Gasmonitor ZRO2-25
Gasmonitor ZRO2-1

Operation and Installation

Gas Measuring and Alarm Systems

Important Instructions

Prerequisites for safe and reliable operation of the system:

- Proper transport and handling.
- Competent installation and start-up by qualified personel (e.g. a trained electrician)
- Observance of the operating instructions and of the relevant safety regulations (accident-prevention regulations for gases, Ex Directive, VDE 0165)

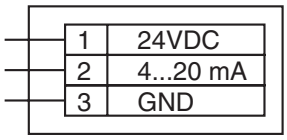
Installation

- Take precautions to prevent flooding with water, oil etc. and protect from mechanical damage.
- Observe the prevailing ventilation conditions! Always place the detector between possible gas sources or collecting points and potential ignition sources.
- Note the gas density! For gases whose densities are lower than that of air (e.g. methane), the sensor must be mounted above a possible source of leakage or at the highest point where gas may collect. When monitoring gases and vapours with densities higher than air, the detector must, accordingly, be placed at the lowest point, or near a possible source of leakage. If the test gas has the same density as air, mount the sensor at mouth height (approx. 1.6 - 1.8 m above the floor).
- Install at a location with low levels of vibration and, as far as possible, a stable ambient temperature.
- Ensure that there is access to the detector for maintenance.
- Installation:
  - Remove the screws holding the cover
  - Remove the cover
  - Attach detector with 2 screws in diagonally opposite corners
  - Important
    Do not touch the PCB. Keep dirt out of the detector!

Installation Recommendations

Always comply with the specifications for the wiring and connections. Plan cable runs so that they are not in the immediate vicinity of sources of electromagnetic interference.
The limits specified in standards relevant for the CE mark can only be guaranteed if the system is used properly and installed so as to comply with EMC requirements.

Connections

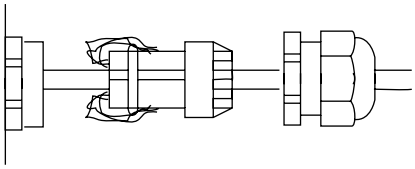


- Max. conductor impedance: R = 6 Ohm per conductor
- Max outside diameter of cable: 12 mm
- Three-core cable with screen
- Terminal 1: 19...24 VDC
- Terminal 2: output 4...20 mA
- Terminal 3: GND

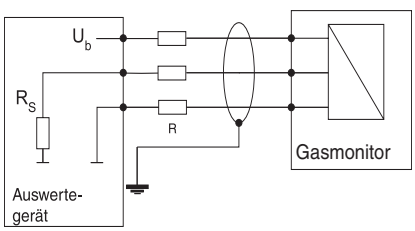
Determing the conductor resistance of a copper conductor

$$R = \frac{L}{56 \times A}$$

R= conductor resitance in Ohm
L= conductor length in m
A= conductor cross-section in mm^2



The cable screen is to be connected to the detector housing by means of a cable gland. Connect the screen as shown in the illustration.

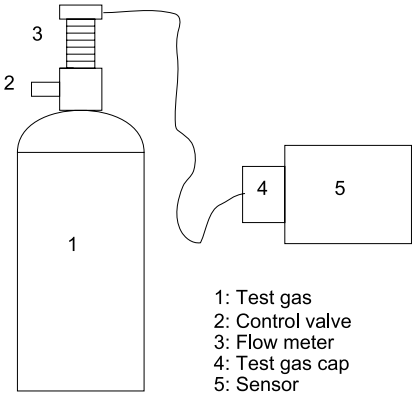


Connect the screen to ground at the analysis unit.

Start-up

- Switch on the controller (supply voltage).
- After 30 minutes warming-up time, check the combination detector/ controller by applying test gas.

