

Gas Detection.



# Catalog 2023

Fixed Gas Detection Systems  
for Buildings, Industry and Marine



# BAYERN'S BEST 50

## AWARD WINNER 2022



### **Dear business partners,**

Full of pride we would like to share with you the joy of our high award.

### **MSR-Electronic is part of „Bayerns Best 50“**

MSR-Electronic is one of the fastest growing, owner-managed and medium-sized companies in Bavaria. The award from the Bavarian State Ministry of Economic Affairs, Regional Development and Energy was presented to owner and managing director Harald Schmitt by Bavaria's Minister of Economic Affairs, Hubert Aiwanger, at Schleißheim Castle near Munich. For the 21st time, companies were honored for their innovative spirit, entrepreneurial creativity and future-proof business models.

It is a state award for companies that drive the Bavarian economy, live entrepreneurship and take responsibility. In the last 5 years alone, MSR has been able to create more than 50% new apprenticeship positions and well over 100% new jobs at the company headquarters in Pocking, in Lower Bavaria.

# BAYERNS BEST 50

2022



With currently 140 employees, we continue to grow and expand our certified partner network worldwide. In addition to Austria, Croatia and Italy, new branches were opened in Sweden for the Scandinavian region and in Spain for the Iberian and Latin American regions.

Stay with us on the road to success.

Best regards

Harald Schmitt  
CEO

BAYERNS BEST 50 = Bavaria's Best 50

Picture award ceremony from left to right: Hubert Aiwanger, Bavarian State Minister for Economic Affairs, Regional Development and Energy, Harald Schmitt, owner and managing director MSR-Electronic GmbH, Wolfgang Schmitt, founder of MSR-Electronic, juror Stefan Schmal from the auditing company Mazars (Copyright: Studio SX HEUSER)

# MSR-Electronic

Values, sales and approvals



## PolyGard®

Gas detection systems for buildings



## PolyXeta®

Gas detection systems for industry



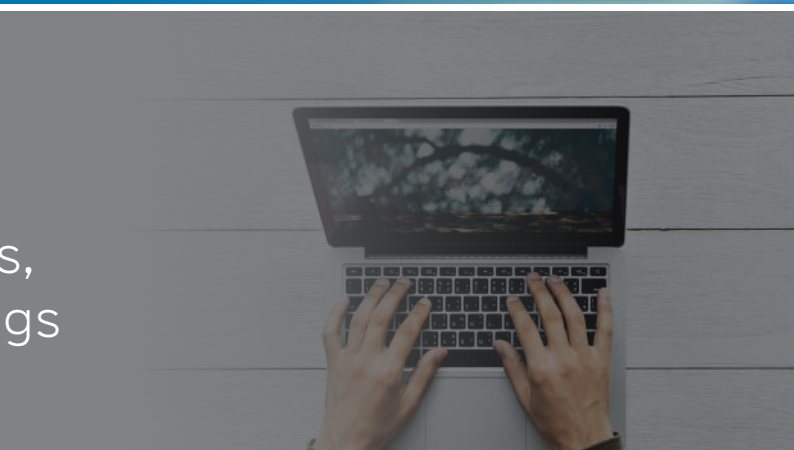
## PolyMarine®

Gas detection systems for marine



## Appendix

Academy, shop, OEM, videos,  
products, gases and housings





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# With the Values

## Of a family-owned company

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

you choose the safe solutions and innovative products of 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 open-mindedness to new requirements.

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### Reliability

Through our international partner network, we have long-standing customer relationships that are characterized by reliability and mutual trust. Thus, we ensure 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 MSR's own EMC laboratory important tests are carried out quickly and efficiently.

### Quality

With ISO 9001 certification (quality management), we have guaranteed our customers a well-functioning risk management and transparent and documented process flows for many years.

In order to constantly approach the set goals and to be able to constantly optimize all management systems, we rely on the continuous improvement process (CIP).

### 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. This not only optimizes and significantly reduces power consumption year after year, but also minimizes the use of plastic in production. 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 sporting activities, we also provide financial support to the associations "Intensivkinder sinnvoll helfend e.V.", "Kinderhilfe Holzland e.V." and the "Pockinger Tafel".

### Transparency

MSR 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.

**Sustainable**  
Quality standard  
**Reliable**  
**Innovative**  
Customer-oriented  
Transparent  
**Responsibility**



# 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 us.

Thanks to its innovative way of thinking, the MSR-Group has established itself on the world market.

## MSR-Electronic

### Gas Detection.

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

[www.msr-electronic.de](http://www.msr-electronic.de)

## MSR-Traffic

### Parking Technologies.

MSR-Traffic GmbH stands for intelligent parking guidance systems for indoor and outdoor use. 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](http://www.msr-traffic.de)



**MSR VIDEO**

The MSR-Electronic image film.



**MSR VIDEO**

The MSR-Traffic image film.





**MSR**  
GROUP

**MSR**  
ELECTRONIC

**MSR**  
TRAFFIC

**MSR**  
ARBA

**MSR**  
AUSTRIA

**MSR**  
IBERIA

**MSR**  
ITALY

**MSR**  
NORDIC

# Worldwide Distribution

Global player



**MSR-Electronic distributes its products and solutions across the globe with a worldwide partner network and its own subsidiaries.**



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# Certified

Safety for all applications

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

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## ISO certifications for the company MSR-Electronic GmbH

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 Nr. 61010-1

Device series types: DGC-06, GC-06, EP-06, SB2, MSC2, MSB2, MGC2, 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 authoritative in this regard.

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 measurement technology, 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.

# 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 (CO<sub>2</sub>), carbon monoxide (CO) or nitrogen oxides (NO<sub>x</sub>), 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 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/GLT**  
(BACnet, Modbus)







# Applications for Buildings

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## Parking Garages and Tunnels

- Tunnels
- Lading zones
- Charging stations
- E-/H2-vehicles



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## Food and Beverage

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



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## Laboratory / Medicine / Pharma

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



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## Climate: Cold and Heat

- Heat pumps
  - Open plan offices, commercial kitchens
-



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### Water Treatment

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

### Gas Logistics

- Gas distributors
  - Terminals
  - Gas storage
- 

### Process Monitoring

- Wafer fabrication
  - Microchip industry
- 

### Hazardous Substances

- Chemistry
  - Petrochemistry
  - Emission control
- 







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

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# Garage, Tunnel, Loading Zones

## Protection against CO / NO<sub>2</sub> / LPG

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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).

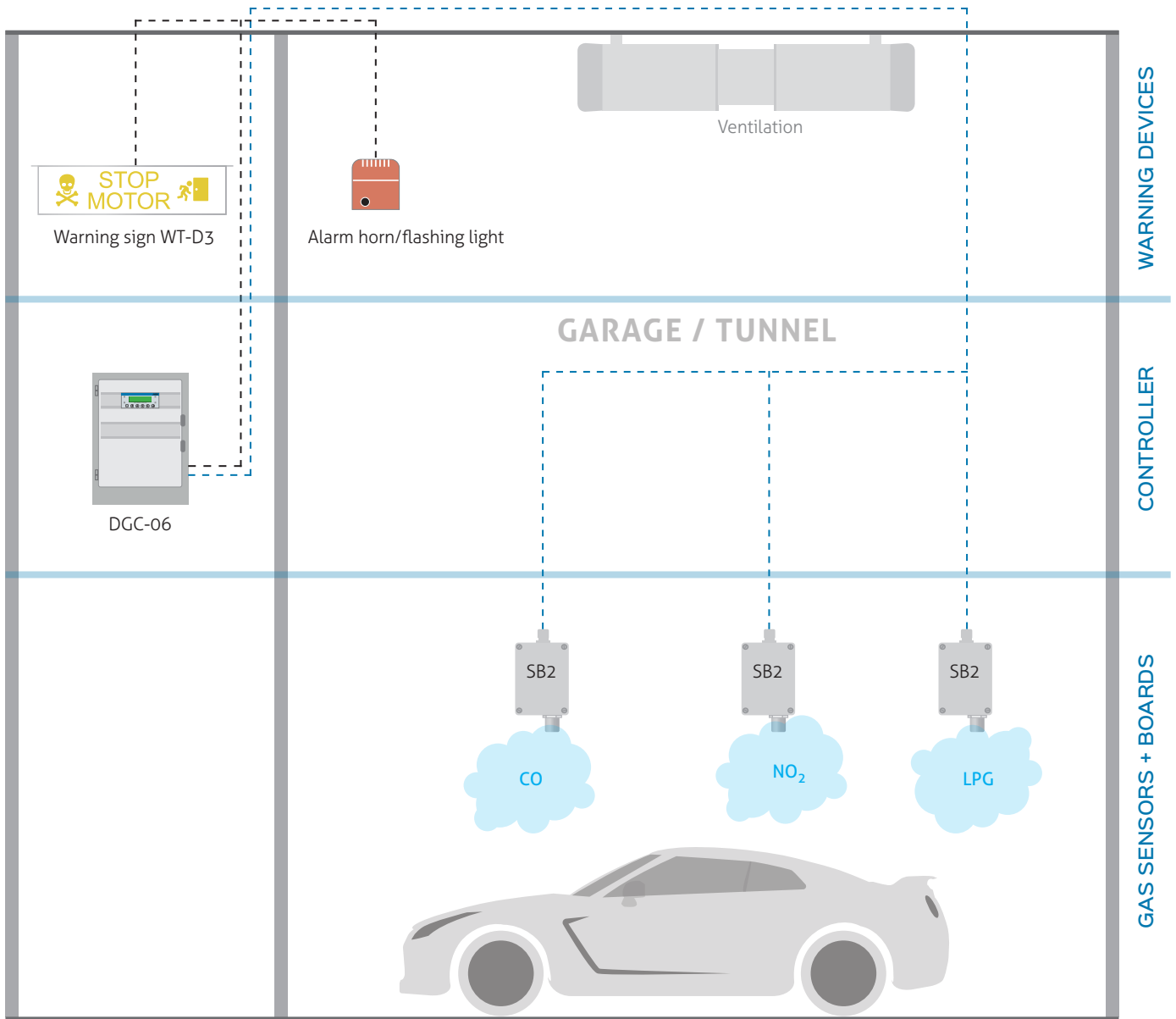
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### ! GAS HAZARDS

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

- Different controller models for the management of small garages up to the management of 128 gas sensors for large garages (type Digital-Gas-Controller DGC-06)
- Controller also suitable for control cabinet installation
- Modular design, therefore easily expandable
- Reduced costs due to easy maintenance, e.g. sensor head replacement (X-Change technology)
- Easy replacement of old system, easy communication with BMS, GLT
- Compliant with EN 50545-1 and EN 50271



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# Refrigeration Systems

## Protection against refrigerants

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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 require 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.

