



### 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 and stored every 60 seconds, and sent from the data logger every 4 minutes. In case of temporary network disruptions, 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	14 dBm (25 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
<b>Radio standards and approvals</b>	
868 MHz model	ETSI EN 300 220-2

## 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
<b>Operating temperature</b> <sup>1)</sup>	
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 x 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
<b>Safety</b>	
	EN/UL/IEC 61010-1

## Mechanical specifications

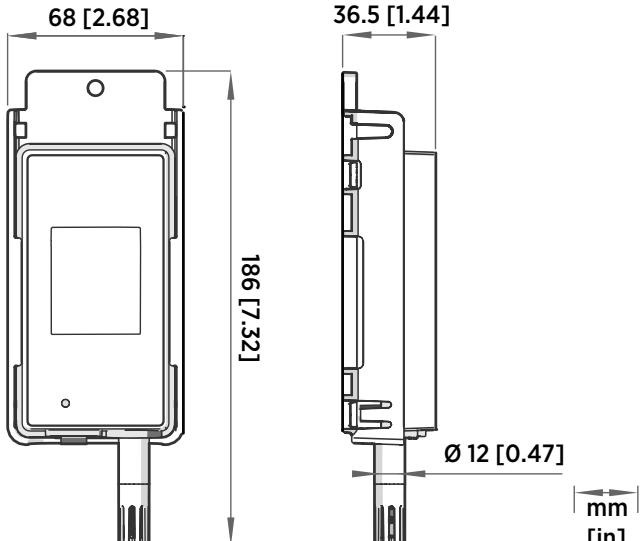
Housing color	White
Mounting methods	Screws, tie-wrap, hook, or magnetic mounting bracket (optional accessory)
Probe interface	4-pin female M8 connector
Service port	USB 2.0 with micro-USB connector
IP rating	IP54
<b>Dimensions (H × W × D) with HMP115 probe</b>	
Without mounting bracket	158 × 62 × 31 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)
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### 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

**Accuracy in temperature range 0 ... +40 °C (+32 ... +104 °F)<sup>1)</sup>**

0 ... 90 %RH  $\pm 1.5\text{ %RH}$   
90 ... 100 %RH  $\pm 2.5\text{ %RH}$

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

0 ... 90 %RH  $\pm 3.0\text{ %RH}$   
90 ... 100 %RH  $\pm 4.0\text{ %RH}$

**Factory calibration uncertainty at +20 °C (68 °F)<sup>2)</sup>**

0 ... 90 %RH  $\pm 1.1\text{ %RH}$   
90 ... 100 %RH  $\pm 1.8\text{ %RH}$

Humidity sensor HUMICAP® 180R

Stability  $\pm 2\text{ %RH}$  over 2 years

### Temperature

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

**Accuracy over temperature range**

at +15 ... +25 °C (+59 ... +77 °F)  $\pm 0.1\text{ °C} (\pm 0.18\text{ °F})$

at 0 ... +15 °C, +25 ... +40 °C  
(+32 ... +59 °F, +77 ... +104 °F)  $\pm 0.15\text{ °C} (\pm 0.27\text{ °F})$

at -40 ... 0 °C, +40 ... +80 °C  
(-40 ... +32 °F, +104 ... +176 °F)  $\pm 0.4\text{ °C} (\pm 0.72\text{ °F})$

Factory calibration uncertainty<sup>2)</sup>  $\pm 0.2\text{ °C} (0.36\text{ °F})$

Temperature sensor Pt1000 RTD Class F0.1 IEC 60751

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

**Typical accuracy in temperature range 0 ... +40 °C (+32 ... +104 °F)<sup>1)</sup>**

0 ... 90 %RH  $\pm 3\text{ %RH}$   
90 ... 100 %RH  $\pm 5\text{ %RH}$

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

0 ... 90 %RH  $\pm 5\text{ %RH}$   
90 ... 100 %RH  $\pm 7\text{ %RH}$

Humidity sensor INTERCAP®

### Temperature

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

**Accuracy over temperature range**

at +10 ... +30 °C (+50 ... +86 °F)  $\pm 0.5\text{ °C} (\pm 0.9\text{ °F})$

at -40 ... +10, +30 ... +60 °C (-40 ... +50 °F, +86 ... +140 °F)  $\pm 0.6\text{ °C} (\pm 1.08\text{ °F})$

1) Includes non-linearity, hysteresis, and repeatability.

## HMP110 probe mechanical specifications

IP rating IP65

Body thread M12x1 / 10 mm (0.4 in)

Diameter 12 mm (0.47 in)

Length 78 mm (3.07 in)

### Materials

Probe body Stainless steel (AISI 316)

Grid filter Chrome coated ABS plastic

## HMP115 probe measurement performance

### Relative humidity

Measurement range 0 ... 100 %RH

**Accuracy in temperature range 0 ... +40 °C (+32 ... +104 °F)<sup>1)</sup>**

0 ... 90 %RH  $\pm 1.5\text{ %RH}$   
90 ... 100 %RH  $\pm 2.5\text{ %RH}$

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

0 ... 90 %RH  $\pm 3.0\text{ %RH}$   
90 ... 100 %RH  $\pm 4.0\text{ %RH}$

**Factory calibration uncertainty at +20 °C (68 °F)<sup>2)</sup>**

0 ... 40 %RH  $\pm 0.6\text{ %RH}$   
40 ... 75 %RH  $\pm 1.0\text{ %RH}$

Humidity sensor HUMICAP® 180R

Stability  $\pm 2\text{ %RH}$  over 2 years

### Temperature

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

**Accuracy over temperature range**

at 0 ... +40 °C (+32 ... +104 °F)  $\pm 0.2\text{ °C} (\pm 0.36\text{ °F})$

at -40 ... 0 °C, +40 ... +60 °C  
(-40 ... +32 °F, +104 ... +140 °F)  $\pm 0.4\text{ °C} (\pm 0.72\text{ °F})$

Factory calibration uncertainty<sup>2)</sup>  $\pm 0.1\text{ °C} (0.18\text{ °F})$

Temperature sensor Pt1000 RTD Class F0.1 IEC 60751

1) Includes non-linearity, hysteresis, and repeatability.

2) Small variations possible; see also calibration certificate.

