

Medium – Control – Systeme

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MCS

Instruction Manual

Gas Detector GMS NH3 HL



Mounting of the Gas Detector

During the mounting of the gas detector – Consider gas type.

Gasses lighter than air (e.g. Methane) => Height of room, ceiling

Gasses heavier than air (e.g. Propane) => 10cm above floor

Gas Detector Connection

For the power supply of the MCS Gas Detector GMS NH3 HL an unregulated direct current voltage of 22-26V is required.

An isolated JY(St)Y 2x2x0.8mm can be used for the cable connection. The conductor color can be assigned as followed:

Red => +24V

White => 4-20mA

Black => 0V

Yellow => PE (KI 4)

The continuity drain wire is to be twisted to the dosimeter reader with the yellow conductor wire and to be connected to the earthing grounding conductor (PE).

The drain wire is connected in the cable with the isolation.

If the detector housing is made of metal, the the drain wire is to be connected to the metal housing ground.

Sensor Technology

The gas detector GMS NH3 HL is operated with a Semi-Conductor Sensor TYP 1 whose signal is realized on the measuring current range is realized with 4 – 20 mA.

The gas detectors provide a respective output signal, which can create via a load resistor in an analyzing device an analyzable load signal.

The sensor has to be heated, in order to respond to the gases.

The heating current for the sensor is dependent on the sensor type with a range of 80 to 200 mA.

Depending on cable routing length, a voltage drop between the analyzing device and the gas detector is established. This has to be considered during the project planning stage.

Sensor Adjustment

The sensor which is to be adjusted has to be in continuous operation for 1 (one) week, in order to stabilize. Only afterwards the adjustment shall be started.

Supporting Devices

Voltage Meter 0-20 V
Screwdriver
Meniscus (synthetic air)
Calibration Gas
Gas Connector / Adapter
Gas Hose
Flow Control Device, Flow Control Meter (0-1 Liter/Min)

Test Gas Adjustment

Aerate a known gas concentration to the gas sensor and adjust the voltage at the measuring pins "Br" with the trimmer "Br" to 0 (zero). The gas flow rate shall be ca. 0.5 liter/minute.

The gas temperature shall be same as the ambient room temperature.

4-20mA - Balance Adjustment

Adjust the trimmer „Span“ that you can read on the display of the measuring device the value for the test gas, or that you can measure a voltage at the measuring pins "4-20mA" in accordance with the tabular values of the test gas.

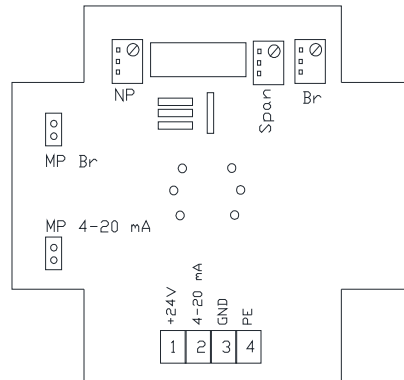
(e.g. for 40% LEL: 1,412 Volt from the tabular for Semi-Conductor Sensor 1)

Zero Balance Adjustment

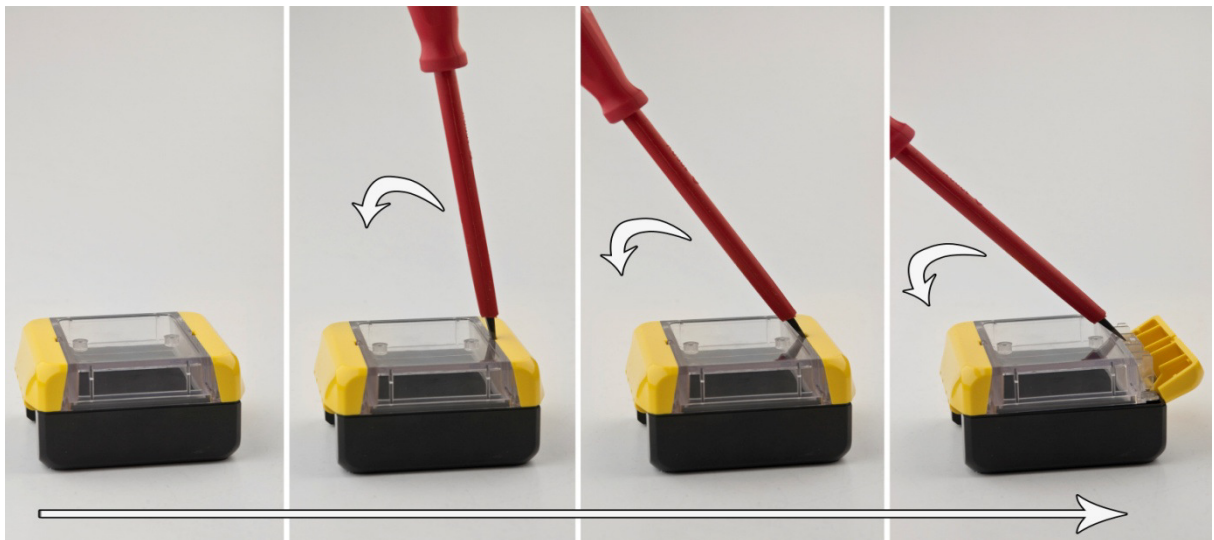
Ensure that the sensor is exposed for several minutes with the respective gas concentration or apply by using the gas connector / adapter with diffusion meniscus (synthetic air) and adjust the trimmer "NP" that on the display of the voltage meter 0 (zero) is shown, or that at the measuring pins "4-20mA" a voltage of 0.4 Volt is measured.

Adjustment for 0-1000 ppm:

With:	0% LEL	100 ppm	200 ppm	250 ppm	400 ppm	1000 ppm
Measuring Current:	4 mA	9.06 mA	11.16 mA	12 mA	14.12 mA	20 mA
Measuring Pin 4-20mA	0.40 V	0.906 V	1,116 V	1,2 V	1,412 V	2 V



Advice for opening of the housing:



Technical Sensor Data	
Gas Type	Ammonia
Sensor Type	Semi-Conductor
Measuring Range	0 - 1000% PPM
Precision / Accurateness	± 1 % of display value
Long term drift zero point	± 6 % measuring range / year
Long term drift sensitivity	± 1,5 % measuring range / month
Measuring value setting time	t50 ≤ 3 s; t90 ≤ 10 s /NH3
Expected life-cycle	3 years / normal environmental conditions
Temperature range	- 20 °C ... + 50 °C
Temperature drift	≤ 1%
Humidity range	15 ... 95%, not condensating
Pressure range	atmospheric, ± 20 %
Storage temperature	5 °C ... 30 °C
Storage time	Max. 12 months
Mounting height	Floor level
Electrical	
Operating voltage	16 - 26 V/DC, reverse polarity protected
Power input	125 mA
Output signal	
Analog output signal Starting point 0 / 20 %	(0) 4 – 20 mA, working resistance ≤ 500 Ω non-linear, overload and short-circuit-proof-output
Physical	
Housing type	Polycarbonate
Combustion behavior	UL 94 V2
Housing color	RAL 7035 (light grey)
Dimensions	(W/H/L) 94x94x57 mm
Weight	ca. 0,5 kg
Housing protection classification	IP 54
Mounting	wall or ceiling mounted
Cable connection	Standard 1 x M 16
Connection Type	screw-type terminal, min. 0,25 max. 1,5 mm ²
Cable length	voltage signal ca. 500m.
Standard Directive	EMV – directive 2004 / 108 / EWG / CE
Subject to technical change	