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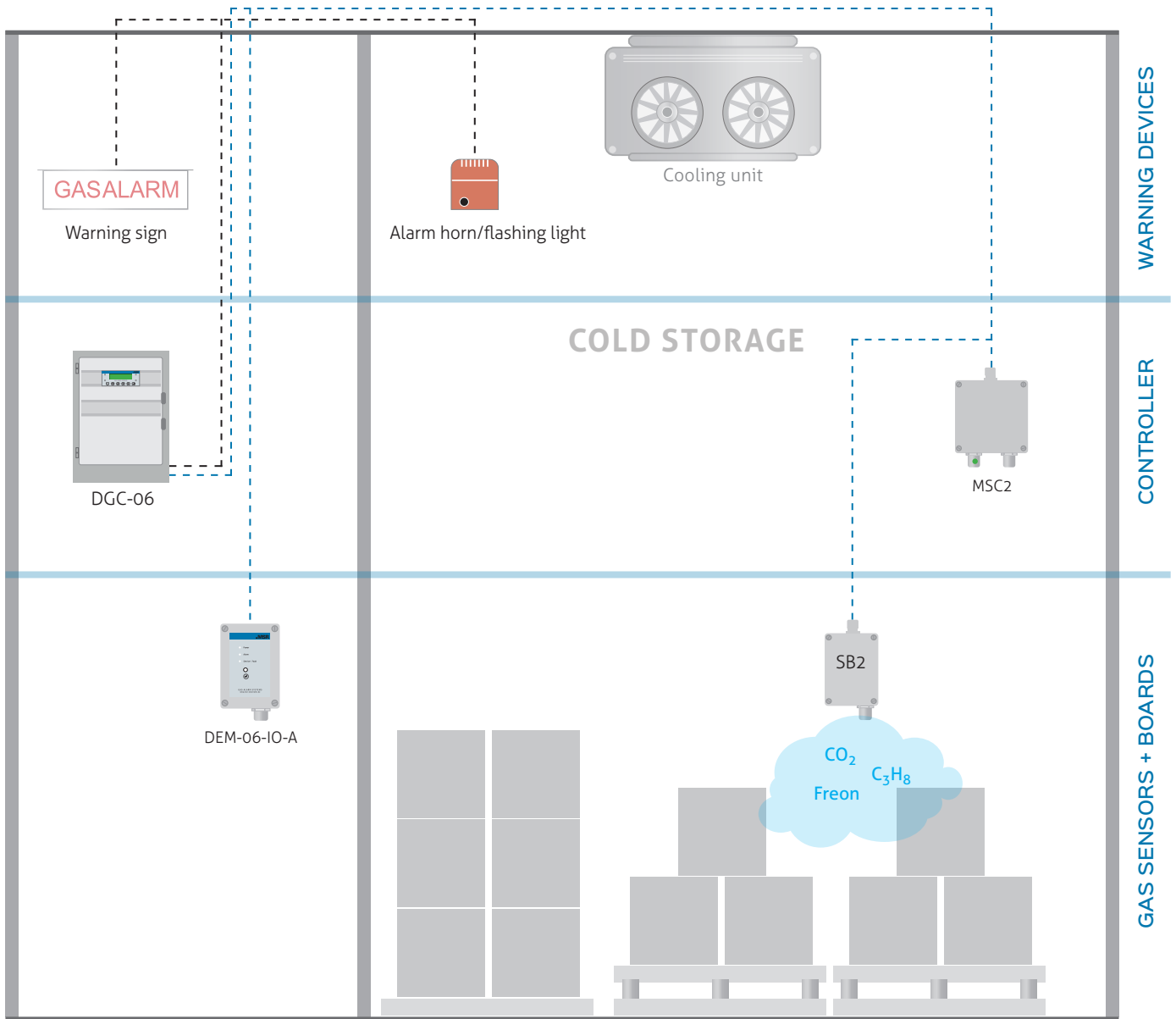
### ! GAS HAZARDS

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 CO<sub>2</sub> 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

- DGC-06 controller for management of up to 128 sensors for various refrigerants
- Compactcontroller for management of up to 10 sensors, completely operable via the display
- MSC2 controller for management of up to 3 sensors in combination with the GC-06 or as a stand-alone device, has 3 potential-free relays
- Easy and fast calibration of digital and analog sensors
- Compliant with EN 50545, EN 50271 and EN 378





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# Dispensing Systems

## Protection against CO<sub>2</sub> poisoning and O<sub>2</sub> deficiency

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Whether in restaurants, brewing and fermentation cellars, breweries, wineries, beverage bottling plants, or in CO<sub>2</sub> extinguishing systems in warehouses and production halls, wherever CO<sub>2</sub> 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 CO<sub>2</sub> 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.

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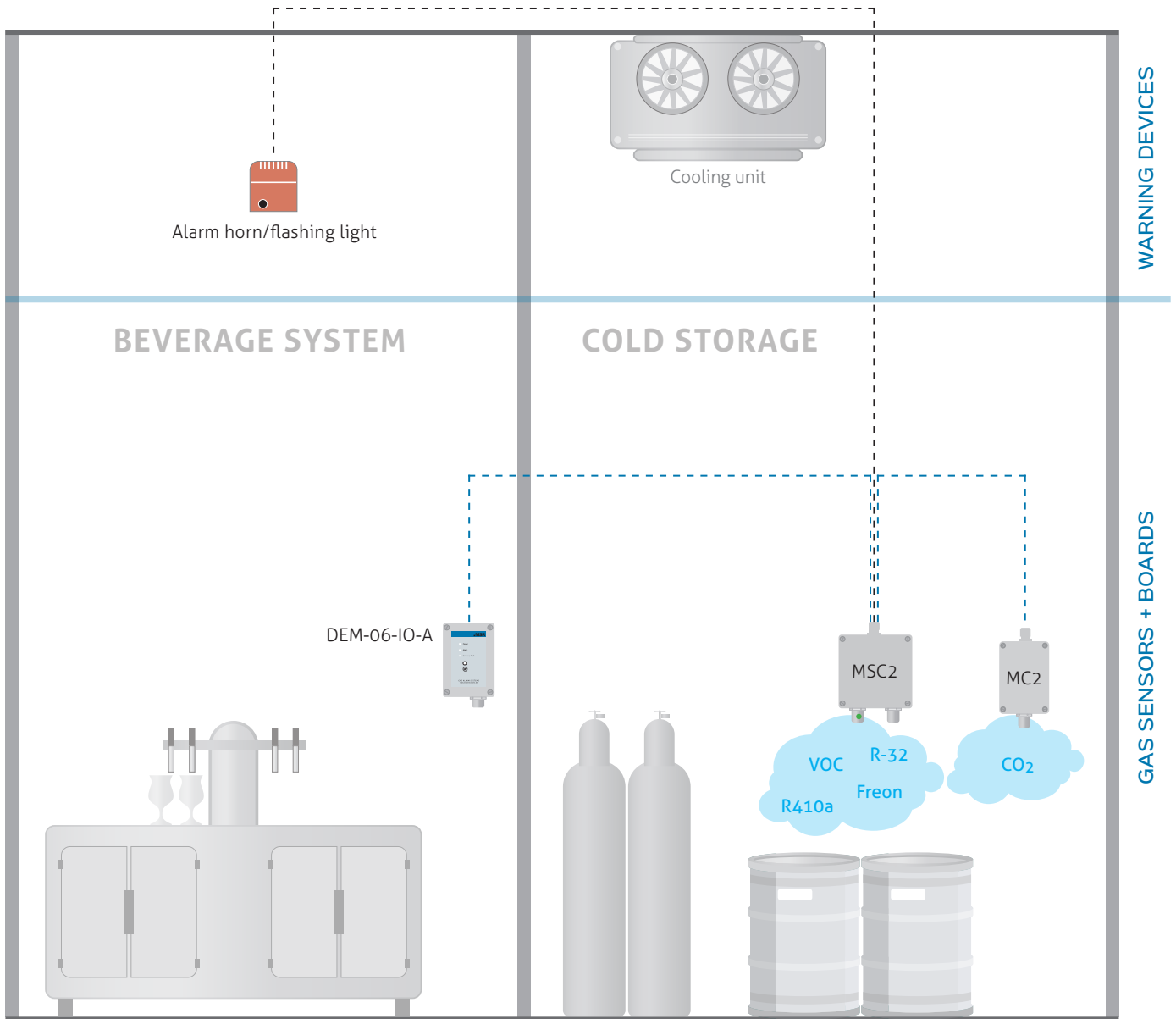
### **GAS HAZARDS**

The danger of dispensing systems is often underestimated because CO<sub>2</sub> 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 O<sub>2</sub> displacement monitoring and CO<sub>2</sub> concentration measurement is the safest way to operate the equipment without danger.



### **BENEFITS**

- Safety product: more than all national standards require
- LED display: warning against entering the room
- Integrated test and maintenance function
- Plug & Play
- Optionally also for multiple entrances: parallel warning for the respective door
- Compliant with EN 378



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# Laboratory and Medicine

## Detection of different gases

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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.

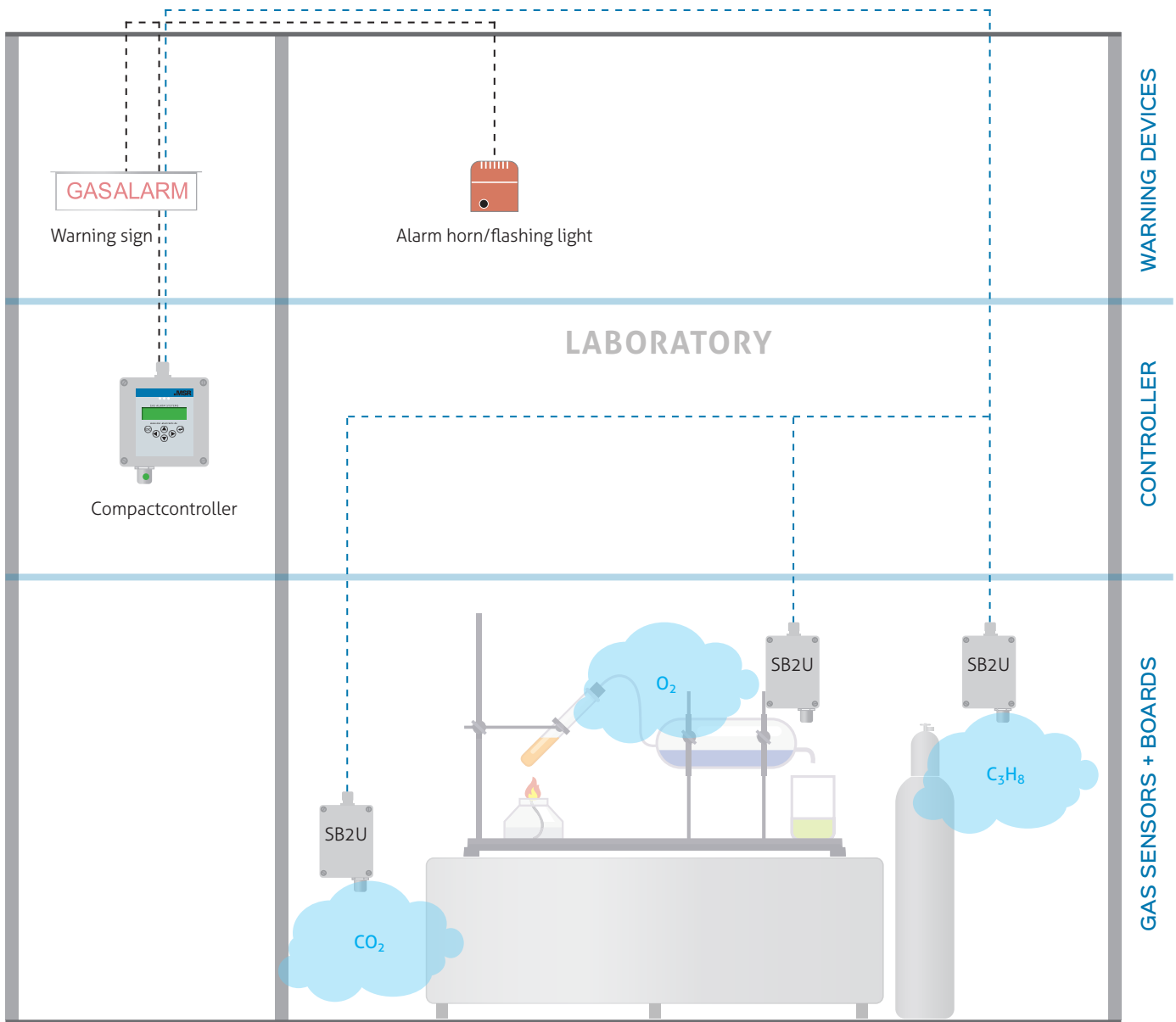
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### ! GAS HAZARDS

- 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

- Plug & Play
- Display for indication, configuration and calibration functions (no additional tool required)
- Automatic closing of magnetic gas valves in case of gas alarm
- Fieldbus connection for up to 10 gas sensors (SB2 units)
- Hardware and software according to SIL-compliant development process
- Modular technology (pluggable and exchangeable), reverse polarity and overload protected
- 3 relays, 2 transistor outputs, 2 digital inputs, different housing types with IP65



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**MSR PDF**  
Complete folder: Safe medical and laboratory areas



# Ripening Chambers

Safety against CO<sub>2</sub> / C<sub>2</sub>H<sub>4</sub> / C<sub>2</sub>H<sub>4</sub>O and O<sub>2</sub> deficiency

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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 system as a central

point of the entire process. 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 fieldbus and is used to warn of different gases and is therefore ideal for the application.

