

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.

The Vaisala DRYCAP® Dewpoint Transmitter DMT242 provides reliable and stable measurements for low dewpoint industrial dryer applications. It provides a 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

The DMT242 incorporates the Vaisala DRYCAP® thin film polymer sensor and auto-calibration software, a combination that makes it ideal for use in dry conditions.

The sensor is immune to particulate contamination, water condensation, oil vapor, and most chemicals. As 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 with corrections so minor that 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; 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.

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 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.

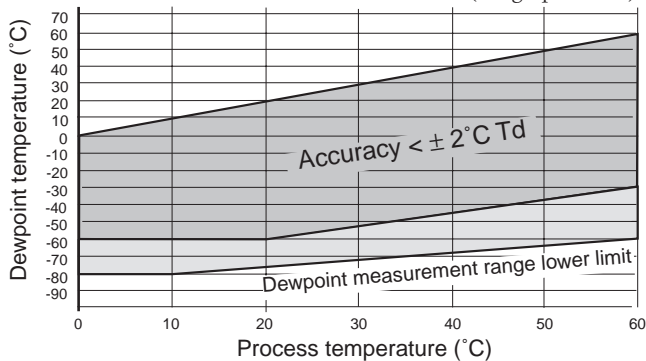
The Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70 is ideal for confirming the performance of the DMT242 in the field.



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 with DRYCAP® 180M	±2 °C (±3.6 °F) (see graph below)

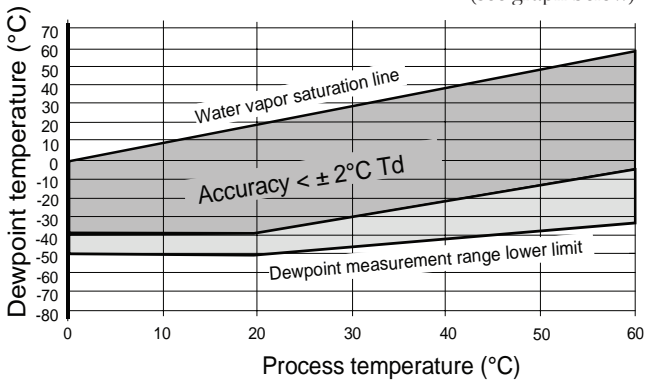


Dewpoint accuracy vs. measurement conditions

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]

Accuracy with DRYCAP® 180S ±2 °C (±3.6 °F)
(see graph below)



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

Output

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

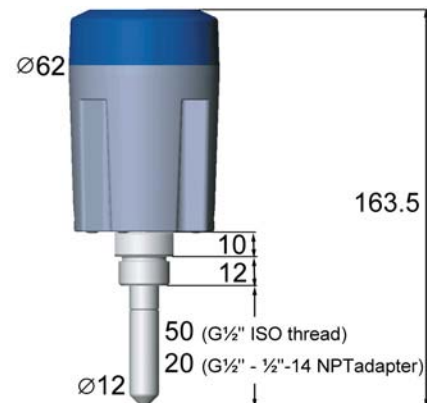
General

Sensor	DRYCAP® 180M
Optimal sensor for refrigerator dryers	DRYCAP® 180S
Operating voltage	17 - 35 VDC 20 - 28 VDC
Power consumption at 24 VDC	max. 220 mA
External load for analog output	max. 500 Ω
Optional connection cable with DMT242 connector	2 m or 10 m
Connector for supply voltage and signal output	
max. wire size	0.75 mm ²
max. cable diameter	6.5 mm / PG7
Service cable for serial interface RS232	product code DMT242RS
Probe material (wetted parts)	stainless steel (AISI 316L)
Sensor protection	stainless steel sintered filter (HM47280)
Mechanical connection	G½" ISO228-1 thread with bonded seal ring (U-seal)
Electronics housing material	plastic (ABS/PC)
Housing classification	IP65 (NEMA4)
Storage temperature range	-40 ... +70 °C (-40 ... +158 °F)

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

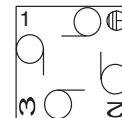
Dimensions

Dimensions in mm



Wiring

Wiring of the connector



1	= V supply+ (VAC line) (Brown)
2	= V supply- (VAC neutral)/signal - (Blue)
3	= signal + (Black)
Ⓞ	= no connection

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