

**Duct sensor CO<sub>2</sub> / Temperature**

For measuring CO<sub>2</sub>, with integrated passive temperature sensor. Dual channel CO<sub>2</sub> technology. IP65 / NEMA 4X rated enclosure.


**Type Overview**

Type	Output signal active CO <sub>2</sub>	Output signal passive temperature
22DC-110L	0...5 V, 0...10 V	NTC10k (10k2)

**Technical data**

<b>Electrical data</b>	Nominal voltage	AC/DC 24 V
	Nominal voltage range	AC 19...29 V / DC 15...35 V
	Power consumption AC	4.3 VA
	Power consumption DC	2.3 W
	Electrical connection	Pluggable spring loaded terminal block max. 2.5 mm <sup>2</sup>
	Cable entry	Cable gland with strain relief ø6...8 mm
<b>Functional data</b>	Application	Air
	Voltage output	1 x 0...5 V, 0...10 V, min. resistance 10 kΩ
	Output signal active note	Output 0...5/10 V with Jumper adjustable
	Output signal passive temperature	NTC10k (10k2)
<b>Measuring data</b>	Measured values	CO <sub>2</sub> Temperature
<b>Specification CO<sub>2</sub></b>	Sensing element technology	NDIR (non dispersive infrared) dual channel
	Measuring range	0...2000 ppm
	Accuracy	±(50 ppm + 3% of measured value)
	Long term stability	±50 ppm p.a.
	Time constant τ (63%) in the air duct	Typical 33 s @ 1 m/s
<b>Specification Temperature</b>	Measuring range	0...50°C [32...122°F]
	Accuracy temperature passive	±0.2°C @ 25°C [±0.35°F @ 77°F]
	Calibration	Self-calibration Dual channel
	Time constant τ (63%) in the air duct	Typical 136 s @ 3 m/s
	<b>Safety data</b>	Protection class IEC/EN
Power source UL		Class 2 Supply
Degree of protection IEC/EN		IP65
Degree of protection NEMA/UL		NEMA 4X
Enclosure		UL Enclosure Type 4X

**Technical data**

<b>Safety data</b>	EU Conformity	CE Marking
	Certification IEC/EN	IEC/EN 60730-1
	Quality Standard	ISO 9001
	UL Approval	cULus acc. to UL60730-1A/-2-9, CAN/CSA E60730-1/-2-9
	Type of action	Type 1
	Rated impulse voltage supply	0.8 kV
	Pollution degree	3
	Ambient humidity	Max. 95% RH, non-condensing
	Ambient temperature	0...50°C [32...122°F]
	Fluid humidity	Max. 95% RH, non-condensing
	Fluid temperature	0...50°C [32...122°F]
	Operating condition airflow	min. 0.3 m/s max. 12 m/s
	<b>Materials</b>	Cable gland
Housing		Cover: PC, orange Bottom: PC, orange Seal: NBR70, black UV resistant
Probe material		PA6, black

**Safety notes**


This device has been designed for use in stationary heating, ventilation and air-conditioning systems and must not be used outside the specified field of application. Unauthorised modifications are prohibited. The product must not be used in relation with any equipment that in case of a failure may threaten humans, animals or assets.

Ensure all power is disconnected before installing. Do not connect to live/operating equipment.

Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied with during installation.

The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

**Remarks**

**General remarks concerning sensors** Sensing devices with a transducer should always be operated in the middle of the measuring range to avoid deviations at the measuring end points. The ambient temperature of transducer electronics should be kept constant. The transducers must be operated at a constant supply voltage ( $\pm 0.2$  V). When switching the supply voltage on/off, onsite power surges must be avoided.

**Remark: Occurring draft leads to a better carrying-off of dissipative power at the sensor. Thus temporally limited fluctuations might occur upon temperature measurement.**

Remarks

**Build-up of self-heating by electrical dissipative power**

Temperature sensors with electronic components always have a dissipative power which affects the temperature measurement of the ambient air. The dissipation in active temperature sensors shows a linear increase with rising operating voltage. The dissipative power should be taken into account when measuring temperature.