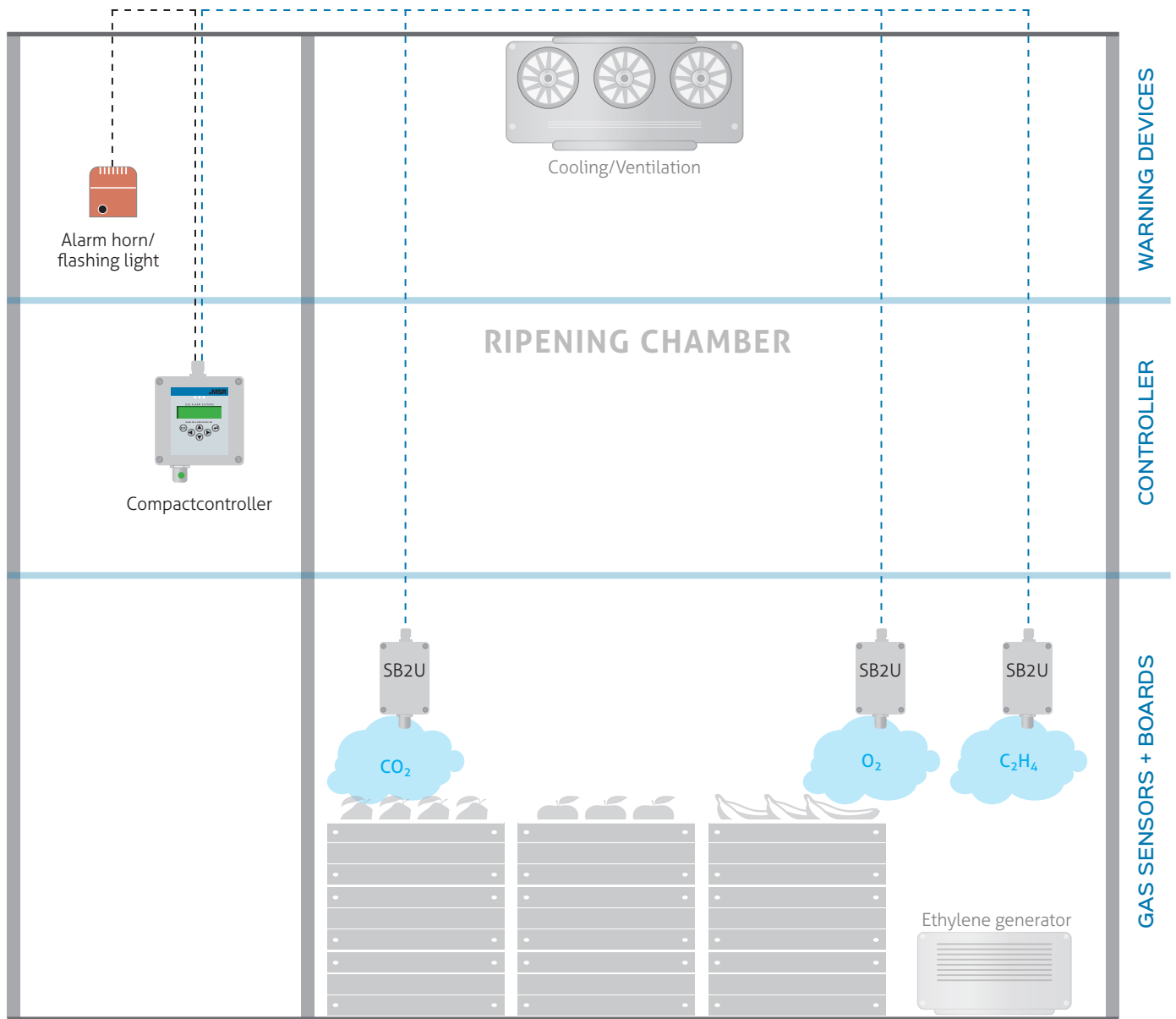
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## ! GAS HAZARDS

Fresh fruits and vegetables are alive and continue to breathe after 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 CO<sub>2</sub> and O<sub>2</sub> concentrations are set, which are permanently monitored by a gas detection system.

## + BENEFITS

- Display for indication, configuration and calibration functions (no additional tool required)
- Fieldbus connection for up to 10 gas sensors (SB2Units) with max. 900 m length
- Hardware and software according to SIL-compliant development process
- Modular technology (pluggable and exchangeable), reverse polarity and overload protected
- 3 relays, 2 transistor outputs, 2 digital inputs, different housing types with IP65



**MSRSHOP24**

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# Aquaculture Systems

## Safety from various gases and oxygen deficiency

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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.

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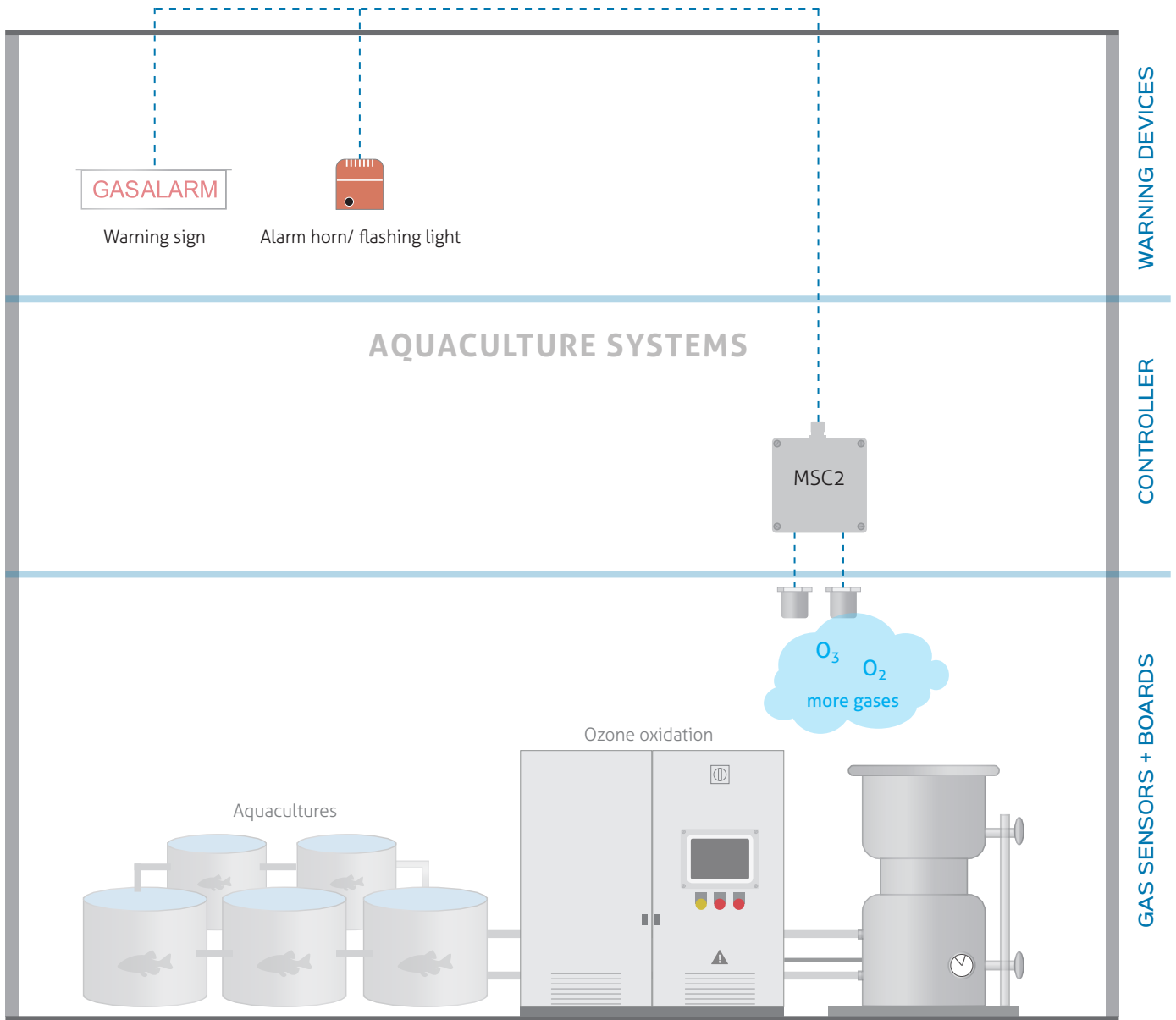
### ! GAS HAZARDS

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

- Continuous MAK monitoring of O<sub>3</sub>/O<sub>2</sub> and other gases
- Up to 3 measuring points per controller
- Modular design, expandable up to 128 measuring points with the DGC-06 controller
- Easy integration into existing safety systems
- 3 relays, Modbus and analog measured value forwarding
- Cost-reduced calibration by sensor head exchange on site (X-Change technology)





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# Beverage Industry

Safety from CO<sub>2</sub> / SO<sub>2</sub> / H<sub>2</sub>S / C<sub>2</sub>H<sub>6</sub>O / CH<sub>3</sub>OH and O<sub>2</sub> deficiency

---

In the beverage industry, the danger from 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, con-

trollers and warning devices to protect people 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.

