Model eSENSE II™

Carbon dioxide transmitter

PRODUCT DESCRIPTION

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

eSENSE™ II helps you de-creasing 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*).

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

eSENSE ™II 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 ℃
Storage Temperature Range	-40 to +70 ℃ (display model *-D*: -20 to +70 ℃)
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*

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 option

eSENSE II: Dim.: 130 x 85 x 30 mm (H x W x D)
Protection class: IP30
With or without display

Fits US standard J-boxes.

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 incertainty.
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 mounteed by the user. Can be factory pre-mounted upon request.