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ESIS
Industrial Electronics

VAISALA

DMT340 Series Dewpoint and Temperature Transmitters

for Very Dry Conditions

Features

- Measures dew point from -70 ... +80 °C (-94 ... +176 °F) with an accuracy of ±2 °C (±3.6 °F)
- Condensation-resistant
- Unique auto-calibration feature maintains accuracy over long term
- Compatible with Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70
- Traceable calibration to measurements and analog outputs (certificates included)
- Graphical display and keypad for convenient operation
- Optional alarm relays and mains power supply module
- Up to three analog outputs, RS-232/485, LAN
- Modbus protocol support (RTU/TCP)

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.

Vaisala DRYCAP® Sensor Benefits

- Accurate and reliable measurement
- Excellent long-term stability
- Fast response time
- Resistant to environmental factors and condensation

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.

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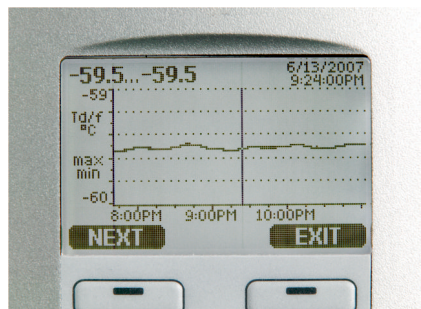
The display shows measurement trends, real-time data, and measurement history.

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.

In addition to the analog outputs, the DMT340 supports Modbus RTU and TCP/IP communication protocol.

The data logger, with real-time clock and battery backup, guarantees reliable logging of measurement data for over four years. The display alarm allows tracking of any measured parameter, with freely configurable low and high limits.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 LAN interface, which enables an Ethernet connection. A

USB service cable makes it easy to connect the DMT340 to a PC via the service port for modifying settings or reading logged data.

Easy Installation

With multiple options to choose from, the instrument can be tailored to meet the specific needs of each individual application and is delivered installation-ready and pre-configured for each delivery. Quick delivery time and global service network make DMT340 a perfect choice for any project.

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

	DMT342	DMT344	DMT347	DMT348
Pressure range	0 ... 50 bar/0 ... 725 psia	0 ... 50 bar/0 ... 725 psia	0 ... 10 bar/0 ... 145 psia	0 ... 40 bar/0 ... 580 psia
Mechanical durability	up to 250 bar/ 3625 psia	up to 100 bar/1450 psia	up to 10 bar/145 psia	up to 70 bar/1015 psia
Probe diameter	12 mm/0.5 in	12 mm/0.5 in	12 mm/0.5 in	12 mm/0.5 in
Installation	Flange 36 mm/1.4 in	Fitting body M22 x 1.5 Fitting body NPT 1/2 in	Fitting body R 3/8 in ISO Fitting body G 1/2 in ISO Fitting body NPT 1/2 in	Fitting body R1/2 in ISO Fitting body NPT 1/2 in
Ball-valve set				BALLVALVE-1
Sampling cell	HMP302SC			DMT242SC or DMT242SC2

