# sauermann®

# KISTOCK WIRELESS DATALOGGER KH210-RF

## Temperature / hygrometry / current / voltage / pulses

### Features

- 20 000 measurement points
- IP65
- Visual alarm
- Possibility to turn off the Kistock

- 2 configurable setpoint alarms
- Magnetic mounting
- Supplied with secured wall-mounting bracket

## References

| Reference | Display | Internal channel | External channel | Parameters |
|---|---|---|---|---|
| KH210-AN-RF | No | 1: Temperature | 1 | Temperature, humidity, current, voltage, pulses |
| KH210-AO-RF | Yes | 1: Temperature | 1 | Temperature, humidity, current, voltage, pulses |
| KH210-DO-RF | Yes | No | 1 | Temperature, humidity, current, voltage, pulses |

## Technical features

| | |
|---|---|
| Units displayed | °C, °F, %HR, mV, V, mA, A |
| Resolution | 0.1 °C, 0.1 °F, 0.1 %HR, 0.001 V, 1 mV, 0.1 A, 0.001 mA |
| Universal external inputs | 1 mini-Din connector for temperature, current, voltage, pulses |
| Internal sensor (KH210-AN-RF/KH210-AO-RF) | Temperature, humidity |
| Offset channel* (KH210-DO-RF) | Temperature, humidity |
| Setpoints alarms | 2 setpoint alarms on each channel Possibility to send e-mail in case of alarm** |
| Frequency of the measurement | From 1 s to 24 h |
| Operating temperature | From -20 to +70 °C |
| Storage temperature | From -40 to +85 °C |
| Radio span (in free field) | 300 m |
| Frequency | 868 MHz |
| Battery life | With radio frequency: 1.5 years[1]  Without radio frequency: 3 years[2] |
| Data storage | In the kistock until downloading on PC |

*Channel dedicated to the remote temperature and humidity probe
**Thanks to the Kilog RF software
[1] : 1.5 ans (on the basis of 1 measurement and 1 recording every 15 minutes at 20°C and a RF downloading every 6 hours)
[2] : 3 years (on the basis of 1 measurement every 15 minutes at 20°C)

## Housing

**Dimensions**
116.5 x 74.4 x 39.8 mm

**Weight**
160 g

**Display**
2 lines LCD screen
Screen dimensions : 45 x 28.5 mm

**Control**
2 keys : Select and OK

**Material**
Compatible with food industry environment / ABS housing / Sides and caps made of Elastomer

**Indice de protection**
KH210-AN-RF/KH210-AO-RF : IP65 (boîtier)
KH210-DO-RF : IP65

**Protection**
KTT310-RF : IP54
KTR310-RF : IP65

**PC communication**
1 digital input
Lacquer protected circuit board
Meets RoHS standards

**Battery power supply**
Type lithium 3.6 V

**Visual alarm**
2 electroluminescent diodes (green and red)

**Environment**
Air and neutral gases

# Technical features for probes, internal sensor and cables

- Thermo-hygrometry probe[1]

| Parameters | Sensor type | Accuracy* | Measuring range | Response time ($t_{0.63}$) |
|---|---|---|---|---|
| **Temperature** | CMOS | From -20 to 0°C: 2% of reading value ±0.6°C<br>From 0 to 30°C: ±0.5°C<br>From 30 to 70°C: 1.5% of reading value | From -20 to +70 °C | 25 s (V = 2 m/s) |
| **Relative humidity** | CMOS | Accuracy** (Repeatability, linearity, hysteresis):<br>±2%RH (from 15°C to 25°C)<br>Factory calibration uncertainty: ±0.88%RH<br>Temperature dependence:<br>±0.04 x (T-20) %RH (if T<15°C or T>25°C) | From 5 to 95 %RH | 50 s (Vair = 2 m/s) |

[1] Interval thermo-hygrometry probe for KH210-RF-A and external for KH210-RF-DO.

*All accuracies indicated in this document were stated in laboratory conditions and can be guaranteed for measurements carried out in the same conditions, or carried out with calibration compensation.

