DM70 Hand-Held Dewpoint Meter for Spot-Checking Applications

The Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70 offers accurate and fast measurement for industrial dew point applications, such as compressed air, metal treatment and plastics drying.

The Vaisala DRYCAP® Hand-Held Dewpoint Meter DM70 measures dew point temperature accurately over a wide measurement range. The probe may be inserted directly into pressurized processes, and it responds rapidly from ambient to process conditions. The sensor withstands condensation and fully recovers from getting wet.

Three probe models, all with auto-calibration, are available. The A and B models are both general purpose probes. The C model is specifically developed for SF₆ gas. The B and C probe models have an additional Sensor Purge feature that heats and dries the sensor, making the response from ambient to dry conditions exceptionally fast.

The DM70 is fitted with the Vaisala DRYCAP® Sensor. The sensor provides reliable, stable and high-performance dew point measurement. Autocalibration detects on-line possible measurement inaccuracies and automatically corrects dry-end drift in the calibration curve.

The DM70 has a versatile and easy-to-use, menu-based user interface, a clear graphical LCD display, and data-logging capability. It can also be used as a tool for reading the output of fixed Vaisala dew point transmitters, like the DMT242, DMT132, DMT143, DMT152 and DMT340.

The DM70 displays one to three parameters at a time, either numerically or graphically. Several humidity units can be selected. In addition, the DM70 includes conversion from gas pressure dew point to ambient pressure dew point.

An analog output is also available. The DM70 meter is suitable for direct process dew point measurement in a wide temperature and pressure range. For more demanding applications, the DM70 can be used with the Vaisala sampling cell adapters, or with the Vaisala DRYCAP® Sampling System DSS70A.
Dew point sensor Vaisala DRYCAP®180M

Temperature
-10 ... +60 °C (+14 ... +140 °F)

Accuracy at +20 °C (+68 °F)
±0.2 °C (±0.36 °F)

Typical temperature dependence of electronics
±0.005 °C/°C (±0.005 °F/°F)

Temperature sensor Pt100 RTD Class F0.1 IEC 60751

Other variables available
Dew point converted to atmospheric pressure, ppm volume and ppm weight concentration

All probe models
Operating temperature -10 ... +60 °C (+14 ... +140 °F)

Operating pressure
DMP74A, DMP74B 0 ... 20 bara (0 ... 290 psia)
DMP74C 0 ... 10 bara (0 ... 150 psia)

Sample flow rate no effect for measurement accuracy

Measured gases non-corrosive gases

Probe material (wetted parts) Stainless steel (AISI 316L)
Part no: HM47280

Mechanical connection G1/2” ISO228-1 thread with bonded seal ring (U-seal)

Housing classification IP65 (NEMA 4)

Weight 350 g

MI70 Indicator, General

Menu languages English, Chinese, Spanish, Russian, French, Japanese, German, Swedish, Finnish,

Display LCD with backlight

Graphic trend display of any parameter

Character height up to 16 mm

Max. no of probes 2

Power supply Rechargeable NiMH battery pack with AC-adapter or 4xAA size alkalines, type IEC LR6

Analog output 0...1 VDC

Output resolution 0.6 mV

PC interface MI70 Link software with USB or serial port cable

Data logging capacity 2700 points

Alarm Audible alarm function

Operating temperature range -10...+40 °C (+14...+104 °F)

Storage temperature range -40 ... +70 °C (-40 ... +158 °F)

Operating humidity range 0 ... 100 % RH, non-condensing

Housing classification IP54

Housing materials ABS/PC blend

Weight 400 g

Battery operation time with DMP74 probe continuous use 48 h typical at +20 °C (+68 °F)
data logging use up to a month, depending on logging interval

Electromagnetic compatibility EN 61326-1, Generic Environment

Measured Variables, DMP74A Probe

DEW POINT
Measurement range (typical) -50 ... +60 °C (-58 ... +140 °F)
Accuracy (A probe) -40...+60 °C ±2 °C (±3.6 °F)

(see graph)

Response time
flow rate 0.2 m/s, 1 bar pressure, +20 °C (+68 °F) 63% [90%]
0 -> -40 °C Tj(32 -> -40 °F Tg) 20 s [120 s]
-40 -> 0 °C Tj(-32 -> 32 °F Tg) 10 s [20 s]

Dew point sensor: Vaisala DRYCAP®180S

Temperature
Measurement range -10 ... +60 °C (+14 ... +140 °F)
Accuracy at +20 °C (+68 °F) ±0.2 °C (±0.36 °F)

Typical temperature dependence of electronics ±0.005 °C/°C (±0.005 °F/°F)

Temperature sensor Pt100 RTD Class F0.1 IEC 60751

Other variables available
Dew point converted to atmospheric pressure, ppm volume and ppm weight concentration, absolute humidity, mixing ratio, relative humidity

Measured Variables, DMP74B and DMP74C (for SF6 gas) Probes

DEW POINT
Measurement range (typical) -70 ... +30 °C (-94 ... +86 °F)
Accuracy (B and C probe) -60...+20 °C ±2 °C (±3.6 °F)

(see graph)

Dotted line:
For DMP74C the ±2 °C accuracy range is limited to -50 °C Tj when used in SF6 gas.

Response time
flow rate 0.2 m/s, 1 bar pressure, +20 °C (+68 °F) 63% [90%]
0 -> -60 °C Tj(32 -> -76 °F Tg) 50 s [340 s]
-60 -> 0 °C Tj(-76 -> 32 °F Tg) 10 s [20 s]

Dew point sensor Vaisala DRYCAP®180M

Temperature
-10 ... +60 °C (+14 ... +140 °F)

Accuracy at +20 °C (+68 °F)
±0.2 °C (±0.36 °F)

Typical temperature dependence of electronics ±0.005 °C/°C (±0.005 °F/°F)

Temperature sensor Pt100 RTD Class F0.1 IEC 60751

Other variables available
Dew point converted to atmospheric pressure, ppm volume and ppm weight concentration, absolute humidity, mixing ratio, relative humidity

MI70 Indicator, General

Menu languages English, Chinese, Spanish, Russian, French, Japanese, German, Swedish, Finnish,

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Graphic trend display of any parameter

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Output resolution 0.6 mV

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Alarm Audible alarm function

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Storage temperature range -40 ... +70 °C (-40 ... +158 °F)

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Housing classification IP54

Housing materials ABS/PC blend

Weight 400 g

Battery operation time with DMP74 probe continuous use 48 h typical at +20 °C (+68 °F)
data logging use up to a month, depending on logging interval

Electromagnetic compatibility EN 61326-1, Generic Environment
Technical Data

Accessories
Connection cables for fixed Vaisala dew point transmitters
- for DMT242 transmitter 27160ZZ
- for DMT340 series 211339
- for DMT152, DMT143, and DMT132 transmitters 219980
- for DMT142 transmitter 211917ZZ
M170 Link software with USB cable 219687
M170 Link software with serial port cable MI70LINK
Analog output cable 27168ZZ
10 m (32.81 ft) extension cable for probe 213107SP
Portable Sampling System DSS70A
(see separate data sheet)

Dimensions
Dimensions in mm (inches)

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Width</th>
<th>Height</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 12 (0.47)</td>
<td>52 (2.04)</td>
<td>32 (1.26)</td>
<td>10.5 (0.41)</td>
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<tr>
<td>G 1/2</td>
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<tr>
<td>96 (3.78)</td>
<td>140 (5.51)</td>
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<tr>
<td>38 (1.50)</td>
<td>300 (11.81)</td>
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<tr>
<td>Cable length 1850 (72.83)</td>
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