

# HM70

Hand-Held Humidity and Temperature Meter



Rugged and Reliable - Even in Extreme Conditions



# HM70 Hand-Held Humidity and Temperature Meter for Spot-Checking Applications



*The HM70 is a high-performance portable humidity reference that is exciting to use.*

The HM70 Hand-held Humidity and Temperature Meter is a user-friendly meter for demanding spot-checking humidity measurements. The HM70 is ideal for field checking and calibration of Vaisala's fixed humidity instruments such as the HMP230 Series Transmitters.

## Three probes for a variety of applications

The HMP75 is a general-purpose probe for humidity measurements between -20 and +60 °C.

The HMP76 is a long, stainless steel probe for humidity measurements between -50 and +120 °C. It is especially suitable for spot-checking in ducts.

The HMP77 probe has a small sensor head 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. The measurement range is for temperatures up to +180 °C.

One or two probes at a time can be connected. The HM70 also supports the use of Vaisala's dewpoint and carbon dioxide probes, allowing measurements

in multiparameter applications such as greenhouse monitoring and health inspection.

## Easy-to-use user interface and three-variable display

The HM70 features a multilingual, menu-based user interface, and a clear graphical LCD display.

As many as three measurement parameters can be displayed and logged into the meter's memory at the same time. An analog output option is also available.

## HUMICAP® performance

The HM70 incorporates Vaisala's advanced HUMICAP® Sensor which provides reliable and high performance humidity measurement with excellent long-term stability.

## Options for demanding applications

The chemical purge option maintains measurement accuracy in environments with high concentrations of chemicals. The sensor preheat option reduces measurement delays by keeping the

## Features/Benefits

- Accurate, traceable and stable reference
- Multilingual user interface
- Shows measurement trends graphically
- Proven HUMICAP® Sensor technology
- 3 probes, temperature measurement ranges between -70 and +180 °C
- Multiprobe operation; dewpoint and CO<sub>2</sub> probes can also be connected
- 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
- Rugged and reliable - even in extreme conditions
- The probe is easy to send to Vaisala for a traceable recalibration

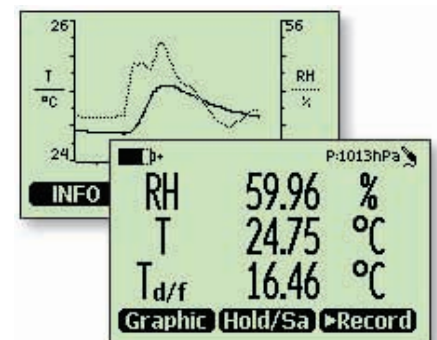
sensor dry when the probe is inserted into hot and humid processes.

## Calibration

The meter is calibrated at the factory against traceable standards, and delivered with a calibration certificate. The HM70 probes can also be sent to a Vaisala Service Center for a traceable recalibration.

## MI70 Link

The optional MI70 Link Windows® software is a practical tool for transferring logged data and real time measurement data from the HM70 to a PC.



*The graphic display shows the stabilization of measurements and process trends.*

# Technical Data

## HMP75, HMP76 and HMP77 Humidity and Temperature Measurement Probes

### Measured variables

#### Relative humidity

Measurement range	0...100 %RH
Accuracy, over temperature range (including nonlinearity, hysteresis and repeatability)	-40...+180 °C
Maximum achievable accuracy when calibrated against high quality, certified humidity standards:	
0..90 %RH	±1 %RH
90...100 %RH	±2 %RH
When calibrated against salt solutions (ASTM E104-85)	
0..90 %RH	±2 %RH
90...100 %RH	±3 %RH

Response time (90%) at +20 °C still air	
HMP75 (with standard Plastic grid)	8 s
HMP76 (with standard Sintered bronze filter)	40 s
HMP77 (with standard Plastic grid with stainless steel netting)	20 s
Sensor	HUMICAP®180
Typical long-term stability	better than 1 %RH / year

#### Temperature

Measurement range	
HMP75	-20...+60 °C
HMP76	-50...+120 °C
short time	-50...+180 °C
HMP77	-70...+180 °C
Accuracy at +20 °C	±0.2 °C
Temperature sensor	Pt100 IEC751 1/3 class B

### Calculated variables (typical ranges)

Dewpoint temperature	-40...+100 °C
Mixing ratio	0...600 g/kg dry air
Absolute humidity	0...600 g/m <sup>3</sup>
Wet bulb temperature	0...100 °C
Enthalpy	0...160 kJ/g
Water vapor pressure	0...1000 hPa

### Probe general

Operating temperature range for electronics	-40...+60 °C
Housing classification	IP65 (NEMA 4)
Housing material	ABS/PC blend
Probe material	Stainless steel (AISI316L)
Cable length between probe and indicator	1.9 m
Weight	
HMP75	250 g
HMP76	350 g
HMP77	500 g

