

Gas Detection.



Catalog 2024



Gas Detection Systems
for Buildings, Industry and Marine



Dear business partners,

In addition to the technical expertise of our employees, it is teamwork in particular that is of central importance to our success. Regular company events, such as our annual summer party and other events such as gaming events or the INNrun in Passau, form the foundation for our team spirit and allow us to achieve our goals together even faster.

A particular milestone for us this year was the introduction of the new MPS™ gas sensor. With a service life of over 15 years, the sensor belongs to the latest generation and offers people and systems unprecedented safety.

Due to the individual adaptation to the respective target gas, the new MPS™ sensor technology also impresses with its high accuracy, stability, linearity and repeatability for flammable, explosive and combustible gases, thus overcoming the hurdles of existing sensors.

In addition, we have developed new products for water jet protection, uninterruptible power supply and data and information transmission, among other things, which offer even greater efficiency and safety in the field of gas detection. Further information on products such as the PGCC, WAO, Water-Jet-Protection and Accu-Package can be found on the following pages of the online catalog.

Get to know our new gas detection products.

Best regards



Harald Schmitt
CEO

Company

Values, distribution and approvals



PolyGard®

Gas detection systems for buildings



PolyXeta®

Gas detection systems for industry



PolyMarine®

Gas detection systems for marine




Products & Services

Products, housings, gases, shop,
OEM, videos and MSR Academy



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With the Values of a family-owned company

The globally operating company MSR-Electronic combines modern corporate management with the values of a family business. Thanks to a global sales network, MSR-Electronic has long standing customer relationships that are characterized by reliability and mutual trust.

Reliability

Thanks to our international partner network, we have long-standing customer relationships that are characterized by reliability and mutual trust. This enables us to guarantee the worldwide distribution of standardized quality products and processes.

Innovation

Our highly specialized team of engineers and technicians from the MSR development department develops solutions for practical and project-related challenges on a solid foundation of theory and decades of experience. In our own EMC laboratory at MSR-Electronic, important tests are carried out quickly and efficiently.

Quality

With the ISO 9001 certification (quality management), we have been guaranteeing our customers a well-functioning risk management system and transparent and documented processes for many years. In order to constantly approach the goals we have set ourselves and to constantly optimize all management systems, we rely on the continuous improvement process (CIP).

When you choose safe solutions and products from MSR-Electronic, you benefit from many advantages such as quality and availability, competitiveness of the products, responsibility towards customers and business partners as well as openness to new requirements.

Sustainability

With the ISO 14001 (environmental management) and ISO 50001 (energy management) certifications, we are consciously committed to environmentally friendly and energy-conscious operation and production. Not only is electricity consumption optimized and significantly reduced year after year, but the use of plastic in production is also minimized. Our climate protection and environmental officer actively takes care of our exemplary function.

Responsibility

Supporting children and young people is particularly important to us. In addition to sports clubs and other social activities, we also provide financial support to the associations "Intensivkinder sinnvoll helfend e.V.", "Kinderhilfe Holzland e.V." and the "Pockinger Tafel".

Transparency

MSR-Electronic is committed to uncompromising integrity and a high standard of business conduct. The focus is on an honest and transparent working environment in which all employees can express doubts or concerns without fear of consequences.

Expert in gas detection

Dynamic and individual solutions for the market

Made in Germany

Modularity in a diverse product range

Fast response time through direct contact with experts

Sales & support in various languages

Reliable and consistently short delivery times

High product quality and standards with international norms

Lean development process according to SIL for safe and innovative products

OEM products

Know-how from production, development and sales at one location

Flexible X-Change system of sensors

Contact person on site

International partner network and own branches

MSR-Electronic stands for „Full of Innovation“

Family business with organic growth

MSR-Academy: Extensive webinar and training program for partners and customers

Web shop for easy product selection around the clock

Competitive prices

Exhibitor at international trade fairs

Self-criticism – knowing what is good, but also where improvement is needed



MSR-Group

Everything under one roof.

The MSR-Group unites innovative companies from the electronics sector. Whether gas warning systems, parking guidance systems or sensors for building automation – the products can be found in many commercial and industrial applications, such as parking garages, laboratory and medical technology, biogas plants and in H2 production.

The MSR-Group stands for sustainable innovations and investments from a variety of industries and valuable real estate projects. Openness for new product areas and challenges characterize the MSR-Group.

Thanks to its innovative way of thinking, the company is established on the global market.

MSR-Electronic

Gas Detection.

For reliable gas monitoring and the detection of gas leaks, MSR-Electronic GmbH offers fixed gas warning systems with exchangeable sensor heads, controllers and warning devices for buildings as well as for industrial plants and shipping.

www.msr-electronic.de

MSR-Traffic

Parking Technologies.

MSR-Traffic GmbH stands for intelligent parking guidance systems. With magnetic field sensors, cameras, ultrasonic sensors and state-of-the-art LED displays, the company offers innovative products and solutions for parking space search and monitoring.

www.msr-traffic.de



MSRVIDEO

The MSR-Electronic image film.



MSRVIDEO

The MSR-Traffic image film.

■ MSR GROUP

■ MSR
ELECTRONIC

■ MSR
TRAFFIC

Other business areas and investments of the MSR-Group.

■ Bürohaus
Leopold



VOLTA

xoo

Farada 

LISA
SPORTS

Worldwide Distribution

Global Expert.



MSR Partner

Here you will find the right partner in your region.

MSR-Electronic distributes through its worldwide network of own subsidiaries and over 80 certified partners products and solutions across the globe.

MSR branches



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Certified

Safety for all applications.

The products of MSR-Electronic meet more than the general standards and regulations and thus guarantee the safety of the system.

ISO certifications for the company

Certifications for quality, environmental and energy management
ISO 9001, ISO 50001, ISO 14001

Approvals for the PolyGard® product series

ANSI/UL 61010-1, CAN/CSA-22.2 No. 61010-1

Device series types: DGC-06, GC-06, EP-06, SB2, MSC2, MSB2, WSB2, ARB2, SC2-Tox, SC2-Ex, MC2-Tox, MC2-Ex

EAC Metrological Certifications

Device series types: PolyGard® product series

Other conformities

EU Directive 2014/30/EU and 2014/35/EU, EN 50545-1, EN 50271, EN 61010-1, EN 50270, EN 378, EN 60079-29-1, EN 50104, EN 50402, EN 45544-1, EN 14624, EN 61508-1 -2 -3, SIL





Approvals for the PolyXeta® product series

Electrical explosion protection of sensors and devices according to ATEX/IECEx,
IEC/EN 60079-0, -1 and EU Directive 2014/34/EU (DEKRA Testing and Certification GmbH)
Device series types: PX2, SX1, SSAX1

Metrological testing of sensors and devices according to EN 60079-29-1 for combustible gases/
EN 50104 for oxygen (DEKRA Testing and Certification GmbH) / Device series types: PX2, SX1

Functional testing (SIL2) of sensors and devices according to IEC/EN 61508-1 -2 -3, EN 50271
(DEKRA Testing and Certification GmbH) / Device series types: PX2, SX1

Approval for shipping according to the European Directive 2014/90/EU, 2021/1158/EU and
according to the international directive DNVGL-CG-0339
Device series types: PX2, SX1, SSAX1

EAC Metrological Certifications
Device series types: PX2, SX1, SSAX1

Other conformities
EU Directive 2014/30/EU and 2014/35/EU, EN 61010-1, EN 50270, EN 378, EN 50402,
EN 45544-1, EN 14624 / Device series types: PX2, SX1, SSAX1



Certifications and Approvals

Standards for your safety.



Underwriters Laboratories (UL) is an independent organization in the USA that tests and certifies products with regard to their safety, with a focus on fire and personal protection. UL approval of MSR-Electronic products indicates demonstrated compliance with the safety regulations of the USA and Canada.



The safety integrity level (SIL) is a term from the field of functional safety. The safety integrity level is used to assess electrical/electronic/programmable electronic (E/E/PE) systems and refers to the reliability of safety functions. The aim of safety functions in industry is to protect the health of the people working there, the environment and goods. These safety functions are realized with the help of a safety circuit, which can consist of different operating devices such as sensors, actuators and control elements.



The ATEX Product Directive 2014/34/EU for equipment and protective systems intended for use in potentially explosive atmospheres sets out the rules for placing products on the market that are used in potentially explosive atmospheres. MSR-Electronic certifies with this certification that the products meet the essential health and safety requirements for design and construction as well as the requirements regarding the measuring function in hazardous areas.



International Electrotechnical Commission (IEC) is an international standards organization for standards in the field of electrical engineering and electronics.



IECEX = IECEx stands for "International Electrotechnical Commission System for Certification to Standards Relating to Equipment for Use in Explosive Atmospheres" or "international procedure for certification of electrical equipment used in hazardous areas". Similar to ATEX, IECEx has regulations that classify environments into specific hazard classes. A number of standards issued by the IEC are decisive here.

ATEX applies in Europe and IECEx worldwide (except Europe or USA).



CSA: A global leader in standards development and an internationally recognized and accredited provider of testing, inspection and certification services for the North American and global markets. MSR-Electronic products are tested in CSA's EMC laboratories. Approvals are issued by DEKRA Testing and Certification GmbH.



DEKRA Testing and Certification GmbH certifies MSR-Electronic products for the following approvals: Type examination (ATEX and Metrological Testing, IECEx, SIL)



The MED marking confirms that a product or piece of equipment is approved for use on ships of EU member states and states that apply the Marine Equipment Directive 2014/90/EU. This process is called M.E.D/MED certification or approval, sometimes called "Steering Wheel" or "Wheel-mark" marking, and confirms that the equipment or product is suitable for use in shipbuilding.



DNV is an international classification society and service provider in the fields of technical consultancy, engineering services, certification and risk management. As a classification society, DNV prepares standards for ships and offshore units, known as class rules. These rules contain regulations on safety, reliability and environmental protection that ships and mobile offshore units must comply with in international waters. The certification allows MSR-Electronic products to be used in certain maritime areas worldwide.



EAC is the abbreviation for Eurasian Conformity. The mark applies to freely marketable products and is used analogously to the European CE mark. With the EAC mark, MSR-Electronic confirms that a product has undergone a conformity procedure and complies with the prescribed technical requirements.



CE confirms compliance with the most important health and safety directives of the European Union. By affixing the CE mark, MSR-Electronic confirms that all necessary regulations are complied with and that all relevant measurements are performed and documented.



UK CA is a british product labelling required for certain products placed on the market in Great Britain (England, Wales and Scotland). It applies to most products for which the CE mark was previously required.

PolyGard®

Gas detection systems for buildings.

Gas warning systems or gas alarm systems must be reliable at all times. In the event of gas leaks, e.g. carbon dioxide (CO₂), carbon monoxide (CO) or nitrogen oxides (NO_x), fast alerting and reliable products are required.

The sensors, controllers and warning devices from MSR-Electronic effectively protect human beings and systems in dangerous situations where combustible, suffocating or toxic gases are emitted. With the help of modern communication technology, it is possible to react quickly.

Benefits

- **More safety**
More than required by all national standards
- **Exchangeable sensor with X-Change technology**
Significantly lower maintenance costs
- **Precise planning capability with overall reduced costs**
- **Integration in BMS/BA**
(BACnet, Modbus)





Applications for Buildings

Parking Garages and Tunnels

- Tunnels
 - Charging zones
 - Charging stations
 - Vehicles with alternative fuels
-

Food and Beverage

- Refrigeration/industrial refrigeration
 - Beverage industry
 - Dispensing systems and beverage warehouses
 - Vending machines
 - Food storage
 - Packaging industry
-

Laboratory / Medicine / Pharma

- Research laboratories
 - Food companies
 - Pathology
 - Drug manufacturing
 - Cosmetics manufacturing
-

Climate: Cold and Heat

- Heat pumps
 - Open plan offices, commercial kitchens
-

Water Treatment

- Swimming pools
 - Drinking water treatment
 - Waste water treatment
 - Aquaculture and fish farming
-

Gas Logistics

- Gas distributors
 - Terminals
 - Gas storage
-

Process Monitoring

- Semiconductor industry
 - Paper and pulp industry
 - Packaging industry
(packaging under modified atmosphere)
 - Atmosphere monitoring
 - General production industry
-

Hazardous Substances

- Oil and Gas
 - Fuel storage
 - Petrochemicals
 - Pharmaceutical industry
 - Alcohol industry
 - Power generation
-





Excerpt from the **World of Applications for Buildings**

Garage, tunnel, loading zone	22
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Garage, Tunnel and Loading Zones



Protection against CO / NO₂ / NO / LPG.

Garages and tunnels above a certain size (regulations vary from region to region) require a gas warning system, at least with carbon monoxide monitoring. Here, the specifications of EN 50545-1 must be complied with; e.g. at which value the system triggers an alarm and which warning devices are used. Gas sensors, control-

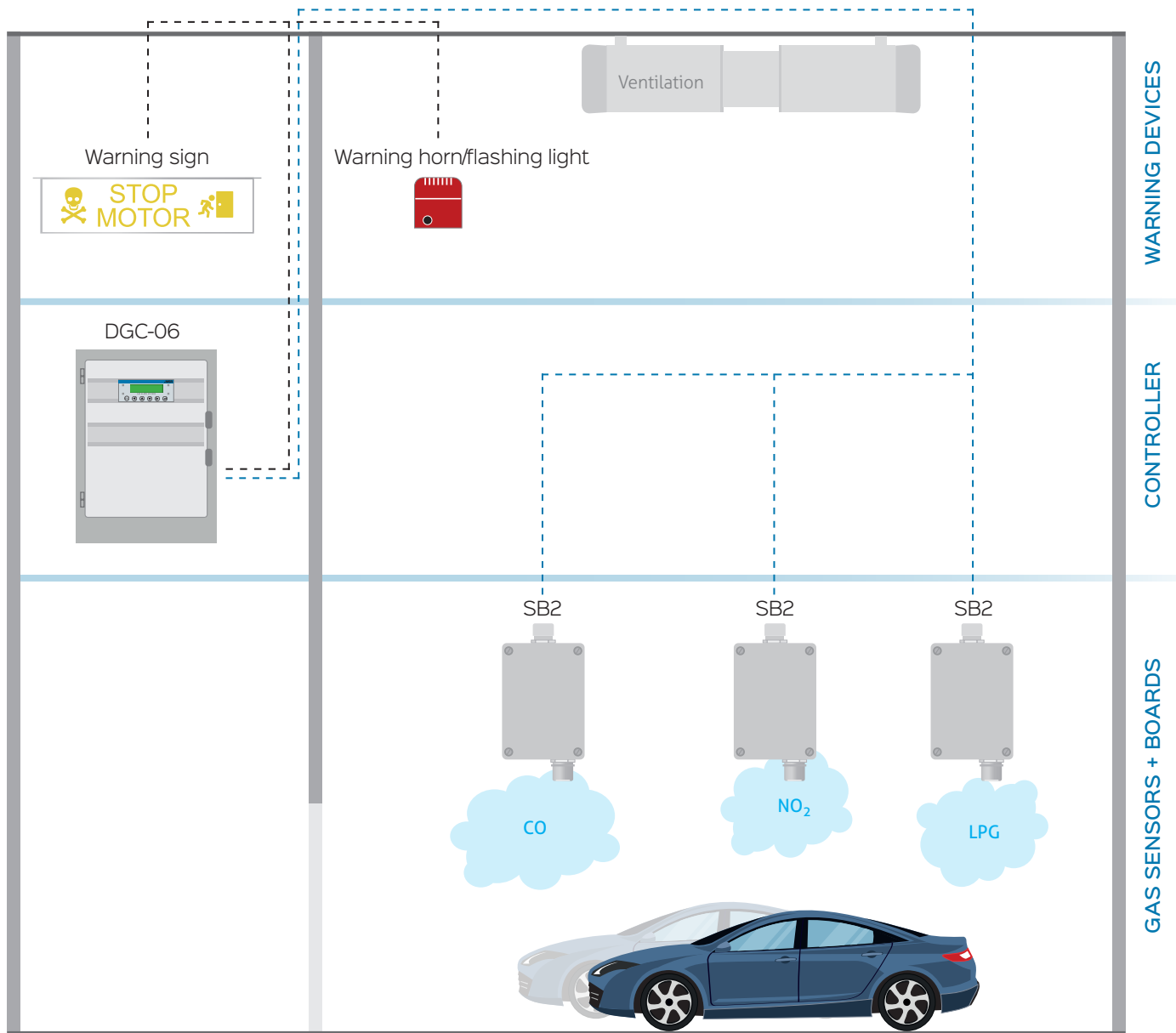
lers and warning devices from MSR-Electronic reliably protect people and equipment in these areas. In addition, the gas detection system can be precisely adapted to the respective regulation thanks to flexible setting options (e.g. switching thresholds differ depending on the federal state).

Gas Hazards

In the event that the permissible CO limit value of 30 ppm is exceeded, the legislator has reliably regulated safety-related requirements in EN 50545-1. Fixed gas detection systems are the crucial monitoring instrument of a ventilation system. It regulates the air quality in closed rooms and decides when the ventilation must be started. In the event of a risk of poisoning or fire caused by leaking LPG gas from motor vehicles, the rescue control center is informed at the same time.

Benefits

- Modular system that can be individually adapted to the circumstances
- Complies with the standards VDI2053, EN50545, EN 50271
- Actively warns of dangerous CO, NO₂, NO and LPG
- Can be ordered pre-configured
- Broad partner network to guarantee service



Parking garage

Refrigeration Systems



Protection against refrigerants.

Refrigeration systems above a certain size must be equipped with a gas detection system. The requirements for gas detectors depend on the type of refrigerant and the specific application. Among other things, the requirements of EN 378 and EN 14624 apply here. Gas sensors from MSR-Electronic are safer than the standards re-

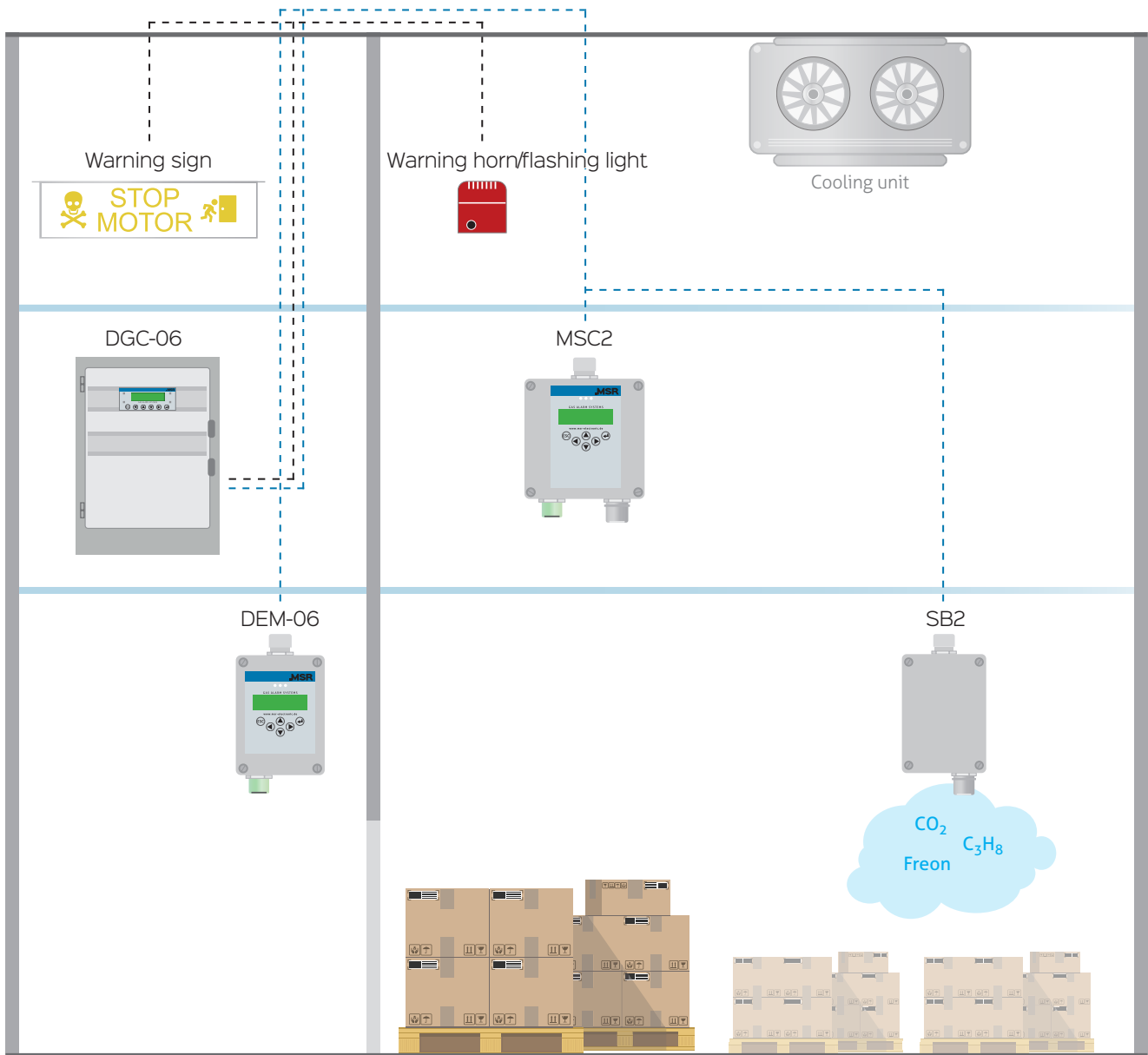
quire and reliably protect life and system. Thanks to flexible setting options, the gas detection system from MSR-Electronic can be adapted precisely to the relevant regulations (e.g. switching thresholds). Depending on the number of sensors required, the large DGC-06 MSR-controller or an MSC2 stand-alone-controller is used.

Gas Hazards

In refrigeration systems, it is necessary to distinguish between natural refrigerant gases and synthetic refrigerants. Synthetic refrigerants can affect health and must therefore be monitored for leaks in the circuits. With the natural refrigerants such as propane, ammonia and CO₂ there is on the one hand the danger of explosions in case of leakage and on the other hand also the danger of poisoning. In this case, it is particularly important to react to the properties of the respective gas by monitoring them appropriately with the help of sensors.

Benefits

- Products for 1-128 sensors developed precisely to meet the needs of the refrigeration industry
- Continuous further development of the portfolio for refrigerant gases
- Small controllers for up to 3 sensors and corresponding warning devices
- Very precise sensors for natural and synthetic refrigerant gases



Cold storage

WARNING DEVICES

CONTROLLER

GAS SENSORS + BOARDS

Dispensing Systems

Protection against CO₂ poisoning and O₂ deficiency.

Whether in restaurants, brewing and fermentation cellars, beverage bottling plants, breweries, wineries or in CO₂ extinguishing systems in warehouses and production halls, wherever CO₂ cylinders, lines and tanks are required, the sensors from MSR-Electronic can be used.

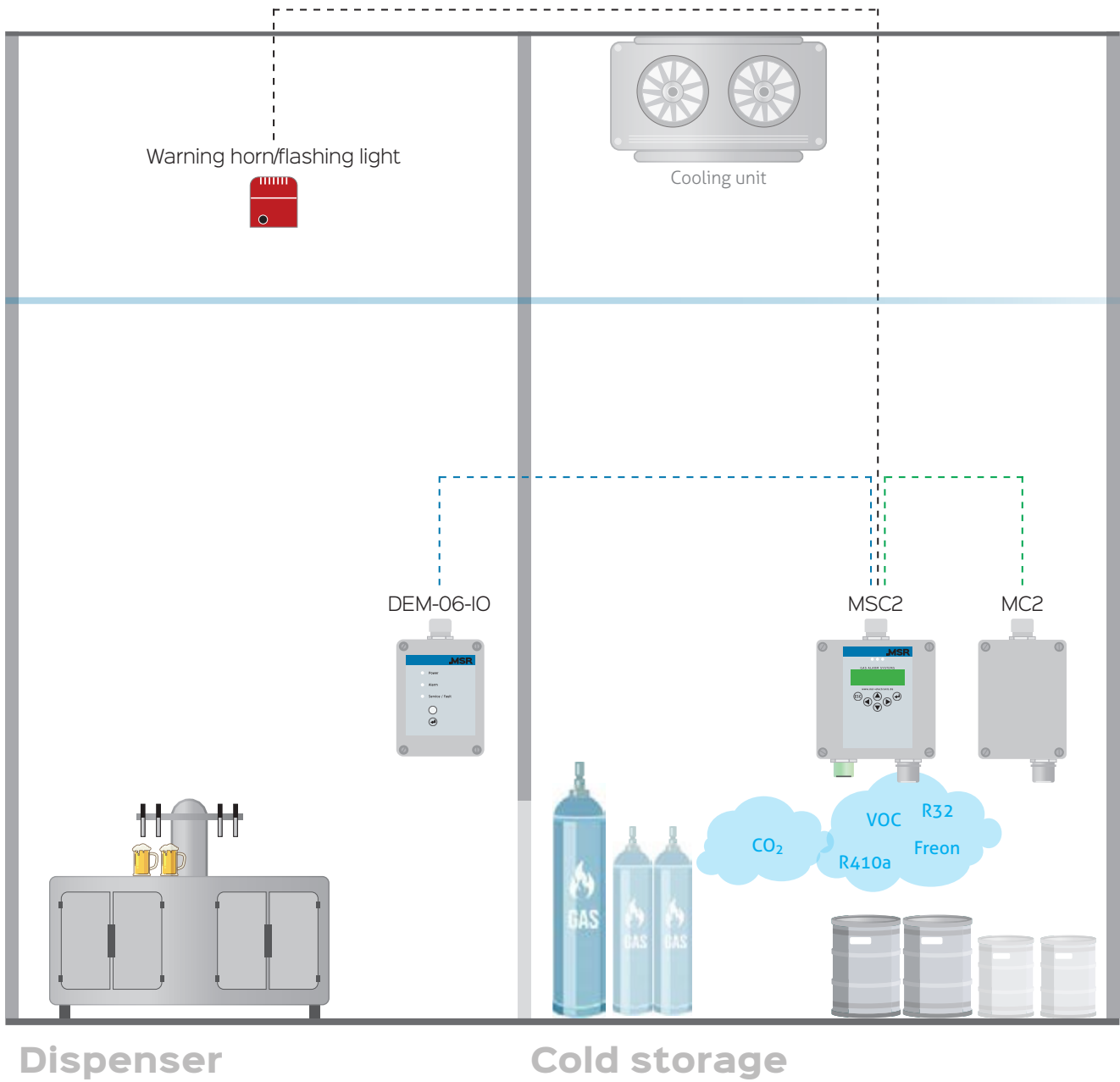
The DEM-06-IO-A module secures access to enclosed spaces where CO₂ leaks may occur and indicates an increased gas concentration in real time. This ensures perfect safety. MSR-Electronic offers reliable sensors, controllers and warning devices for dispensing and cooling systems.

Gas Hazards

The danger of dispensing systems is often underestimated because CO₂ is odorless and invisible. On the one hand, carbon dioxide itself is very toxic, and on the other hand, it displaces oxygen. Both dangers can be monitored by gas sensors. A combination of O₂ displacement monitoring and CO₂ concentration measurement is the safest way to operate the equipment without danger.

Benefits

- LED display: Warning before entering the room
- Integrated test and maintenance function
- Optionally also for multiple entrances: Parallel warning in front of the respective door
- Simple, cost-effective monitoring even for small dispensing systems
- Simple scalability of the systems



WARNING DEVICES

GAS SENSORS + BOARDS

Laboratory and Medicine

Detection of different gases.

When handling various hazardous substances in laboratories and medical facilities, relevant safety measures must be observed in accordance with the Hazardous Substances Ordinance (GefStoffV) and the laboratory guideline. Reliable monitoring of the wide variety of gases in the ambient air must therefore be guaranteed.

