

ДАТЧИКИ ТОЧКИ РОСЫ

DMT 132, 143, 143L, 152, 242, 340, 345, 346

ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ

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DMT132 Dewpoint Transmitter



Features / Benefits

- Affordable dew point transmitter for refrigerant dryers
- High accuracy $\pm 1^{\circ}\text{C}$ ($\pm 1.8^{\circ}\text{F}$) 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.

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 $-3 \dots 20^{\circ}\text{C}$ ($+26.6 \dots +68^{\circ}\text{F}$), where the refrigerator dryers typically operate, the Td accuracy is $\pm 1^{\circ}\text{C}$ ($\pm 1.8^{\circ}\text{F}$). 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.



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

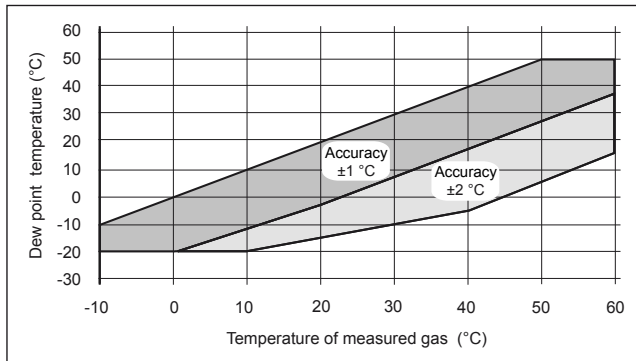
Measurement range	-20 ... +50 °C (-4 ... +122 °F) Td
Accuracy (at +20 °C (+68 °F))	±1 °C for -3...20 °C (+26.6 ... +68 °F) Td ±2 °C for -15...-3 °C (+5 ... +26.6 °F) Td

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

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	Tdf atm
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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

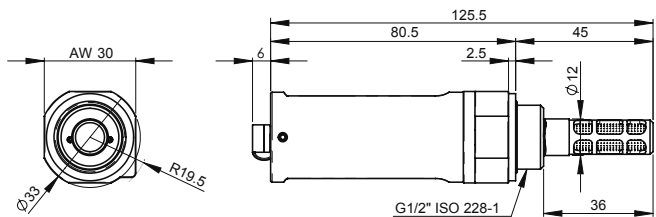
Analog output (scalable)	4...20 mA, 2-wire
Resolution for current output	0.002 mA
Accuracy of analog outputs at +20 °C	±0.05% full scale
Typical temperature dependence	±0.005% of full scale/ °C
Connector	4-pin M8 (IEC 60947-5-2)
LED indication available for defined dew point limit/ error state indication	
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	230388
ISO" 1/2 plug	218773
NPT1/2" plug	222507
Sealing ring set (3 pcs U-seal)	221525SP



DMT143 Miniature Dewpoint Transmitter



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.

Technical Data

Measured Parameters

DEW POINT TEMPERATURE	
Measurement range(typical)	-70 ...+60 °C (-94 ...+140 °F) T _d
Analog output scalings	
option 1	-80 ...+20 °C (-112 ...+68 °F) T _d
option 2	-80 ...+20 °C (-112 ...+68 °F) T _d dew point at ambient pressure
option 3	free scaling
Accuracy in air or N ₂	±2 °C (±3.6 °F) T _d (see graph below)
when the dew point is below 0 °C (32 °F), the transmitter outputs frostpoint	

Features/Benefits

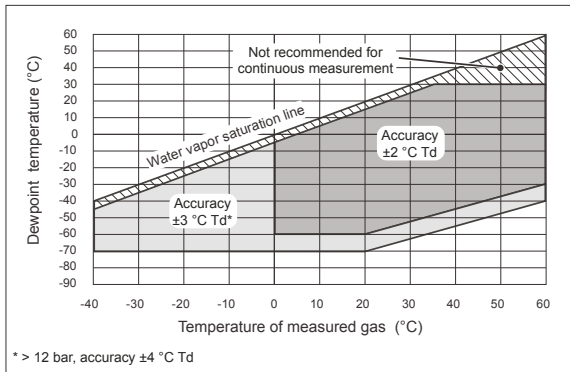
- Miniature size dew point transmitter for e.g. small industrial dryer applications
- Vaisala DRYCAP® technology with auto-calibration
- Calibration interval of two years
- Dew point measurement range -70...+60 °C (-94...+140 °F)
- Accuracy ±2 °C (±3.6 °F)
- Withstands condensation
- Fast response time
- 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



