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DMT152 Dewpoint Transmitter for Low Dewpoint Measurement in OEM Applications

Features/Benefits

- Compact
- Accurate
- Vaisala DRYCAP® technology with a polymer sensor
- Measures dewpoint down to -80 °C (-112 °F)
- Reduced maintenance costs due to long calibration interval
- Fast response time
- Withstands condensation
- NIST traceable
- Applications: compressed air, plastics drying, dry chambers, pure gases, and high-voltage circuit breakers

The small and powerful DMT152 measures dewpoint down to -80 °C.

DMT152

The Vaisala DRYCAP® Dewpoint Transmitter DMT152 is designed for measuring low dewpoint in OEM applications, even down to -80 °C . The excellent long-term stability and reliability of its performance is based on the latest DRYCAP® polymer sensor technology.

Low maintenance

The DMT152 mechanics have been designed for harsh environments requiring protection against dust, dirt, and splashed water.

The DRYCAP® technology has a low maintenance need due to its excellent long-term stability and durability against condensation.

Applications

The DMT152 is an ideal choice for industrial applications where it is necessary to control very low humidity. Most typical areas of use are air and plastics dryers, dry chambers, pure gases, and high-voltage circuit breakers.

The DMT152 measures accurately and realiably also in the challenging combination of low humidity and hot air, which is typical in plastics drying.

Compressed air and dewpoint measurement

Moisture in compressed air can cause many problems to end products, the process, and the components of the air distribution system itself.

Therefore, reliable on-line dewpoint measurement is a prerequisite to manufacturing high-quality end products.

Although excess humidity is eliminated by using different types of dryers, dewpoint measurement is required to make sure that the dryer is functioning correctly.

Reduced production costs

In addition to detecting possible operational failures of desiccant dryers, dewpoint measurement can also be used to control the desiccant regeneration interval. It provides users with significant energy savings and a consistent quality of dry air output.

The optional Vaisala MI70 indicator can be used as a display for the DMT152 and for logging data.

Technical Data

Measured variables

Dewpoint temperature	
Measurement range	-80 ... -30 °C (-112 ... -22 °F) T_d
Accuracy	±2 °C (3.6 °F) T_d
Non-calibrated range	-100 ... +20 °C (-148 ... +68 °F) T_d
Analog output scalings	
option 1	-80 ... +20 °C (-112 ... +68 °F) T_d
option 2	-100 ... 0 °C (-148 ... +32 °F) T_d
option 3	user-specified output scaling
Response time 63 % [90 %] at a gas temperature of +20 °C (+68 °F) and pressure of 1 bar	
-80 → -30 °C (-112 → -22 °F) T_d	10 s [20 s]
-30 → -80 °C (-22 → -112 °F) T_d	2 min [30 min]
ppm volume concentration	
Measurement range (typical)	0 ... 500 ppm
Accuracy at +20 °C (+68 °F), 1013 mbar	±(0.2 ppm + 20 % of reading)

Operating environment

Temperature	-40 ... +60 °C (-40 ... +140 °F)
Relative humidity	0 ... 100 % RH (up to + 20 °C/68 °F)
Pressure	0 ... 50 bar (725 psia)
Measured gases	non-corrosive gases
Sample flow rate	no effect on measurement accuracy

Outputs

Two analog outputs (scalable)	4 ... 20 mA, 0 ... 20 mA (3-wire) 0 ... 5 V, 0 ... 10 V
Accuracy of analog outputs	± 0.01V / ±0.01 mA
Typical temperature dependence	
voltage output	± 0.001 % of span / °C
current output	± 0.005 % of span / °C
Digital output	RS485 (2-wire)
On/Off output is available (instead of the 2nd analog output)	
purge or autocalibration inactive	0 V, 0 mA, or 4 mA
purge or autocalibration active	5 V, 10 V, or 20 mA
OR exceeded T_d or ppm limit	user selectable

