

Vaisala Wi-Fi Data Logger HMT140 for Multiple Environmental Parameters



The HMT140 with and without a display.

Features/Benefits

- Wi-Fi connectivity to Vaisala's Continuous Monitoring system
- 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 temperature/RH probe for easy field calibration
- Two inputs available: voltage, current, contact, RTDs or temperature & RH
- Accurate and reliable multi-signal measurements
- Resistant to dust and most chemicals
- Optional LCD display
- Wall-mounted or with remote probes
- NIST-traceable (certificate included)
- Ideal for cleanrooms and other life science applications

The 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 life science applications.

Performance

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

Using Wi-Fi connectivity, the HMT140 can connect through any wireless access point. The battery powered logger can operate for 18 months continuously, or longer if using the batteries only as backup to an optional external power source.

Optional local display allows the HMT140 to indicate process parameter values and any limit warnings. All data is logged locally and uploaded to the

Vaisala Continuous Monitoring System (CMS) software at preset intervals and during 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

The HMT140 data logger uses a fully interchangeable relative humidity 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

The HMT140 data logger is available as wall mounted or with remote probes. For high temperature applications or where space is limited, the remote probe is ideal. The optional LCD display is operated using a power-saving infrared sensor that is motion-activated. When activated, the display indicates the results of selected parameters simultaneously on two rows.

Technical Data

Probe Performance HUMICAP® Humidity and Temperature Probe HMP110

| | |
|---|---------------|
| RELATIVE HUMIDITY | |
| Measurement range | 0 ... 100 %RH |
| Accuracy including non-linearity, hysteresis, and repeatability | |
| Temperature range 0 °C ... +40 °C | |
| at 0 ... 90 %RH | ±1.7 %RH |
| at 90 ... 100 %RH | ±2.5 %RH |
| Temperature range -40 ... 0 °C, +40 ... +80 °C | |
| at 0 ... 90 %RH | ±3.0 %RH |
| at 90 ... 100 %RH | ±4.0 %RH |

| | |
|--|----------------------------------|
| Factory calibration uncertainty at +20 °C | ±1.5 %RH |
| Humidity sensor | Vaisala HUMICAP® 180R |
| Stability | ±2 %RH over 2 years |
| TEMPERATURE | |
| Measurement range | -40 °C ...+80 °C |
| Accuracy over temperature range | |
| at +15 °C ...+25 °C | ±0.2 °C |
| at 0 ...+15 °C and at +25 °C ...+40 °C | ±0.25 °C |
| at -40 °C ...+0 °C and at +40 °C ...+80 °C | ±0.4 °C |
| Temperature sensor | Pt1000 RTD 1/3 Class B IEC 751 |
| HMP110 probe | -40 °C ...+80 °C |
| Storage temperature range | -50 °C ...+70 °C |
| Electromagnetic compatibility | EN 61326-1 and EN 55022, Class B |

Analog Inputs

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|--|---------------------------|
| 2 Channel Current input signals | 0 ...22 mA |
| Resolution | 0.67 µA |
| Accuracy | ±0.15 % FS. at +25 °C |
| Input Impedance | 62 Ohms |
| Overload Protection | 40 mA |
| 2 Channel Voltage input signals | 0 ...5 V, 0 ...10 V |
| Resolution | 0.0034% ES. |
| Accuracy | ±0.15 % FS. at +25 °C |
| Input Impedance | 37K Ohms |
| Overload protection | 50 Volts max |
| Isolation | one common per logger |
| 2 Resistive Temperature input signals | Pt 100 RTD / 4 wire |
| | Class A IEC 751 |
| | Input Impedance 5.1K Ohms |
| Measurement range | -196 °C to +90 °C |
| Accuracy over temperature range | |
| at -196 ...-90 °C | ±2.5 °C |
| at -90 ...-30 °C | ±0.75 °C |
| at -30...0 | ±0.5 °C |
| at 0 ...+50 °C | ±0.25 °C |
| at +50 ...+90 °C | ±0.75 °C |
| Open/Closed with magnetic reed switch cable connections (Dry Contact) | |

Mechanics

| | |
|--------------------------------|----------------------------|
| Operating Temperature Range | |
| Data logger body, no display | -40°C...+60°C |
| Data logger body, with display | -20°C...+60°C |
| 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 |
| Housing classification | IP65 (NEMA 4) |
| Connections | |
| 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 |
| RTD Temperature Sensor | |
| Sensor tip material | Stainless steel (AISI 316) |
| Sensor tip length | 50.8 mm |
| Sensor tip diameter | 4.76 mm |
| Cable length | 5 m |
| Hermetic Door Switch Sensor | |
| Cable length | 7.6 m |
| Display (optional) | 128 x 64 resolution full graphics B&W display without backlight |
| Weight (with battery/without probe) | 300g |

Accessories

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|--|---------------|
| HMP110 | |
| Humidity and temperature probe | HMP110* |
| Humidity and temperature replacement probe | HMP110R* |
| Humidity sensor | HUMICAP® 180R |
| Probe mounting flange | 226061 |
| Probe mounting clamps, 10 pcs | 226067 |
| Sensor protection | |
| Plastic grid filter | DRW010522SP |
| Plastic grid with membrane filter | DRW010525SP |
| Stainless steel sintered filter | HM46670SP |
| Probe cable 3 m | HMT120Z300 |
| Probe cable 5 m | HMT120Z500 |
| Probe cable 10 m | HMT120Z1000 |
| Duct installation kit | 215619 |
| OTHER ACCESSORIES | |
| Optional External Voltage Supply (15 VDC) | 236081SP |
| Batteries (Packs of 3) | 236318SP |
| RTD Temperature Probe 5 m | ASM210644SP |
| Hermetic Door Switch Sensor Kit | 236319SP |
| Thermal Dampener Blocks | 236310SP |
| Four Dual Lock™ Strips (3"/76mm) | 237217SP |

*See separate order form

Wireless

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|----------------------|---|
| Networking Standards | IEEE 802.11 b/g |
| Data Rates | 802.11 b: 1, 2, 5.5, 11 Mbps : 802.11 g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps |
| Frequency Band | 2402 ~ 2480MHz |
| Modulation | 802.11 b: DSSS(CCK-11, CCK-5.5, DQPSK-2, DBPSK-1): 802.11g : OFDM |
| Wi-Fi Security | WEP (128-bit), WPA, WPA2 (Personal) |
| Output Power | +18dBm(63mW) |
| Receiver Sensitivity | -85dBm typical |
| Antenna | Onboard whip |
| Certifications | FCC, IC, CE, Wi-Fi Alliance, EN61326-1:2006, EN61326-2-3:2006, EN61000-3-2:2006+A1:2009+A2:2009, EN61000-3-3:2008, EN61326-1:2006, MIC R 201-125765, CMIIT ID: 2013DJ7129 |

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