Vaisala DRYCAP® Sensor for Measuring Dew Point

In 1997 Vaisala introduced DRYCAP®, a new type of dew point sensor based on thin-film polymer technology. Since its launch, the DRYCAP product family has grown to encompass a huge range of applications, from drying processes to compressed air and dry chambers. The DRYCAP sensor is particularly renowned for its reliable performance in hot and very dry environments.

How It Works
DRYCAP’s unrivalled performance is based on two innovations: the proven capacitive thin-film polymer sensor and the auto-calibration function. The sensor’s thin-film polymer absorbs or releases water vapor as the surrounding humidity increases or decreases. The dielectric properties of the polymer change as the humidity around the sensor changes, as does the capacitance of the sensor. Capacitance is converted into a humidity reading. The capacitive polymer sensor is bonded together with a temperature sensor, and dew point is calculated from the humidity and temperature readings. Vaisala’s patented auto-calibration function optimizes the measurement stability at low dew points. The sensor is heated at regular intervals during the automated auto-calibration procedure. The humidity and temperature readings are monitored as the sensor cools to ambient temperature, with offset correction compensating for any potential drift. This enables the DRYCAP sensor to deliver accurate measurements in the long term, dramatically reducing the need for maintenance.

Typical Applications for Dew Point Measurement
Vaisala DRYCAP dew point instruments measure dew point in industrial applications, where gas humidity is typically very low. Dew point is often a critical parameter, with inadequate control resulting in problems such as process downtime, damaged process equipment, and deterioration in end-product quality. Dew point is measured in various drying and heat-treatment processes. It is also controlled in compressed air, where excess moisture can result in poor end-product quality, ice formation, and equipment corrosion.

DRYCAP in Brief
- Thin-film polymer sensor with unique auto-calibration function
- Wide measurement range, dew point measurement down to -80 °C (-112 °F)
- Accuracy ± 2 °C (± 3.6 °F)
- NIST-traceable dew point measurement

DRYCAP’s Unique Benefits
- Excellent long-term stability, with recommended 2-year calibration interval
- Rapid response time
- Withstands condensation and recovers rapidly
- Resistant to particulate contamination, oil vapor, and most chemicals
The DRYCAP story began in the mid-1990s following an unresolved measurement challenge. Traditional humidity instruments were not accurate enough at very low humidities, while commonly used aluminum oxide sensors were prone to drift and required frequent calibration. There was strong demand for accurate, easy-to-use, cost-effective, and low-maintenance dew point instruments.

Vaisala’s solution was to combine the highest quality polymer technology with a patented key feature – auto-calibration – that would eliminate sensor drift in very dry conditions. The result was the stable, reliable, and accurate DRYCAP sensor. The first DRYCAP products were launched in 1997, and this highly successful innovation is still going strong today.

DRYCAP also led the way for the next great innovation: the world’s first transmitter that monitors both dew point and process pressure simultaneously, aimed at compressed air customers worldwide. The story continues.
The Vaisala DRYCAP® Dewpoint and Temperature Transmitter Series DMT340 is designed for industrial low-humidity applications such as compressed air drying and metal treatment. The transmitters are very reliable, easy to use, and economical to maintain.

**Stability at Low Dew Points**

The Vaisala DRYCAP® sensor is immune to particulate contamination, water condensation, oil vapor, and most chemicals. Since the sensor is condensation-resistant, its performance is unmatched in low dew point applications where water spikes occur in the process. The sensor recovers rapidly from contact with free water.

**Unique Auto-Calibration Feature**

The stability of the DMT340 series is due to its unique auto-calibration function, developed by Vaisala. This feature allows the transmitter to perform calibration and adjustment by itself while the measured process is running. If the measurement accuracy is not confirmed, corrections are made automatically. The procedure is so quick and corrections so minor that it causes no disruption, ensuring easy maintenance and high performance. To maintain high performance, transmitters can be sent to Vaisala for calibration. Calibration intervals depend on the application; in normal conditions it is recommended to have calibration performed every two years.

**Graphical Display of Measurement Data and Trends for Convenient Operation**

The DMT340 features a large numerical and graphical display with a multilingual menu and keypad. It allows users to easily monitor operational data, measurement trends, and access measurement history for the past 12 months. The optional data logger, with real-time clock, makes it possible to generate over four years of measurement history and zoom in on any desired time or time frame.

---

**Features/Benefits**

- Measures dew point from -60 °C to +80 °C (-76 ... +176 °F) with an accuracy of ±2 °C (±3.6 °F)
- Vaisala DRYCAP® sensor provides accurate, reliable measurement with excellent long-term stability and a fast response time
- Condensation-resistant
- Unique auto-calibration feature
- Compatible with Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70
- NIST traceable calibration (certificate included)
- Graphical display and keypad for convenient operation
- Optional alarm relays and mains power supply module
- Analog outputs, RS232/485, WLAN/LAN
- MODBUS protocol support (RTU/TCP)
The display alarm allows tracking of any measured parameter, with freely configurable low and high limits.

**Versatile Outputs and Data Collection**

The DMT340 can support up to three analog outputs; an isolated galvanic power supply and relay outputs are also available.

For serial interface the USB connection, RS232, and RS485 can be used.

DMT340 is also capable of applying the MODBUS communication protocol and, together with an appropriate connection option, provides either MODBUS RTU (RS485) or MODBUS TCP/IP (Ethernet) communication.

The data logger, with real-time clock and battery backup, guarantees reliable logging of measurement data for over four years. The recorded data can be viewed on the local display or transferred to a PC with Microsoft Windows® software. The transmitter can also be connected to a network with an optional (W)LAN interface, which enables a (wireless) Ethernet connection. A USB service cable makes it easy to connect the DMT340 to a PC via the service port.

**Easy Installation**

DMT340 transmitters are delivered installation-ready, with a variety of installation options to choose from.

---

**Probe Specifications**

**DMT342 with Small Size Flanged Probe**

- Pressure range: 0 ... 50 bar/0 ... 725 psia
- Mechanical durability: up to 250 bar/3625 psia
- Probe diameter: 12 mm/0.5"
- Installation:
  - Flange: 36 mm/1.4"
  - Sampling cell: HMP302SC

**DMT344 with Probe for High Pressures**

- Pressure range: 0 ... 50 bar/0 ... 725 psia
- Mechanical durability: up to 100 bar/1450 psia
- Probe diameter: 12 mm/0.5"
- Installation:
  - Fitting body: M22 x 1.5
  - Fitting body: NPT 1/2"

---

The Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70 is ideal for field-checking DMT340 transmitters.
The DMT347 probe is ideal for tight spaces with a thread connection. The small probe is installed using Swagelok® connectors.

**Probe Specifications**

**DMT347 with Small-Sized Probe**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure range</td>
<td>0 ... 10 bar/0 ... 145 psia</td>
</tr>
<tr>
<td>Mechanical durability</td>
<td>up to 10 bar/145 psia</td>
</tr>
<tr>
<td>Probe diameter</td>
<td>12 mm/0.5&quot;</td>
</tr>
<tr>
<td>Installation</td>
<td></td>
</tr>
<tr>
<td>Fitting body</td>
<td>R 3/8&quot; ISO</td>
</tr>
<tr>
<td>Fitting body</td>
<td>G 1/2&quot; ISO</td>
</tr>
<tr>
<td>Fitting body</td>
<td>NPT 1/2&quot;</td>
</tr>
</tbody>
</table>

**Dimensions**

Dimensions in mm (inches)

The DMT348 is ideal for installation into pressurized processes where the probe needs to be able to be removed while the process is running. The probe depth is adjustable.