The Compactcontroller from MSR-Electronic is designed to connect up to 10 gas sensors via its own fieldbus and is used to warn of various gases. MSR-Electronic also provides reliable solutions for extended applications, e.g. for large capacity laboratories.

Gas Hazards

- When gases are released in laboratory recirculation stations, fume hoods and equipment for filtering of gases in research and university laboratories
- In the pharmaceutical industry: fermentation and clean room monitoring
- In medicine: cryopreservation, anatomy, forensics, pathology, histology and respiration
- In the chemical industry in the production of substances

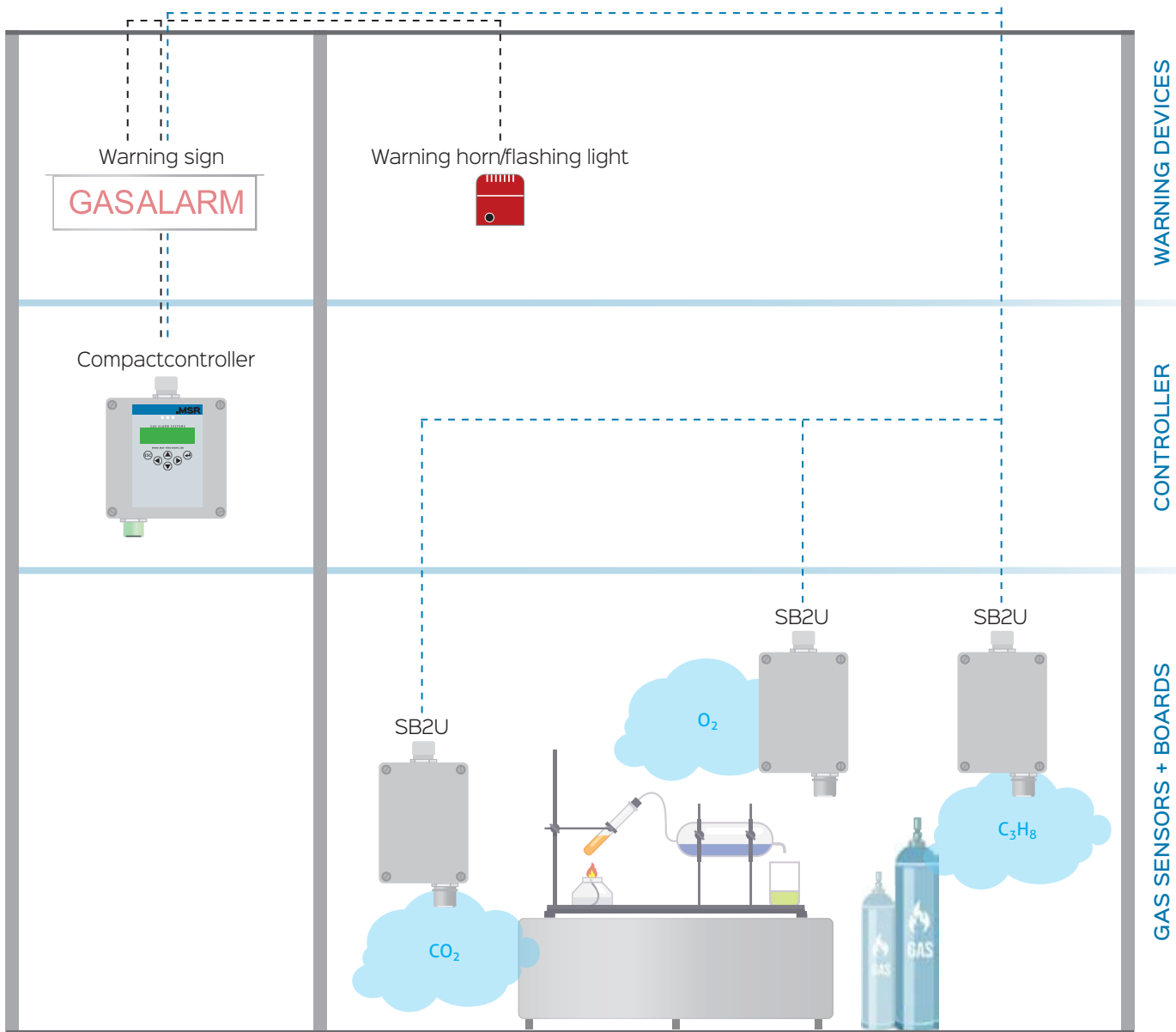
Benefits

- Broad portfolio includes many gas and measurement ranges
- Easy connection to existing BMS
- System suitable for various laboratory sizes
- Also suitable for changing requirements for different gases



MSRPDF

Complete folder: Safe medical and laboratory areas



Laboratory

Ripening Chambers



Safety against CO₂ / C₂H₄ / C₂H₄O and O₂ deficiency.

In addition to the modern technology of the ripening chambers, gas sensors are required for permanent monitoring of the various gas concentrations involved in the ripening process. The sensors, controllers and warning devices from MSR-Electronic effectively protect people and equipment and monitor the entire process in

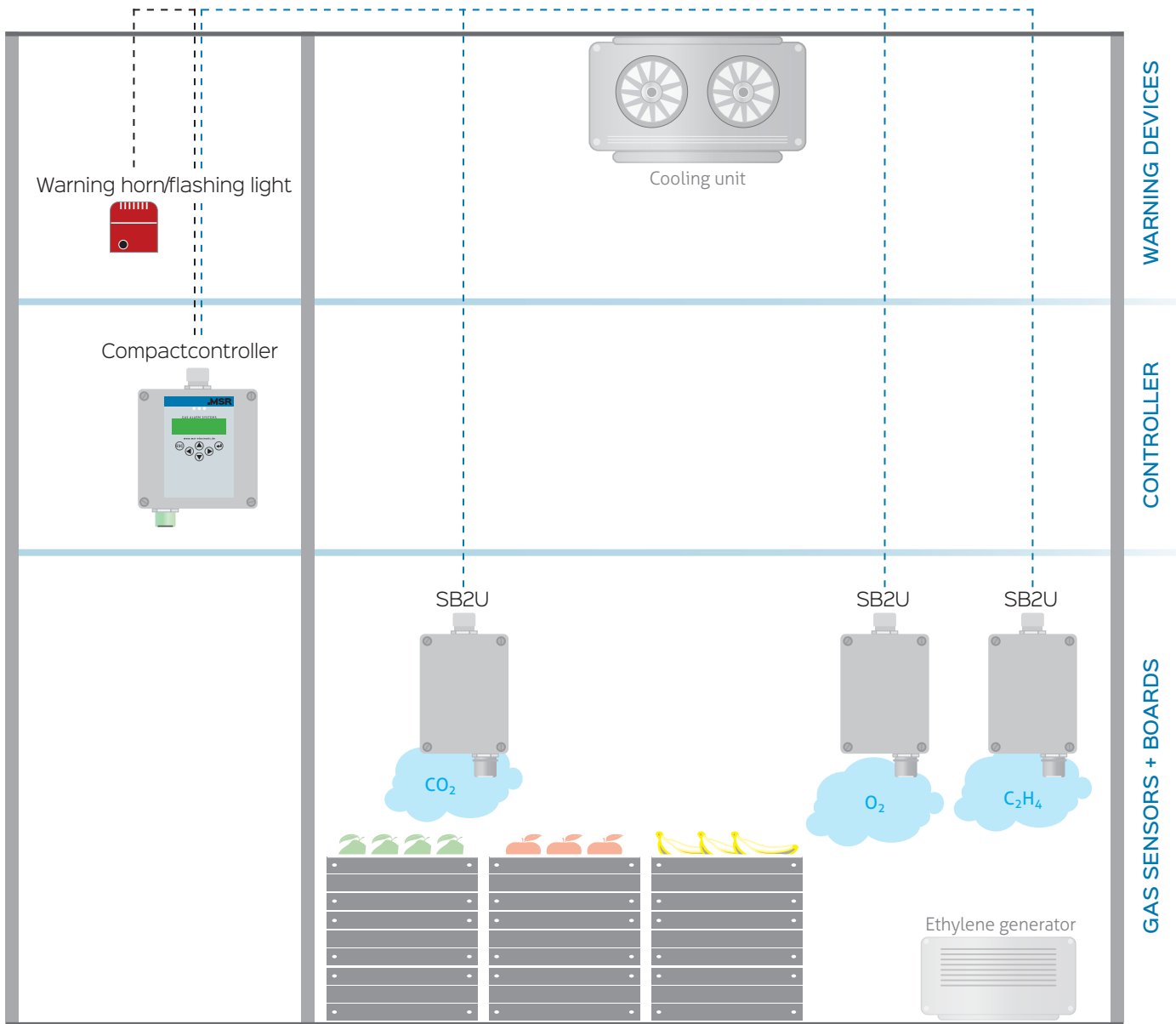
the ripening chamber. With the help of modern communication technology, it is possible to react quickly. The Compactcontroller is designed to connect up to 10 gas sensors via its own field-bus and is used to warn of different gases and is therefore ideal for the application.

Gas Hazards

Fresh fruits and vegetables are alive and continue to breathe after the harvest. This leads to oxygen consumption and the generation of carbon dioxide and water vapor. Keeping the produce fresh means slowing down the process while maintaining the quality of the product. To speed up or slow down the ripening process, different CO₂ and O₂ concentrations are set, which are permanently monitored by a gas detection system.

Benefits

- Simple monitoring of several rooms for ethylene, CO₂ or O₂
- Precise sensor technology in analog or digital design
- The degree of ripeness can be precisely controlled
- Monitoring of storage without entering the room
- Access control can be easily implemented



Ripening Chamber

Aquaculture Systems



Safety from various gases and oxygen deficiency.

The advantage of fish farming in an aquaculture system (RAS or a specially designed tank) is that production is independent of location and has minimal impact on the environment and water consumption, as it is a closed system. Moreover, they can be built near consumer markets and

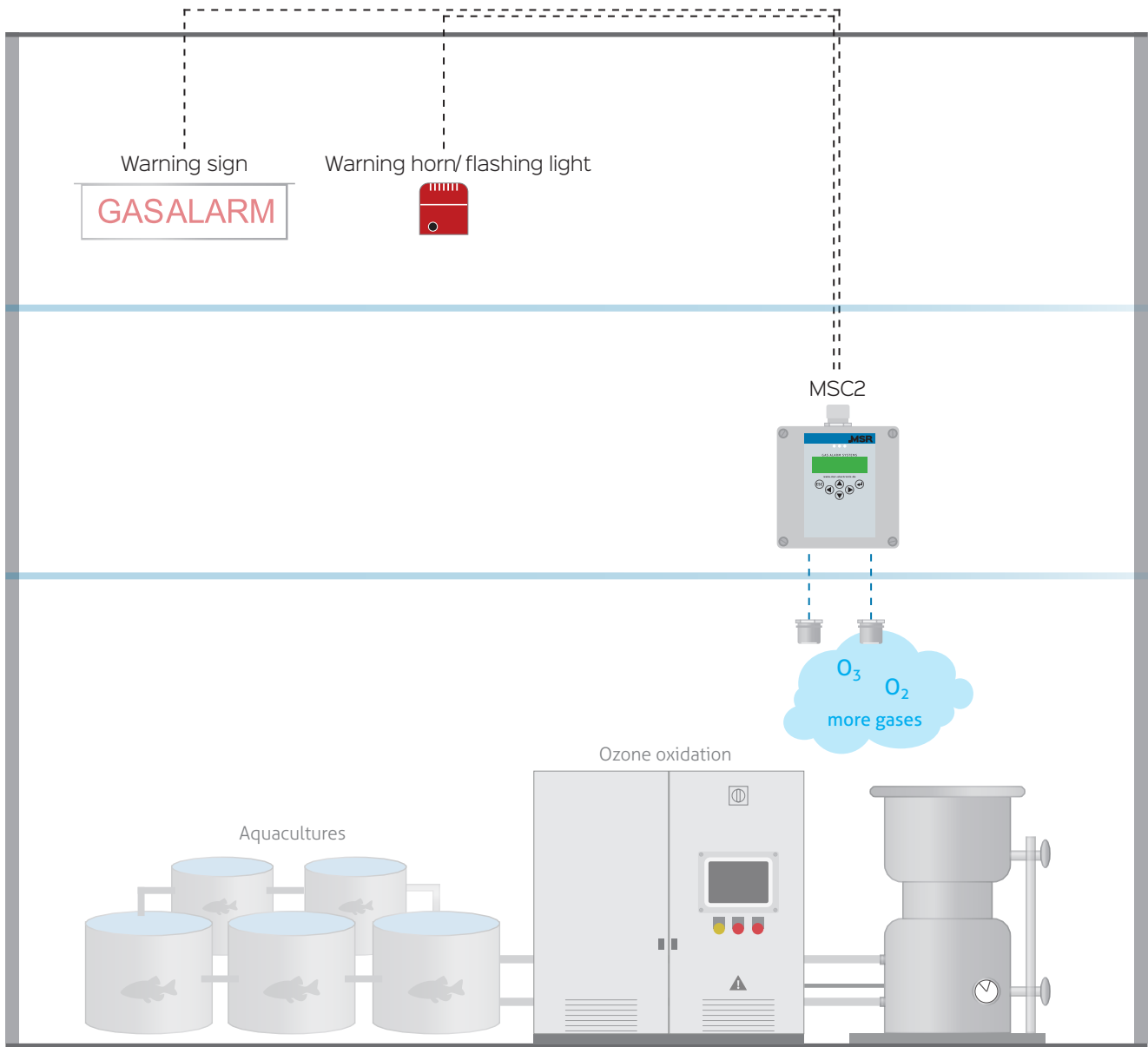
in regions where there is not enough water or suitable climatic conditions for selected fish species. Water treatment and sterilization play an essential role in aquaculture. This places great demands on the facilities as well as new health safety criteria for the personnel working there.

Gas Hazards

Farmed fish are sensitive to pathogens, water quality and toxic substances. High water quality and disinfection of facilities is provided by ozone oxidation or ozonation. Ozone is a health hazard and therefore dangerous to employees working in ozone production premises. Gas sensors, controllers and warning devices from MSR-Electronic offer perfect protection in case of occurring ozone gas leaks.

Benefits

- Precise monitoring with a very high resolution
- Small controller or large controller possible
- Cost-reduced calibration through on-site sensor head replacement (X-Change technology)



Aquaculture System

Beverage Industry



Safety from CO₂ / SO₂ / H₂S / C₂H₆O / CH₃OH and O₂ deficiency.

In the beverage industry, the danger posed by gases is often underestimated. Soft drinks and beers are perceived as refreshing due to "carbon dioxide", and in still beverages carbon dioxide improves shelf life. But carbon dioxide is also indispensable for wine and sparkling wine production. MSR-Electronic offers reliable gas sensors, controllers and warning devices to protect peo-

ple and equipment from hazardous gases. When gas leaks occur, fast alarming and reliable gas detection systems are required.

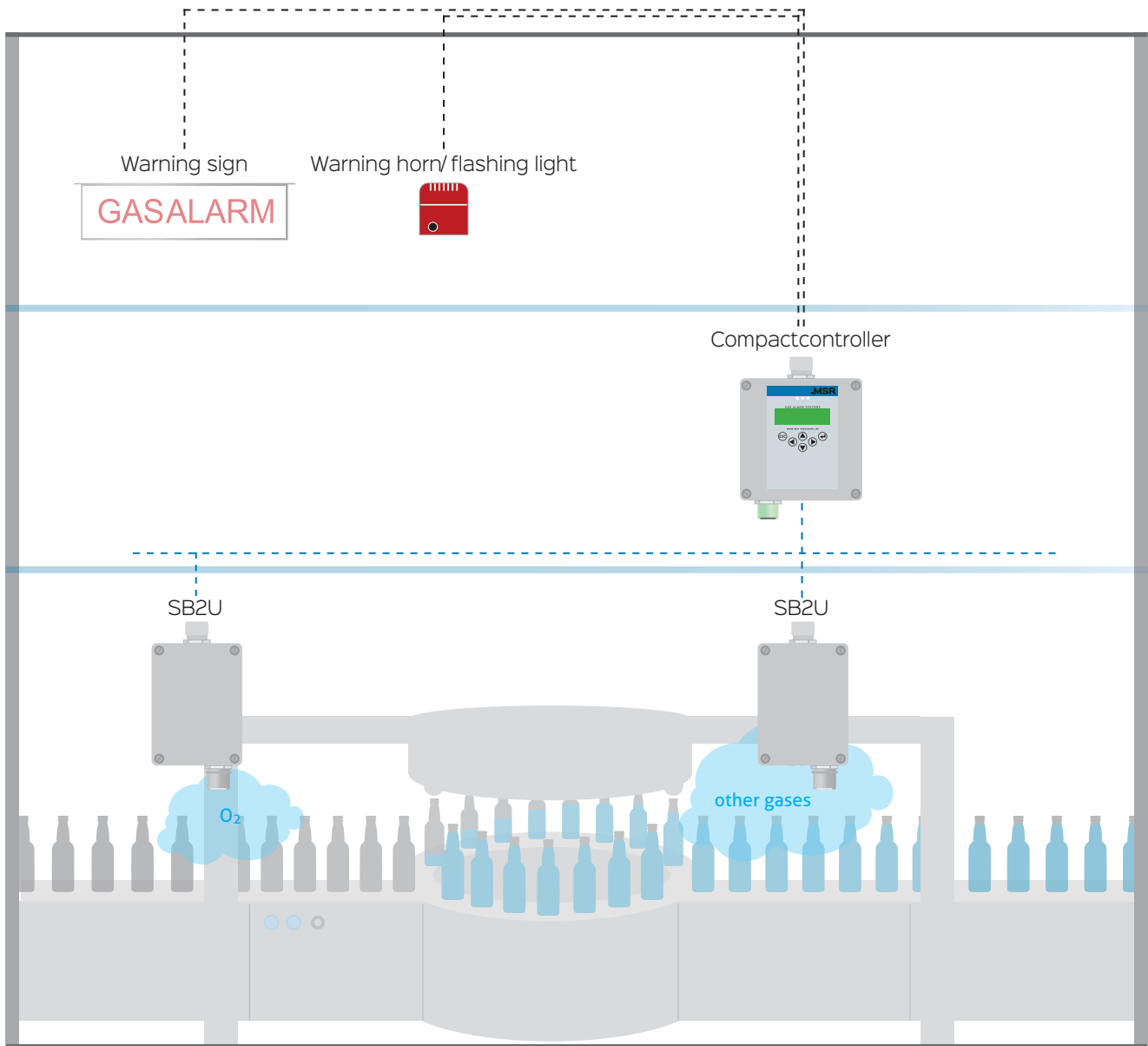
The Compactcontroller from MSR-Electronic is designed to connect up to 10 gas sensors via its own fieldbus and is used to warn of various gases.

Gas Hazards

- In breweries, wineries, beverage bottling, dispensing and CO₂ extinguishing systems for warehouses
- In carbonation of soft drinks and inerting of tanks or pipelines
- Use of SO₂ as a preservative and antioxidant
- Odor problems caused by H₂S in the food industry
- Alcohol production: spirits production with toxic and flammable gases
- Monitoring of O₂ deficiency to protect people in enclosed spaces

Benefits

- Many years of experience in CO₂ and oxygen monitoring
- CO₂ monitoring directly at the point of operation
- Compact and modular design
- Fast response time of the sensors



Beverage bottling

Vending Machines



Safety in case of a refrigerant leakage.

The global market is moving away from classic high global warming potential refrigerants (GWP) and the use of natural refrigerants is increasing. Due to the higher flammability of natural gases such as propane, installations must therefore be protected with gas detection systems.

MSR-Electronic offers the sensor SSAX1, which can be easily integrated into vending machines and reliably detects any gas leakage.

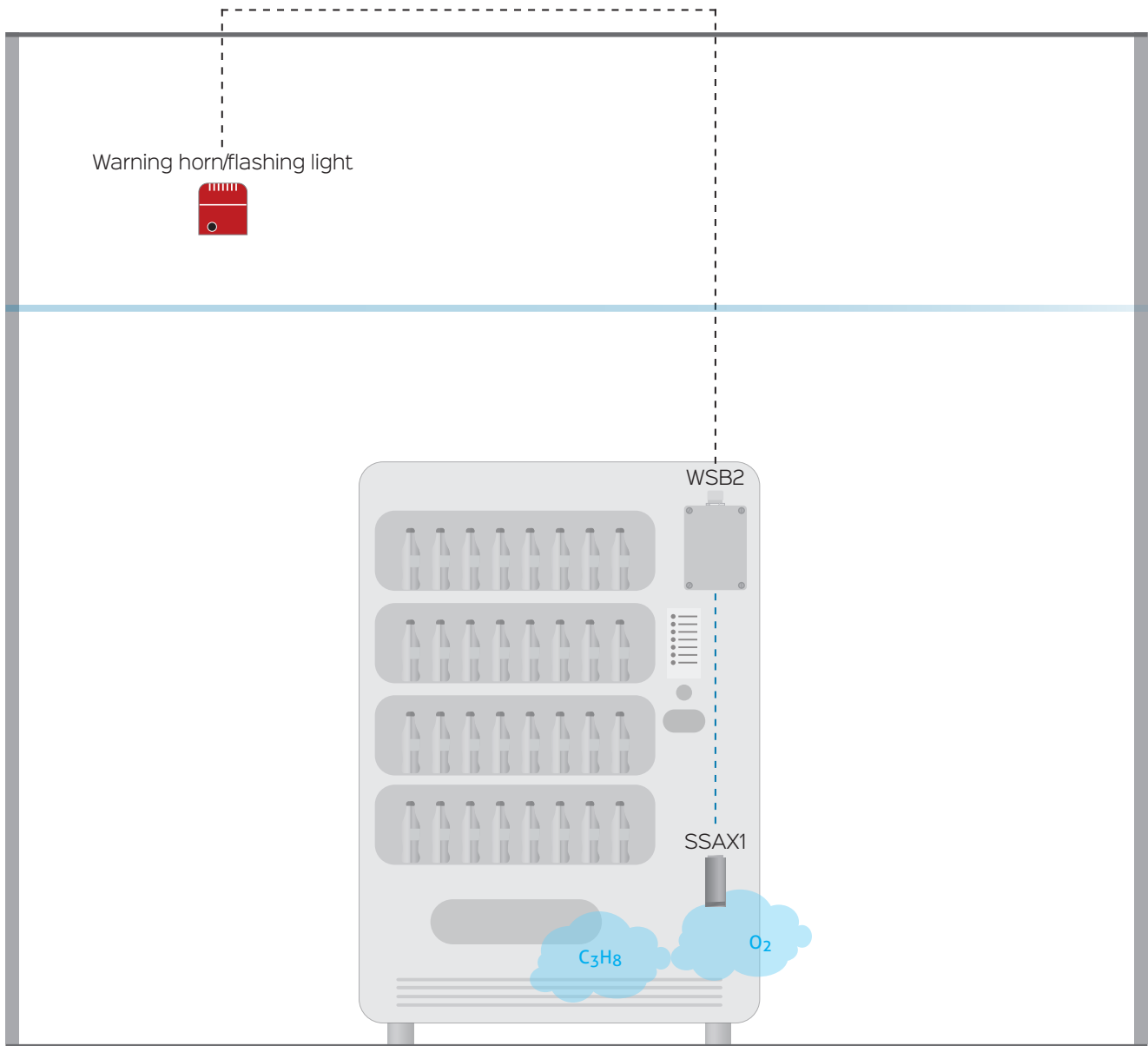
MSR-Electronic offers reliable sensors, controllers and warning devices for refrigerated vending machines.

Gas Hazards

Gas leaks in vending machines are very dangerous because the natural refrigerants used here quickly produce an explosive gas mixture. In the event of a leak, a reliable and rapid response is necessary, otherwise vending machine users are at risk.

Benefits

- Special separation of ATEX and non-ATEX areas possible with SSAX1 and WSB2/MSC2
- Switching off the electronics in the event of a gas alarm via relay



WARNING DEVICES

GAS SENSORS + BOARDS

Vending machine

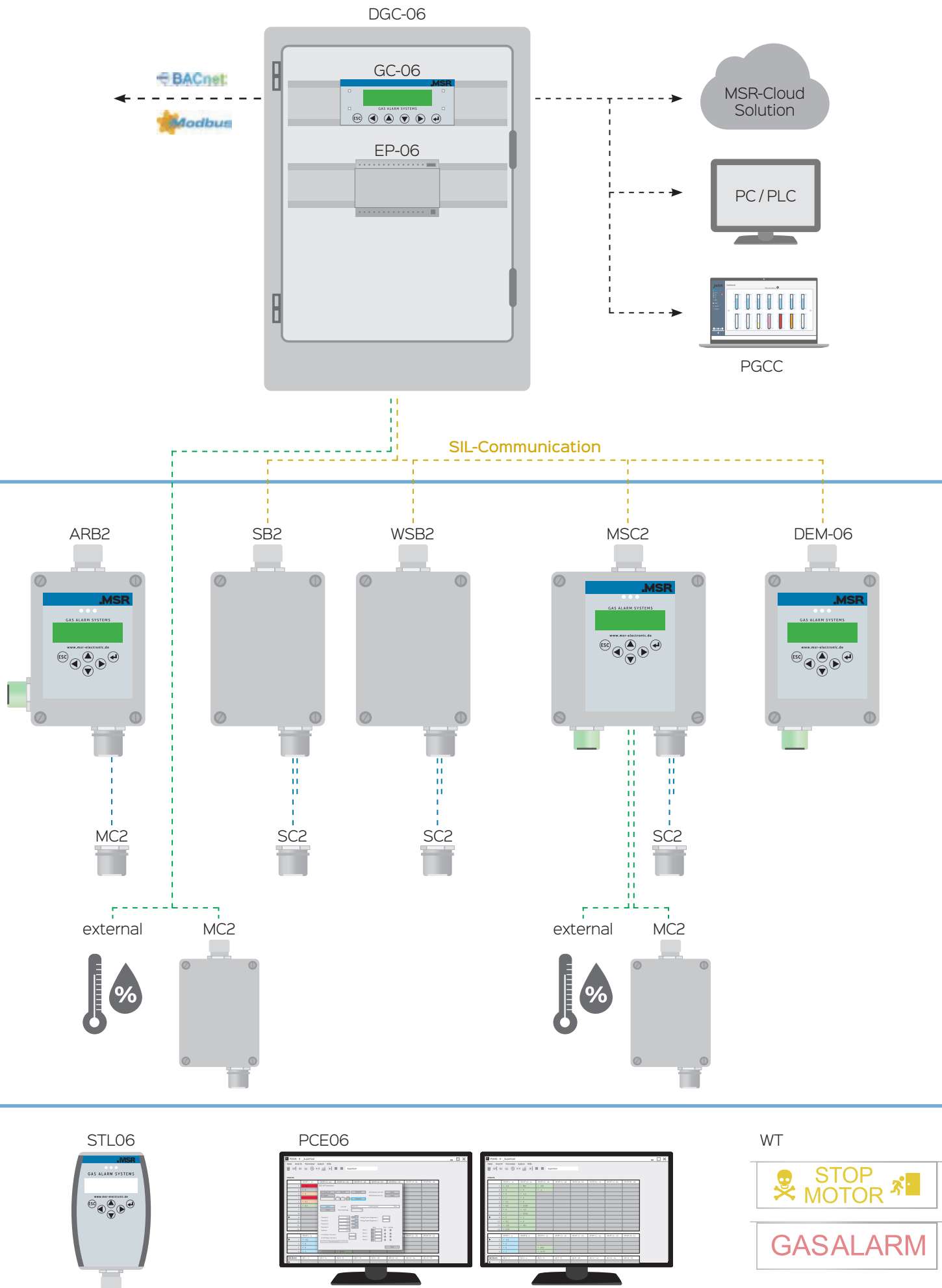
PolyGard®

Gas Detection Systems for Buildings

- Sensors and boards
- Controllers and modules
- Warning devices and accessories

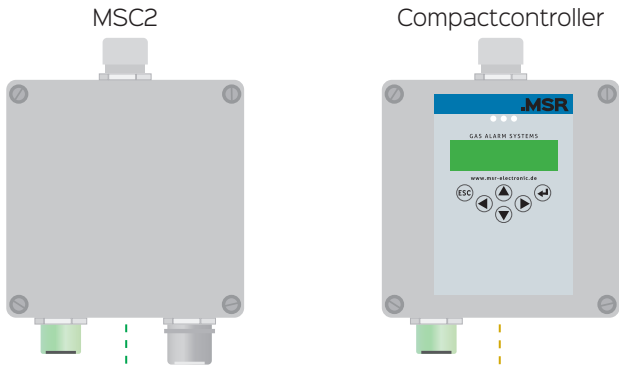






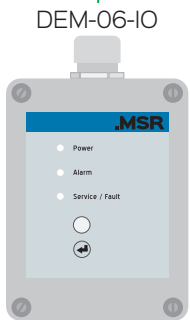


Interactive Product overview
Get to know our products here.



