StreamLine

4743 StreamLine LoRa CO2 Sensor with PIR Sensor

See indication of scale below

The 4743 StreamLine LoRa CO2 Sensor with PIR Sensor is used to monitor the air quality, CO_2, temperature and precise occupancy using the PIR motion detection sensor. Users can integrate the module into their facility management systems and improve the indoor climate while lowering costs.

Key features

General

- Size: 86 x 86 x 26 mm (excluding PIR sensor)
- Weight: 130 grams
- LED feedback
- Audible buzzer
- Wide operating range: -10˚C … +55˚C (based on temperature sensor)
- Multiple watchdog levels for maximum stability
- Event based free configurable module to fit any job
- Remote configurable to fit any job (both firmware and configuration files can be updated/patched over-the-air)
- Supports integration into third party networks

Optional extras

- +5 VDC USB power supply

Connectivity

- Near Field Connection, get recent readings and update settings and firmware using an NDEF enabled phone
- LoRa technology, EU-868 MHz
- Bluetooth Low Energy for integrations in automation and feedback

Positioning

- LoRa localisation where available

Sensors

- Photoacoustic NDIR CO_2 sensor
- PIR motion detection sensor
- Temperature sensor up to 0,5 ˚C accurate
- Humidity sensor
- 3D accelerometer up to 16 g

Electrical

- 3100 mAh battery capacity
- +3,7 VDC battery rating
- +5 VDC constant power

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Product summary

The 4743 StreamLine LoRa CO2 Sensor with PIR Sensor is the ideal solution for air quality and climate management. It is well suited for office spaces, schools, hospitals, public buildings and other indoor environments.

A built-in PIR motion sensor can be used to accurately measure occupancy as soon as someone enters a room and quickly updates existing systems to show the space as occupied or update the climate needs accordingly. Ensuring a comfortable environment taking into account the temperature, humidity, CO_2 and optionally other gasses.

The product comes equipped with a highly accurate sensor using photoacoustic NDIR. This enables exact accuracy and lengthy sensor life over a period of 10 years without the need for any intermediate calibration. Measurements are automatically adjusted according to humidity. A multicolour LED provides user definable visual feedback about the CO_2 measurement levels and an audible warning can be projected when the CO_2 level reaches high levels.

The module can be customised to specification when ordering in large volumes. Ask your StreamLine products supplier for more details.

Connectivity specifications

- LoRa
  - Semtech S 1261
    - Frequency: EU 868 MHz
    - Protocol: LoRaWAN 1.0.2 and custom LoRa protocol
    - Transmitting power: +22 dBm
    - Sensitivity: -148 dBm
- BLE (RF 2.4GHz)
  - Nordic nRF52832
    - Protocol: BLE 5.3 and custom 2,4 GHz
    - Transmitting power: Up to +20 dBm with on board amplifier
    - Sensitivity: -96 dBm (BLE)

Sensors

- CO_2 sensor
  - Working range: 0 … 5000 PPM
  - Sensor life: up to 10 years
  - See below for more details
- PIR motion detection sensor
  - Working Range: up to 5m, theoretical viewing angle 110 degrees horizontal, 90 degrees vertical
  - During LoRa transmissions, the PIR Motion input will be disabled.
- Humidity sensor
  - Accuracy: 1,8% relative humidity
- Accelerometer
  - Sensitivity: light vibrations of 0,016 g up to movements of 16 g
  - Sensitivity can be adjusted over-the-air

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Air quality sensor details

The air quality sensor is a photoacoustic NDIR sensor with a high level of accuracy in parts per million (PPM). The occupants of a room are affected by the levels of CO_2 ranging from a healthy work environment to discomfort to even adverse health effects. See below a table of the CO_2 levels in PPM and their effects on occupants.

• 300 … 450 PPM:	Typical variance for outdoor air (European Enviroment Agency, 2019)
• 500 … 800 PPM:	Typical indoor air (European Committee for Standardization, 2019)
• 1000 … 1200 PPM:	Recommended limit for indoor environments (European Committee for Standardization, 2019)

Operating temperature

Temperature sensor range: -10°C … +55°C
Battery operating range: -20°C … +60°C

Electrical

Battery rated voltage +3,7 VDC
Nominal capacity 3100 mAh
Min. required current at +3,3 VDC 600 mA
Max. pulse current capacity 1000 mA

Optional extras

• 5 VDC USB power supply	• +5 VDC USB to molex cable (4143F) • Delivered with included fuse to protect the product from overcharge • Note: do not use different power cable

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Indication of scale

Size: 86 x 86 x 26 mm
(excluding PIR sensor)

About StreamLine IoT BV

StreamLine IoT BV is part of a group of companies active in the industry of track & trace products, IoT solutions and internet portal services since 1995.

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The Netherlands
www.streamline-iot.com
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Sources
European Committee for Standardization. (2019). Energy performance of buildings - Ventilation for buildings. EN 16798-1:2019.
European Enviroment Agency. (2019). Trends in atmospheric concentrations of CO2 (ppm), CH4 (ppb) and N2O (ppb), between 1800 and 2017. Retrieved from eea.europa.eu: click here