Dew point accuracy vs. measurement conditions

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

-60 → -20 °C T _d (-76 → -4 °F T _d)	5 s [15 s]
-20 → -60 °C T _d (-4 → -76 °F T _d)	45 s [10 min]
PPM VOLUME CONCENTRATION	
Measurement range (typical)	10 ... 40000 ppm
Accuracy at +20 °C (+68 °F), 1 bar	1 ppm + 20% of reading

Operating Environment

Measured gases	non-corrosive gases
Temperature *)	-40 ... +60 °C (-40 ... +140 °F)
Relative humidity	0 ... 100 %RH
Pressure *)	0 ... 50 bar _a (725 psia)
Sample flow rate	no effect for measurement accuracy
*) For extended temperature below 0 °C (+32 °F) or pressure above 20 bar _a (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	RS-485, 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)

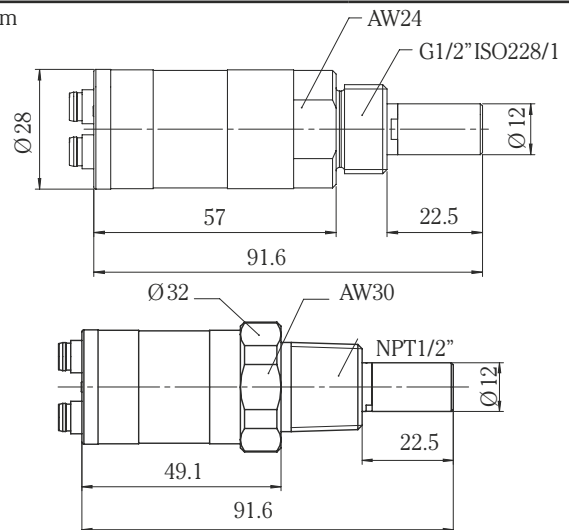
Complies with EMC standard EN61326-1, Electrical equipment for measurement, control and laboratory use - EMC requirements - Industrial environment.

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
two-pressure sampling cell	DSC74BSP
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



DMT143L Dewpoint Transmitter



Due to its wide measurement range and high long-term stability, the DMT143L is an ideal choice for low dew point industrial applications such as compressed air dryers, plastic dryers and other OEM applications.

Vaisala DRYCAP®

The Vaisala DRYCAP® Dewpoint Transmitter DMT143L provides reliable and stable measurements for industrial dryer applications. It is designed for extreme conditions.

DMT143L 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 suitable 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 DMT143L adjusts the measurement, corrects dry-end drifts and continues to function. Calibration occurs quickly, and with corrections so minor, it will go unnoticed.

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
- Traceable calibration (certificate included)
- Compatible with Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70

Compact, Rugged and Intelligent

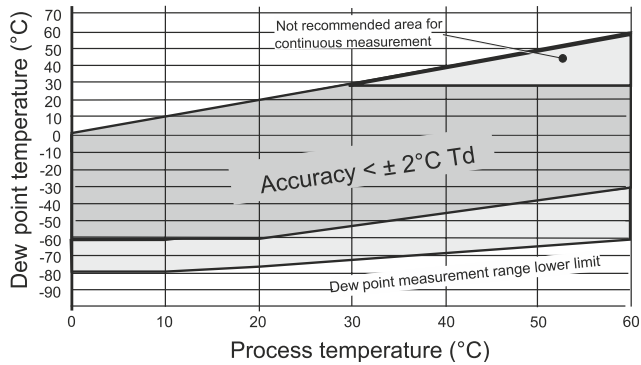
Due to its compact size, DMT143L is quickly and easily installed in tight spaces.