CONTROLLER AND MODULES

MSC2	Multi-Sensor-Controller
DGC-06	Digital-Gas-Controller
PGCC	PolyGard®2 Control Control
DEM-06	Door-Entrance-Module
GC-06	Gas-Controller-Module
EP-06	Gas-Controller-Expansion-Module



GAS SENSORS AND BOARDS

ARB2	Analog-Relay-Board
SB2	Sensor-Board
SB2U	SB2Unit (Compactcontroller)
WSB2	Warning and Sensor-Board
MC2	Analog Sensor
SC2	Digital Sensor



WH/BL



WARNING DEVICES AND ACCESSORIES

STL06	Service-Tool
WH	Warning Horn
WH/BL	Warning Horn/Flashing Light Combination
WT	Warning Sign
PCE06	Software

Sensor Heads SC2 and MC2 With X-Change technology

Easy calibration.

MSR-Electronic develops individual gas sensors, e.g. for CO₂, CO, CH₄, CH₂O, NH₃, O₂ or H₂ and systems that monitor toxic or combustible gas concentrations.

The innovative sensors are integrated into complex warning systems and are used, for example, in parking garages, biogas plants, refrigeration plants, petrochemical industrial plants, breweries and dispensing systems or in laboratories and medical applications as well as in hydrogen production and processing.

In addition to the sensor element and the measuring amplifier, the SC2 and MC2 sensors

include a μ Controller for measured value processing. Thus, various data can be processed and utilized, such as the temperature for compensation of the measured value. In addition, calibration interval and errors are monitored and transmitted to the evaluation unit.

Thanks to the X-Change technology, calibration can be performed by simply changing the sensor head or by using the integrated, convenient calibration routine directly at the system.

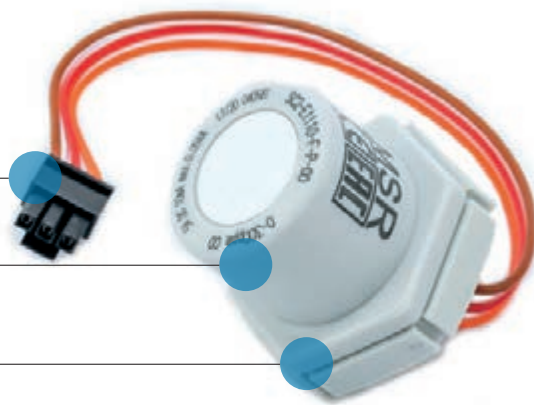
The sensors are designed for connection to MSR-Electronic controllers and boards.

Digital sensor for use in compactcontrollers or in the bus system.

Connection L-Bus
max. 5 m away

Laser engraving type designation

Sensor head housing IP65



Analog sensor with lots of additional information.

Digital calibration
Power supply and
analog output

Sensor head MC2
with 4-20 mA / 2-10 V output



Sensor Heads SC2 and MC2

Infrared exchange sensor

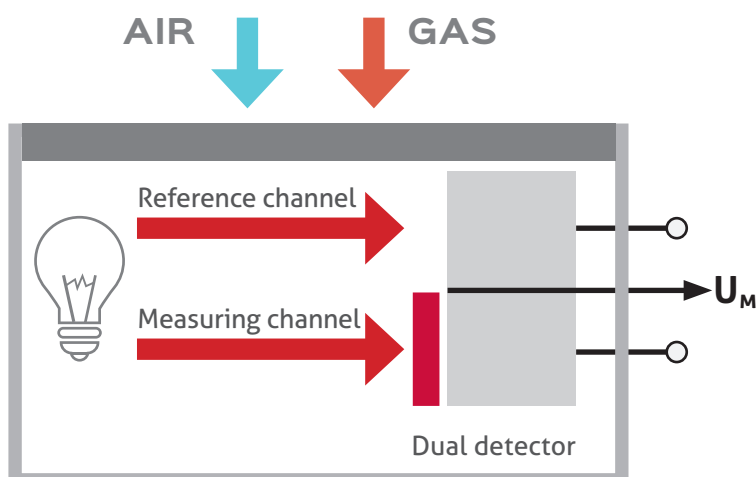
For selective gas measurement.

For applications where durability and high precision measurement are important. The IR measuring method with integrated temperature compensation ensures highest accuracy, selectivity and reliability. In the μ Controller all data and measured values of the sensor element

are stored fail-safe and are digitally transmitted via the local bus to the Sensor-Board SB2 or Multi-Sensor-Board MSB2 or to the MSC2 or WSB2. The sensor head automatically transmits information about the maintenance interval to the controller.

Benefits

- Long life expectancy
- Low maintenance costs
- High accuracy, selectivity and reliability
- Measuring value setting time $t_{90} < 30$ sec.
- Gilded mirror surface
- Low zero drift
- Sensor with long service life and high durability
- Running-in time until operation < 60 sec.



Sensor Heads SC2 and MC2

Electrochem. sensor element

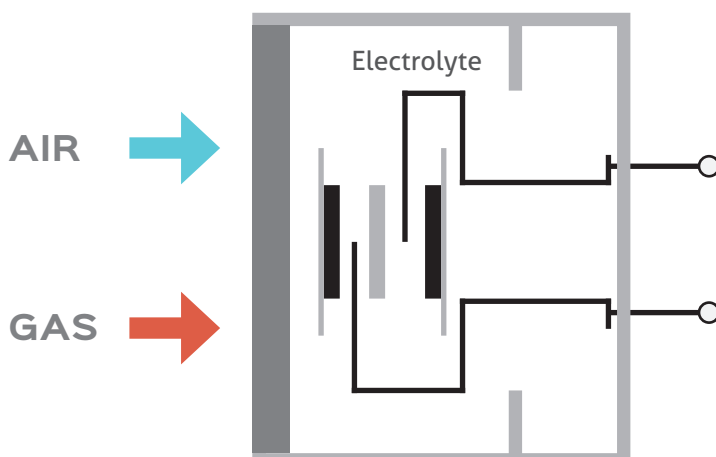
For toxic gases and coolants.

These sensors are used to measure mainly toxic gases such as CO, NO, NO₂ and function according to the electrochemical principle. This means that there is an electrolyte in a cell. It reacts proportionally to the presence of gas with the

formation of ions, which ultimately generates a current. This change then indicates the gas concentration. This principle has a high sensitivity and a fast reaction time, which is especially interesting for toxic gases.

Benefits

- High sensitivity
- Linear measurement signal
- Low cross-sensitivity
- No energy is required
- Fast response time
- No poisoning by silicones



Sensor Heads SC2 and MC2

Pellistor sensor element

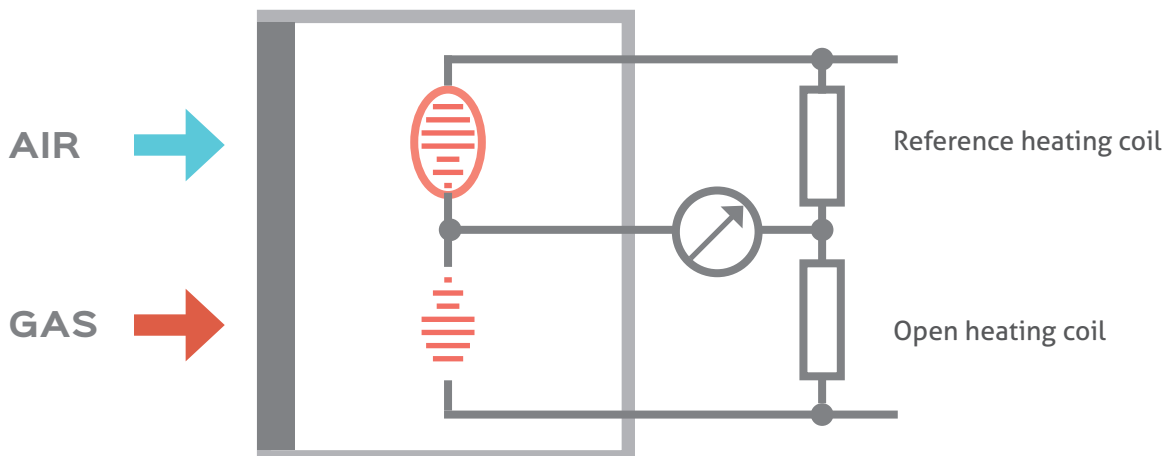
For combustible gases and vapors.

Pellistors or catalytic sensors consist of an active and a passive pellistor. These form a Wheatstone bridge circuit, which is operated with a heating current of approx. 450 °C. When gas is present,

the resistance on the active side changes, which generates a current flow. This method is particularly suitable for explosive gases, where high linearity and measuring accuracy is required.

Benefits

- Linear signal
- High measuring accuracy
- Temperature range -30 °C to +50 °C



Sensor Heads SC2 and MC2

Semiconductor sensor element

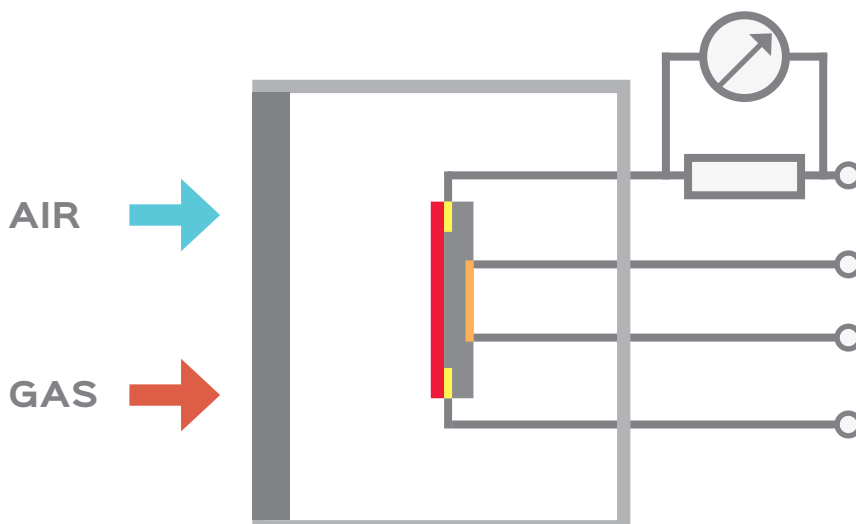
For combustible gases and refrigerant gases.

Semiconductor gas sensors for gas detection are not made of silicon or germanium, but of N- or P-conducting metal oxides (e.g. zinc oxide, tin oxide, copper oxide). The measuring effect is based on the accumulation of certain gas atoms on the

surface of the semiconductor material, which causes a change in electrical resistance. These sensors are not very selective, but are excellent for leakage measurement.

Benefits

- Cost-effective
- Very good leakage measurement



Sensor Heads SC2 and MC2 MPS™ sensor element

NEW

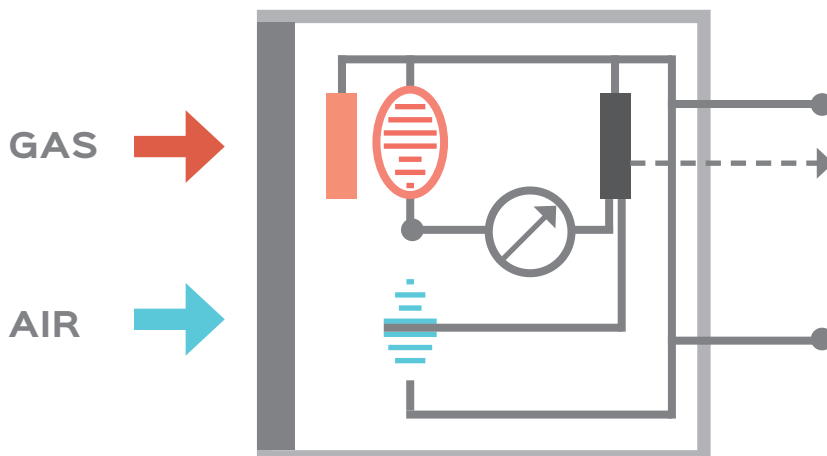
For combustible gases and vapors.

The core component of the MPS™ sensors (Molecular Property Spectrometer) is the microelectromechanical system (MEMS). This consists of a heating plate with a Joule heater and a resistance thermometer. If a flammable gas or flame-retardant A2L refrigerant diffuses into the sensor, the thermodynamic properties of the gas mixture at the MEMS sensor change. This has an influence on the temperature of the heating

plate. The Joule heater regulates this temperature. The temperature of the heating plate and the required heating power are measured. In addition, the ambient conditions are permanently monitored by an environmental sensor. The collected data is processed by an algorithm in the sensor's software and the gas type and concentration are determined.

Benefits

- Maintenance free
- At least 15 years service life
- Low power consumption
- High accuracy, linearity, repeatability and stability
- Integrated environmental compensation (pressure, humidity and temperature)
- Integrated self-testing and fault management
- Highly resistant to poisoning



The gas sensors developed in cooperation with NevadaNano represent the latest innovative sensor technology for detecting flammable gases and refrigerants. The highly flexible sensor solution is attractive for a wide range of appli-

cations. MPS™ sensors are particularly suitable for areas that are difficult to access, as they can operate for long periods without calibration or maintenance.

MSR-Electronic ON TOP

No classification into groups: The MPS™ sensors from MSR-Electronic are individually adapted to the respective target gas and thus achieve significantly higher precision. They also have a considerably longer service life than comparable gas sensors on the market.



X-Change Technology Recalibration

Exchangeable sensor SC2 and MC2.

Until now, the necessary calibration of the sensors was a complex procedure and dependent on an external certified company. This was very time-consuming and expensive. The sensors had to be opened, checked and calibrated with great care at the construction site. If an error was found, it was necessary to take the com-

plete sensor with you and replace it afterwards. With the new X-Change technology this effort can be saved. The exchangeable sensor head can be replaced on site at any time. The transmitter therefore remains untouched. This saves time and costs.

Time-saving and independent recalibration

- Significant time and cost savings
- Simple exchange process
- Delivery of recalibrated sensor heads
- Increased safety for your system



Customer



MSR VIDEO

How-to: X-Change Technology for the PolyGard® product series.



1 Open the housing with a customary screw driver.



2 Disconnect the sensor cable and unscrew the sensor head to be calibrated.
The yellow LED lights up.



3 Replace the sensor head and connect the cable of the newly calibrated head to the circuit board.
The yellow LED goes off again.



4 Close the housing again and the recalibrated sensor head is immediately ready for use.

Sensor-Board

SB2

For connecting up to 3 different sensor heads.

Up to 3 different sensor heads of the SC2 series can be connected to the Sensor-Board SB2 via the local bus. The SB2 ensures the power supply of the SC2 and provides the measured data of the sensor heads for digital communication.

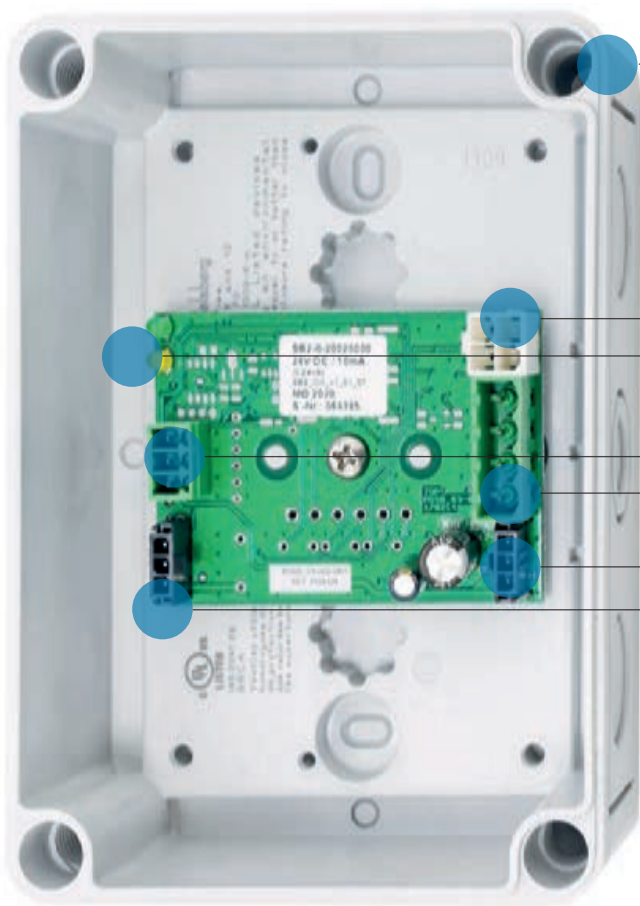
Communication with the Digital-Gas-Controller DGC-06 takes place via RS-485 fieldbus interface with DGC-06 protocol. Additional protocols are available for direct connection to higher-level BMS.

Benefits

- Device can be used independently of control panel, stand-alone device without DGC-06
- System can be expanded at any time, can grow modularly
- Digital measured value processing
- Internal function monitoring with integrated watchdog
- Measured values in sensor head SC2, making it easy to change: uncalibrated <> calibrated
- Up to 3 different sensor heads
- Sensor head can be removed via Remote-Board (RB2)
- Software according to SIL2-compliant development process
- WAO: Status LED with warning buzzer
- Acknowledgement button (optional)
- Serial RS-485 interface with protocol for DGC-06 or Modbus protocol
- X-Change technology for safe and easy sensor replacement without prior knowledge



Simple board for setting up a bus system.



Housing IP65

Interface Service-Tool STL06
Control LED (green / yellow)

Connection for RB2 for additional
sensor SC2

DGC-06 Fieldbus
Power supply

Input sensor head 1

Input sensor head 2



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Warning and Sensor-Board WSB2

With RS-485 interface, 4-20 mA output and alarm relay.

The Warning- and Sensor-Board WSB2 ensures the power supply of the sensors and processes the measured data of the sensor head for digital communication.

Communication with the DGC-06 controller takes place via the RS-485 fieldbus interface with DGC-06 protocol. The sensor head is con-

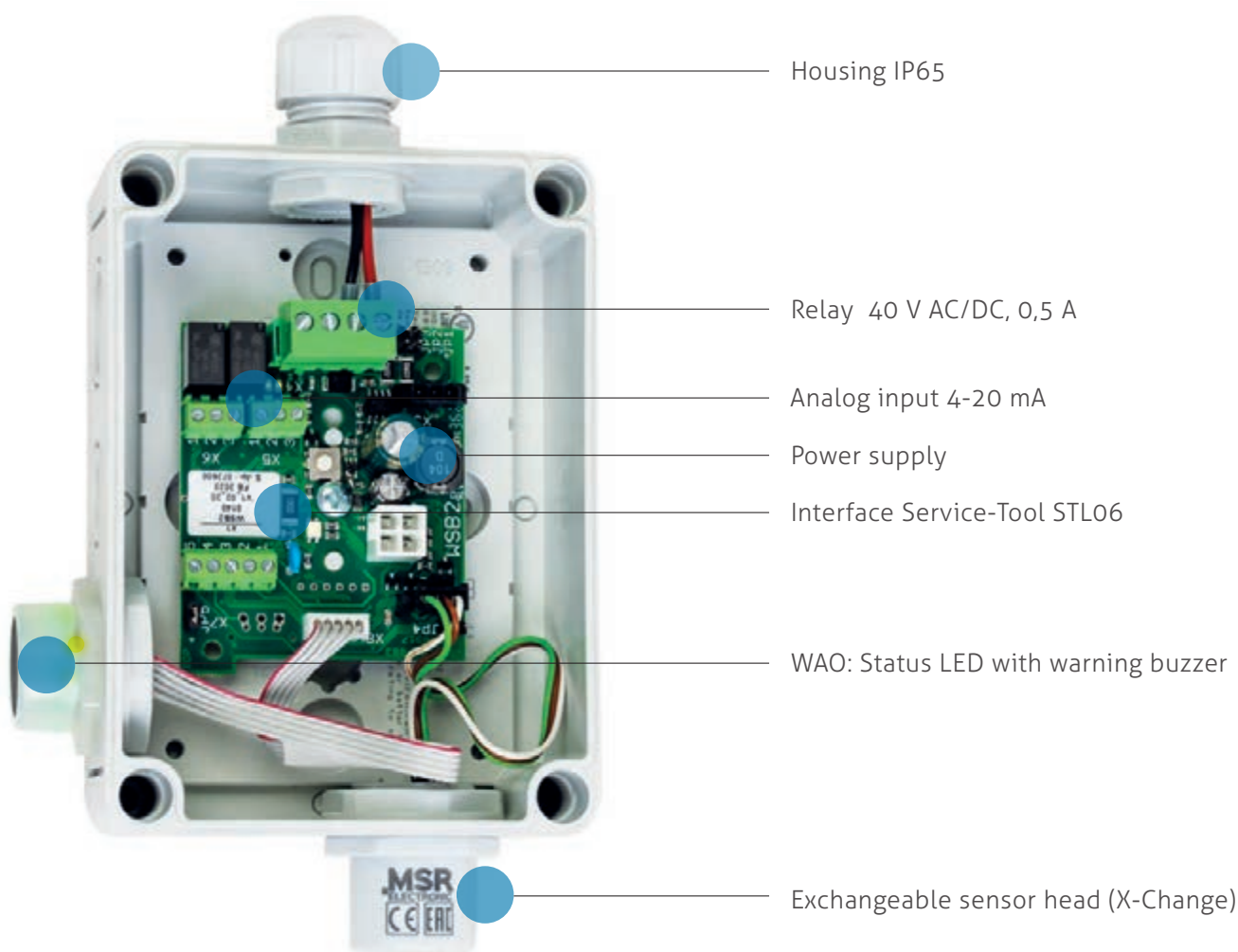
nected to the local bus via a plug connection. This allows a simple sensor head exchange instead of an on-site calibration. The internal X-Change routine recognizes the exchanged sensor head during the change process and starts the measuring operation automatically.

Benefits

- Modular design
- Compatible with a wide range of BMS
- Simple handling, no separate tool required
- Personal contact at MSR-Electronic
- Device can be used independently of control center, stand-alone devices without DGC-06
- System can be expanded at any time, can grow modularly
- Individual parameterization possible
- Robust against dust, humidity and high/low temperatures
- Ideal for heating or cooling applications
- X-Change technology for safe and easy sensor replacement without prior knowledge



Simple sensor replacement via plug connection on the local bus.



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MSRVIDEO
How-to: Commissioning of the WSB2.

Multi-Sensor-Board

MSB2

Flexible for several gases.

The Multi-Sensor-Board MSB2 is designed to accommodate up to 3 sensors. It provides 3 relays next to the sensor holder, which can be controlled by 1 higher-level controller, such as

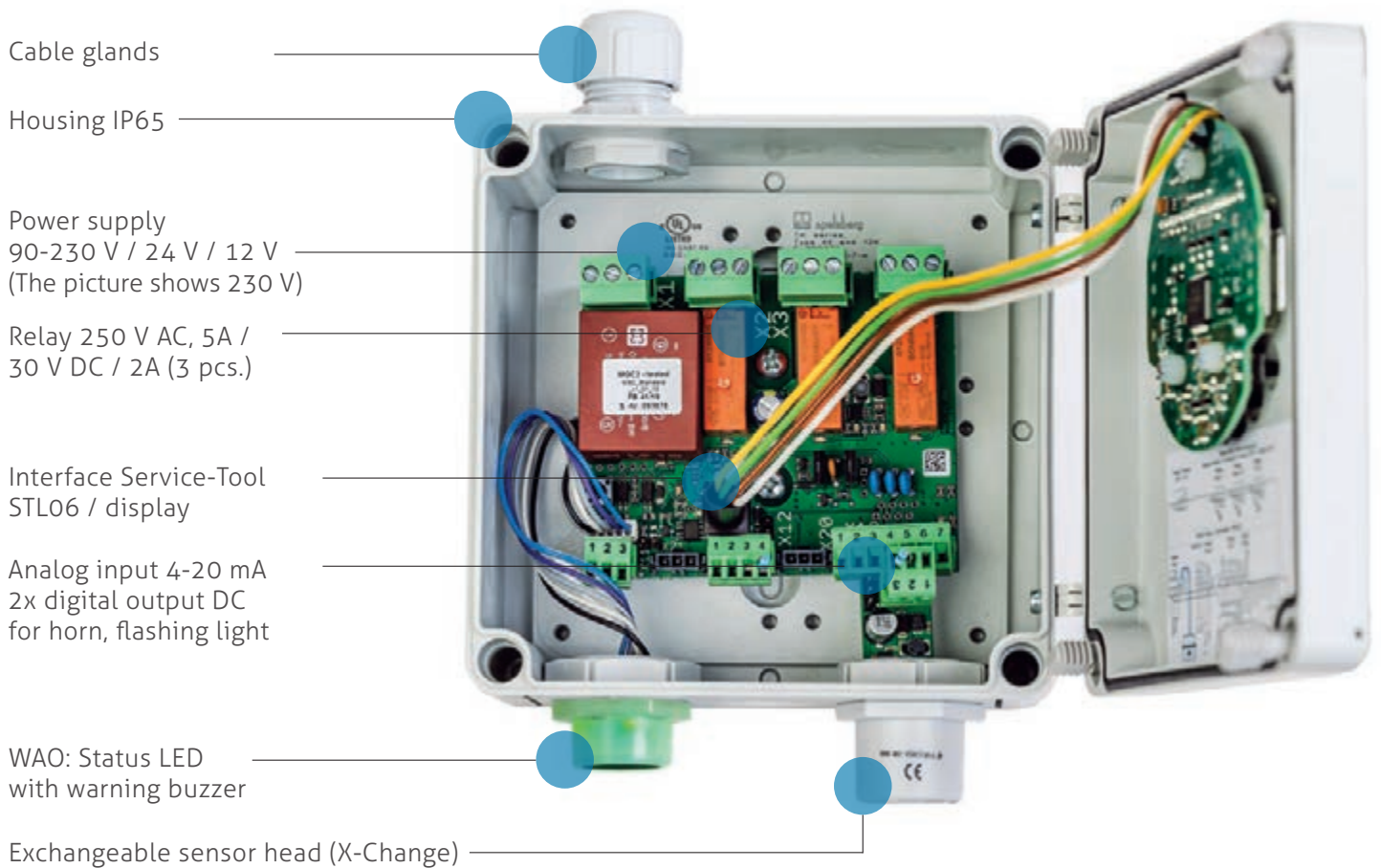
the DGC-06. The relay distribution on site saves the wiring of warning devices or fans directly to the main controller. This allows a wide range of applications even with existing wiring.

