eSENSE™ FAI Light
(Fresh Air Indicator)

CO₂ Transmitter

eSENSE™ FAI Light 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™ FAI Light measures the carbon dioxide concentration in the ambient air. The CO_2 levels will be shown with different LED-colours.

eSENSE™ FAI Light carries the five (5) years warranty.

APPLICATIONS

eSENSE™ FAI Light is a cost-optimised sensor solution for climate control. Measuring the CO_2 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 (flashes)
- 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

CO_2 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 CO_2:

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™ FAI Light

Art.no	Product	Additional features
050-8-0077	eSENSE™ FAI Light	Fits European standard J-boxes

Note 1:   The SO_2 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 incertainty.
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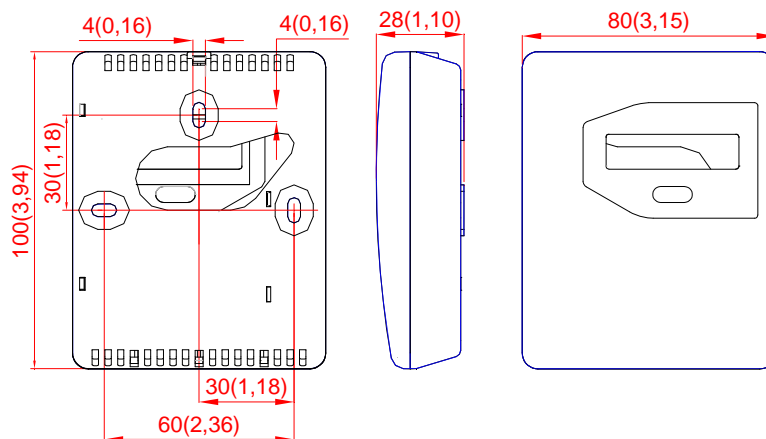
Dimensions of sensor in mm and (inches)