Manual for Installation

aSENSE® m III-K

CO_2 / CO sensor with built-in general purpose controller for mounting in ventilation ducts

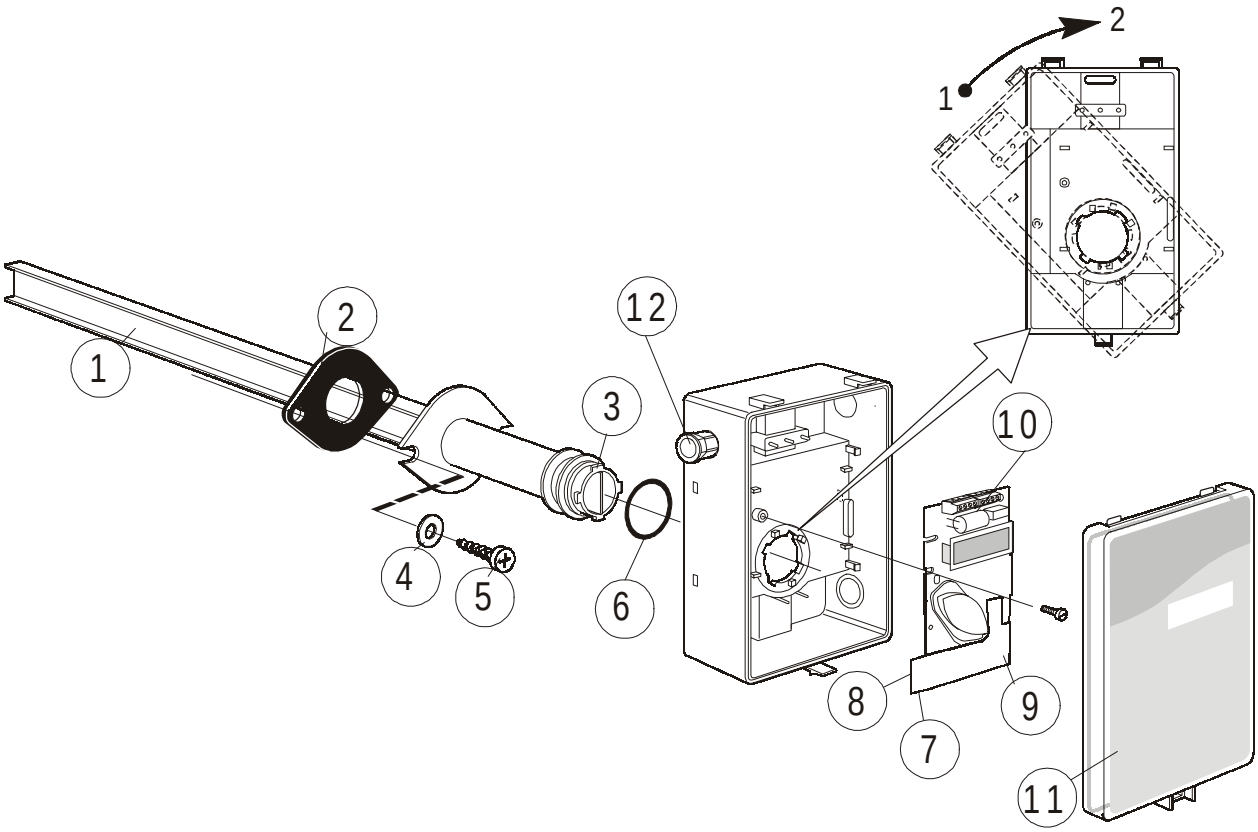


Fig. 1

1 Sampling probe
2 Sealing gasket
3 Largest locking nob
4 2 washers BRB 5,3x10x1
5 2 screws RXS 4,8x16
6 O-ring 29,2x3,53 (Factory supplied mounted in box)
7 RH sensor for internal compensation (not shown)
8 Temperature sensor for internal compensation (not shown)
9 Carbon monoxide sensor (not shown)
10 PCB (factory mounted)
11 Snap in lid
12 PG9 cable entry bushing

Mounting of *aSENSE® m III* on to the duct.