General

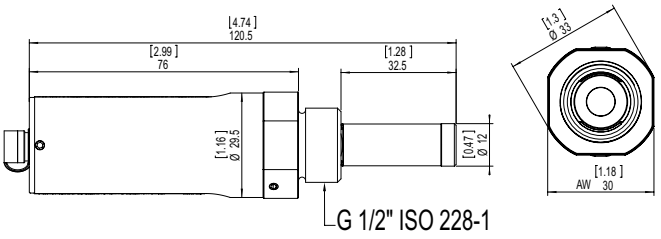
Sensor	Vaisala DRYCAP® 180U Thin-film capacitive polymer sensor
Recommended calibration interval	2 years
Operating voltage with	
RS485 output	11* ... 28 VDC
voltage output	15* ... 28 VDC
current output	21 ... 28 VDC
*For extended temp. down to -40 °C (-40 °F) or pressure up to 50 bar (725 psia), the supply voltage is 21 ... 28 VDC.	
Supply current	
normal measurement	20 mA + load current
during self-diagnostics	max. 220 mA pulsed
External load for	
voltage output	min. 10 kOhm
current output	max. 500 Ohm
Housing material (wetted parts)	AISI316L
Stainless steel mesh filter	AISI303, filter grade 18 µm
Mechanical connections	
option 1	ISO G½"
option 2	NPT ½"
option 3	UNF 3/4" - 16
Housing classification	IP65 (NEMA 4)
Storage temperature range	-40 ... +80 °C (-40 ... +176 °F)
Weight (ISO G½")	190 g (6.70 oz)
Complies with EMC standard EN61326-1, Electrical equipment for measurement control and laboratory use - EMC requirements; Industrial environment	

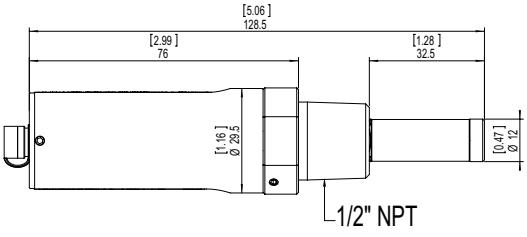
Accessories

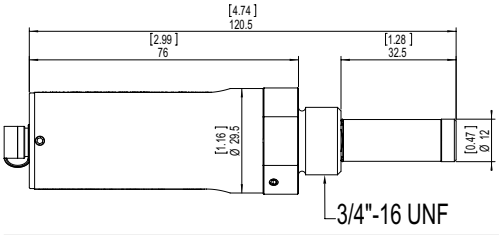
Connection cables with 4-pin M8 connector	
snap-on connector, 2 m/6.5 ft.	211598
thread connector (shielded), 3 m/9.8 ft.	HMP50Z300
thread connector (shielded), 10 m/32.8 ft	HMP50Z1000
Connection cable for MI70 hand-held indicator	219980
USB cable for pc connection	219690
Sampling cells (available for ISO G½")	
basic sampling cell	DMT242SC
with Swagelok 1/4" male connectors	DMT242SC2
with a quick connector and leak screw	DSC74
two-pressure sampling cell	DSC74B
cooling/venting coil	DMCOIL

Dimensions

Dimensions in mm (inches)

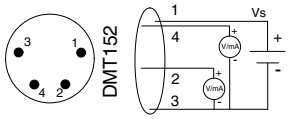




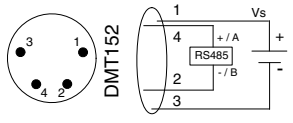


Wiring

Wiring of connector I (4-pin M8)
1 = VDC supply + (brown)
2 = Signal Ch 1+ (white)
3 = GND (blue)
4 = Signal Ch2+ (black)



Wiring of connector II (4-pin M8)
1 = VDC supply + (brown)
2 = RS485 - /B (white)
3 = GND (blue)
4 = RS485 +/A (black)



The supply voltage connection is protected against simultaneous use in connector I and II.

B210750EN-B 08-2008