Calibration



The following equipment is required:

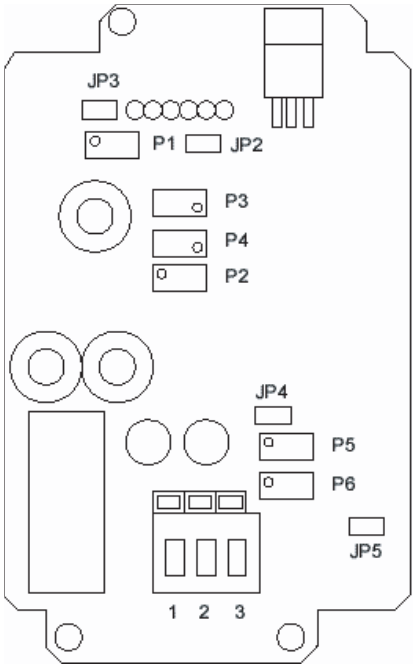
- Voltmeter
- Test gas set comprising:
  - 1 x Minican of nitrogen
  - 1 x Minican of synthetic air
  - Pressure reducer, control valve and flow meter.
  - Test gas cap (see Accessories)
  - Measuring cable (see Accessories)

Calibration

- Remove the cover from the housing.
- Fit test gas cap on to sensor.
- The flow rate should be 10 to 15 l/h (2nd. graduation).

Checking the heater voltage

Each sensor element is identified by a 7-figure number and its heater voltage (HSP). Inside the housing there is a label with the information:
Seriennummer(= *serial number*): XXXXXXX HSP: X,XXX V.
This heater voltage (JP2) must be set to an accuracy of +- 5mV. If necessary, it can be adjusted using potentiometer P3.



Zero setting

- Apply 100 Vol% nitrogen to the sensor.
- Connect measuring cable to JP4.
- Measure the voltage and wait until the reading stabilises.
- Adjust potentiometer P1 until the voltage at JP4 is 0V +- 0.05 mV.
- Connect measuring cable to JP3.
- Adjust potentiometer P4 until the voltage is 1V (0.75V) +-5 mV.
- Connect measuring cable to JP5.
- Adjust potentiometer P6 until the voltage is 0.4V +-10mV ist.

Amplification

- Apply a defined oxygen concentration to the sensor.
- Connect measuring cable to JP4.
- Measure the voltage and wait until the reading stabilises.
- Adjust potentiometer P2 until the voltage at JP4 is X mV +- 0.2 mV.
- X = oxygen concentration in mV (e.g.: 20.9 Vol% = 209mV).
- Connect measuring cable to JP5.
- Adjust potentiometer P5 until the voltage is Us.

$$U_S = 0{,}4V + 1{,}6V \frac{C_1}{C_{max}}$$

C_1 = testgas concentration

C_{max} = Measuring range

U_S = Signal voltage

Cmax Gasmonitor ZRO2-25 = 25 Vol%
Cmax Gasmonitor ZRO2-1= 1 Vol%

Accessories

- Gas extractor: TN 100732
- Test gas cap PK4: TN 100316.1
- Measuring cable: TN 100403
- Calibration gases as required

Notes on maintenance

Regular servicing ensures the long-term safety and reliability of the gas detection installation. It is therefore absolutely essential that the system is checked at regular intervals. For this reason, we strongly recommend that you conclude an installation-specific maintenance contract with us. The condition (correct operation) of a gas-detection system must be checked at least once a year by a competent person (§8 and §53; VBG 61 UVV Gases) Before taking it into service and thereafter at appropriate intervals, a gas-detection system must be checked by a competent person (§56; VBG 61, UVV Gases). Further, the BG Bulletins T032 „Use of fixed-location gas warning installations for explosion-protection“ and T023 „Maintenance of fixed-location gas warning installations for explosion-protection“ must be observed.

Guarantee

For all deliveries, the general conditions of supply and delivery for products and services of the electrical industry apply.
With the exception of parts subject to wear, e.g. sensors, the guarantee on all parts is two years from the delivery date or, if commissioning is carried out by our customer service or local representative, from the date on which they were first put into service.
Please note that the right of complaint about material defects is invalidated if the installation is not properly operated. For claims for material defects, the period of the statute of limitations is 12 months.

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