In case of a fixed operating voltage ( $\pm 0.2$  V), this is normally done by adding or reducing a constant offset value. As Belimo transducers work with a variable operating voltage, for reasons of production engineering only one operating voltage can be taken into consideration. Transducers 0...10 V / 4...20 mA have a standard setting at an operating voltage of DC 24 V. This means that at this voltage, the expected measuring error of the output signal will be the least. For other operating voltages, the offset error will be increased by a changing power loss of the sensor electronics.

If a readjustment directly at the active sensor should be necessary during later operation, this can be done with the following adjustment methods.

- For sensors with NFC or dongle with the corresponding Belimo app
- For sensors with a trimming potentiometer on the sensor board
- For bus sensors via bus interface with a corresponding software variable

**Requirements to be met by the medium**

To ensure the ongoing and optimal functioning of the sensor, it is imperative that the air being measured is free of dust or other contaminants that could accumulate on the sensor element.

**Information self-calibration feature CO<sub>2</sub>**

All CO<sub>2</sub> sensors are subject to drift caused by the aging process of the components, resulting in regular re-calibration or replacement of units. However, the dual channel technology integrates automatic self-calibration technology vs. commonly used ABC-Logic sensors. Dual channel self-calibration technology is ideally suited for applications operating 24/7 hours such as those in hospitals or other commercial applications. Manual calibration is not required.

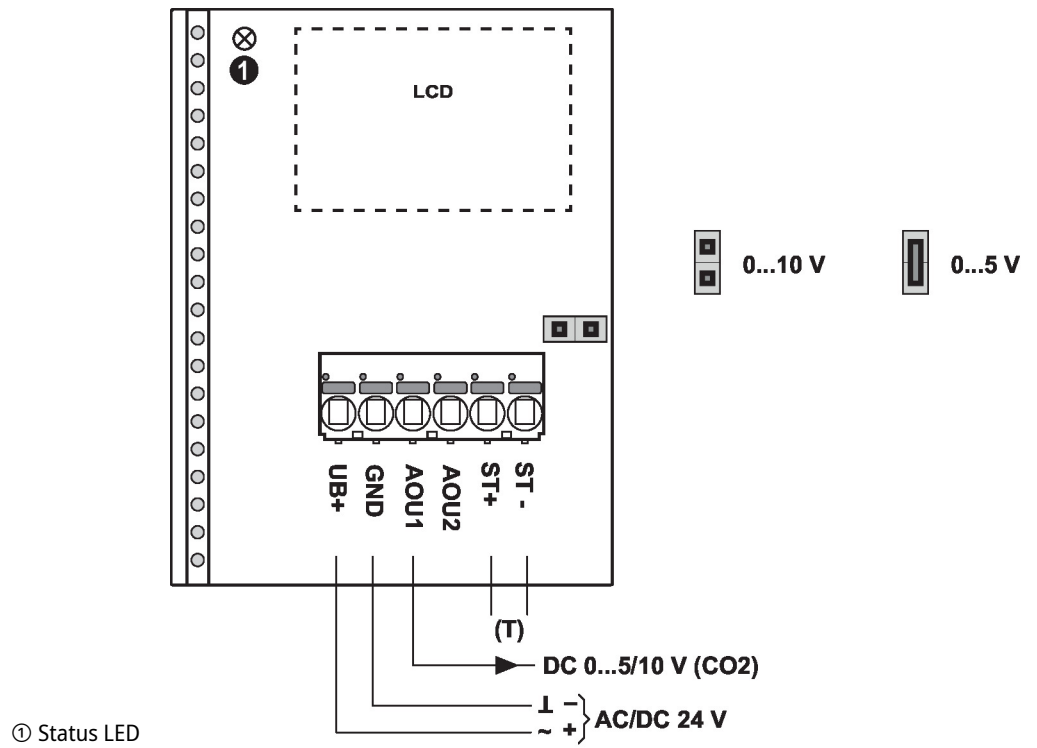
Parts included

Description	Type
Mounting flange for duct sensor 19.5 mm, up to max. 120°C [248°F], Plastic	A-22D-A35