**Probe Specifications**

**DMT348 with Probe for Pipeline Installations**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure range</td>
<td>0 ... 40 bar/0 ... 580 psia</td>
</tr>
<tr>
<td>Adjustable length</td>
<td>41 ... 149/371 mm/1.61 ... 5.87/14.6&quot;</td>
</tr>
<tr>
<td>Installation</td>
<td></td>
</tr>
<tr>
<td>Fitting body</td>
<td>R1/2&quot; ISO</td>
</tr>
<tr>
<td>Fitting body</td>
<td>NPT 1/2&quot;</td>
</tr>
<tr>
<td>Ball-valve set</td>
<td>BALLVALVE-1</td>
</tr>
<tr>
<td>Sampling cell</td>
<td>DMT242SC or DMT242SC2</td>
</tr>
</tbody>
</table>

**Dimensions**

Dimensions in mm (inches)

Optional filter for low pressures (suitable for all models)
Technical Data

### Measured Parameters

**Dew Point**

- **Sensor**: Vaisala DRYCAP®180M
- **Measurement range**: -60 ... +80 °C (-76 ... +176 °F) Td
- **Accuracy**: up to 20 bar/290 psia ±2 °C/±3.6 °F (see the accuracy graph below)
- **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]
- **Temperature**
  - **Measurement range**: 0 ... +80 °C (+32 ... +176 °F)
  - **Accuracy**: ±0.2 °C at room temperature
  - **Temperature sensor**: Pt100 RTD Class F0.1 IEC 60751

**Relative Humidity**

- **Measurement range**: 0 ... 70 %RH
- **Accuracy** (RH <10 %RH, at + 20 °C): ±0.004 %RH + 20% of reading
- **PPM**
  - **Measurement range (typical)**: 10 ... 2500 ppm
  - **Accuracy** (at +20 °C, 1 bar): 1 ppm + 20% of reading
  - **Other measurement parameters available (model-dependent)**: mixing ratio, absolute humidity, pressure dew point calculated to 1 bar, temperature difference (T-Td), water vapor pressure

### Inputs and Outputs

- **Operating voltage**: 10 ... 35 VDC, 24 VAC ±20 %
  - with optional power supply module: 100 ... 240 VAC 50/60 Hz
- **Power consumption @ 20 °C (U_in 24VDC)**
  - RS232: max. 25 mA
  - U_out 2 x 0...1V / 0...5V / 0...10V: max. 25 mA
  - I_out 2 x 0...20 mA max. 60 mA
  - display and backlight: + 20 mA
  - during sensor purge: max. + 110 mA
- **Analogue outputs (2 standard, 3rd optional)**
  - **current output**: 0 ... 20 mA, 4 ... 20 mA
  - **voltage output**: 0 ... 1 V, 0 ... 5 V, 0 ... 10 V
- **Accuracy of analogue outputs at 20 °C**: ±0.05 %/°C full scale
- **Temperature dependence of the analog outputs**: ±0.005%/°C full scale
- **External loads**
  - **current outputs**: R_L < 500 ohm
  - **1V output**: R_L > 2 kohm
  - **5V and 10V outputs**: R_L > 10 kohm
- **Max. wire size**: 0.5 mm² (AWG 20) stranded wires recommended
- **Digital outputs**: RS232, RS485 (optional)
- **Service connection**: RS232, USB
- **Relay outputs**: 0.5 A, 250 VAC, SPDT (optional)
- **Ethernet interface (optional)**
  - **Supported standards**: 10/100Base-T
  - **Connector**: RJ45
  - **Protocols**: Telnet
- **WLAN interface (optional)**
  - **Supported standards**: 802.11b
  - **Antenna connector type**: RP-SMA
  - **Protocols**: Telnet
  - **Security**: WEP 64/128, WPA
- **Authentication / Encryption**
  - **Open / no encryption**
  - **Open / WEP**
  - **WPA Pre-shared key / TKIP**
  - **WPA Pre-shared key / CCMP (a.k.a. WPA2)**
  - **Optional data logger with real-time clock**
  - **Logged parameters**: max. three with trend/min./max. values
  - **Logging interval**: 10 sec. (fixed)
  - **Max. logging period**: 4 years, 5 months
  - **Logged points**: 13.7 million points per parameter
  - **Battery lifetime**: min. 5 years
  - **Display**: LCD with backlight, graphical trend display of any parameter
  - **Menu languages**: English, Chinese, Finnish, French, German, Japanese, Russian, Spanish, Swedish

### Operating Environment

- **Operating temperature**
  - for probes: -40 ... +80 °C (-40 ... +176 °F)
  - Mechanical durability: up to +180 °C (+356 °F)
  - of transmitter body: -40 ... +60 °C (-40 ... +140 °F)
  - with display: 0 ... +60 °C (+32 ... +140 °F)
- **Storage temperature range**: -55 ... +80 °C (-67 ... +176 °F)
- **Pressure range for probes**: see probe specifications
- **Sample flow rate**: no effect
- **Measured gases**: non-corrosive gases
- **Electromagnetic compatibility**: Complies with EM standard EN61326-1, Industrial environment
- **Note**: Transmitter with display test impedance of 40 ohm is used in IEC61000-4-5 (Surge immunity)
**Mechanics**

Cable bushing  M20x1.5 for cable diameter 8 ... 11mm/0.31 ... 0.43"

Conduit fitting  1/2" NPT

User cable connector (optional)  M12 series 8-pin (male)
  option 1  female plug with 5 m (16.4 ft.) black cable
  option 2  female plug with screw terminals

USB-RJ45 Serial Connection Cable  219685

Probe cable diameter  5.5 mm

Standard probe cable lengths  2 m, 5 m or 10 m

(Additional cable lengths available, please see order forms for details)

Housing material  G-AlSi 10 Mg (DIN 1725)

Housing classification  IP 66

IP65 (NEMA4X) with local display

Weight  depending on selected probe, cable and modules  1.0 – 3.0 kgs

**Dimensions**

Dimensions in mm (inches)

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Dimensions in mm (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>180 (7.09)</td>
</tr>
<tr>
<td>Height</td>
<td>75 (2.95)</td>
</tr>
<tr>
<td>Depth</td>
<td>110 (4.33)</td>
</tr>
</tbody>
</table>

DRYCAP® is a registered trademark of Vaisala.
You Compress Air. We Make Sure It’s Dry.

Optimize your compressed air quality with the right dew point instrument

- Fastest wet-to-dry response time on the market - just minutes
- Product range from -80°C to +60°C Td with ±2°C accuracy
- Long, 2-year calibration interval
- High resistance to contamination - immune to compressor oil
- Complete recovery from saturated conditions

For more information, please visit: www.vaisala.com/compressedair

www.vaisala.com/compressedair
sales@vaisala.com
Vaisala DRYCAP® Dewpoint Transmitters DMT345 and DMT346 are designed to measure and control humidity, especially in dry environments with high temperatures.

The Vaisala DRYCAP® Dewpoint Transmitters DMT345 and DMT346 are designed for humidity measurement in industrial drying applications with particularly high temperatures.

Both transmitters incorporate the Vaisala DRYCAP® sensor, which is accurate, reliable, and stable. The sensor is condensation-resistant and is immune to particulate contamination, oil vapor, and most chemicals. The DRYCAP® sensor is notable for its swift response time and rapid recovery after getting wet.

Measure Humidity Directly in Hot Processes
The DMT345 and DMT346 are built for direct measurement in hot processes. Therefore, there is no need for sampling systems and trace heating. As a result, high measurement accuracy and constancy are maintained.

The accuracy and stability of the DMT345 and the DMT346 are due to their unique auto-calibration function, developed by Vaisala. This feature allows the transmitter to perform calibration and adjustment by itself while the measured process is running. If the measurement accuracy is not confirmed, corrections are made automatically. The procedure is so quick and corrections so minor that it causes no disruption, ensuring easy maintenance and high performance. In normal conditions, it is recommended to have a traceable calibration performed once a year.

DMT345: Accurate in Hot and Dry Environments
The DMT345 is designed for accurate humidity measurement in hot and dry conditions. This model provides unmatched dry-end measurement accuracy at temperatures up to 140 °C; however, it can operate safely at temperatures up to 180 °C.

Features/Benefits
- The DMT345 measures humidity at temperatures up to 180 °C (356 °F)
- The DMT346 measures humidity at temperatures up to 350 °C (+662 °F)
- Dew point accuracy ±2 °C (±3.6 °F)
- Vaisala DRYCAP® sensor provides accurate and reliable measurement with excellent long-term stability and fast response time
- Condensation-resistant
- Unique auto-calibration feature
- NIST traceable calibration (certificate included)
- Graphical display and keypad for convenient operation
- Optional alarm relays and mains power supply module
- Analog outputs, RS232/485, WLAN/LAN
- MODBUS protocol support (RTU/TCP)
The stainless steel probe is especially designed for high temperatures and has an optional installation flange for easy adjustment of the probe's installation depth and, therefore, more precise positioning.

**DMT346: Reliable in Very Hot Processes**
The DMT346 provides the best measurement performance at process temperatures between 140 °C and 350 °C. The DMT346 includes a cooling set as standard. The cooling effect can be regulated by adding the cooling fins, or they can be removed from the set for optimal measurement performance.

The cooling system has no moving parts, and requires no additional power or cooling utilities, so there is no risk of sensor damage due to mechanical cooling failure. Additionally, sensor warming minimizes the risk of condensation accumulating on the sensor. In low humidity conditions the combination of auto-calibration and DRYCAP® ensures accurate measurement.

