

## EGQ 110: Duct transducer, air quality (VOC), temperature

### How energy efficiency is improved

Detection of volatile organic compounds (VOC) and duct temperature for energy-efficient, demand-controlled ventilation and room climate regulation

### Features

- Duct air quality sensor for detection of volatile organic compounds (VOC) for demand-controlled ventilation of indoor spaces. VOC sources include flue gases, solvents as well as various cleaning agents and building materials
- Measurement of temperature in ventilation ducts
- Two analogue 0...10 V outputs are available: one for VOC measurement and one for temperature measurement. This allows direct connection to an automation station
- Automatic calibration via an integrated algorithm
- Mounting accessories and flange included

### Technical data

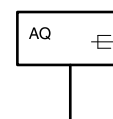
Power supply		
	Power supply (SELV)	15...35 VDC / 19...29 VAC
	Power consumption	Max. 2.3 W (24 VDC) / 4.3 VA (24 VAC)
	Peak inrush current	1.2 A < 3 ms
Outputs		
	Output signal	2 × 0...10 V, load min.: 10 kΩ
Parameters		
	Flow speed	Min. 0.3 m/s, max. 12 m/s
Time characteristic	In moving air (3 m/s)	5 minutes
VOC	Measuring range	0...100%
	Serviceable life	Typically 10 years
	Sensor	Heated tin dioxide semiconductor
Temperature	Measuring range	0...50 °C
	Measuring accuracy	±0.5 K (typical at 21 °C)
Ambient conditions		
	Ambient temperature	0...50 °C
	Ambient humidity	Max. 85% rh non-condensing
Construction		
	Connection terminals	Plug-in female connectors, removable
	Cross-section of cable	Max. 2.5 mm <sup>2</sup>
	Cable inlet	Removable insert, M20 for cable, min. Ø 4.5 mm, max. Ø 9 mm
	Housing	Yellow/black
	Housing material	Housing: PC, sensor tube: PA6
	Filter unit material	Stainless steel, wire mesh
	Sensor tube diameter	19.5 mm
	Sensor tube length	180 mm
	Weight	150 g
Standards, directives		
	Type of protection	Instrument head: IP65 (EN 60529)
CE conformity according to	EMC Directive 2014/30/EU	EN 60730-1 (mode of operation 1, residential premises)
	RoHS Directive 2011/65/EU	EN IEC 63000

### Overview of types

Type	Features
EGQ110F032	Duct transducer; VOC and temperature; 2 × 0...10 V



EGQ110F032



## Description of operation

The duct transducer measures the air quality. The output signal of the sensor (0...10 V) increases as the air quality worsens.

The conductivity of a heated tin dioxide semiconductor sensor changes proportionately to the number of oxidisable gas molecules. The associated output voltage of the measuring element is thus increased by 0...10 V. The substances detected include hydrocarbons, alcohols, aldehydes and solvents.

Unlike CO<sub>2</sub> sensors that selectively measure the concentration of a specific type of gas, VOC sensors measure over a broader range, which means the sensor signal does not provide information on the specific type of gas or its concentration in ppm. Because of the complex and ever-changing composition of room air, it is in fact desirable that the sensor for room air quality detects a wide range of substances, because (unlike a CO<sub>2</sub> sensor) it measures the air quality perceived by humans.

A second integrated sensor (0...10 V) measures the temperature.

## Intended use

This product is only suitable for the purpose intended by the manufacturer, as described in the "Description of operation" section.

All related product regulations must also be adhered to. Changing or converting the product is not admissible.

## Improper use

The duct transducer:

- Is not suitable for safety applications
- Must not be used to measure corrosive gases
- Must not be mounted outdoors
- Must not be used in combination with devices which directly or indirectly protect human life or health or whose operation creates hazards for humans, animals or property.

SAUTER provides no warranty for duct transducers that are not used as intended.

## Engineering and fitting notes

### Fitting



#### NOTICE!

Connection and fitting may only be carried out by an authorised electrician. The regulations and rules of electrical installation must be observed.