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 traceable calibration. The recommended calibration interval is every two years.

Technical Data

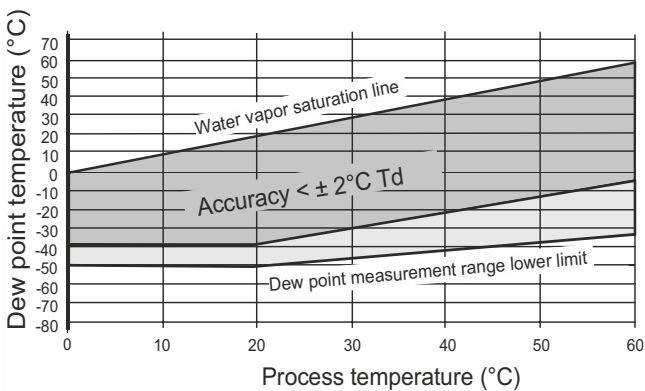
Dew Point Temperature

Measurement range (typical) -60 ... +60 °C (-76 ... +140 °F)
 Different analog output scalings available
 (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)



DEW POINT 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 bara (0 ... 290 psia)
Sample flow rate	no effect

Output

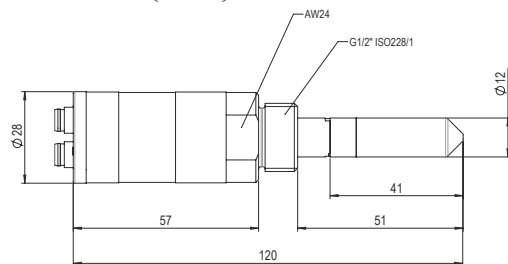
Analog output	4 ... 20 mA
Resolution for analog output	± 0.002 mA
Typical temperature dependence	0.0008 mA/ °C
Serial line for service use	RS485

General

Sensor	DRYCAP® 180M
Optimal sensor for refrigeration dryers	DRYCAP® 180S
Operating voltage	18 - 28 VDC
Power consumption at 24 VDC	max. 220 mA
External load for analog output	max. 500 Ω
Probe material (wetted parts)	stainless steel (AISI 316L)
Sensor protection	stainless steel sintered filter (HM47280)
Mechanical connection	G1/2" ISO228-1 thread with bonded seal ring (U-seal)
Electronics housing material	stainless steel
Housing classification	IP66
Storage temperature range	-40 ... +60 °C, (-40 ... +140 °F)
Complies with the EMC standard EN61326-1, Electrical equipment for measurement, control and laboratory use - EMC requirements; Industrial environment.	

Dimensions

Dimensions in mm (inches)



DMT152 Dewpoint Transmitter



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

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.

Technical Data

Measured Variables

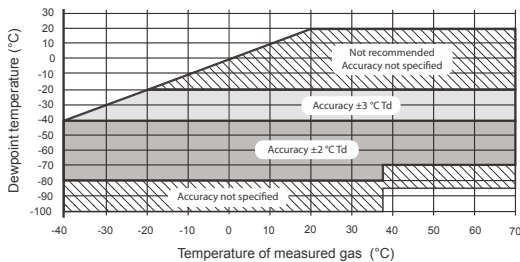
DEW POINT TEMPERATURE

Measurement range	-80 ... -10 °C (-112 ... +14 °F) T _d
Accuracy	
-80 ... -40 °C (-112 ... -40 °F)	±2 °C (3.6 °F) T _d
-40 ... -20 °C (-40 ... -4 °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



