020