Benefits

- Personal contact at MSR-Electronic
- Connection of max. 3 sensors in total, of which max. 2 different sensors of the series SC2 via the local bus and/or max. 3 analog sensors with 4-20 mA signal
- Board with 3 relays, saving cable runs
- System can be expanded at any time, can grow modularly
- Individual parameterization possible
- Optionally also available with display (built-in or remote)
- X-Change technology for safe and simple sensor replacement without prior knowledge



Board for mounting the SC2 sensor head with relay.



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Analog-Relay-Board

ARB2

Probably the smallest analog controller.

Measuring, warning and control board for permanent monitoring of the environment for toxic and flammable gases and refrigerants. The ARB2 is designed for connecting an analog 4-20 mA sensor, e.g. MC2 sensor, which measures a rising gas signal.

The board monitors the measured value and activates the alarm relays if the set alarm thresholds for pre-alarm and main alarm are exceeded. In addition, the measured value is provided as 4-20 mA at the analog output.

Benefits

- Simple handling, no separate tool required
- Personal contact person at MSR-Electronic
- Device can be used independently of control panel, stand-alone devices without DGC-06
- X-Change technology for safe and easy sensor replacement without prior knowledge
- Sensor can be moved up to 500 m
- Reverse polarity protected, overload and short-circuit proof

Options

- Operating voltage 24 V AC/DC, 100-240 V AC or 12 V DC
- Various housing types with protection class IP65
- WAO: Status LED with warning buzzer
- Display
- UL/CSA 61010-1 version



Warning and control board for single-sensor applications.

Cable glands

Housing IP65

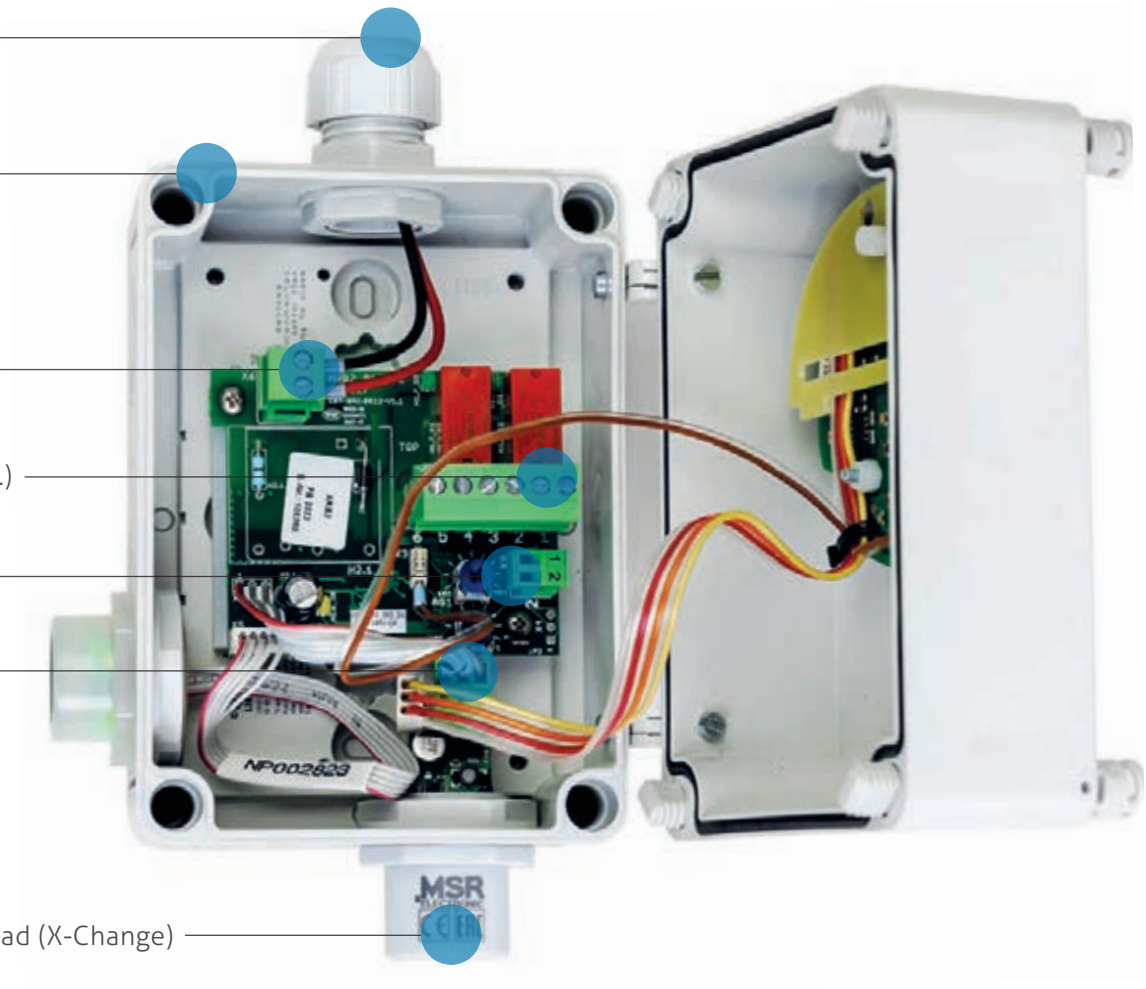
Power supply

Relay 230 V / 5 A (2 pcs.)

Potentiometer for threshold setting

Analog output

Exchangeable sensor head (X-Change)



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Multi-Sensor-Controller MSC2

Different sensors for different gases.

The Multi-Sensor-Controller MSC2 monitors the measured values and activates the alarm relays if the preset alarm thresholds for pre-alarm and main alarm are exceeded. Various output and input options enable easy integration into existing systems. The sensors are connected to the MSC2

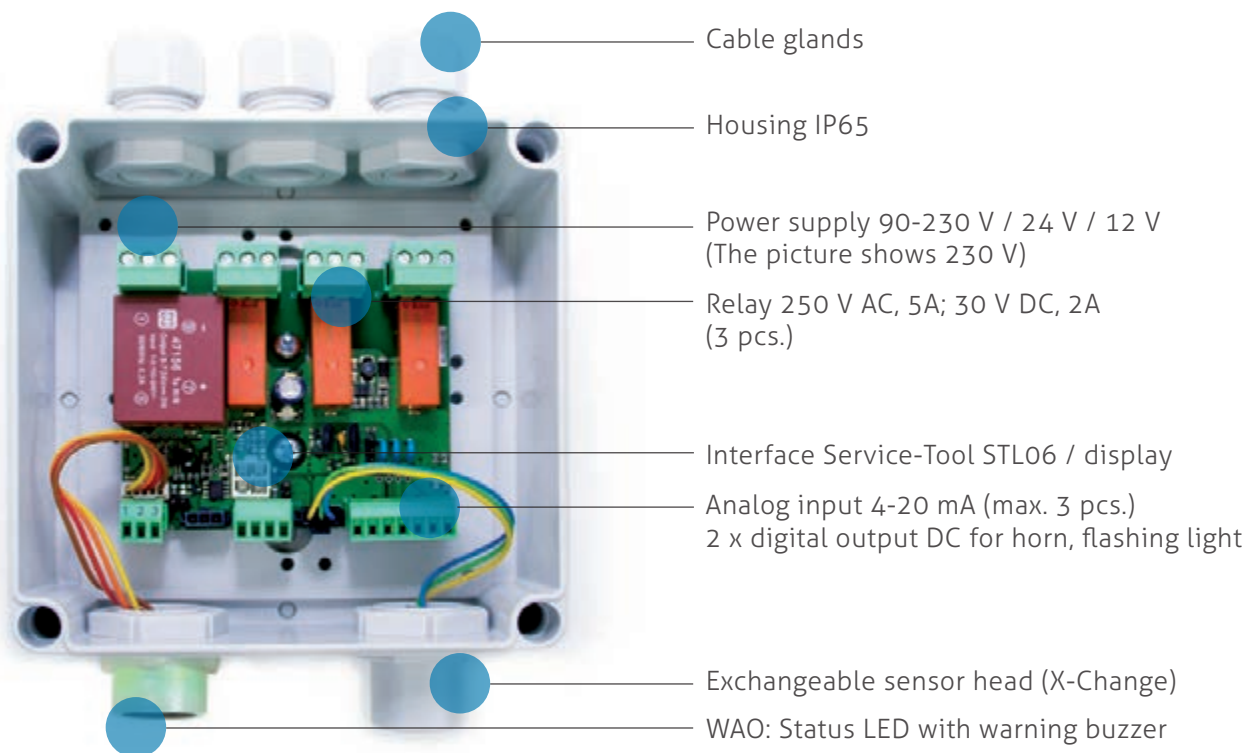
directly on the board. Up to 2 (different) digital sensors can be connected or 2 analog sensors can be connected remotely. In total the MSC2 can process up to 3 sensors and therefore represents a small, compact version with many possible applications.

Benefits

- Modular design
- Compatible with a wide range of BMS
- Personal contact person at MSR-Electronic
- Device can be used independently of control center, stand-alone devices without DGC-06
- System can be expanded at any time, can grow modularly
- Individual parameterization possible
- Display / UPS (optional)
- X-Change technology for safe and simple sensor replacement without prior knowledge



Modern multi-sensor controller MSC2 for toxic and flammable gases.



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Configure your products here.



MSRVIDEO
How-to: Commissioning of the MSC2.

Compactcontroller



Configuration possible without additional accessories.

The controller monitors the measured values and activates the alarm relays if the preset alarm thresholds for pre-alarm and main alarm are exceeded. The measured values are provided via an RS-485 interface for direct connection to higher-level BMS and as a 4-20 mA output. SIL-compliant self-monitoring in the Compactcontroller and in the connected SB2Unit activates the fault message in the event of an internal fault as well

as in the event of a fault in local bus communication (SB2Unit).

Further options such as WAO (status LED with warning buzzer) and digital input for the acknowledgement function ensure adaptation to the wide range of applications in gas measurement technology. The Compactcontroller can be completely configured and parameterized without an additional hand tool.

Benefits

- Simple handling, no separate tool required
- System can be expanded at any time, can grow modularly
- Individual parameterization possible
- X-Change technology for safe and simple sensor replacement without prior knowledge
- Personal contact at MSR-Electronic

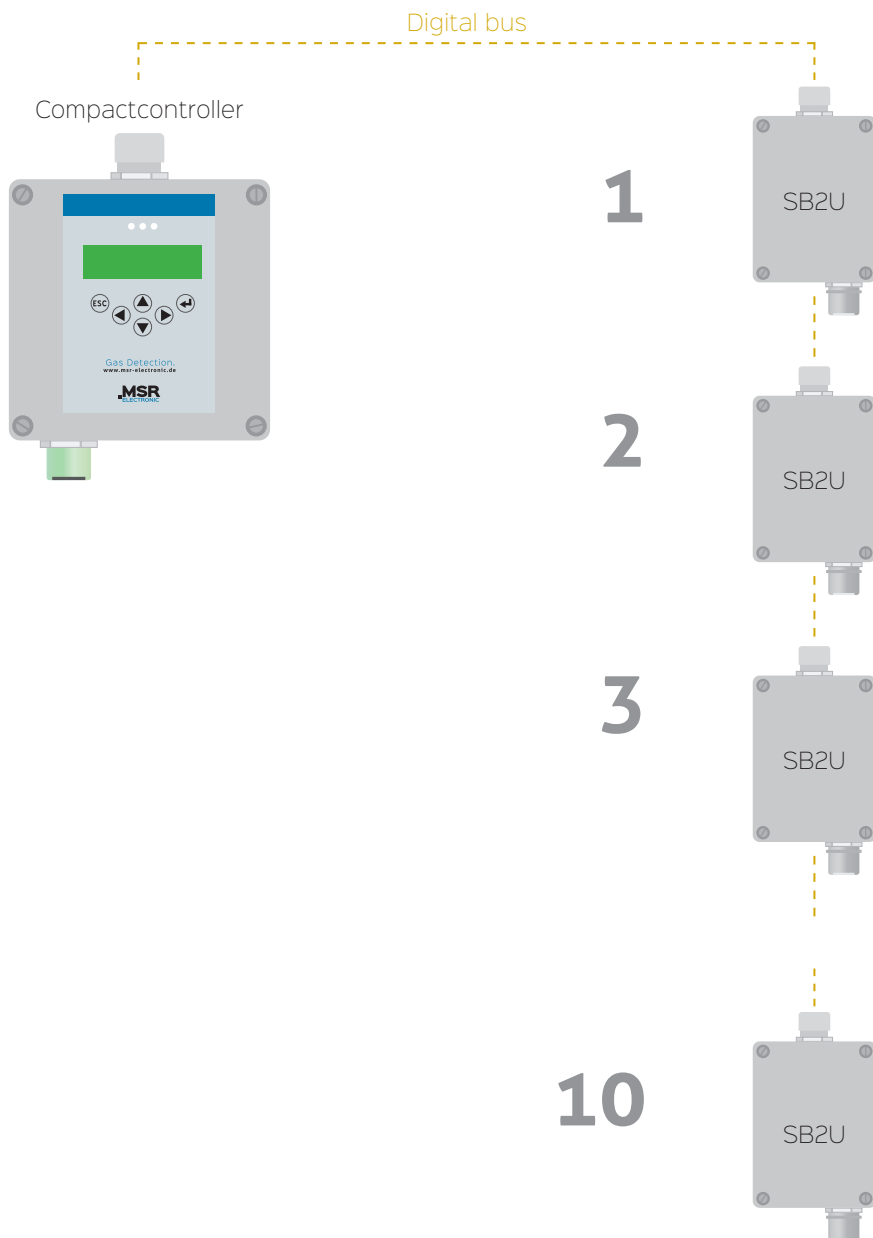


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Configure your products here.



Compact gas warning system for up to 10 sensors.



Add-on: Gas selector for MSC2

The gas selector for various gas combinations.

The gas selector provides a quick and easy way to select the individual gases to be detected. This means that no additional tool is required. This makes quick configuration and adjustment with the gas selector a breeze. Incorrectly connected or swapped SC2 sensor heads are immediately recognized as an error.

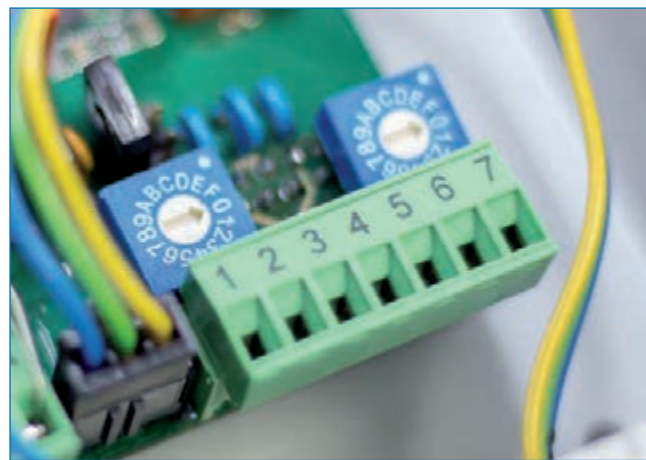
Two different sensor heads can be operated on the device. The gases from different Freon

groups or CO₂ can each be used in parallel on the device. The advantage is fast operational readiness of the devices including adaptation to different gas types.

The gas selector can be ordered from a certain quantity. For further information, please contact us at info@msr-electronic.de

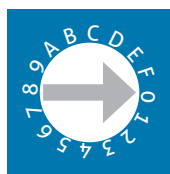
Benefits

- Basic product: MSC2
- No additional tool required
- Universally applicable
- High number of available gas combinations
- Cost and time saving



Gas selector

Setting options



Zero position:
No gas selected
(factory setting)



Gas selection, for example:
Sensor 1: CO₂ (R744)
Sensor 2: R134a



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Digital-Gas-Controller

DGC-06

The gas monitoring center.

The Digital-Gas-Controller DGC-06 has been developed for large systems or for extensive connections. There will hardly be a scenario in gas monitoring which this controller does not cover. From complex garages to access functions switched by gas alarm, everything is possible. The innovative DGC-06 gas controller series is designed according to EN 50545 and can monitor

and evaluate up to 128 gas sensors, 96 of which are digital and/or 32 analog sensors (4-20 mA). There are 4 freely adjustable alarm thresholds per sensor. For alarm messages, the controller system has up to 32 relays with potential-free changeover contact and up to 16 analog outputs with 4-20 mA signal.

Benefits

- Modular design
- Compatible with a wide range of BMS
- System can be expanded at any time, can grow modularly
- Individual parameterization possible
- Large controller that can be adapted to any situation thanks to its modular design
- Personal contact at MSR-Electronic



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Digital-Gas-Controller

DGC-06-USV

For suffocating, toxic and combustible gases and vapors as well as refrigerants.

The DGC-06-USV uninterruptible power supply is used to ensure the power supply of the DGC-06 in the event of faults in the power grid, such as short-term power failures and power fluctuations in the form of overvoltage or undervoltage.

Function monitoring and deep discharge protection are integrated in connection with the gas controller system DGC-06.

The DGC-06 controller series in conjunction with the UPS is used for monitoring and war-

ning of toxic and explosive gases and vapors as well as freon refrigerants in a wide range of gas measurement technology. The large number of freely configurable parameters and set-points allows individual adaptation to many applications.

The UPS is used to ensure that the power supply to the system is guaranteed in the event of overvoltages, undervoltages or power failures.

Benefits

- Battery-supported, uninterruptible power supply in separate housing
- 3 different sizes (capacities) available



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Modules for Controller DGC-06

Measuring, warning and controlling system.

The modules are designed according to EN 50545 and can be assembled for any situation using a simple configuration. The controllers, such as the GC-06, are the core elements of the systems. Expansion modules, like the EP-06, provide additional inputs and outputs.

Since MSR-Electronic has extensive certification and many years of experience in the manufacture of controllers, professional preparation for complex acceptance tests is guaranteed.

The modular technology allows for compact yet flexible and highly efficient systems.

Benefits

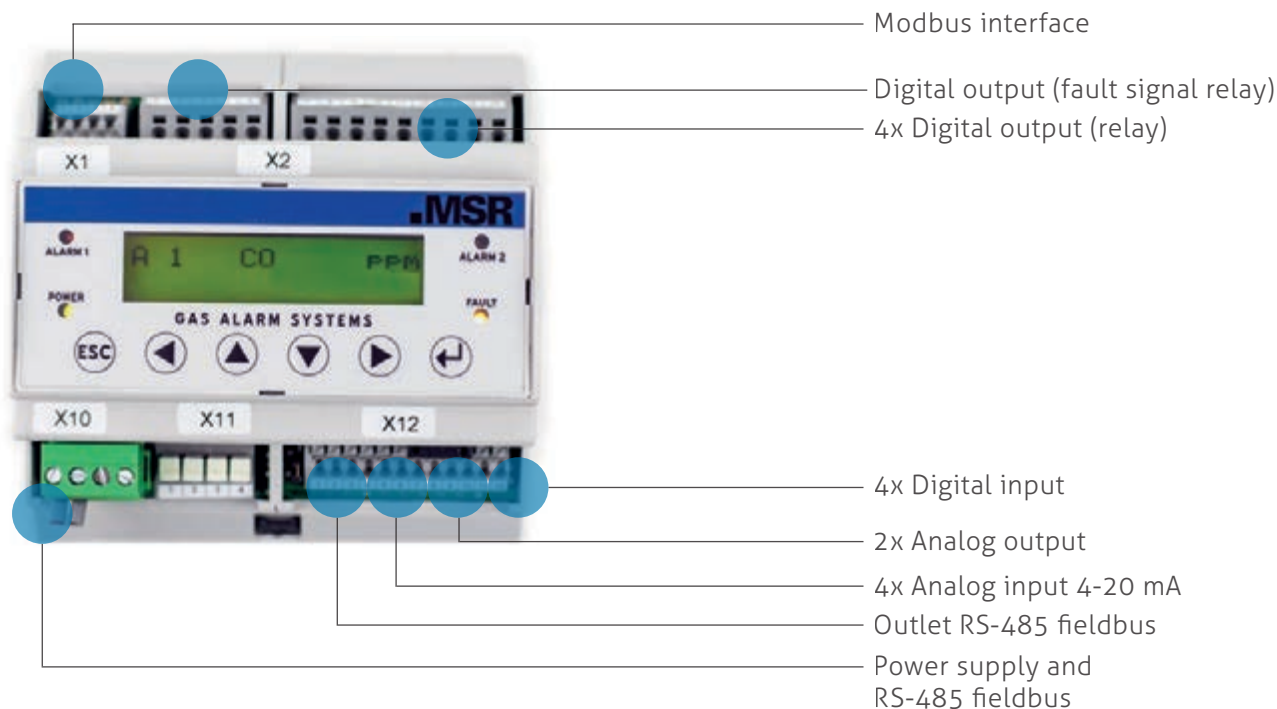
- Expansion module with
 - 4 analog inputs (4-20 mA)
 - 4 alarm relays with potential-free change-over contact
 - 2 analog outputs (4-20 mA)
- Modular design of the system possible
- Individual configuration
- Personal contact at MSR-Electronic
- Extension module for even more relays and analog inputs in the DGC-06



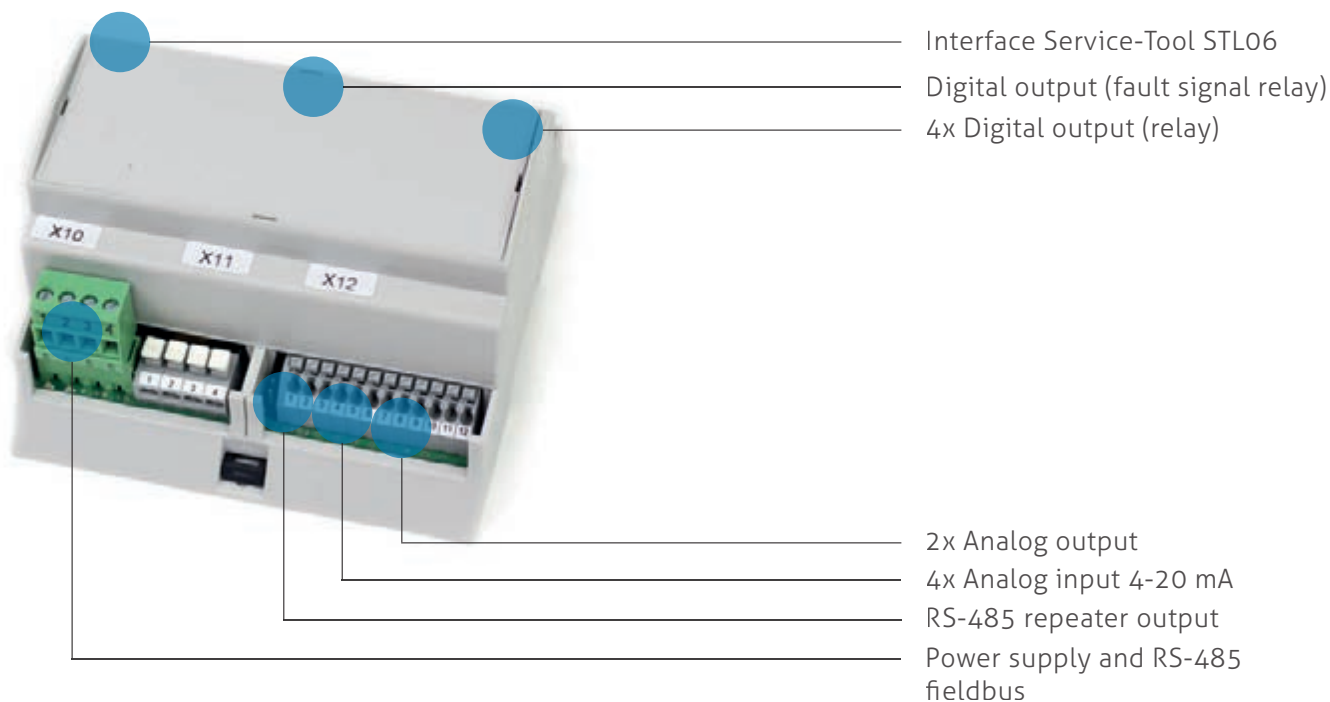
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Module GC-06



Expansion module EP-06 for GC-06



Door-Entrance-Modul

DEM-06

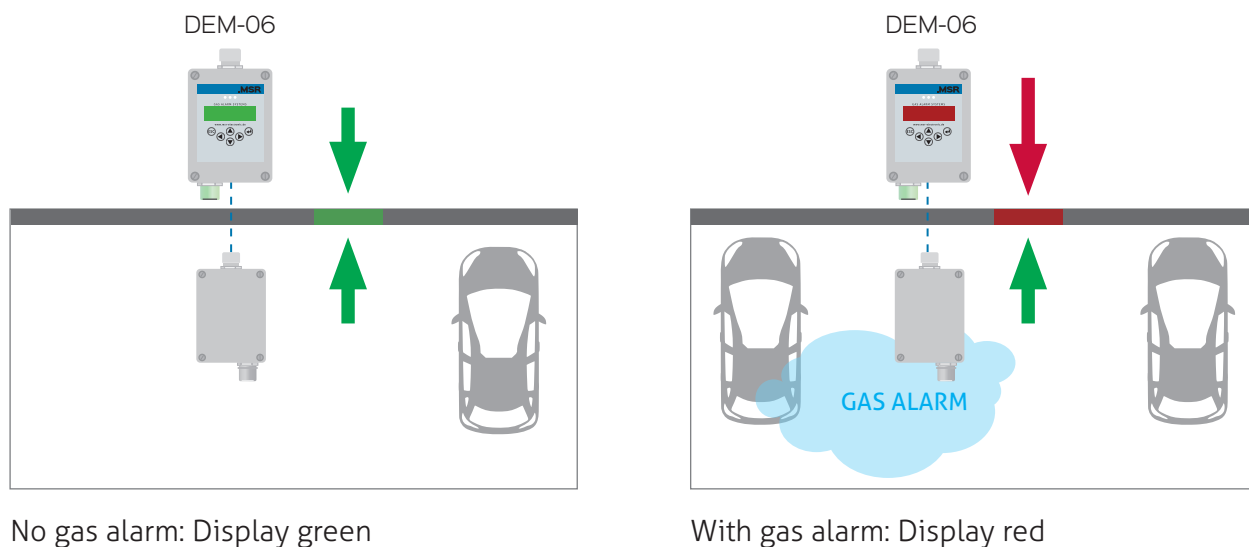
Visualizes the gas alarm in real time at all access points.

The DEM-06 Door-Entrance-Modules from MSR-Electronic ensure maximum safety. If an increased gas concentration occurs in buildings, e.g. in parking garages, the entrances can only

be opened in one direction: From the inside to the outside. This ensures that people can only move outwards from the hazardous area, but never inwards.

