TVI-AQS-R,TVI-AQS-D

DUCT AND ROOM AIR QUALITY SENSOR

TVI-AQS-D

TVI-AQS-R

TVI supplies the room and duct air quality sensor, which analyses the quality of air on the basis of a mixed gas sensor and is used:

- to measure the quality of air inside offices, hotels, meeting rooms, congress centres, homes, shops, restaurants and so on.
- for a quantitative analysis of the contamination of room air caused by polluting gases (carbon monoxide CO, sulphur water H2S, solvent vapours, alkane vapours, cigarette smoke, car exhaust, air produced by human breathing, combustion smoke (of wood, paper, plastic);
- for the sensitivity threshold to set according to the maximum foreseen contamination of the air;
- for the ventilation of premises when necessary so as to allow a saving of energy because air is only changed when the air is foul.

For detectable gases: carbon monoxide CO, sulphur water H2S, solvent vapours, alkane vapours, cigarette smoke, car exhaust, air produced by human breathing, combustion smoke (from wood, paper, plastic).

TECHNICAL FEATURES

- *Power supply: 24 Vac/dc ± 10% - 120 mA power assumption*
- *Output signal: 0-10 V, 0-20 mA, 4-20 mA (selectable through jumpers)*
- *Ambient temperature: -10...50°C*
- *Sensor: SnO_2 - sensor for mix gas*
- *Casing for room model: 75x75x25 mm similar to Ral 9010*
- *Protection: room: IP30, according to DIN 40050 duct: IP65, according to DIN 40050*
- *Casing for duct model: 64x58x25 mm*
- *Duct tube: L = 200 mm, Ø 20 mm, material stainless steel*

SCHEDULE

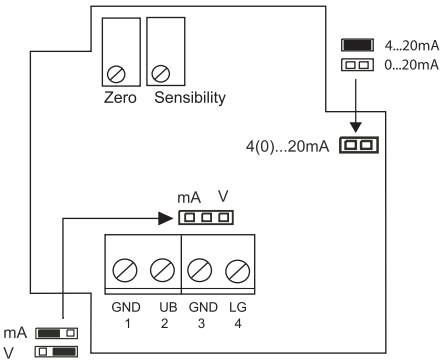
Type	Outputs	Version
TVI- AQS-R	0-10 Vdc, 0-20 mA, 4-20 mA	room
TVI- AQS-D	0-10 Vdc, 0-20 mA, 4-20 mA	duct

Installation instructions:
The probe's gas sensitive element is a tin dioxide semiconductor sensor with yttrium doping for the generation of defects. The sensor has a PT10 heating element that generates a working temperature of several hundred °C. Selection of the working temperature influences, within specific limits, the dynamic behaviour and sensitivity of the probe in relation to certain gases. The non-linearity of the sensor is corrected by subsequent electronic processing of the signal. The linearisation and high working temperature confer to the air quality monitoring sensor a reduced deviation compared to the air humidity and good stability.

Warnings:
The air quality monitoring sensor cannot be used for important applications for purposes of safety!
Each single operation done on the unit, either installation or maintenance, must be done without main supply on the unit and external loads. Such operations are permitted only by skilled workers. We are not responsible for possible damages caused by an inadequate installation and/or by removed or exchanged security devices.