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

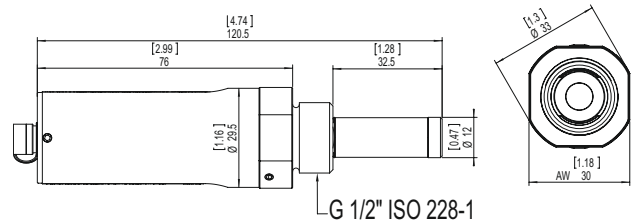
Two analog outputs (scalable)	4 ... 20 mA, 0 ... 20 mA (3 wire) 0 ... 5 V, 0 ... 10 V
Accuracy of analog outputs	±0.01 V / ±0.01 mA
Digital output	RS485 (2-wire)
Alarm-level indication by analog signal	user selectable
Purge information	5 V, 10 V, 20 mA or LED

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	Filter body AISI303, mesh AISI316L, grade 18 µm
Mechanical connections	ISO G½", NPT ½", UNF ¾" - 16"
Housing classification	IP66
Storage temperature range	-40 ... +80 °C (-40 ... +176 °F)
Weight (ISO G½")	190 g (6.70 oz)
Complies with EMC standard EN61326-1, Electrical equipment for measurement control and laboratory use - EMC requirements;	
Industrial environment	

Accessories

Connection 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 ¼" male connectors	DMT242SC2
with a quick connector and leak screw	DSC74
two-pressure sampling cell	DSC74B
NW40 flange	225220SP



DMT242 Dewpoint Transmitter



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

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.

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.

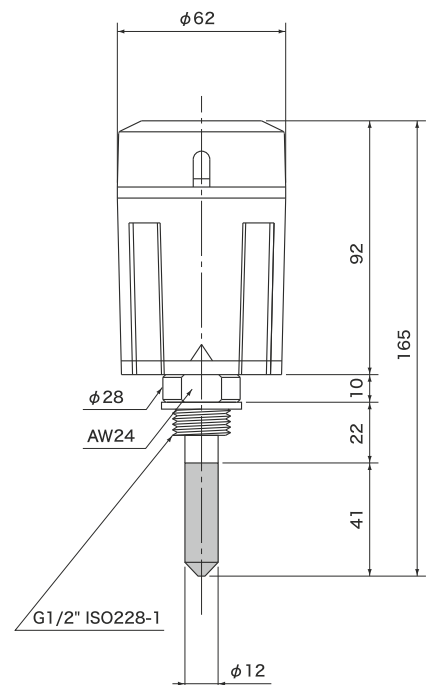
Compact, Rugged and Intelligent

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.

Dimensions

Dimensions in mm (inches)



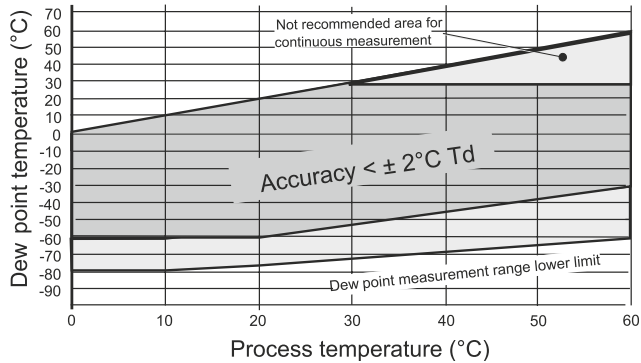
Technical Data

Dew Point Temperature

Measurement range (typical)	-60 ... +60 °C (-76 ... +140 °F)
Analog output scalings	
Option A	-80 ... +20 °C (-112 ... +68 °F) T _d
Option B	-60 ... +60 °C (-76 ... +140 °F) T _d
Option X	free scaling

(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)



