



GSE 410 / GSE 420

Gas Detector electrochemical

Gas Detector Unit available with either 1 or 2 electrochemical sensors, suitable for indoor and outdoor user. The GSE 410 and GSE 420 are BUS Units that are designed to detect toxic or combustible gases as well as oxygen. They offer the highest reliability and maximum performance in a compact housing, and offer Factory calibration to industry standard measuring ranges. They are ideal for use in underground garages and multi-storey car parks, as well as in all industrial areas.

Features

- Can be used with all SCENTY® BUS gas warning systems
- Available with one or two Sensor Units
- Monitors the air for toxic gas concentrations
- Particularly suitable for monitoring underground garages
- Low cross-sensitivity to other gases
- Can be used in dusty and dirty rooms
- High accuracy
- Long service life
- IP54 (B) and IP65 (T) variants available

Sensor Technology

The gas sensor GSE 410/420 can be used as single or double sensor (combination gas sensor).

Our GSE 410 version is designed to accept only one Sensor Unit, but the GSE 420 is designed to accept two Sensor Units. The GSE 420 version was specifically designed for use in underground garages and parking areas.

With a multitude of different electrochemical sensors available for selection, the GSE 410/420 can be used in a wide variety of applications in different industrial areas.

A selection of standard gas types is listed below. The different types of gas sensors can be used together with a SCENTY® BUS Gas Warning System.

Sensor Connection

We recommend a stable 24 V DC power supply to operate the gas sensors GSE 410/420. The allowed voltage range is 18 to 36 V DC. The sensor may be connected using a shielded cable with three twisted pairs, i.e. JY(St)Y 3 x 2 x 0.8 mm.

Make sure one pair (in parallel) is used as +24 V conductors, another pair (in parallel) as the GND/0 V conductors and the third pair as data pair conductors. Shielding and a twisted pair for the data lines is mandatory.

We recommend twisting the supplementary earth wire and the yellow wire at the control unit and connecting those two to 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 shall not be connected to the enclosure.

Each bus section shall be a line structure, not a star structure nor shall there be stubs. At the two very ends the termination resistors shall be enabled using the sliding switches on the sensor resp. distribution board. Exactly two terminations are allowed.

SCENTY® GWA BUS

Everything's in there

The constantly increasing requirements for complex gas warning systems require a high degree of flexibility.

Our SCENTY® Gas Warning System BUS has an inexpensive modular construction system. The installation requirements are significantly reduced by the cable saving BUS installation of up to 80 gas sensors.

Due to combination of analogue and BUS gas sensors up to 160 gas sensors in total can be connected, configured and evaluated. The modular system allows the design of customer-specific applications.



Addressing

With Modbus sensors, it is important to ensure that each sensor in the BUS is allocated unique address. Two sensors with identical addresses in one bus line will lead to incorrect measurement results or a malfunction of the system.

It is essential that all sensors in the system are allocated with a unique address prior to testing and operation. Addressing is always carried out as part of the commissioning process.

In order to configure and operate any SCENTY® Gas Warning System and Gas Sensors, the corresponding Software modules are required.

Adjustment Instructions

Electrochemical 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 a qualified person. In order to adjust and calibrate any SCENTY® Gas Warning System and Gas Sensors, the corresponding Software modules are required.

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

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. Before mounting, the gas type and its density relative to air must always be taken into account. Our recommendations can be found in the table below. The installation site should only be diagnosed and determined by a specialist. Make sure that the maximum cable lengths per bus line are observed.

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".



Commissioning

All sensors are factory calibrated by HTK. It is recommended to test and adjust the device during commissioning by means of a gas test. The necessary software modules are available as an optional extra.

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. SCENTY® Series Electrochemical Sensors should be maintained every six months. The maintenance interval must be determined and set in the risk assessment and in accordance with the recommendations of HTK Hamburg.

Please note the maintenance requirements according to T021/T023 of the BG. For Maintenance of SCENTY® 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 operating time with test gas and recalibrated if necessary.

Technical Data

Housing	Plastic
Dimensions	113 x 80 x 60 mm (L x W x H)
Protection class	Standard IP20, optional IP54 and IP65 available
Measuring principle	Electrochemical
Service life	Varies with gas type and measuring range
Gas inlet	Diffusion
Target gas	See table below
Measuring range	On request
Humidity	15-99% rH, non-condensing
Temperature range	-20°C ... +50°C
Output signal	Modbus RTU
Power supply	18 - 36 V DC
Connecting cable	JY(St)Y 3x2x0,8 mm

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.

Gas sensor for underground car park monitoring

Medium	Formula	OELs [ppm]	Mounting Location	Note
GSE 410	CO	30	Eye level	Single sensor
GSE 410	NO	5	Eye level	Single sensor
GSE 420	CO/NO	30/5	Eye level	Double sensor

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HTK Hamburg Academy

Instruction and training are the basis

HTK provide full training on the correct testing procedure of your system, how to troubleshoot problems and how to use the installed software. Training can be provided at our Hamburg training centre or on site. Contact us for further details



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Gas Types and Measuring Ranges

Medium	Formula	OELs [ppm]	Mounting Location	Note
Alcohols	R3COH	200	Floor	Methano/Ethanol monitoring
Ammonia	NH3	20	Ceiling	
Bromine	Br2	0,7	Floor	
Hydrogen bromide	HBr	1	Floor	
Chlorine	CL2	0,5	Floor	
Chlorine dioxide	CLO2	0,1	Floor	
Hydrogen chloride	HCL	5	Floor	
Hydrogen cyanide	HCN	10	Eye level	
Ethylene	C2H4		Ceiling	Especially for ripening treatments
Ethylene oxide	C2H4O		Floor	
Formaldehyde	CH2O	0,3	Floor	Low measuring ranges
Carbon monoxide	CO	30	Eye level	
Carbon disulphide	C2S	10	Floor	
Organic acids	RCOOH		Floor	
Ozone	O3	0,1	Floor	
Phosphine	PH3	0,1	Floor	
Oxygen	O2		Eye level	
Sulphur dioxide	SO2	2,0	Floor	
Hydrogen sulphide	H2S	0,1	Floor	
Silane	SiH4	5	Floor	
Nitrogen dioxide	NO2	2	Floor	
Nitrogen monoxide	NO	0,5	Floor	
Hydrogen	H2		Ceiling	
Hydrogen peroxide	H2O2	0,7	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!