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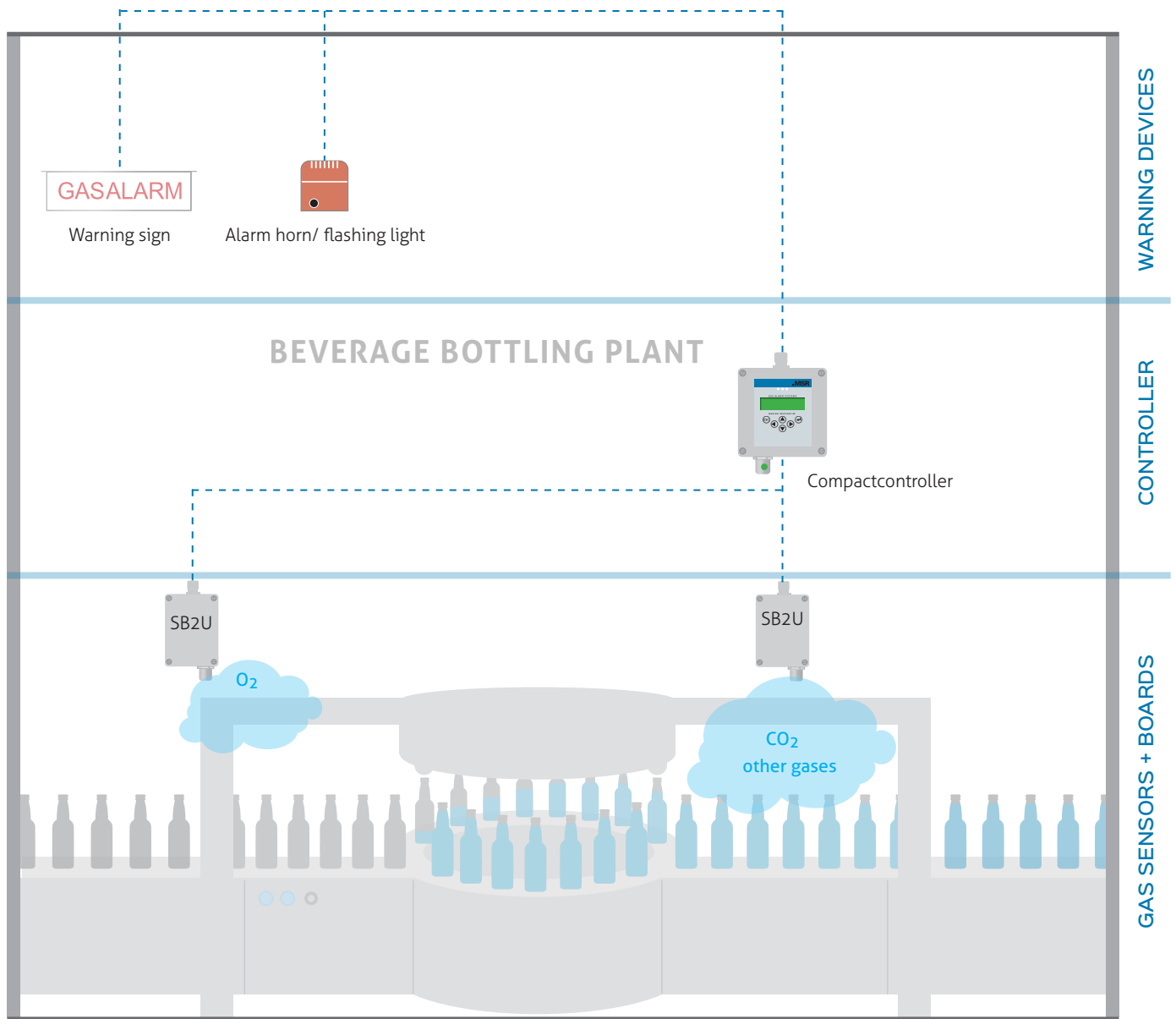
## GAS HAZARDS

- In breweries, wineries, beverage bottling, dispensing and CO<sub>2</sub> extinguishing systems for warehouses
- In carbonation of soft drinks and inerting of tanks or pipelines
- Use of SO<sub>2</sub> as a preservative and antioxidant
- Odor problems caused by H<sub>2</sub>S in the food industry
- Alcohol production: spirits production with toxic and flammable gases
- Monitoring of O<sub>2</sub> deficiency to protect people in enclosed spaces



## BENEFITS

- Plug & Play and with display for indication, configuration and calibration functions
- Hardware and software according to SIL-compliant development process
- 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.

# Vending Machines

## Safety in case of a refrigerant leakage

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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.

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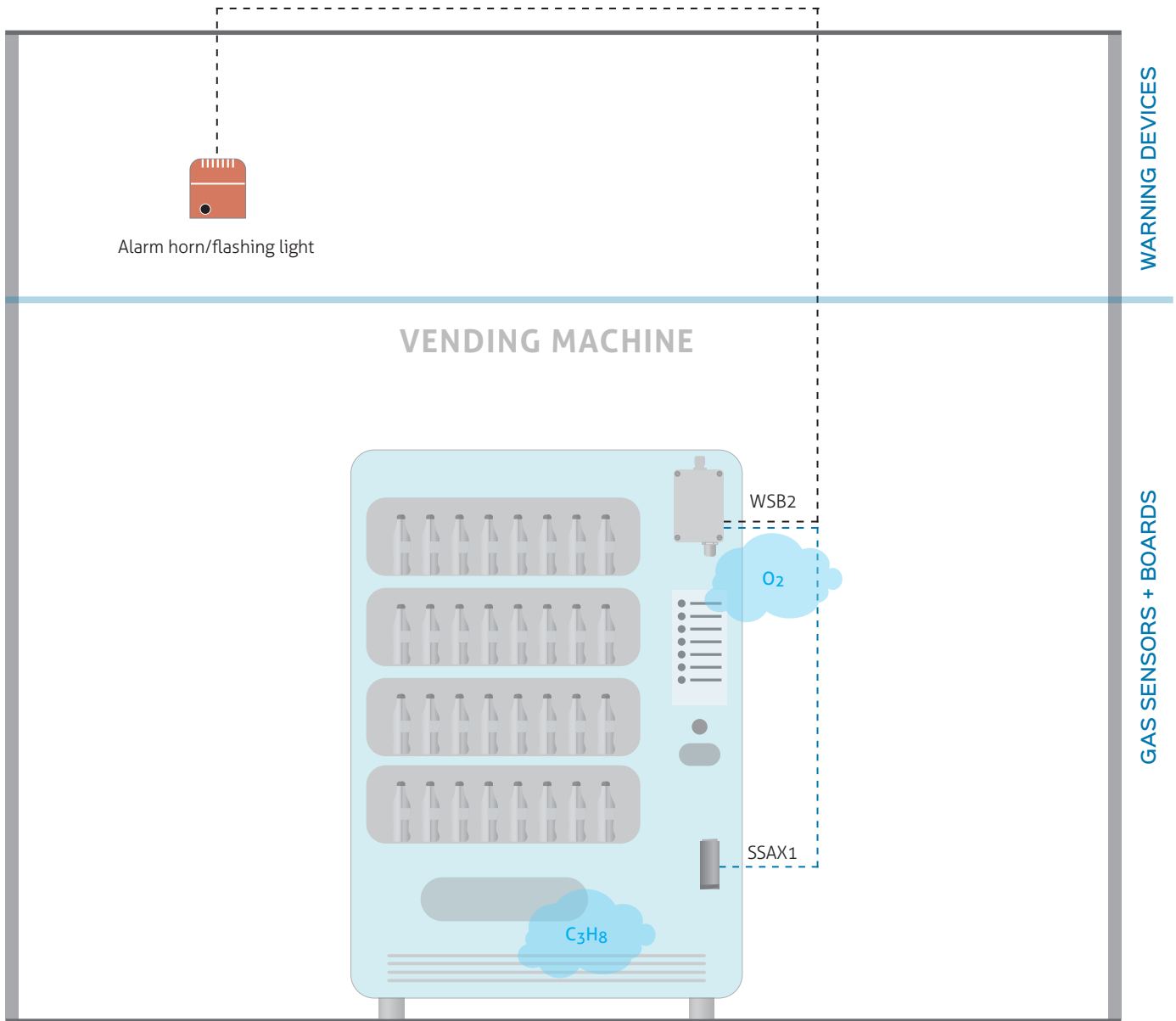
### ! GAS HAZARDS

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

- Conforms to EN 378, ATEX and IECEx certificates for electrical explosion protection
- SSAX1 can be used for Zone 1 and Zone 2
- Continuous monitoring, reverse polarity and overload protected
- Sensor with long lifetime (infrared: > 5 years)
- High accuracy, selectivity and reliability, low zero drift
- Cost-reduced calibration due to sensor head change on site (X-Change technology)





**MSRSHOP24**

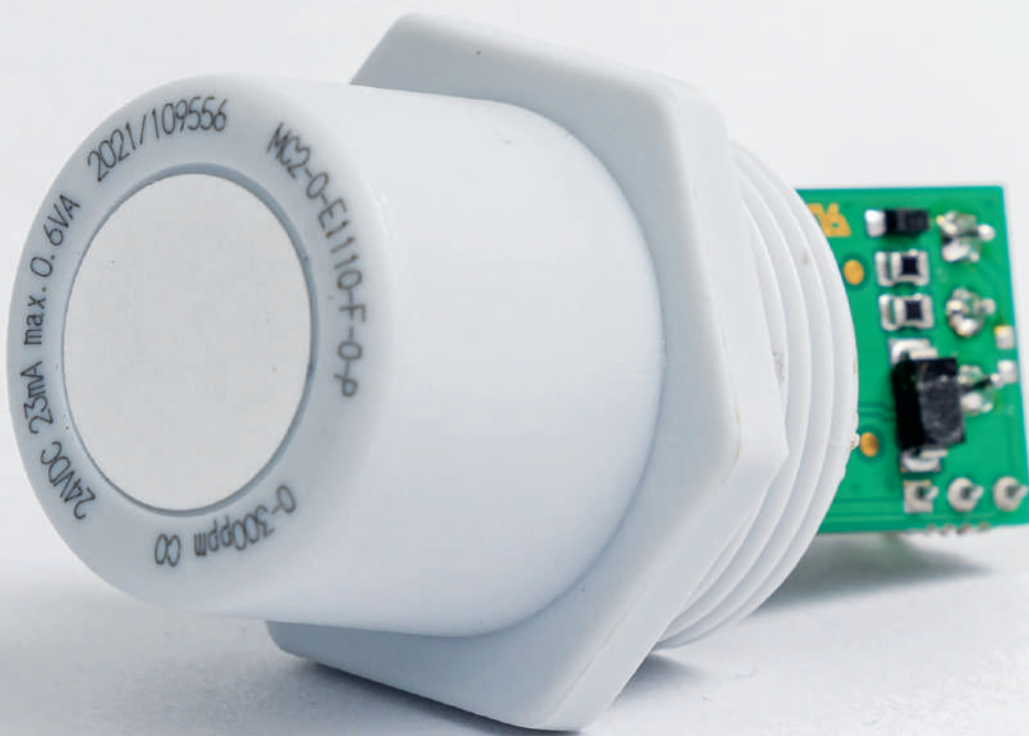
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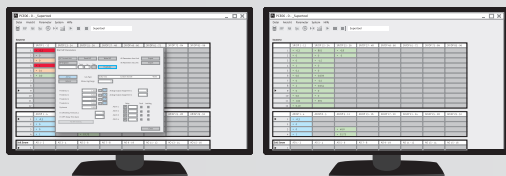
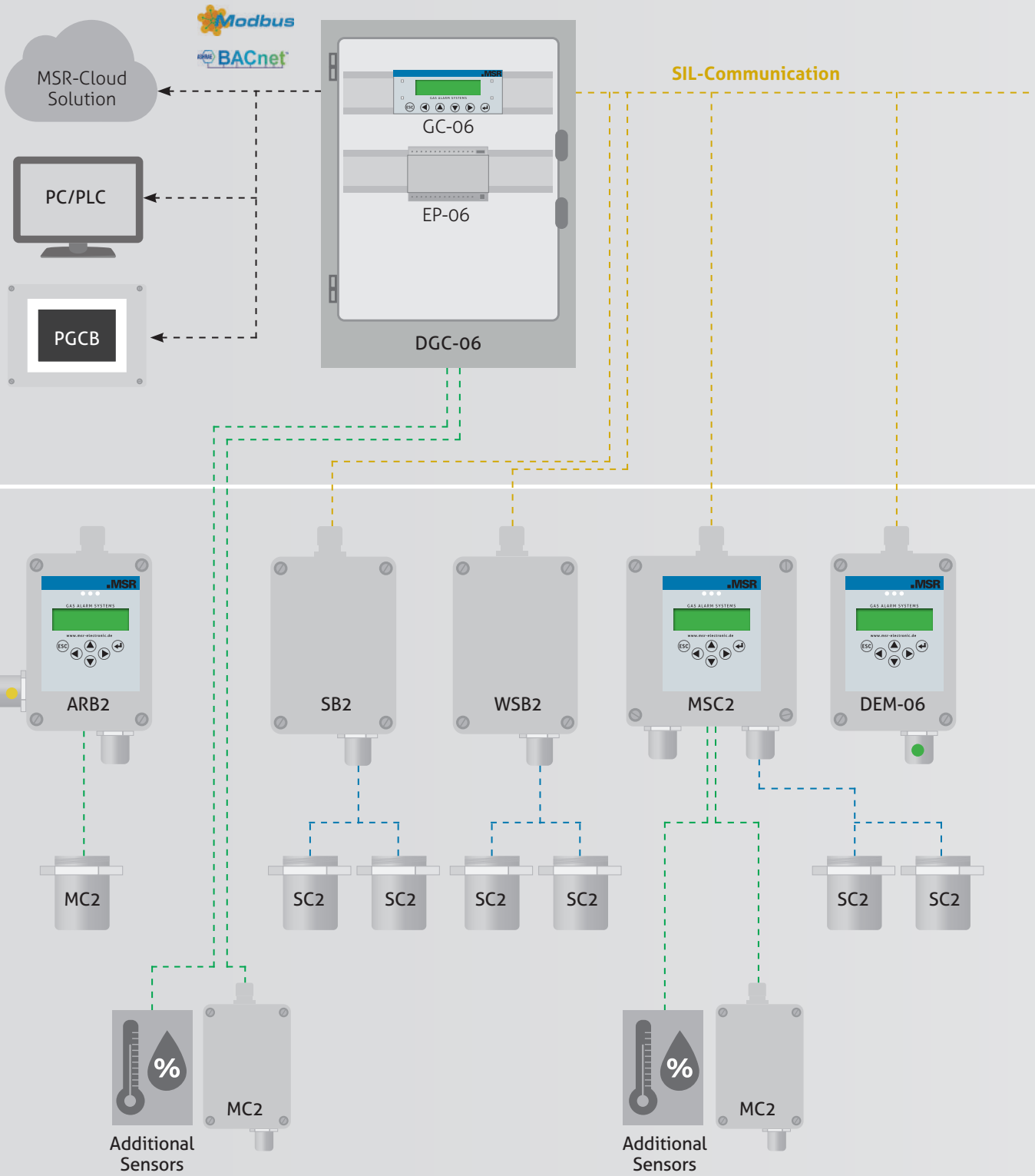
# PolyGard®

