



# HM70 Handheld Humidity and Temperature Meter

For Spot-Checking and Field Calibration



## Features

- Designed for spot-checking and field calibration
- Multilingual user interface
- Shows measurement trends graphically
- Proven Vaisala HUMICAP® sensor technology
- 3 probe alternatives, temperature measurement ranges between -70 and +180 °C (-94 and +356 °F)
- 2 probes: also dew point and CO<sub>2</sub> probes can be connected simultaneously
- Displays various humidity parameters
- Sensor preheat and chemical purge options for demanding conditions
- Data can be logged and transferred to a PC via MI70 Link software
- 6-point traceable calibration (certificate included)

Vaisala HUMICAP® Handheld Humidity and Temperature Meter HM70 is designed for demanding humidity measurements in spot-checking applications. It is also ideal as an on-site calibrator for Vaisala's fixed humidity instruments.

### Vaisala HUMICAP® Technology

HM70 incorporates the world-class HUMICAP® sensor, one of the most reliable and stable sensors on the market. The HUMICAP® sensor copes well with chemical interference and provides accuracy that lasts in demanding conditions.

### Chemical Purge

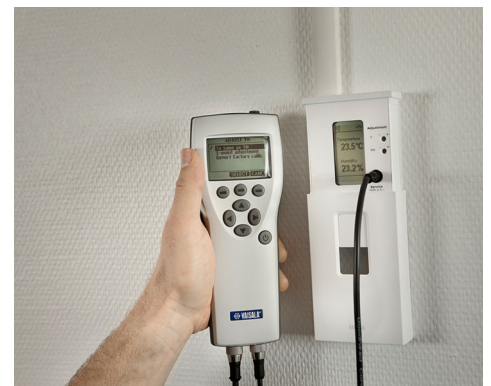
The chemical purge option maintains measurement accuracy in environments with high concentrations of chemicals. The sensor preheat option reduces measurement delays as it keeps the sensor dry when the probe is inserted into hot and humid processes.

### Three Probes to Choose From

HMP75 is a general purpose probe, whereas HMP76 is a long, stainless steel probe especially suitable for spot-checking in ducts. HMP77 is a small probe at the end of a 5-meter cable. The probe is ideal for difficult-to-reach areas and for on-site calibration of Vaisala's process transmitters. In addition, HM70 supports the use of Vaisala's dew point, carbon dioxide, and moisture in oil probes, allowing measurements in several multiparameter applications.

### MI70 Link

The optional MI70 Link Windows® software and the USB connection cable form a practical tool for transferring logged data from HM70 to a PC.



On-site calibration with HM70 Handheld Meter

# Technical Data

## Measurement Performance, HMP75, HMP76, and HMP77 Probes

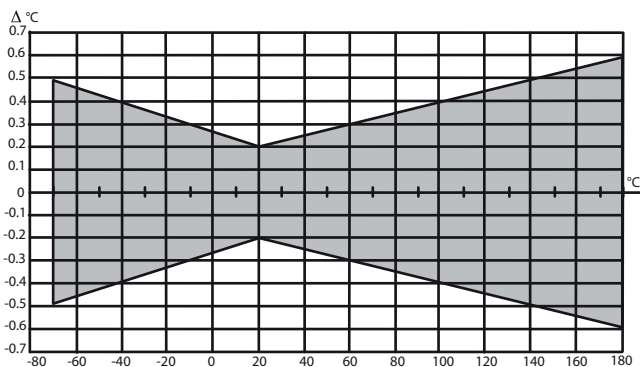
### Relative Humidity

Measurement range	0 ... 100 %RH
Accuracy including non-linearity, hysteresis and repeatability. Defined as $\pm 2$ standard deviation limits:	
At +15 ... +25 °C (+59 ... +77 °F)	$\pm 1$ %RH (0 ... 90 %RH) $\pm 1.7$ %RH (90 ... 100 %RH)
At -20 ... +40 °C (-4 ... +104 °F)	$\pm(1.0 + 0.008 \times \text{reading})$ %RH
At -40 ... +180 °C (-40 ... +356 °F)	$\pm(1.5 + 0.015 \times \text{reading})$ %RH
Factory calibration uncertainty (+20 °C / +68 °F)	$\pm 0.6$ %RH (0 ... 40 %RH) $\pm 1.0$ %RH (40 ... 97 %RH)
Response time (90%) at +20 °C (+68 °F) in still air:	
HMP75 (with standard plastic grid)	17 s
HMP76 (with standard sintered bronze filter)	60 s
HMP77 (with standard plastic grid and stainless steel netting)	50 s
Typical long-term stability	Better than 1 %RH / year