**Graphical Display of Measurement Data and Trends for Convenient Operation**
The DMT345 and DMT346 transmitters feature a large numerical and graphical display with a multilingual menu and keypad. It allows users to easily monitor operational data, measurement trends, and access measurement history for the past 12 months.

**Measured Variables DMT345**

**DEW POINT DMT345**

- **Sensor**: Vaisala DRYCAP®180S
- **Measurement range**: -40 ... +100 °C (-40 ... +212 °F) Td
- **Accuracy**: ±2°C (±3.6 °F) Td

See the accuracy graph below

**TEMPERATURE DMT345**

- **Measurement range**: 0 ... +180 °C (+32 ... +356°F)
  - with sensor warming
    - upper range limited by humidity (at 80 %RH warming is switched on and T reading not actual process temperature)
- **Temperature sensor**: Pt100 RTD Class F0.1 IEC 60751

**RELATIVE HUMIDITY DMT345**

- **Measurement range**: 0 ... 100 %RH
- **Accuracy**: ±0.4 °C at 100 °C
- **Temperature sensor**: Pt100 RTD Class F0.1 IEC 60751

**MIXING RATIO DMT345**

- **Measurement range (typical)**: 0 ... 1000 g/kg (0 ... 7000 gr/lbs)
- **Accuracy (typical)**: ±12% of reading

The optional data logger, with real-time clock, makes it possible to generate over four years of measurement history and zoom in on any desired time or time frame. The display alarm allows tracking of any measured parameter, with freely configurable low and high limits.

**Versatile Outputs and Data Collection**

DMT345 and DMT346 transmitters can support up to three analog outputs; an isolated galvanic power supply and relay outputs are also available.

For serial interface the USB connection, RS232, and RS485 can be used.

DMT345 and DMT346 are also capable of applying the MODBUS communication protocol and, together with an appropriate connection option, provide either MODBUS RTU (RS485) or MODBUS TCP/IP (Ethernet) communication.

The data logger, with real-time clock and battery backup, guarantees reliable logging of measurement data for over four years. The recorded data can be viewed on the local display or transferred to a PC with Microsoft Windows® software. The transmitter can also be connected to a network with an optional (W)LAN interface, which enables a (wireless) Ethernet connection. A USB service cable makes it easy to connect the DMT345/346 to a PC via the service port.

Units are delivered installation-ready.
Technical Data

Measured Variables DMT346

<table>
<thead>
<tr>
<th>DEW POINT DMT346</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor</td>
</tr>
<tr>
<td>Measurement range</td>
</tr>
<tr>
<td>Accuracy</td>
</tr>
</tbody>
</table>

Dew point accuracy vs. measurement conditions

Response time: 63% [90%] for rate 1 l/min and 1 bar pressure from dry to wet 5 s [10 s]
from wet to dry including auto-calibration 45 s [5 min]

Dew point temperature (Td) versus measurement conditions

Temperature dependence of analog outputs ±0.005%/°C full scale
External loads
- current outputs $R_L < 500 \Omega$
- 0 ... 1V output $R_L > 2 \mathrm{k}\Omega$
- 0 ... 5V and 0 ... 10V outputs $R_L > 10 \mathrm{k}\Omega$
Max. wire size 0.5 mm² (AWG 20) stranded wires recommended

Digital outputs
- RS232, RS485 (optional)
- Protocols ASCII commands, MODBUS RTU

Service connection
- RS232, USB

Relay outputs 2+2 pcs (optional) 0.5 A, 250 V, SPDT

Ethernet interface (optional)
- Supported standards 10BASE-T, 100BASE-TX
- Connector 8P8C (RJ45)
- IPv4 address assignment DHCP (automatic), static
- Protocols Telnet, MODBUS TCP/IP
- LAN interface (optional) DHCP (automatic), static
- Antenna connector type RP-SMA
- IPv4 address assignment DHCP (automatic), static
- Protocols Telnet, MODBUS TCP/IP
- Security WEP 64/128, WPA WPA2/802.11i

Authentication / Encryption (WLAN)
- Open / no encryption
- Open / WEP
- WPA Pre-shared key / TKIP
- WPA Pre-shared key / CCMP (a.k.a. WPA2)

Optional data logger with real-time clock
- Logged parameters max. four with trend/min/max values
- Logging interval 10 sec. (fixed)
- Max. logging period 4 years, 5 months
- Logged points 13.7 million points per parameter
- Battery lifetime min. 5 years

Display
- LCD with backlight, graphical trend display
- Menu languages English, Chinese, Finnish, French, German, Japanese, Russian, Spanish, Swedish

Inputs and Outputs, DMT345 and DMT346

<table>
<thead>
<tr>
<th>Operating voltage</th>
<th>10 ... 35 VDC, 24 VAC ±20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>with optional power supply module</td>
<td>100 ... 240 VAC 50/60 Hz</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Default start-up time</th>
</tr>
</thead>
<tbody>
<tr>
<td>initial reading after power-up</td>
</tr>
<tr>
<td>full operation after sensor purge and autocalibration</td>
</tr>
</tbody>
</table>

Power consumption @ 20 °C ($U_{in}$ 24 VDC)
- $U_{out}$ 2x0 ... 1V/0 ... 5V/0 ... 10V max. 25 mA
- $I_{out}$ 2x0 ... 20mA max. 60 mA
- RS232 max. 25 mA
- display and backlight + 20 mA
- during sensor purge max. +110 mA

Analog outputs (2 standard, 3rd optional)
- current output 0 ... 20 mA, 4 ... 20 mA
- voltage output 0 ... 1 V, 0 ... 5 V, 0 ... 10 V

Accuracy of analog outputs at 20 °C ±0.05% full scale

Temperature dependence of analog outputs ±0.005%/°C full scale

External loads
- current outputs $R_L < 500 \Omega$
- 0 ... 1V output $R_L > 2 \mathrm{k}\Omega$
- 0 ... 5V and 0 ... 10V outputs $R_L > 10 \mathrm{k}\Omega$
Max. wire size 0.5 mm² (AWG 20) stranded wires recommended

Digital outputs
- RS232, RS485 (optional)
- Protocols ASCII commands, MODBUS RTU

Service connection
- RS232, USB

Relay outputs 2+2 pcs (optional) 0.5 A, 250 V, SPDT

Ethernet interface (optional)
- Supported standards 10BASE-T, 100BASE-TX
- Connector 8P8C (RJ45)
- IPv4 address assignment DHCP (automatic), static
- Protocols Telnet, MODBUS TCP/IP
- LAN interface (optional) DHCP (automatic), static
- Antenna connector type RP-SMA
- IPv4 address assignment DHCP (automatic), static
- Protocols Telnet, MODBUS TCP/IP
- Security WEP 64/128, WPA WPA2/802.11i

Authentication / Encryption (WLAN)
- Open / no encryption
- Open / WEP
- WPA Pre-shared key / TKIP
- WPA Pre-shared key / CCMP (a.k.a. WPA2)

Optional data logger with real-time clock
- Logged parameters max. four with trend/min/max values
- Logging interval 10 sec. (fixed)
- Max. logging period 4 years, 5 months
- Logged points 13.7 million points per parameter
- Battery lifetime min. 5 years

Display
- LCD with backlight, graphical trend display
- Menu languages English, Chinese, Finnish, French, German, Japanese, Russian, Spanish, Swedish

Mechanics, DMT345 and DMT346

<table>
<thead>
<tr>
<th>Cable</th>
<th>M20x1.5 for cable diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8 ... 11mm/0.31 ... 0.43&quot;</td>
</tr>
</tbody>
</table>

Conduit fitting (optional)
- 1/2"NPT

User cable connector (optional)
- M12 series 8-pin (male)
- option 1 female plug with 5 m (16.4 ft.) black cable
- option 2 female plug with screw terminals

USB-RJ45 Serial Connection Cable 219685

Probe cable diameter 5.5 mm

Standard probe cable lengths 2 m, 5 m or 10 m
(Additional cable lengths available, please see order forms for details)

Housing material GAlSi 10 Mg (DIN 1725)

Housing classification IP 66

IP65 (NEMA4X) with local display

Weight depending on selected probe, cable, and modules 1.0 – 3.0 kgs
Technical Data

Dimensions
Dimensions in mm (inches)

DMT345 and DMT346 transmitter housing

DRYCAP® is a registered trademark of Vaisala.
Due to its wide measurement range and high long-term stability, the DMT242 is an ideal choice for low dew point industrial applications such as compressed air dryers, plastic dryers and other OEM applications.