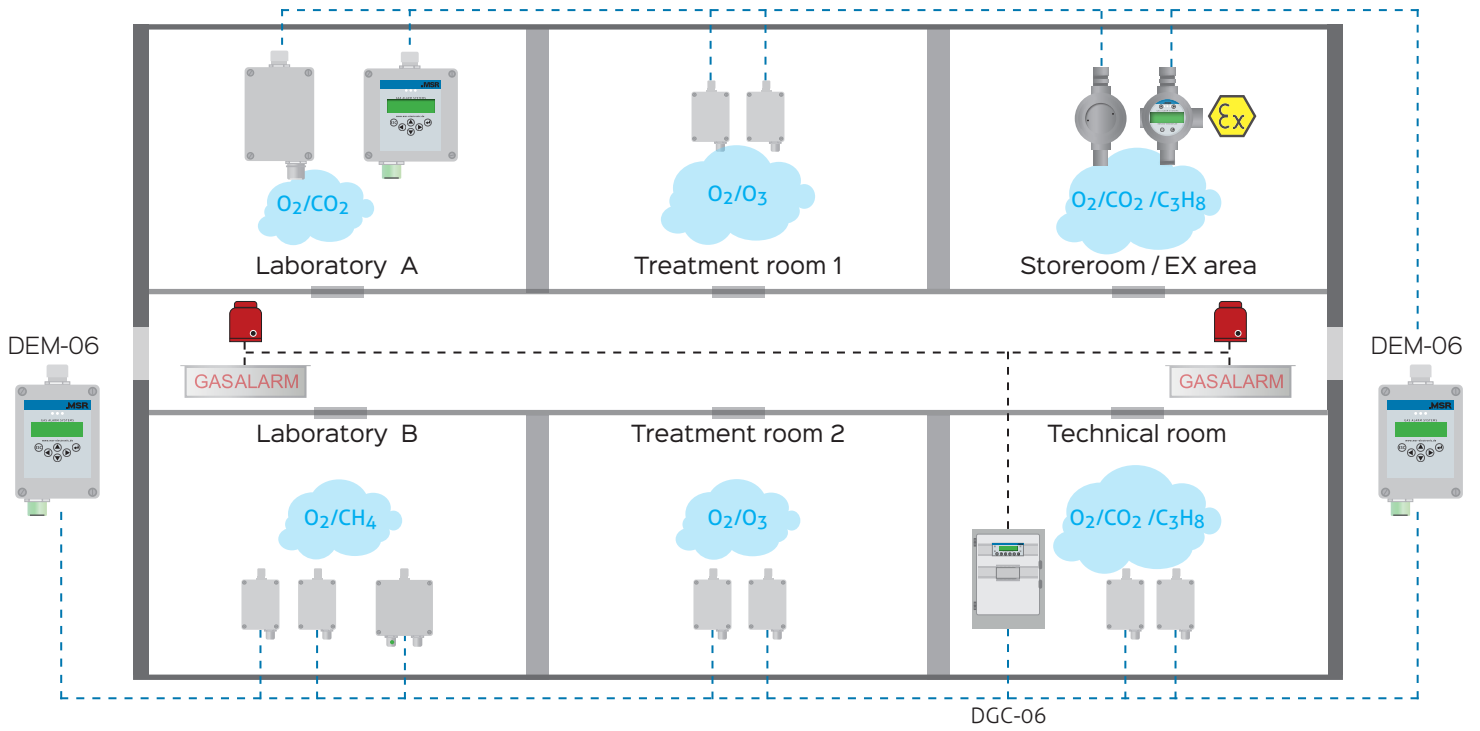
Benefits

- Visual and audible warning
- For buildings with different danger zones
- Stand-alone application with fieldbus information (without DGC controller) possible
- No intervention in the DGC controller system necessary
- Configurable for up to 96 sensors in one DGC controller system
- Personal contact at MSR-Electronic





Access monitoring of a laboratory



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PolyGard® Cloud Control PGCC

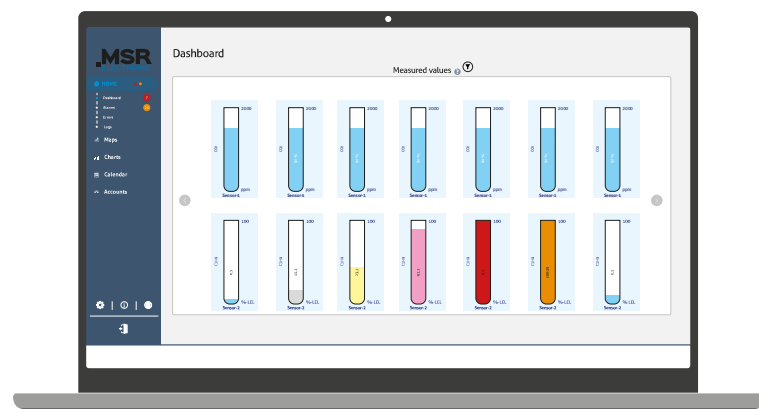
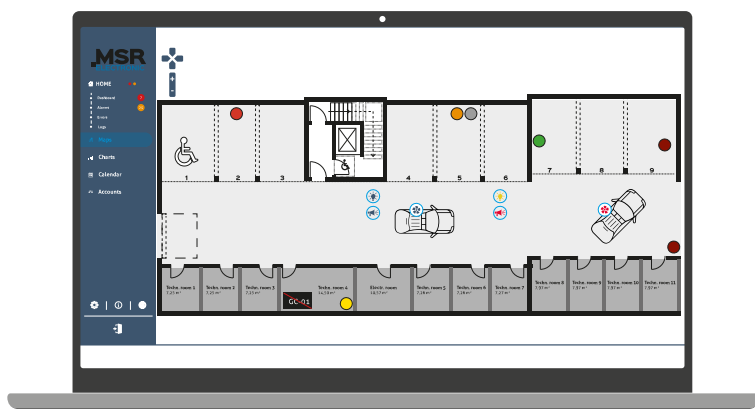
Visualize, analyse, warning, alerting
Everything at a glance via PC, smartphone or tablet.

The status of systems and machines is monitored by analysing real-time data, to predict potential failures or malfunctions.

- Improved data analysis capabilities
- Reduction in unplanned downtime
- Reduction in maintenance and repair costs
- Increased productivity
- Improved planning of service personnel

Benefits

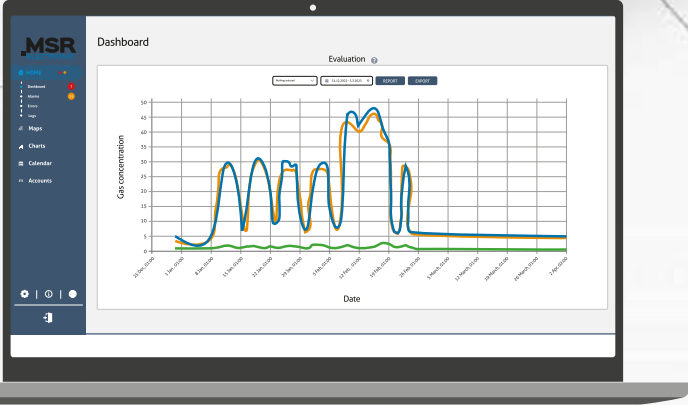
- Customisable information
- Customised displays
- Hosting with MSR-Electronic / alternative solution via virtual machine or local installation on a PC
- Real-time information such as warning and maintenance messages
- Configurable authorisations
- Multiple projects in one overview
- Access via web browser or with mobile devices
- Software accessible via domain (without app and software installation)



Try it out



You will receive the access data from your MSR contact person.



Accessories

Calibration adapter

For convenient calibration of the gas sensors SC2 and MC2 and for the targeted supply of zero and test gases to the sensor head.

- Suitable for all gases
- Easy handling
- Perfect coverage of the sensor head



Air duct set

Individually customizable set for gas measurement in pipes.

- Flow velocity:
min. 5 000 m/h, max. 20 000 m/h
- Duct diameter: min. 0.1 m, max. 1.0 m



Splash protection cap

Protection against rain and splash water from all directions for the SC2 or MC2 gas sensors.

- Calibration with mounted protective cover possible using a compatible calibration adapter



Flow regulator

Attachment for gas cylinders with integrated pressure reducer for regulating the volume flow rate of a gas to a predefined value.

- Preset gas flow rate for optimum calibration results



Service-Tool

Hand-held device for display, calibration, addressing and parameter changes.

- Configuration of systems
- Calibration of sensors
- Also suitable for analog sensors with adapter



Software PCE-06

Autonomous and menu-driven software for convenient addressing, parameter setting and calibration of the devices.

- User-friendly design
- Recording and exporting of measured values
- No external power supply required

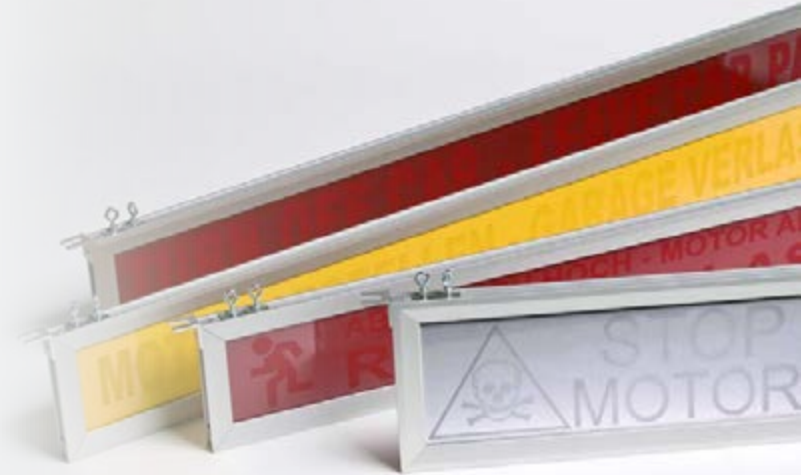


Accessories

Warning signs

Warning signs with individual labeling.

- Warning signs comply with international standards for font display, brightness and characters



Water-Jet-Protection

Housing protection of sensors and controllers against water damage caused by high-pressure cleaners.

- Transparent, hinged cover
- At least IP66 (up to IP69K depending on installation)
- Can be individually adapted to the application



NEW

Warning horn / Flashing light

Can be controlled separately.

- [Selectable tone](#)
- [Several color combinations available](#)



Remote Accu-Package

UPS option for MSR-Electronic controllers.

- [Uninterruptible power supply](#)



NEW



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Accessories

NEW

CalibCase and CalibPack

Practical all-in-one system for PolyGard®2 and PolyXeta®2.
Perfect for use in the field.

With the calibration case or backpack you receive all the necessary devices and accessories for commissioning, calibration of MSR sensors and parameterisation of MSR controllers.

It is packed in a compact case or backpack for convenient and safe transport.

Case

- Individually configurable
- Compact all-in-one case
- Secure storage for electronic and mechanical products
- IP67 when closed
- Temperature-stable from -20 °C to +80 °C
- Resistant to common alkalis and acids
- Eyelets for locking or sealing
- Sturdy carrying handle (foldable)

Backpack

- Ergonomic weight distribution of the load on both shoulders thanks to padded carrying straps
- Large capacity for additional material or for use when travelling etc.
- Large opening for easy removal of tools of tools and laptop
- Protected inner laptop pocket for safe transportation

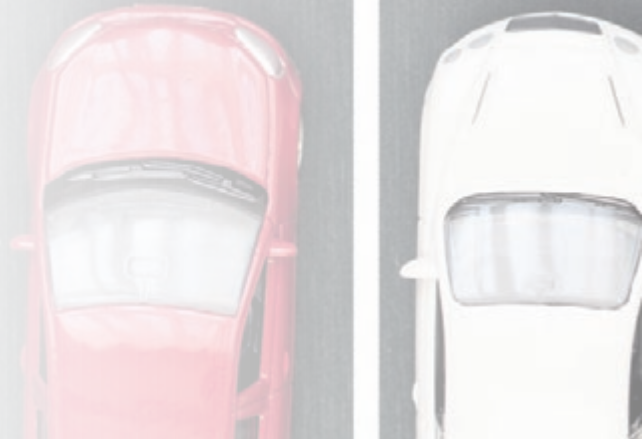


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Intelligent Parking Guidance Systems



Indoor and Outdoor.

The current occupancy status is shown on LED displays at the entrance and per level.

In this way, customers can be guided directly to the nearest available parking space. This not only makes searching easier and reduces traffic in the parking garage or on the outside parking

lot, but also saves the customer valuable time. Thanks to the optimally used parking spaces, the operator can also reduce ventilation costs. The systems for recording and counting incoming and outgoing cars in car parks can be implemented for one area or for individual levels.

Benefits

- No additional maintenance costs
- Exact recording and monitoring of all parking spaces
- Significant reduction of parking search traffic
- Minimal installation effort
- Optimization of parking space utilization
- Short payback time of the system
- Reduction of CO₂ emissions and reduction of ventilation costs
- Suitable for indoor use
- High detection accuracy
- Sensor and status display in one housing

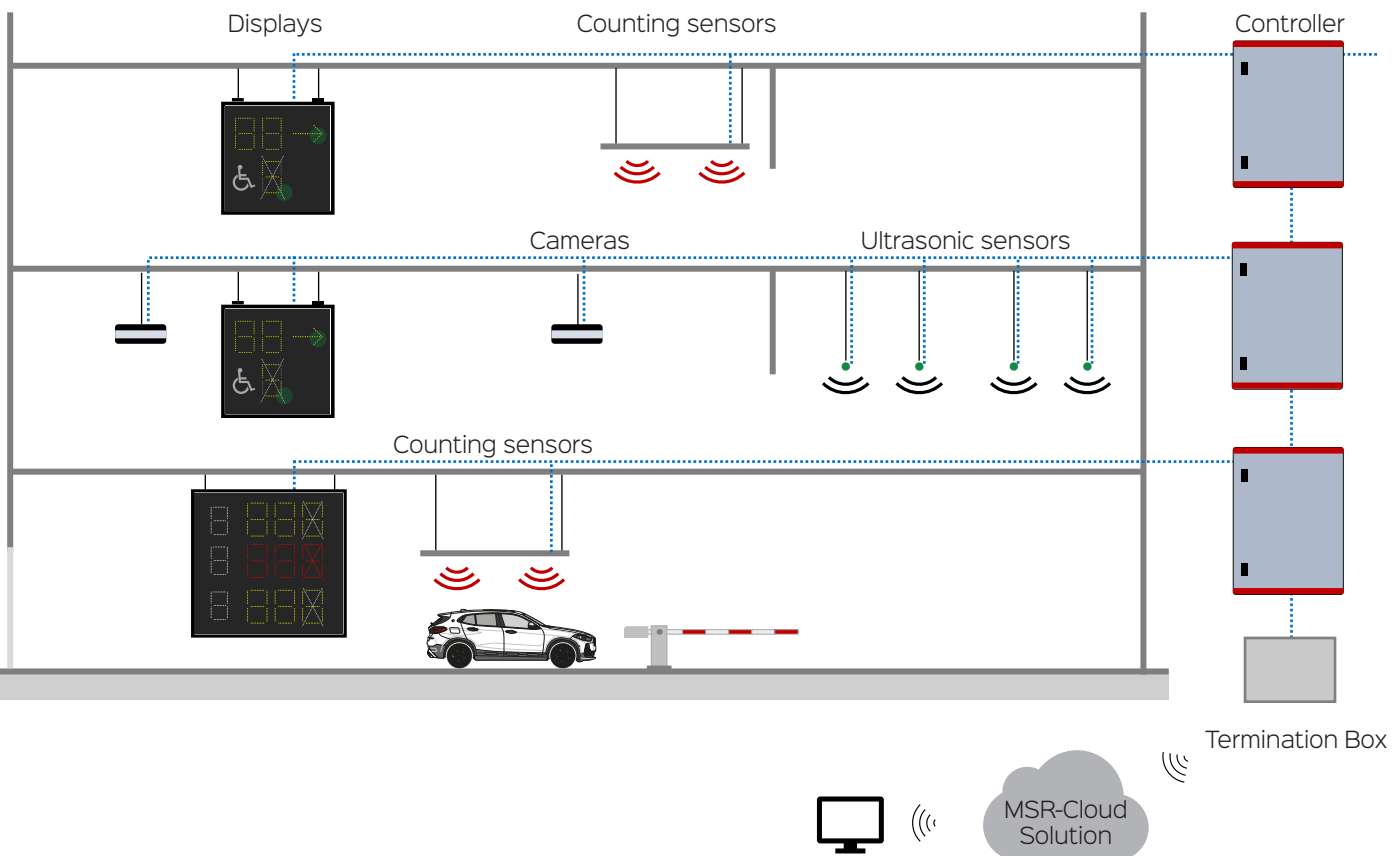
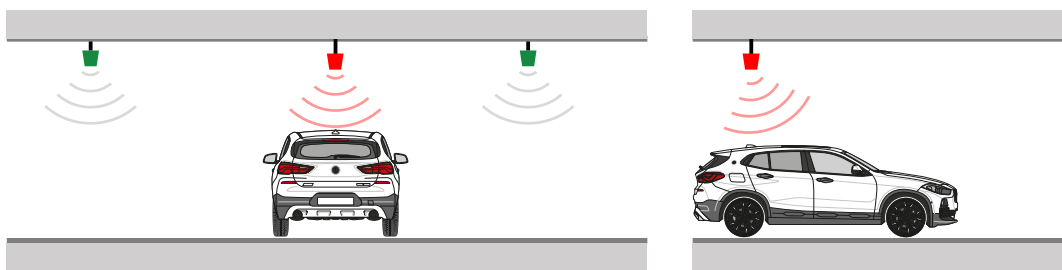
Displays



www.msr-traffic.de



Ultrasonic sensors are used to record the availability of each individual parking space and managed by a controller.



PolyXeta®

Gas warning systems for industrial plants.

MSR-Electronic protects health and equipment under extreme industrial conditions. In the chemical and petrochemical industry, permanent monitoring of rooms and plants in which explosive atmospheres can form is required. The protection of persons requires constant monitoring of toxic and combustible gases and vapors. Furthermore, permanent monitoring for

oxygen deficiency and excess must be carried out. MSR-Electronic offers a wide range of methods for the permanent detection of gases. On this basis, MSR-Electronic develops individual gas sensors for industrial applications where extreme environmental conditions prevail. Safety, economic efficiency and competitiveness are the main priorities at MSR-Electronic.

BENEFITS

- **More safety**
More than all national standards require
- **Exchangeable sensor with X-Change technology**
Significantly lower maintenance costs
- **Accurate planning with overall lower costs**
- **Integration in BMS/BA**
(e.g. Modbus)





Applications for Industry

Agriculture

- Biogas plants
 - Livestock monitoring
-

Disposal / Recycling

- Emission monitoring of landfill gases
 - Battery recycling
-

Hydrogen

- Use in welding
 - Fuel for rockets
 - Charging stations / refueling stations
 - Battery rooms / recycling
 - Electrolysis
 - Storage
 - Logistics
-



Gas logistics

- Processing stations
 - Terminals
 - Gas storage
-

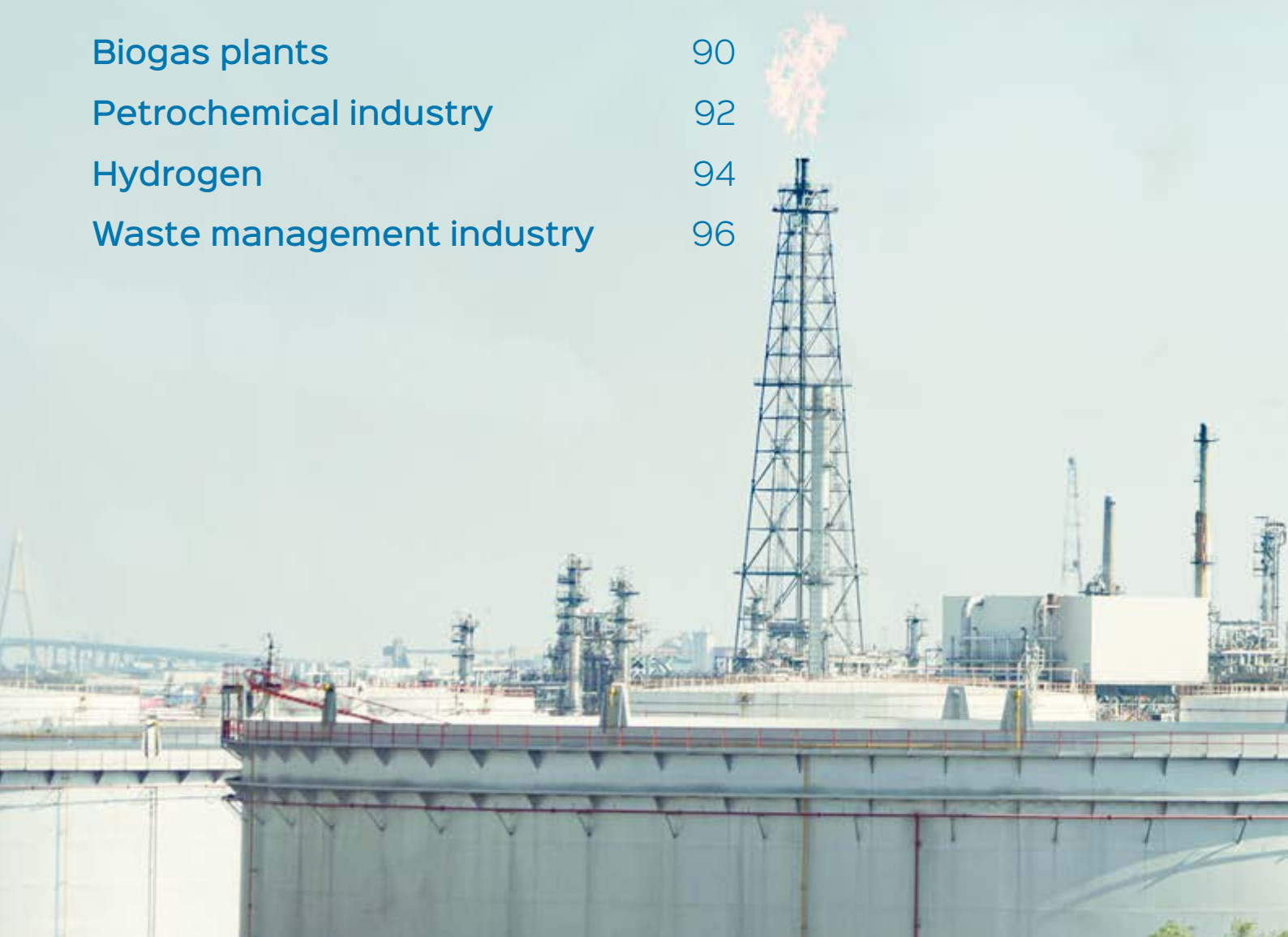
Hazardous substances

- Oil & Gas
 - Storage of fuels
 - Petrochemicals
 - Pharmaceutical industry
 - Alcohol industry
 - Power generation
-



Excerpt from the **World of Applications for Industry**

Biogas plants	90
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Biogas Plants



Safety against CH₄ / H₂S / CO₂ / O₂.

When operating biogas plants, personal protection and plant safety are of crucial importance in addition to process optimization. With the gas detection products from MSR-Electronic you work preventively against dangers. Gas

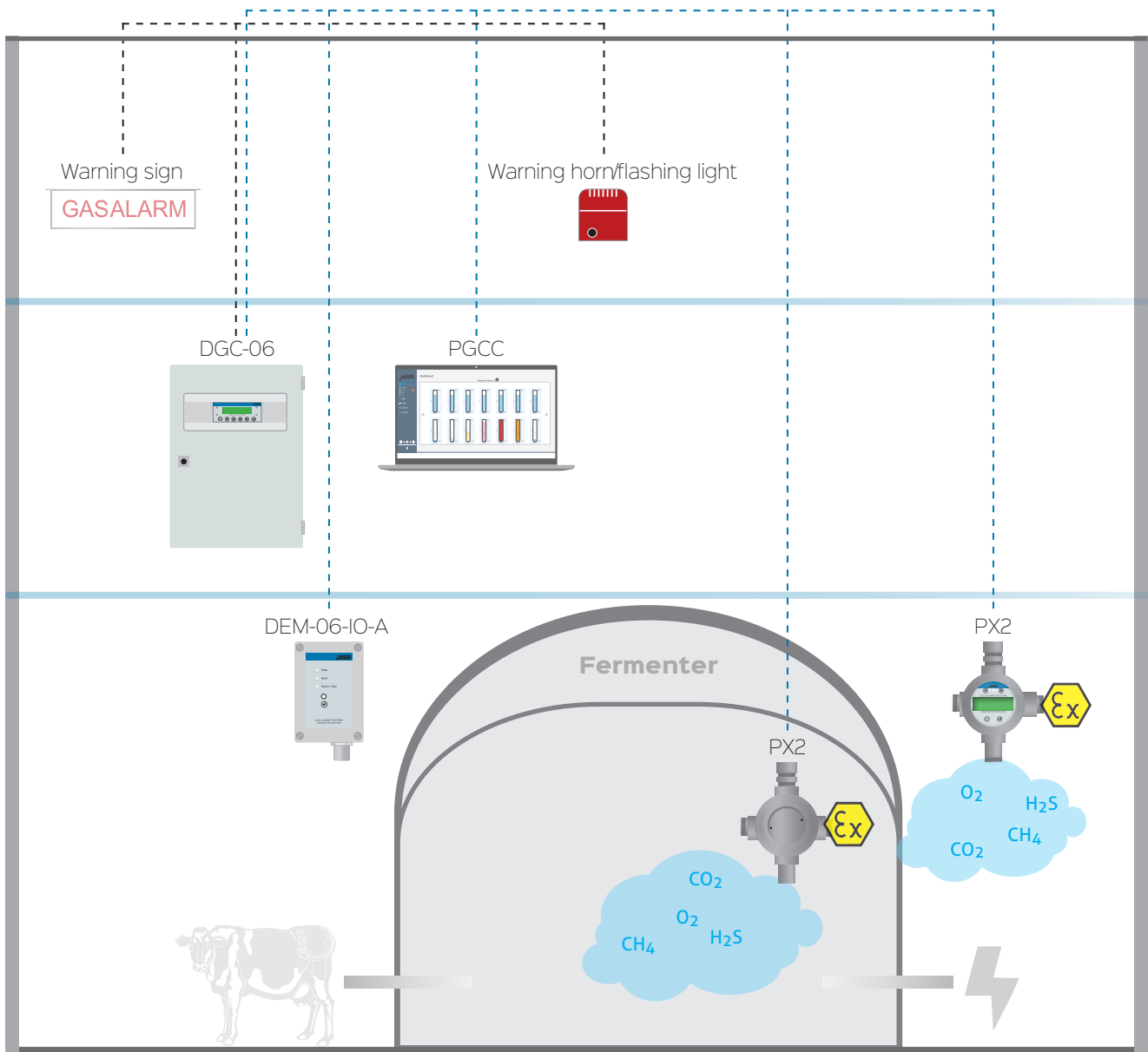
sensors, controllers and warning devices are used to measure combustible and toxic gases as well as oxygen. Leakages are thus localized at an early stage.

Gas Hazards

Methane can react explosively with air. This represents a high hazard potential for the operator of biogas plants. An explosive mixture exists when the concentration of methane in the air is between 4.4 and 16.5 % by volume. Monitoring in pump rooms can protect people from dangerous leaks. Continuous measurement in the double diaphragm (biogas trapped air hood) ensures leak tightness and thus freedom from loss.

Benefits

- Perfect integration into the modern biogas plant
- Monitoring possible on the CHP and in the membrane
- All data can be read via bus to controller
- The PX2 with methane sensor (zone 2) is the main player in biogas plants
- Good adaptation of the PX2 to the requirements of modern biogas plants but also gas turbines



Biogas plants

WARNING DEVICES

CONTROLLER

GAS SENSORS + BOARDS

Petrochemical Industry



Safe protection against CH_4 / C_5H_{12} / C_3H_8 / H_2S / O_2 / CO / NH_3 .

