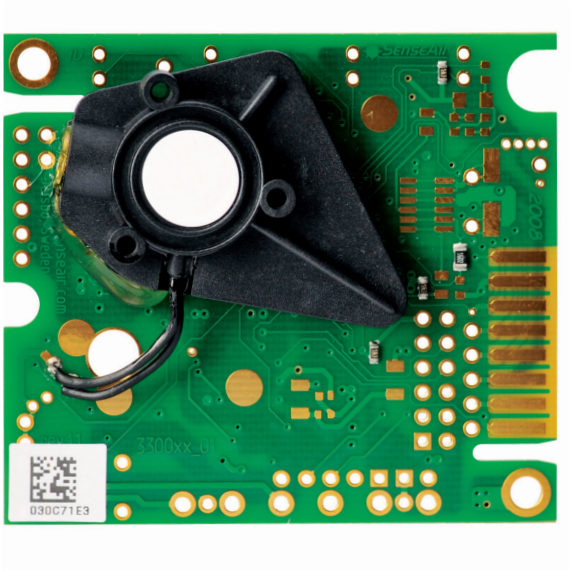
Senseair K33 ICB

Sensor Module for bio applications



Senseair K33 ICB is targeted on bio applications with required measurement range 0 to up to 30%$_{vol}$ CO_2.

Senseair K33 ICB can be supplied in diffusion modification with (Senseair K33 ICB F) or without tube IN/OUT. The module is as all other sensors from Senseair designed for high volume production with full traceability by sensor serial number on all manufacturing processes and key components. Every sensor is individually calibrated and is provided with UART digital interface.

This platform is designed to be a low power OEM module for integration into host apparatus, such as battery operated products and sensors with radio transmitters. Any application where power consumption is important to keep at a minimum without sacrificing the performance.

Standard specification

Measured gas	Carbon dioxide (CO_2)
Operating principle	Non-dispersive infrared (NDIR)
Measurement range	0–30%$_{vol}$
Accuracy	±0.5%$_{vol}$ ±3% of measured value
Dimensions (L x W x H)	51 x 57 x 14mm
Life expectancy	>15 years
Operation temp. range	0–50°C
Operation humidity range	0–95%RH (non-condensing)
Power supply	5–14VDC max rating, stabilised to within 10% (on board protection circuits)
Power consumption	40mA average <200mA average during IR lamp ON (120ms) <250mA peak power during IR lamp start-up (the first 50ms)
Communication	I²C, UART (Modbus protocol)

Key benefits

- Low-power consumption
- Individually calibrated
- High quality
- Long term stability

Senseair K33 ICB Technical Specification

General Performance:

Storage temperature range	-40–70°C
Storage environment	Non-condensing, non-corrosive
Sensor life expectancy	>15years
Maintenance interval	Maintenance-free [1]
Self-diagnostics	Complete function-check of the sensor module
Operating temperature range	0–50°C
Operating humidity range	0–95%RH (non-condensing) [2]
Operating environment	Residential, commercial, industrial spaces used in HVAC (Heating Ventilation and Air-Conditioning) systems

Electrical / Mechanical:

Power input	5–14VDC stabilised to within 10% (on board protection circuits) [3]
Average current consumption	40mA average, <200mA averaged during IR lamp ON, (120ms)
Peak current consumption	<250mA peak power (during IR lamp start-up, (the first 50ms)
Electrical connections	Terminals not mounted (G+, G0, OUT1,OUT2, Din1, Din2, TxD and RxD) [4]
Dimensions	51 x 57 x 14mm (Length x Width x Height)

CO_2 Measurement:

Operating principle	Non-dispersive infrared (NDIR) waveguide technology with ABC (Automatic Baseline Correction)
Sampling method	Diffusion
Response time ($T_{1/e}$)	<20s, diffusion or tube IN/OUT (0.2l/minute gas flow)
Measurement period	>5min
Measurement range	0–30%$_{vol}$
Accuracy	±0.5%$_{vol}$ ±3% of measured value [5]
Pressure dependence	+1.6% reading per kPa deviation from normal pressure, 101.3kPa

Linear Signal Output:

OUT2

D/A resolution	5mV
Linear conversion range	0–5VDC for 0–20%$_{vol}$
Electrical characteristics	R_{OUT} <100Ω, R_{LOAD} >5kΩ, Power input >5,5V [6]

Note 1: When using Senseair´s ABC (Automatic Baseline Correction) algorithm.

Note 2: For applications operating continuously in high humidity, contact Senseair for further information.

Note 3: Notice that absolute maximum rating is 14V, so sensor can be used with 12V+-10% supply.

Note 4: Different options exist and can be customized depending on the application. Please contact Senseair for further information!

Note 5: Accuracy is specified over operating temperature range at normal pressure 101.3kPa. Specification is referenced to certified calibration mixtures. Uncertainty of calibration gas mixtures (±1% currently) is to be added to the specified accuracy for absolute measurements.

Note 6: For the buffered output OUT2 the maximum output voltage range equals power voltage input minus 0.5V