DEW POINT ACCURACY VS. MEASUREMENT CONDITIONS

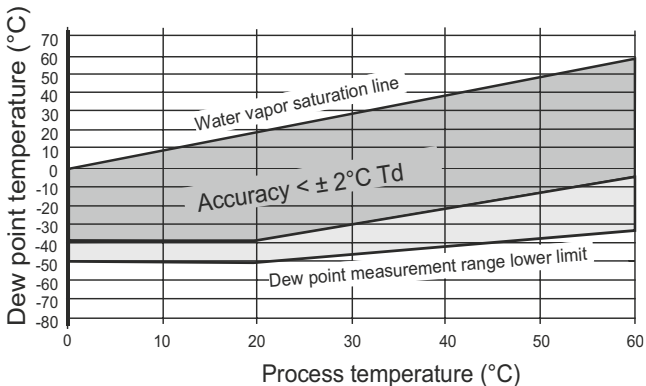
Response time 63 % [90 %] at +20 °C gas temperature

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 bara (0 ... 290 psia)
Sample flow rate	no effect

Output

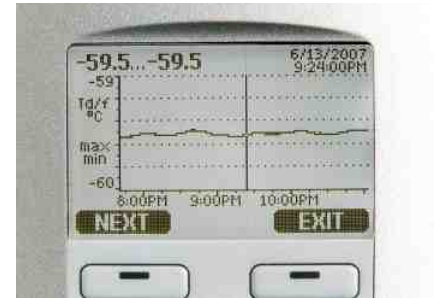
Analog output	4 ... 20 mA
Resolution for analog output	± 0.002 mA
Typical temperature dependence	0.0008 mA/ °C
Serial line for service use	RS232

General

Sensor	DRYCAP® 180M
Optimal sensor for refrigeration dryers	DRYCAP® 180S
Operating voltage	18 - 35 VDC, 20 - 28 VAC
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	G $\frac{1}{2}$ " ISO228-1 thread with bonded seal ring (U-seal)
Electronics housing material	plastic (ABS/PC)
Housing classification	IP65 (NEMA4)
Weight	225 g
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.	

DMT340 Series Dewpoint and Temperature Transmitters for Very Dry Conditions



The display shows measurement trends, real-time data, and measurement history.

Features/Benefits

- Measures dew point from -70 ... +80 °C (-94 ... +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 Vaisala DRYCAP® Dewpoint and Temperature Transmitter Series DMT340 is designed for industrial low-humidity applications such as industrial drying, compressed air systems, semiconductor industry, dry rooms, baking ovens, and metal heat treatment.

Stability at Low Dew Points

The Vaisala DRYCAP® sensor is immune to particulate contamination, water condensation, oil vapor, and most chemicals. The sensor is condensation resistant and recovers perfectly if exposed to liquid water. Fast reaction time and stability make its performance unmatched also in dynamic and low dew point applications.

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.

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 isolated analog outputs. Optional AC mains power and relay outputs are also available.

For serial interface the USB connection, RS232, and an optional 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.



The Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70 is ideal for field-checking DMT340 transmitters.



The DMT341 is made for installations in dry rooms where the entire dew point transmitter needs to be inside the dry space. The concept is easy to clean and suitable also for cleanrooms.

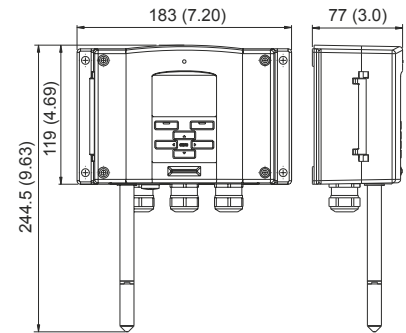
Specifications

DMT341 for Installations in Dry Spaces

Temperature range	
Transmitter body	-40 ... +60 °C (-40 ... +140 °F)
With display	0 ... +60 °C (+32 ... +140 °F)

Dimensions

Dimensions in mm (inches)



The DMT342 probe is installed using a flange or sampling cell. The small probe is ideal for integration into larger equipment.