### Temperature

HMP75 measurement range	-20 ... +60 °C (-4 ... +140 °F)
HMP76 measurement range	-50 ... +120 °C (-58 ... +248 °F)
HMP76 short time measurement range	-50 ... +180 °C (-58 ... +356 °F)
HMP77 measurement range	-70 ... +180 °C (-94 ... +356 °F)
Accuracy at +20 °C (+68 °F)	$\pm 0.2$ °C ( $\pm 0.36$ °F)

Accuracy over temperature range:



### Other Parameters Available

dew point, frost point, absolute humidity, mixing ratio, wet bulb temperature, water content, vapor pressure, saturation vapor pressure, enthalpy, water activity

## General, HMP75, HMP76, and HMP77 Probes

Humidity sensor	HUMICAP® 180R HUMICAP® 180RC (chemical purge, sensor preheat)
Temperature sensor	Pt100 RTD Class F0.1 IEC 60751
Operating temperature range for electronics	-40 ... +60 °C (-40 ... +140 °F)
<b>Standard Sensor Protection</b>	
HMP75	Plastic grid
HMP76	Sintered bronze filter
HMP77	Grid with SS netting

## Mechanical Specifications, HMP75, HMP76, and HMP77 Probes

IP rating	IP65 (NEMA 4)
Housing material	ABS/PC blend
Probe material	Stainless steel (AISI316L)
Probe cable length (between indicator and probe handle)	1.9 m (6.2 ft)
Probe cable length of HMP77 (from handle to the root of probe)	5.0 m (16 ft)
Probe diameter	12 mm (0.47 in)
<b>Weight</b>	
HMP75	250 g (8.8 oz)
HMP76	350 g (12 oz)
HMP77	500 g (18 oz)

## MI70 Measurement Indicator

### Operating Environment

Operating temperature	-10 ... +40 °C (+14 ... +104 °F)
Operating humidity	0 ... 100 %RH, non-condensing
Storage temperature	-40 ... +70 °C (-40 ... +158 °F)

### Inputs and Outputs

Max. no of probes	2
Power supply	Rechargeable NiMH battery pack with AC adapter or 4xAA size alkalines, type IEC LR6

PC interface	MI70 Link software with USB or serial port cable
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Analog Output	
Scale	0 ... 1 VDC
Output resolution	0.6 mV
Accuracy	0.2 % full scale
Temperature dependence	0.002 %/°C (0.01 %/°F) full scale
Minimum load resistor	10 kΩ to ground

### Mechanical Specifications

Housing classification	IP54
Housing materials	ABS/PC blend
Weight	400 g (14 oz)

### Compatibility

EMC compliance	EN61326-1, Portable Equipment
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### Other

Menu languages	English, Chinese, Spanish, Russian, French, Japanese, German, Swedish, Finnish
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Display	<ul style="list-style-type: none"> <li>LCD with backlight</li> <li>Graphic trend display of any parameter</li> <li>Character height up to 16 mm (0.63 in)</li> </ul>
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Alarm	Audible alarm function
Data logging capacity	2700 real time data points
Logging interval	1 s to 12 h
Logging duration	1 min ... memory full
Resolution	0.01 %RH, 0.01 °C/°F, 0.01 hPa, 0.01 a <sub>w</sub> , 10 ppm / 0.01 %CO <sub>2</sub>

## Battery Operation Time

Typical charging time 4 hours

### Operation Times

Continuous use	48 h typical at +20 °C (68 °F)
Data logging use	Up to a month

## Spare Parts and Accessories

### Carrying Cases

Weatherproof carrying case for MI70 and HMP75/77 probe	MI70CASE3
Weatherproof carrying case for MI70 and HMP76 probe	MI70CASE4

Soft carrying case for MI70 and HMP75/77 probe	MI70SOFTCASE
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### Transmitter Connection Cables