In the chemical and petrochemical industry, permanent monitoring of rooms and plants in which explosive or toxic atmospheres can form is required. Personal protection requires the monitoring of hazardous gases in accessible areas, on the one hand to prevent accidents, and on the other to comply with MAC values

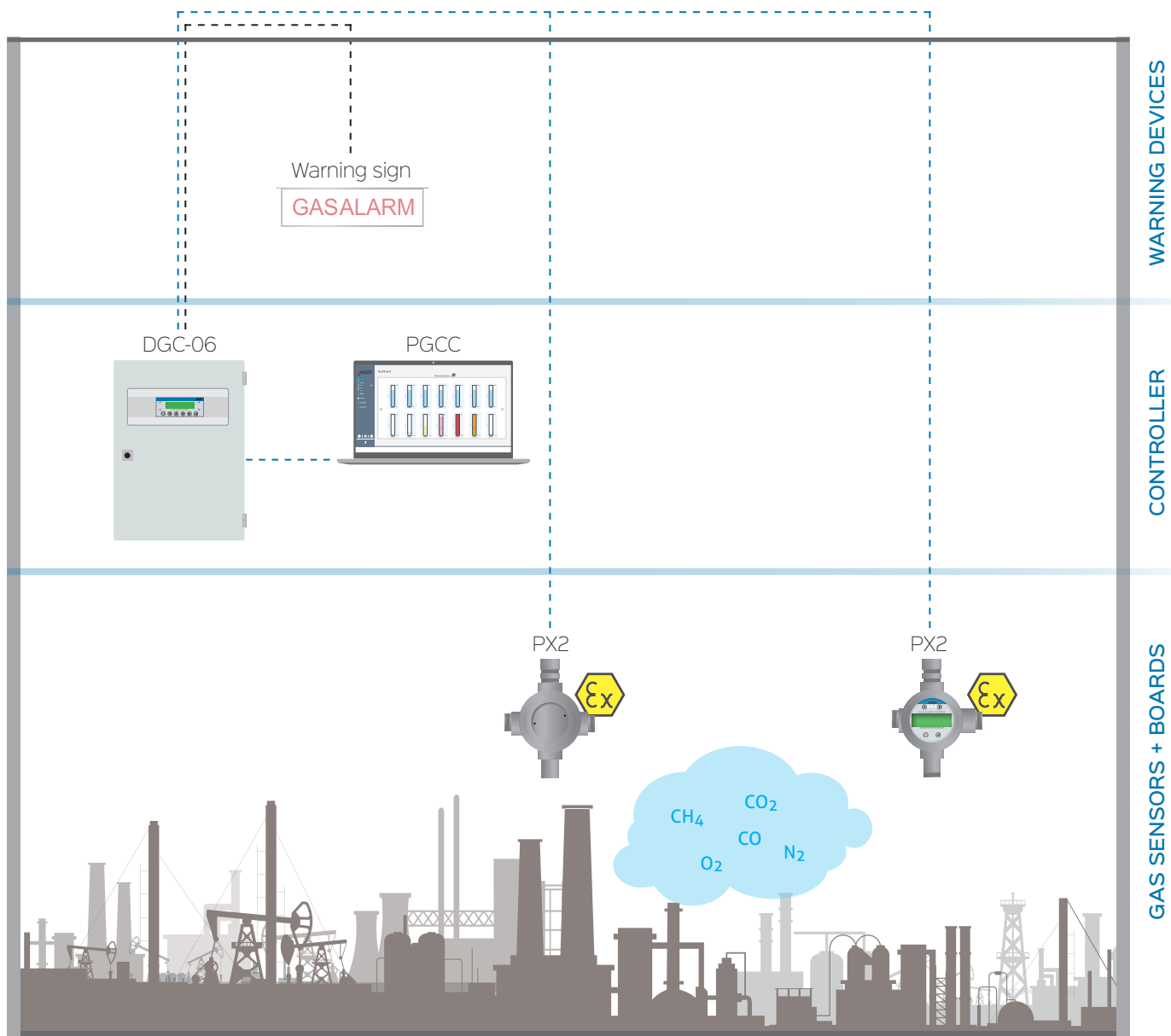
and thus guarantee the health and safety of employees. Gas monitoring also serves to protect the system and thus prevent financial loss. The MSR gas sensors can also further optimize process safety. MSR-Electronic offers safe monitoring of combustible and toxic gases in petrochemical plants.

Gas Hazards

Chemicals, gases, solids and many waste products are generated in the petrochemical industry. The substances can be organic or inorganic in nature. At the reactors, storage sites and pipelines, the greatest danger is from escaping gases or volatile substances. To contain these hazards, reliable gas sensors must be used.

Benefits

- SIL2-certified PolyXeta®2 sensor for ATEX zones 1 and 2
- Modular design and individual configuration
- MPS™ sensor for a 15-year service life
- IR sensors for precise and long-term monitoring with a service life of up to 10 years



Petrochemistry

Hydrogen Monitoring

For research, production, logistics and mobility.

The use of hydrogen as an energy carrier of the future is manifold. In addition to its use in welding or as a fuel for rockets, the focus is currently mainly on the automotive sector. H₂ is a very reactive gas, which makes constant monitoring by a gas detection system throughout

the entire life cycle essential. For successful gas monitoring, the SIL2-certified PolyXeta®2 sensor with X-Change technology is used. The permanent gas monitoring serves the primary explosion protection and thus also the plant safety.

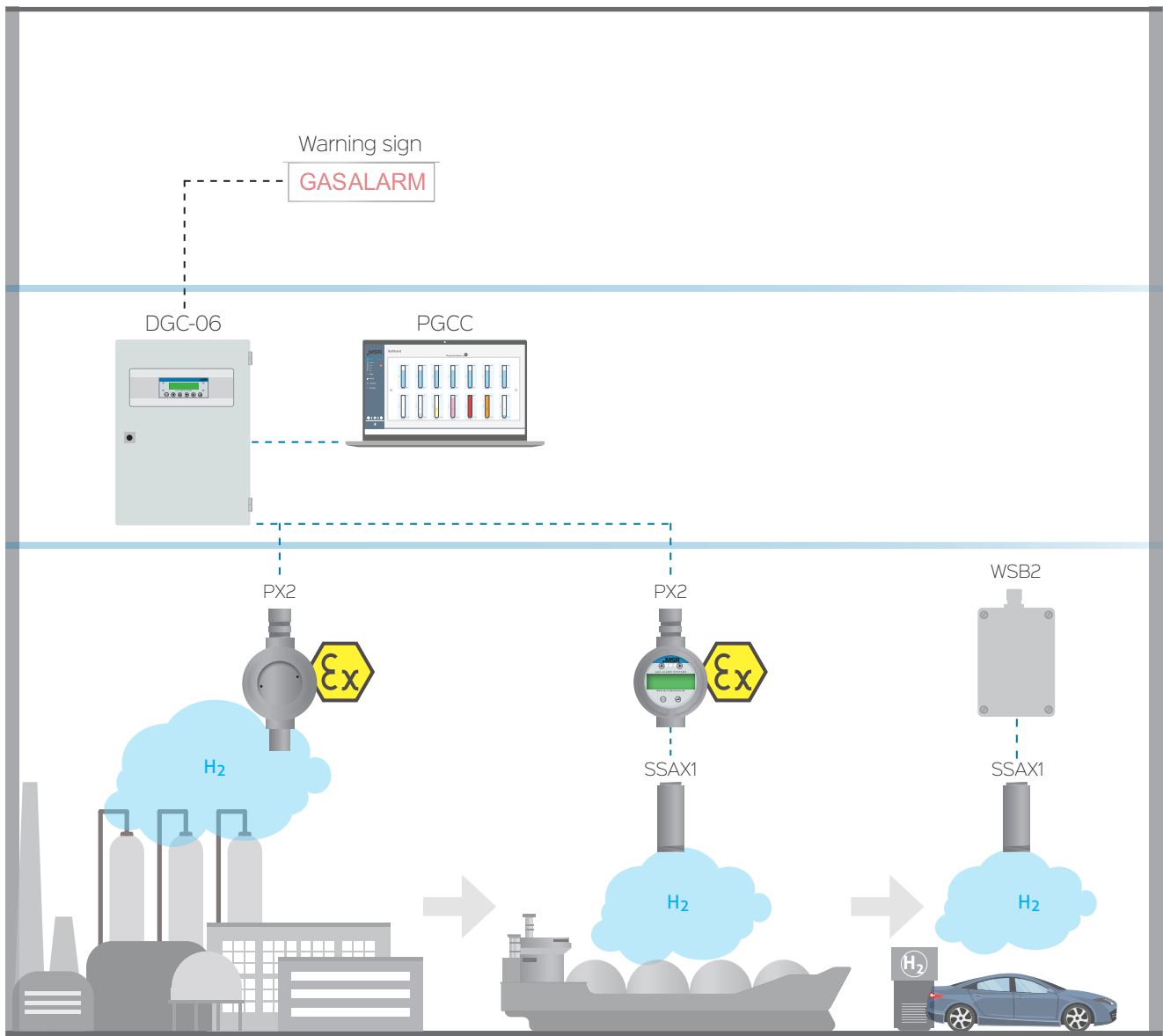
Gas Hazards

The use of hydrogen as an energy carrier of the future is manifold. In addition to its use in welding or as a fuel for rockets, the focus is currently mainly on the automotive sector. H₂ is a very reactive gas, which makes constant monitoring by a gas detection system throughout the entire life cycle essential. For successful gas monitoring, the SIL2-certified PolyXeta®2 sensor with X-Change technology is used. The permanent gas monitoring serves the primary explosion protection and thus also the plant safety.

Benefits

- SIL2-certified PolyXeta® sensor for ATEX zones 1 and 2
- Monitoring of hydrogen concentration to protect against oxyhydrogen mixtures
- 1000 ppm sensor for early detection of leaks

With MPS™ sensor technology
15+ year service life and maintenance-free



H₂ Production / Logistics / Mobility

WARNING DEVICES

CONTROLLER

GAS SENSORS + BOARDS

Waste Management Industry



Protection against CO_2 / CH_4 / H_2S / C_6H_{14} / C_6H_6 / C_7H_8 and oxygen deficiency.

Employees in the waste management industry are exposed to hazards from toxic and flammable gases in many areas. MSR-Electronic provides reliable gas sensors, gas controllers and warning devices to protect people and equipment from hazardous gases. When gas leaks occur, rapid alerting and reliable products are required. Fixed gas detection systems monitor, for exam-

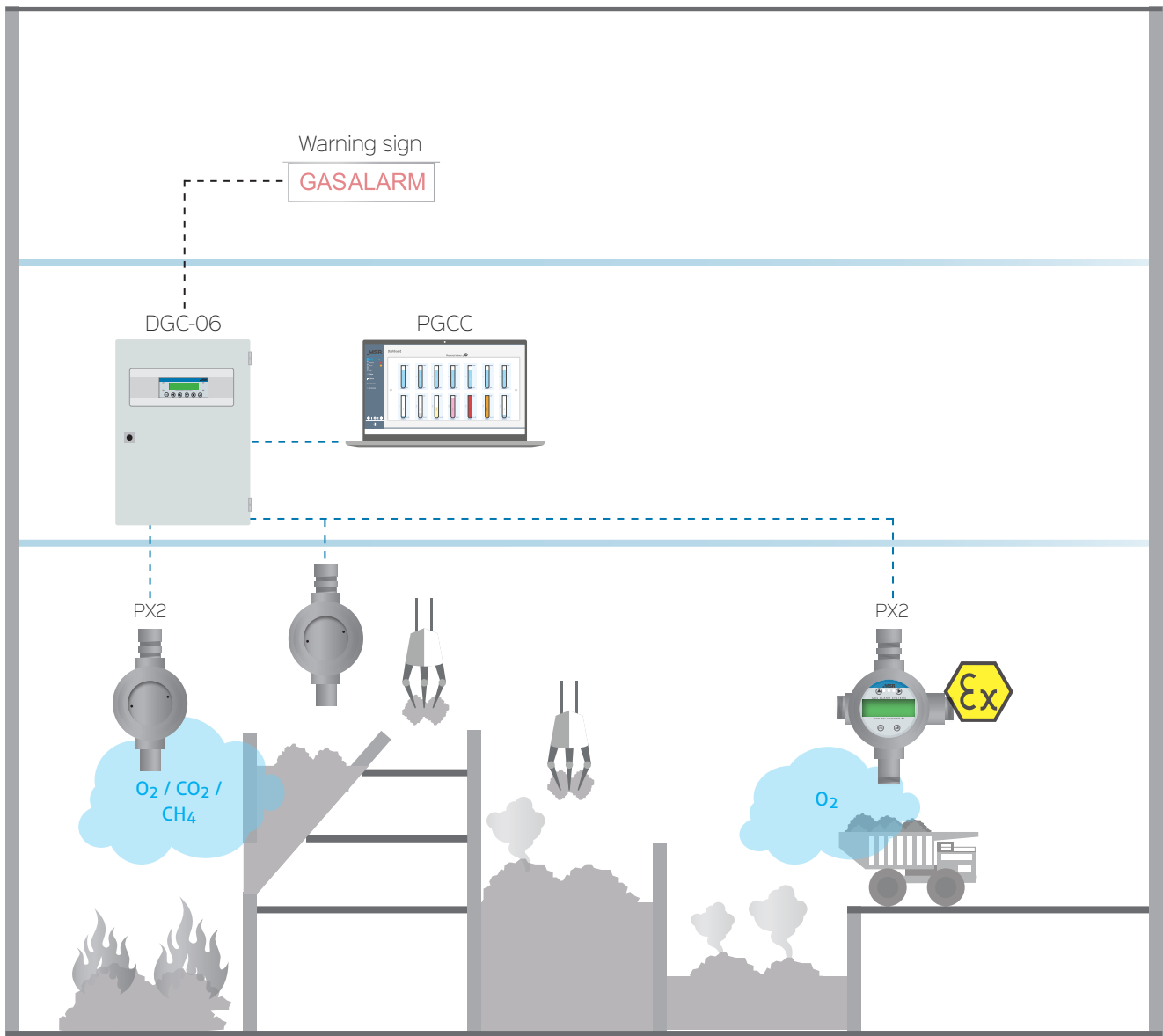
ple, the oxygen supply during the combustion processes of a waste incineration plant. Furthermore, gas detectors perform real-time measurements of gaseous pollutants from the flue gas during flue gas cleaning. Continuous monitoring of emission levels and the emission of pollutants into the environment can thus be guaranteed.

Gas Hazards

- Flue gases in waste incineration plants / waste-to-energy plants, e.g. organic waste incineration
- Landfill gas at waste disposal sites and adjacent residential areas
- Landfill gas wells and pipeline systems for transferring the gases to CHP units
- Oxygen deficiency in employee work areas
- Special disposal of chemicals and hazardous waste

Benefits

- VOC sensors for the precise detection of hazards during battery decomposition
- Special sensors for various chemicals



WARNING DEVICES

CONTROLLER

GAS SENSORS + BOARDS

Landfill

PolyXeta®

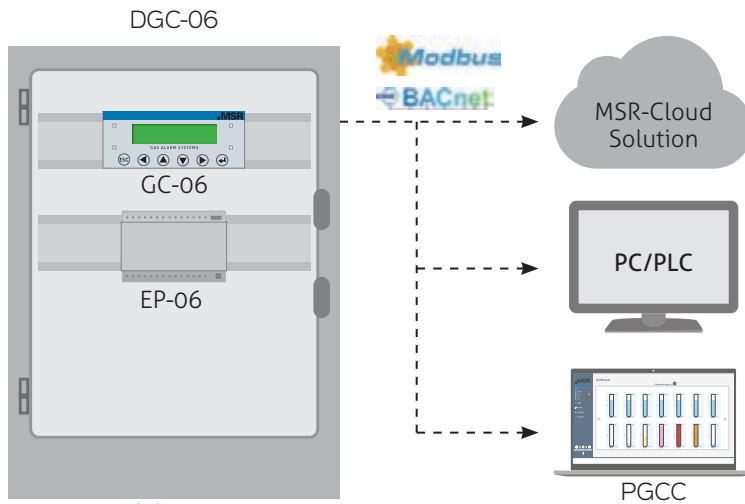
Gas Detection Systems for Industry and Marine
ATEX Zone 1 and 2



- Sensors
- Controllers and modules
- Warning devices and accessories



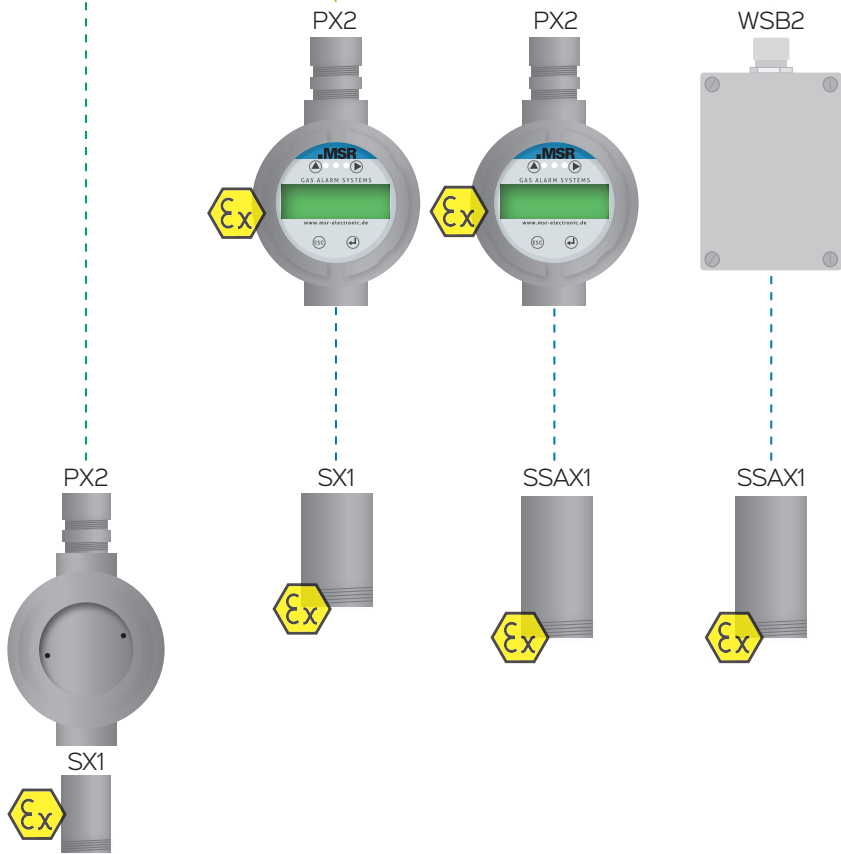
- SIL / RS-485 / DGC-Bus
- Digital / L-Bus
- RS-485 / Modbus / BACnet
- Analog, 4-20 mA



CONTROLLERS AND MODULES

- DGC-06 Digital-Gas-Controller
- PGCC PolyGard® Cloud Control

SIL-Communication



GAS SENSORS AND BOARDS

- WSB2 Warning and Sensor-Board
- PX2 PolyXeta® Gas Warning Device
- SX1 PolyXeta® Sensor Head
- SSAX1 PolyXeta® Sensor Head



WARNING DEVICES AND ACCESSORIES

- WH Warning Horn
- WH/BL Warning Horn/Flashing Light Combination
- WT Warning Sign
- PCE06 Software



Interactive Product overview
Get to know our products here.



MSR VIDEO
How-to: Commissioning of the PolyXeta® PX2.

PolyXeta®

PX2 with sensor head SX1

Compact digital sensor from the PolyXeta® product series.

- 4-20 mA and RS-485-Modbus output
- Suitable for connection to GC-05 and GC-06
- 2 relay outputs for alarm and fault relays
- Optional LC display

Variants

- Ex db: Ignition protection for zone 1 and 2
- Ex nR: Ignition protection for zone 2

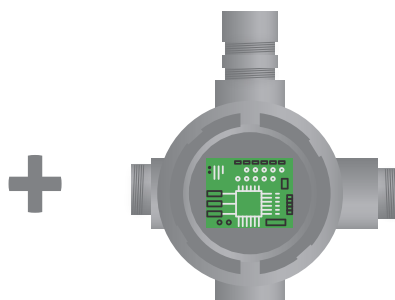
Benefits

- Modular design
- Compatible with a wide range of BMS
- Personal contact person at MSR-Electronic
- Device can be used independently of control center, stand-alone devices without DGC-06
- Individual parameterization possible
- Robust against dust, humidity and high/low temperatures, protection class IP66
- Ideal for heating or cooling applications

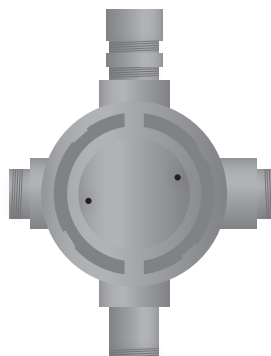
SX1 sensor head



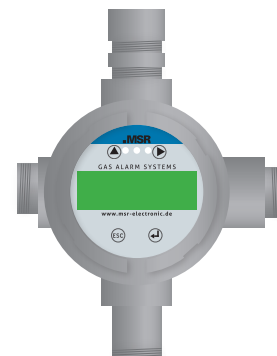
housing + board



PolyXeta® PX2 without display

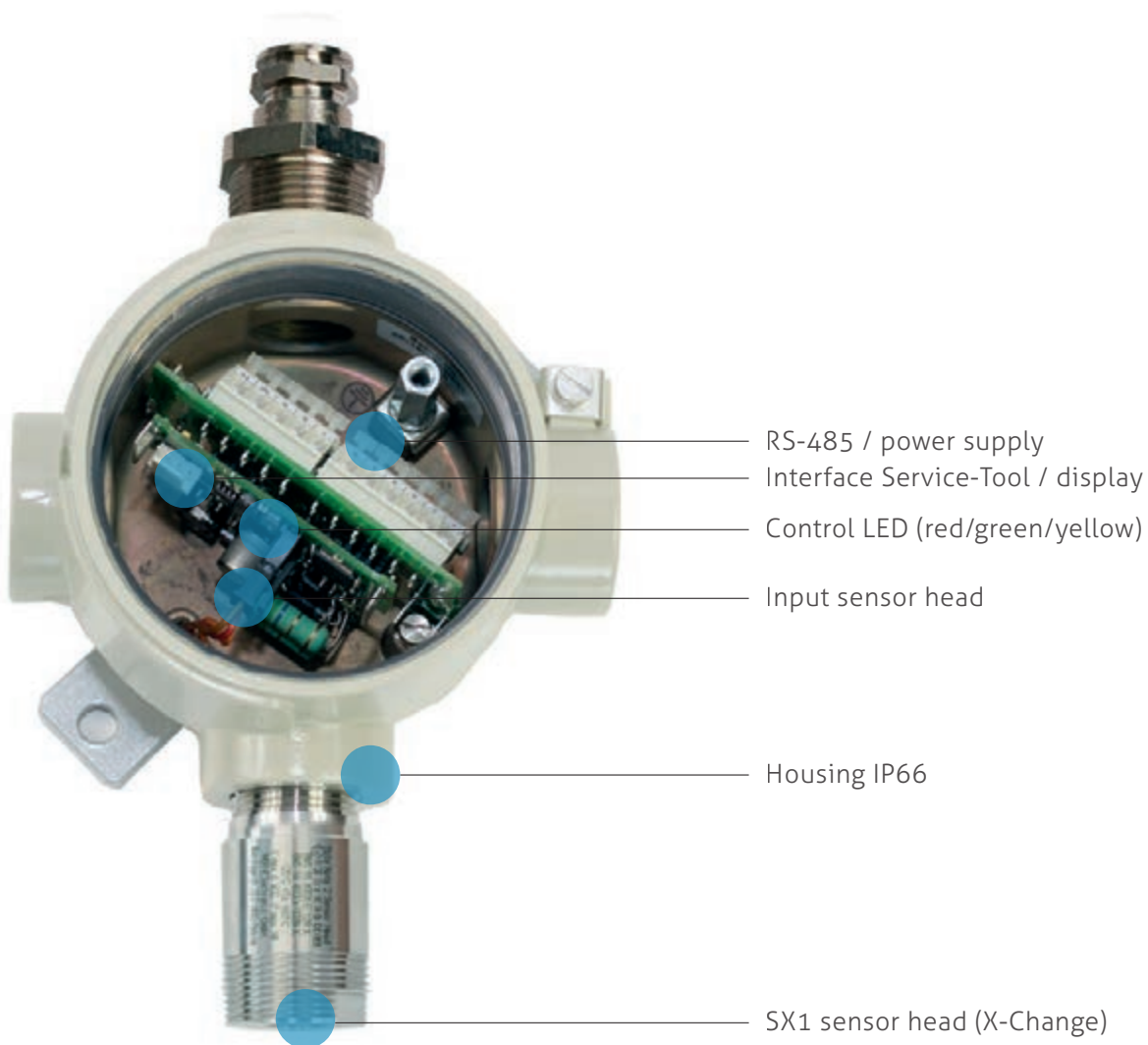


PolyXeta® PX2 with LC display





PolyXeta® PX2 with microprocessor-based sensor SX1.



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PolyXeta[®] Sensor Head

SSAX1

The ATEX sensor head for remote applications.

In addition to the high-quality sensor element and the measuring amplifier, the SSAX1 sensor head includes a μ Controller for processing the measured values. All relevant data and measured values of the sensor element are stored in the μ Controller in a fail-safe manner and are transmitted digitally via the local bus to the WSB2. Calibration management is also integrated in the μ Controller of the sensor head. Calibration can be carried out by simply changing

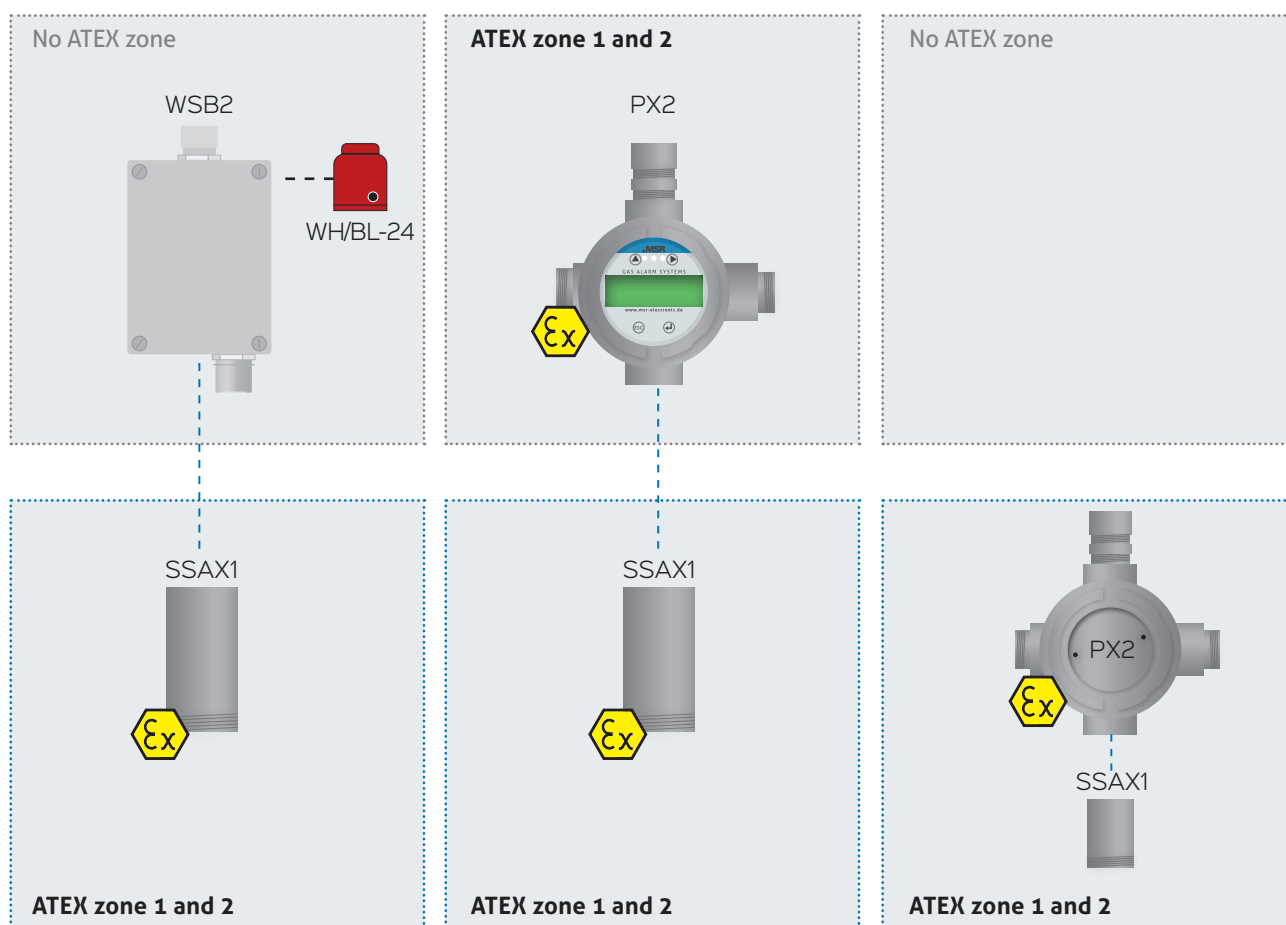
the sensor head or by the integrated, convenient calibration routine directly at the system. The new SSAX1 makes it possible to place the ATEX-certified sensor head alone in the hazardous zone and to lead it with the associated ATEX cable out of the hazardous zone to a WSB2 or PX2 for evaluation of the sensor. The SSAX1 is connected directly to the PX2 and can therefore be used as a complete device in the Atex zone.

