WATTECO

SMART BUILDING

VAQA'O+ Lite

LoRaWAN

The **VAQA'O+ Lite** sensor measures the temperature, relative humidity, Illuminance, Occupancy and Carbon Dioxide (CO2) concentrations for room in a building, a flat or a house. **VAQA'O+ Lite** allows the monitoring of Indoor Air Quality (IAQ) and environmental parameters. 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
- 5 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
  - **Illuminance:** 1Lux to 65kLux
  - **Occupancy:** Up to 12m detection
- LEDs for network pairing and IAQ
- Buzzer for configurable sound alarms
- Remote or local CO2 calibration

CERTIFICATION

- RED, UKCA, RoHS

MADE IN FRANCE

The **VAQA'O+ Lite** measures temperature, humidity, Lux, Occupancy 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.

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 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 5 years with the default configuration: one measurement on all sensors every 10 minutes and 48 transmissions per day, with the data compressed and possible alarms.

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.

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VAQA'O+ Lite

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	From 10 minutes to 24 hours (configurable)
Transmission cycles	Immediate following measurement or batch at 30min to 48hrs (configurable)
Alarm thresholds	Battery voltage: range 0.1 to 3.6V in 0.1V steps (3V by default)

MEASUREMENTS	Temperature	Hygrometry	CO2	Illuminance	Occupancy
Range	0°C to +55°C	0% to 100%rH	0 to 5000 ppm	1 Lux to 60 kLux	Yes/No Distance :Up to 12m, Angle : Up to 112°
Accuracy	0.2°C between +12°C and +25°C; otherwise ± 0.5°C	± 2% between +12°C and +25°C	± 100 ppm	< ± 1 %	Parametrizable filtering. Defaults: UnOcc➔Occ : 0s Occ➔UnOcc : 30mn
Resolution	0.1°C	1%	10 ppm	1 Lux	

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 battery cells.

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

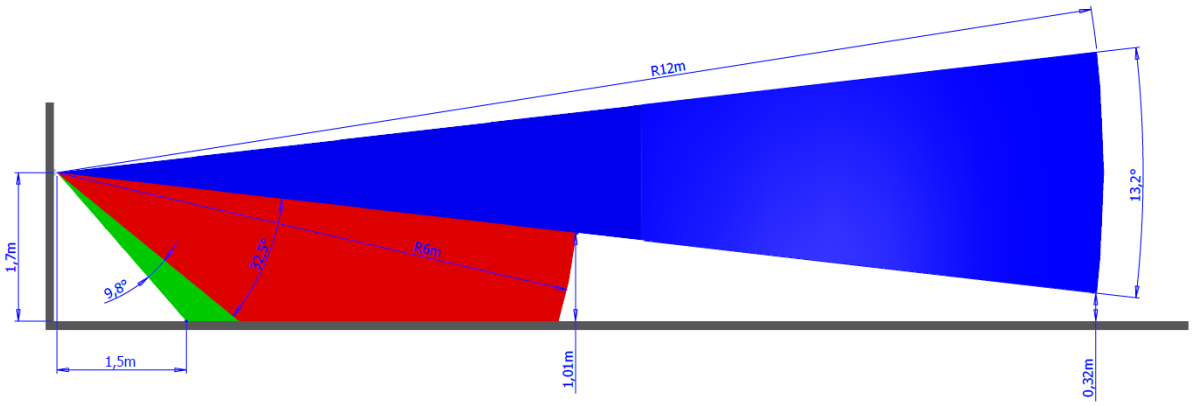
DIRECTIVES & STANDARD	
Radio Equipment Directive 2014/53/EU, RoHS	UKCA CE

TECHNICAL SPECIFICATIONS OF THE MOTION SENSOR

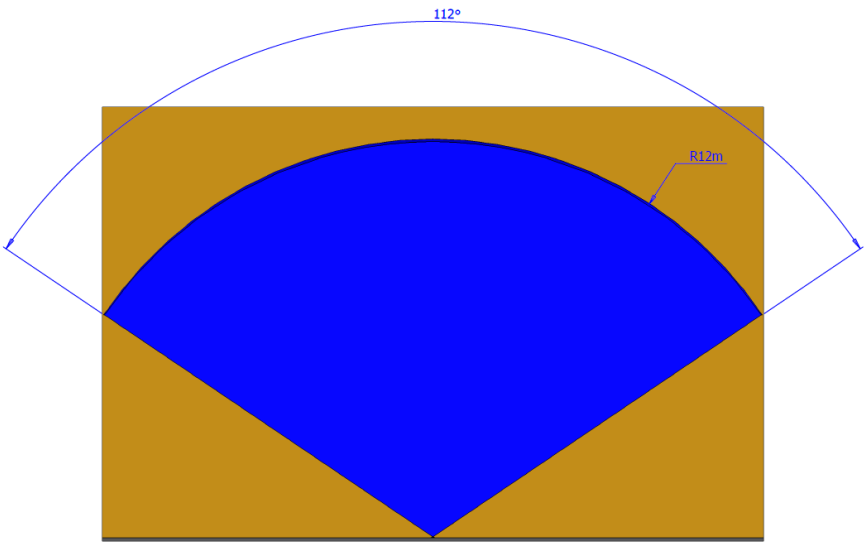
VAQA'O+Lite's infrared (PIR) technology detects presence in 3 different zones:

- 1st zone: 12m with a radius of 112° horizontally and 13.2° vertically
- 2nd zone: 6m with a radius of 112° horizontally and 32.5° vertically
- 3rd zone: 3m with a radius of 112° horizontally and 9.8° vertically

Below is a representation of the detection zone when the device is positioned 1.7 m above the ground:



Side view



PRODUCT NUMBER

REFERENCES	HS Code	DESIGNATIONS
50-70-251	85 17 62	VAQA'O+ LITE - LoRaWAN® EU868