

# Vaisala DRYCAP® Dewpoint Transmitters DMT345 and DMT346



Measure humidity in hot and dry processes

# DMT345 and DMT346 Dewpoint Transmitters for High Temperature Applications



*The 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 withstands condensation and is immune to particulate contamination, oil vapor and most chemicals. The DRYCAP® sensor stands out for its swift response time and rapid recovery after getting wet.

## Measure humidity directly in hot processes

The DMT345 and DMT346 are constructed for direct measurement in hot processes. Therefore, there is no need for sampling systems and trace heating. As a result, high accuracy and constancy are maintained. The accuracy and stability of the

DMT345 and the DMT346 are due to the unique auto-calibration function, patented by Vaisala. This auto-calibration makes the transmitter perform a 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 are so minor that it will go unnoticed. This ensures low maintenance and high performance. In normal conditions, it is recommended to have a traceable calibration 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 operates safely in temperatures up to 180 °C. But in environments with temperatures up to 140 °C, the accuracy of the measurement results of the DMT345 are unmatched.

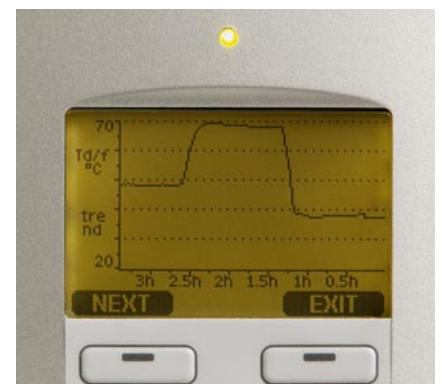
## Features/Benefits

- The DMT345 measures humidity in temperatures up to 180°C (356 °F)
- The DMT346 measures humidity in temperatures up to 350 °C (+662 °F)
- Dewpoint accuracy  $\pm 2$  °C ( $\pm 3.6$  °F)
- Vaisala DRYCAP® Sensor provides accurate, reliable measurement with excellent long-term stability and fast response
- Withstands condensation
- Unique auto-calibration feature
- Optional local display with keypad, mains power supply module and alarm relays
- NIST traceable calibration (certificate included)

The stainless steel probe is especially designed for high temperatures and has an optional installation flange that allows an adjustable installation depth and therefore a precise positioning.

## DMT346, Reliable in very hot processes

When process temperatures go above 140 °C and up to 350 °C, the DMT346 gives the best performance.



*The large and clear display allows the user to check data at a glance.*

The DMT346 comes with a cooling set as a standard feature. The cooling effect may be regulated by adding the cooling fins, or removing them from the set for the best measurement performance.

The cooling system is accomplished without moving parts, additional power or cooling utilities, therefore removing the risk of damaging the transmitter due to cooling failures. Additionally, sensor warming minimizes the risk of condense

on the sensor. In low humidity the combination of auto-calibration and DRYCAP® ensures accurate measurement.

**Versatile options**

The DMT345 and DMT346 transmitters can be ordered with a large numerical and graphical display, which allows the user to clearly monitor operational data, measurement trends and up to 1-year measurement history.

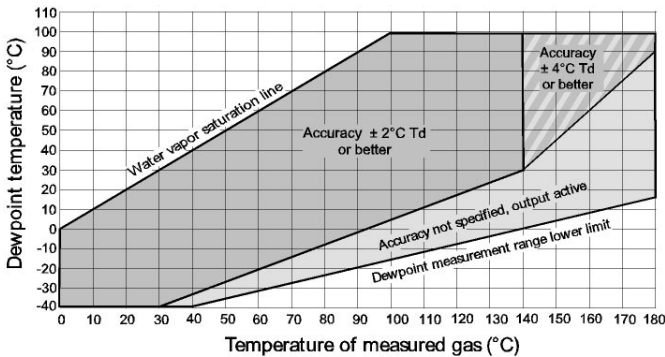
The display/keypad option simplifies operation. Output variables and other settings can be changed with the multilingual menu-based commands.

A wide variety of power supply options is also available. For serial interface the RS232 and RS485 can be used. Additionally an alarm relay option is offered. Units are delivered installation-ready and meet ROHS requirements.

**Technical Data**

**Measured variables DMT345**

**Dewpoint 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



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

**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 Pt 100 IEC 751 1/3 class B

**Relative Humidity DMT345**

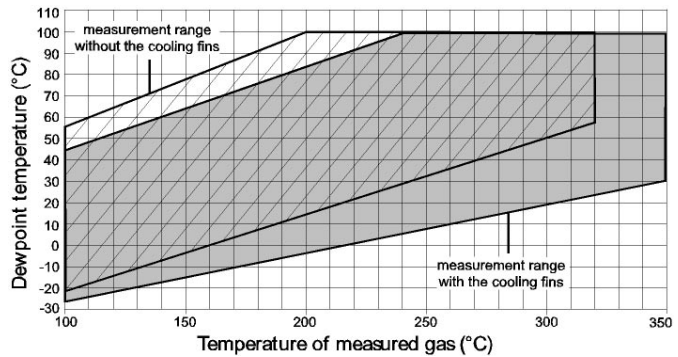
Measurement range 0...100% RH  
 with sensor warming 0...80% RH  
 Accuracy below 10% RH ±10% of reading  
 above 10% RH ±1,5% RH + 1,5% of reading

**Mixing Ratio DMT345**

Measurement range (typical) 0...1000 g/kg (0.7000 gr/lbs)  
 Accuracy (typical) ±12% of reading