Benefits

- ATEX and IECEx certificates for electrical explosion protection
- SSAX1 for zone 1 (also applicable in zone 2): Version "Ex db" with flameproof enclosure
- Different measuring principles depending on customer requirements and application: Infrared, electrochemical sensor, pellistor, MPS[™]
- High accuracy, selectivity and reliability
- Easy calibration
- Personal contact at MSR-Electronic



The ATEX sensor for combustible and toxic gases.



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Configure your products here.

X-Change Technology Recalibration

PolyXeta® exchangeable sensor SX1 and SSAX1.

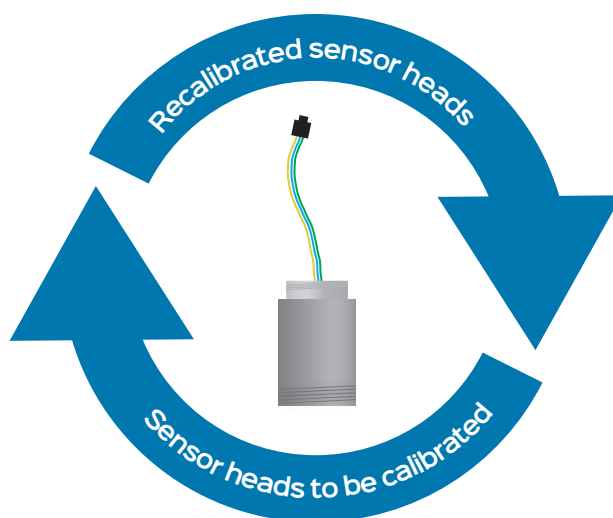
Until now, the necessary calibration of the sensors was a complex procedure and dependent on an external certified company. This involved a lot of time and money. The sensors had to be opened, checked and calibrated with great care at the construction site. If an error occur-

red, it was necessary to take the complete sensor with you and replace it afterwards. With the new X-Change technology this effort can be saved. The exchangeable head can be replaced on site at any time. The transmitter therefore remains untouched. This saves time and costs.

Time-saving calibration of the gas sensors

- Significant time and cost savings
- Easy change process
- Delivery of newly calibrated sensor heads
- Increasing the safety of your plant

MSR
ELECTRONIC
and partners



Customer



MSR VIDEO

How-to: X-Change Technology for the PolyXeta® product series.



- 1** Loosen the locking screw with an Allen key (1.5 mm) and open the housing.



- 2** Loosen the sensor cable and unscrew the used sensor head to be calibrated.
The yellow LED lights up.



- 3** Replace the sensor head and connect the cable of the recalibrated head to the board.
The yellow LED goes out again.



- 4** Close the housing again and the recalibrated sensor is immediately ready for use.

Gas-Controller Industry

Arbitrarily extendable for individual requirements

The Digital-Gas-Controller DGC-06 has been developed for large plants or also for extensive connections. Here, there will hardly be a scenario in gas monitoring that this controller does not cover. From complex garages to access functions, which are switched by gas alarm, everything is possible. The innovative gas controller series DGC-06 is designed according to EN 50545 and

can monitor and evaluate up to 128 gas sensors, 96 of which are digital and/or 32 analog sensors (4-20 mA). There are 4 freely adjustable alarm thresholds per sensor. For alarm messages, the controller system has up to 128 relays with potential-free changeover contact and up to 16 analog outputs with 4-20 mA signal.

Benefits

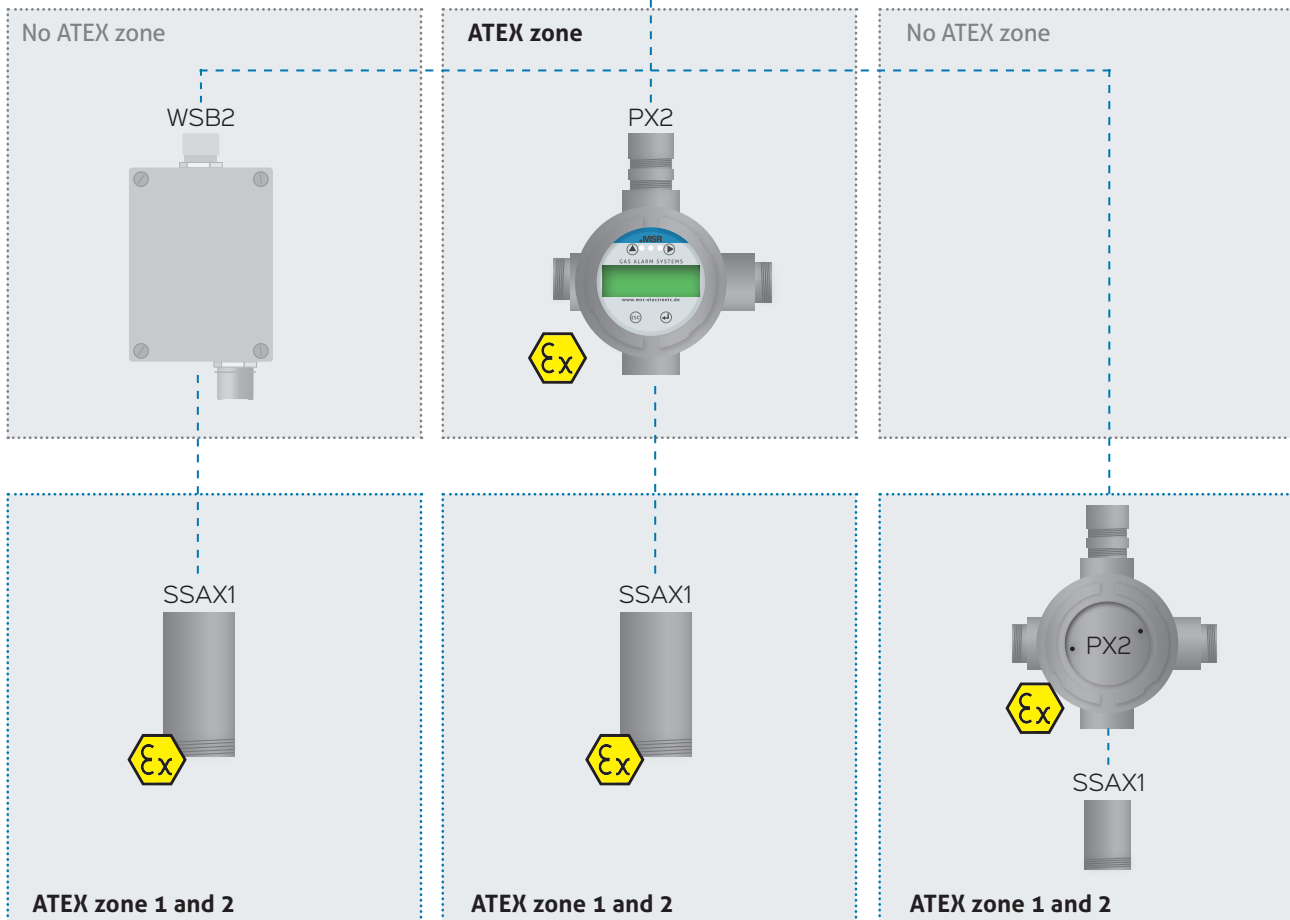
- Modular design
- Compatible with a wide range of BMS
- Personal contact at MSR-Electronic
- System can be expanded at any time, can grow modularly
- Individual parameterization possible
- High degree of customization for a wide range of requirements



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Configure your products here.

DGC-06 warning and controller system for toxic and combustible gases.



Modules

For Controller DGC-06

Measurement, warning and control.

The modules are designed in accordance with EN 50545 and can be put together for any situation using a simple configuration. The controllers, such as the GC-06, are the core elements of the systems. Extension modules, like the EP-06, provide additional inputs and outputs. Since

MSR-Electronic has extensive certification and many years of experience in the manufacture of controllers, professional preparation for complex acceptance tests is guaranteed.

The modular technology allows for compact yet flexible and highly efficient systems.

Benefits

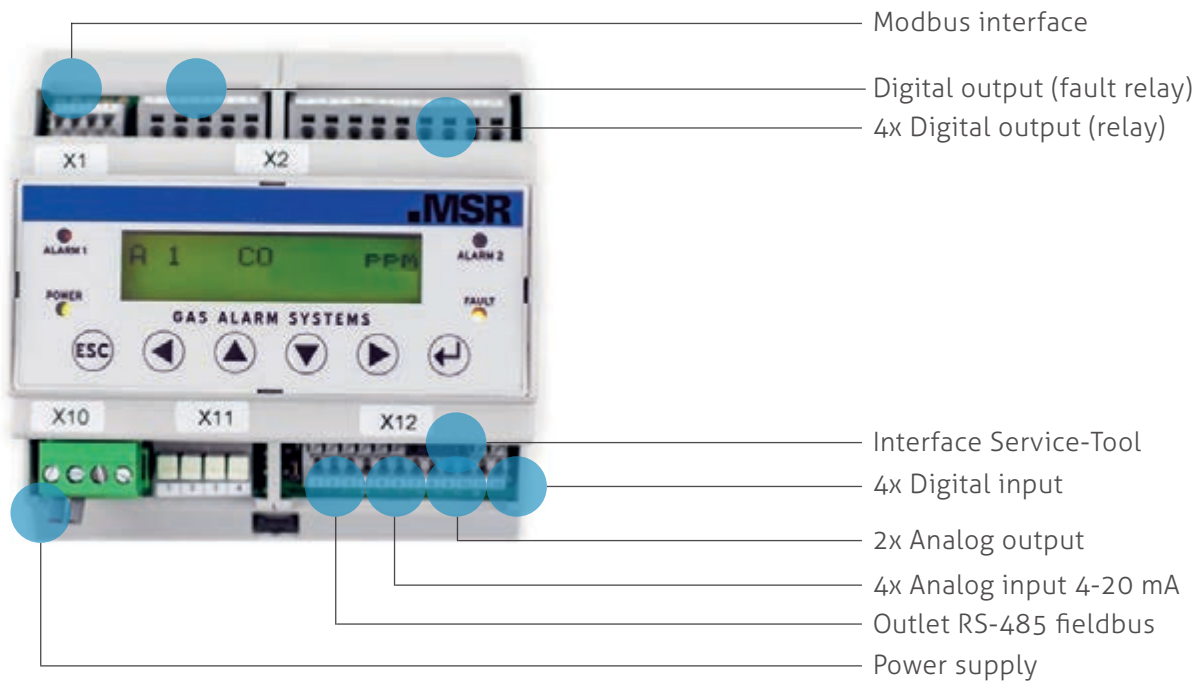
- Extension module with
 - 4 analog inputs (4-20 mA)
 - 4 alarm relays with potential-free changeover contact
 - 2 analog outputs (4-20 mA)
- Modular design of the system possible
- Individual configuration
- Personal contact at MSR-Electronic
- Extension module for even more relays and analog inputs in the DGC-06



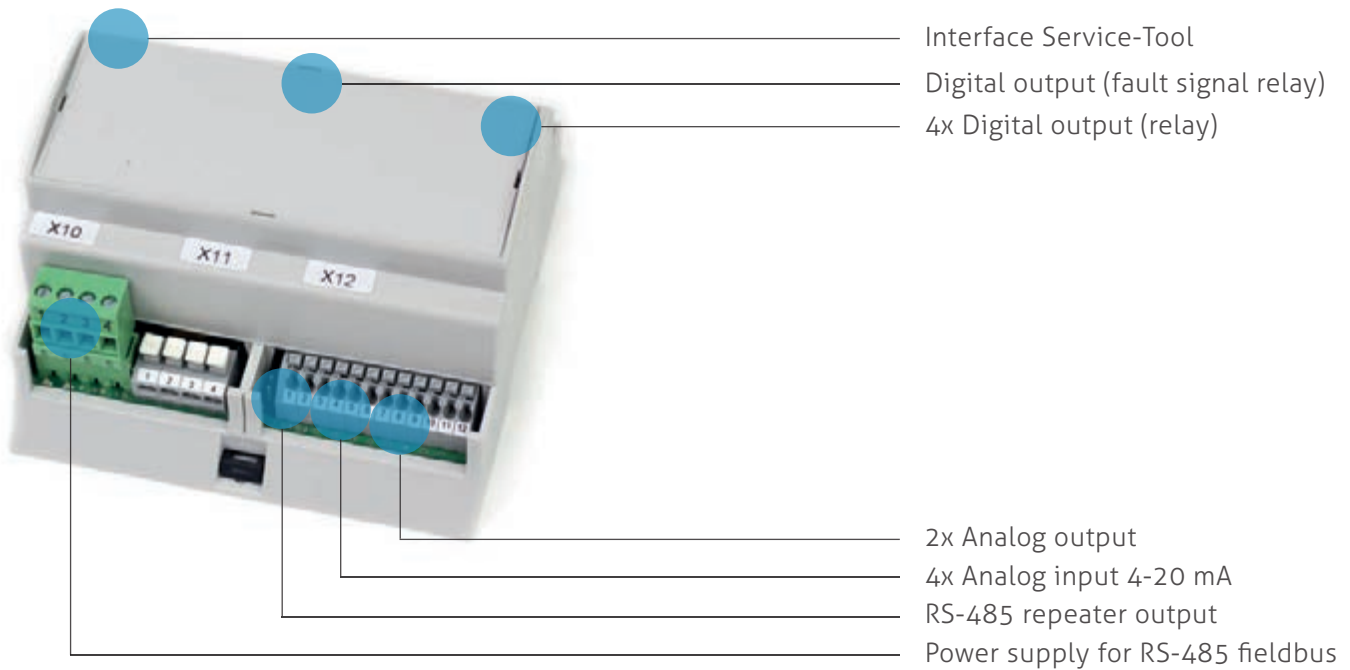
MSRSHOP24

Configure your products here.

Module GC-06



Extension module EP-06 for GC-06



Accessories

Magnetic pen

Magnetic pen for contactless menu operation on PX2 with display.

- Operating the display on the PX2 in the ATEX area
- No need to open the device for parameterization, calibration or display
- Gas-safe



Sensor Head Protection

The sensor protection cap as an option for conversion measures.

- Sensor protection during painting work or dusty renovations without destroying the sensors or without having to remove them



Splash Protection

Protection from rain, splash water and other weather influences.

- Suitable for zone 1 and 2
- Easy installation
- Calibration possible through provided gas inlet



Calibration Adapter

For sensor series SX1 and SSAX1, consisting of stainless steel adapter and Viton® hose.

- Precisely fitting set to ensure the gas feed for SX1 and SSAX1
- Essential for precise calibration



Accessories

NEW

CalibCase and CalibPack

Practical all-in-one system for PolyGard®2 and PolyXeta®2.
Perfect for use in the field.

With the calibration case or rucksack you receive all the necessary devices and accessories for commissioning, calibration of MSR sensors and parameterisation of MSR controllers.

It is packed in a compact case or backpack for convenient and safe transport.

Case

- Individually configurable
- Compact all-in-one case
- Secure storage for electronic and mechanical products
- IP67 when closed
- Temperature-stable from -20 °C to +80 °C
- Resistant to common alkalis and acids
- Eyelets for locking or sealing
- Sturdy carrying handle (foldable)

Backpack

- Ergonomic weight distribution of the load on both shoulders thanks to padded carrying straps
- Large capacity for additional material or for use when travelling etc.
- Large opening for easy removal of tools and laptop
- Protected inner laptop pocket for safe transportation



MSRSHOP24

Configure your products here.



PolyMarine®

Gas detection systems for shipping and offshore.

Ships are high-risk areas because there is no possibility of escape. This means that hazards must be detected at an early stage in order to avert higher risks. The products from MSR-Electronic offer perfect protection against

gas leaks on board. These leaks are often not perceptible through the sense of smell or only when an accident can no longer be averted. The gas detection systems and warning devices offer reliable safety.

BENEFITS

- **More safety**
More than all national standards require
- **Exchangeable sensor X-Change technology**
Significantly lower maintenance costs
- **Precise planning with lower overall costs**
- **Integration in BMS/BA**
(Analog, Modbus)





Applications for Marine

Freight transport

- Freighter
 - RoRo, LoLo and LoRo vessels
 - Raw material transport
 - Food transport
 - Containers
 - Battery powered ships
-

Passenger transport

- Cruises
 - Ferries
-

Logistics

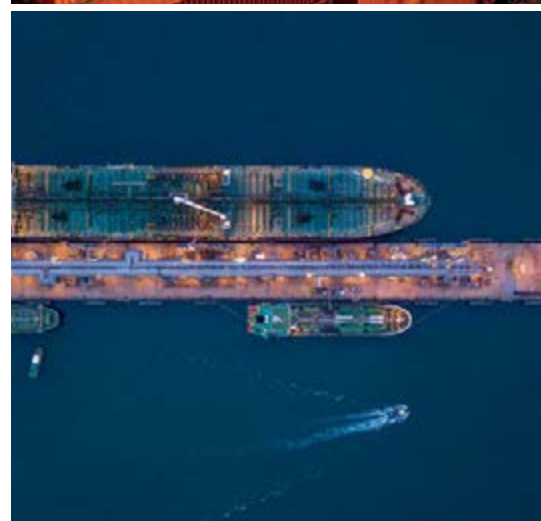
- Bunker ships and stations
-

Private

- Yacht

Offshore

- Oil refineries
-





Excerpt from the **World of Applications for Marine**

Shipping and offshore	122
Private shipping	124



Shipping and Offshore

Protection against H₂ / CH₄ / C₃H₈ / NH₃ and many more.

Ships and oil rigs are risk areas, as there is no possibility of escape. This means that hazards must be identified at an early stage to avert higher risks. Gas sensors, controllers and warning devices from MSR-Electronic offer perfect pro-

tection in the event of gas leaks occurring on board. In addition, a reliable gas detection system not only protects the lives of the crew, but can also protect the ship's cargo and even the ship itself from harm.

Gas Hazards

- Engine and crew rooms
- Hazardous material transports
- Detection of fuel leakage (LPG) and exhaust gases
- Gas transport (H₂/CH₄/C₃H₈/NH₃ etc.)
- Monitoring of inertization systems
- Wide range of sensors for gas leakage detection

Benefits

- SIL2 certified
- Approval for shipping according to the European Directive 2014/90/EU, 2021/1158/EU and according to the international guideline DNVGL-CG-0339
- Reduced costs due to easy maintenance, e.g. sensor head change (X-Change technology)
- Intelligent sensors display information on residual sensitivity, maintenance and condition
- Less downtime and integration into existing safety systems



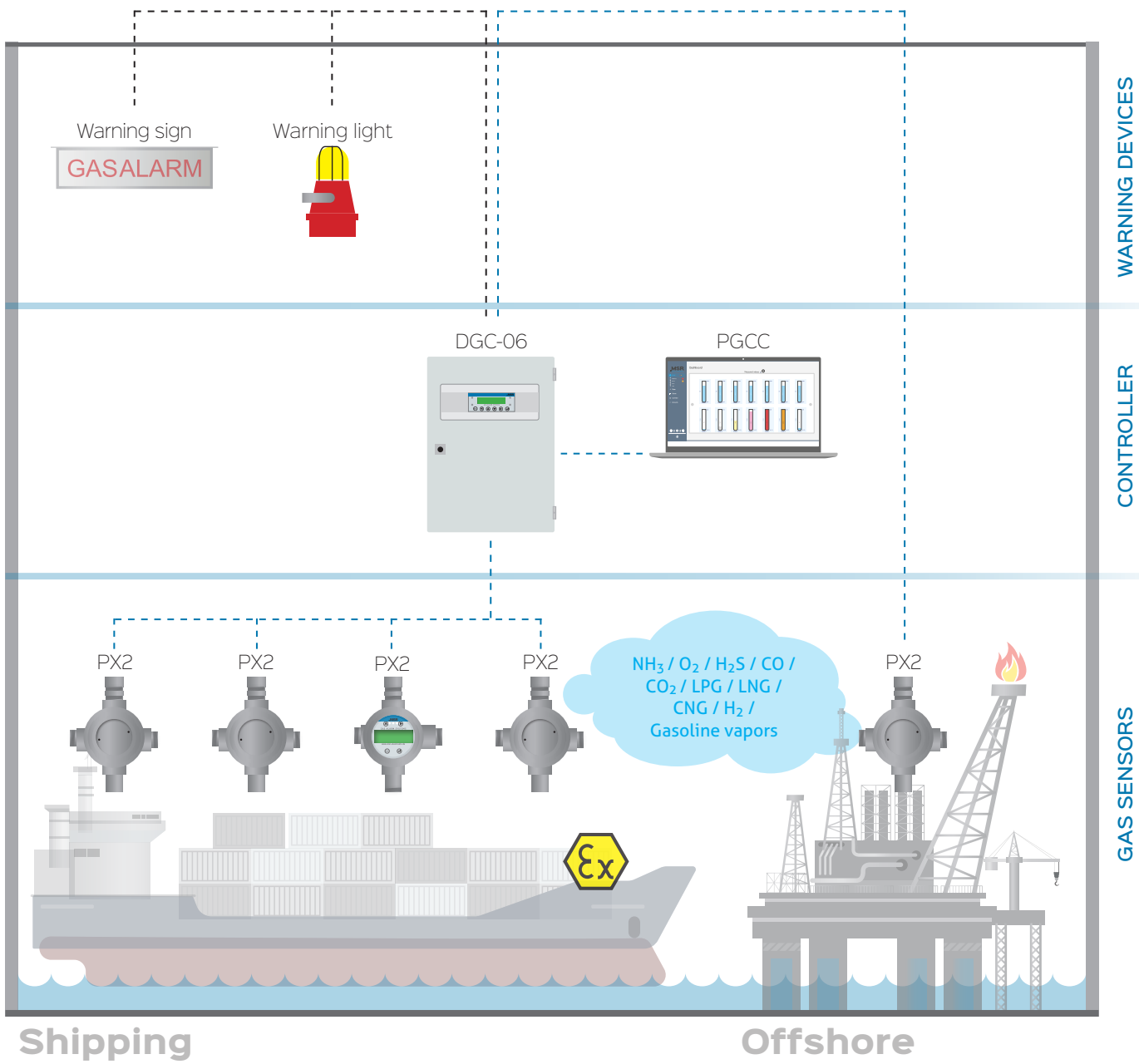
MSRSHOP24

Configure your products here.



MSRVIDEO

How-to: Commissioning of the PolyXeta® PX2.



Private Shipping

Protection from propane / CO / NO₂.

Gas leaks on board can quickly lead to fire and poisoning. Many of the gases are often odorless and the human sense of smell can no longer recognize this danger and is therefore dependent

on help. In addition, the escape of combustible gases can quickly cause a fire or even an explosion.

Gas Hazards

- Engine and crew rooms
- Wide range of sensors for gas leak detection

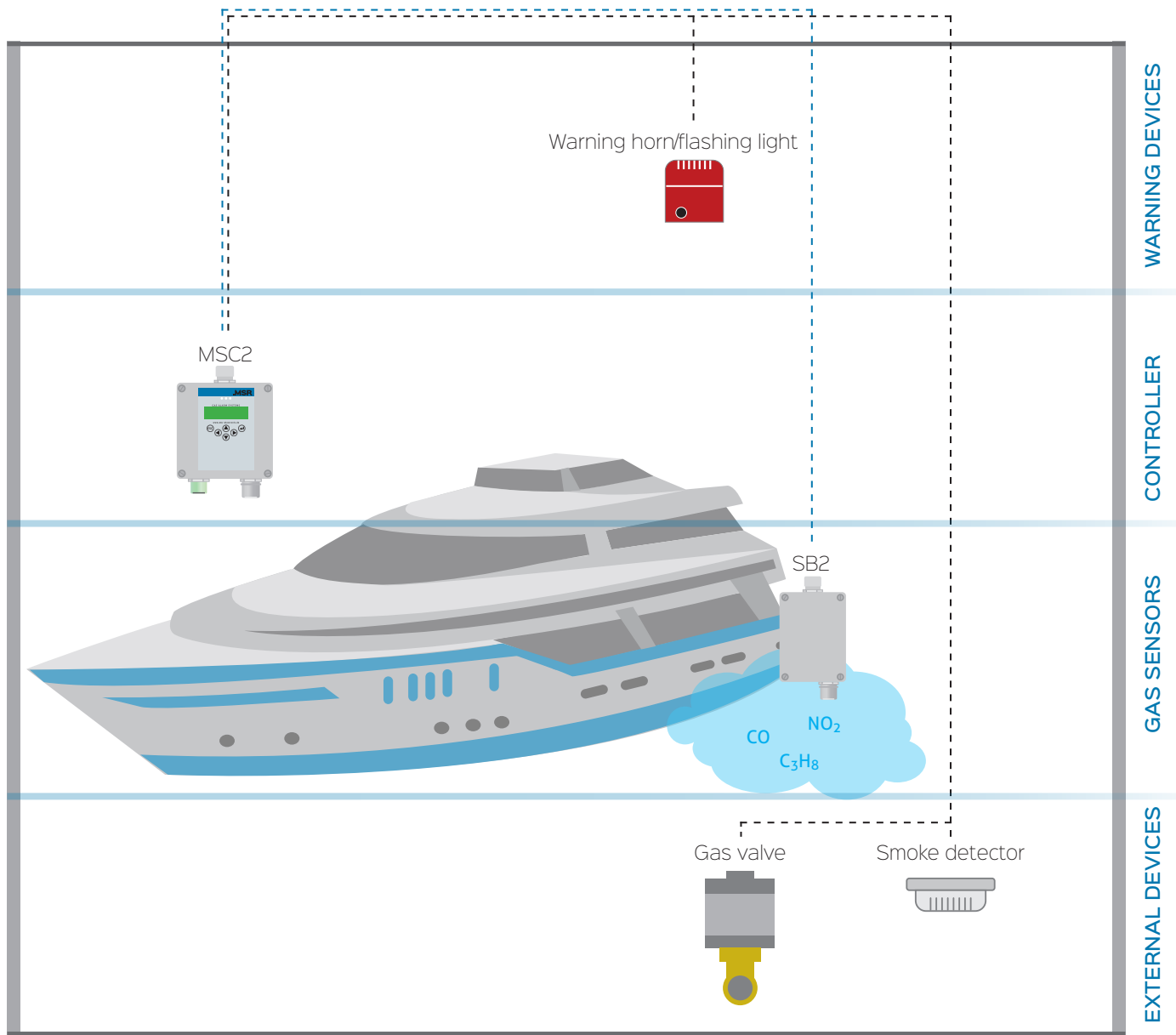
Benefits

- Hardware and software according to SIL-compliant development process
- Cost-reduced calibration due to sensor head exchange on site (X-Change technology)
- Optimal integration into the on-board system through various communication interfaces (Analog, Modbus, 3 relays with change-over contact, potential-free max. 240 V AC, 5 A)
- Optional selectable housing types for high requirements on board
- Optional: WAO (Status LED with warning buzzer) and display



MSRSHOP24

Configure your products here.



