

eSENSE™ FAI3 (Fresh Air Indicator)

CO₂ Alarm Transmitter



eSENSE™ FAI3 is a new simple, low-cost, state-of-the-art infrared and maintenance-free carbon dioxide alarm for installation in areas where the carbon dioxide levels need to be monitored, such as class-rooms and offices.

eSENSE™ FAI3 measures the carbon dioxide concentration in the ambient air. The CO₂ levels will be shown with different LED-colours.

eSENSE™ FAI3 carries the five (5) years warranty.

APPLICATIONS

eSENSE™ FAI3 is a cost-optimised sensor solution for climate control. Measuring the CO₂ concentration indoors, gives a good indicator of the air quality. The CO₂-level will control the ventilation. Gives healthier indoor climate and reduced energy consumption.

STANDARD SPECIFICATIONS

Measured gas	Carbon dioxide (CO ₂)
Operating Principle	Non-dispersive infrared (NDIR)
Measurement range	0 – 9.999 ppm
Accuracy	±30 ppm ±3% of reading (0 – 3.000 ppm)
OUT1 linear output	0 - 10VDC, 0 – 2.000 ppm
OUT2 linear output	4 - 20mA, 0 – 2.000 ppm
Dimensions	100 x 80 x 28mm
Life Expectancy	> 15 years
Operation temperature range	0 - +50°C
Operation humidity range	0 - 85%RH (non-condensing)
Power supply	24VAC/DC

KEY BENEFITS

- Two analogue outputs
- Internal automatic self-diagnostics.
- Maintenance-free
- Three LEDs: Red, yellow, green
Alarm configurations:
Green: 0 - 800ppm
Yellow: 800 – 1.200ppm
Red: >1.200ppm
Alarm: >1.400 ppm
- Mute button: 30 minutes alarm off
- Configurable with SADK-interface and UIP5



Technical Specification

General Performance:

Conformance with standards.....	EMC 2004/108/EC directive EN 61326-1: 2006, Class B equipment, Table 1 – Basic immunity test requirements RoHS directive 2011/65/EU
Operating Temperature Range	0 - +50°C
Storage Temperature Range	-40 - +70°C (display model -20 - +70°C)
Operating Humidity Range	0 - 95%RH (non-condensing)
Operating Environment	residential, commercial and industrial spaces ¹
Warm-up Time	1 min. (@ full specs 15 minutes)
Sensor Life Expectancy	> 15 years
Maintenance Interval	no maintenance required ²
Self Diagnostics	complete function-check, LCD error indication (display model)
Display.....	4 Digits, 7 segments LCD with ppm indicator

Electrical / Mechanical:

Power Input	24VAC/VDC ±20%, 50Hz (half-wave rectifier input)
Power Consumption	< 1W average
Connection screw terminal A	1,5mm ²

CO₂ Measurement:

Sensing method	EQC-plated infrared (NDIR) waveguide technology with Automatic Baseline Calibration (ABC) and passive gas diffusion (no moving parts)
Response Time (T _{1/e})	< 10s. @ 30 cc/min. flow rate, < 3 min. diffusion time
Repeatability	±20 ppm ±1% of reading (0 – 3.000 ppm)
Accuracy ²	±30 ppm ±3% of reading (0 – 3.000 ppm)
Annual Zero Drift ²	< ±10 ppm
Pressure Dependence	+1.6 % reading per kPa
Measurement range.....	0 – 9.999 ppm

Output Signal Terminal CO₂:

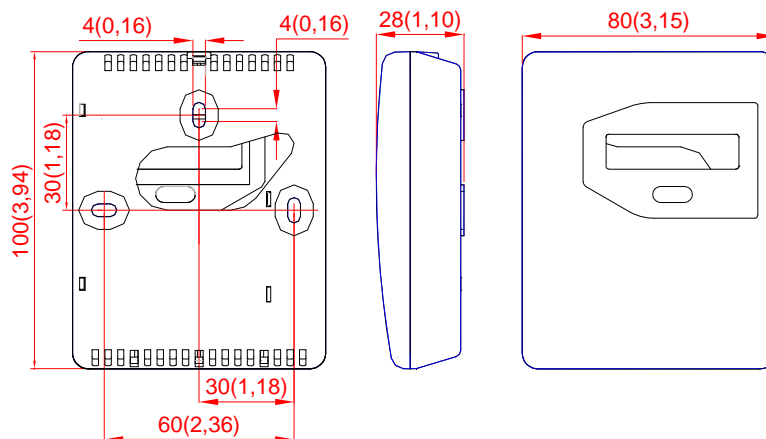
OUT1 linear conversion range	0 - 10VDC for 0 – 2.000 ppm
D/A conversion accuracy	±2% of reading ±50mV
Electrical characteristics.....	R _{OUT} < 100Ω, R _{LOAD} > 5kΩ

eSENSE™ FAI3

Art.no	Product	Additional features
050-8-0065	eSENSE™ FAI3	Fits European standard J-boxes

Note 1: The SO₂ enriched environments are excluded.

Note 2: In normal IAQ applications (@ NTP), accuracy is defined after minimum three (3) weeks of continuous operation. The tolerance of the span calibration gas (2% unless otherwise requested) and test gas adds to the total uncertainty.



Dimensions of sensor in mm and (inches)