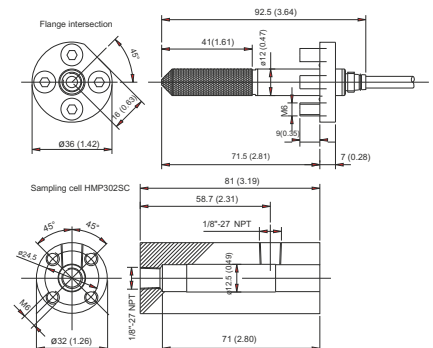
Probe Specifications

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

Dimensions

Dimensions in mm (inches)





The DMT344 features a threaded connection for extended pressures with different fitting-body options. It is ideal for permanent installation into pressurized or vacuum processes.

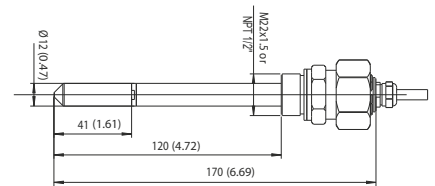
Probe Specifications

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"

Dimensions

Dimensions in mm (inches)



The DMT347 probe is ideal for tight spaces with a thread connection. The small probe is installed using Swagelok® connectors.

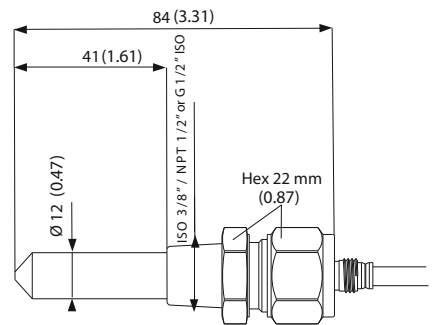
Probe Specifications

DMT347 with Small-Sized Probe

Pressure range	0 ... 10 bar/0 ... 145 psia
Mechanical durability	up to 10 bar/ 145 psia
Probe diameter	12 mm/0.5"
Installation	
Fitting body	R 3/8" ISO
Fitting body	G 1/2" ISO
Fitting body	NPT 1/2"

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.

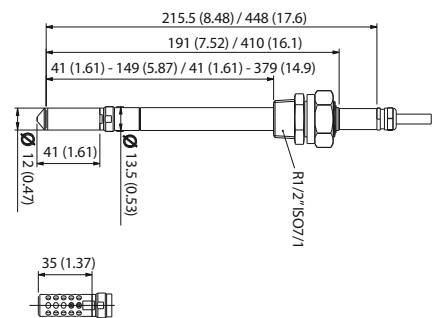
Probe Specifications

DMT348 with Probe for Pipeline Installations

Pressure range	0 ... 40 bar/0 ... 580 psia
Adjustable length	41 ... 149/371 mm/ 1.61 ... 5.87/14.6"
Installation	
Fitting body	R1/2" ISO
Fitting body	NPT 1/2"
Ball-valve set	BALLVALVE-1
Sampling cell	DMT242SC or DMT242SC2

Dimensions

Dimensions in mm (inches)



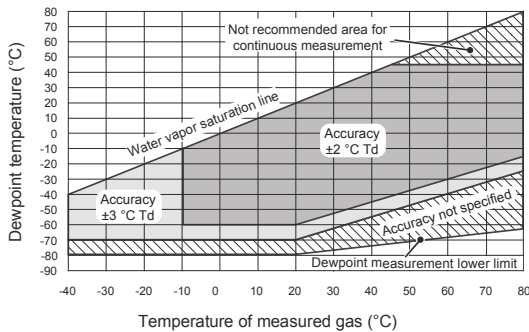
Optional filter for low pressures (suitable for all models)

Technical Data

Measured Parameters

DEW POINT

Sensor	Vaisala DRYCAP®180M	
Measurement range	-70 ... +80 °C (-94 ... +176 °F) Td	
For continuous use	-70 ... +45 °C (-94 ... +113 °F) Td	
Accuracy	±2 °C/±3.6 °F	
up to 20 bar/290 psia	(see the accuracy graph below)	
20 ... 50 bar/290 ... 725 psia	additional inaccuracy +1 °C Td	



Dew point 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]	

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		

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 EMC standard EN61326-1, Industrial environment	

Note: Transmitter with display test impedance of 40 ohm is used in IEC61000-4-5 (Surge immunity)