### Features/Benefits

- Ideal choice for industrial dryer applications
- Incorporates advanced Vaisala DRYCAP® Sensor and enhanced auto-calibration software
- Long-term stability in low dew points
- Fast response time
- Two sensor options cover dew point measurement range from -60 ... +60 °C (-76 ... +140 °F) with an accuracy of ±2 °C (±3.6 °F)
- Withstands condensation
- NIST traceable (certificate included)
- Compatible with Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70

### Dimensions

Dimensions in mm (inches)

<table>
<thead>
<tr>
<th>Dimension</th>
<th>mm</th>
<th>Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>62</td>
<td>2.44</td>
</tr>
<tr>
<td>Height</td>
<td>92</td>
<td>3.62</td>
</tr>
<tr>
<td>01/2&quot; ISO228-1</td>
<td>41</td>
<td>1.61</td>
</tr>
</tbody>
</table>

---

**Vaisala DRYCAP®**

The Vaisala DRYCAP® Dewpoint Transmitter DMT242 provides reliable and stable measurements for industrial dryer applications. It is designed for extreme conditions. DMT242 incorporates the Vaisala DRYCAP® thin film polymer sensor and auto-calibration software. The standard sensor choice for dry gases and desiccant dryers is DRYCAP® 180M and for more humid applications such as refrigeration dryers, a DRYCAP® 180S sensor. Both the sensors are immune to particulate contamination, water condensation, oil vapor and most chemicals. Because the sensor withstands condensation, its performance is unmatched for low dew point 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, corrections are made automatically. The DMT242 adjusts the measurement, corrects dry-end drifts and continues to function. Calibration occurs quickly, and with corrections so minor, it will go unnoticed.

**Compact, Rugged and Intelligent**

Due to its compact size, DMT242 is quickly and easily installed in tight spaces.

Users can perform a field-check by using the Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70. The transmitter can be sent to Vaisala Service for NIST traceable calibration. The recommended calibration interval is every two years.
Technical Data

**Dew Point Temperature**

<table>
<thead>
<tr>
<th>Measurement range (typical)</th>
<th>-60 ... +60 °C (-76 ... +140 °F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog output scalings</td>
<td>Option A: -80 ... +20 °C (-112 ... +68 °F) Td</td>
</tr>
<tr>
<td></td>
<td>Option B: -60 ... +60 °C (-76 ... +140 °F) Td</td>
</tr>
<tr>
<td></td>
<td>Option X: free scaling</td>
</tr>
</tbody>
</table>

(when the dew point is below 0 °C (32 °F), the transmitter outputs frost point)

Accuracy with DRYCAP® 180M ±2 °C (±3.6 °F)

(see graph below)

**Operating Environment**

<table>
<thead>
<tr>
<th>Temperature</th>
<th>0 ... +60 °C (32 ... +140 °F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>higher temperature peaks</td>
<td>Short-term OK</td>
</tr>
<tr>
<td>Relative humidity</td>
<td>0 ... 100 %RH</td>
</tr>
<tr>
<td>Pressure</td>
<td>0 ... 20 bara (0 ... 290 psia)</td>
</tr>
<tr>
<td>Sample flow rate</td>
<td>no effect</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Sensor</th>
<th>DRYCAP® 180M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimal sensor for refrigeration dryers</td>
<td>DRYCAP® 180S</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>18 - 35 VDC, 20 - 28 VAC</td>
</tr>
<tr>
<td>Power consumption at 24 VDC</td>
<td>max. 220 mA</td>
</tr>
<tr>
<td>External load for analog output</td>
<td>max. 500 Ω</td>
</tr>
<tr>
<td>Optional connection cable with DMT242 connector</td>
<td>2 m or 10 m</td>
</tr>
<tr>
<td>Connector for supply voltage and signal output</td>
<td>max. wire size 0.75 mm²</td>
</tr>
<tr>
<td>max. cable diameter</td>
<td>6.5 mm / PG7</td>
</tr>
<tr>
<td>Service cable for serial interface</td>
<td>RS232 product code DMT242RS</td>
</tr>
<tr>
<td>Probe material (wetted parts)</td>
<td>stainless steel (AISI 316L)</td>
</tr>
<tr>
<td>Sensor protection</td>
<td>stainless steel sintered filter (HM47280)</td>
</tr>
<tr>
<td>Mechanical connection</td>
<td>G1/2 ISO228-1 thread with bonded seal ring (U-seal)</td>
</tr>
<tr>
<td>Electronics housing material</td>
<td>plastic (ABS/PC)</td>
</tr>
<tr>
<td>Housing classification</td>
<td>IP65 (NEMA4)</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>-40 ... +70 °C, (-40 ... +158 °F)</td>
</tr>
</tbody>
</table>

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

---

Ref. B210765EN-D ©Vaisala 2012

This material is subject to copyright protection, with all copyrights retained by Vaisala and its individual partners. All rights reserved. Any logos and/or product names are trademarks of Vaisala or its individual partners. The reproduction, transfer, distribution or storage of information contained in this brochure in any form without the prior written consent of Vaisala is strictly prohibited. All specifications — technical included — are subject to change without notice.
DMT152 Dewpoint Transmitter for Low Dew Point Measurement in OEM Applications

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

Features/Benefits

- Compact
- Accurate
- Vaisala DRYCAP® technology with a polymer sensor
- Measures dew point 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

DMT152

The Vaisala DRYCAP® Dewpoint Transmitter DMT152 is designed for measuring low dew point 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 reliably also in the challenging combination of low humidity and hot air, which is typical in plastics drying.
**Measured Variables**

**DEW POINT TEMPERATURE**

**Measurement range**
-80 ... -10 °C (-112 ... +14 °F) \( T_d \)

**Accuracy**
-80 ... -30 °C (-112 ... -22 °F) ±2 °C (3.6 °F) \( T_d \)
-30 ... -10 °C (-22 ... +14 °F) ±3 °C (5.4 °F) \( T_d \)

**Non-calibrated range**
-100 ... -80 °C, -10 ... +20 °C \( T_d \)
(-148 ... -112 °F, +14 ... +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

When dew point is below 0 °C (32 °F) the transmitter outputs frost point

**Accuracy over temperature range**

![Accuracy over temperature range graph]

Response time 63 % [90 %] at a gas temperature of +20 °C (+68 °F) and pressure of 1 bar:
-10 ... -80 °C \( T_d \) 0.5 min [7.5 min]
-80 ... -10 °C \( T_d \) 2 s [5 s]

Typical long-term stability:
- better than 2 °C (3.6 °F) /year

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 ... +70 °C (-40 ... +158 °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 ±0.01 V / ±0.01 mA

Digital output RS485 (2-wire)

Alarm-level indication by analog signal user selectable

Purge information 5 V, 10 V, 20 mA or LED

---

**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
- Supply voltage fluctuation max. 0.3 V
- 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**
- ISO G½", NPT ½", UNF 3/4"-16"

**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 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
- NW40 flange 225220SP

---

Please contact us at
www.vaisala.com/requestinfo

www.vaisala.com

---

Scan the code for more information

Ref. B210750EN-E ©Vaisala 2013
This material is subject to copyright protection, with all copyrights retained by Vaisala and its individual partners. All rights reserved. Any logos and/or product names are trademarks of Vaisala or its individual partners. The reproduction, transfer, distribution or storage of information contained in this brochure in any form without the prior written consent of Vaisala is strictly prohibited. All specifications — technical included — are subject to change without notice.
DMT143 Miniature Dewpoint Transmitter for OEM Applications

The Vaisala DRYCAP® Dewpoint Transmitter DMT143 is an ideal choice for small compressed air dryers, plastic dryers and other OEM applications.

Vaisala DRYCAP®
The Vaisala DRYCAP® Dewpoint Transmitter DMT143 is a miniature dew point measurement instrument. The transmitter can be installed directly into pressurized systems at 50 bar (725 psia) maximum pressure. The long-term high performance is achieved with Vaisala DRYCAP® technology.

The sensor fully withstands 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 sensor is also highly resistant to particulate contamination, oil vapor and most chemicals, and is insensitive to the flow rate.

Long Calibration Interval
The calibration interval of the DMT143 is two years. Additionally, the Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70 can be used to confirm the performance of the DMT143 without disconnecting the transmitter. For any adjustment needs, the transmitter can be sent to Vaisala Service.