DMT340 Series Dewpoint and Temperature Transmitters for Very Dry Conditions

DMT341 for Installations in Dry Spaces

DMT341 display shows measurement trends, real-time data, and measurement history. 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.
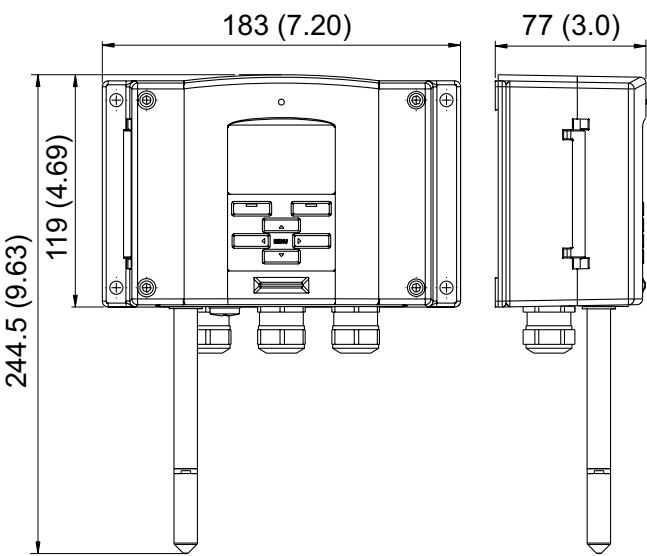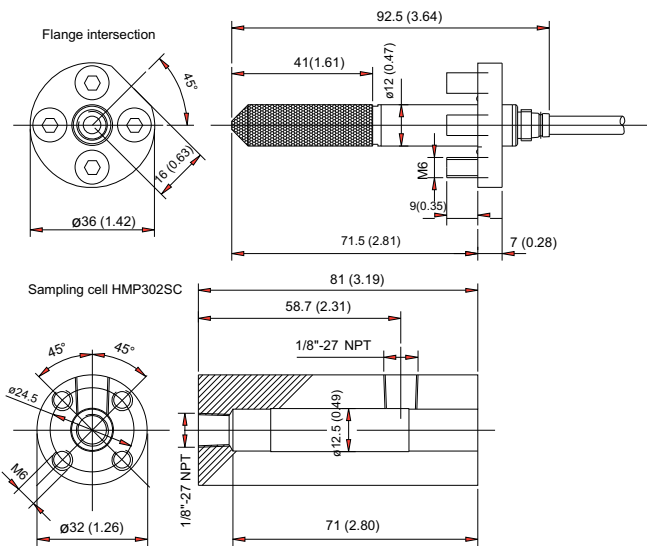
DMT341 dimensions in mm (inches)
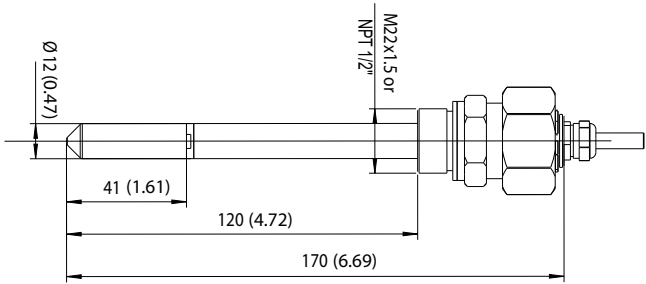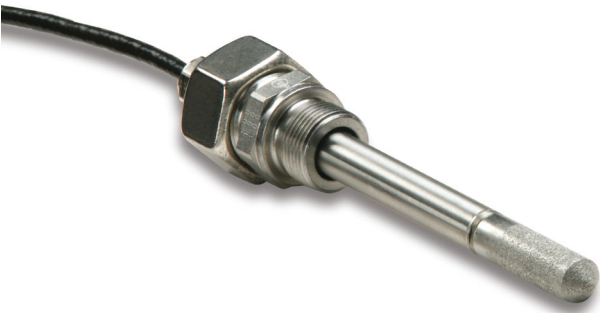
DMT342 with Small Size Flanged Probe

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

Flange intersection

Sampling cell HMP302SC
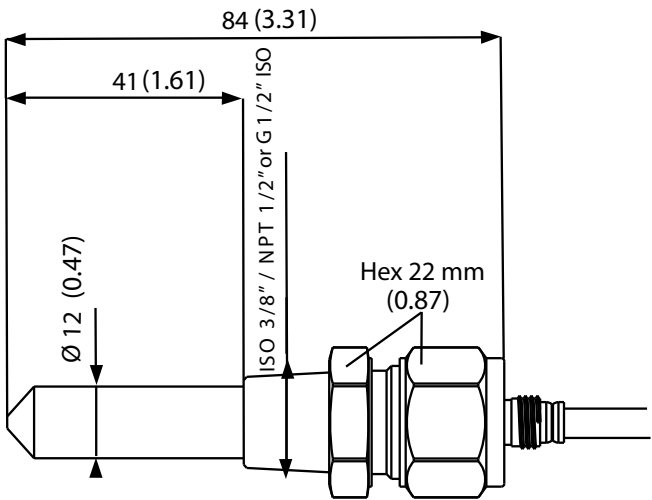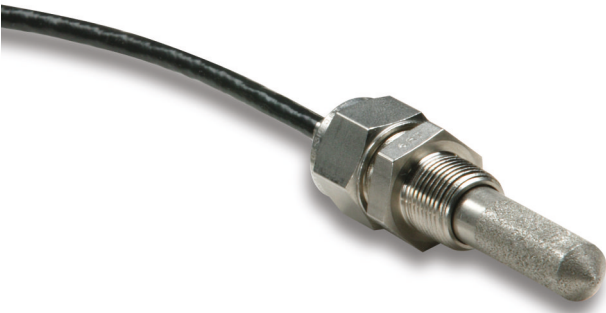
DMT342 dimensions in mm (inches)

DMT344 with Probe for High Pressures

DMT344 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.
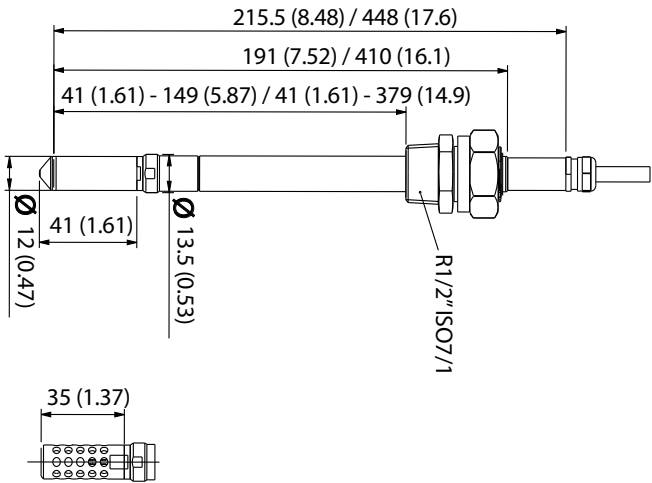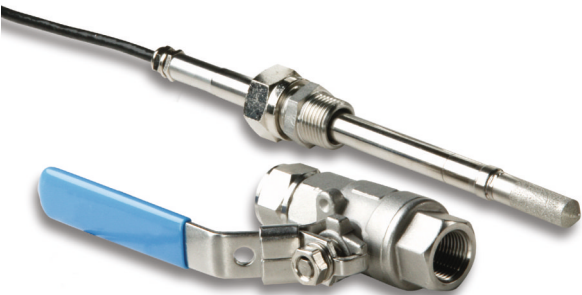
DMT347 with Small-Sized Probe

