

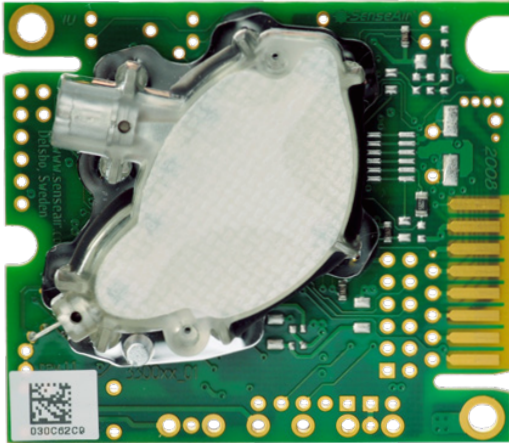
# Senseair K33 ELG

## Sensor Module for environment parameters logging

Senseair K33 ELG is a sensor module for CO<sub>2</sub> concentration, temperature and relative humidity.

Senseair K33 ELG is designed for low-power application with demand for multiple measurement parameters. The adjustable measurement interval, results in average power consumption that can be reduced to less than 52  $\mu$ A (measurement every 60 minutes). 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 <sub>2</sub> )
Operating principle	Non-dispersive infrared (NDIR)
Measurement range CO <sub>2</sub>	0–5000ppm
Measurement range Temp	-30–60°C
Measurement range RH	0–100%
Accuracy	±30ppm ±3% of measured value
Dimensions (L x W x H)	51 x 57 x 12mm
Life expectancy	>10 years
Operation temp. range	0–50°C
Operation humidity range	0–95%RH (non-condensing)
Power supply	
G+ referred to G0	5.5–12VDC max rating,
Vbat+ referred to G0	4.75–12VDC max rating
Power consumption	<150mA peak current (averaged during IR lamp ON) <250mA peak power (averaged during IR lamp start-on)
Communication	I <sup>2</sup> C, UART (Modbus)

### Key benefits

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



# Senseair K33 ELG Technical Specification

## General Performance:

Storage temperature range	-40–70°C (non-condensing)
Storage environment	Non-condensing, non-corrosive
Sensor life expectancy	>10 years
Maintenance interval	Maintenance-free <sup>1</sup>
Self-diagnostics	Complete function-check of the sensor module
Operating temperature range	0–50°C
Operating humidity range	0–95%RH (non-condensing) <sup>2</sup>
Operating environment	Non-corrosive environment <sup>2</sup> . Residential, commercial, industrial spaces used in HVAC (Heating Ventilation and Air-Conditioning) systems

## Electrical / Mechanical:

Power input	4.75–12.0 VDC maximum rating, powered via Vbat+ <sup>3,4</sup> 5.50–12.0 VDC maximum rating, powered via G+ <sup>3,5</sup>
Average current consumption	~60mA average during active measurement sequence (~12s)
Peak current consumption	<150mA peak current (averaged during IR lamp ON, 100 msec) <250mA peak power (during IR lamp start-up, the first 50 msec)
Electrical connections	Vbat+, G+ and G0
Dimensions	51 x 57 x 12mm (Length x Width x Height)

## CO<sub>2</sub> Measurement:

Operating principle	Non-dispersive infrared (NDIR)
Sampling method	Diffusion
Response time (T1/e)	<25 sec gas diffusion time
Measurement period	5 min to 0.5 year interval (a measurement period less than 5 min can be used, but then specified accuracy on RH and temperature measurements are not guaranteed)
Measurement range	0–5000ppm
Accuracy	<±30ppm ±3% of measured value <sup>6</sup>
Pressure dependence	+1.6% reading per kPa deviation from normal pressure, 101.3kPa

## Temperature Measurement:

Measurement range	-30–60°C
Accuracy	±0.4°C (@ 25°C) <sup>7,8</sup>
Response time	<6min (Air velocity of 0.15m/s)
Measurement interval	>5min

## Relative Humidity Measurement:

Measurement range	0–100%RH (non-condensing)
Accuracy	3%RH (@ 20–80%RH) <sup>7,8</sup>
Measurement interval	>5min

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Note 1: When using Senseair's ABC (Automatic Baseline Correction) algorithm. ABC is enabled in default configuration.

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

Note 3: Notice that absolute maximum rating is 12V, so sensor can not be used with 12V±10% supply.

Note 4: Unprotected against reverse connection!

Note 5: Power supply via protection circuit.

Note 6: Accuracy is specified over operating temperature range at normal pressure 101.3kPa. Specification refers to certified calibration mixtures. Uncertainty of calibration gas mixtures (±1% currently) is to be added to the specified accuracy for absolute measurements.

Note 7: Specification is provided by Sensirion.

Note 8: Accuracy is defined after minimum five (5) minutes measurement period.