Safety first

Professional gas detection since 1985

Professional detection of gases

geopal®

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GP-SA STAND-ALONE
GAS DETECTOR
geopal®

We take care of people

At Geopal, we are dedicated to effective protection of a healthy and safe working environment. We develop, produce, sell and service professional gas alarm systems for detection of gases, vapors and toxic fumes. In everything we do, we strive for optimal reliability, stability and high quality - even in harsh environments.

Our products are therefore characterized by stability, efficiency and simplicity.

Geopal System A/S was founded in 1985 and is located in Vedbaek and Vejle. We produce locally, and we have an overview of the entire production. Own production means a very short delivery time, and there is never a long way from specific desire to finished solution. Furthermore we can customize solutions for the detection of all types of dangerous gases.

Even though we are minor, we do not hesitate - in all modesty - to consider ourselves one of the market-leading players and a professional partner.

In our industry, human safety depends on the quality of our products. Our most important task is to make sure that people can feel safe and secure in their everyday lives. We are aware of our responsibility and we take it seriously.

On the following pages you can read about some of the many different areas we cover. And please, do not hesitate to contact us if any questions arise.

Yours sincerely
The employees at Geopal System A/S

geopal®

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Marine

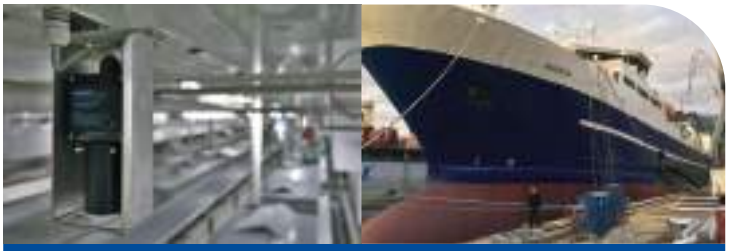
Gas detection is especially important in the maritime transport industry because many rooms are often sealed and waterproof - it can be engine rooms, containers and gas tanks. The often very limited ventilation increases the risk of a concentration of toxic or explosive gases.

Efficient detection of oxygen

can be vital in enclosed rooms - for example in connection with organic decomposition (transport of grains or fruit), oxidation of metals (rust) or in cases where oxygen is simply displaced by other gases such as carbon dioxide and nitrogen.

Explosive and toxic gas

develops by decomposition processes and mold (detection of CO_2 in ballast tanks), explosive hydrocarbon vapors occur during combustion processes (engine rooms), hydrogen by charging batteries, ammonia or freon in cold rooms, hydrogen sulphide from wastewater, etc. In addition, there are always additional risks in case of gas mixtures. So the importance of having a properly installed gas alarm system on board is absolutely necessary for the safety of employees.



CASE

GEOPAL MONITORS ONE OF THE WORLD'S LARGEST FISHING VESSELS

The factory trawler NAVIGATOR is one of the world's largest factory trawlers and has a 1.5 MW cooling capacity for freezing and storing fish. The trawler has an enormous cooling need and carries as much as 9 tons of ammonia. Therefore, it is vital with alerting and quick response in case of leakage.

NAVIGATOR uses gas detectors from Geopal to monitor refrigeration compressors and associated systems. It optimizes the safety and security of the crew and protection of the environment.

Gas detection at sea can be vital in connection with e.g.

- Engine rooms
- Containers
- Gas tanks
- Cold rooms
- Transport of fruit, cereals etc.
- Air conditioning and ventilation systems
- Ballast tanks

Refrigeration systems

At Geopal System, we are experienced in securing the environment around refrigeration systems - that is, both climate, refrigeration and freezing. In refrigerated environments, there will always be a risk of gas leaks, which can be both life-threatening for the people staying nearby and very costly for the environment. Fortunately, we can effectively detect emissions of environmentally harmful freon, toxic ammonia and explosive propane with an automatic gas alarm system.

