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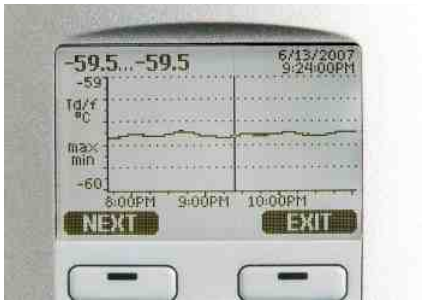
DMT340 Series Dewpoint and Temperature Transmitters for Very Dry Conditions



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.

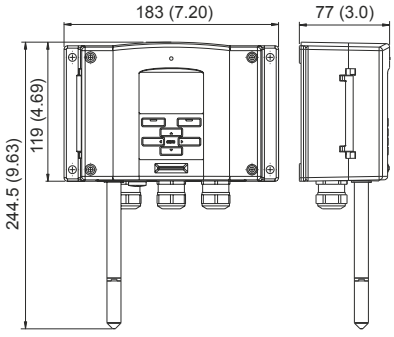
Specifications

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.

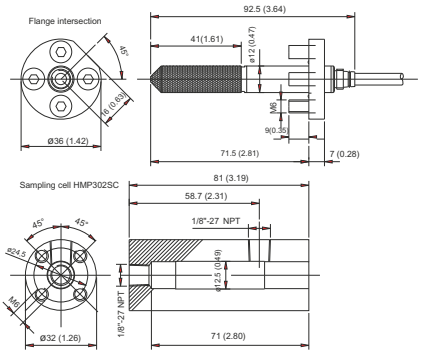
Probe Specifications

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.

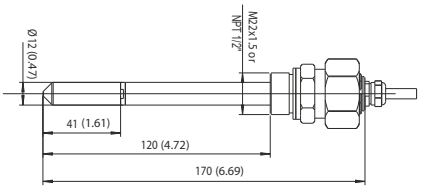
Probe Specifications

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.

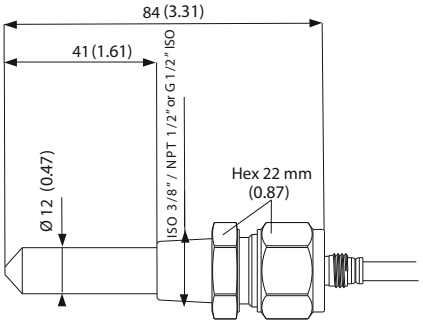
Probe Specifications

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.

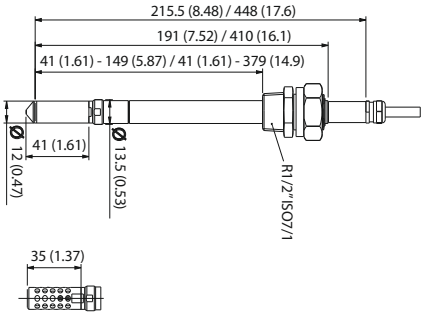
Probe Specifications

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)



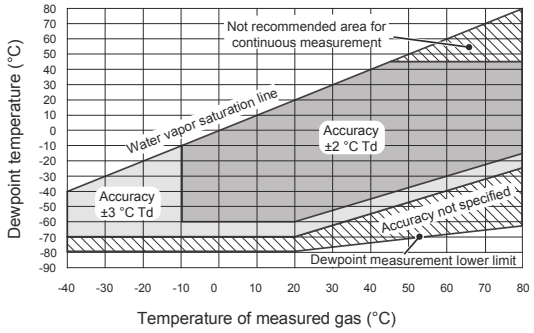
Optional filter for low pressures (suitable for all models)

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	
up to 20 bar/290 psia	±2 °C/±3.6 °F
	(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

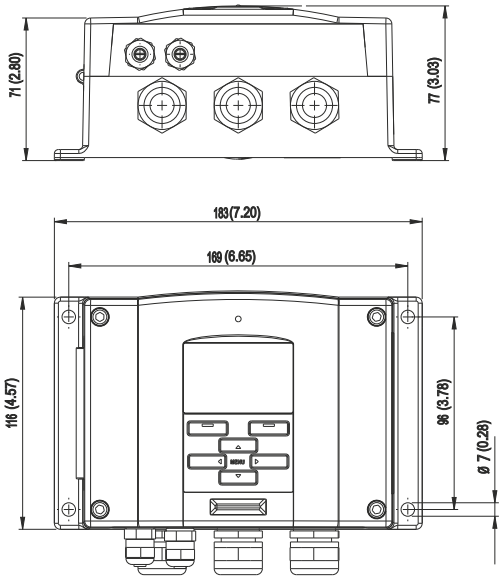
Operating voltage	10 ... 35 VDC, 24 VAC ±20 %
with optional power supply module	100 ... 240 VAC 50/60 Hz
Power consumption @ 20 °C (U_{in} 24VDC)	
RS232	max. 25 mA
U_{out} 2 x 0...1V / 0...5V / 0...10V	max. 25 mA
I_{out} 2 x 0...20 mA	max. 60 mA
display and backlight	+ 20 mA
during sensor purge	max. + 110 mA
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 the 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
Wire size	0.5 ... 2.5 mm² (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)



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TYPE APPROVED PRODUCT
CERTIFICATE NO.: A-13529

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