



# HMT140 Wi-Fi Data Logger

For Multiple Environmental Parameters



Vaisala HMT140 wireless data logger is designed for humidity, temperature, and analog signal monitoring in warehouses, freezer and cryogenic farms, laboratories, blood banks, and many other applications.

## Performance

HMT140 incorporates Vaisala HUMICAP® technology to measure relative humidity and temperature accurately and reliably. The HUMICAP® sensor is resistant to dust and most chemicals. Alternatively, HMT140 can connect to Resistance Temperature Detectors (RTDs) or Voltage, Current, and Door Contact sensors, making HMT140 an extremely versatile Wi-Fi data logger. Combining RTD and contact inputs, HMT140 is ideal for monitoring chamber / door contact excursions.

Using Wi-Fi connectivity, HMT140 can connect through any wireless access point. The battery-powered logger can operate for 18 months continuously. Optional local display allows HMT140 to indicate process parameter values and any limit warnings. The LCD display is operated using a power-saving infrared sensor that is motion-activated. When activated, the display indicates the current measurements. All data is logged locally and uploaded to the Vaisala viewLinc monitoring system software at preset intervals and during any parameter excursions.

Autonomous operation with audible and visual alarming (beep and flashing LED) ensures that local alerts are indicated independent of active network or server connection.

The data logger's enclosure is optimized for use in cleanrooms with a surface that is easy to clean and tolerates purifying agents.

## Interchangeable Probe

HMT140 data logger uses an easily replaceable relative humidity and temperature probe. This allows for quick recalibration of the data logger. The probe can be adjusted using one of Vaisala's portable meters as a reference.

## Available Options

HMT140 data logger is available as wall mounted or with remote probes. For extreme temperature applications or where space is limited, the remote probe is ideal.

## Features

- Wi-Fi connectivity to Vaisala viewLinc environmental monitoring system software
- Connectivity provided through existing Wi-Fi Access Points
- Autonomous operation and local alarms ensure alerting capability regardless of network connectivity
- Local data storage provides continuous fail-safe operation
- 18-month battery operation
- Vaisala HUMICAP® technology with humidity sensor HUMICAP® 180R
- Interchangeable relative humidity and temperature probe for easy field calibration
- Accurate and reliable multi-signal measurements
- Resistant to dust and most chemicals
- Traceable to SI units through national metrology institutes <sup>1)</sup>
- Ideal for cleanrooms and other life science applications

## Options

- Two inputs available: voltage, current, door contact, RTDs, or relative humidity and temperature
- Optional LCD display
- Wall-mounted or with remote probes

<sup>1)</sup> Measurement results are traceable to the international system of units (SI) through national metrology institutes (NIST USA, MIKES Finland, or equivalent) or ISO/IEC 17025 accredited calibration laboratories.

# Technical Data

## HUMICAP® Humidity and Temperature Probe HMP110

### Relative Humidity

Measurement range	0 ... 100 %RH
Accuracy (incl. Non-Linearity, Hysteresis, and Repeatability):	
At temperature range 0 ... +40 °C (+32 ... +104 °F):	
0 ... 90 %RH	±1.5 %RH
90 ... 100 %RH	±2.5 %RH
At temperature range -40 ... 0 °C, +40 ... +80 °C (-40 ... +32 °F, +104 ... +176 °F):	
0 ... 90 %RH	±3.0 %RH
90 ... 100 %RH	±4.0 %RH
Factory calibration uncertainty at +20 °C (+68 °F)	±1.5 %RH
Humidity sensor	Vaisala HUMICAP® 180R
Stability	±2 %RH over 2 years

### Temperature

Measurement range	-40 ... +80 °C (-40 ... +176 °F)
Accuracy over Temperature Range:	
+15 ... +25 °C (+59 ... +77 °F)	±0.2 °C (±0.36 °F)
0 ... +15 °C, +25 ... +40 °C (+32 ... 59 °F, +77 ... +104 °F)	±0.25 °C (±0.45 °F)
-40 ... 0 °C, +40 ... +80 °C (-40 ... +32 °F, +104 ... +176 °F)	±0.4 °C (±0.72 °F)
Temperature sensor	Pt1000 RTD 1/3 Class B IEC 751
HMP110 probe	-40 ... +80 °C (-40 ... +176 °F)
Storage temperature	-50 ... +70 °C (-58 ... +158 °F)

## Temperature Probes

### Resistive Temperature Input Signals

Temperature sensor	Pt100 RTD / 4 wire, Class A IEC 751
Input impedance	5.1K Ω
Measurement range	-196 ... +90 °C (-320.8 ... +194 °F)
Accuracy over Temperature Range:	
-196 ... -90 °C (-320.8 ... -130 °F)	±2.5 °C (±4.5 °F)
-90 ... -30 °C (-130 ... -22 °F)	±0.75 °C (±1.35 °F)
-30 ... 0 °C (-22 ... +32 °F)	±0.5 °C (±0.9 °F)
0 ... +50 °C (+32 ... +122 °F)	±0.25 °C (±0.45 °F)
+50 ... +90 °C (+122 ... +194 °F)	±0.75 °C (±1.35 °F)

