



# DMT143L Dew Point Transmitter

## For OEM applications



### Features

- Vaisala DRYCAP® technology with auto-calibration
- Two sensor options cover a dew point measurement range of  $-60 \dots +60 \text{ }^{\circ}\text{C}$  ( $-76 \dots +140 \text{ }^{\circ}\text{F}$ )
- Accuracy  $\pm 2 \text{ }^{\circ}\text{C}$  ( $\pm 3.6 \text{ }^{\circ}\text{F}$ )
- Compatible with Vaisala Indigo80 handheld indicator and Insight PC software
- Traceable calibration (certificate included)
- Analog current (mA) output and RS-485 digital output with Modbus® RTU support
- LED alarm for exceeded dew point level
- Fast response time

Due to its wide measurement range and excellent long-term stability, Vaisala DRYCAP® Dew Point Transmitter DMT143L is an ideal choice for low dew point industrial applications, such as compressed air dryers, plastic dryers, and other OEM applications.

### Vaisala DRYCAP®

Vaisala DRYCAP® Dew Point Transmitter DMT143L is a miniature dew point measurement instrument.

The transmitter can be installed directly into pressurized systems at 20 bar (290 psi) maximum pressure. It is designed for extreme conditions.

DMT143L incorporates Vaisala DRYCAP® thin film polymer sensor and auto-calibration software. The standard sensor choice for dry gases and desiccant dryers is the DRYCAP® 180M, and for more humid applications such as refrigeration dryers, the DRYCAP® 180S is optimal.

The sensors fully withstand getting wet, and therefore, the transmitter performs exceptionally well in applications that occasionally experience process water

spikes, such as pipeline condensation during a system failure or start-up. The sensors are also highly resistant to particulate contamination, oil vapor, and most chemicals, and insensitive to the flow rate.

### Long calibration interval

The typical calibration interval of DMT143L is two years. For any adjustment needs, the transmitter can be sent to a Vaisala Service Center.

The auto-calibration software works online while the process is running. If the measurement accuracy is not confirmed, corrections are made automatically.

### Easy installation

DMT143L has a variety of features to choose from, including different output and installation options, and alarm LED.

Due to its small size and light weight, DMT143L is quickly and easily installed in tight spaces or in small-size pipelines. The alarm LED indicates too high dew point in the process. The trigger point is preset at the factory. It can be later adjusted with the convenient Vaisala Insight PC software for Windows®.

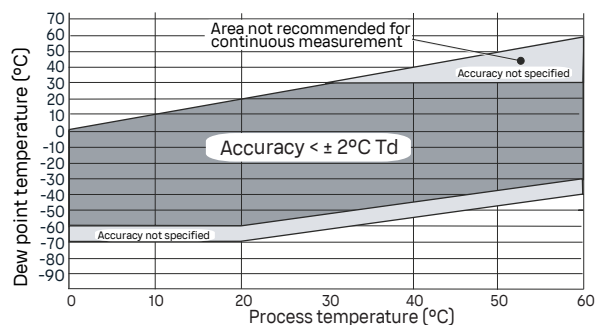
Insight PC software and the Indigo80 handheld indicator can also be used for other configuration options, as well as for viewing and logging measurement data (for more information, see [vaisala.com/insight](https://vaisala.com/insight) and [vaisala.com/indigo](https://vaisala.com/indigo)).

# Technical data

## Measurement performance

|                                                                  |                                                                      |
|------------------------------------------------------------------|----------------------------------------------------------------------|
| Sensors                                                          | DRYCAP® 180M<br>DRYCAP® 180S (optimal for refrigeration dryers)      |
| Sensor protection                                                | Stainless steel sintered filter<br>Stainless steel filter for vacuum |
| Calibration interval to confirm the specified accuracy (typical) | 2 years                                                              |
| Measurement range (typical)                                      | -60 ... +60 °C (-76 ... +140 °F)                                     |
| Accuracy with DRYCAP® 180M                                       | ±2 °C (±3.6 °F) <sup>1)</sup>                                        |

<sup>1)</sup> When the dew point temperature is below 0 °C (32 °F), the transmitter outputs frost point.



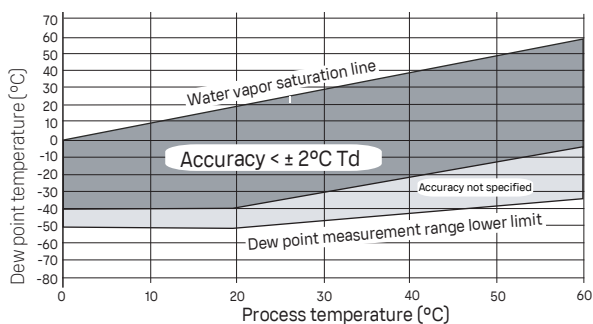
## Accuracy with DRYCAP 180M sensor

### Dew point accuracy vs. measurement conditions

Response time 63 % [90 %] at +20 °C (+68 °F) gas temperature and 1 bar pressure and 1 liter/min flow rate:

|                                                           |                               |
|-----------------------------------------------------------|-------------------------------|
| -60 → -20 °C T <sub>d</sub> (-76 → -4 °F T <sub>d</sub> ) | 5 s [10 s] (typical)          |
| -20 → -60 °C T <sub>d</sub> (-4 → -76 °F T <sub>d</sub> ) | 45 s [10 min] (typical)       |
| Accuracy with DRYCAP® 180S                                | ±2 °C (±3.6 °F) <sup>1)</sup> |

<sup>1)</sup> When the dew point temperature is below 0 °C (32 °F), the transmitter outputs frost point temperature.



