WATTECO

SMART BUILDING

VAQA'O

LoRaWAN

The **VAQA'O** sensor measures the temperature, relative humidity, Volatile Organic Compounds (VOC) and Carbon Dioxide (CO2) concentrations in the ambient air of a room in a building, a flat or a house. **VAQA'O** 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
- 3 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
  - VOC index: 0 to 500 / ± 5
- Indicators (LEDs): Network pairing and IAQ

CERTIFICATION

- RED, RoHS

CONCEPTION ET FABRICATION
MADE IN FRANCE

Sensors delivered without WATTECO marking

The **VAQA'O** measures temperature, humidity, CO2 and VOC concentrations 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.
- VOC 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 switch (ILS) used for network pairing and various interventions (e.g. prolonged standby),
- 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 LEDs indicate the Indoor Air Quality (CO2 and VOC). To save battery life, it is possible to deactivate the LED 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 three 3.6V/2600mAh lithium batteries, the sensor's autonomy is more than 3 years with the default configuration: one measurement on all sensors every 10 minutes and 1 transmission every hour, with the data compressed.

The battery level can be 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.

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TECHNICAL DATA

RADIOFREQUENCY	
Frequency	EU: 863-870 MHz
Transmit power	12 dBm
Sensitivity	-134 dBm
FIRMWARE	
Protocol	LoRaWAN®, Class A
Measurement periodicity	From 10min to 24hrs
Transmission interval	From 30min to 48hrs
Data compression	Yes by default; can be disabled.
Activation method	Activation by Personalization (ABP) or Over-The-Air Activation (OTAA)
Data encryption	AES128

MEASUREMENTS	Temperature	Hygrometry	CO2	VOC Index
Range	0°C to +55°C	0% to 100%rH	0 à 5000 ppm	0 à 500
Accuracy	0.2°C between +12°C and +25°C; otherwise ± 0.5°C	± 2% between +12°C and +25°C	± 100 ppm	± 5
Resolution	0.1°C	1%	10 ppm	1

POWER SUPPLY	
Voltage	3 x AA 3.6V / 2600mAh – Lithium battery pack Battery voltage level measured and transmitted regularly (configurable interval)
Autonomy (in the range of +12°C to +25°C)	> 3 years with 1 sensor reading (Temp + Hum + CO2 + VOC) every 10 minutes and 1 radio transmission every hour, with measurement data compressed and IAQ LEDs
USER INTERFACE	
ILS + LEDS switch	Network pairing, sensor status; indoor air quality (deactivation by downlink)

ALARMS	
Temperature	Min & Max configurable from 0°C to 50°C in 1°C steps; default min = 14°C & max = 28°C
Humidity	Min & Max configurable from 0%rH to 100%rH in 1%rH steps; default min = 20%rH & max = 70%rH
CO2	Min & Max configurable from 0 ppm to 5000 ppm
VOC Index	Min & Max configurable from 1 to 500
Alert	On unclipping the sensor / wall mounting or when moving
ENCLOSURE	
Size / Weight – IP rating	120 x 80 x 25mm / 185g – IP30
ENVIRONMENT	
Operation	0°C / +55°C; +0%rH / +95%rH (non-condensing)
Storage	10°C / +30°C; +0%rH / +60%rH
STANDARDS & REGULATIONS	
Radio Equipment Directive 2014/53/EU, RoHS	

PRODUCT NUMBER

REFERENCE	DESCRIPTION
50-70-168	LoRaWAN® VAQA'O TEMP, RH, CO2, VOC SENSOR