# StreamLine

## 4741 StreamLine LoRa CO2 Sensor



*See indication of scale below*

The 4741 StreamLine LoRa CO2 Sensor is designed for monitoring air quality, $CO_2$ levels and temperature. 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
- 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
- Temperature sensor up to 0,2 ˚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 4741 StreamLine LoRa CO2 Sensor is the ideal solution for managing air quality and climate in various indoor settings such as offices, schools, hospitals, and public buildings.

The module seamlessly integrates with facility management systems adjusting climate settings according to occupancy. 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 SX 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
- 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*

## 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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### 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