Gas detection systems for buildings



- Sensors and Boards
- Controllers and Modules
- Warning Devices and Accessories







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



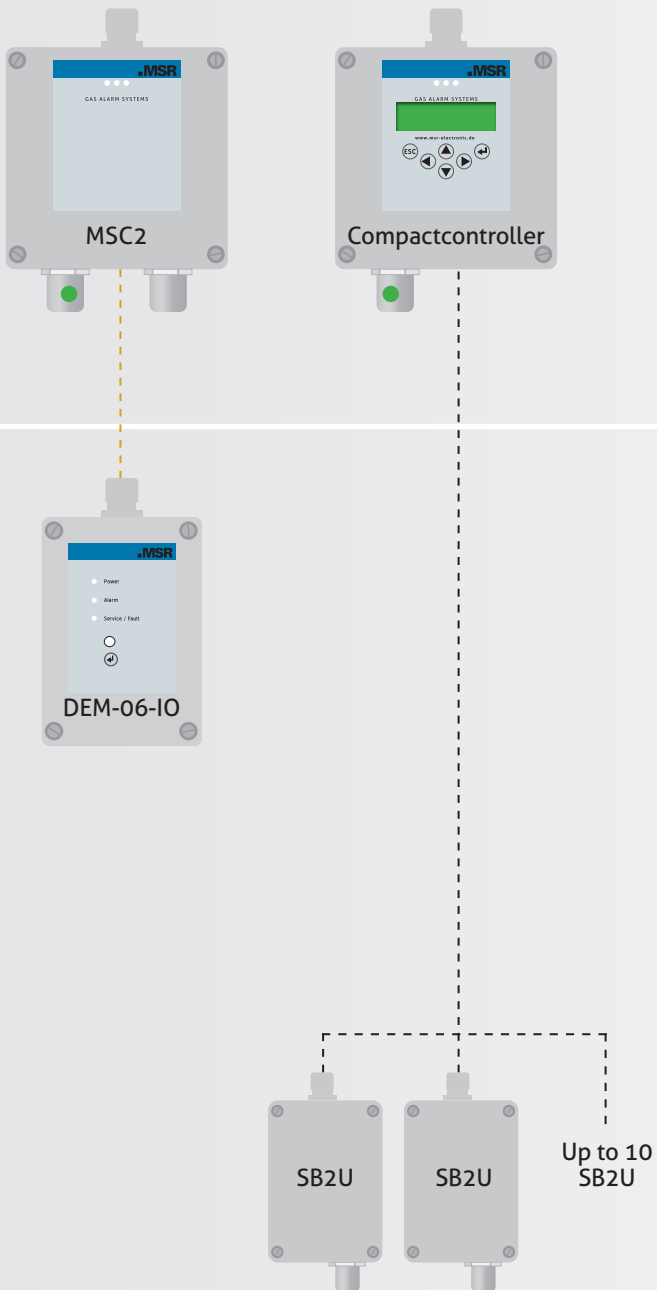
**Interactive** product overview  
Get to know our products here.

## CONTROLLERS AND MODULES

- |        |                         |
|--------|-------------------------|
| MSC2   | Multi-Sensor-Controller |
| DGC-06 | Digital-Gas-Controller  |
| PGCB   | PolyGard®2 Control Box  |
| DEM-06 | Door-Entrance-Module    |
| GC-06  | Module                  |
| EP-06  | Module                  |

## GAS SENSORS AND BOARDS

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



## WARNING DEVICES AND ACCESSORIES

- |       |                                   |
|-------|-----------------------------------|
| STL06 | Service-Tool                      |
| WH    | Alarm horn                        |
| WH/BL | Alarm horn/flashlight combination |
| WT    | Warning sign                      |

# Sensor Heads SC2 and MC2

With X-Change technology

---

MSR-Electronic develops individual gas sensors, e.g. for CO<sub>2</sub>, CO, CH<sub>4</sub>, CH<sub>2</sub>O, NH<sub>3</sub>, O<sub>2</sub> or H<sub>2</sub> and systems in which toxic or combustible gas concentrations can form. These 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 inclu-

de a  $\mu$ 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.

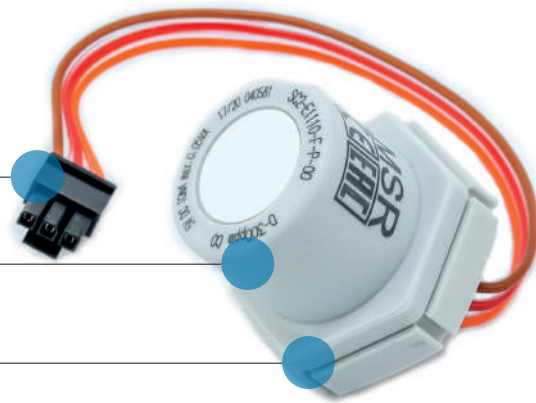
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## Digital Exchange Sensor Head SC2

Connection L-Bus  
max. 5 m away

Laser engraving type designation

Sensor head housing IP65



## Analog Exchange Sensor Head MC2

Digital calibration

Power supply and  
analog output

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



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# Sensor Heads SC2 and MC2

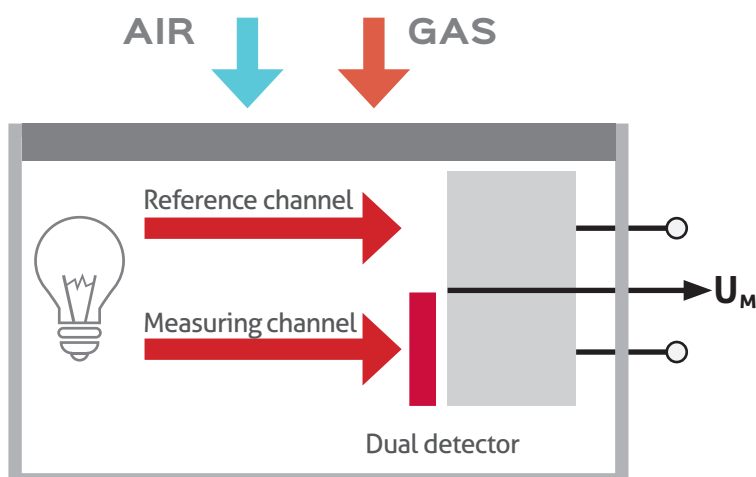
## Infrared exchange sensor for selective gas measurement

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  $\mu$ 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

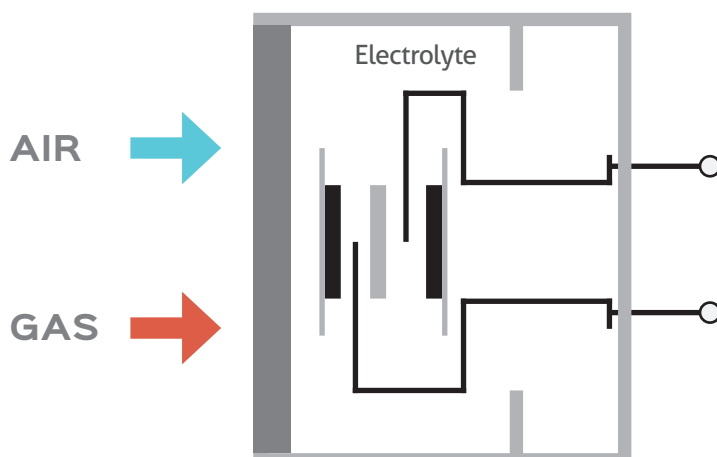
With electrochemical sensor element  
for toxic gases and coolants

These sensors are used to measure mainly toxic gases such as CO, NO, NO<sub>2</sub> 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

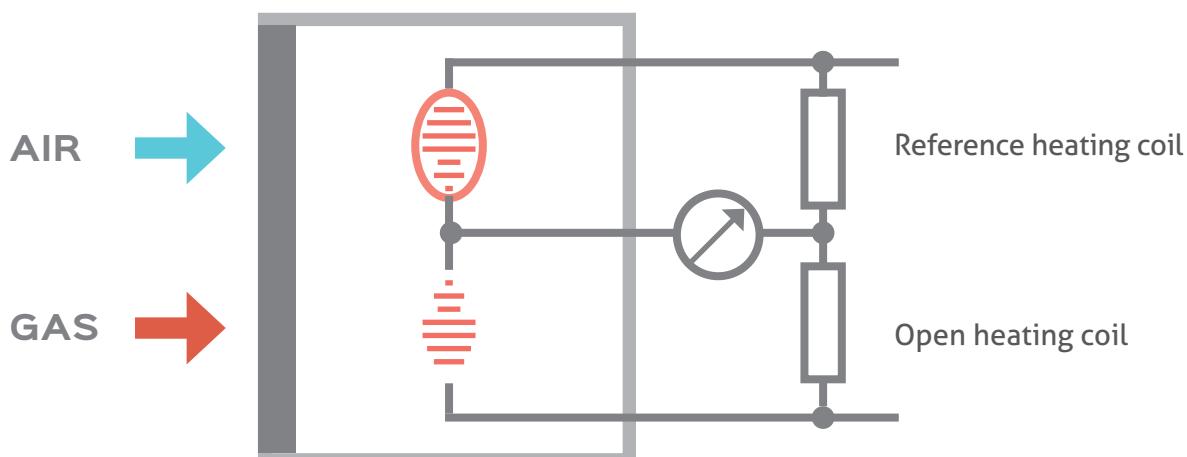
With pellistor sensor element  
for combustible gases and vapors

