



CWL100 Cloud Wireless Data Logger



Features

- Reliable >100 m (328 ft) wireless range due to LoRa™ based radio technology
- Detachable high-accuracy relative humidity and temperature probes
- Typical battery life of 18 months
- Uses standard alkaline batteries
- Optional magnetic mounting bracket available

CWL100 Cloud Wireless Data Logger uses long range LoRa™ wireless technology. It can be used to monitor temperature and humidity in a wide range of environments such as warehouses, production areas, cleanrooms, and laboratories. CWL100 is also suitable for construction moisture measurement.

LoRa wireless

CWL100 connects wirelessly to Vaisala Jade Smart Cloud service, which provides real-time data and trend graphs. The LoRa modulation technique provides a robust wireless signal that is extremely reliable over long distances and in complex, obstructed conditions. This wireless technology allows the data logger's signal to travel over 100 m (328 ft) indoors without the aid of signal amplifiers or repeaters. Wireless communications are encrypted to ensure data integrity and security.

Measurements are updated on the local display and stored on the data logger's local memory every 60 seconds, and sent through the wireless connection every 4 minutes. Jade Smart Cloud service stores the data in the original 1-minute resolution.

In case of a temporary network disruption the data logger can record up to 30 days of measurements. Recorded data can be downloaded directly from CWL100 through the USB port.

Versatility and convenience

CWL100 requires no startup configuration, and the included mounting bracket supports several installation methods. Detailed custom display shows the latest measurement results, battery status, and signal strength of the current access point connection. The housing is classified IP54 to protect the device from dust and cleaning.

CWL100 is powered by 2 standard AA size 1.5 V batteries (LR6 alkaline or FR6 lithium) for 18 months of operation at approximately 20 °C (68 °F). There is no need for costly battery replacements between recommended calibrations.

Detachable probe

CWL100 supports several probe types for humidity and temperature measurement. Models with plastic housing are suitable for ambient measurements and provide a fast temperature response time. Stainless

steel probes are robust and suitable for demanding applications such as construction moisture measurement using the borehole method.

The probes use Vaisala HUMICAP® humidity sensors and platinum temperature sensors for superior stability. Probes can be integrated with the CWL100 housing or connected using a cable.

The probe is detachable, and easy to switch out for calibration. Jade Smart Cloud service detects the changed probe information automatically and maintains accurate and complete historical records.

Probe options

Probe model	Measurement	Application	Measurement temperature	Mounting	Calibration certificate
HMP63	RH + T	General purpose humidity and temperature probe. Ideal for ambient measurement.	-40 ... +60 °C (-40 ... +140 °F)	Integrated or cable probe	No
HMP110	RH + T	Robust probe for demanding conditions. Suitable for structural humidity measurement using the borehole method.	-40 ... +80 °C (-40 ... +176 °F)	Cable probe only	Yes
HMP115	RH + T	Calibrated probe for high accuracy general purpose humidity and temperature measurement.	-40 ... +60 °C (-40 ... +140 °F)	Integrated or cable probe	Yes

Accessories

Accessory	Item code	HMP63	HMP110	HMP115
Probe cable 1.5 m	CBL210555-1M5SP	✓	✓	✓
Probe cable 3 m	CBL210555-3MSP	✓	✓	✓
Probe cable 10 m	CBL210555-10MSP	✓	✓	✓
Flat cable 3 m	CBL210647SP	✓	✓	✓
Probe holder (5 pcs)	ASM213382SP	✓	✓	✓
Mounting nuts (2 pcs), hex M12×1 Pa 6.6	18350SP		✓	
Probe mounting clamps (10 pcs)	226067	✓	✓	✓
Duct installation kit	215619		✓	
Solar radiation shield DTR504	DTR504		✓	
Solar radiation shield with pole installation kit DTR504A	DTR504A		✓	

Accessories for concrete moisture measurement

Accessory	Item code	HMP63	HMP110	HMP115
Plastic tube set (12 pcs)	19266HM		✓	
Long (200 mm) plastic tube set (12 pcs)	245789		✓	
Rubber plugs (12 pcs)	233976		✓	
Plastic flange set (12 pcs)	26529HM		✓	
Long rubber plug for wet concrete (12 pcs)	26530HM		✓	



