StreamLine

4743 StreamLine LoRa CO2 Sensor with PIR Sensor

See indication of scale below

The 4743 StreamLine LoRa CO2 Sensor with PIR Sensor is designed for monitoring air quality, CO_2 levels, temperature, and occupancy through its PIR motion detection sensor. This module seamlessly integrates with facility management systems, enabling users to enhance indoor climate control while reducing expenses.

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
- Compatible with the Helium network
- Bluetooth Low Energy for integrations in automation and feedback

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 managing air quality and climate in various indoor settings such as offices, schools, hospitals, and public buildings.

Featuring a built-in PIR motion sensor, it quickly responds to occupancy as soon as someone enters a room, seamlessly integrating with facility management systems to reflect the space's status as occupied and adjusting climate settings accordingly. This ensures a comfortable environment, factoring in variables like temperature, humidity, CO_2, and even optional VOC gas measurements.

The product boasts a highly accurate sensor utilizing photoacoustic NDIR technology, guaranteeing precision and an impressive sensor lifespan of 10 years without the need for interim calibrations. Moreover, measurements automatically adapt to humidity levels. Users can benefit from a definable multicolour LED for visual feedback on CO_2 levels, along with an audible warning for high CO_2 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
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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