Private Shipping

Products & Services

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Products

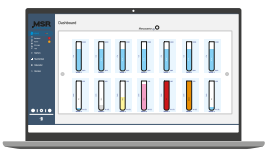
Overview



Digital-Gas-Controller DGC-06

Page 66

Measurement, warning and control system in different versions.
Applicable for large plants for monitoring and evaluation of up to 128 sensors and control of up to 32 relays.



PolyGard® Cloud Control PGCC

Page 74

For visualization of measurement data, parameters and statistics.
In combination with GC-06 and PG2/PX2 controllers. The integrated network interface enables remote access.



Analog-Relay-Board ARB2

Page 58

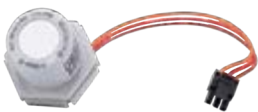
Gas measurement, warning and control board for connecting an MC2 change sensor.
Both relays are activated by alarm thresholds, which are adjustable by potentiometers.



Analog Sensor MC2

Page 42

Analog change sensor with 4-20 mA / 2-10 V output and simple, integrated, digital calibration routine via tool.



Digital Sensor SC2

Page 42

Digital change sensor with local bus, outputs information on calibration interval and service life in addition to the measured value.
Digital signature of the sensor for a unique assignment with the connected board.



Sensor-Board SB2

Page 52

For providing the measured values of up to 3 SC2 sensors to the GC-06 controller or higher-level BMS.



Door-Entrance-Module DEM-06 and DEM-06-IO

Page 72

The module in various versions opens up new possibilities for secure monitoring of access points.



Interactive Product overview

Get to know our products here.



Multi-Sensor-Controller MSC2

Compact gas warning device for the connection of up to 3 sensors.
The device has 3 power relays, Modbus (BMS), analog output as standard.
Optionally with display and UPS.

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Compactcontroller

The controller (9a) is designed to connect up to 10 SB2U (9b) via the local bus and can be parameterized and configured completely without a tool.

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Warning and Sensor-Board WSB2

Compact gas detector for connecting up to 3 sensors, 2 of them with the same gases. Optionally, the device can have a display, 2 relays, Modbus and analog output.

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PolyXeta® PX2

Gas detector with certification for ATEX, IECEx Zone 1/2, SIL2, MED and DNV.
The signal is transmitted via display, relay, Modbus or analog output.

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Digital Sensor SX1

Digital exchange sensor with local bus for use in PX2.
In addition to the measured value, it provides information about the calibration interval and service life.
Certified for ATEX and IECEx zone 1/2 and SIL2.

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Digital Sensor SSAX1

Remote sensor head for connection to the WSB2 and the PX2. For use in ATEX and IECEx Zone 1/2 and SIL2.

In addition to the measured value, the sensor provides information on the calibration interval and service life.

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Accessories PolyGard® and PolyXeta®

Various accessories for calibration and parameterization of the MSR-Electronic products as well as warning devices for visual and acoustic indication of alarms.

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[Page 112](#)

Housings

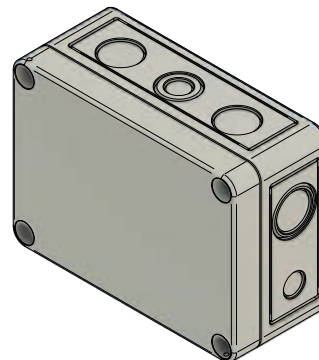
PolyGard®

(W x H x D)

A-HOUSING

Plastic

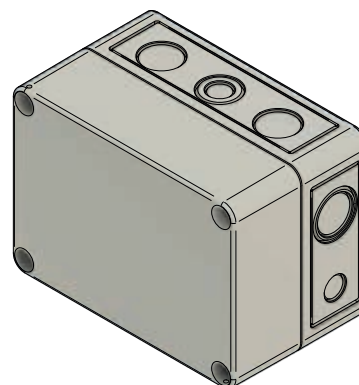
130 x 94 x 57 mm



G-HOUSING

Plastic

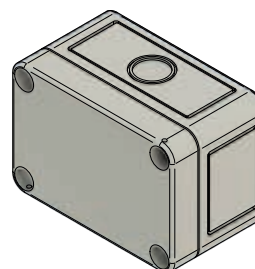
130 x 94 x 81 mm



D-HOUSING

Plastic

94 x 65 x 57 mm



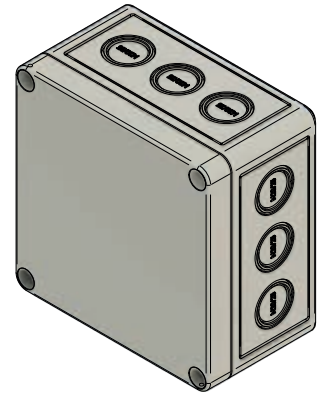
Images similar, not to scale

(W x H x D)

C-HOUSING

Plastic

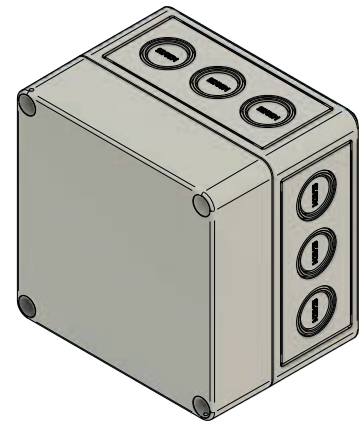
130 x 130 x 75 mm



E-HOUSING

Plastic

130 x 130 x 99 mm



More housings

5-Housing

Stainless steel

110 x 132 x 42,5 mm

N-Housing

Plastic

80 x 82 x 53 mm

P-Housing

Plastic

Door mounting Housing

150 x 96 x 50 mm

Images similar, not to scale

Housings

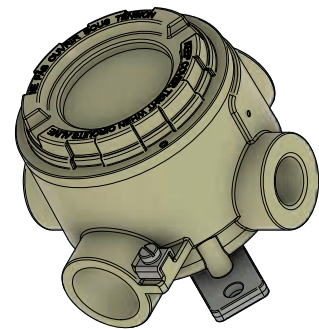
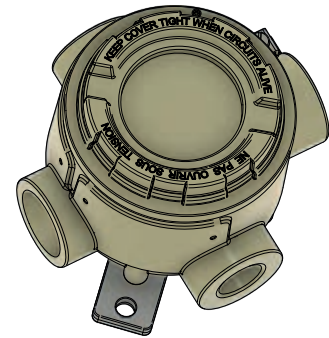
PolyXeta®

(W x H x D)

K-HOUSING

Aluminum pressure glass

(\varnothing) 95 x 82 mm



Images similar, not to scale

Housings

Controller

(W x H x D)

TYPE 1

Plastic

298 x 260 x 140 mm



TYPE 2

Plastic

298 x 420 x 140 mm



More Housings

Type 3

Plastic

298 x 570 x 140 mm

Type 4

Plastic

410 x 655 x 140 mm

Images similar, not to scale

Product Matrix

Combinations

	MC2 Analog	SC2 Digital	Housing	230 V AC	WAO Warn. Devices	Display
ARB2	1	0	A, G	1	1	with MC2
SB2	0	3*	A, C, 5	1	1	1
WSB2	1	2	A, C, E	1	1	1
MSB2	3*	2*	C, E	1	1	1
MSC2	2*	2*	C, E	1	1	1
DGC-06	32**	96 (+ SB2)	1, 2, 3, 4	1	0	1

* With restriction, see data sheet

** On controller with 7 EP-06 modules

Analog Input	Analog Output	Digital Input	Relay	UPS	Stand-Alone	
1	1	0	2	0	1	ARB2
0	0	0	0	0	0	SB2
1	1	1	2	0	1	WSB2
3	1	2	3	1	0	MSB2
2	1	2	3	1	1	MSC2
32**	16**	16**	32**	1	1	DGC-06

Product Abbreviations

AP2-UPS	Remote Accu-Package
ARB2	Analog-Relay-Board
BL-24	Flashing Light
C2-Z2	Duct Mounting Set
C2-Z4	Calibration Adapter for MC2/SC2
C2-Z5	SplashGuard
C2-Z6	Calibration Adapter for MC2/SC2
Cal01-PX2	Calibration Adapter for Polyxeta®2 Sensors
DEM-06	Door-Entrance-Module
DGC-06	Digital-Gas-Controller
EP-06	Expansion Module
GC-06	Gas-Controller
MC2	Analog Sensor Head
MSB2	Multi-Sensor-Board
MSC2	Multi-Sensor-Controller
MSR_Pen_PX2	Magnetic Pen
OT-01	Tool for Opening Stainless Steel Housing
PCE06	PCE06 Software
PG2	PolyGard®2
PGCC	PolyGard® Cloud Control
PX2	Sensor PolyXeta®2
RB2	Remote-Board
RM2	Relay Module
SB2	Sensor-Board
SB2U	SB2Unit
SC2	Digital Sensor Head
SG-PX2	SplashGuard for PolyXeta®2 Sensors
SP6-00	Sensor Protection / Guard Rail
SSAX1	Sensor Head SSAX1 (PolyXeta®2)
STA06-MC2	Converter for STL06 Service-Tool
STA06-PX2	Adapter for STL06-PGX2 and PCE06-PGX2 Tool
STL06	Service-Tool
SX1	Sensor Head SX1 (PolyXeta®2)
WAO	Warning Unit: Visual/Audible Indicator
WH	Warning horn
WH-24	Warning horn, 24 V DC
WH-230	Warning horn, 230 V AC
WH/BL	Warning horn/Flashing light Combination
WH/BL-24	Warning horn/Flashing light Combination, 24 V DC
WH/BL-24-Tast	Warning horn/Flashing light Combination, 24 V DC + Button
WH/BL-230	Warning horn/Flashing light Combination, 230 V AC
WJP	Water-Jet-Protection
WSB2	Warning and Sensor-Board
WT	Warning sign



Gas Directory

Toxic gases

Gas	Formula	Measuring range
Pellistor sensor		
Carbon monoxide	CO	0-50 ppm
Carbon monoxide	CO	0-150 ppm
Carbon monoxide	CO	0-250 ppm
Carbon monoxide	CO	0-300 ppm
Carbon monoxide	CO	0-500 ppm
Ammonia	NH ₃	0-100 ppm
Ammonia	NH ₃	0-300 ppm
Ammonia	NH ₃	0-500 ppm
Ammonia	NH ₃	0-1000 ppm
Ammonia	NH ₃	0-5000 ppm
VOC	VOC	0-10 ppm
VOC	VOC	0-5 ppm
Nitrogen monoxide	NO	0-100 ppm
Nitrogen dioxide	NO ₂	0-10 ppm
Nitrogen dioxide	NO ₂	0-20 ppm
Nitrogen dioxide	NO ₂	0-30 ppm
Nitrogen dioxide	NO ₂	0-100 ppm
Hydrogen cyanide	HCN	0-50 ppm
Hydrogen cyanide	HCN	0-100 ppm
Formaldehyde	CH ₂ O	0-10 ppm
Hydrogen chloride	HCL	0-20 ppm
Ethylene	C ₂ H ₄	0-200 ppm
Ozone	O ₃	0-5 ppm
Ozone	O ₃	0-10 ppm
Chlorine	Cl ₂	0-10 ppm
Chlorine	Cl ₂	0-20 ppm
Hydrogen	H ₂	0-1000 ppm
Oxygen, 2 years	O ₂	0-25 % vol
Oxygen, 3 years	O ₂	0-25 % vol
Oxygen, 5 years	O ₂	0-25 % vol
Oxygen, 7 years	O ₂	0-25 % vol
Sulphur dioxide	SO ₂	0-20 ppm
Hydrogen sulphide	H ₂ S	0-50 ppm
Hydrogen sulphide	H ₂ S	0-100 ppm
Hydrogen sulphide	H ₂ S	0-200 ppm
Hydrogen sulphide	H ₂ S	0-500 ppm
Hydrogen sulphide	H ₂ S	0-1500 ppm
Ethylene oxide	C ₂ H ₄ O	0-10 ppm
Infrared sensor		
Carbon dioxide	CO ₂	0-2 % vol
Carbon dioxide	CO ₂	0-5 % vol
Carbon dioxide	CO ₂	0-10 % vol
Carbon dioxide	CO ₂	0-5000 ppm
Carbon dioxide	CO ₂	0-20000 ppm

Combustible gases

Gas	Formula	Measuring range
Pellistor sensor		
Methane	CH ₄	0-100 % LEL
LPG Liquid Petroleum Gas	LPG	0-100 % LEL
Ammonia	NH ₃	0-100 % LEL
Ammonia	NH ₃	0-20 % LEL
Ethylene	C ₂ H ₄	0-100 % LEL
Cyclohexane	C ₆ H ₁₂	0-100 % LEL
Ethane, R170	C ₂ H ₆	0-100 % LEL
Ethyl alcohol	C ₂ H ₅ OH	0-100 % LEL
Ethyl acetate	C ₄ H ₈ O ₂	0-100 % LEL
Benzene	C ₆ H ₆	0-100 % LEL
n-Hexane	C ₆ H ₁₄	0-100 % LEL
Hydrogen	H ₂	0-100 % LEL
Butyl acetate	C ₆ H ₁₂ O ₂	0-100 % LEL
Methanol	CH ₃ OH	0-100 % LEL
Methyl ethyl ketone	C ₄ H ₈ O	0-100 % LEL
Iso-/n-butane	C ₄ H ₁₀	0-100 % LEL
Isobutyl alcohol	C ₄ H ₁₀ O	0-100 % LEL
Octane	C ₈ H ₁₈	0-100 % LEL
Cyclopentane	C ₅ H ₁₀	0-100 % LEL
Methyl acetate	C ₃ H ₆ O ₂	0-100 % LEL
Iso-/n-pentane	C ₅ H ₁₂	0-100 % LEL
Propane	C ₃ H ₈	0-100 % LEL
Propane	C ₃ H ₈	0-30 % LEL
Propane	C ₃ H ₈	0-5000 ppm
Propene	C ₃ H ₆	0-30 % LEL
Isopropyl alcohol	C ₃ H ₈ O	0-100 % LEL
Acetone	C ₃ H ₆ O	0-100 % LEL
Toluene	C ₇ H ₈	0-100 % LEL
n-Heptane	C ₇ H ₁₆	0-100 % LEL
Butadiene	C ₄ H ₆	0-100 % LEL
Nonane	C ₉ H ₂₀	0-100 % LEL
Gasoline vapors	--	0-100 % LEL
Infrared sensor		
Methane	CH ₄	0-100 % LEL
Methane	CH ₄	0-100 % vol
Propane	C ₃ H ₈	0-100 % LEL
Semiconductor sensor		
Ammonia	NH ₃	0-1000 ppm
Ammonia	NH ₃	0-10000 ppm
Ethylene	C ₂ H ₄	20-2000 ppm

Gas Directory

Refrigerant gases

Gas	Formula	Measuring range
Refrigerant gas sensor		
Refrigerant gas	R23	20-2000 ppm
Refrigerant gas	R508	20-2000 ppm
Refrigerant gas	R1234yf	20-2000 ppm
Refrigerant gas	R452a	20-2000 ppm
Refrigerant gas	R513a	20-2000 ppm
Refrigerant gas	R454c	20-2000 ppm
Refrigerant gas	R455a	20-2000 ppm
Refrigerant gas	R454b	20-2000 ppm
Refrigerant gas	R1234ze	20-2000 ppm
Refrigerant gas	R123	20-2000 ppm
Refrigerant gas	R22	20-2000 ppm
Refrigerant gas	R401a	20-2000 ppm
Refrigerant gas	R401b	20-2000 ppm
Refrigerant gas	R402a	20-2000 ppm
Refrigerant gas	R402b	20-2000 ppm
Refrigerant gas	R403a	20-2000 ppm
Refrigerant gas	R408a	20-2000 ppm
Refrigerant gas	R409a	20-2000 ppm
Refrigerant gas	R411a	20-2000 ppm
Refrigerant gas	R134a	20-2000 ppm
Refrigerant gas	R407a	20-2000 ppm
Refrigerant gas	R416a	20-2000 ppm
Refrigerant gas	R417a	20-2000 ppm
Refrigerant gas	R422a	20-2000 ppm
Refrigerant gas	R422d	20-2000 ppm
Refrigerant gas	R427a	20-2000 ppm
Refrigerant gas	R437a	20-2000 ppm
Refrigerant gas	R438a	20-2000 ppm
Refrigerant gas	R449a	20-2000 ppm
Refrigerant gas	R407f	20-2000 ppm
Refrigerant gas	R450a	20-2000 ppm
Refrigerant gas	R125	20-2000 ppm
Refrigerant gas	R32	20-2000 ppm
Refrigerant gas	R404a	20-2000 ppm
Refrigerant gas	R407c	20-2000 ppm
Refrigerant gas	R410a	20-2000 ppm
Refrigerant gas	R434a	20-2000 ppm
Refrigerant gas	R507a	20-2000 ppm
Refrigerant gas	R448a	20-2000 ppm
Refrigerant gas	R452b	20-2000 ppm
Refrigerant gas	R143a	20-2000 ppm

Gas	Formula	Measuring range
Refrigerant gas sensor im LEL range		
Refrigerant gas	R32	0-50 % LEL
Refrigerant gas	R455a	0-50 % LEL
Refrigerant gas	R454b	0-50 % LEL
Refrigerant gas	R1234yf	0-50 % LEL
Refrigerant gas	R1234ze	0-50 % LEL

MPS™ sensor		
Refrigerant gas	R32	0-100 % LEL
Refrigerant gas	R1234za	0-100 % LEL

MPS™ sensor for combustible gases

Gas	Formula	Measuring range
MPS™ sensor		
Methane	CH ₄	0-100 % LEL
Hydrogen	H ₂	0-100 % LEL
Acetylene	C ₂ H ₂	0-100 % LEL
Propane	C ₃ H ₈	0-100 % LEL

The overview of available gases is constantly being expanded.
Please contact us if the gas you are interested in is not listed.

MSR Product Configurator

With Webshop www.msr-24.com

In the MSR webshop you will find the product configurator and more than 1,000 products.

With the variety of applications and requirements it is not always easy to find the right gas warning product. At www.msr-24.com customers can enter the key data (e.g. application

and room size) of the project in the product configurator. You will immediately receive a proposal with the required products and the appropriate number of items, in accordance with the currently applicable standards. This can be adapted to individual requirements.

Benefits

- Use as configurator and/or webshop
- All products are easy to find
- Different versions of articles can be configured individually
- Selected articles are displayed with product photos, a data sheet and the respective unit price



MSR Product Configurator with Webshop

Product configurator for gas monitoring in garages, refrigeration systems, dispensing systems and biogas plants.

1.

SELECT APPLICATION

Select application (garage, refrigeration, etc.) and specify the size of the room to be measured. The required gas sensors are displayed automatically and can be limited as desired.

2.

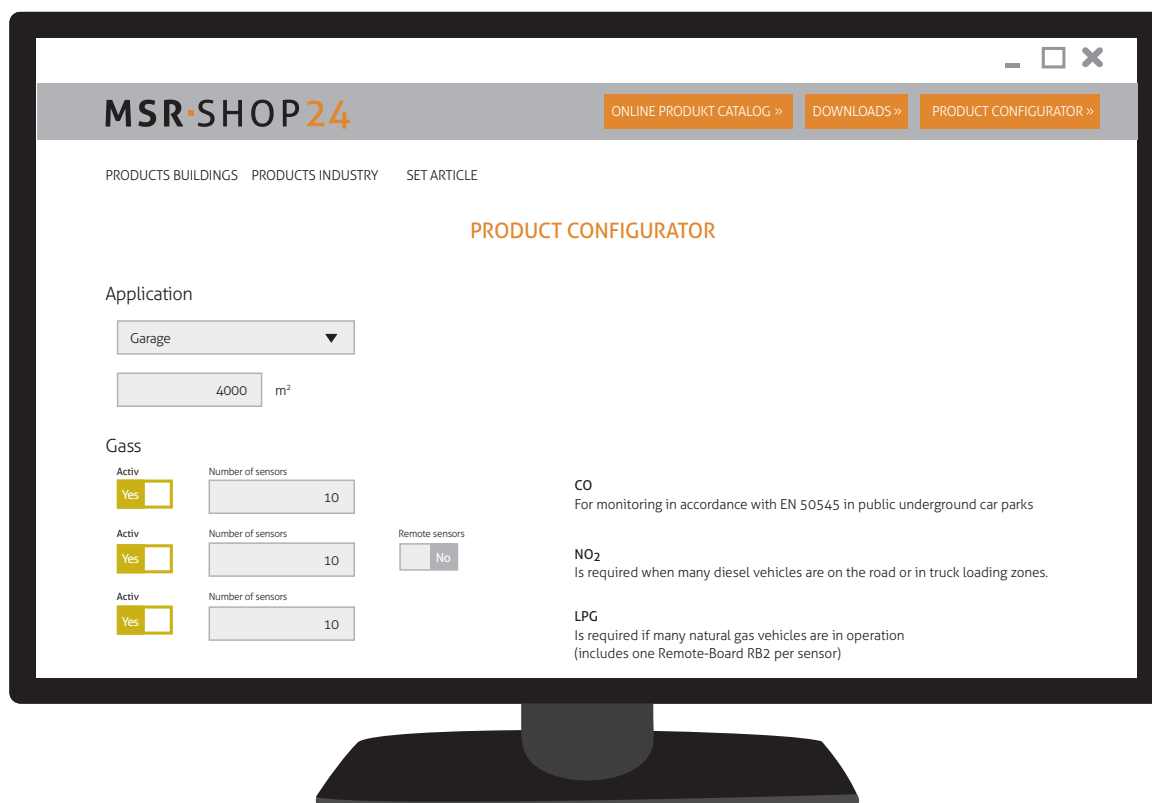
ALARM EVALUATION

Specify the number of warning sections (levels, zones, rooms) and the number of relays required for them.

3.

APPLICATION (CONTROLLER AND MODULES)

Digital or analog - in the last step you decide which way you want to measure.



OEM Customizing and Branding

Based on the modular principle.

From a certain quantity for a product, customizing of the sensors and controllers is possible. This starts with individual lasering and individual labeling and extends to special requests for configuration and extensions.

In addition to the implementation of customer-specific requirements with regard to device approval, we support our clients in numerous industries in complying with all current national and international regulations on product safety and technical market safety requirements.

Your project team for initiation, planning, execution, monitoring and control

A specially coordinated project team will work with you to create the product requirement profile based on the modular principle. During the individual development stages, monitored by the MSR-Electronic quality management, up to the release sample (PPAP) and subsequent series production, we are in close contact with you.

Contact us and learn more about the possibility of personalization.

info@msr-electronic.de



Application

- Tunnel
- Parking garage
- Building
- Industry
- Petrochemistry
- Biogas plant
- Shipping
- And more

Gases

- CO₂
- NH₃
- CH₄
- And more

More Features

- Relay
- Display
- Analog / Digital output
- Analog / Digital Input
- Modbus, BACnet
- And more

Approvals

- EN 378
- EN 14624
- EN 50545
- EN 60079-29-1
- ATEX
- EN 60079
- And more

Housings

- Design
- Form
- Color
- Logo
- Lettering
- IP protection class
- And more



Montage

- Standard housing
- Remote with cable

Accessories

- Acoustic: horn, buzzer
- Optical: Flashing light, warning sign
- And more

Sensor

- Infrared
- Electrochemical
- Semiconductor
- Catalytic
- MPS™

How-to

The MSR Video World

Explainer videos of the MSR products on YouTube.

How-to is the keyword on YouTube. MSR-explainer videos provide brief and concise information on important details for the commissioning of selected products. Knowledge can thus be conveyed quickly. The fundamental advantage

of e-learning is that it is location-independent. Usually only a laptop, tablet or smartphone and an internet connection are required. Complex things simply explained.



MSR-Electronic YouTube Channel

- ▶ Commissioning**
Warning- and Sensor-Board WSB2
- ▶ Commissioning**
Multi-Sensor-Controller MSC2
- ▶ Commissioning**
PolyXeta® PX2
- ▶ Recalibration**
MSR-sensors with display version
- ▶ Recalibration**
MSR-sensors with Service-Tool STL06
- ▶ X-Change technology**
Simple exchange process PolyXeta® sensor head
- ▶ X-Change technology**
Simple exchange process PolyGard® sensor head
- ▶ MSR-Electronic**
Fixed gas alarm systems – Made in Germany



MSRLinkedIn
Get all the latest news about us.



Commissioning and Maintenance

With an international partner network.

MSR-Electronic offers together with its certified partners commissioning, installation and maintenance of fixed gas detection systems.

As a renowned manufacturer of gas detection equipment, MSR-Electronic has an international network of partners to be able to offer

these services worldwide. The service offerings are developed in close cooperation with the service providers and coordinated jointly with the customer. In this way, customers receive a complete package with all the requested services from a single source.

The configuration

The basic setting of the controller is a decisive component during commissioning and maintenance of the gas detection systems on site. The controller is the heart of the gas detection system. The individual measured values and requirements of the customer are stored here.

When the gas warning system is commissioned, the bus subscribers are addressed, the warning thresholds are set to valid standards and the triggering devices are checked.

The maintenance

During maintenance, the entire system is first visually inspected after the maintenance interval has expired. The preset configuration of the controller is tested for actuality and the gas sensors are recalibrated during maintenance.

This ensures that correct values always reach the evaluation unit or the controller.



The calibration

During calibration, the gas sensors are recalibrated based on their natural deviation after the specified interval. During this calibration, the zero point is set first, i.e. the sensor is gassed in its natural ambient air or with zero gas and calibrated to this value.

The 2nd value to be calibrated should be between 30 % and 90 % of the measuring range of the sensor. This calibration is then performed with the gas to be measured. For example, a carbon monoxide (CO) sensor with a measuring range of 300 ppm is calibrated with a test gas between 90 ppm and 270 ppm.

Completion of maintenance

During maintenance, triggering devices such as warning signs, warning horns or flashing lights are tested. The switching contacts, operating display and fault message are also checked. If an emergency power supply is available, its functionality is also verified. The system then receives an inspection sticker and the completion of the maintenance is noted in the inspection book. The maintenance log documents all inspection procedures and necessary, upcoming maintenance work and certifies that there are no defects.

For an existing gas detection system, it is essential to comply with the maintenance intervals. This helps to ensure that the sensor values in the evaluation unit are always correct. It also ensures that the system functions perfectly in the event of increased gas volumes and that people and systems are safe.

MSR-Academy

User knowledge directly from the manufacturer.

MSR-Electronic is a supplier of the latest safety technology in the gas detection sector. To ensure that the systems meet the high requirements of the customers, in-depth knowledge of applications, products, maintenance and legal regulations is necessary.

MSR customers have the opportunity to experience the technology first hand by taking part in a **BASIC webinar** and a further 2-day **ADVANCED training course** in Pocking, where

they can get to know the gas detection system in detail in close cooperation with the technology and development experts. This means that errors can be avoided right from the design stage of the system and the customer can be offered a reliable gas detection system.

The training covers our current product series as well as legal innovations, such as the European standard EN 50545 for garages and tunnels.

Benefits

- Free premium support code* with regular training participation
- Precise product knowledge from the MSR product family
- News from the gas warning technology
- Mediation of complex application examples
- Close exchange with MSR development and support
- After successful training, fault messages are recognized and eliminated more quickly

The MSR-Academy supports the establishment of a professional customer service and thus offers the possibility of faster processing of day-to-day business.

* Each participant receives a premium support code after attending the ADVANCED training:
With the code you get free premium support from our technicians for 18 months.



MSR ACADEMY

Find out more at www.msr-electronic.de/en/academy.



Gas Detection.

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ELECTRONIC



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