HMP63 probe



HMP110 probe



HMP115 probe

Technical data

Wireless

Networking standards	LoRa™
Modulation	LoRa chirp spread spectrum modulation
Output power	13 dBm (20 mW)
Antenna	Internal
Typical range (indoors)	At least 100 m (328 ft)
Range with line-of-sight	Over 500 m (1640 ft)
Frequency bands	868 MHz and 915 MHz
Radio standards and approvals	
868 MHz model	ETSI EN 300 220-2
915 MHz model	FCC ID: 2AO39-RFL100A IC ID: 23830-RFL100A

Memory

Sample capacity	30 days (43200 samples per channel)
Memory type	Non-volatile EEPROM
Memory mode	Ring buffer (FIFO)
Sampling rate	One sample / channel / minute (non-changeable)

Operating environment

Storage temperature	-40 ... +60 °C (-40 ... +140 °F)
Operating humidity	0 ... 100 %RH, non-condensing
EMC compliance	EN/IEC 61326-1, industrial environment
Operating temperature ¹⁾	
with alkaline batteries	+2 ... +60 °C (+35.6 ... +140 °F)
with lithium batteries	-20 ... +60 °C (-4 ... +140 °F)

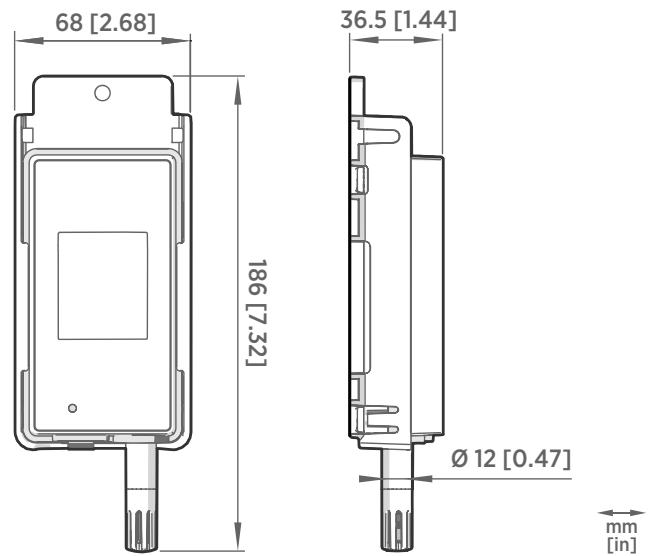
¹⁾ For both alkaline and lithium, battery temperature operating specifications apply.

General

Compatible probes	HMP63, HMP110, HMP115
Batteries	2 × AA sized, 1.5 V (LR6 or FR6)
Clock battery	CR 1/3N (3 V lithium button cell)
Operation time at 20 °C (68 °F) without external power supply	18 months
Internal clock accuracy	±30 s/month Synchronizes time from CA10 access point
Safety	EN/UL/IEC 61010-1

Mechanical specifications

Housing color	White
Mounting methods	Screws, tie-wrap, hook, or magnetic mounting bracket (optional accessory)
Probe interface	4-pin female M8 connector
Service port	USB 2.0 with micro-USB connector
IP rating	IP54
Dimensions (H × W × D) with HMP115 probe	
Without mounting bracket	158 × 62 × 31 mm (6.22 × 2.4 × 1.22 in)
With mounting bracket	186 × 68 × 36.5 mm (7.32 × 2.68 × 1.44 in)
Weight	
With batteries (2 pcs alkaline), HMP115 probe, and magnetic mounting bracket	254 g (8.96 oz)
Materials	
Housing	PC/ABS blend
Display window	PMMA (acrylic)
Sealings	TPE



CWL100 dimensions with HMP115 probe

HMP110 probe measurement performance

Relative humidity

Measurement range	0 ... 100 %RH
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Accuracy in temperature range 0 ... +40 °C (+32 ... +104 °F)¹⁾

0 ... 90 %RH	±1.5 %RH
90 ... 100 %RH	±2.5 %RH

Accuracy in temperature range -40 ... 0 °C, +40 ... +80 °C (-40 ... +32 °F, +104 ... +176 °F)¹⁾

