

DMT242 Dewpoint Transmitter for OEM Applications



Due to its wide measurement range and high long-term stability, the DMT242 is an ideal choice for low dewpoint industrial applications such as compressed air dryers, plastic dryers and other OEM applications.

Features/Benefits

- Ideal choice for low dewpoint industrial dryer applications
- Incorporates advanced Vaisala DRYCAP® Sensor and enhanced auto-calibration software
- Long-term stability in low dewpoints
- Fast response time
- Wide dewpoint measurement range from -60 ... +60 °C (-76 ... +140 °F) with an accuracy ± 2 °C (± 3.6 °F)
- Withstands condensation
- IP65(NEMA 4) housing provides protection against dust, dirt and splashed water
- Can be installed directly into systems at 20 bar maximum pressure
- NIST traceable (certificate included)
- Compatible with Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70

The Vaisala DRYCAP® Dewpoint Transmitter DMT242 provides reliable and stable measurements for low dewpoint industrial dryer applications. It provides fast response time and wide measurement range: measuring from -60 to +60 °C (-76 ... +140°F) with an accuracy ± 2 °C (± 3.6 °F) over the entire specified process temperature range.

Vaisala DRYCAP® performance

DMT242 incorporates the Vaisala DRYCAP® thin film polymer sensor and auto-calibration software, a combination that makes it ideal for use in dry ambients. The sensor is immune to particulate contamination, water condensation, oil vapor and most chemicals. Because the sensor withstands condensation, its performance is unmatched for low dewpoint applications that experience process water spikes, such as pipeline condensation during a system failure or start-up.

The auto-calibration software works on-line while the process is running. If the measurement accuracy is not confirmed, the software makes the corrections to the calibration curve. Corrections may be due to contamination, or aging of the sensor. In either case the transmitter adjusts the measurement, corrects dry-end drifts and continues to function. Calibration occurs quickly, and with corrections so minor, the user will not realize it has taken place.

The user can perform field-check by using Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70. The transmitter can be sent to Vaisala Service for NIST traceable calibration. Calibration intervals depend on the application, however the recommended calibration interval is every two years.

Compact, rugged and intelligent

The DMT242 is designed for extreme conditions that require protection

against dust, dirt and splashed water. The housing offers IP65- protection and the transmitter can be installed directly into systems at 20 bar maximum pressure.

Due to its compact size, DMT242 is quickly and easily installed in tight spaces. Units are delivered installation-ready. If necessary, re-scaling the output can be done via the serial interface.

The supply voltage and output signal connect easily to the IP65 (NEMA 4) protected screw terminals. A separate serial output is available for service use.

The Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70 is ideal for confirming the performance of the DMT242 in the field.



Technical Data

Dewpoint temperature

Measurement range (typical) -60 ... +60 °C (-76 ... +140 °F)

Analog output scalings

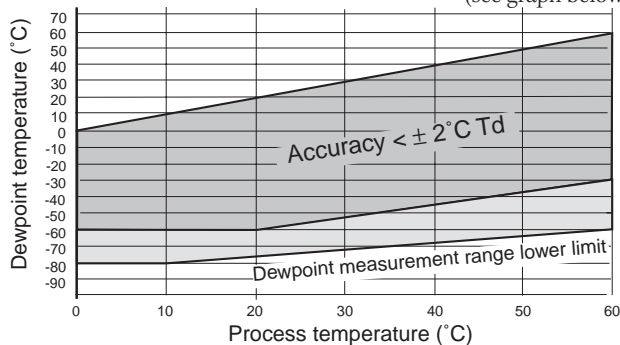
Option A -80 ... +20 °C (-112 ... +68 °F)

Option B -60 ... +60 °C (-76 ... +140 °F)

Option X free scaling

(when the dewpoint is below 0 °C (32 °F), the transmitter outputs frostpoint)

Accuracy ± 2 °C (± 3.6 °F)
(see graph below)



Dewpoint accuracy vs. measurement conditions

Response time 63% [90%] at +20 °C gas temperature

Flow rate >1 l/min and 1 bar pressure

-60 -> -20 °C Td (-76 -> -4 °F Td) 5 s [10 s]

-20 -> -60 °C Td (-4 -> -76 °F Td) 45 s [10 min]

Operating environment

Temperature 0 ... +60 °C (+32 ... +140 °F)

Higher temperature peaks Short term OK

Relative humidity 0 ... 100 %RH

Pressure 0 ... 20 bar_a (0 ... 290 psia)

Sample flow rate no effect

Outputs

Analog output 4 ... 20 mA

Resolution for analog output ± 0.002 mA

Typical temperature dependence 0.0008 mA/°C

Serial line for service use RS232

General

Sensor DRYCAP® 180M

Optional sensor for refrigerator dryers DRYCAP® 180S

Operating voltage 17-35 VDC

20-28 VAC

Power consumption @ 24 VDC Max. 220 mA

External load for analog output max. 500 ohm

Connector for supply voltage and signal output

Max. wire-size 0.75 mm²

Max. cable diameter 6.5mm / PG7

Service cable for serial interface RS232 product code DMT242RS

Probe material (wetted parts) stainless steel (AISI 316L)

Sensor protections stainless steel sintered filter (part. no. HM47280)

Mechanical connection G1/2" ISO 228-1 thread

with bonded seal ring (U-seal)

(1/2" NPT adapter available, part no. 210662)

Electronics housing material plastic (ABS/PC)

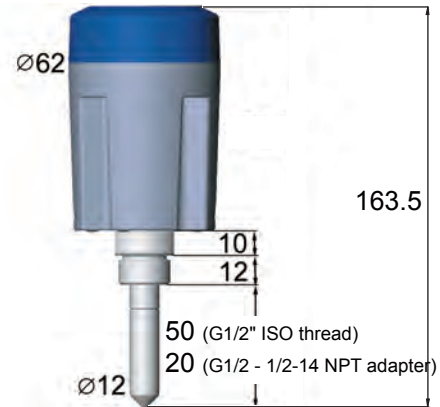
Housing classification IP65 (NEMA 4)

Storage temperature range -40 ... +70 °C (-40 ... +158 °F)

Complies with EMC standard EN61326-1, Electrical equipment for measurement, control and laboratory use - EMC requirements; Industrial environment.

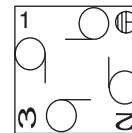
Dimensions

Dimensions in mm.



Wiring

Wiring of the connector



- 1 = V supply + (VAC line)
- 2 = V supply - (VAC neutral)/signal -
- 3 = signal +
- ⊕ = no connection

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