

# Senseair Sunrise Automotive

## Standard specification

Target gas	Carbon Dioxide
Operating principle	Non-dispersive infrared
Measurement range (CO <sub>2</sub> )	400–5000 ppm Extended range 400-10 000 ppm
Accuracy (CO <sub>2</sub> )	±30 ppm ±3% of reading <sup>1,3</sup> Extended range ±200 or 10%
Average current	<100µA <sup>2,5</sup>
Peak current	<125mA
Measurement period	Adjustable by host, min 2 sec Default measurement period 16 sec
Power supply	3.05-5.5 V <sup>4</sup>
Dimensions	33.9 x 19.8 x 11.8 mm
Weight	5 g
Life expectancy	>15 years
Operation range	-40 – 85°C, 0-95% RH
Storage temperature	-40 – 105°C
Serial communication	UART, I <sup>2</sup> C

- Note 1: 15 – 35°C, 0 – 80%RH, after three eight-day periods, each period followed by ABC command set in the Calculation Control byte.
- Note 2: Supply voltage 3.3V.
- Note 3: Specification is referenced to uncertainty of calibration gas mixtures (±1%).
- Note 4: Unprotected against surges and reverse connection
- Note 5: Measurement period 16 seconds

## Contact

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Senseair

part of AsahiKASEI

# Sunrise Automotive

A new generation NDIR sensors  
with Optical Solid State technology  
for the automotive industry.

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## Freedom to sense anywhere

LED technology has long been a holy grail. The collaboration with Asahi Kasei (AKM), the company that also invented the Lithium Battery, has now made it possible to use the technology with sustained performance.

Ultra Low Power no longer has to come at the expense of accuracy. Sunrise Automotive is the new generation NDIR sensor with Optical Solid State technology, ideal for the automotive market.



## ULTRALOWPOWER

Thanks to the next generation LED technology, Sunrise has an ultra low power consumption: 6 times lower than the competing low power NDIR sensor on the market. Average current 100 $\mu$ A<sup>2,5</sup>.

## OPTICALSOLIDSTATE

Electronics with no moving parts make this sensor robust and resistant to vibrations. Any application with a tough environment or explosion risk is benefited by the solid state design.

## MASSPRODUCTION

The design of the sensor optimises the manufacturing process, and we are avoiding any manufacturing steps that require human handling. The new Sunrise production line is fully automated, and the calibration is made in four different steps.

## SELF-CALIBRATING

Mount and forget your sensor for the next 15 years and it will still be accurate, thanks to the built-in self-correcting ABC algorithm. Senseair has used Automatic Baseline Correction for three decades. About 6 million sensors provide data every millisecond, and every 8th day they will calibrate themselves. With wireless applications, it will be even more important to rely on a sensor you can mount and forget. Sunrise will continue the line of success.

## HIGHPRECISION

There is a fundamental relationship between invested power and measurement resolution in all electronic sensors. The more electrical energy you invest in the measurement, the more accurate reading you will get - therefore, obtaining high resolution measurements using a low power sensor is a challenge. Sunrise is the first NDIR sensor with LED technology that truly saves power while maintaining a high precision. Accuracy (CO<sub>2</sub>)  $\pm 30$  ppm  $\pm 3\%$  of reading<sup>1,3</sup>.

## THREEPACKAGES

Sunrise can be delivered as a sensor core - calibrated and ready to mount, but you will find more advantages in our other packages: Sensor onBoard and Sensor inCase. As the names suggest, we will design and manufacture the board with the sensor or ready-to-use packaging. The advantage is that calibration can be done after the sensor has been mounted, and that comes with extended warranties. We will also take responsibility for the design to be optimized around the sensor function (air flow etc.).