

# Datasheet: eSense FAI OSHA CO2 Alarm

The eSense OSHA alarm is a simple, cost-effective, state-of-the-art infrared and maintenance-free carbon dioxide alarm for installation in areas where the carbon dioxide level needs to be monitored for 5,000ppm OSHA and NIOSH limits.

This CO2 alarm measures the carbon dioxide concentration in the ambient air and alarms with sound and light when the CO2 levels are exceeded. A button can be pressed to temporarily silence the alarm while fresh air is introduced into the area.

## Features

Three LEDs: Green, Yellow, Red

Alarm configuration:

- Green: 0 – 4,500 ppm
- Yellow: 4,500 – 5,000 ppm
- Red: > 5,000 ppm

Audible alarm & Mute button

Measurement range: 0 - 10,000 ppm

Analogue output: 0-10VDC

Internal automatic self-diagnostics

Maintenance-free in normal applications

130 x 85 x 30 mm - Fits US-Standard J box

## Applications

The eSense FAI is designed to warn you when CO2 levels exceed the 5,000ppm limit specified by OSHA's Material Safety Data Sheet.

- OSHA 5,000 ppm
- ACGIH 5,000 ppm
- NIOSH 5,000 ppm
- **Does NOT meet NBIC, IFC or NFPA codes for CO2 Storage.**

Note that carbon dioxide levels of 30,000ppm are considered dangerous to human life. A CO2 concentration below 5,000 ppm should always be the target for 8-hour or less workdays.



## General Performance

|                                   |  |
|-----------------------------------|--|
| Compliance with .....             | EMC directive 89/336/EEC. RoHS directive 2002/95/EG              |
| Operating Temperature Range ..... | 0 - 50 °C  |
| Storage Temperature Range .....   | -40 to +70 °C (display model -D: -20 to +70 °C )                 |
| Operating Humidity Range .....    | 0 to 95% RH (non-condensing)                                     |
| Operating Environment .....       | residential, commercial and industrial spaces                    |
| Warm-up Time .....                | ≤ 1 min. (@ full specs ≤ 15 minutes)                             |
| Sensor Life Expectancy .....      | > 15 years   |
| Maintenance Interval .....        | No maintenance required  |
| Self Diagnostics .....            | Complete function-check, LCD error indication (display model -D) |
| Display (model -D) .....          | 4 digits, 7 segments LCD with ppm indicator                      |

## CO2 Measurement

|   |   |
|---|---|
| Sensing Method .....                    | Gold-plated infrared (NDIR) waveguide technology with passive gas diffusion (no moving parts) |
| Calibration.....                        | Manual calibration required. Automatic Background Calibration optional at time of purchase.   |
| Response Time (T <sub>1/e</sub> ) ..... | < 10 sec. @ 30 cc/min. flow rate, < 3 min. diffusion time                                     |
| Repeatability.....                      | ± 20 ppm ± 1 % of reading   |
| Accuracy .....                          | ±30 ppm ±3% of reading  |
| Annual Zero Drift .....                 | < ± 10 ppm  |
| Pressure Dependence .....               | 1.6% of reading per kPa   |
| Measurement range.....                  | 0 - 10,000 ppm  |

## Electrical

|                                   |  |
|-----------------------------------|--|
| Power Input.....                  | 24 VAC/VDC ±20%, 50 Hz (half-wave rectifier input)           |
| Power Consumption .....           | < 1 Watt average   |
| Connection screw terminal A ..... | 4 x 1,5 mm2 for power input (G+, G0) and voltage output OUT1 |

## Outputs

|                                   |                               |
|-----------------------------------|-------------------------------|
| OUT1 linear conversion range..... | 0 -10 VDC                     |
| Audible alarm.....                | 94 Db Mute button             |
|                                   | D/A resolution 10 bits, 10 mV |
| D/A conversion accuracy.....      | ± 2 % of reading ± 50 mV      |