We can provide gas monitoring for refrigeration systems where there is a risk that an explosive mixture of toxic gases may occur. When the refrigerant is, for example, NH_3, CO_2 or propane, we must supply the room with gas alarms that are calibrated specifically to the current gas. The main purpose of the detection is to shut down the plant or process and to alert employees so that they can react and avert accidents. We can set up the alarm system so that it covers the very specific needs of the individual refrigeration system.

R410a
R404a
R134a
R452b
CO_2
R1234yf
R290
R32
R407c
R1234ze
NH_3

Power plants

Many transformer stations contain SF6 gas to encapsulate the switchgear. It has an insulating effect and increases both reliability and safety. But SF6 is a potent and odorless greenhouse gas, making effective monitoring paramount. Not least because it may be necessary to drain the gas on and off again in connection with maintenance of the systems. The safety of employees must of course be ensured optimally, and this can be done effectively by continuous monitoring and rapid detection of a possible leak.

At Geopal System, we have developed the detector GP-SA-IR specifically for detecting SF6 gas. The detector continuously monitors and uses an infrared sensor that does not respond to changes in air humidity. In addition, it has low or no cross-sensitivity to common hydrocarbons, methane, propane, ethane, etc. In this way, we eliminate the number of false alarms without compromising safety.

CASE

HILLERØD POWER PLANT

The plant is a stylish gas-fired power plant at Hillerød on Zealand, northwest of Copenhagen. It has an installed production capacity of 77 MW. The operator is Hillerød Supply. Geopal detects for methane/natural gas.

The detectors are used i.a. to:

- Natural gas (LEL)
- Ammonia on flue gas cleaning (NOx removal)
- Hydrochloric acid
- Ozone
- Carbon monoxide (typically on plants using biofuel)
- SF6 in switchgear

Biogas and treatment plants

On this type of plant that handles biogas and wastewater, gas detectors will typically be needed to detect methane, hydrogen sulfide and gasoline. In connection with the ATEX risk assessment, it is clarified where there is a risk that an explosive mixture may occur. It can, for example, be in digesters, at gas treatment plants, sludge drying and the like. The risk assessment will therefore be able to provide a clear picture of where it is appropriate to place detectors.

Petrol detectors are typically used in treatment plants in connection with inlet structures to detect any oil or petrol leaks in the sewer systems.

Hydrogen sulphide is formed in connection with the decomposition of organic material under anaerobic conditions. It can be in sewers and pump wells. Hydrogen sulphide is extremely flammable and very toxic even at low concentrations, and it can therefore be decidedly vital to detect leaks in time.

Detectors for
- Sewers
- Rotten tanks
- Pump wells

CASE

KALUNDBORG BIOGAS FACILITY

The biogas plant at Asnæs in Kalundborg, converts the residual products from Novo Nordisk and Novozymes' factories into biogas and fertilizer. The industrial waste is utilized to produce biogas to replace natural gas, thereby achieving significant CO_2 savings.

Symptoms of inhalation of H_2S

0,0003-0,02 ppm: ...Can easily be smelled
3-10 ppm:.....Very unpleasant odor
20-30 ppm:.....Strong smell of rotten eggs
30-100 ppm:.....Disgusting, sweet stench
50-100 ppm:.....Stinging in the eyes
100-200 ppm: .....Stunning the sense of smell
250-500 ppm: .....Fluid leakage into the lungs (pulmonary edema), cough with bloody saliva
500-1000 ppm:.....Breathing stop, dead

Power-to-X

Power-to-X (PtX) is one of several crucial initiatives in the realization of the world's ambitions to reduce greenhouse gas emissions. We must develop a completely new set of rules and regulations that enable, that green power from wind turbines and solar cells can also be used to produce hydrogen through electrolysis.

The process involves converting wind or solar energy into hydrogen. By adding nitrogen, you get ammonia, and if you add carbon dioxide, you get methanol. Both can be used as liquid fuel. This can be used for ships, trucks - and maybe even planes - instead of gasoline and diesel, which pollute the environment.

