



GSI 400

Gas Detector NDIR

Gas Detector Unit with an NDIR Infrared Sensor is suitable for indoor and outdoor use. The GSI 400 is suitable for the detection of refrigerants, methane, carbon dioxide and many other gases.

It is also available in SIL and ATEX certified versions upon request.

Features

- Monitors the air for toxic gas concentrations
- Low cross-sensitivity to other gases
- Can be used in dusty and dirty environments
- High accuracy
- Long service life
- IP54, IP67, IP69K variants available

Sensor Technology

The GSI 400 Gas Detector can be supplied with a variety of different infrared sensors and can be used for a variety of applications.

Sensor Connection

We recommend a stable 24 V DC power supply to operate the gas sensors GSI 400. The allowed voltage range is 18 to 36 V DC. The sensor may be connected using a shielded cable with two twisted pairs, i.e. JY(St)Y 2 x 2 x 0.8 mm, using the wires:

- Red: +24 V DC, Terminal 1
- White: Sensor output 4 - 20 mA, Terminal 2
- Black: 0 V, Terminal 3
- Yellow: PE/Shield, Terminal 4

Adjustment Instructions

NDIR sensors require a 1 hour warm up period prior to adjustment. Please refer to the Operating Instructions regarding this. The test gas must be at ambient temperature i.e. the same temperature as the sensor.

The adjustment of the gas sensor must only be carried out by suitably qualified persons. In order to adjust and calibrate any SCENTY® Gas Warning System and Gas Sensors, the corresponding Software modules are required.

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Variants

GSI 400 can be supplied with an additional EX measuring head suitable for operation in ATEX Zone 2 areas.

GSI 400 can also be supplied with SIL2 and SIL3 certificates. Details of these versions and variants are available on request.

Our standard gas types are listed below.

We recommend twisting the supplementary earth wire and the yellow wire at the control unit and connecting those two to sensor terminal 4 (PE).

At the sensor end the supplementary wire is to be connected to the enclosure, making sure that the bare wire does not touch any of the electronic parts.

If the sensor box is mounted on a steel structure connected to PE, the supplementary wire and terminal 5 should not be connected to the enclosure.

Safety Instructions

Careful handling of the gas sensors and their use in areas where monitoring is required needs specialist knowledge and procedures, which can be found in the relevant Instruction Manual.

It is therefore imperative that the section in the manual titled "Safety Instructions for Installers and Operators" is read and strictly observed!

Special requirements require special solutions

Due to a waterproof but gas-permeable construction, a diffusion measuring head specially developed for the application, robust technology and a housing specially adapted for SCENTY® gas sensors in the food industry, the sensor technology is virtually insensitive to high-pressure cleaners and water.

Due to the high demands on the protection class - especially in the food industry - we had checked the protection class IP67 and IP69K of the SCENTY® gas detection again. The test was performed by an accredited test institute and the protection classes have been reconfirmed.

The SCENTY® gas sensors are waterproofed and reliably protect against the dangers of toxic and flammable gases.



Information for the English Version:

Our notes on German regulations do not necessarily apply in your country. The respective National Regulations for the safe handling of gases and the use of gas warning systems should be strictly observed. Worldwide we only work with authorized sales and service partners. Regular training and instruction ensure optimum safety and quality. We will be happy to put you in touch with our partners in your country.

Rev.IV_032020_GSI 400_engl • Subject to alterations

Technical Rules for Hazardous Substances - Occupational Exposure Limit Values TRGS 900

The current occupational exposure limit values (OELs) can be found in the Table contained within the Data Sheet. The limit values were defined by TRGS900 and may change. Please check the valid workplace limit values before defining the limit values.

https://www.baua.de/DE/Angebote/Rechtstexte-und-Technische-Regeln/Regelwerk/TRGS/pdf/TRGS-900.pdf?__blob=publicationFile

The Technical Rules for Hazardous Substances (TRGS) represent the state of the art in technology, occupational medicine, occupational hygiene and other scientific evidence for activities involving hazardous substances, including their classification and labelling.

They are drawn up by the Committee for Hazardous Substances (AGS) and are updated by it in line with developments. The TRGS are published by the Federal Ministry of Labour and Social Affairs (BMAS) in the Joint Ministerial Gazette (GMBI).

Installation

The gas sensor is suitable for wall or ceiling mounting. For mounting, the gas type and its density relative to air are taken into account. Our recommendations can be found in the table below. The installation site should only be determined by a specialist.