## Accuracy with DRYCAP 180S sensor

## Compliance

|                                     |                                                                                                                              |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| EU directives and regulations       | EMC Directive (2014/30/EU)<br>RoHS Directive (2011/65/EU) as amended by 2015/863                                             |
| Electromagnetic compatibility (EMC) | IEC/EN 61326-1, industrial environment<br>CISPR 32 / EN 55032, Class B<br>FCC part 15 B, Class B<br>ICES-3 / NMB-3 (Class B) |
| Compliance marks                    | CE, China RoHS, RCM, UKCA                                                                                                    |

## Operating environment

|                          |                                                                         |
|--------------------------|-------------------------------------------------------------------------|
| Measurement environment  | For air, nitrogen, hydrogen, argon, helium, and oxygen <sup>1) 2)</sup> |
| Operating temperature    | 0 ... +60 °C (+32 ... +140 °F)                                          |
| Higher temperature peaks | Short-term OK                                                           |
| Relative humidity        | 0-100 %RH                                                               |
| Operating pressure       | 0-20 bar (0-290 psi), absolute                                          |
| Mechanical durability    | Up to 50 bar (725 psi)                                                  |
| Sample flow rate         | No effect                                                               |
| Storage temperature      | -40 ... +60 °C (-40 ... +140 °F)                                        |
| IP rating                | IP66                                                                    |

<sup>1)</sup> Consult Vaisala if other chemicals are present. Consider safety regulations with flammable gases. The transmitter is not certified for use in hazardous areas with potentially explosive atmospheres.  
<sup>2)</sup> The transmitter is not tested for leakages, which may occur especially with small-molecule gases such as hydrogen and helium.

## Inputs and outputs

|                                       |                                           |
|---------------------------------------|-------------------------------------------|
| Analog current output                 | 4-20 mA (3-wire)                          |
| Digital output                        | RS-485, non-isolated                      |
| Supported protocols                   | Vaisala Industrial Protocol<br>Modbus RTU |
| Resolution for current output         | 0.002 mA                                  |
| Accuracy for current output at +20 °C | ±0.05 mA                                  |
| External load for current output      | Max. 500 Ω                                |
| Operating voltage with current output | 18-28 V DC                                |
| Operating voltage with digital output | 12-28 V DC                                |
| Typical temperature dependence        | 0.0008 mA/°C                              |
| Power consumption at 24 V DC          | Max. 220 mA                               |

## Mechanical specifications

|                          |                                                                   |
|--------------------------|-------------------------------------------------------------------|
| Mechanical connection    | ISO 228-1 G1/2" with bonded seal ring (U-seal) or 1/2" NPT thread |
| Housing material         | Stainless steel (AISI 316L)                                       |
| Weight, G thread model   | 90 g (3.2 oz)                                                     |
| Weight, NPT thread model | 100 g (3.5 oz)                                                    |

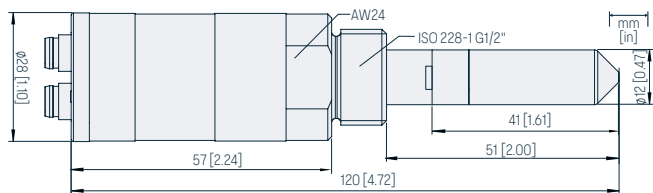
## Spare parts and accessories

|                                                               |             |
|---------------------------------------------------------------|-------------|
| USB cable for PC connection <sup>1)</sup>                     | 219690      |
| M12 - M8 cable 1.5 m (4 ft 11 in), for connecting to Indigo80 | 262195SP    |
| Loop powered external display                                 | 226476      |
| Loop powered external display with relays                     | 234759      |
| Mounting bracket                                              | ASM216087SP |

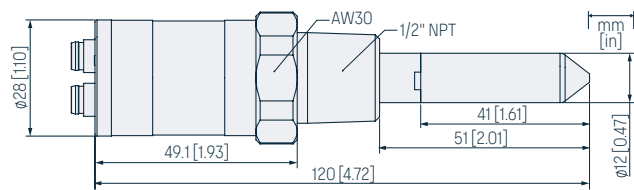
### Sampling cells

|                                     |           |
|-------------------------------------|-----------|
| Basic sampling cell                 | DMT242SC  |
| With 1/4" Swagelok male connectors  | DMT242SC2 |
| With 1/4" Swagelok VCR connectors   | DSCVCR14  |
| With quick connector and leak screw | DSC74SP   |
| Two-pressure sampling cell          | DSC74BSP  |
| Cooling/venting coil                | DMCOILSP  |

<sup>1)</sup> Vaisala Insight software for Windows is available at [vaisala.com/insight](https://www.vaisala.com/insight).



DMT143L with ISO 228-1 G1/2" thread



DMT143L with 1/2" NPT thread