

Installation Manual

eSENSE Ind (Disp)

CO₂ sensor

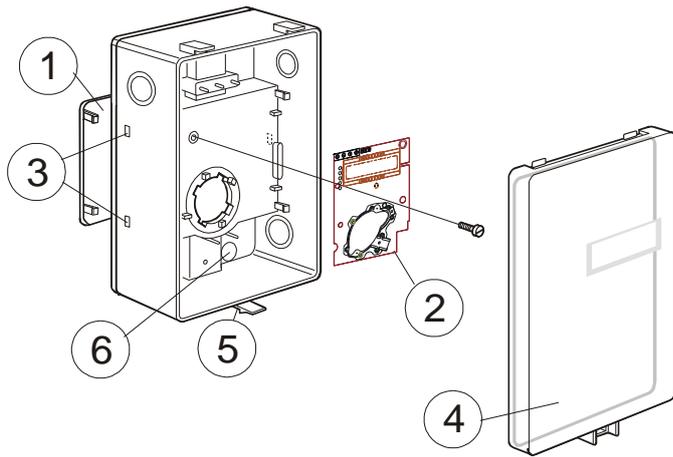


General

The IAQ-sensor product eSENSE Ind for wall mounting in industrial application is designed to measure carbon dioxide (CO₂). Option Disp displays the measured CO₂ value in ppm (parts-per-million) on the LCD.

The units are designed for connecting to Direct Digital Control (DDC) with 0-10V or 2-10V signal inputs. The two parallel signal outputs Out(1) (0-10V) and Out(2) (2-10V) give linear signal voltages corresponding to the measuring range.

The 2-10V output also indicates the status by setting the output voltage to 1V or 2 mA when the sensor self-diagnostics detects any error.



- 1 Wall plate
- 2 PCB (Factory supplied mounted in box)
- 3 Hole for wall plate hooks
- 4 Snap-in lid
- 5 Locking screw of the lid (not shown)
- 6 Air holes

Figure 1. Exploded view of eSENSE Ind Disp

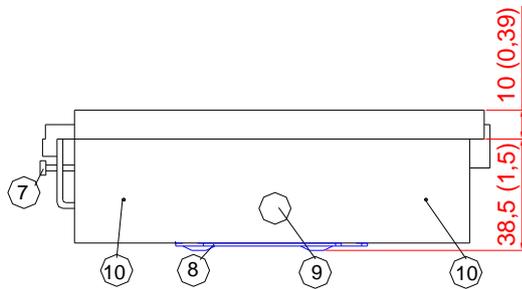


Figure 2. eSENSE Ind housing

- 7 Lid locking screw
- 8 Wall plate
- 9 Screw to hold the wall plate
- 10 Drill marking for cable entry bushings

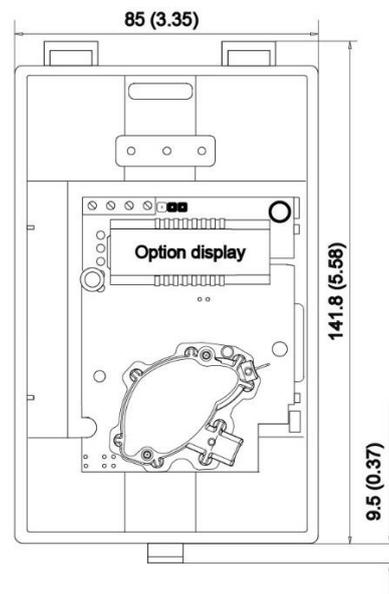


Figure 3. Housing dimensions

Dismounting the wall plate

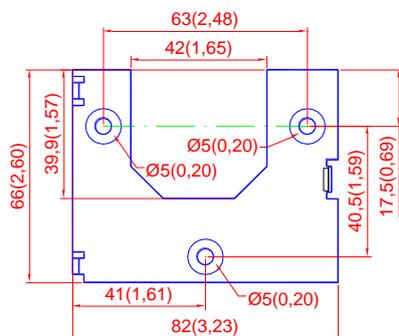


Figure 4. Wall plate dimensions

The sensor is delivered with the wall plate mounted. The wall plate has to be removed before the sensor is mounted onto the wall. Unscrew the screw on the side of the box.

