Installation Manual

eSENSE (Disp)

CO_2 sensor

eSENSE

eSENSE Disp

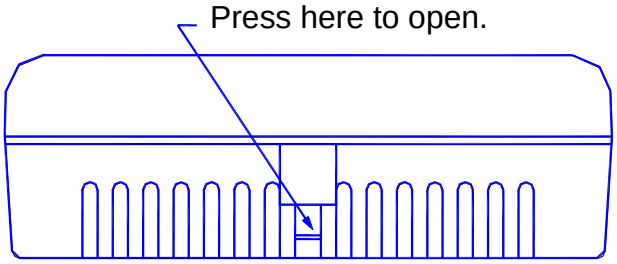
General

The IAQ-sensor product eSENSE (sensor for wall mounting) is designed to measure carbon dioxide (CO_2) in rooms. Option TR is prepared for temperature measurements by the resistive temperature probe mounted by the user. The temperature probe is potential free (floating). Option Disp, displays the measured CO_2 value in ppm (parts-per-million) on the LCD.

The units are designed for connecting to Direct Digital Control (DDC) with 0 – 10 V or 2 – 10V signal inputs. The two parallel signal outputs OUT1 (0 – 10 V) and OUT2 (2 – 10 V or 4 – 20 mA) give linear signal voltages or currents corresponding to the measuring range.
The output OUT2 also indicates the *status* by setting the output voltage to 1 V or the output current to 2 mA when the sensor self-diagnostics detects any error.

Senseair
an Asahi Kasei company

To open the wall mounted housing



NOTE:
ESD sensitive product.
Use ESD protection equipment.

Figure 1. Closed housing seen from above. The housing is opened by pressing a screw driver on the locking hook. The locking hook is then released.

Electrical connections

The power supply has to be connected to ~ + and ⊥. ⊥ is considered as system ground.

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

Terminal	Function	Electrical data	Remarks Standard settings	Remarks Settings of eSENSE ext range 10000 ppm
~ +	Power (+)	24 V AC/DC+ (±20%), 2 W		
⊥	Power ground (-)	24 V AC/DC-	System voltage reference	
Out(1)	Analogue output 1 (+)	0 – 10 VDC	0 – 2000 ppm CO_2	0 – 10000 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 – 10000 ppm CO_2
		0.9 – 1.6 VDC or 1.5 – 2.5 mA	Status = ERROR	
		0 VDC or 0 mA	Status = NOT READY	

Table I. Connections of the main terminal of eSENSE

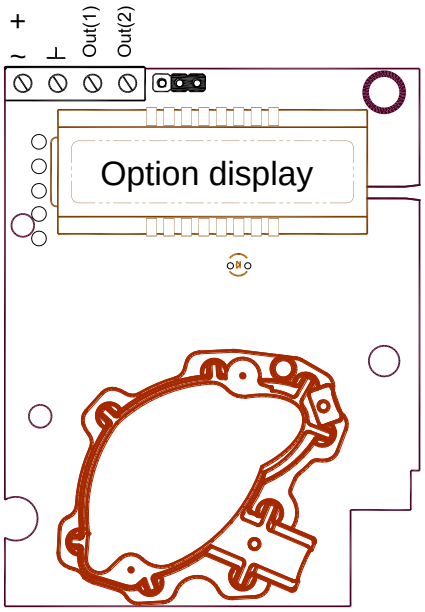


Figure 2. PCB with jumper to configure OUT2 for current output 4 – 20 mA or voltage output 2 – 10 VDC

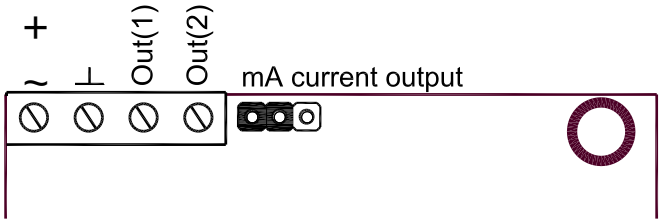


Figure 3. Enlarged picture of the PCB with the jumper set to current output (left position)