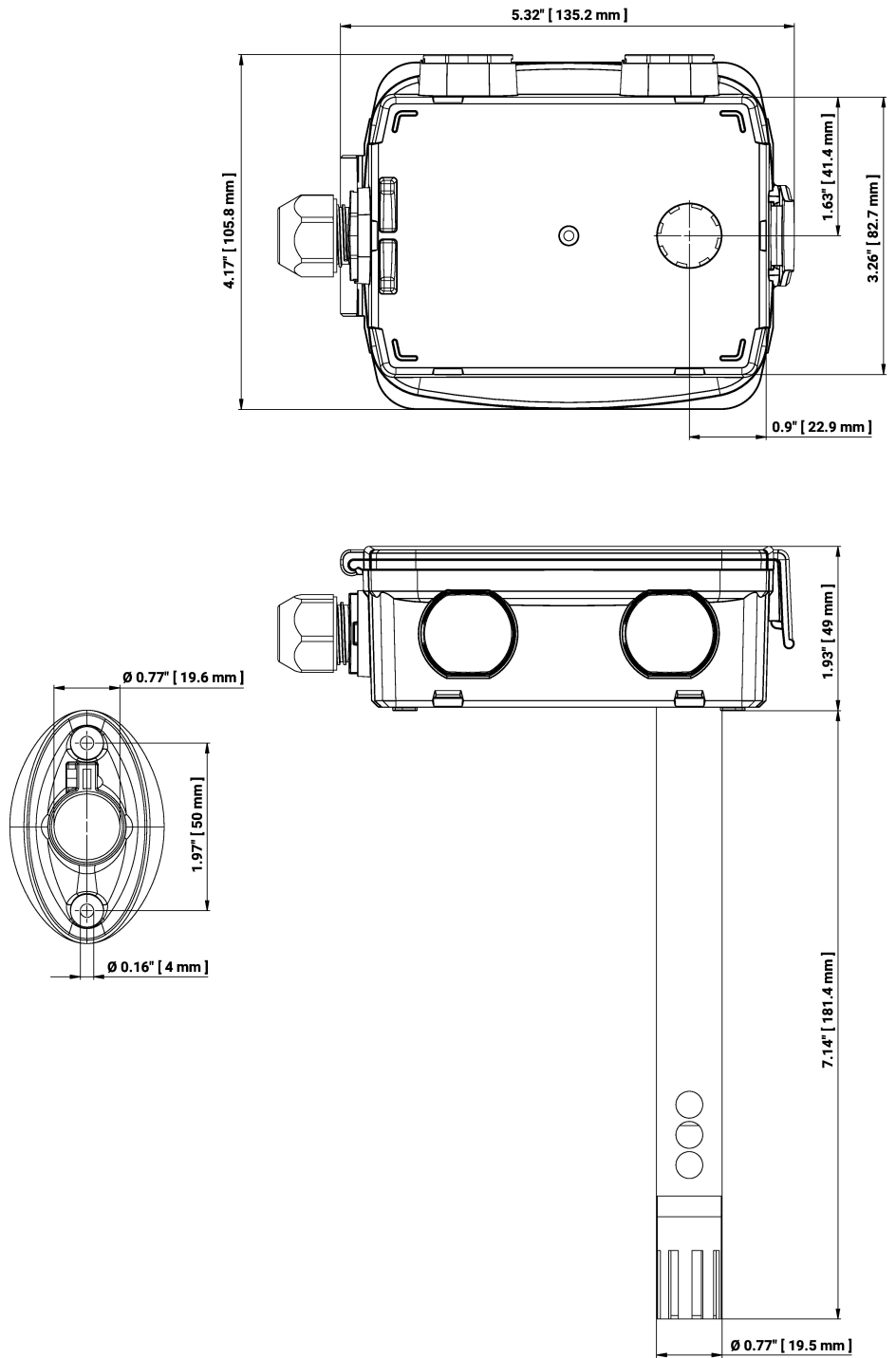
Accessories

Optional accessories	Description	Type
	Replacement filter sensor probe tip, wire mesh, Stainless steel	A-22D-A06
	Connection adapter flex conduit, M20x1.5, for cable gland 1x 6 mm, Multipack 10 pcs.	A-22G-A01.1
	Mounting plate L housing	A-22D-A10

Wiring diagram



Dimensions



Type	Probe length	Weight
22DC-110L	180 mm	0.26 kg

Further documentation

- Installation instructions
- Resistance characteristics