#### Note

The electrical connection may only be carried out when the power cable is disconnected from the electrical supply.

Also applicable:

- Laws, standards and directives
- The current state of technology at the time of installation
- The technical data and the fitting instructions of the device

When routing the cables, remember that electromagnetic fields can affect the measurements. These effects increase the longer the cable and the smaller the conductor cross-section. In high-interference environments, we recommend using shielded cables.

The sensor can be fastened using the mounting flange (recommended) or directly on the ventilation duct.

During installation, make sure the openings in the sensor tube are fitted in the direction of flow. The direction of flow can also be seen from the arrow marking on the cover.



#### Note

Make sure the ventilation duct is well sealed so that there is no mixing of ambient air and duct air at the sensor.

The cover must be closed during operation and the cable gland must be inserted.

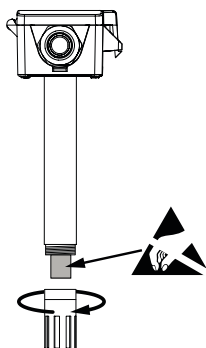
Too much dust in the duct air can impair the air circulation in the sensor and cause measurement errors.

A defective sensor can be replaced without rewiring due to the removable cable inlet and cable clamp.

## Maintenance and cleaning

Over time, the air flow at the measuring head can cause dirt and dust particles to accumulate on the filter that protects the measuring element, thus impairing the function of the sensor.

Under normal ambient conditions, SAUTER recommends yearly maintenance to retain the specified accuracy.



## Cleaning the filter

1. Disconnect the device from the power supply.
2. Unscrew the filter hood from the sensor tube, see figure.  
Do not pull the hood or press on the sides.  
Make sure that the mesh insert does not fall out and that the measuring element and electronics are not touched or damaged.
3. Blow out the filter with oil-free, filtered compressed air or nitrogen and/or rinse it with distilled water.  
Replace very dirty filters.
4. Screw the filter hood with the mesh insert onto the sensor tube without touching or damaging the measuring element.

## LED indicator

An LED on the circuit board indicates various operating states.

Status	Indicator sequence	Description
Flashing green		Normal mode LED lights up briefly every 2 seconds
Rapidly flashing green		Sensor error LED lights up briefly 5 times per second

## Restart after power failure

After a power reset, 5 V output voltage is present on both channels for a few seconds. The output values are only valid after this start-up period.

## Disposal

When disposing of the product, observe the currently applicable local laws.

More information on materials can be found in the Declaration on materials and the environment for this product.

## Connection

### Connection terminals EGQ110F032

Terminal	Function
UB+	15...35 VDC / 19...29 VAC
GND	MM
AQU1	VOC (0...10 V)

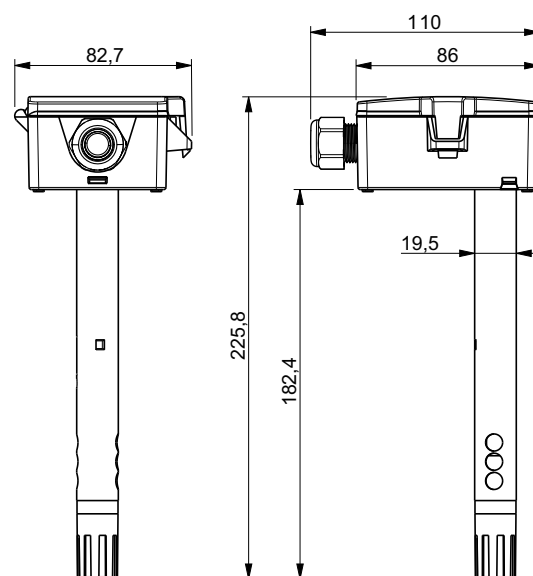
Terminal	Function
AOU2	Temperature (0...10 V)
S+	not used
S-	not used

💡 The terminal designations are marked on the circuit board.

## Dimension drawing

All dimensions in mm.

### EGQ110F032



## Accessories

### Mounting flange Ø 19.5 mm