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

Features/Benefits
- Miniature size dew point transmitter for e.g. small industrial dryer applications
- Vaisala DRYCAP® technology with auto-calibration
- Calibration interval of two years
- Dew point measurement range -60...+60 °C (-76...+140 °F)
- Accuracy ±2 °C (±3.6 °F)
- Withstands condensation
- Fast response time
- Compatible with Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70
- NIST traceable calibration (certificate included)
- Easy servicing and data transfer via the RS485 user interface
- LED alarm for exceeded dew point level

Easy Installation
The DMT143 has a variety of features to choose from, including different output, installation options and alarm LED.

Due to its small size and light weight, the DMT143 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 Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70 or a PC.

Technical Data

Measured Parameters

<table>
<thead>
<tr>
<th>DEW POINT TEMPERATURE</th>
<th>-60 ... +60 °C (-76 ... +140 °F) $T_d$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog output scalings</td>
<td></td>
</tr>
<tr>
<td>option 1</td>
<td>-80 ...+20 °C (-112 ... +68 °F) $T_d$</td>
</tr>
<tr>
<td>option 2</td>
<td>-80 ...+20 °C (-112 ... +68 °F) $T_d$</td>
</tr>
<tr>
<td>option 3</td>
<td>(frost point) free scaling</td>
</tr>
<tr>
<td>Accuracy in air or N2</td>
<td>±2 °C (±3.6 °F) $T_f$ (see graph below)</td>
</tr>
</tbody>
</table>

when the dew point is below 0 °C (32 °F), the transmitter outputs frostpoint
Technical Data

Response time 63% [90%] at +20 °C gas temperature and 1 bar pressure

-60 -> -20 °C Td (76 -> 4 °F Td) 5 s [15 s]
-20 -> -60 °C Td (4 -> -76 °F Td) 45 s [10 min]

Accuracy at +20 °C (+68 °F), 1 bar 1 ppm + 20% of reading

Dew point accuracy vs. measurement conditions

Operating Environment

Measured gases: non-corrosive gases
Temperature *) -40 ... +60 °C (-40 ... +140 °F)
Relative humidity 0 ... 100 %RH
Pressure *) 0 ... 50 bara (725 psia)
Sample flow rate: no effect for measurement accuracy

*) For extended temperature below 0 °C (+32 °F) or pressure above 20 bara (290 psia) the supply voltage must be 24 ... 28 VDC.

Outputs

Analog output (scalable) 4 ... 20 mA (3-wire), 0 ... 1 V/5 V, 1 ... 5 V
Resolution for current output 0.002 mA
Resolution for voltage output 0.3 mV
Typical temperature dependence 0.005 % of span / °C
Digital output 5-C485, non-isolated
Vaisala Industrial Protocol
Connector 4-pin M8 (IEC 60947-5-2)

General

Sensor Vaisala DRYCAP® 180D
Recommended calibration interval to confirm the specified accuracy 2 years
Operating voltage with voltage output 12 ... 28 VDC
Operating voltage with current output 18 ... 28 VDC

Supply current
normal measurement max 10mA + load current
during self-diagnostics max. 220 mA pulsed
Load for current output max. 500 Ohm
Load for voltage output min. 10 kOhm
Housing material stainless steel (AISI316L)
Sensor protection stainless steel sintered filter
Mechanical connection ISO G1/2" or NPT 1/2
Housing classification IP66 (NEMA 4)
Storage temperature range -40 ... +60 °C (-40...+140 °F)
Weight G-thread version 90g (3.2oz)
NPT-thread version 100g (3.5oz)

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

Accessories

Connection cable for DM70 219980SP
USB connection cable 219690
Sampling cells
basic sampling cell DMT242SC
with Swagelok 1/4" male connectors DMT242SC2
with quick connector and leak screw DSC74SP
cooling/venting coil DMCOILSP
See DM70 / Portable Sampling Systems and Sampling Cells for further information about sampling cells available
Loop powered external display 226476
Loop powered external display with relays 234759

Dimensions

in mm

AW24 30
G1/2" ISO228/1

0.28

57
22.5

Ø32
AW30

91.6

NPT1/2"

49.1

91.6

22.5

Ref. B211207EN-C ©Vaisala 2013
This material is subject to copyright protection, with all copyrights retained by Vaisala and its individual partners. All rights reserved. Any logos and/or product names are trademarks of Vaisala or its individual partners. The reproduction, transfer, distribution or storage of information contained in this brochure in any form without the prior written consent of Vaisala is strictly prohibited. All specifications — Technical included — are subject to change without notice.
DMT132 Dewpoint Transmitter for Refrigerant Dryers

The Vaisala HUMICAP® Dewpoint Transmitter DMT132 is an affordable dew point measurement instrument designed to verify the functionality of refrigerant dryers. It is especially well suited for OEM dryer manufacturers.

Direct Measurement Cuts Costs
Direct outlet air dew point measurement provides accurate information about dryer functionality and is more reliable than the traditional method of measuring refrigerator temperature only. Knowledge of the real dew point ensures high quality compressed air at all times and enables customers to optimize dryer capacity. This helps to prevent investment in redundant dryer capacity and avoid unnecessary maintenance and costly malfunctions.

High Accuracy and Long-Term Stability
The DMT132 provides optimal performance in the operating range of refrigerant dryers. In the measurement range of -3 ... 20 °C (-26.6 ... +68 °F), where the refrigerator dryers typically operate, the Td accuracy is ±1°C (±1.8°F). The instrument incorporates the proven Vaisala HUMICAP® sensor, which is resistant to compressor oil and most other chemicals, thereby providing excellent long-term stability.

Quick Installation and Easy Field Checking
It takes just a few minutes to install the DMT132 directly into a dryer or compressed air line through a G1/2” ISO thread. Vaisala sampling cells can also be used. The loop-powered electronics mean that wiring is easy and power requirements are low. The DMT132 operating voltages can be as low as 10 VDC.

Verifying the performance of the DMT132 is easy with the compatible Vaisala hand-held DM70 or HM70 meters. The user can perform possible adjustments with the Vaisala HMK15 Humidity Calibrator.

Features / Benefits
- Affordable dew point transmitter for refrigerant dryers
- High accuracy ±1°C (±1.8°F) in the measurement range of refrigerant dryers
- Excellent long-term stability - resistant to compressor oil and most other chemicals thanks to HUMICAP® technology
- Low power requirements, 10 ... 28 VDC
- Easy to verify functionality with compatible hand-held meters DM70 or HM70
- Optional LED warning light

The optional LED warning light tells the user when the defined dew point limit has been exceeded.

Demand for dew point sensors to verify refrigerant dryers is increasing. Direct dew point measurement enables energy savings and improved efficiency.
**Technical Data**

### Performance

**DEW POINT**

**Measurement range**
-20 ... +50 °C (-4 ... +122 °F) Td

**Accuracy**
at +20 °C (+68 °F)
- ±1 °C for -3...+20 °C (+26.6 ... +68 °F) Td
- ±2 °C for -15...-3 °C (+5 ... +26.6 °F) Td

* when dew point is below 0 °C (+32 °F), the transmitter outputs frostpoint

**Response time**
at 20 °C (+68 °F) gas temperature and 1 bar pressure
- -14 → +3 °C (+7 -> +37 °F) Td 17 s (63%)
- 40 s (90%)
- +3 → -14 °C (+37 -> +7 °F) Td 33 s (63%)
- 85 s (90%)

### Calculated Variables

Dew point converted to atmospheric pressure, Td atm

![Accuracy Graph](image)

### Operating Environment

**Operating temperature**
-10 ... + 60 °C (+14 ... +140 °F)

**Operating pressure**
0 ... 20 bar

**Relative humidity**
0 ... 100 %RH

**Sample flow rate**
no effect on measurement accuracy

**Measured gases**
non-corrosive gases

### Outputs

**Analog output** (scalable)
4...20 mA, 2-wire

**Resolution for current output**
0.002 mA

**Accuracy of analog outputs at +20 °C**
±0.05% full scale

**Typical temperature dependence**
±0.005% of full scale / °C

**Connector**
4-pin M8 (IEC 60947-5-2)

**LED indication** available for defined dew point limit/ error state indication

**RS485 serial line for service use**

---

**General**

**Sensor**
Vaisala HUMICAP®180R

**Recommended calibration interval**
(in refrigerant dryer application)
2 years

**Mechanical connection**
G 1/2" ISO

**Operating voltage**
10 ... 28 VDC

**External load**
max 100 ohm for supply voltages <20 VDC
max 500 ohm for supply voltages 20...28 VDC

**Weight**
65 g (2.3 oz)

**Housing material**
PPS + 40% GF

**Housing classification**
IP65 (NEMA 4)

**Storage temperature range**
-40 ... + 80 °C (-40 ... +176 °F)

**Start-up time**
3 s

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

### Options and Accessories

- **Tube filter** 230602
- **Special cover set for HMK15** (calibrator fitting DMT132 and HMP60) 230914
- **NPT Adapter** 210662SP
- **Sample cells** DMT242SC, DMT242SC2, DSC74, DSC74B, DSC74C, DMCOIL
- **Duct installation flange** DM240FA
- **Cables (several lengths available)** HMP50Z032, HMP50Z300SP, HMP50Z500SP, HMP50Z1000SP
- **Loop powered external display** 226476
- **USB Service cable** 219690
- **Connection cable to DM70/HM70** 219980
- **LED plug** 222507
- **Sealing ring set (3 pcs U-seal)** 221525SP

---

Please contact us at www.vaisala.com/requestinfo
DM70 Hand-Held Dewpoint Meter for Spot-Checking Applications

The Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70 offers accurate and fast measurement for industrial dew point applications, such as compressed air, metal treatment and plastics drying.

response from ambient to dry conditions exceptionally fast.