## MI70 Measurement Indicator

### Indicator general

Menu languages	English, French, Spanish, German, Swedish, Finnish
Display	LCD with backlight, graphic trend display of any parameter, character height up to 16 mm
Probe inputs	1 or 2
Power supply	Rechargeable NiMH battery pack with AC-POWER or 4xAA-size alkalines, type IEC LR6
Analog output	0...1 VDC
Output resolution	0.6 mV
Data interface	RS-232

Data logging capacity	2700 points
Alarm	audible alarm function
Operating temperature range	-10...+40 °C
Operating humidity range	non-condensing
Housing classification	IP54
Weight	400 g

### Battery operation time

Continuous use	48 h typical at +20 °C
Data logging use	up to 30 days

## MI70 Indicator + Probe = HM70 Hand-held Humidity and Temperature Meter

### Accessories

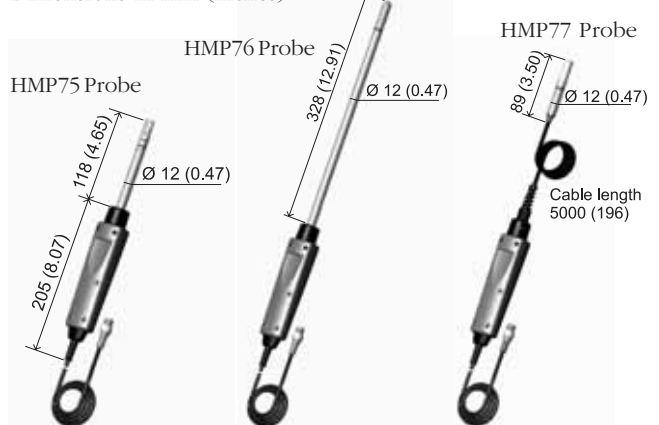
Carrying cases	
for MI70 and HMP75/77 probe	MI70CASE
for MI70 and HMP75/76 probe	MI70CASE2
Transmitter connection cables for	
HMP230 Series	27159ZZ
HMT300 Series	211339
HM60/70/140 Series	HMA6070
HM20/30/130 Series	HMA2030
Analog output cable	27168ZZ
Windows® software, includes PC connection cable	MI70LINK
Sensor protection	
HMP75	
Plastic PC grid (HMP75 standard)	6221
Membrane filter	10159HM
Sintered bronze filter	DRW212987SP
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

### Electromagnetic compatibility

Complies with EMC standard EN61326-1:1997 + Am1:1998, Industrial Environment.

### Dimensions

Dimensions in mm (inches)



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# Order Form

		HM70						
<b>Indicator type</b>	no indicator *	A						
	rechargeable with Euro AC-adapter	B						
	rechargeable with UK AC-adapter	C						
	rechargeable with US AC-adapter	D						
	rechargeable with AUS AC-adapter	E						
	alkaline batteries only	K						
<b>Indicator accessories</b>	no indicator accessories	0						
	MI70 Link (software with RS-232 cable)	1						
	analog output-signal cable	2						
	MI70 Link and analog output-signal cable	3						
<b>Probe type</b>	HMP75	A						
	HMP76	B						
	HMP76B (chemical purge and sensor preheat)	C						
	HMP77	D						
	HMP77B (chemical purge and sensor preheat)	E						
<b>Calibration</b>	at room temperature		1					
<b>Probe accessories</b>	no accessories					A		
	probe holder for HMP76/76B **					B		
<b>Connection cable to a transmitter</b>	no connection cable						0	
	connection cable to 60/70/140 series transmitters						1	
	connection cable to HMP230 series / HMP228						2	
	connection cable to 20/30/130 series transmitters						3	
	connection cable to HMT300 series						4	
<b>Carrying case</b>	no carrying case							A
	carrying case for indicator and probe (HMP75/77/77B)							B
	carrying case for indicator and probe (HMP75/76/76B) ***							C
<b>Manual language</b>	No manual							A
	English							B

\* select item A, if only probe is ordered

\*\* used in field calibration of duct 60/70 and 20/30 transmitters

\*\*\* case for two probes

Example of order code with typical settings:

HM70	B	1	A	1	A	0	B	B
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## MI70 Indicator - multiple probe options

The MI70 Indicator is a generic indicator that can be used with Vaisala's interchangeable humidity, dewpoint and carbon dioxide probes. Two different probes can be used simultaneously.

Please ask for further information about other probe options for the MI70 Indicator from your local Vaisala dealer.

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Please look for other locations at [www.vaisala.com](http://www.vaisala.com).

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