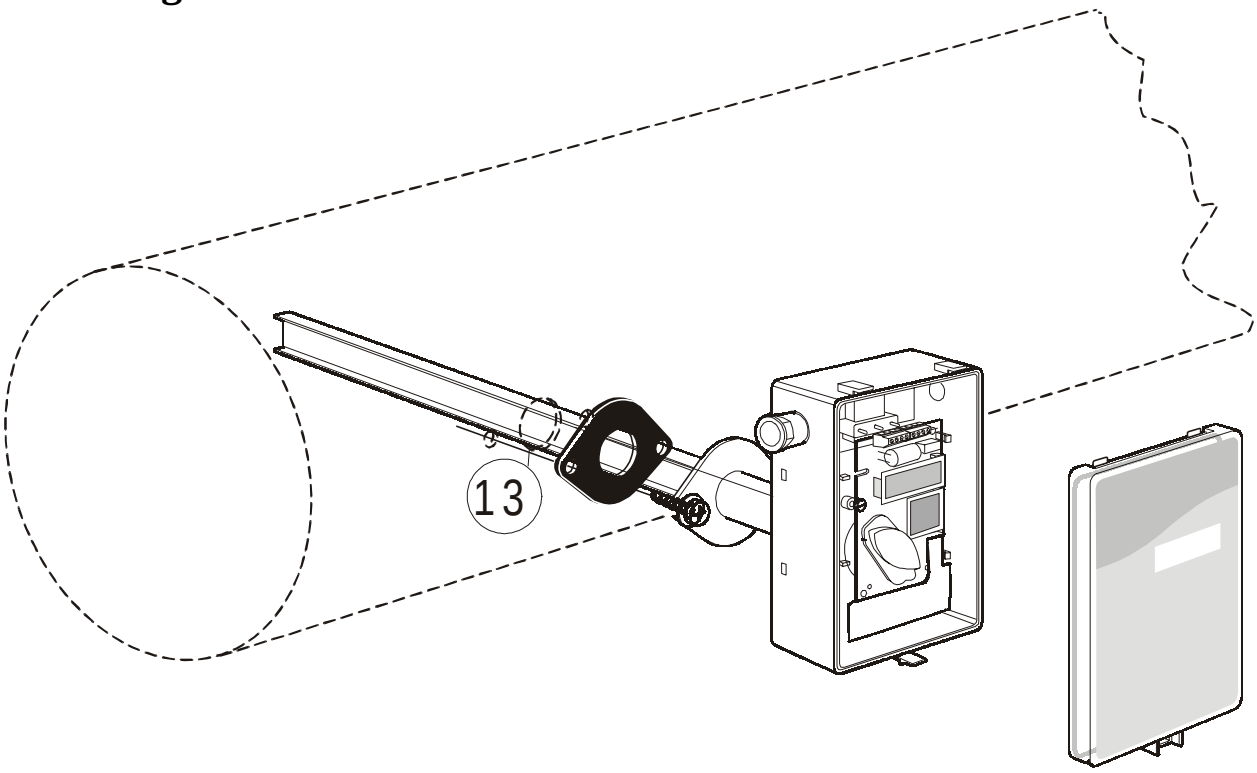


Fig. 2
13 = Hole with 25 mm diameter

Mounting Instruction

Since there might be a substantial pressure difference in duct mounting applications, it is essential to avoid ambient air from suction into the duct mounting box. For correct function it is indispensible that the sealings of the box cover, the cable entry bushings, the cable feed through and the duct entrance are absolutly tight. The duct entrance may need extra sealing paste in order to prevent leakage. The PCB must be handed carefully and protected from electrostatic discharge.

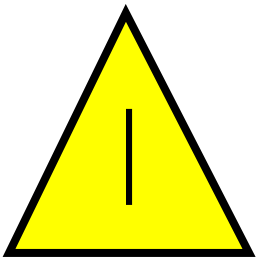
1) **Electrical cable entry.** The box has a factory mounted cable entry bushing in dimension PG9. Never feed more than one cable through each cable entry bushing, or else gas might leak through!

2) **Mounting the tube.** Drill a hole (12) with 25 mm diameter (or 1 inch) for the sampling probe and two holes with 4 mm diameter for the screws (5) into the air duct and mount the tube (1) with the gasket (2). The sampling probe should be mounted with the largest locking nob on top. The unit can be mounted with the air coming from the left or right.

3) **Attaching the sensor box** is made to the sampling probe by a snap-in bayonet fitting. Orient the box onto the sampling probe so that the box upside is on the same side as the largest locking nob (3). When the probe is fitted into the notches of the box, then turn the box clockwise until stop (see Figure 1). Position 1 indicates *open* where the box can be removed from the sampling probe. In position 2 the box is locked to the probe.

Electrical connections

The power supply has to be connected to G+ and G0. G0 is considered as system ground. *The same ground reference has to be used for the aSENSE® m III unit and for any connected device!* Unless different transformers are used, special precautions need to be taken.



PLEASE NOTE! The signal ground *is not* galvanically separated from the aSENSE® m III power supply!

PLEASE NOTE! The same ground reference has to be used for the aSENSE® m III unit and for the control system!