The DM70 is fitted with the Vaisala DRYCAP® Sensor. The sensor provides reliable, stable and high-performance dew point measurement. Autocalibration detects on-line possible measurement inaccuracies and automatically corrects dry-end drift in the calibration curve.

The DM70 has a versatile and easy-to-use, menu-based user interface, a clear graphical LCD display, and data-logging capability. It can also be used as a tool for reading the output of fixed Vaisala dew point transmitters, like the DMT242, DMT132, DMT142, DMT152 and DMT340.

The DM70 displays one to three parameters at a time, either numerically or graphically. Several humidity units can be selected. In addition, the DM70 includes conversion from gas pressure dew point to ambient pressure dew point. An analog output is also available.

The DM70 meter is suitable for direct process dew point measurement in a wide temperature and pressure range. For more demanding applications, the DM70 can be used with the Vaisala sampling cell adapters, or with the Vaisala DRYCAP® Sampling System DSS70A.

The Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70 measures dew point temperature accurately over a wide measurement range. The probe may be inserted directly into pressurized processes, and it responds rapidly from ambient to process conditions. The sensor withstands condensation and fully recovers from getting wet.

Three probe models, all with auto-calibration, are available. The A and B models are both general purpose probes. The C model is specifically developed for SF₆ gas. The B and C probe models have an additional Sensor Purge feature that heats and dries the sensor, making the

Features/Benefits

- Designed for industrial spot-checking and field calibration
- Three models: accurate measurement ranges from -60 to +60 °C (-76 ... +140 °F)
- Vaisala DRYCAP® Sensor with patented autocalibration function
- Low maintenance need due to superior long-term stability
- Sensor withstands condensation
- Fast response, enhanced by Sensor Purge option
- Easy-to-use user interface
- Data can be logged and transferred to a PC via MI70 Link software
- Compact, small and light
- NIST traceable (certificate included)

Measured Variables, DMP74A Probe

<table>
<thead>
<tr>
<th>Measured Variables</th>
<th>Measurement range (typical)</th>
<th>Accuracy (A probe)</th>
<th>Temperature of the measured gas (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dew point</td>
<td>-50 ... +60 °C (-58 ... +140 °F)</td>
<td>±2 °C (±3.6 °F)</td>
<td>(see graph)</td>
</tr>
<tr>
<td></td>
<td>(see graph)</td>
<td></td>
<td>Dew point accuracy vs. measurement conditions</td>
</tr>
</tbody>
</table>

Response time

- 0.2 m/s, 1 bar pressure, +20 °C (+68 °F) 63% [90%]
- 0 > -40 °C T_d (32 > -40 °F T_d) 20 s [120 s]
- -40 > 0 °C T_d (40 > 32 °F T_d) 10 s [20 s]

Dew point sensor

Vaisala DRYCAP® 180S
Technical Data

**TEMPERATURE**

Measurement range: -10 ... +60 °C (+14 ... +140 °F)

Accuracy at +20 °C (+68 °F): ±0.2 °C (±0.36 °F)

Typical temperature dependence of electronics: ±0.005 °C/°C (±0.005 °F/°F)

Temperature sensor: Pt100 RTD Class F0.1 IEC 60751

**OTHER VARIABLES AVAILABLE**

Dew point converted to atmospheric pressure, ppm volume and ppm weight concentration, absolute humidity, mixing ratio, relative humidity

**Measured Variables, DMP74B and DMP74C (for SF6 gas) Probes**

**DEW POINT**

Measurement range (typical): -70 ... +30 °C (-94 ... +86 °F)

Accuracy (B and C probe): -60 ... +20 °C ±2 °C (±3.6 °F) (see graph)

Dotted line:

For DMP74C the ±2 °C accuracy range is limited to -50 °C Td when used in SF6 gas.

Response time:
- flow rate 0.2 m/s, 1 bar pressure, +20 °C (+68 °F) 63% [90%]
- 0 -> -60 °C Td (32 -> -76 °F Td) 50 s [240 s]
- -60 -> 0 °C Td (-76 -> 32 °F Td) 10 s [20 s]

Dew point sensor: Vaisala DRYCAP® 180M

**TEMPERATURE**

Measurement range: -10 ... +60 °C (+14 ... +140 °F)

Accuracy at +20 °C (+68 °F): ±0.2 °C (±0.36 °F)

Typical temperature dependence of electronics: ±0.005 °C/°C (±0.005 °F/°F)

Temperature sensor: Pt100 RTD Class F0.1 IEC 60751

**OTHER VARIABLES AVAILABLE**

Dew point converted to atmospheric pressure, ppm volume and ppm weight concentration

**All Probe Models**

Operating temperature: -10 ... +60 °C (+14 ... +140 °F)

Operating pressure:
- DMP74A, DMP74B: 0 ... 20 bara (0 ... 290 psia)
- DMP74C: 0 ... 10 bara (0 ... 150 psia)

Sample flow rate: no effect for measurement accuracy

Measured gases: non-corrosive gases

Probe material (wetted parts): Stainless steel (AISI 316L)

Sensor protection: Sintered filter (AISI 316L)

Part no: HM47280

Mechanical connection: G1/2” ISO228-1 thread with bonded seal ring (U-seal)

Housing classification: IP65 (NEMA 4)

Weight: 350 g

**M170 Indicator, General**

Menu languages: English, Chinese, Spanish, Russian, French, Japanese, German, Swedish, Finnish

Display:
- LCD with backlight
- Graphic trend display of any parameter

Character height: up to 16 mm

Max. no of probes: 2

Power supply:
- Rechargeable NiMH battery pack with AC-adapter
- or 4xAA size alkalines, type IEC LR6

Analog output: 0 ... 1 VDC

Output resolution: 0.6 mV

PC interface:
- MI70 Link software with USB or serial port cable

Datalogging capacity: 2700 points

Alarm:
- Audible alarm function

Operating temperature range: -10...+40 °C (+14...+104 °F)

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

Operating humidity range: 0 ... 100 % RH, non-condensing

Housing classification: IP54

Housing materials: ABS/PC blend

Weight: 400 g

Battery operation time with DMP74 probe:
- continuous use: 48 h typical at +20 °C (+68 °F)
data logging use: up to a month, depending on logging interval

Electromagnetic compatibility: EN 61326-1, Generic Environment

**Accessories**

Connection cables for fixed Vaisala dew point transmitters:
- for DMT242 transmitter: 27160ZZ
- for DMT340 series: 211339
- for DMT152 and DMT132 transmitters: 219980
- for DMT142 transmitter: 211917ZZ

MI70 Link software with USB cable: 219687

MI70 Link software with serial port cable: MI70LINK

Analog output cable: 27168ZZ

10 m (32.81 ft) extension cable for probe: 213107SP

Portable Sampling System: DSS70A

(see separate data sheet)

Please contact us at www.vaisala.com/requestinfo

www.vaisala.com

Scan the code for more information

Ref. BO10162EN-D ©Vaisala 2012

This material is subject to copyright protection, with all copyrights retained by Vaisala and its individual partners. All rights reserved. Any logos and/or product names are trademarks of Vaisala or its individual partners. The reproduction, transfer, distribution or storage of information contained in this brochure in any form without the prior written consent of Vaisala is strictly prohibited. All specifications — Technical included — are subject to change without notice.
DSS70A Portable Sampling System and Sampling Cells for DM70

The DSS70A provides a compact solution for field checking dew point where direct measurement is difficult. Typical applications for the sampling system are metal treatment and plastics drying processes.