## Analog Inputs

### Current Input Signals

Resolution	0 ... 22 mA
Resolution	0.67 μA
Accuracy	±0.15 % F.S. at +25 °C (+77 °F)
Input impedance	62 Ω
Overload protection	40 mA
<b>Voltage Input Signals</b>	0 ... 5 V, 0 ... 10 V
Resolution	0.0034 % F.S.
Accuracy	±0.15 % F.S. at +25 °C (+77 °F)
Input impedance	37K Ω
Overload protection	50 V max.
Isolation	One common per logger

### Contact Inputs

Open/Closed with magnetic reed switch cable connections (Dry Contact)

## Measurement Variants

HMT141	1 Temperature and 1 Humidity Channel
HMT143	2 RTD Temperature Channels
HMT144	2 Voltage Inputs (0 ... 5 VDC)
HMT145	2 Voltage Inputs (0 ... 10 VDC)
HMT146	2 Current Inputs (0 ... 20 mA)
HMT147	2 Door Contacts
HMT148	1 RTD Temperature and 1 Door Contact
HMT14D	1 RTD Temperature and 1 Current Input (0 ... 20 mA)
HMT14E	1 RTD Temperature and 1 Voltage Input (0 ... 5 VDC)
HMT14F	1 RTD Temperature and 1 Voltage Input (0 ... 10 VDC)

## Operating Environment

### Operating Temperature

Data logger body, no display	-40 ... +60 °C (-40 ... +140 °F)
Data logger body, with display	-20 ... +60 °C (-4 ... +140 °F)
IP rating	IP65
Maximum operating altitude	2000 m (6 500 ft)

## General Specifications

Memory	3,060 samples
Sample rate	User selectable (interval: 2 ... 60 minutes)
Display (optional)	128 x 64 resolution full graphics B&W display without backlight

## Mechanical Specifications

Weight (with battery/without probe)	300 g (10.6 oz)
Screw terminals	26 AWG ... 20 AWG
HMP110 probe interface	4-pin M8 female panel connector
HMP110 probe cable lengths	3 m, 5 m, and 10 m (9.8 ft, 16.4 ft, and 32.8 ft)
Hermetic Door Switch Sensor cable length	7.6 m (24.9 ft)

### Material

Data logger housing	PBT plastic
Display window	PC plastic
HMP110 probe body	Stainless steel (AISI 316)
HMP110 probe grid filter	Chrome coated ABS plastic

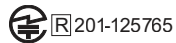
### RTD Temperature Sensor

Sensor tip material	Stainless steel (AISI 316)
Sensor tip length	50.8 mm (2 in)
Sensor tip diameter	4.76 mm (0.19 in)
Cable length	5 m (16.4 ft)

## Wireless

Networking standards	IEEE 802.11b/g
Data rates	802.11b: up to 11 Mbps 802.11g: up to 54 Mbps
Frequency band	2402 - 2480 MHz
Wi-Fi Security	WEP (128-bit), WPA, WPA2 (Personal)
Output power	+18 dBm (63 mW)
Receiver Sensitivity	-85 dBm typical
Antenna	Onboard whip
Contains	FCC ID: U30-G2M5477 IC ID: 8169A-G2M5477 NCC ID: CCAF11LP0240T6

当該機器には電波法に基づく、技術基準適合証明等を受けた特定無線設備を装着している。



## Standards

Electromagnetic compatibility	EN 61326-1B, EN 301 489-1, <sup>1)</sup> EN 300 328 V2.1.1
Safety	EN 61010-1

<sup>1)</sup> EN 61326-1B and EN 301 489-1 apply only to the EU specific versions of HMT140 loggers with CE marking.

## Spare Parts and Accessories

### HMP110

Humidity and temperature probe	HMP110 <sup>1)</sup>
Humidity and temperature replacement probe	HMP110R <sup>1)</sup>
Humidity sensor	HUMICAP® 180R
Probe mounting flange	226061
Probe mounting clamps, 10 pcs	226067
Probe cable 3 m (9.8 ft)	HMT120Z300
Probe cable 5 m (16.4 ft)	HMT120Z500
Probe cable 10 m (32.8 ft)	HMT120Z1000
Duct installation kit	215619

### Sensor Protection

Plastic grid filter	DRW010522SP
Plastic grid with membrane filter	DRW010525SP
Stainless steel sintered filter	HM46670SP

### Other Accessories

RTD Temperature Probe 5 m (16.4 ft)	ASM210644SP
Hermetic Door Switch Sensor Kit	236319SP
Thermal Dampener Blocks	236310SP
Four Dual Lock™ Strips (76 mm/3 in)	237217SP

<sup>1)</sup> See separate order form.

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