However, it is not entirely unproblematic to go from conventional fossil fuels to e.g. hydrogen and other explosive fuels. The challenge in case of e.g. leakage is that methanol and ammonia are very toxic substances and also flammable, whereas hydrogen is extremely explosive.

Therefore gas detection is also an essential part of the Power-to-X discussion to ensure safety.

GP-NOVA

H_2

N_2

Ammonia

Methanol

GP-NOVA

The GP-NOVA stand-alone ATEX gas detector is designed to provide safety and reliability, along with convenience in maintenance and service.

With help of multi-lingual OLED display, it is easy to read screen, and optical buttons makes it easy to navigate through detector's menu. Adaptable with variety of sensor technologies for different target gases.

With help of Geopal App and Bluetooth wireless technology, real-time reading, configuring, and sending data via mobile devices are available.

GP-NOVA provides multiple options to control and monitor the detector's status from the control room. Configurable galvanically isolated 4-20 mA current loop, and RS-485 Modbus RTU Digital output, in combination with energized or de-energized outputs from alarms- and fault relays to activate actuators, are some available options.

GP-NOVA is designed to achieve a SIL 2 rating according to IEC 61508 and performance dictated by EN 60079-29-1.

GP-NOVA STAND-ALONE
ATEX GAS DETECTOR
SUITABLE FOR POWER-TO-X

Download on the App Store

GET IT ON Google Play

Learn more about GP-NOVA and its functions

For more information and videos please visit
our website www.geopal.dk

UPS and charging stations

Warehouses, freight terminals, manufacturing companies and similar places often have a number of electric forklifts that run during a working day. It requires a lot of energy and therefore the truck batteries need to be recharged at regular intervals.

Charging usually takes place in a special charging area, where there is room for several trucks at a time. In connection with charging, there is a risk that the hydrogen output from the batteries will be so high that there is a real danger of explosion.

To minimize the risk of the hydrogen concentration becoming too high, you can choose to increase the ventilation, but this often entails large energy costs. Therefore, it makes sense to install an automatic gas alarm system in the charging area, it can automatically control the ventilation as needed and help minimizing heating costs.

CASE

DFDS TRANSPORT / DSV

We have installed automatic gas alarm systems in several charging areas at DFDS Transport/DSV. The gas alarm system monitors the development of hydrogen in the areas. And if the hydrogen content in the air reaches 5% LEL, the system automatically activates the ventilation. At 25% LEL, the power supply is disconnected and charging of the batteries stops immediately. The installation has meant that DFDS has limited the ventilation, which gives a saving of at least 50,000 kWh per year. In addition, they also save energy, as the excess heat from the charging areas is recycled and not sent out into the open.

Underground parking

Save energy - let automatic gas alarm systems control the ventilation in the underground parking area.

Carbon monoxide, nitrogen dioxide and hydrocarbon are toxic gases that occur in parking garages, car repair shops and other places where internal combustion engines are used indoors. Because a toxic and hazardous atmosphere can easily arise in this type of room, reliable gas detection and efficient ventilation are necessary. Our detectors can automatically activate the ventilation if the concentration of the harmful vapours becomes too high.

GP-BUS

CASES

COPENHAGEN'S FULLY AUTOMATIC PARKING FACILITY

We secure the air quality in several fully automatic parking facilities in Copenhagen. Among other places on Nørre Allé (164 spaces) in Nørrebro, Leifsgade (408 spaces) at Islands Brygge and Under Elmene (268 spaces) on Amager.

KVÆSTHUSBROEN

The three level car park for 500 cars is located under Kvæsthus pier, right by Skuespilhuset in the center of Copenhagen. We have supplied GP-BUS detectors for detecting carbon monoxide, nitrogen dioxide and hydrocarbon in the plant, respectively.

Addressable detectors for i.a. parking facilities

Detector GP-BUS can handle up to 4 measuring points, either as built-in sensors or as external detectors.

