Model *eSENSE*™

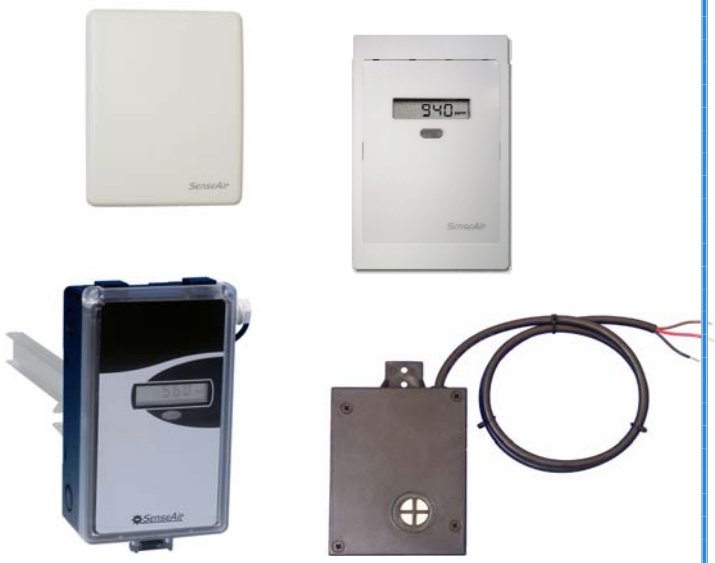
Carbon dioxide transmitter

PRODUCT DESCRIPTION

eSENSE™ *is a new simple, low cost, state-of-the-art, infrared and maintenance-free carbon dioxide transmitter for installation in the climate zone or in the ventilation duct.*

eSENSE™ *measures the carbon dioxide concentration in the ambient air up to 2000 ppm and transforms the data into an analogue output.*

eSENSE™ *helps you save money by decreasing your energy consumption while creating a healthier indoor climate!*



FEATURES

SenseAir´s patented state-of-the-art gold-plated infrared (NDIR) waveguide technology offers reliable measurements

- Measurement range: 0 - 2 000 ppm CO_2
- Two analogue outputs (not model –*I*):
- Internal automatic self-diagnostics.
- Maintenance-free in normal applications
- Cost-optimized for connection to DDC:s
- Prepared for complementary passive temperature element (model -*Tr*).
- Different housing options

APPLICATIONS

eSENSE™ *is* an extremely cost-optimized sensor solution for climate control of buildings and other processes.

By controlling the ventilation based on actual demand, it helps you decrease your energy consumption and yet have a healthy indoor climate!

The different housing options makes the *eSENSE*™ available to almost any application or environment for example in greenhouses, residential and commercial buildings. *eSENSE*™ -*Tr* is also prepared for quick mounting of a complementary passive temperature element, which can easily be done by the customer.

eSENSE™ ***II*** has a new housing that fits directly on top of EU and US electrical junction box standards

CERTIFIED ISO 9001 SEMKO CERTIFICATION

eSENSE™ carbon dioxide transmitter Technical Specification* *(rev nr: 040305)*

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 [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 *-D*)
Display (model *-D*)	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	4 x 1,5 mm^2 for power input (G+, G0) and voltage outputs (OUT1, OUT2)
Connection screw terminal B	2 x 1,5 mm^2 for passive resistive output (Y, M) for option *–Tr*
Model IP50	34 cm 3-wire pigtail. Please note that OUT2 is not made available.

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 - 3 000 ppm

Outputs

Output signal terminal CO2 [3]

OUT1 linear conversion range	0 – 10 VDC for 0 – 2 000 ppm.
OUT2 linear conversion range	2 – 10 VDC, or 4 - 20 mA for 0 - 2 000 ppm.
	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

Resistive terminals [4]

Thermistor outputs	temperature measurement resistor terminal output with signal return connected to ground terminal (option *-Tr*)

Housing options

WALL HOUSING (standard) With or without display.
eSENSE: 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 II: Dim.: 130 x 85 x 30 mm (H x W x D)
Protection class: IP30
Fits Us standard J-boxes.

eSENSE™ *-D*

eSENSE™ *- D II*

INDUSTRIAL WALL HOUSING
With or without display
Dim.: 142 x 84 x 46 mm (H x W x D)
Protection class: IP54

DUCT HOUSING (model *–K*)
Protection class: IP65
Duct probe length: 245 mm (model –K)
(adjustable according to duct dimension)

eSENSE™ *- K-D*

eSENSE™ *IP54*

ALL-ROUND HOUSING (model *–IP50*
Dim.: 106 x 67 x 26 mm (H x W x D)
Protection class: IP50
Connection: 34 cm 3-wire pigtail (no OUT2)
For both wall and duct applications.

eSENSE™ *- IP50*

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: The specifications are valid for the output load connected to ground *G0.* Other outputs and measurement ranges are available per request.
Note 4: Resistive probe is to be mounted by the user. Can be factory pre-mounted upon request.

SenseAir

* ***Can be changed without notice***

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