# AQ-Transmit Datasheet
# (Air Quality Transmitter)

# 1. Properties

The AQ-Transmit determines with the help of a specific two-beam infrared photometer, the concentration of carbon dioxide in the air mixture at an ambient temperature of -10 to +50° C (measuring range 0-3,000 ppm). It is compact, robust, easy to handle, in normal applications maintenance-free and therefore in particular suitable for monitoring air quality in interior rooms (for e.g. conference rooms, low-energy houses). The attractive housing is made of plastic and can be mounted on the wall or directly on in-wall connectors.

The AQ-Transmit infrared measuring system detects the concentration of carbon dioxide faster, more accurately and at less cost than conventional infrared systems because;

- The measured signals are evaluated and processed according to a new digital algorithm and,
- The material and construction of the sample cell are novel

The infrared measuring system determines the absolute $CO_2$ content of the surrounding air, monitors itself continuously and signals malfunctions of the hard- and software. The whole measuring range is linear. Power supply occurs via 24 V DC.

Basic processing and output of the measured values (linear output, either 4-20 mA or 0-10 V) are integrated into the measuring system. Evaluation and further processing of the measured values occur in a downstream device according to the users specifications (for e.g. ventilation system, limit monitor, display, programmable logic controller). For connection to Ethernet, a special module is available which supplies the net with the measured values.

In normal applications calibration is not necessary, however, if required, calibration can be carried out by an expert.

## 2. Design of the gas measuring system

The two-beam infrared sensor is mounted in a plastic housing on a sensor holder above the diffusion opening. In addition, a transmitter containing a signal amplifier and an output of 4-20 mA or 0-10 V is arranged in the housing. The transmitter based on the three-wire system processes and transmits the measured signals (see Fig. 1).

**Fig. 1:** Gas measuring system AQ-Transmit.

# 3. Technical data

| Transmitter | | |
|---|---|---|
| Power supply | | Screw terminals |
| | Electric current | about 100 mA |
| Connections | Pin 1 | 24 V DC ± 5% |
| | Pin 2 | 4-20 mA or 0-10 V |
| | Pin 3 | 0 V |
| Ambient temperature | -10° C to +50° C | |
| Air pressure | 900 hPa to 1100 hPa | |
| Permissible humidity | 15-95% relative humidity | non-condensing |
| Output | 4-20 mA | max. load 450 Ω |
| | or 0-10 V | min. 1 KΩ |
| Housing | Plastic | white |
| Type of protection (housing) | IP 30 | |
| Weight of housing | about 150 g | |
| Size of housing | about L78 x W78 x H35 mm | |
| Connecting cable | 3x1.5 ² Cu | shielded cable |
| Sensor | | |
| Gas contact | via diffusion | |
| Measuring range | 0-3,000 ppm $CO_2$ | |
| Heating-up time | 5 min | |
| Accuracy | ± 2% at 25°C | FS (full scale) |
| Reproducibility | ± 1% | |
| Reaction time | about 30 s | |

## 4. Connection of AQ-Transmit

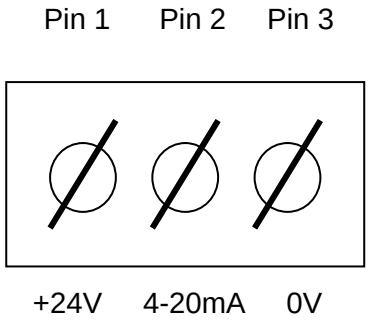


**Fig. 2:** Connection of AQ-Transmit. Pin 2 optionally 0-10 V.

The gas measuring system has to be connected to the downstream unit by means of a three-core shielded cable (see Fig. 2). Connection to circuit occurs via Pin 1 and Pin 3, reading of the measured values via Pin 2 (either 4-20 mA or 0-10 V).

## 5. Calibration of the gas measuring system

The device is in normal applications maintenance-free, calibration therefore usually not necessary. If required, calibration can be carried out by a specialist.

## 6. Other

The user should test whether the gas measuring system AQ-Transmit is suitable for his application under the given conditions. Special attention has to be paid to compatibility of materials: For e.g. the sample cell must not corrode under any circumstances and the filters must not become opaque.

| **WARNING**<br>**Personal Injury**<br>DO NOT USE these products as safety or Emergency Stop devices or in any other application where failure of the product could result in personal injury.<br>**Failure to comply with these instructions could result in death or serious injury.** | **CAUTION**<br>Do not exceed maximum ratings<br>**Failure to comply with these instructions may result in product damage.**<br><br>**It is the customer's responsibility to ensure that this product is suitable for use in their application.** |
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