For parking systems, there is a built-in sensor for CO (carbon monoxide) as standard and with an option for NOx sensor (nitrogen oxides).

Construction sites

We produce mobile gas alarm systems according to our customers' specifications. But we also offer rental of mobile gas alarm solutions with construction site electrical switchboards as needed. The construction site electrical boards are especially useful in areas where hand tools are welded and used. In case of a gas leakage the supply to the electrical panel is shut off ensuring that the connected tools cannot produce a spark that can set off a gas explosion. The advantage - in addition to basic safety - is that ordinary hand tools can be used on the construction site instead of ATEX-approved equipment.

CASE

SHELL REFINERY

At Shell's refinery in Fredericia, they use large mobile plants. When employees have to weld, they move around in the area, and the environment in combination with the welding equipment can create dangerous situations. But our mobile facilities monitor the work and secure the employees no matter where in the area they are. That way, people can feel safe - even when welding in EX areas.

Geopal mobile gas systems can also be rented by appointment

When maintenance and construction work requires welding, grinding, etc. - in classified areas, safety is crucial.

The detectors are mounted on a removable holder and can be moved around so that they are close to a possible source of gas leakage.

Pipe and duct mounting

We offer a selection of detectors specially designed for mounting on duct and ventilation pipes. And we supply detectors as a stand-alone solution with direct connection to an alarm system or to a local alarm center.

Special design for pipe installation gives us very good options for e.g. to measure the exhaust air in ventilation pipes. It allows our systems to alert if the concentration of hazardous gases in the pipe is approaching a critical level.

Connection to alarm system

We can connect our detectors to different control panels with alarm levels that are adapted to the specific conditions. The critical level varies depending on the gases in question. But we can set the detectors individually to match the individual system and integrate seamlessly with the alarm system.

DIFFERENT DETECTORS FOR DIFFERENT NEEDS

Gas detector type GJ-EX-V is an explosion-proof detector intended for use in zone 1 ranges for temperatures up to 80 °C.

Gas detector type GJ-EX 150 is an explosion-proof detector intended for use in zone 1 ranges of temperatures between 100 °C and 150 °C.

Gas detectors type GJ-C-V and GP-SA-V are for pipe and duct installation in unclassified areas.

Geopal detectors

Geopal stand-alone detectors for pipe and duct installation in unclassified areas are made of robust materials.

The detectors are mounted with different sensors depending on which gases/vapors are to be detected.

Teaching facilities

In science rooms at schools and other educational institutions, gas is used for bunsen burners. Although the discipline and safety are top notch, in rooms with many different users, there will always be a risk of gas leaking. And if there are rooms that are not so well ventilated, it will increase the risk of explosion considerably.

It is typically either propane (bottled gas) or methane (natural gas) that is used in science rooms. It is a heavy and a light gas, respectively, and therefore the detectors must be placed in terms of which one is used - and where. We are happy to assist with thorough guidance towards the optimal solution.

CASE

TECHNICAL EDUCATION IN HVIDOVRE

At TEC in Hvidovre, they have more than 30 vocational educations and training such as auto body technician, warehouse worker, truck mechanic, and many others. That means a large number of workshops. Common to the various workshop educations is that carbon monoxide emissions can easily occur. We have set up detectors in the workshops that can measure the level of toxic carbon monoxide, so that the students are secured as best as possible.

Did you remember to turn off the gas?

Gas monitoring in science, physics and chemistry rooms is always relevant! In addition to the gas detection, the solution often includes a solenoid valve for closing the gas, key switch, emergency stop, etc.

Medico industries - laboratories

In laboratories and research environments, different types of solvents and gases are often used, which by evaporation and chemical reactions can develop harmful and explosive gases. We can help minimize the risk of hazardous situations by installing efficient and state-of-the-art gas detectors.