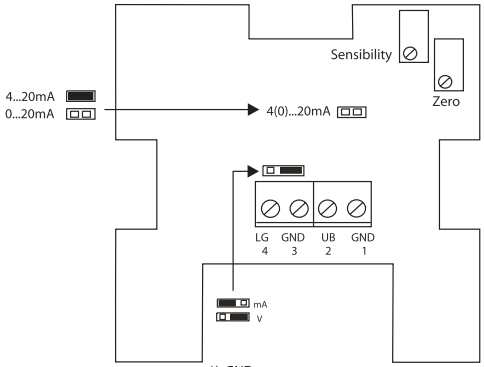
Electrical wiring diagrams

TVI- AQS-D



1) GND
2) 24 Vac/dc
3) GND
4) output 0...10 Vdc; 4...20 mA; 0...20 mA

TVI- AQS-R



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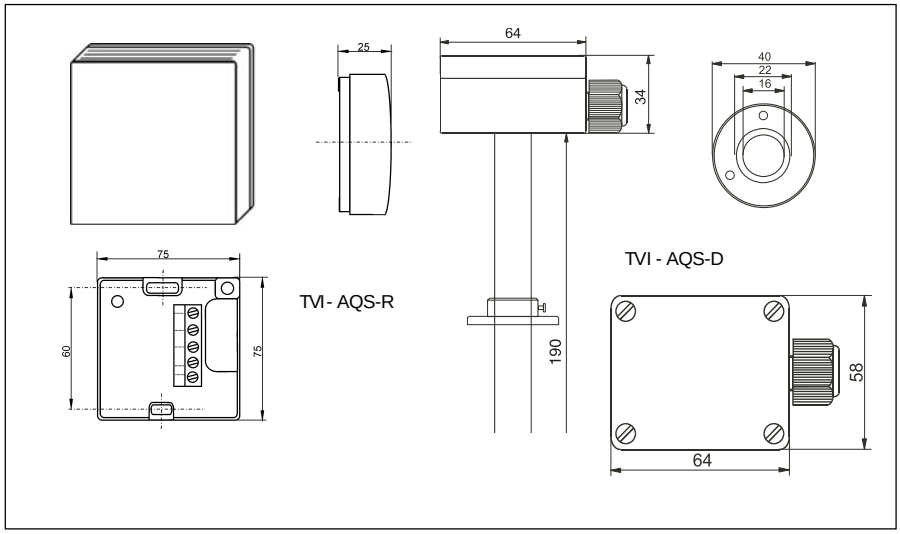
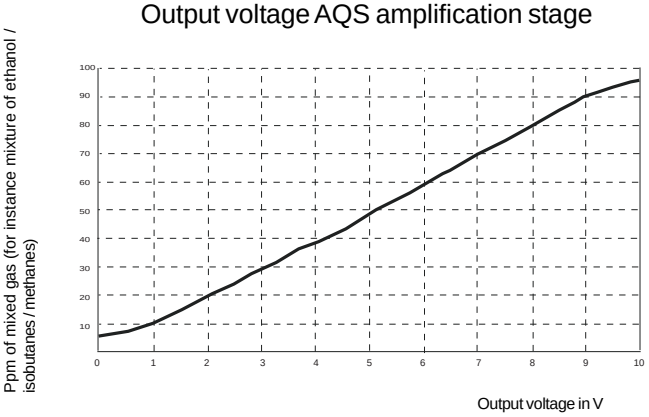


Sizes

All the following measuring curves are refered to the standard calibration of the units. Thanks to the regulation of the “zero point” and the “amplification” it is possible to use the unit for other concentrations and measuring ranges. On this case the conditions of use and calibration indicated by the data sheet must be respected.Example: oil for frying

A similar curve can be obtained using oil for frying. On the test the vapours caused by the oil warmed are injected on “normal” air and the concentration increases up to 100 ppm. Here we want to point out again on the fact that vapours of oil for frying represent already a mixed gas. On this case the composition and the concentration of the various components has not been analysed.

Output voltage AQS amplification stage



The “general feature” indicated above and relative to the output signal of the measuring unit cannot be used as a rule for single gas. Nevertheless it is possible to indicate the output voltage response for a limited number of single application cases, as the smoke of cigarette or rich cooking. On this case it is necessary to take into account the fact that the measuring curves are refered to “injurious gas”, that must be considered as mixed gas of single processes. The remaining operating conditions are supposed to be constant.

Example: smoke of sigarette

The test has been done with a “normal” air quality. The output signal of the measuring unit was about 15 volt. During the combustion process of the cigarette a mixed gas was generated. It was formed of smoke of cigarette, smoke of paper and combustion waste of substance contained inside the cigarette. This mixture of gas was injected in “normal” air with different concentration.

The curve indicated must be compared with the trend of the air quality in a room of about 50 m^3 without any ventilation in which two smokers smoke each one a cigarette.

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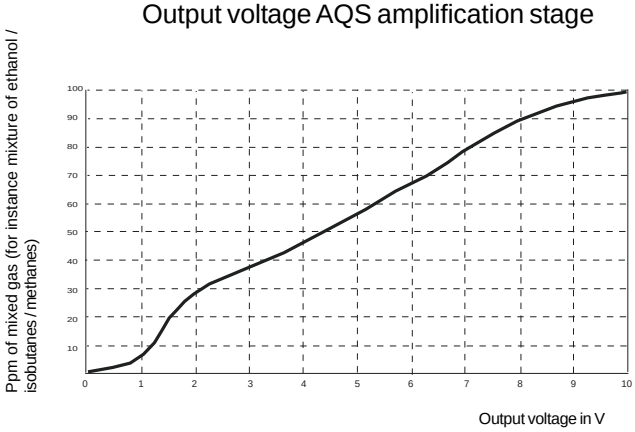

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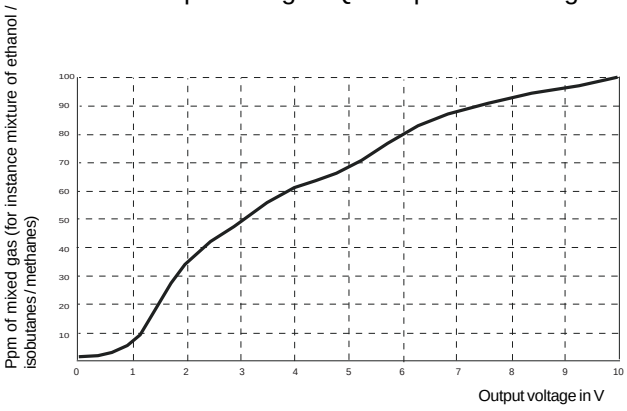

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