**DSS70A Portable Sampling System**

The DSS70A is designed to provide dew point sampling flexibility for the DM70 handheld dew point meter. For processes at atmospheric pressure, a battery powered pump is used to extract a gas sample. For pressurized processes up to 20 bar, the sample is measured at process pressure and then reduced to atmospheric pressure for venting or re-direction, bypassing the pump. In all cases, the sample gas passes through a filter to remove particulate contamination before measurement. Flow through the system is controlled and monitored with a needle valve and flow meter.

The DSS70A is easily connected to an appropriate sample point with tubing (typically 1/4” or 6 mm). The measured dew point must be below ambient temperature to avoid condensation in the system. Gas temperatures higher than +40 °C (+104 °F) should be cooled with a short PTFE (included in the DSS70A system) or stainless steel tube prior to entering the DSS70A. DSS70A is an accessory for DM70 Dewpoint Handheld Meter.

**Sampling Cells for Pressurized Processes**

The DM70 can easily be connected to pressurized processes. In addition to direct pipeline installation, a variety of sampling cell options are available for gas sampling.

The DSC74 sampling cell is the recommended choice. It has a variety of connection adapters that allow several different ways of installation. The quick connector with a leak screw allows a very fast connection for compressed air lines. Additionally, two thread adapters are available for the inlet port.

The DSC74B is a two-pressure sampling cell, which enables measurements in both process and ambient pressure. This sampling cell is especially suitable for dew point measurements in SF₆ gas with the DMP74C probe.

The DMT242SC is a basic sampling cell. The DMT242SC2 is a sampling cell supplied with welded Swagelok connectors for sampling in a 1/4” pipeline.
Technical Data

The DSS70A sampling system includes a filter to clean the dirty sample gas and a needle valve to control the sample flow rate with the flow meter. A sample pump is used to generate a sample flow from processes at ambient pressure.

The DSC74B sampling cell enables the measurement of the sampled gas either in gas pressure up to 10 bar or in atmospheric pressure depending on the gas inlet and outlet. The DSC74C is like the DSC74B but with an additional coil to avoid back diffusion, the effect of surrounding moisture, in dew point measurements in atmospheric pressure.

### Sampling Cells Technical Data

<table>
<thead>
<tr>
<th>Cell</th>
<th>Pressure Limit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSC74</td>
<td>1 MPa (10 barg, 145 psig)</td>
<td>sampling cell for pressurized gases</td>
</tr>
<tr>
<td>DSC74B</td>
<td>1 MPa (10 barg, 145 psig)</td>
<td>two pressure sampling cell</td>
</tr>
<tr>
<td>DSC74C</td>
<td>1 MPa (10 barg, 145 psig)</td>
<td>DSC74B with DMCOIL cooling/venting coil</td>
</tr>
</tbody>
</table>

### DSS70A Sampling System

**Operating Conditions**
- **Operating gases**: air, N2 and other non-toxic, inert gases below Tamb
- **Sampled gas dew point**: below Tamb
- **Inlet/outlet connection**: 1/4" Swagelok
- **Operating temperature**
  - Ambient temperature: 0 ... +40 °C (32 ... +104 °F)
  - Process gas temperature with PTFE tube at +20 °C (+68 °F) and with stainless steel tube max. +200 °C (+392 °F)
  - Specification according to stainless steel tube specification
- **Maximum gas temperature at inlet**: +40 °C (+104 °F)
- **Operating pressure**
  - With pump: 0.6 ... 1.2 bara (8.7 ... 17.4 psia)
  - Pump disconnected: 0 ... 20 bara (0 ... 290 psia)

### General
- **Battery operation time for pump**: 8 h continuous use
- **Battery can be recharged using DM70 charger**
- **Filter**: 7 mm inline filter cartridge 1/4" Swagelok SS-4F-7 (spare part order no. 210801)

### Materials
- **Wetted parts**: Stainless steel AISI316
- **Carrying case**: ABS plastic
- **Case size (W x D x H)**: 430 x 330 x 100 mm
- **Weight**: 5.5 kg (12 lbs)

### Electromagnetic Compatibility
- EN61326-1, Generic Environment.
DPT146 Dewpoint and Pressure Transmitter for Compressed Air

The DPT146 measures both dew point and process pressure. Monitoring compressed air is simpler and quicker, helping you to make more informed decisions.

The Vaisala Dewpoint and Pressure Transmitter DPT146 for Compressed Air makes monitoring compressed air simple and convenient. The 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

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

Dimensions

Dimensions in mm (inches)

Features/Benefits

- 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 the Vaisala Hand-Held DM70 for easy spot checking, local display and data logging
- Pressure: 1 ... 10 bar
- Dew point: -60 ... +30 °C (-76 ... +86 °F) Tdf with accuracy of ±2°C (±3.6 °F)
- Digital output RS-485 with MODBUS

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® Hand-Held Dewpoint Meter DM70. The DM70 can also be used as a local display and data logger. Temperature measurement is available when the RS485 is in use.
Technical Data

Measured Parameters

Dew point accuracy \(\pm 2^\circ C \pm 3.6^\circ F\)
Pressure accuracy at 23 \(^\circ C\) (73.4 \(^\circ F\)) \(\pm 0.4\%FS\)
Pressure temperature dependence \(\pm 0.01\) bar / 10 \(^\circ C\) (18 \(^\circ F\))
Temperature accuracy
- 0 ... 40 \(^\circ C\) (+32 ... +104 \(^\circ F\)) \(\pm 0.5^\circ C \pm 0.9^\circ F\)
- -40 ... 80 \(^\circ C\) (-40 ... +176 \(^\circ F\)) \(\pm 1^\circ C \pm 1.8^\circ F\)
PPM accuracy (7 bar) \(\pm (14\ ppm + 12\%\ of\ reading)\)
Sensor response time:
- Pressure response time < 1 s
- Dew point response time 63\% [90\%] at 20\(^\circ\)C and 1 bar
  - -50 to -10 \(^\circ\)C Tdf 5 s [10 s]
  - -10 to -50 \(^\circ\)C Tdf 10 s [2.5 min]

Calculated Parameters

ppm moisture, by volume 1 ... 40 000 ppm
Dew point, converted to atmospheric pressure -75 ... +30 \(^\circ C\) (-103 ... +86 \(^\circ F\))

Relative humidity 0...100 \%
Measured gases Air/ non-corrosive gases
Sample flow rate no effect on measurement accuracy

Outputs

Analog Outputs (2 channels)
- current output 0 ... 20 mA, 4 ... 20 mA
- voltage output 0 ... 5V, 0 ... 10V
Accuracy of analog outputs \(\pm 0.01\ V / \pm 0.01\ mA\)
Digital output RS-485, non-isolated,
  Vaisala protocol, MODBUS RTU protocol
Connector 4pin M8

General

Sensor Vaisala MPS1 multiparameter sensor
Operating voltage 21 ... 28 VDC, current output
  20 ... 28 VDC, voltage output and/or use in cold temperatures (-40 ... -20 \(^\circ C\) (-40 ... -4 \(^\circ F\))
  15 ... 28 VDC, RS485 only
Supply current
during normal measurement 20 mA + load current
  300 mA + load current
during self-diagnostics
External load for
current output max. 500 Ohm
  voltage output min. 10 kOhm
Housing material AISI316L
Housing classification IP65 (NEMA4)
Sensor protection Mesh filter AISI303, grade 18 \(\mu\)m
Storage temperature range
  transmitter only -40 ... +80 \(^\circ C\) (-40 ... +176 \(^\circ F\))
  shipment package -20 ... +80 \(^\circ C\) (-4 ... +176 \(^\circ F\))
Mechanical connection ISO G1/2", NPT 1/2", UNF 3/4"-16
Recommended calibration interval 2 years
Weight (ISO1/2") 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 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

DPT146 Dewpoint Measurement Accuracy

Operating Environment

Operating temperature of electronics -40 ... +60 \(^\circ C\)
  (-40 ... +140 \(^\circ F\))
Operating Pressure 0 ... 50 bar (0 ... 725 psi)

Not recommended for continuous measurement

VAISALA Please contact us at www.vaisala.com/requestinfo

Scan the code for more information

Ref. B21159EN-D ©Vaisala 2014
This material is subject to copyright protection, with all copyrights retained by Vaisala and its individual partners. All rights reserved. Any logos and/or product names are trademarks of Vaisala or its individual partners. The reproduction, transfer, distribution or storage of information contained in this brochure in any form without the prior written consent of Vaisala is strictly prohibited. All specifications — technical included — are subject to change without notice.
DPT145 Multiparameter Transmitter for SF6 Gas

The Vaisala Multiparameter Transmitter DPT145 for SF6 Gas is a unique innovation that enables online measurement of dew point, pressure, and temperature. It also calculates four other values, including SF6 density. The DPT145 is especially well suited for integration into OEM systems.