Many research processes require rapid cooling and freezing, and therefore liquid nitrogen is often used. Nitrogen displaces the oxygen we breathe, and therefore it is vital to ensure that the oxygen level is in a normal range - ie. 20.8 Vol .-%. If it drops to about 16 Vol .-%, the judgment power is likely influenced.

The need in laboratories looks very different depending on the interior design and the type of work performed. We help with feasibility studies and identification of needs, and based on that work, we can put together a good and safe solution.

CASE

EUROPEAN SPERM BANK

When semen is frozen, it is stored in large tanks with liquid nitrogen. At European Sperm Bank, it is our oxygen alarms that secure the employees in the event that the oxygen level becomes too low.

"As we work daily with liquid nitrogen, it is our highest priority to create safety for our employees. Geopal System provided both information and service that was top notch, which is why we feel we have made the right choice."

Nicki Bille, European Sperm Bank

O_2 N_2 Ether Ethanol

Distilleries

Minor distilleries are popping up all over the country, where spirits are produced from local Danish commodities. And in connection with the production of spirits in particular, it is important to secure the employees and any visitors by taking the danger of explosion seriously.

Dangerous situations can arise during the production of, for example, ethanol, but the development of CO_2 is also dangerous because it displaces the oxygen content of the air and has a suffocating effect. With our gas alarm system, we can help secure the distilleries against the dangerous situations; ensure that they are detected long enough to stop the process. In this way, we avoid potential dangerous situations and ensure a safe everyday life for the employees.

CASE

STAUNING WHISKY

We secure employees and visitors at Stauning Whisky, which is housed near the west coast just a 10-minute walk from the small village of Stauning.

In 2015, Stauning Whisky signed an agreement with Diageo and Distill Ventures, one of the world's largest spirits producers. This meant that they could begin work on the expansion of the distillery. Our automatic gas alarm system ensures efficient detection of ethanol, propane and CO_2 on a daily basis. This ultimately means that the employees can focus on what they are really good at, without having to worry about safety.

Customized solutions

The need for gas detection and the requirements for alarm systems can look very different even within the same industry. Physical environment and special safety requirements can have a major impact on how the system is to be assembled. Therefore, it is often necessary to customize solutions to very specific needs.

We have many years of experience in designing gas alarm systems, and we are happy to help identify your needs. So even if you face special challenges that do not immediately fit into one of the areas mentioned, we can certainly help you with a safe solution.

Special needs?

We often measure on some very specific and common gases and toxic fumes, but we can customize solutions for all needs. So should there be a need for detection of particular gases or vapors, please contact us for a non-binding talk about opportunities and needs.

CASE

BLUE WATER SHIPPING

Aspiration system for continuous measurement of explosive and flammable gases in wells and other places that are difficult to access. The system shown has been delivered to Blue Water Shipping and installed close to Esbjerg waterfront.

Selection of products

Detectors


GJ-EX


GP-SA


GJ-EX 150


GJ-C


GJSL-CO_2


GJ-OX


GP-O_2


GP-CO_2


GP-NOVA


GP-SA-2


GP-BUS


GP-ELK

Monitors


GJD-L3C


GJD-04C


GPU-45A


GJ-03R

All gas detectors and alarm monitors from Geopal

See our full collection on our website www.geopal.dk

Own production

We design, develop and manufacture our gas alarm systems and gas detectors, as the only ones in Denmark. Therefore, our production team of skilled employees has an in-depth knowledge of the products and can quickly adapt or manufacture a product when an urgent need arises with one of our customers.

Our production team handles everything from assembly, testing and calibration of gas detectors and control panels as well as complex customer-specific adaptations, and we have gas alarm systems, gas detectors and calibration gases as well as associated spare parts in stock for fast delivery.

Contact us for a non-binding talk about opportunities and needs

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SERVICE

SERVICE TEAM

At Geopal, we offer service on all our products and systems. Through our international distributor network we supply calibration services, spare parts and repair. In countries not yet serviced by a Geopal distributor we offer calibration and repair services from our HQ in Denmark.

Professional detection of gases

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