**As per NFX 15-113 standard and the charter 2000/2001 Hygrometers, GAL (Guaranteed Accuracy Limit) which has been calculated with a coverage factor value of 2 is ±2.88%RH between 18 and 28°C on the measuring range from 5 to 95%RH. Sensor drift is less than 1%RH/year.

- Temperature probe (optional)

| Parameters | Sensor type | Accuracy* | Measuring range |
|---|---|---|---|
| **Temperature** | NTC | ±0.3 °C (-25 °C<T<+70 °C)<br>±0.5 °C (outside) | From -40 to +120 °C<br>(remote probe) |

- Current or voltage input cable (optional)

| Parameters | Accuracy* | Measuring range |
|---|---|---|
| **Current** | ±0.2 % of measuring ±1 µA | 0/4-20 mA |
| **Voltage** | ±0.2 % of measuring ±1 mV | 0-10 V |

- Pinces ampèremétriques (en option)

| Parameters | Accuracy* | Measuring range |
|---|---|---|
| **Courant** | ±1 to 2.5% of reading value according to the range | 0-50 A / 0-100 A / 0-200 A / 0-600 A |

- Ammeter clamps (optional)

| Parameters | Maximum voltage | Input type |
|---|---|---|
| **Impulsions** | 5 V | TTL frequency count |

*All accuracies indicated in this document were stated in laboratory conditions and can be guaranteed for measurements carried out in the same conditions, or carried out with calibration compensation.

## Dimensions (mm)



74.4 — 39.8 — 161.7
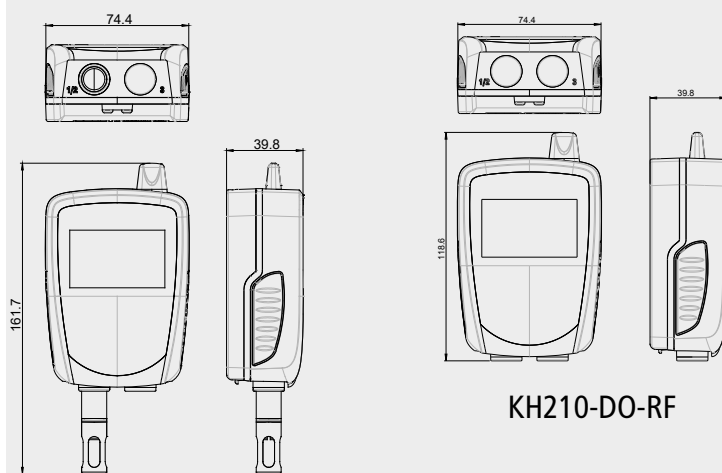
KH210-AO-RF / KH210-AN-RF

74.4 — 39.8 — 118.6

KH210-DO-RF

## External output



Mini-Din connector

## Recorder function

KISTOCK datalogger is supplied turned off to save battery life. To activate it :
• Press **"OK"** key for 5 s , green LED "On" blinks.

To turn it off:
• Press **"Select"** and **"OK"** keys at the same time for 5 s.
It is impossible to turn it off during a recording or a data download.

Activate or deactivate the keys during a measurement dataset :
• Press **"Select"** and **"OK"** at the same time for 5 s to deactivate both buttons : red led flashes twice quickly.
• Press **"Select"** and **"OK"** at the same time for 5 s to reactivate them : green led flashes twice quickly.

### 5 recording modes
KISTOCK can record in 5 different ways :
• **''Immediate"** mode records values according a predefined interval.
• **''Minimum", ''Maximum"** and **''Average"** record automatically the calculation of minimum, maximum or average of measured values during an interval of recording.
• **''Monitoring"** mode allows to get an accurate history report during error events to help troubleshooting, without stopping the measurement logging. To proceed this way, you just have to define :
   - a record interval to be used whilst the readings are beyond the setpoints.
   - a record interval for the values measured during each reading beyond the setpoints.
• Furthermore, you can also let your KISTOCK record non-stop (**''loop"** recording option).

### Two operation modes
• Autonomous mode: data download is made wireless through the Kilog RF software.
• Network mode: measurements are stored in the datalogger and sent to the computer at regular intervals (in case of alarm, the information is directly sent to the computer). So Kistock memory is used as buffer memory and is reset at each sending. In this mode, several Kistocks can be linked to a computer at the same time.

