AQ Controls Limited

Model *eSENSE*™ *FAI* (Fresh Air Indicator)
Carbon dioxide alarm

PRODUCT DESCRIPTION

eSENSE™ *FAI* is a new simple, low cost, maintenance free carbon dioxide alarm for installation in areas where the carbon dioxide levels can affect the focus and learning ability of occupants, such as in class-rooms and offices.

eSENSE™ *FAI* measures the carbon dioxide concentration in the occupied air and provides an audible and visual alarm when the pre-defined levels are exceeded.

FEATURES

SenseAir´s patented gold-plated infrared (NDIR) waveguide technology offers reliable measurements.

- Three LED's: Red, Yellow, Green
  Alarm configuration:[3]
  Green: 0 - 800 ppm
  Yellow: 800 -1400 ppm
  Red: 1400 ppm>

- Audible alarm

- Mute button

- One analogue output

- Internal automatic self-diagnostics.

- Maintenance free in normal applications

APPLICATIONS

eSENSE™ *FAI* is an effective solution for CO_2 monitoring in class rooms and offices.

Providing adequate ventilation can increase productivity and the ability to learn according to many studies.
It can also reduce the risk of temporary sickness and downtime.

Measuring CO_2 will provide a good indication as to when adequate "fresh" outside air must be supplied for an acceptable indoor air quality. The ventilation will then be based on actual demand. This helps to decrease energy consumption and provide a healthy indoor climate.

A CO_2 concentration below 1000 ppm should always be the target.

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*eSENSE™ FAI carbon dioxide alarm Technical Specification**

General Performance

Compliance with .... EMC directive 89/336/EEC. RoHS directive 2002/95/EG
Operating Temperature Range .... 0 to +50 °C
Storage Temperature Range .... -40 to +70 °C (display model -20 to +70 °C)
Operating Humidity Range .... 0 to 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

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

CO_2 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 [2] .... ± 30 ppm ± 3 % of reading
Annual Zero Drift [2] .... < ± 10 ppm
Pressure Dependence .... + 1.6 % reading per kPa
Measurement range.. 0 to 3 000 ppm

Outputs

Output signal terminal CO2
OUT1 linear conversion range .... 0 to 10 VDC for 0 to 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

Housing options

WALL HOUSING
eSENSE FAI
(standard)

Dim.: 100 x 80 x 28
mm (H x W x D)
Protection class: IP30
60 mm hole separation

for European standard
J-boxes**.**

eSENSE™

WALL HOUSING
eSENSE II FAI

Dim.: 130 x 85 x 30
mm (H x W x D)
Protection class: IP30

Fits Us standard
J-boxes.

eSENSE™ II FAI

Note 1:   The SO$_2$ enriched environments are excluded.
Note 2:   In normal IAQ applications (@ NTP). Accuracy is defined after minimum 3 weeks of continuous operation.
          The tolerance of the span calibration gas (2 % unless otherwise requested) and test gas adds to the total uncertainty.
Note 3:   Can be ordered with special settings

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