



# 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  $\pm 2$  °C ( $\pm 3.6$  °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

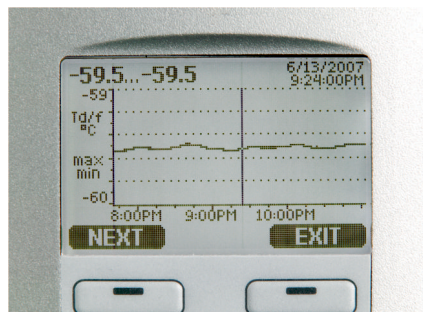
- Accurate and reliable measurement
- Excellent long-term stability
- Fast response time
- Resistant to environmental factors and condensation

## 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.

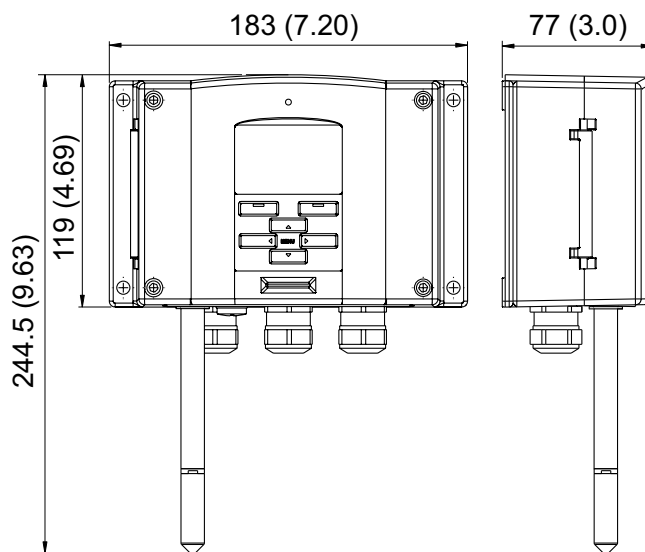
	<b>DMT342</b>	<b>DMT344</b>	<b>DMT347</b>	<b>DMT348</b>
Pressure range	0 ... 50 bar/0 ... 725 psia	0 ... 50 bar/0 ... 725 psia	0 ... 10 bar/0 ... 145 psia	0 ... 40 bar/0 ... 580 psia
Mechanical durability	up to 250 bar/ 3625 psia	up to 100 bar/1450 psia	up to 10 bar/145 psia	up to 70 bar/1015 psia
Probe 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.

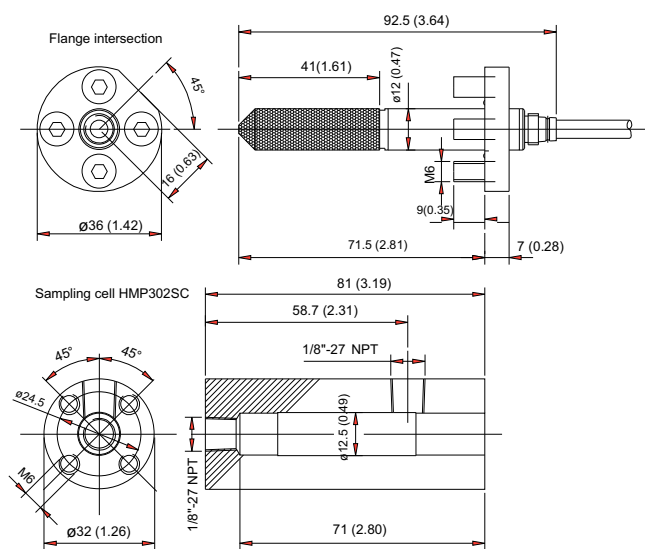


DMT341 dimensions in mm (inches)