Inputs and Outputs

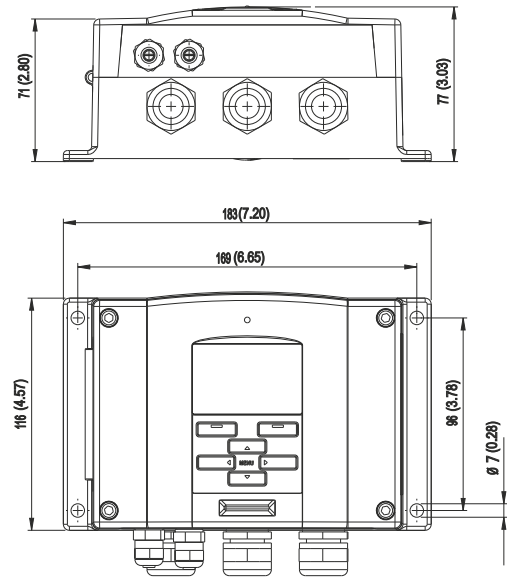
Operating voltage	10 ... 35 VDC, 24 VAC ±20 %	
with optional power supply module	100 ... 240 VAC 50/60 Hz	
Power consumption @ 20 °C (U _{in} 24VDC)	RS232 max. 25 mA	
U _{out} 2 x 0...1V / 0...5V / 0...10V	max. 25 mA	
I _{out} 2 x 0...20 mA	max. 60 mA	
display and backlight	+ 20 mA	
during sensor purge	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% full scale	
Temperature dependence of the analogue outputs	± 0.005%/°C full scale	
External loads	current outputs R _L < 500 ohm	
0 ... 1V output	R _L > 2 kohm	
0 ... 5V and 0 ... 10V outputs	R _L > 10 kohm	
Wire size	0.5 ... 2.5 mm ² (AWG 20 ... 14) stranded wires recommended	
Digital outputs	RS232, RS485 (optional)	
Protocols	ASCII commands, MODBUS RTU	
Service connection	RS232, USB	
Relay outputs	0.5 A, 250 VAC, SPDT (optional)	
Ethernet interface (optional)	Supported standards 10BASE-T, 100BASE-TX	
Connector	8P8C (RJ45)	
IPv4 address assignment	DHCP (automatic), static	
Protocols	Telnet, MODBUS TCP/IP	
WLAN interface (optional)	DHCP (automatic), static	
Supported standards	802.11b	
Antenna connector type	RP-SMA	
IPv4 address assignment		
Protocols	Telnet, MODBUS TCP/IP	
Security	WEP 64/128, WPA 2/802.11i	
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. 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	

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

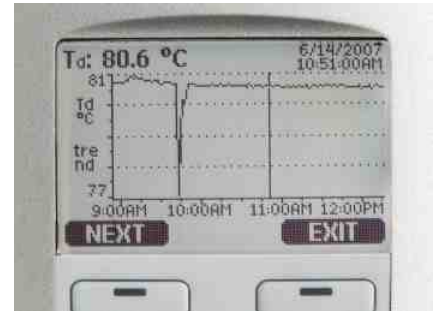
Dimensions

Dimensions in mm (inches)



DRYCAP® is a registered trademark of Vaisala.

DMT345 and DMT346 Dewpoint Transmitters



The large graphical display allows the user to check data at a glance.

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.

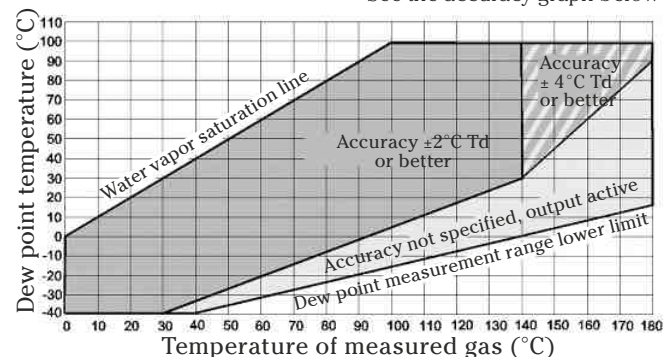
Graphical Display of Measurement Data and Trends for Convenient Operation

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.

