

VAQA'O Lite



The VAQA'O Lite sensor measures the temperature, relative humidity and Carbon Dioxide (CO₂) concentrations in the ambient air of a room in a building, a flat or a house. VAQA'O Lite allows the monitoring of Indoor Air Quality (IAQ). The data is transmitted via a public or private LoRaWAN® radio frequency network.

APPLICATIONS

- Supervision of heating, ventilation and air conditioning installations.
- Energy optimisation of buildings (residential, tertiary).
- Indoor Air Quality (IAQ) monitoring in public buildings (schools, nurseries, hospitals, etc.)

BENEFITS & FEATURES

- LoRaWAN®, Class A
- Easy to install and use
- 6 years of autonomy
- Measuring ranges / accuracies:
 - Temperature: +0°C to +55°C / ± 0.2°C
 - Hygrometry: 0% to 100%rH / ± 2%.
 - CO₂: 0-5000ppm / ± 100ppm
- LEDs for network pairing and IAQ
- Buzzer for configurable sound alarms
- Remote or local CO₂ calibration

CERTIFICATION

- RED, UKCA, RoHS

The VAQA'O Lite measures temperature, humidity and CO₂ in the building environment.

The transmission of data over a public or private LoRaWAN® network is done periodically or in case of alert when thresholds are exceeded:

- Min. and max. temperature
- Min. and max. humidity
- CO₂ min. and max.

If the sensor is unclipped from its wall mounting or moved, an alert is transmitted.

Installation and commissioning are quick and easy.

The sensor is equipped with :

- A three-colors LED (R,Y,G) in front displays current IAQ level according to parametrizable rules. The use of LEDs can be stopped.
- A buzzer can be controlled according to configurable rules. The use of the buzzer is optional.
- a magnetic Reed switch used for network pairing and various interventions (e.g. prolonged standby),
- 2 LEDs located in the air vents to monitor the network pairing and the main status of the sensor during commissioning.



Once the connection with the network is established, the LED indicates the Indoor Air Quality . To save battery life, it is possible to deactivate the display of IAQ thresholds by sending a downlink, which saves approximately half a year of autonomy.

Measurement data is transmitted individually or aggregated and compressed (batch mode) before being transmitted over the LoRaWAN® network.

This transfer technique considerably reduces the amount of data transmitted while preserving the autonomy of the sensor.

Powered by a pack of two 3.6V/2600mAh lithium batteries, the sensor's autonomy is more than 6 years with the default configuration: one measurement on all sensors every 30 minutes and 12 transmission per day, with the data compressed.

The battery level is regularly monitored remotely.

THE LARGEST IOT PRODUCTS RANGE FOR YOUR PROJECT

WATTECO is a European leader in the design and manufacture of smart IoT devices to suit all remote reading and data collection solutions.

WATTECO is a LoRa Alliance® member.

TECHNICAL DATA

| RADIOFREQUENCY | Frequency (MHz) | Transmit Power (dBm) | Receiver Sensitivity (dBm) |
|----------------|-----------------|----------------------|----------------------------|
| | EU: 863-870 | +14 | -140 |

FIRMWARE

| | |
|---------------------|--|
| Protocol | LoRaWAN®, Class A |
| Activation method | Activation by Personalization (ABP) or Over-The-Air Activation (OTAA) |
| Data encryption | AES128 |
| Application layer | ZCL (ZigBee Cluster Library) – to be interpreted by the remote server |
| Measurement cycles | Continuous measurement (100Hz by default under the acceleration threshold) |
| Transmission cycles | Configurable from 10 minutes to 24 hours |
| Alarm thresholds | Battery voltage: range 0.1 to 3.6V in 0.1V steps (3V by default) |

MEASUREMENTS

| | Temperature | Hygrometry | CO2 |
|------------|--|------------------------------|--------------|
| Range | 0°C to +55°C | 0% to 100%rH | 0 à 5000 ppm |
| Accuracy | 0.2°C between +12°C and +25°C; otherwise ± 0.5°C | ± 2% between +12°C and +25°C | ± 100 ppm |
| Resolution | 0.1°C | 1% | 10 ppm |

POWER SUPPLY

| | |
|---------------------------------------|--|
| Battery power supply | 2 x AA 3.6V / 2600mAh – Lithium battery pack Battery voltage level measured and transmitted regularly (configurable interval) |
| Autonomy in a range of +10°C to +25°C | 5 years with 1 measurement every 30 minutes and 12 radio transmissions per day, with SF12 and 2 <u>battery cells</u> . |

USER INTERFACES

| | |
|---------------------------------|---|
| NFC Tag | Product code, serial number, batch number |
| 3 colors LED (R,Y,G) and Buzzer | Indoor Air Quality (configurable) |
| LEDs | Network pairing, sensor status |
| Magnetic Reed switch | Reset, On/Off |

ENCLOSURE

| | Size (mm) | Weight (g) | Fastenings | IP rating | Fire resistance |
|--------------------------|--------------|------------|---|-----------|-----------------|
| UV-resistant ASA plastic | 85 x 85 x 25 | 120 | Screws or adhesive strip (not supplied) | IP30 | UL94-V0HB |

ENVIRONMENT

| Operating conditions | Storage conditions |
|--|------------------------------------|
| -20°C to +55°C +0%rH to +95%rH (non condensing) | +10°C to +30°C +20%rH to +60%rH |

DIRECTIVES & STANDARD

Radio Equipment Directive 2014/53/EU, RoHS



PRODUCT NUMBER

| REFERENCE | DESCRIPTION |
|-----------|--|
| 50-70-223 | LoRAWAN® VAQA'O LITE TEMP, HUM, CO2 SENSOR |