

## PRODUCT SPECIFICATIONS

**LoRaWAN™ Sensor Device**

**MODEL: ATRS0005**

**Version: V1.2**



**SICE S.p.A.**

Via Tazio Nuvolari 53  
55061 Carraia (LU) Italy  
Tel +39 0583980787  
info@sicetelecom.it

## Introduction:

ATRS0005 is designed to measure Carbon Dioxide (CO<sub>2</sub>), Temperature and Humidity by LoRa® long-range and low-power wireless connectivity. It is integrated LoRa® wireless technology, CO<sub>2</sub> sensor knowhow and high-performance MCU solution for various IoT markets usage. With calibrated CO<sub>2</sub> sensor module and compensated Temperature/ Humidity sensor integration, the data is ready for use. It is perfect for monitoring air quality in schools, office buildings, greenhouses, factories, hotels, hospitals, transportation lines and anywhere high levels of carbon dioxide are generated.

## Product Features:

- LoRaWAN™ compliant
- High Receiver Sensitivity, Long Range Solution
- Integrated with calibrated CO<sub>2</sub> Sensor

Accuracy: ±50 ppm, ±3% of reading

Range: 0 ~ 10,000 ppm

- Integrated with Compensated Temp/ RH Sensor
- Wide range DC power-in, 8~24V /or Micro-USB DC power-in, 5V
- Display CO<sub>2</sub> concentration, Temp/ RH
- Alarm LED indicator

## Specifications

<b>Wireless</b>	
LoRa® Module	LoRa Alliance™ certified module LM-130H
Sensitivity	-132 dBm @ 980 bps
Tx Power	Up to 100mW
Standard/ Protocol	Comply with LoRaWAN™ protocol
LoRa® Antenna	External Omni Antenna 824 ~ 960 MHz 2 dBi SMA Male connector
Frequency	863 ~ 870 MHz (EU) 902 ~ 928 MHz (US) 920 ~ 928 MHz (ROA)
<b>Sensor Operation</b>	
Sensing Element	CO <sub>2</sub> : Gold-plated infrared (NDIR) wave-guide technology with Automatic Baseline Correction (ABC) and passive gas diffusion (no moving parts) Temperature & Humidity: CMOS sensor
Response Time	CO <sub>2</sub> : < 10 sec. @ 30 cc/min. flow rate < 3 min. diffusion time Temperature: min. 3 sec. ; max. 30sec. at τ 63% Humidity: < 8 sec. at τ 63%
Accuracy (at 25°C)	CO <sub>2</sub> : ± 50 ppm or ± 3% of reading Temperature: ± 0.5°C Humidity: ± 5 %RH
Repeatability	CO <sub>2</sub> : ± 20 ppm + (± reading * 1%) Temperature: ± 0.3 °C Humidity: ± 0.3 %RH
Zero Drift	CO <sub>2</sub> : < ± 10 ppm/yr. with Automatic Baseline Correction (ABC) Temperature: < 0.04 °C/yr Humidity: < 0.5 %RH/yr
Measurement Range*	CO <sub>2</sub> : 0 ~ 10,000 ppm Temperature: -40 ~ +125 °C Humidity: 0 ~ 85 %RH
Pressure Dependence	CO <sub>2</sub> : 1.6% reading per kPa
<b>System Operation</b>	
Temperature	-10 ~ +60 °C
Humidity	0 ~ 85 %RH Non-condensed, 0 to 50°C
Storage Temperature	-20 ~ +70 °C.

## Specifications

Warm-up Time	≤ 1 min. (at full specs ≤ 15 minutes.)
LED Indicator	Orange LED x 1 (by threshold setting, default is 800 ppm) Red LED x 1 (by threshold setting, default is 1000 ppm)
Power Supply	DC 8 ~ 24 V or Micro-USB DC 5 V
Power Consumption	TBD
Installation	Wall-mount
Dimension (mm)	Wall-mount: 113.57(H) x 80(W) x 28.79(D) mm
Weight	101 ± 2 g
Case Material	ABS
<b>Accessory</b>	
Standard	LoRa <sup>®</sup> Antenna (External Omni Antenna) x 1
Optional	Sensor Programmable Cable (Micro USB to UART)

The specifications are subject to change without notice.