Technical Data

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



Dew point accuracy vs. measurement conditions

Response time 63% [90%] flow 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]

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.

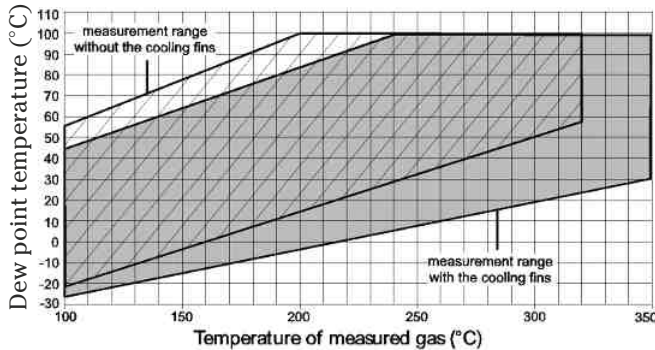
TEMPERATURE DMT345	
Measurement range	0 ... +180 °C (+32 ... +356°F)
with sensor warming	upper range limited by humidity
	(at 80 %RH warming is switched on and T reading not actual process temperature)
Accuracy	±0.4 °C at 100 °C
Temperature sensor	Pt100 RTD Class F0.1 IEC 60751
RELATIVE HUMIDITY DMT345	
Measurement range	0 ... 100 %RH
with sensor warming	0 ... 80 %RH
Accuracy	
below 10 %RH	±10% of reading
above 10 %RH	±1.5 %RH + 1.5% of reading
MIXING RATIO DMT345	
Measurement range (typical)	0 ... 1000 g/kg (0 ... 7000 gr/lbs)
Accuracy (typical)	±12% of reading

Technical Data

Measured Variables DMT346

DEW POINT DMT346

Sensor Vaisala DRYCAP®180S
 Measurement range -25 ... +100 °C (-13 ... +212 °F) Td
 Accuracy ±2 °C (±3.6 °F) Td
 See the accuracy graph below



Dew point accuracy vs. measurement conditions

Response time 63% [90%] flow 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]

MIXING RATIO DMT346

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

Operating Environment, DMT345 and DMT346

Mechanical durability up to +180 °C (+356 °F) for DMT345
 of probes up to +350 °C (+662 °F) for DMT346
 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 slight pressure difference (~ 200 mbar)
 Measured gases non-corrosive gases
 Electromagnetic compatibility Complies with EMC standard
 EN61326-1, Industrial environment
 Note: Transmitter with display test impedance of 40 ohm is used in IEC61000-4-5 (Surge immunity)

Inputs and Outputs, DMT345 and DMT346

Operating voltage 10 ... 35 VDC, 24 VAC ±20%
 with optional power supply module 100 ... 240 VAC 50/60 Hz
 Default start-up time
 initial reading after power-up 3 s
 full operation after sensor purge and autocalibration about 6 min
 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 ohm
 0 ... 1V output R_L > 2 kohm
 0 ... 5V and 0 ... 10V outputs R_L > 10 kohm
 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 VAC, SPDT
 Ethernet interface (optional)
 Supported standards 10BASE-T, 100BASE-TX
 Connector 8P8C (RJ45)
 IPv4 address assignment DHCP (automatic), static
 Protocols Telnet, MODBUS TCP/IP
 WLAN interface (optional) DHCP (automatic), static
 Supported standards 802.11b
 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

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

По вопросам продаж и поддержки обращайтесь:

Архангельск (8182)63-90-72
Астана +7(7172)727-132
Астрахань (8512) 99-46-04
Барнаул (3852) 73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
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Красноярск (391)204-63-61
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Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212) 92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

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