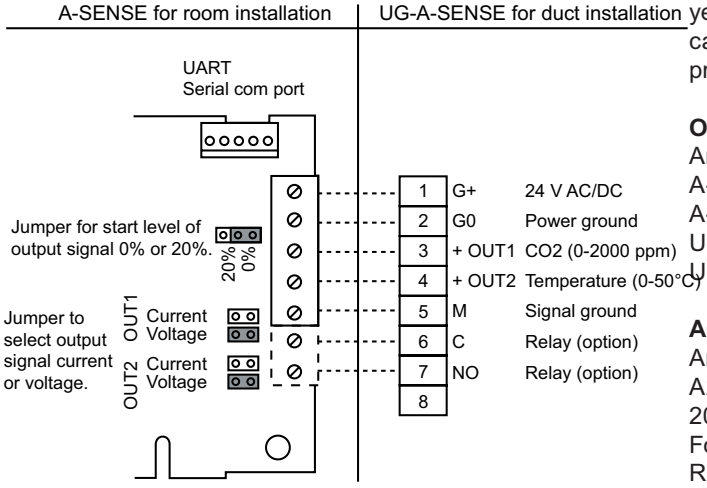
A-SENSE AND UG-A-SENSE

Carbon dioxide and temperature sensor. Duct or room installation.

TECHNICAL DATA

Power supply:	24 V AC/DC±20%, 50-60 Hz half-wave-rectified input)
Current drain:	< 3 W (120 mA) average
Linear outputs:	Output 1 and Output 2, 0/2-10 V DC 0/4-20 mA, Rload < 500 ohm configured with two jumpers for voltage/current, one jumper for 0-100% / 20-100%
Operating temperature:	0 to + 50°C
Storage temperature:	-20 to + 70°C
Operating humidity:	0 to 95% RH (non-condensing)
Start time:	≤ 1 min. (@ full spec ≤ 15 minutes)
Sensor life expectancy:	> 15 years
Measurement principle:	Non-dispersive infrared (NDIR) with automatic baseline correction (ABC)
Gas collection:	Diffusion
Response time (T1/e):	2 min. diffusion time
Accuracy:	Normally ±1% of measuring range ±5% of measured value
Annual zero point drift:	< ±0.3% of measuring range
Temperature measurement principle:	Thermistor
Measuring range:	-20 to +60°C
Accuracy:	± 0,5°C
Dimensions, duct mounting (HxWxD):	287x150x110 mm
Dimensions, wall mounting (HxWxD):	120x82x30 mm

WIRING DIAGRAM



FEATURES

- **Infrared technology (NDIR)**
- **Auto self-diagnostics**
- **Maintenance interval > 5 years**
- **Network communication via RS485 as an option**
- **LonWorks as an option**

FUNCTION

A-SENSE is a microprocessor-based temperature and carbon dioxide transmitter for installation in the climate zone. A-SENSE senses the surrounding air, converts the result into analog and digital signals, and sends them on to higher-level systems. A-SENSE is available with or without display and relay, and for room or duct installation. Auto-calibration (*ABC*-function) is the key to maintenance-free operation. The precondition for this is a normal indoor environment, or applications in which there is some type of ventilation (at least a few times a week.)

GENERAL INFORMATION

A-SENSE is designed to control ventilation by transmitting the measured carbon dioxide content and temperature to the system DUC (dataundercentral = data subcentre). According to the BBR 94 rules of The National Swedish Board of Housing, Building and Planning, the flow of outside air where people spend time more than occasionally, should amount to at least 7 litres per second per person. Assuming that the individuals in the room are adults doing sedentary work and that the outdoor concentration is 350 ppm, this flow corresponds to a carbon dioxide content of about 1040 ppm. According to The National Board of Health and Welfare (Socialstyrelsen) (SOSFS 1989:51) and The National Board of Occupational Safety and Health (Arbetarskyddsstyrelsen) (AFS 1993: 5) the carbon dioxide content can therefore be used as an indicator that the air flow, and therefore the air quality, is satisfactory. A carbon dioxide content below 1000 ppm should therefore be aimed at, according to both those official bodies.

INSTALLATION

See the relevant installation instructions supplied with the sensor.

MAINTENANCE

In room installations, A-SENSE is normally maintenance-free if the auto-calibration function (ABC) is activated. A five-yearly check is recommended. Equipment for zero-calibration can be rented from Calectro AB. Note that this requires the programming cable: A232 CABLE and a PC.

ORDERING EXAMPLE

Article code	Description
A-SENSE (-R)*	Wall mounting without display
A-SENSE-D (-R)*	Ditto with display
UG-A-SENSE (-R)*	Duct sensor without display
UG-A-SENSE-D (-R)*	Ditto with display
	*(-R) with relay as an option

ACCESSORIES

Article code	Description
A232 CABLE	Programming cable
2001M	Zero-calibration bag

For A-SENSE with relay output, IP54 industrial enclosure, RS485 or LonWorks, contact our sales department.

Phone: +46 31-69 53 00 Fax: +46 31-29 32 91 info@calectro.com www.calectro.com

A-SENSE AND UG-A-SENSE

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CE

Standard configuration of A-SENSE transmitter outputs

Terminal	Standard configuration	Standard configuration
OUT 1	0-10 V DC	0-2000 ppm CO_2
OUT 2	0-10 V DC	0-50°C

Fault codes and suggested actions

Bit #	Fault	Description of the fault	Suggested actions
0	N/A	**Serious fault**	Attempt to restart the meter by disconnec-ting and reconnecting the power supply. Contact the reseller.
1	2	**Reserved**	
2	4	**Calculation error** Indicates incorrect EEPROM configuration.	Attempt to restart the meter by disconnecting and reconnecting the power supply. Check the setting and configuration with the UIP software, version 4.0 or higher. Contact the reseller.
3	8	**Output fault** Faults detected during signal generation and signal processing.	Check connections and the loads of the outputs. Check the status of the outputs with the UIP software, version 4.0 or higher.
4	16	**Fault during self-diagnosis** May indicate that zero-calibration is needed or the meter needs changing.	Check the detailed status of the self-diagnosis function with the UIP software, version 4.0 or higher. Contact the reseller.
5	32	**Outside the measuring range** Occurs together with most other faults. May indicate a short circuit or defective sensors and inputs. Corrected automatically when the cause of the fault is removed.	Test the meter in fresh air. Check the temperature sensor connections. Check the detailed status of the self-diagnosis function with the UIP software, version 4.0 or higher. See Note 1.
6	64	**Memory fault** A check during the save operation in the internal memory found a fault.	Check the detailed status of the self-diagnosis function with the UIP software, version 4.0 or higher.
7	128	**Temperature rise** Always set on start and on loss of power. Corrected after the startup sequence.	If the fault disappears within half a minute, check that the driving voltage is stable.

Note 1. A measurement probe is outside the measuring range. This happens if CO_2 values are very high, for example. In this case the fault code is acknowledged when the readings return to normal. May also indicate zero-calibration is required. If the CO_2 values are normal and the fault code persists, the temperature sensor may be faulty or have poor contact.

NB: If more than one fault code is detected at the same time, they are added together and become one single fault code!

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