Commissioning

All sensors are factory calibrated by HTK. The setting of the sensor must be checked during commissioning by means of a gas test. For this purpose, appropriate software modules are required.

Maintenance

Maintenance at certain intervals is required in order to maintain functional reliability. The maintenance interval can be found on the test sticker on the control panel. For SCENTY® Series NDIR Sensors this should be carried out annually. The maintenance interval must be determined and set in the risk assessment and the recommendations of HTK Hamburg. Please note the maintenance requirements according to T021/T023 of the BG. For Maintenance of SCENTYV Gas Detection Systems and Gas Sensors are corresponding software modules required.

Decommissioning

If the sensor is out of operation for longer than 4 weeks, it must be checked after one week of operation with a test gas and recalibrated if necessary.

Technical Data

Housing	Glass fibre reinforced plastic housing
Dimensions	90 x 80 x 80 mm (L x W x H)
Protection class	IP54 (Standard), IP67 (Option), IP69K (Option)
Measuring principle	NDIR (infrared)
Service life	High service life, ≥ 5 years
Gas inlet	Diffusion
Medium	See table, individually calibrated with temperature compensation
Measuring range	on request
Humidity	0-95% rH, non-condensing
Temperature range	-20°C ... +50°C
Output signal	4 - 20 mA, 3-wire, temperature compensated
Power supply	18 - 36 V DC
Connecting cable	up to 600 m e.g. IY(St)Y 2 x 2 x 0,8 above 600 m e.g. 4 x 1.5 mm ² shielded

Assembly instructions

Everything at a glance

Further information on installation heights and the dimensions of our sensor housings and our Stainless steel protective cover can be found in our Data Sheet "Gas Sensor Mounting Instructions".



Option: Stainless steel protection housing



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Gas Types and Measuring Ranges

Medium	Formula	Measuring Range	Mounting Location	Note
Methane	CH ₄	0-5 Vol.%	Ceiling	
Methane	CH ₄	0-100 Vol.%	Ceiling	
Propane	C ₃ H ₈	0-2 Vol.%	Floor	
Propane	C ₃ H ₈	0-100 Vol.%	Floor	
Butane	C ₄ H ₁₀	0-2 Vol.%	Floor	
Pentanes	C ₅ H ₁₂	0-2 Vol.%	Floor	
Hexane	C ₆ H ₁₄	0-1 Vol.%	Floor	
Ethylene	C ₂ H ₄	0-3 Vol.%	Ceiling	
Ethane	C ₂ H ₆	0-3 Vol.%	Ceiling	
Ethylene oxide	C ₂ H ₄ O	0-3 Vol.%	Ceiling	
Ethanol	C ₂ H ₅ OH	0-5 Vol.%	Floor	
Carbon dioxide	CO ₂	0-500 ppm	Floor	
Carbon dioxide	CO ₂	0-1000 ppm	Floor	
Carbon dioxide	CO ₂	0-2000 ppm	Floor	
Carbon dioxide	CO ₂	0-5000 ppm	Floor	
Carbon dioxide	CO ₂	0-1 Vol.%	Floor	
Carbon dioxide	CO ₂	0-5 Vol.%	Floor	
Carbon dioxide	CO ₂	0-100 Vol.%	Floor	
Refrigerants	R-1234yf	0-2000 ppm	Floor	
Refrigerants	R-1234ze	0-2000 ppm	Floor	
Refrigerants	R-507A	0-2000 ppm	Floor	
Refrigerants	R-125	0-2000 ppm	Floor	
Refrigerants	R-134A	0-2000 ppm	Floor	
Refrigerants	R-404A	0-2000 ppm	Floor	
Refrigerants	R-407A	0-2000 ppm	Floor	
Refrigerants	R-407F	0-2000 ppm	Floor	
Refrigerants	R-410A	0-2000 ppm	Floor	
Refrigerants	R-449A	0-2000 ppm	Floor	
Refrigerants	R-417A	0-2000 ppm	Floor	
Refrigerants	R-448A	0-2000 ppm	Floor	
Refrigerants	R-452B	0-2000 ppm	Floor	
Refrigerants	R-452A	0-2000 ppm	Floor	
Refrigerants	R-32	0-2000 ppm	Floor	
Refrigerants	R-227	0-2000 ppm	Floor	
Refrigerants	R-143	0-2000 ppm	Floor	
Refrigerants	R-454B	0-2000 ppm	Floor	

Highest reliability and maximum performance, various measuring ranges and special designs for special applications in a compact housing.
The list is not exhaustive. Further sensors for gas types are available on request.

Please contact us if you cannot find your target gas!