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 chan-

ges, 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

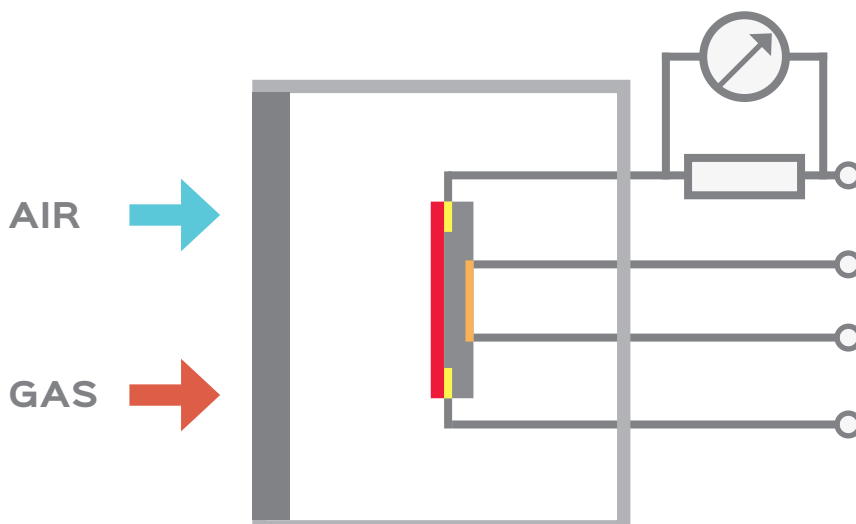
With semiconductor sensor element  
for combustible gases and refrigerant gases

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



# X-Change Technology

## 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-

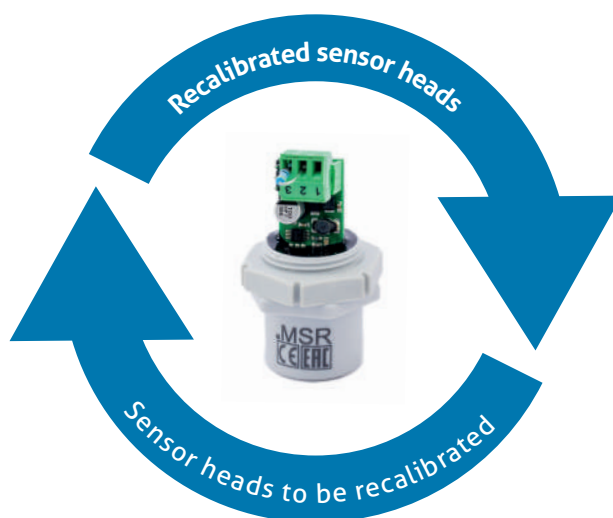
plete sensor with you and replace it afterwards. With the new X-Change technology this effort can be saved. The exchangeable sensor head can be replaced on site at any time. The transmitter therefore remains untouched. This saves time and costs.

### + TIME-SAVING AND INDEPENDENT RECALIBRATION

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

**MSR**  
ELECTRONIC

and Partner



Customer



**MSR VIDEO**

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

# #recalibrate



Open the housing with a customary screw driver.

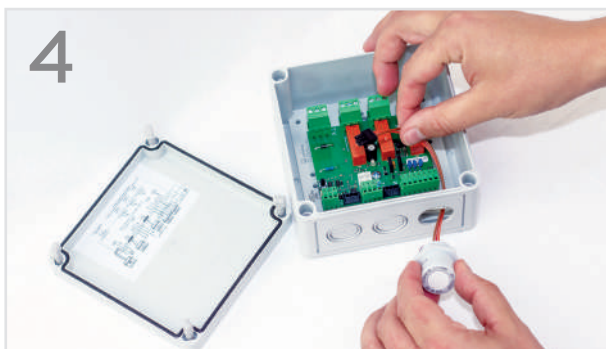


Disconnect the sensor cable and unscrew the sensor head to be calibrated.

**The yellow LED lights up.**



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



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



# Sensor-Board SB2

For connecting up to three different sensor heads

---

## Sensor board with RS-485 interface.

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.

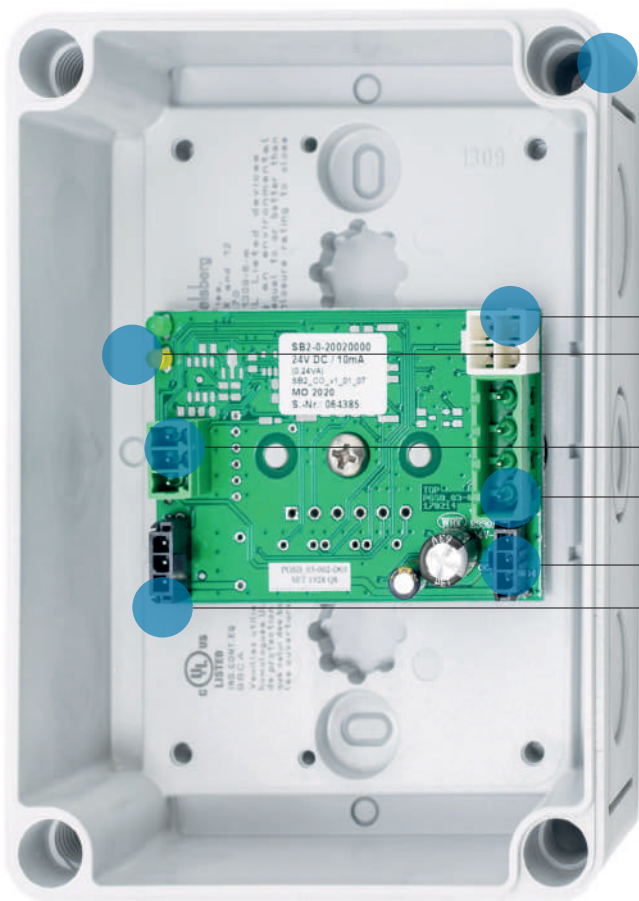
Communication with the DGC-06 controller takes place via RS-485 fieldbus interface with DGC-06 protocol. Additional protocols are available for direct connection to higher-level BMS.

---

## + BENEFITS

- Digital processing of measured values
- Internal function control with integrated hardware watchdog
- Measured values in sensor head SC2, therefore easy change: uncalibrated <-> calibrated
- Up to 3 different sensor heads
- Sensor head can be mounted via remote board (RB2)
- Software according to SIL2 compliant development process
- Modular technology





Housing IP65

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

Connection for RB2 for additional  
sensor SC2

DGC-06 field bus power supply

Input sensor head 1  
Input sensor head 2



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# Warning+Sensor-Board

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

## Easy sensor exchange by plug connection on the local bus.

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

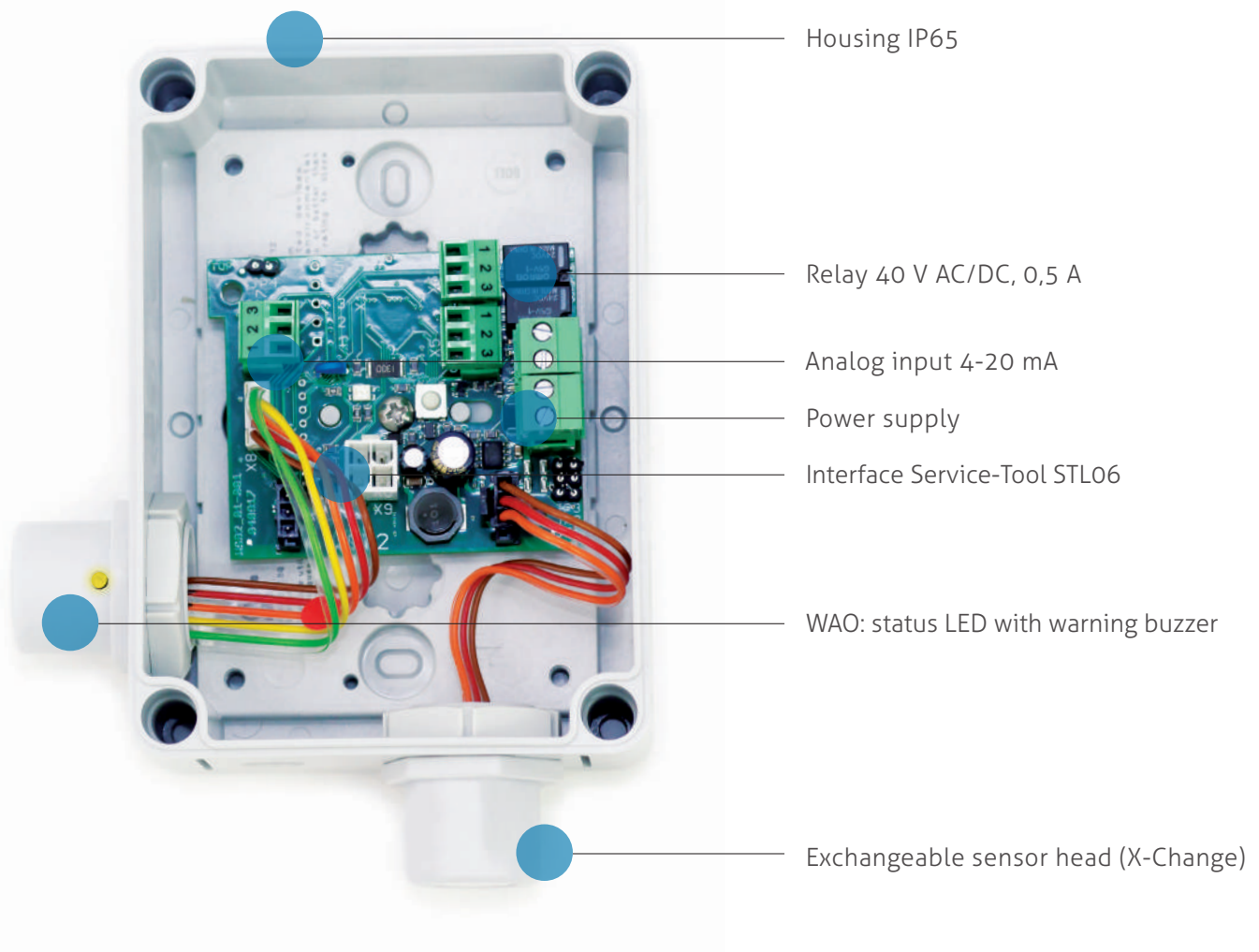
Communication with the DGC-06 controller takes place via the RS-485 fieldbus interface with

DGC-06 protocol. The SC is connected to the local bus via a plug connection. This allows a simple SC exchange instead of an on-site calibration. The internal X-Change routine recognizes the exchanged SC during the change process and starts the measuring operation automatically.