DMT347 dimensions in mm (inches)

The DMT347 probe is ideal for pressurized or vacuum applications in tight spaces. The small probe is installed using Swagelok® connectors.

DMT348 with Probe for Pipeline Installations


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

Optional filter for low pressures, suitable for all models, dimensions in mm (inches). Optional filter provides faster gas exchange to the sensor in applications where protection from particulates is not needed.

DMT340 Series Technical Data

Measurement Performance

Dew Point

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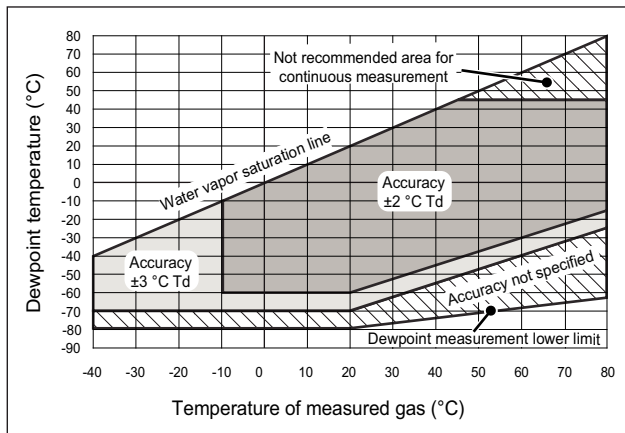
Dew Point Accuracy vs. Measurement Conditions

Response time	63% [90%] at +20 °C gas temperature
T63 [T90] response times at 20 °C and 1 l/min flow:	
-60 ... -20 °C T_d (-76 ... -4 °F T_d)	5 s [10 s]
-20 ... -60 °C T_d (-4 ... -76 °F T_d)	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

Concentration by Volume (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)
Mechanical durability of transmitter body	40 ... +60 °C (-40 ... +140 °F)
Mechanical durability 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 Ω 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 at 20 °C (U_{in} 24VDC)

RS-232	max. 25 mA
U_{out} 2 x 0 ... 1V / 0 ... 5 V / 0 ... 10 V	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	RL < 500 Ω
0 ... 1 V output	RL > 2 kΩ
0 ... 5 V and 0 ... 10V outputs	RL > 10 kΩ
Wire size	0.5 ... 2.5 mm2 (AWG 20 ... 14) stranded wires recommended
Digital outputs	RS-232, RS-485 (optional)
Protocols	ASCII commands, Modbus RTU
Service connection	RS-232, 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 with max. temporal resolution	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
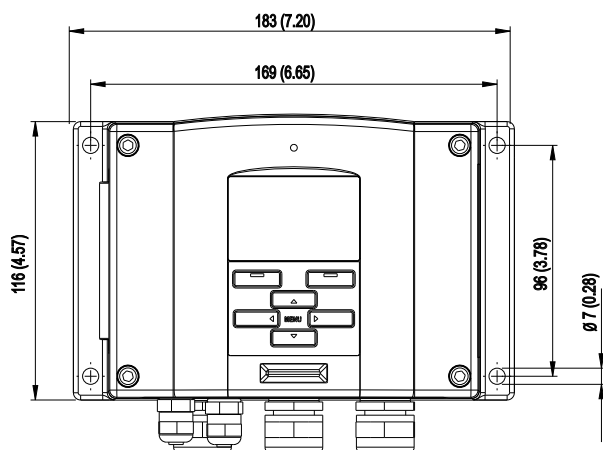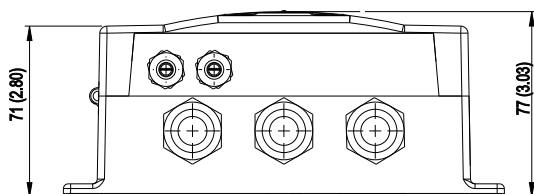
Dimensions in mm (inches)

Mechanical Specifications

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, see order forms for details)	
Housing material	G-AlSi 10 Mg (DIN 1725)
Housing classification	IP66 IP65 (NEMA4X) with local display
Weight (depending on selected probe, cable and modules)	1.0 - 3.0 kg

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