

Datasheet: eSense FAI OSHA CO2 Alarm

The eSense OSHA alarm 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.

This CO2 alarm measures the carbon dioxide concentration in the ambient air and alarms with sound and light when the levels are exceeding the defined levels

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 - 6,000 ppm CO2

One analogue output (optional –I):

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 OSHA, ACGIH or NIOSH 5,000 ppm is reached in:

- Factories
- Breweries
- Wineries
- CO2 Storage Closets
- Bars, Restaurants

By measuring CO2 you get a good indicator to when adequate “fresh” outside air must be supplied to the occupants for an acceptable indoor air quality.

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 Automatic Background Calibration (ABC) and passive gas diffusion (no moving parts)
Response Time (T _{1/e})	< 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 - 6,000 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 outputs (OUT1, OUT2)

Outputs

OUT1 linear conversion range	0 -10 VDC for 0 - 2 000 ppm.
Audible alarm	Typ 94 Db Mute button
	D/A resolution 10 bits, 10 mV
D/A conversion accuracy	± 2 % of reading ± 50 mV
Electrical characteristics.....	R _{OUT} < 100 Ohm, R _{LOAD} > 5 kOhm