Online Reliability
Online dew point measurement combined with pressure measurement provides an excellent assessment of the condition of the SF6 insulation. Sudden and minor leakages are immediately detected by the direct normalized pressure measurement, while online dew point measurement alerts the user to moisture issues, which can weaken the insulation properties of SF6 and cause rapid deterioration. With the DPT145, it is also easy to build a redundant solution for multiple parameters.

Savings Across the Board
A single transmitter, instead of several, saves time and money across the board, from investment to installation, operation and servicing. Lower assembly costs, fewer cables and connectors, minimized need for on-site visits and field operations - all these translate into cumulative savings. The long calibration interval results in further savings.

Risk-Free, Greener Solution
Online measurement enables gas trends to be followed via a data collection system, making monitoring fast, risk-free, and accurate. Using one instrument for monitoring seven different parameters means also fewer mechanical connections and reduces the risk of leaks. Monitoring is environmentally friendly because there is no need for sampling - no SF6 gas is released into the atmosphere.

The Fruit of Experience
Vaisala has over 70 years of extensive measurement experience and knowledge. The DPT145 brings together the proven DRYCAP® dew point sensor technology and BAROCAP® pressure sensor technology in one package, providing an innovative and convenient solution for monitoring SF6 gas.

Features/Benefits
- First transmitter to offer online measurement of seven SF6 parameters in one unit
- Measured parameters: dew point, pressure, temperature
- Calculated parameters: SF6 density, normalized pressure, dew point in atmospheric pressure, ppm
- Saves time and money across the board, from investment and installation to operation and servicing
- More reliable assessment of the condition of SF6 insulation due to online measurement
- Long calibration interval of years
- Digital output RS-485 with MODBUS

The Vaisala Multiparameter Transmitter DPT145 with the DILO DN20 connector.

The DPT145 with the weather shield.
## Technical Data

### Measured Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dewpoint</td>
<td>-50 ... +30 °C (-58 ... +86 °F)</td>
</tr>
<tr>
<td>Pressure, absolute</td>
<td>1 ... 12 bar (14.5 ... 174 psi)</td>
</tr>
<tr>
<td>Temperature</td>
<td>-40 ... +80 °C (-40 ... +176 °F)</td>
</tr>
</tbody>
</table>

### Calculated Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure, normalized to 20 °C (68 °F)</td>
<td>1 ... 12 bar (14.5 ... 174 psi)</td>
</tr>
<tr>
<td>SF6 or SF6/N2 mixture density</td>
<td>0 ... 100 kg/m³</td>
</tr>
<tr>
<td>ppm moisture, by volume</td>
<td>40 ... 40 000 ppm</td>
</tr>
<tr>
<td>Dewpoint, converted to atmospheric pressure</td>
<td>-65 ... +30 °C (-85 ... +86 °F)</td>
</tr>
</tbody>
</table>

### Performance

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dewpoint accuracy</td>
<td>±3 °C (±5.4 °F)</td>
</tr>
<tr>
<td>Dewpoint stability</td>
<td>typical drift &lt; 2 °C (3.6 °F) /5 years</td>
</tr>
<tr>
<td>Pressure accuracy at 23 °C (73.4 °F)</td>
<td>±0.4 %FS</td>
</tr>
<tr>
<td>Pressure temperature dependence</td>
<td>±0.01 bar/10 °C (18 °F)</td>
</tr>
<tr>
<td>Temperature stability</td>
<td>typical drift &lt; 1 %FS /5 years</td>
</tr>
<tr>
<td>Temperature</td>
<td></td>
</tr>
<tr>
<td>0 ... 40 °C (+32 ... +104 °F)</td>
<td>±0.5 °C (± 0.9 °F)</td>
</tr>
<tr>
<td>-40 ... 80 °C (-40 ... +176 °F)</td>
<td>±1 °C (± 1.8 °F)</td>
</tr>
<tr>
<td>Density accuracy (pure SF6, 1 ... 10 bara)</td>
<td>±1 %FS</td>
</tr>
<tr>
<td>0 ... 40 °C (+32 ... +104 °F)</td>
<td>±0.01 %FS (40 ... +140 °F)</td>
</tr>
<tr>
<td>PPM accuracy, typical (5 ... 1000 ppm, 7 bar)</td>
<td>±(7 ppm + 15% of reading)</td>
</tr>
</tbody>
</table>

Sensor response time:
- Pressure response time: < 1 s
- Dewpoint 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]

* system equilibrium related response time is typically longer

### Operating Environment

- Operating temperature of electronics: -40 ... +60 °C (-40 ... +140 °F)
- Operating Pressure: 0 ... 50 bar (0 ... 725 psi)
- Relative humidity: 0 ... 100 %
- Measured gases: SF6, SF6/N2 mixture

### Outputs

- Digital output: RS-485, non-isolated, Vaisala protocol, MODBUS RTU protocol
- Connector: 4-pin M8

### General

- Sensor: Vaisala MPS1 multiparameter sensor
- Operating voltage: 15 ... 28 VDC
  - 20 ... 28 VDC in cold temperatures (-40 ... -20 °C (-40 ... -4 °F))
- Supply current, during normal measurement: 20 mA
- during self-diagnostics: max. 300 mA pulsed
- Housing material: AISI316L
- Housing classification: IP65 (NEMA4)
- Weather shield to be used for continuous outdoor installations
- Storage temperature range: transmitter only -40 ... +30 °C (-58 ... +86 °F)
  - shipment package: -20 ... +80 °C (-4 ... +176 °F)
- Mechanical connection: DILO DN20, DILO DN8, ABB Malmkvist, or Alstom G1/2” compatible connector
- Every connection is helium leak tested at the factory.
- Dimensional drawings: See the document B211165EN-A
- Weight (with DILO adapter): 765 g (27.0 oz)
- Complies with EMC standard EN61326-1, Electrical equipment for measurement, control and laboratory use - EMC requirements;
  - Industrial environment, Tested levels
    - EN/IEC 61000-4-2, Electrostatic Discharge: 8kV con / 15kV air
    - EN/IEC 61000-4-3, RF field immunity: 10V/m (80MHz-4.2GHz)
    - EN/IEC 61000-4-4, Electric Fast Transient: ±2kV power and signal, ±2kV power line to ground / ±1kV signal line to ground and power line to line
    - EN/IEC 61000-4-6, Conducted RF: 8kVemf power line and digital output
    - Mechanical vibration: EN/IEC 60068-2-6, Fc Sinusoidal vibration: ±6 g, 5-500 Hz sweep 60 min/axis, 3-axis
    - Immunity: ±6 g, 5-500 Hz sweep 60 min/axis, 3-axis

### Accessories

- Connection cable for the MI70/DM70 hand-held: 219980
- USB connection cable: 219690
- Protection plug for connector: 218675SP
- 1.5 m Shielded PUR cable with 90° connector: 231519SP
- 3m Shielded PUR cable with 90° connector: 231520SP
- 5 m Shielded PUR cable with 90° connector: 231521SP
- 10 m Shielded PUR cable with 90° connector: 231522SP
- 3.0m Shielded FEP cable with straight connector: 226902SP
- Weather shield: ASM210326SP

---

**DPT145 Dewpoint Measurement Accuracy**

---

[Refer to B211160EN-B ©Vaisala 2014]

This material is subject to copyright protection, with all copyrights retained by Vaisala and its individual partners. All rights reserved. Any logos and/or product names are trademarks of Vaisala or its individual partners. The reproduction, transfer, distribution or storage of information contained in this Brochure in any form without the prior written consent of Vaisala is strictly prohibited. All specifications — Technical included — are subject to change without notice.
Dimensional Drawings of the DPT145 Multiparameter Transmitter

The DPT145 with the weather shield.

The DPT145 with the DILO DN20 connector.

The DPT145 with the DILO DN8 connector.

The DPT145 with the ABB Malmbkvist connector.

The DPT145 with the Alstom connector.
Outages Happen 24/7. So Should Monitoring.

Vaisala Online Measurements for Transformers and Switchgear

Dew Point / Moisture-in-oil / SF6 Density / Pressure

- See moisture fluctuations in varying temperature and load conditions
- Receive early warnings of sudden changes in moisture, pressure and density
- Avoid sampling and waiting for lab results
  - Act on real time trend data
- Integrate into condition monitoring and data acquisition systems

Real risks, real savings and real performance require – quite simply – real-time monitoring. Let’s talk more.