## DMT342 with Small Size Flanged Probe

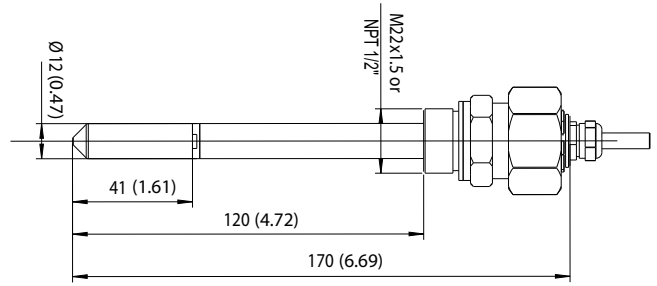
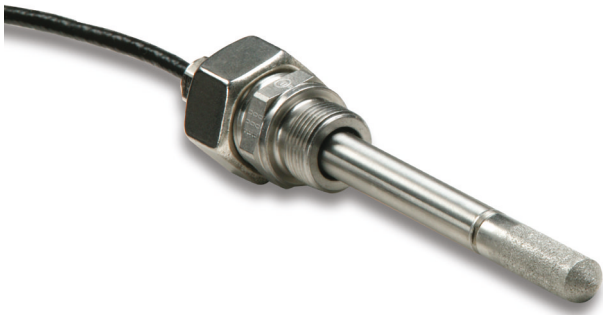


The DMT342 probe is installed using a flange or sampling cell. The small probe is ideal for integration into larger equipment or applications with high pressures.



DMT342 dimensions in mm (inches)

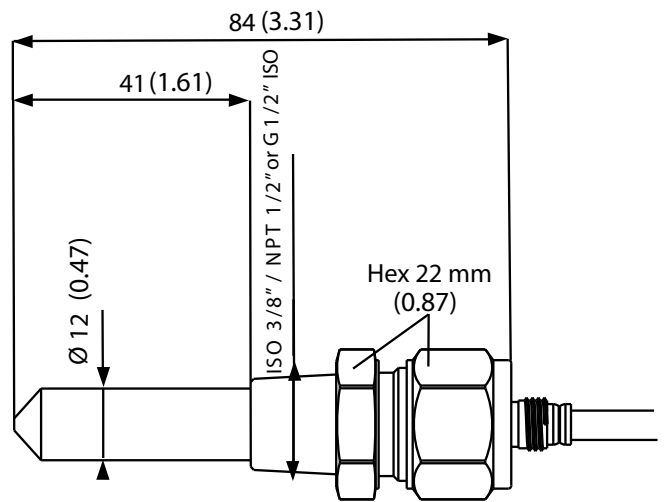
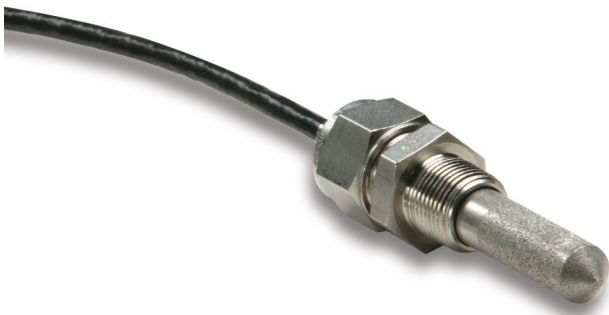
### DMT344 with Probe for High Pressures



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.

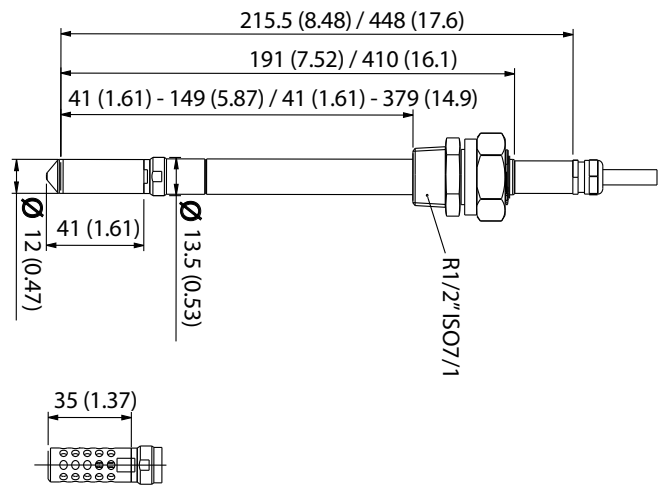
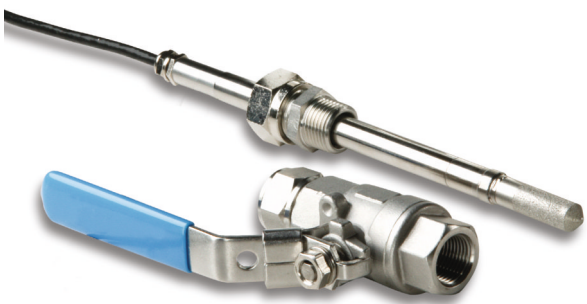
### DMT347 with Small-Sized Probe



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.