**Measured variables DMT346**

**Dewpoint 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

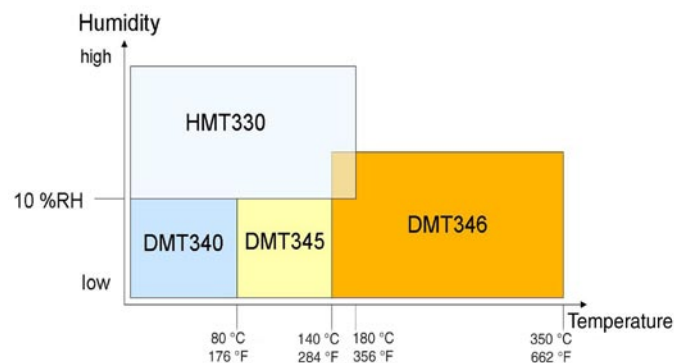


Response time 63% [90%] flow rate 1l/min and 1 bar pressure  
 from dry to wet 5s [10 s]  
 from wet to dry including auto-calibration 45s [5 min]

**Mixing Ratio DMT346**

Measurement range (typical) 0...1000 g/kg (0.7000 gr/lbs)  
 Accuracy (typical) ±12% of reading

**Vaisala products for humidity measurement in hot processes**



# Technical Data for DMT345 and DMT346

## Operating Environment, both models

Mechanical durability of probe heads	Up to +180 °C (+356 °F) for DMT345 Up to +350 °C (+662 °F) for DMT346
for transmitter body with display	-40...+60 °C (-40...+140 °F)
Storage temperature range	0...+60 °C (32...+140 °F) -55...+80 °C (-67...+176 °F)

Pressure range for probes	slight pressure difference (~ 200 mbar)
Measured gases	non corrosive gases
Complies with EMC standard	EN61326-1:1997 + Am1:1998 + Am2:2001 Industrial Environment

## Inputs and outputs, both models

Operating voltage	10...35 VDC, 24 VAC
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 Autocal	about 6 min
Power consumption @ 20 °C (U <sub>in</sub> 24 VDC)	
U <sub>out</sub> 2x0...1V/0...5V/0...10V	max 25 mA
I <sub>out</sub> 2x0...20mA	max 60 mA
RS-232	max 25 mA
display and backlight	+ 20 mA
during sensor purge	+ 110 mA max

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 <sub>L</sub> < 500 ohm
0...1V output	R <sub>L</sub> > 2 kohm
0...5V and 0...10V outputs	R <sub>L</sub> > 10 kohm
Max wire size	0.5 mm <sup>2</sup> (AWG 20) stranded wires recommended

Digital outputs	RS-232, RS-485 (optional)
Relay outputs 2+2 pcs (optional)	0.5 A, 250 VAC, SPDT
Display (optional)	LCD with backlight, graphic trend display
Display menu languages	English, French, Spanish, German, Japanese, Russian, Swedish, Finnish

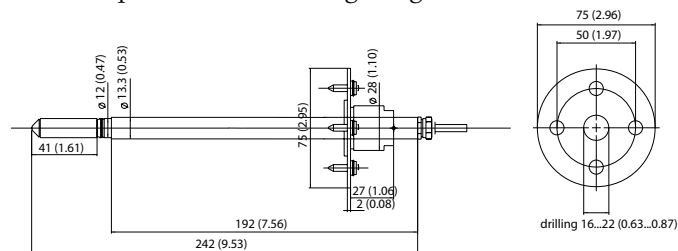
## Mechanics, both models

Cable bushing	M20x1.5 For cable diameter 8...11mm/0.31...0.43"
Conduit fitting (optional)	1/2" NPT
User cable connector (optional) option 1	M12 series 8-pin (male) with plug (female) with 5 m / 16.4 ft black cable
option 2	with plug (female) with screw terminals
Probe cable diameter	5.5 mm
Probe cable length	2 m, 5 m or 10 m
Housing material	G-AlSi 10 Mg (DIN 1725)
Housing classification	IP 65 (NEMA 4X)
Housing weight	1.2 kg

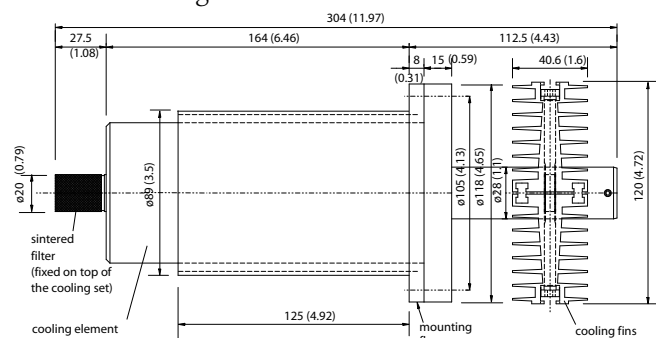
## Dimensions

Dimensions in mm (inches)

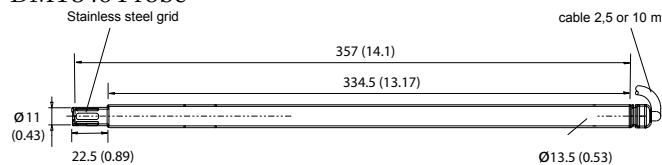
DMT345 probe and mounting flange



DMT346 Cooling set



DMT346 Probe



DMT345 and DMT346 Transmitter housing