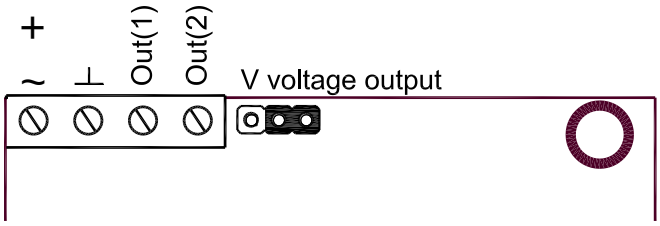


Figure 4. Enlarged picture of the PCB with the jumper set to voltage output (right position)

Self-diagnostics

The system contains a complete self-diagnostic procedure that is executed automatically when the sensor is in operation. The yellow LED is lit if an error is found. Sensors with display show a *wrench* if an error is found. The wrench is shown and the yellow LED is lit during the first seconds after power up and if the measuring range exceeded. They are automatically turned off when the sensor returns to normal operation. The output OUT2 indicates the same information by setting the output voltage to 1 V 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 three (3) ABC periods after installation)
Electronic products should be disposed of via a recycling centre.

Dimensions

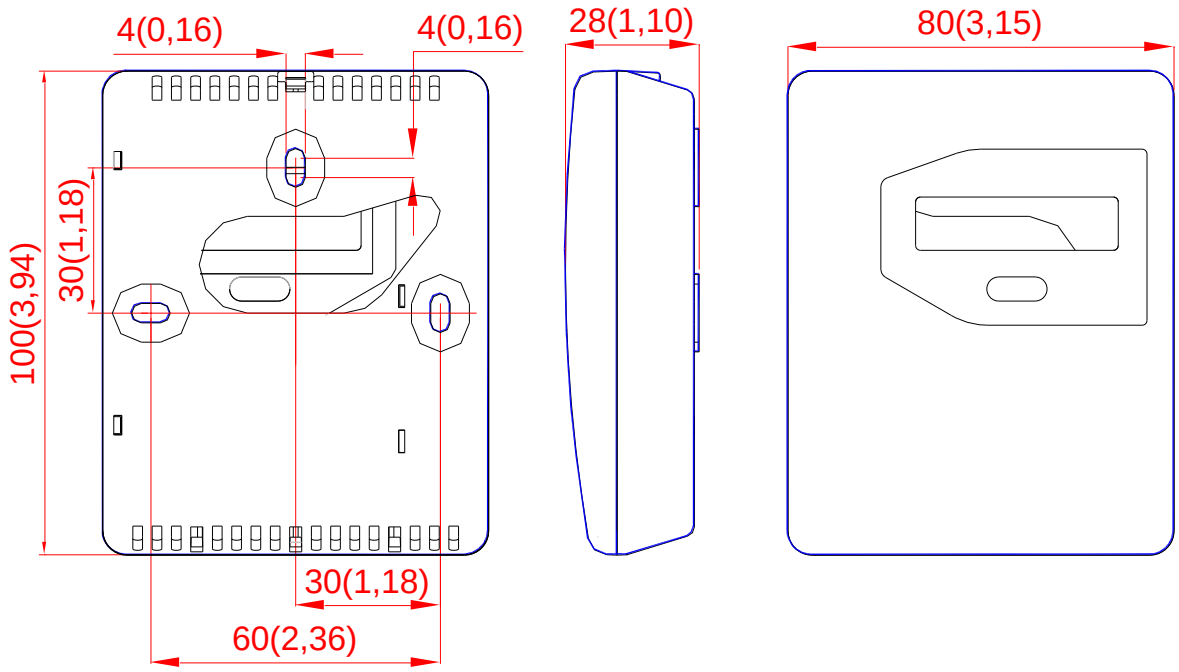


Figure 5. Sensor dimensions in mm and (inches)

Wall mounting

screw head diameter <7.5 mm (0.295 inches)
screw head height <2.4 mm (0.094 inches).

CE

Senseair® AB (headquarter)
Stationsgatan 12
Box 96
824 08 Delsbo
SWEDEN

Phone: +46-(0)653-71 77 70
E-mail: info@senseair.com

Web site: www.senseair.com

Senseair
an Asahi Kasei company