

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



*The Vaisala HUMICAP® Hand-Held Humidity and Temperature Meter HM70 is a high-performance, portable humidity reference that is exciting to use.*

The Vaisala HUMICAP® Hand-Held Humidity and Temperature Meter HM70 is a user-friendly meter for demanding spot-checking humidity measurements. It is ideal for field checking and calibration of Vaisala's fixed humidity instruments.

## Three probes to choose from

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 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. The measurement range is for temperatures up to +180 °C.

One or two probes can be connected simultaneously. In addition, the HM70 supports the use of Vaisala's dewpoint, carbon dioxide and moisture in oil probes, allowing measurements in multiparameter applications.

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

The HM70 features a multilingual, menu-based user interface, and a clear graphical LCD display. Overall three measurement parameters can be displayed and logged into the meter's memory at the same time. An analog output option is also available.

## Proven HUMICAP® technology

The HM70 incorporates the latest generation of the Vaisala HUMICAP® Sensor. Its proven reliable and high performance humidity measurement ability is combined with better than ever long-term stability. Additionally, a very chemical durable sensor is available to provide accuracy that lasts in demanding conditions.

## Stable performance in 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 sensor dry when the probe is inserted

## Features/Benefits

- Multilingual user interface
- Shows measurement trends graphically
- Proven Vaisala 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
- NIST traceable (certificate included)

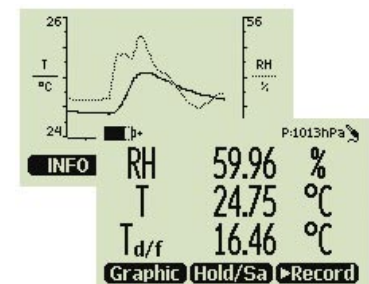
into hot and humid processes.

## Calibration

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

## MI70 Link

The optional MI70 Link Windows® software and the USB connection cable form 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 probes

### Measured variables

#### Relative humidity

Measurement range

0 ... 100 %RH

Accuracy (including nonlinearity, hysteresis and repeatability)

at +15 ... +25 °C (+59 ... +77 °F) ±1 %RH (0 ... 90 %RH)

±1.7 %RH (90 ... 100 %RH)

at -20 ... +40 °C (-4 ... +104 °F) ±(1.0 + 0.008 x reading) %RH

at -40 ... +180 °C (-40 ... +356 °F) ±(1.5 + 0.015 x reading) %RH

Factory calibration uncertainty (+20 °C / +68 °F)

±0.6 %RH (0 ... 40 %RH)

±1.0 %RH (40 ... 97 %RH)

(Defined as ±2 standard deviation limits.)

Response time (90%) at +20 °C (+68 °F) 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

Sensor HUMICAP® 180R

HUMICAP® 180RC (chemical purge, sensor preheat)

Typical long-term stability better than 1 %RH / year

#### Temperature

Measurement range

HMP75 -20 ... +60 °C (-4 ... +140 °F)

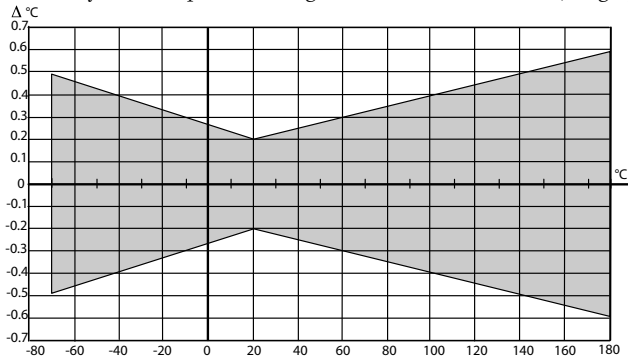
HMP76 -50 ... +120 °C (-58 ... +248 °F)

short time -50 ... +180 °C (-58 ... +356 °F)

HMP77 -70 ... +180 °C (-94 ... +356 °F)

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

Accuracy over temperature range (see graph)



Temperature sensor Pt100 IEC751 1/3 class B

### Calculated variables (typical ranges)

Dewpoint temperature -20 ... +100 °C (-4 ... +212 °F)

Mixing ratio 0 ... 600 g/kg dry air

Absolute humidity 0 ... 600 g/m<sup>3</sup>

Wet bulb temperature 0 ... 100 °C (+32 ... +212 °F)

Enthalpy 0 ... 160 kJ/g

Water vapor pressure 0 ... 1000 hPa

The accuracies of these calculated variables are limited by the accuracies of the measured variables on which they are based, namely RH and T. The RH and T accuracies are stated above under Measured Variables.

### Probe general

Operating temperature range for electronics -40 ... +60 °C

(-40 ... +140 °F)

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, Chinese, French, Spanish,

German, Russian, Japanese, 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 (accessible only with MI70 Link software)

Data logging capacity 2700 points

Alarm audible alarm function

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

Operating humidity range non-condensing

Housing classification IP54

Weight 400 g

Battery operation time

Continuous use 48 h typical at +20 °C (+68 °F)

Datalogging use up to 30 days

Electromagnetic compatibility Complies with EMC standard

EN61326-1, Portable Equipment

### MI70 indicator + probe = HM70

#### Accessories

Carrying cases

for MI70 and HMP75/77 probe MI70CASE

for MI70 and HMP75/76 probe MI70CASE2

Transmitter connection cables for

HMP230 Series 27159ZZ

HMT330 & HMT100 Series 211339

HM60/70/140 Series HMA6070

HM20/30/130 Series HMA2030

USB cable for Mi70 219687

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

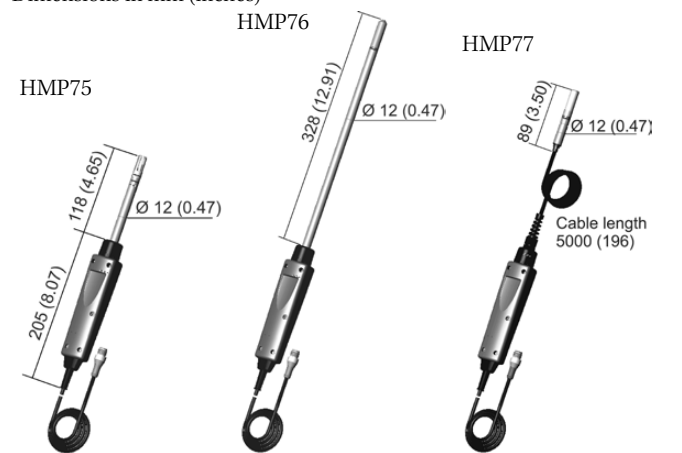
Sintered stainless steel filter HM47280SP

Sintered bronze filter (HMP76 standard) DRW212987SP

PPS grid with SS netting (HMP77 standard) DRW010281SP

### Dimensions

Dimensions in mm (inches)



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