0 ... 90 %RH	±3.0 %RH
90 ... 100 %RH	±4.0 %RH

Factory calibration uncertainty at +20 °C (68 °F)²⁾

0 ... 90 %RH	±1.1 %RH
90 ... 100 %RH	±1.8 %RH

Humidity sensor	HUMICAP® 180R
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Stability	±2 %RH over 2 years
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Temperature

Measurement range	-40 ... +80 °C (-40 °F ... +176 °F)
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Accuracy over temperature range

at +15 ... +25 °C (+59 ... +77 °F)	±0.1 °C (±0.18 °F)
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at 0 ... +15 °C, +25 ... +40 °C (+32 ... +59 °F, +77 ... +104 °F)	±0.15 °C (±0.27 °F)
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at -40 ... 0 °C, +40 ... +80 °C (-40 ... +32 °F, +104 ... +176 °F)	±0.4 °C (±0.72 °F)
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Factory calibration uncertainty ²⁾	±0.2 °C (0.36 °F)
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Temperature sensor	Pt1000 RTD Class F0.1 IEC 60751
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1) Includes non-linearity, hysteresis, and repeatability.

2) Small variations possible; see also calibration certificate.

HMP115 probe measurement performance

Relative humidity

Measurement range	0 ... 100 %RH
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Accuracy in temperature range 0 ... +40 °C (+32 ... +104 °F)¹⁾

0 ... 90 %RH	±1.5 %RH
90 ... 100 %RH	±2.5 %RH

Accuracy in temperature range -40 ... 0 °C, +40 ... +60 °C (-40 ... +32 °F, +104 ... +140 °F)¹⁾

0 ... 90 %RH	±3.0 %RH
90 ... 100 %RH	±4.0 %RH

Factory calibration uncertainty at +20 °C (68 °F)²⁾

0 ... 40 %RH	±0.6 %RH
40 ... 75 %RH	±1.0 %RH

Humidity sensor	HUMICAP® 180R
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Stability	±2 %RH over 2 years
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Temperature

Measurement range	-40 ... +60 °C (-40 °F ... +140 °F)
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Accuracy over temperature range

at 0 ... +40 °C (+32 ... +104 °F)	±0.2 °C (±0.36 °F)
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at -40 ... 0 °C, +40 ... +60 °C (-40 ... +32 °F, +104 ... +140 °F)	±0.4 °C (±0.72 °F)
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Factory calibration uncertainty ²⁾	±0.1 °C (0.18 °F)
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Temperature sensor	Pt1000 RTD Class F0.1 IEC 60751
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1) Includes non-linearity, hysteresis, and repeatability.

2) Small variations possible; see also calibration certificate.

HMP63 probe measurement performance

Relative humidity

Measurement range	0 ... 100 %RH
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Typical accuracy in temperature range 0 ... +40 °C (+32 ... +104 °F)¹⁾

0 ... 90 %RH	±3 %RH
90 ... 100 %RH	±5 %RH

Typical accuracy in temperature range -40 ... 0 °C, +40 ... +60 °C (-40 ... +32 °F, +104 ... +140 °F)¹⁾

0 ... 90 %RH	±5 %RH
90 ... 100 %RH	±7 %RH

Humidity sensor	INTERCAP®
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Temperature

Measurement range	-40 ... +60 °C (-40 ... +140 °F)
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Accuracy over temperature range

at +10 ... +30 °C (+50 ... +86 °F)	±0.5 °C (±0.9 °F)
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at -40 ... +10, +30 ... +60 °C (-40 ... +50 °F, +86 ... +140 °F)	±0.6 °C (±1.08 °F)
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1) Includes non-linearity, hysteresis, and repeatability.

HMP63 and HMP115 probe mechanical specifications

IP rating	IP54
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Diameter	14 mm (0.55 in)
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Length	79 mm (3.11 in)
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Materials

Probe body	PC/ABS blend
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Grid filter	PC (glass reinforced)
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Sleeve	PC/ABS blend
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HMP110 probe mechanical specifications

IP rating	IP65 ¹⁾
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Body thread	M12×1 / 10 mm (0.4 in)
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Diameter	12 mm (0.47 in)
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Length	78 mm (3.07 in)
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Materials

Probe body	Stainless steel (AISI 316)
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Grid filter	Chrome coated ABS plastic
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1) Applicable with stainless steel sintered filter and PTFE sintered filter only.

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