Datasheet: eSense FAI Programmable CO2 Alarm

The eSense Programmable 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 needs to be monitored, such as class- rooms and offices.

Using our free DAS software you can set the CO2 on/off levels for the LEDs, configure the mute button timeout and you customize the 0-10V analog output if you want the eSense CO2 Alarm to report CO2 levels to a demand-controlled ventilation system or other monitoring hardware. Go to co2meter.com/pages/downloads to download GasLab®.

Features

Three LEDs: Green, Yellow, Red

Alarm configuration:

- Green:
- Yellow: $\Big\}$ *user-defined*
- Red:

Audible alarm & Mute button

Measurement range: 0 - 6,000 ppm CO2

Analog 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 at user-defined CO2 levels in:

- CO2 Storage Closets
- Factory Floors
- Science Labs

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 passive gas diffusion (no moving parts)
Calibration …………………………………………………… Manual (default) or Automatic Background Calibration (ABC) selectable in software
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 .... 94 Db Mute button
D/A conversion accuracy .... ± 2 % of reading ± 50 mV
Electrical characteristics.............................. R_{OUT} < 100 Ohm, R_{LOAD} > 5 kOhm