### Three modes dataset start
Once your recording mode has been set, you can launch your dataset:
• With a delayed start (with predefined date and time)
• With the software
• With push-button

### Six modes dataset stop
You can stop your dataset :
• As per a date and time (if it was started the same way)
• As per a period
• As per a predefined number of recording points
• Once the storage capacity is full
• With **''Stop"** option of the software
• By holding **"OK"** key for at least 5 s, if this function has been previously activated by the software.

## Screen
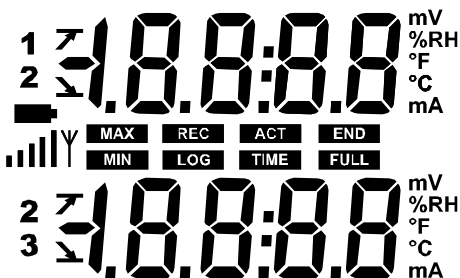
**°C:** Temperature in degrees Celsius
**°F:** Temperature in degrees Fahrenheit
**%RH:** Relative humidity
**V or mV:** Voltage expressed in V or mV
**A or mA:** Current expressed in A or mA

Indicates the reception powerful of the datalogger

**END** DATASET is finished
**REC** One value is being recorded
**LOG** Flashing: dataset has not started yet
Constant: data set is in progress
**FULL** Slow flashing: dataset is taking 80-90% of storage capacity
Fast flashing: dataset is taking 90-100% of storage capacity
Constant: storage capacity filled up
**1 2** Channel No. which is measuring
**ACT** Refresh of displayed measurements
**TIME** Display of measurement and recording intervals
Low battery indicator
**MIN MAX** Displayed values correspond to maximum and minimum values of the channels
Alarm action type: rising or falling action

## Software

**Configuration and data processing software**
The new KILOG RF software is specially designed for the KISTOCK-RF range. In addition to the standard functions of dataloggers configuration and data processing (average, minimum and maximum values...), it allows the creation of a wireless dataloggers network (up to 100 dataloggers) for a real-time monitoring.
*Ref.: KILOG-RF*
Software is compatible with the wired range.

**Communication base with KILOG-RF software**
This base allows to communicate by radio frequency with Kistock-RF (kistock by kistock data recovery, programming of Kistock-RF...). It must be continuously powered and connected to the PC for the use of kistock in network mode. It is equipped with a USB connection for PC, a jack connection for KNT310 data collector and a relay output. Supplied with main adapter, KILOG-RF software and USB cable.
*Ref.: BK-RF*

## Accessories

**Data collector**
KNT data collector allows you to collect measurements from one or several KISTOCK directly on-site (up to 500,000 values stored). Data can be displayed and printed from the KNT or download to your PC.
*Ref. KNT 310*

**Alarm relay** that can switched from KILOG-RF software via BK-RF base. Supplied with main adapter.
*Ref : KAL-RF*

**Device to extend radio signal** to kistocks (300 m). Supplied with main adapter.
*Ref : KPR-RF*

**Autonomous instrument to check communication**. It allows to check signal reception for positioning of dataloggers, extender and alarm box
*Ref : KTC-RF*

**Wire extensions for NTC temperature probe.**
Made of PVC HT, 5m long with male and female mini-Din connectors
*Ref. KRC 5*
Note: you can connect several extensions together (maximum length 25 m)

**Lace**
*Ref. KDC*

## Supplied with
**Secured wall-mounting bracket**
KIMO has designed a new proprietary anti-theft system with no padlock. Your system cannot be unlock or damaged : your installation is fully secured.

## Calibration

KISTOCK dataloggers can be supplied with calibration certificate as an option.

## Warranty period

KISTOCK dataloggers have 1-year guarantee for any manufacturing defect (return to our After-Sales Service required).

## Mounting

KISTOCK can be mounted in different ways; you can also move it or install it very easily.
- Magnetic mounting or wallmounting (see photos)
- Secured mounting (optional, see supplied with)

1. Wallmount and lace eyelet
2. Magnetic mounting