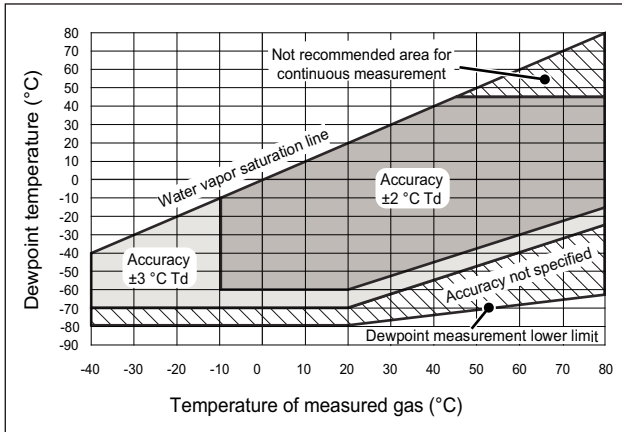
Optional filter for low pressures, suitable for all models, dimensions in mm (inches). Optional filter provides faster gas exchange to the sensor in applications where protection from particulates is not needed.

# DMT340 Series Technical Data

## Measurement Performance

### Dew Point

Sensor	Vaisala DRYCAP® 180M
Measurement range	-70 ... +80 °C (-94 ... +176 °F) T <sub>d</sub>
Measurement range for continuous use	-70 ... +45 °C (-94 ... +113 °F) T <sub>d</sub>
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 <sub>d</sub>



### 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 <sub>d</sub> (-76 ... -4 °F T <sub>d</sub> )	5 s [10 s]
-20 ... -60 °C T <sub>d</sub> (-4 ... -76 °F T <sub>d</sub> )	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-T<sub>d</sub>), 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<sub>in</sub> 24VDC)

RS-232	max. 25 mA
U <sub>out</sub> 2 x 0 ... 1V / 0 ... 5 V / 0 ... 10 V	max. 25 mA
I <sub>out</sub> 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 mm <sup>2</sup> (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)

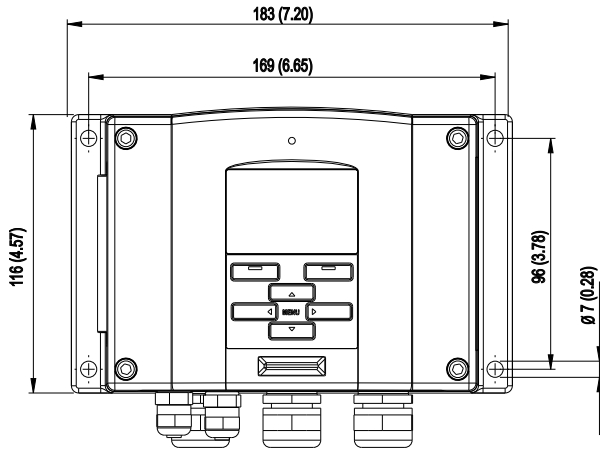
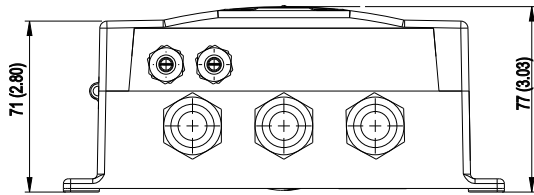
Supported standards	802.11b
Antenna connector type	RP-SMA
IPv4 address assignment	
Protocols	Telnet, Modbus TCP/IP
Security	WEP 64/128, WPA 2/802.11i

### 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











Order form  
Orderer

Valid from March 2017  
Order no.