Connection Terminal	Function	Electrical Data	Remarks
G+ G0	Power (+) Power ground (-)	24 VAC/DC+ (+-20%), 3W 24 VAC/DC-	2W without output load *See note 1!*
OUT1 OUT2 M	Analogue Output 1 (+) Analogue Output 2 (+) Signal Ground (-)	0-10 VDC or 0-20 mA, 2-10 VDC or 4-20 mA, Same as Output 1 Connected to G0 via PTC fuse	According to positions of OUT1 jumper and start point selection. *See note 2!* According to positions of OUT2 jumper and start point selection. *See note 2!* *See note 1!*
Relay Relay	Normally closed Open at alarm situations and power loss	Contact free relay minimum load 1mA/5V rated load 0,5A/125VAC; 1A/24VDC	Triggered by register OUT3
OUT4	Analogue Output 4 (+) or Open Collector	0-10 VDC Max 0,5A, 55VDC / 40VAC (half-wave rectifier protection)	According to positions of OUT4. *See note 2 & 3!*
DI1	Digital Input 1	Closed contact current 1mA Open contact voltage max 5V	**Do not apply any voltage on this input!**

Table I. *Electrical terminal connections for aSENSE® m III*

Note 1: *The ground terminal is used as negative power supply DC input or AC phase ground G0 (halfwave rectifier). The signal ground M, protected by a PTC resistor, is the same as power ground G0 (permitting a "3-wire" configuration). A single transformer may be used for the entire system.*
Note 2: *aSENSE® m III can deliver both a voltage or a current loop for OUT1/OUT2. For OUT4 a voltage output or an open collector output is selected with jumper OUT4. To change between voltage and current output mode the hardware jumpers are used. There is one jumper for OUT1 and one for OUT2, so that one output can be a voltage output and the other a current output. Both, voltage output and current output, can have start points 0 % (0-10 VDC or 0-20mA) or 20% (2-10 VDC or 4-20mA) selected from PC software. See the function manual..*

Note 3: *Current of Open Collector is internally returned to G0 terminal.*

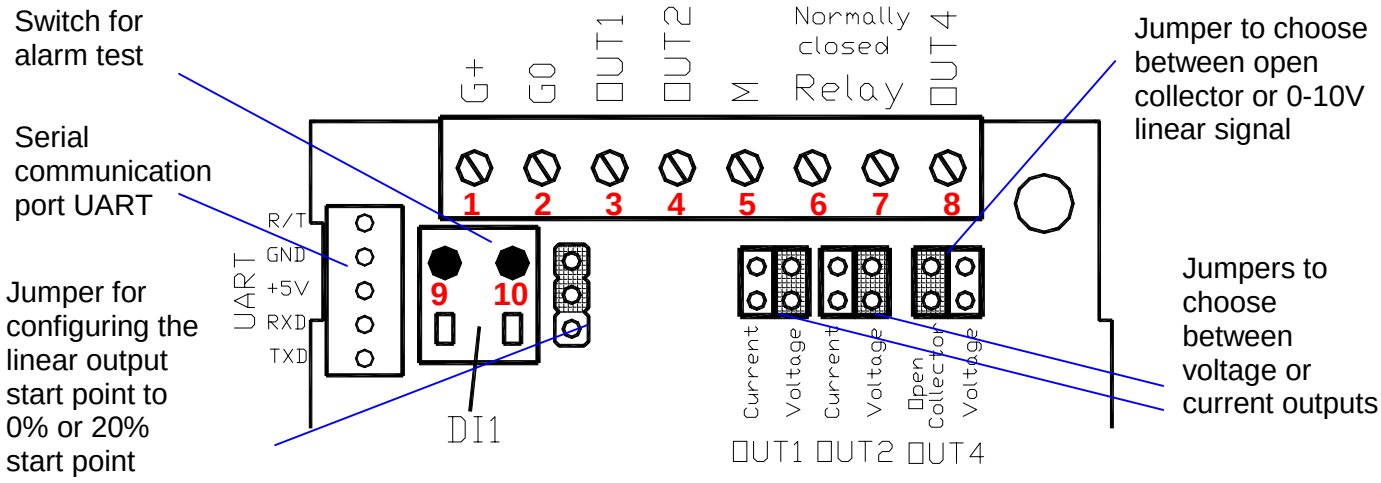


Fig. 3. Terminals and jumpers on aSENSE® m III . The darker positions are default settings.

If for some reason the PCB must be removed it must be handed carefully and protected from electrostatic discharge! Normally, removing the PCB is not required.

If more holes are needed the box has several drill markings for holes in two dimensions, PG7 and PG9. Then fasten the cable entry bushing and seal properly. Never feed more than one cable through each cable entry bushing, or else gas might leak through!

The PCB can be removed during the making of holes. The PCB must be handed carefully and protected from electrostatic discharge!

If the PCB is in the housing when the hole is made a background calibration, CALb, using the push buttons should be made. See the function and maintenance description.

Start-up of the aSENSE® m III

Connect the power directly after mounting. The unit works best if the sensor is continuously powered. The analogue outputs do not need to be connected before use. An internal delay function prevents the alarm functions of the relay and OUT4 output during 15 minutes after power up. After short power failures the CO_2 measurements need this power up time to stabilize. The alarm outputs may be tested after the 15 minutes delay by shorting the switch DI1. After long power failures the sensor may need several days to restore the measuring functions.

NOTE! The CO probe gives incorrect readings near some chemicals, e g silicone. This makes certain environments unsuitable for the sensor.