## + BENEFITS

- Digital processing of measured values
- Internal function monitoring with integrated hardware watchdog
- Up to 3 different sensor heads (2 identical SC2 possible)
- Analog input, 4-20 mA for an analog sensor
- Modular technology, IP65 design
- Easy maintenance and calibration by replacing the sensor head or by convenient on-site calibration
- Serial RS-485 interface with protocol for DGC-06 (optional Modbus)
- 4-20 mA analog output
- 1 alarm relay with changeover contact, potential-free max. 30 V AC/DC, 0,5 A
- 1 fault signal relay, additionally configurable as alarm relay, with changeover contact, potential-free max. 40 V AC/DC, 0,5 A
- Display (optional)





Easy sensor exchange by plug connection on the local bus.



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**MSR VIDEO**  
How-to: Commissioning the WSB2.

# Multi-Sensor-Board MSB2

Flexible for several gases

## Sensor-Board for integration of the sensor head SC2 with relay.

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

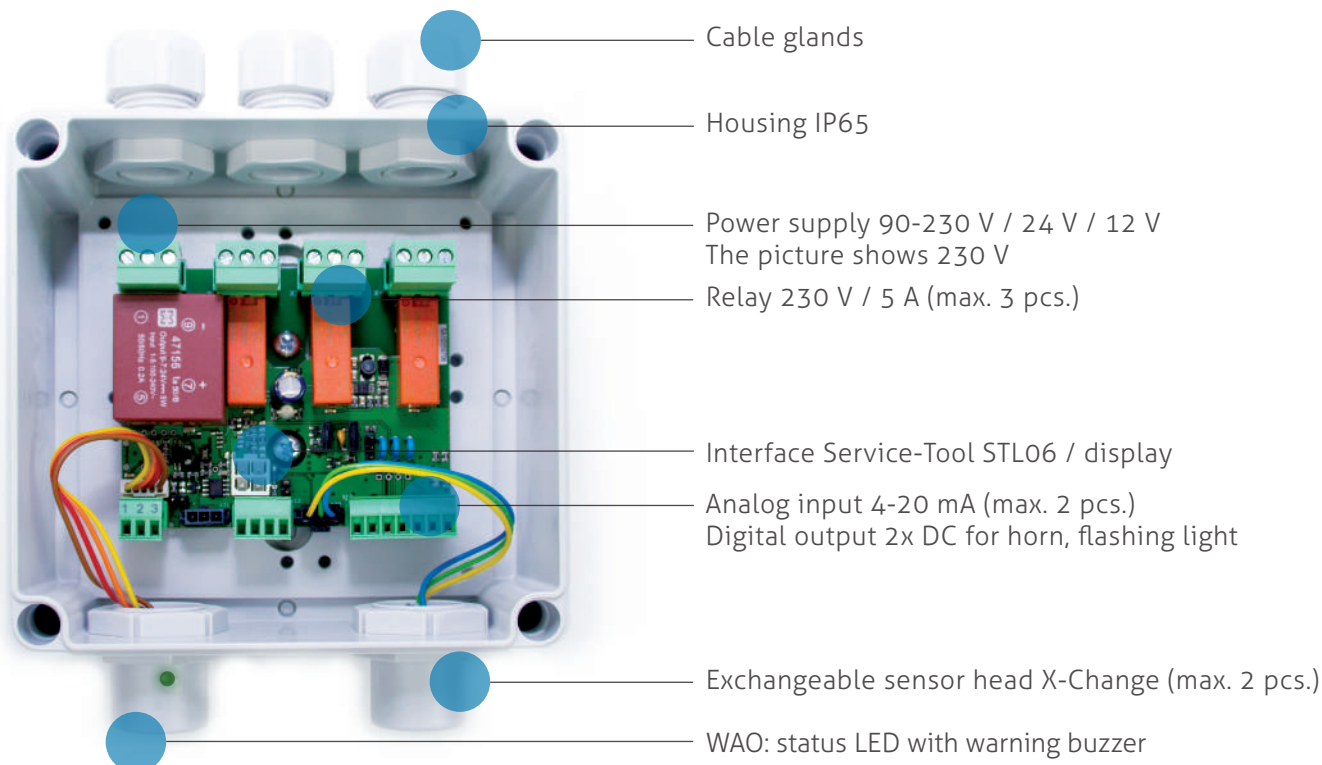
DGC-06. The relay distribution on site saves the wiring of warning devices or fans directly to the main controller. This allows a wide range of applications even with existing wiring.

## + BENEFITS

- Digital processing of measured values
- Up to 3 different sensor heads
- Software according to SIL2 compliant development process
- Modular technology
- Serial RS-485 interface with protocol for DG-C06 (optional Modbus)
- 3 relays (230 V / 5 A)
- Optionally also available with display (built-in or remote)
- Direct control of the warning devices by DGC-06 possible, thus considerable savings in wiring
- Also available as version with extended safety for wire break and function monitoring







Cable glands

Housing IP65

Power supply 90-230 V / 24 V / 12 V  
The picture shows 230 V

Relay 230 V / 5 A (max. 3 pcs.)

Interface Service-Tool STL06 / display

Analog input 4-20 mA (max. 2 pcs.)  
Digital output 2x DC for horn, flashing light

Exchangeable sensor head X-Change (max. 2 pcs.)

WAO: status LED with warning buzzer



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# Analog-Relay-Board ARB2

## Monitoring and warning of gases

### Gas measurement, warning and control board for continuous monitoring of the ambient air.

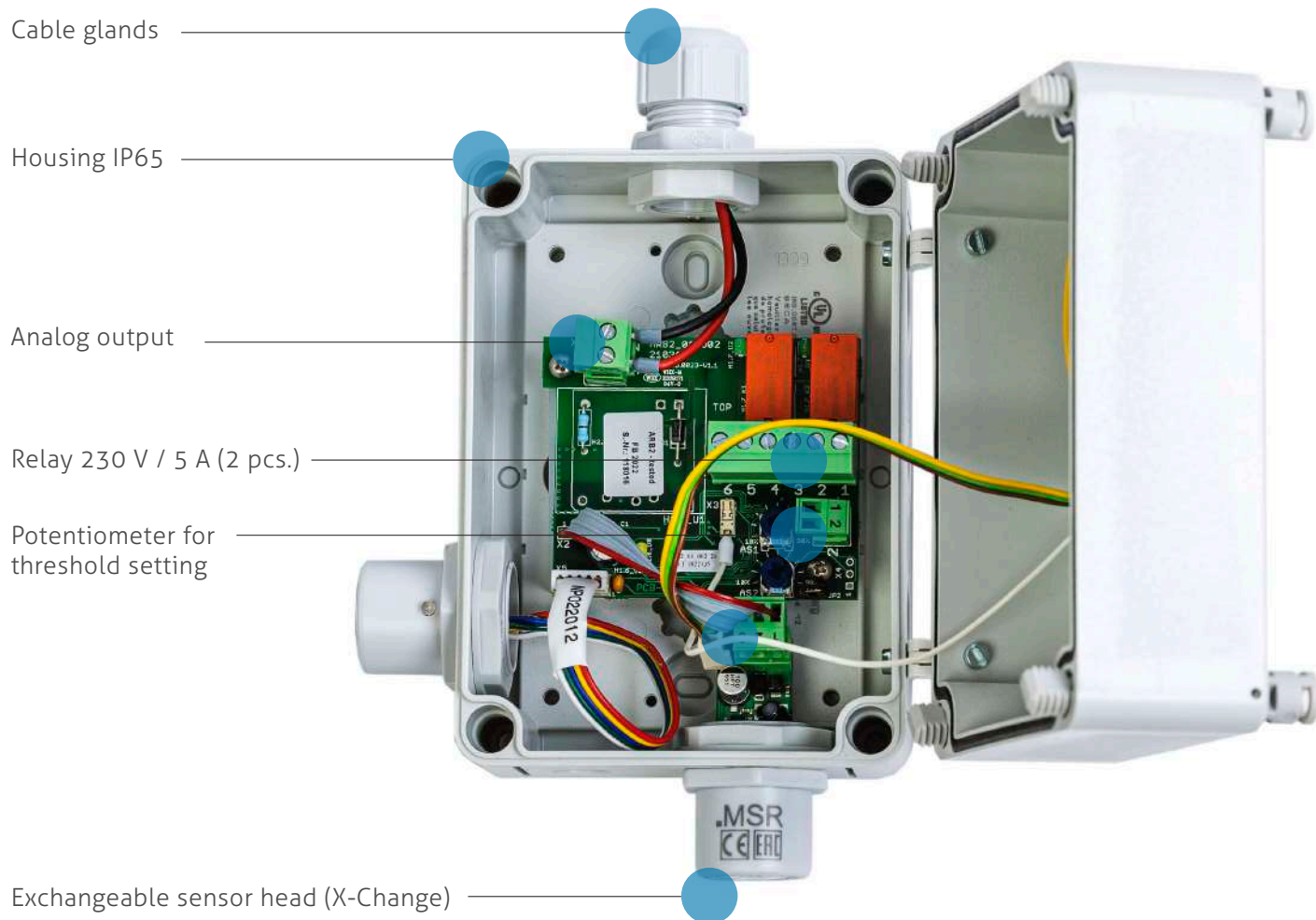
The ARB2 is designed to connect one analog 4-20 mA sensor, e.g. MC2 sensor. The board monitors the measured value and activates the alarm relays when the set alarm thresholds for pre and main alarm are exceeded. In addition,

the measured value is provided as 4-20 mA at the analog output. Options such as display and warning unit (WAO) ensure adaptation to the wide range of applications in the gas measurement technology.

## + BENEFITS

- Easy maintenance and calibration by exchanging the MC2 sensors or comfortable on-site calibration
- Sensor can be placed up to 500 m
- Reverse polarity protected, overload and short circuit proof
- 1 analog input 4-20 mA, e.g. MC2 series and 1 analog output 4-20 mA / 2-10 V
- 2 relays with changeover contact, potential-free, max. 250 V AC, 5 A
- Various housing types with protection class IP65
- Display / WAO: status LED with warning buzzer (optional)
- Operating voltage 24 V AC/DC
- 100-230 V AC (optional)
- 12 V DC (optional)





**MSR SHOP24**

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# Multi-Sensor-Controller MSC2