### DMT344 Dewpoint and Temperature Transmitter For Pressurized Processes

Vaisala DRYCAP® Dewpoint and Temperature Transmitter		DMT340	4	0																1						A	0	PRICE
1	Transmitter type	DMT344	4																									
2	Probe cable length	2 m cable 5 m cable 10 m cable		H J K																								
3	-	-																										
4	Measurement parameters	Dewpoint + ppm + mixing ratio (For T = -40...80 °C) Dewpoint + ppm + mixing ratio + relative humidity + temperature (For T = 0...80 °C) Td/f, PPM, x, a, RH, T, Td, Td/f atm, Td atm, aNTP, pw, pws, h, dT (For T at 0...80°C)				A B C																						
5	Display	No display Graphical display with keypad																										
6	Power supply	10...35 VDC, 24 VAC 10...35 VDC, 24 VAC with galvanic isolation for outputs Universal AC -power (100...240 VAC) Universal AC -power (100...240 VAC) + US -power cord Universal AC -power (100...240 VAC) + EUR -power cord Universal AC -power (100...240 VAC) + UK -power cord Universal AC -power (100...240 VAC) + AUS -power cord External US AC-adaptor (for LAN/WLAN interface in USA) Not IP65				A B C D E F G K																						
7	Analog output	4...20 mA 0...20 mA 0...1 V 0...5 V 0...10 V																										
8	Analog output	No 3rd analog output																										
9	parameter and scaling	Dewpoint Td/f (+80...+20 °C) (-112...+68 °F)				B																						
10	for Ch1&Ch2(&Ch3)	Dewpoint Td/f (-60...+20 °C) (-76...+68 °F) Dewpoint Td/f (-50...+50 °C) (-58...+122 °F) Temperature (0...+80 °C) (+32...+176 °F) PPMw (0...1000 ppm) only for channel 1 PPMw (0...1000 ppm) only for channel 1 Mixing ratio (0...30 g/kg d.a) (0...210 gr/lbs) Relative humidity (0...100 %RH) Define parameter (unit) for Ch1: ( ) Ch2: ( ) Ch3: ( ) Define scale for Ch1: Ch2: Ch3:					C D E E G H J K X																					
	SPECIAL	Channel 1 Channel 2 Channel 3, choose A, if not needed																										
11	Operating pressure	1 bar (abs) (14.5 psi abs) 3 bar (43.5) 5 bar (72.5) 7 bar (101.5) 9 bar (130.5) special ( max 50 bar / 725 psi )* (bar / psi)(abs)																										
12	Output units	Metric units Non-metric units																										
13	Additional feature	None Alarm relay output RS-485 serial interface with galvanic isolation LAN (ethernet) interface + 2 m cable (RJ45) Data Logging Module																										
14	Additional feature 2	None Alarm relay output 3rd analog output Choose also analog output parameter and scale for Ch3 Data Logging Module Not possible if the data logger module has already been chosen in item 13																										
15	Interface cable connection	Cable gland (for 8...11 mm cable) (for 0.315...0.433 inch cable) Conduit fitting for wire conduit (NPT1/2") Connector (M12, 8 pin) and plug with 5m black cable Connector (M12, 8 pin) and plug for user's cable																										
16	Transmitter housing installation	Wall mounting Wall mounting with quick installation or on junction boxes Pipe/pole installation Pipe/pole installation with rain shield for outdoor installations DIN-rail installation																										
17	Sensor	DRYCAP® 180M																										
18	Sensor protection	Sintered stainless steel filter Stainless steel filter for vacuum																										
19	Probe installation accessories	Fitting body M22 x 1.5 Fitting body NPT1/2"																										
20	User's guide	None English German pdf user's guides available at: www.vaisala.com/dmt340 French Japanese																										
21	PC accessories	None M170LINK software for Windows® with RS232 service cable M170LINK software for Windows® with USB service cable																										
22	Calibration	Standard calibration with NIST traceable certificate																										
23	Service contract	None																										

Selections in bold are included in the prices of the basic versions.  
Selections in italic are available at an extra price.

TOTAL  
QTY  
TOTAL VALUE

\*Measuring in pressures above 20 bara (290 psia) sets requirements on the operating voltage.  
Please consult Vaisala sales

Example of order code with typical settings:

DMT340 4 | H 0 | B 1 | A 1 | B | E | A | 1 | 0 0 0 1 | A | 1 | A | 2 | B | 2 | A | 0

End customer: \_\_\_\_\_