Wall Mounting Instruction

- 1) **Electrical cable entry:** The box has a factory mounted cable entry bushing in dimension PG9. Never feed more than one cable through each cable entry bushing, or else gas might leak through!
- 2) **Screw the wall plate onto the wall:** The wall plate has holes for three screws. Drill holes for 3.5mm screws and put dowel into them. Dowels and screws 3.5 x 25mm are included in a plastic bag.
- 3) **Attaching the sensor box** to the wall plate is done by a snap-in fitting. The wall plate has three hooks that fit in holes in the sensor box. Fasten the screw on the side of the box.
- 4) **The lid can be locked** with the screw at the bottom of the sensor box.



If, for some reason, the PCB must be removed, care must be taken to protect from electrostatic discharge! Normally, removing the PCB is NOT required.

Electrical connections

The power supply has to be connected to \sim \oplus and $\underline{\underline{\ominus}}$. $\underline{\underline{\ominus}}$ is considered as system ground. The same ground reference has to be used for the eSENSE unit and for the DDC/signal receiver.

The same ground reference has to be used for the eSENSE unit and for the control system!

NOTE!

An external fuse shall be used with this sensor. A separate fuse must be used for each sensor.

| Terminal | Function | Electrical data | Standard settings | Settings of this sensor |
|-----------------------------------|-----------------------|--------------------------------------|----------------------------|-------------------------|
| \sim \oplus | Power (+) | 24 VAC/DC+ (+20%), 2W | | |
| $\underline{\underline{\ominus}}$ | Power ground (-) | 24 VAC/DC- | System voltage reference | |
| OUT(1) | Analogue output 1 (+) | 0-10 VDC | 0-2000 ppm CO ₂ | |
| OUT(2) | Analogue output 2 (+) | 2,0...10,0 VDC or 4,0 ... 20,0 mA | 0-2000 ppm CO ₂ | |
| | | 0,9...1,6 VDC or 1.5 to 2,5 mA | Status = ERROR | |
| | | 0 VDC or 0mA | Status = NOT READY | |

Table I. Connections of the main terminal of eSENSE

Important

1. All low voltage connections to this device must be 24 V AC/DC Class 2 (or equivalent to your local regulations).
2. All wiring must comply with applicable local codes, ordinances and regulations.

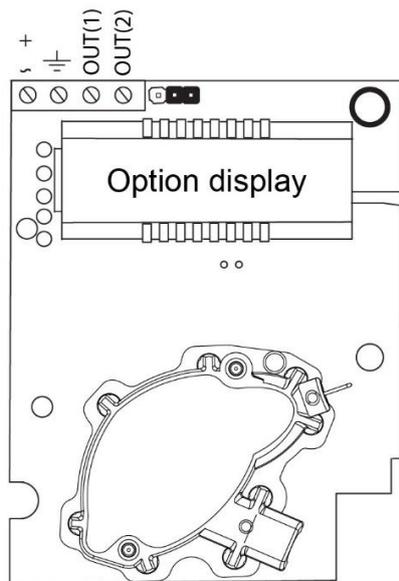


Figure 5. PCB with jumper to configure OUT2 for current output 4-20mA or voltage output 2-10VDC

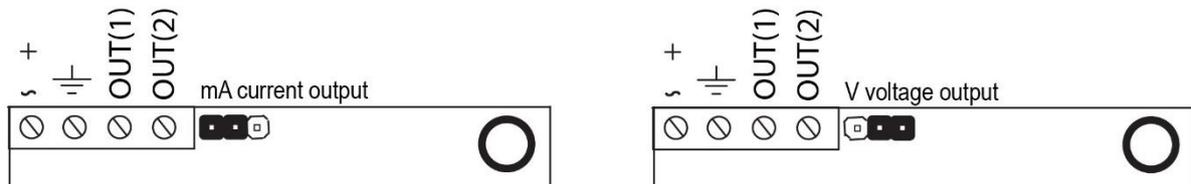


Figure 6. Picture of the PCB with the jumper for setting current output (left position) or voltage output (right position)

Self-diagnostics

The system contains a complete self-diagnostic procedure that is executed automatically when the sensor is in operation. Sensors with display show a *wrench* if an error is found. The wrench is shown during the first seconds after power up and if the measuring range is exceeded. The output Out(2) indicates the same information by setting the output voltage to 1V or 2 mA.

Maintenance

The eSENSE is basically maintenance free in normal environments thanks to the built-in self-correcting ABC algorithm. Discuss your application with Senseair in order to get advice for a proper calibration strategy.

NOTE:

The sensor accuracy is defined at continuous operation (at least 3 weeks after installation)

Electronic products should be disposed of via a suitable recycling centre.

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