HMT330 & HMT120/130	211339
HMT310	DRW216050SP
HMW90 Series, HMDW110 Series, HMP110 Series & GMW90 Series	219980SP
1-m (3.3-ft) flat extension cable for 219980SP	CBL210649SP
HMD60/70 Series	HMA6070

### Software

MI70 Link software with USB cable	219687
MI70 Link software with serial port cable	MI70LINK

### Cables

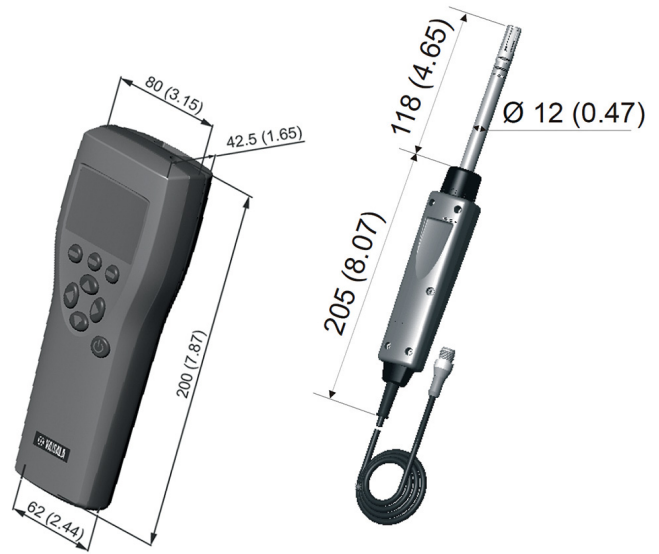
Analog output cable	27168ZZ
10-m (32.81-ft) extension cable for probe	213107SP

### Sensor Protection HMP75

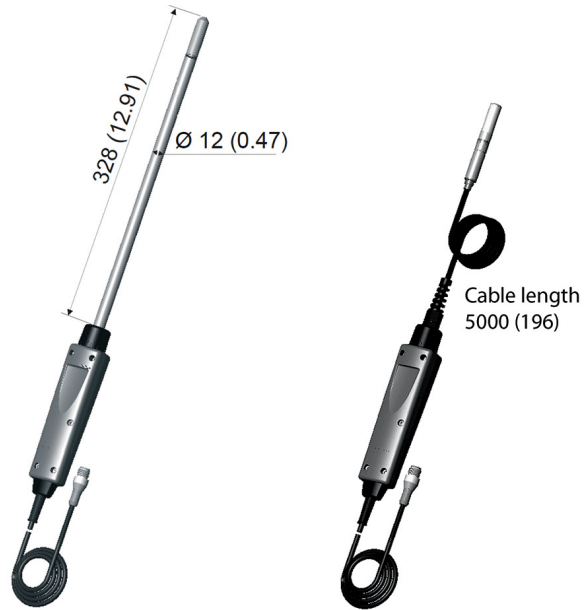
Plastic PC grid (HMP75 standard)	6221
Membrane filter	10159HM
Sintered bronze filter	DRW212987SP

### Sensor Protection HMP76/77

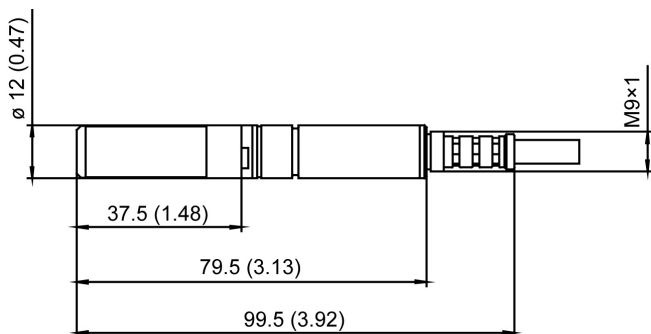
Plastic PPS grid	DRW010276SP
Sintered stainless steel filter	HM47280SP
Sintered bronze filter (HMP76 standard)	DRW212987SP
PPS grid with SS netting (HMP77 standard)	DRW010281SP



MI70 indicator and HMP75 probe dimensions in mm (inches)



HMP76 and HMP77 probe with cable, dimensions in mm (inches)



HMP77 probe dimensions in mm (inches)



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