Different sensors for different gases

## Modern Multi-Sensor-Controller MSC2 for toxic and combustible gases.

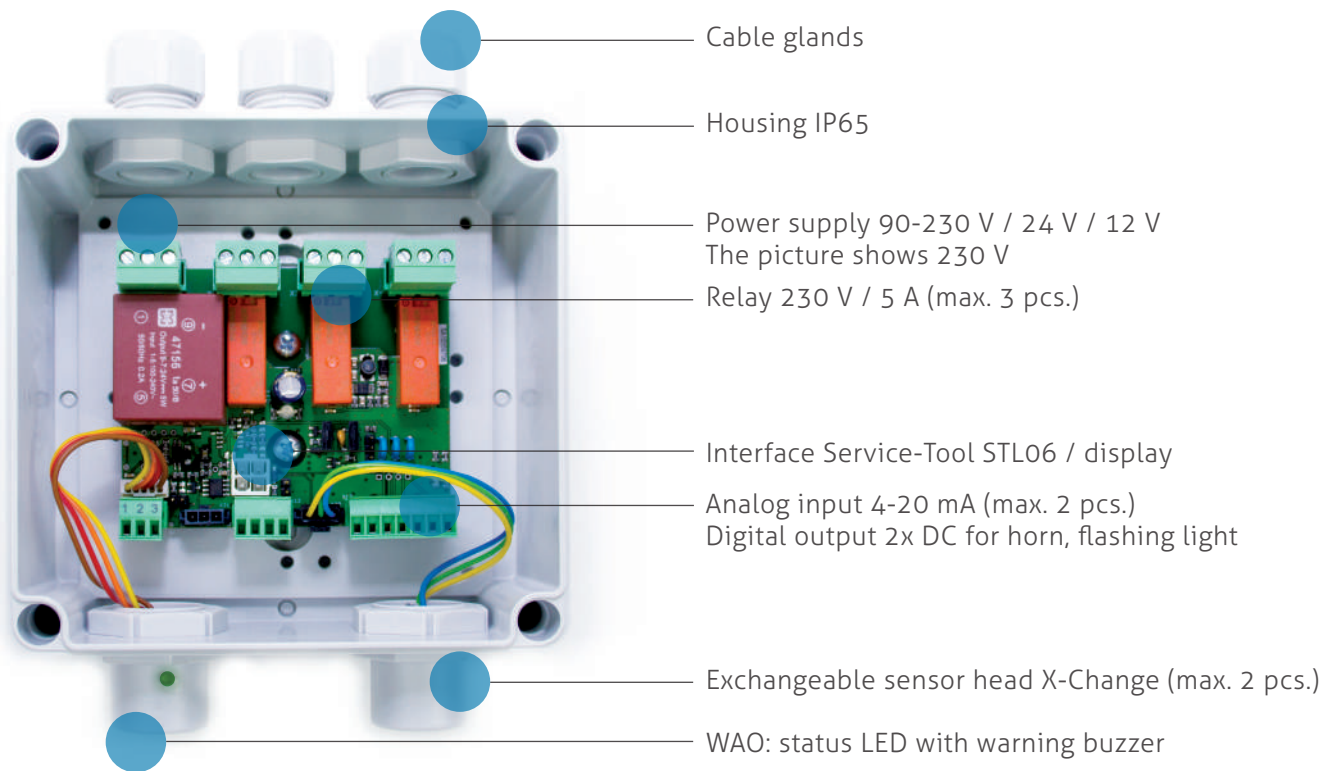
The MSC2 Multi-Sensor-Controller monitors the measured values and activates the alarm relays when the pre and main alarm thresholds are exceeded. Various output and input options allow easy integration into existing systems. The sensors are connected to the MSC2 directly on the

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

- Hardware and software according to SIL-compliant development process
- Easy maintenance by replacing the sensor head or convenient on-site calibration
- Modular technology, reverse polarity, overload and short circuit protected
- Local bus connection for 2 sensor heads SC2 + 2 analog inputs 4-20 mA (max. 3 sensors)
- 3 relays with changeover contact, potential-free max. 240 V AC, 5 A
- 2 transistor outputs, 24 V DC, 0.1 A (positive switching), 2 digital inputs
- Serial RS-485 interface with protocol for DGC-06 or Modbus protocol
- Different housing types with IP65
- Operating voltage 230 V AC, with wide range input 100-240 V AC (optional)
- WAO: status LED with warning buzzer / acknowledgement button (optional)
- Display / UPS (optional)





**MSR SHOP24**  
Configure your products here.



**MSR VIDEO**  
How-to: Commissioning the MSC2.

# Compactcontroller

Configuration possible without additional accessories

---

**The Compactcontroller is designed to connect up to 10 SB2Units via the local bus.**

The controller monitors the measured values and activates the alarm relays when the pre and main alarm thresholds 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. The SIL-compliant self-monitoring in the Compactcontroller as well as in the connected SB2Unit activates the fault message in case of an internal fault in the same

way as a fault in the local bus communication (SB2Unit). Further options such as WAO (status LED and 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 configured and parameterized completely without an additional hand tool.

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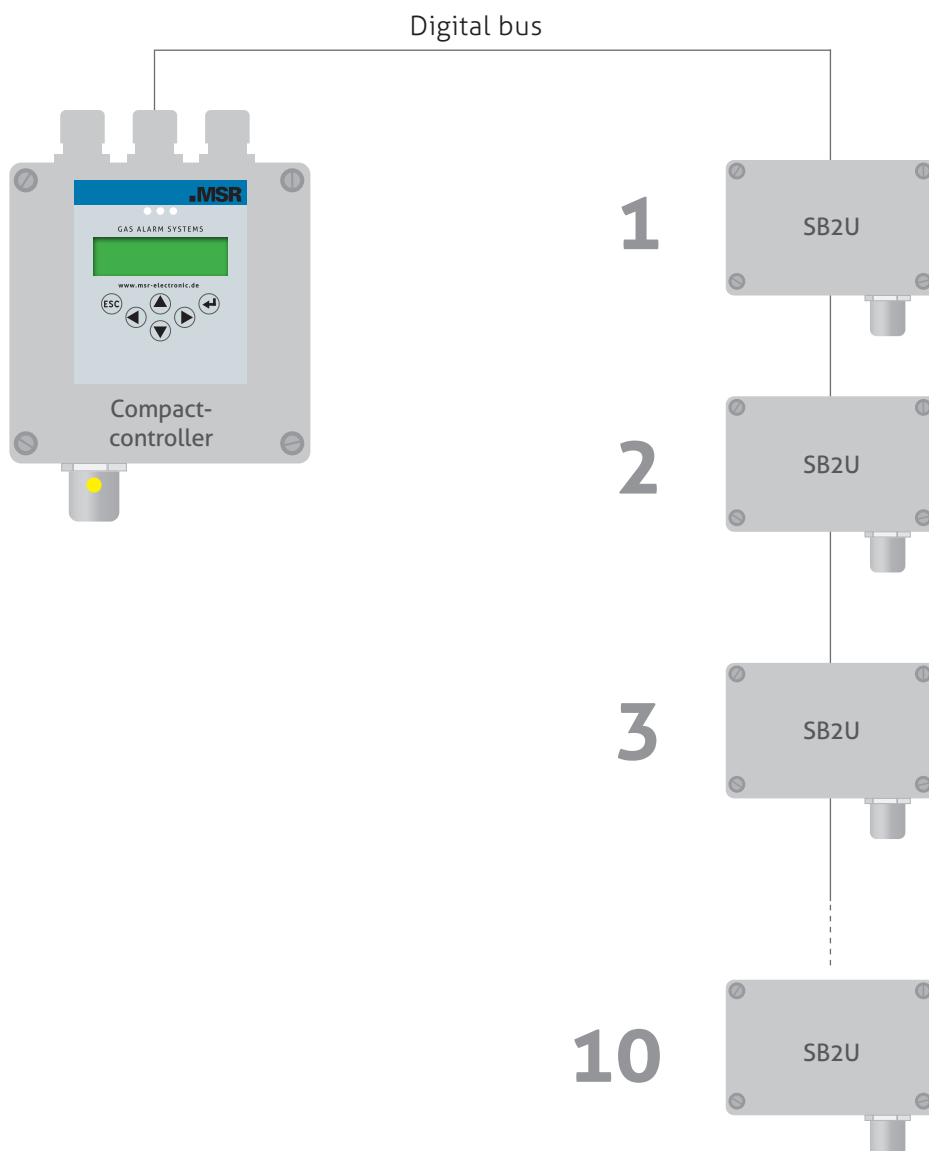
## + BENEFITS

- Display for indication, configuration and calibration functions (no other tool necessary)
- Fieldbus connection for up to 10 gas sensors (SB2Units) with max. 900 m length
- Hardware and software according to SIL-compliant development process
- Modular technology, reverse polarity and overload protected
- Internal function monitoring with integrated hardware watchdog
- 3 relays, 2 transistor outputs, 2 digital inputs
- Different housing types with IP65
- WAO: status LED with warning buzzer (optional)
- Operating voltage 230 V AC, with wide range input 100-240 V AC (optional)





## Compact gas detection system for up to 10 sensors



**MSRSHOP24**

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# Add-on: Gas Selector for MSC2

The gas selector for various gas combinations.

---

With the gas selector you have a simple and quick selection of the gases to be individually detected. No further tool is necessary. This makes quick configuration and adjustment easy with the gas selector. Incorrectly connected or reversed SC2 sensor heads are immediately detected as an error.

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

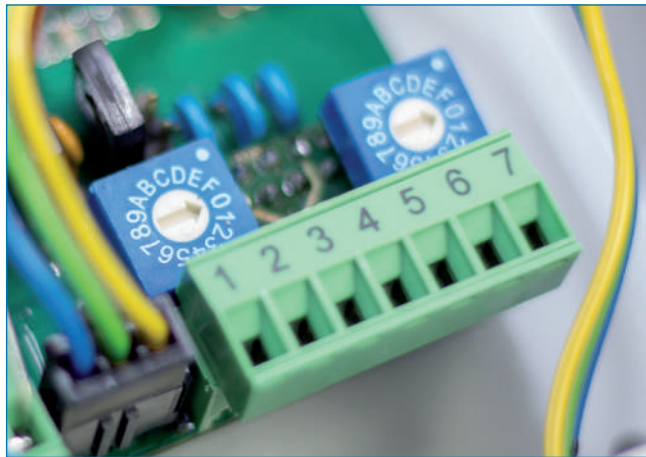
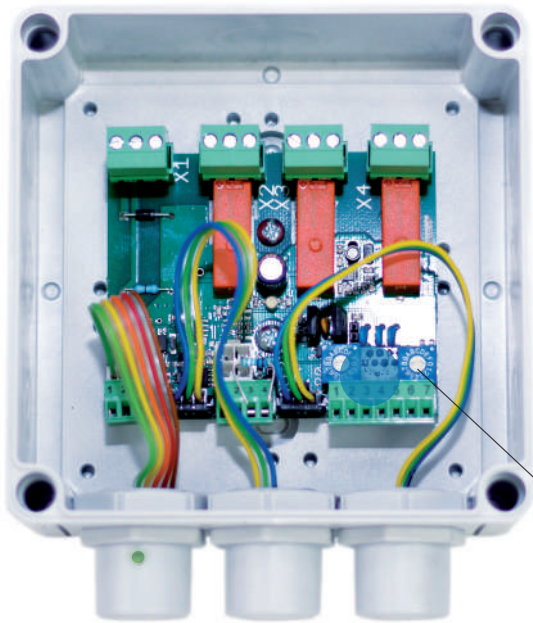
groups or CO<sub>2</sub> can each be used in parallel on the device. The advantage is fast operational readiness of the devices including adaptation to different gas types.

The gas selector can be ordered from a certain quantity. For more information, please contact us at [info@msr-electronic.de](mailto:info@msr-electronic.de)

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## + BENEFITS

- Basis 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:  
Position 1: CO<sub>2</sub> (R744)  
Position 2: R134a



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# Digital-Gas-Controller

## The gas monitoring center DGC-06

---

### **Measuring, warning and controller system for toxic and combustible gases in garages.**

The Digital-Gas-Controller DGC-06 has been developed for large systems or even 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 mo-

nitor 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.

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## **+ BENEFITS**

- 128 sensors
- Relay extendable with EP modules
- Display with LED
- Service-Tool for configuration
- Direct connection to GLT, GC-06 integrated
- Units are adjustable
- UPS / data logger (optional)
- Can be integrated into switch cabinet
- Safety product, scalable
- Expandable for up to 7 EP-06 modules



**MSR SHOP24**  
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# Digital-Gas-Controller

## DGC-06-USV

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The DGC-06-USV uninterruptible power supply is used to ensure the power supply of the DGC-06 gas controller in case of disturbances in the power supply system, 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 warning of toxic and explosive gases and vapors as well as freon refrigerants in a wide range of gas detection technology. The large number of freely configurable parameters and setpoints 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

## Measuring, warning and controlling system

---

### **Controller system for toxic, combustible gases and vapors.**

The modules are designed according to EN 50545 and can be assembled for any situation by means of 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

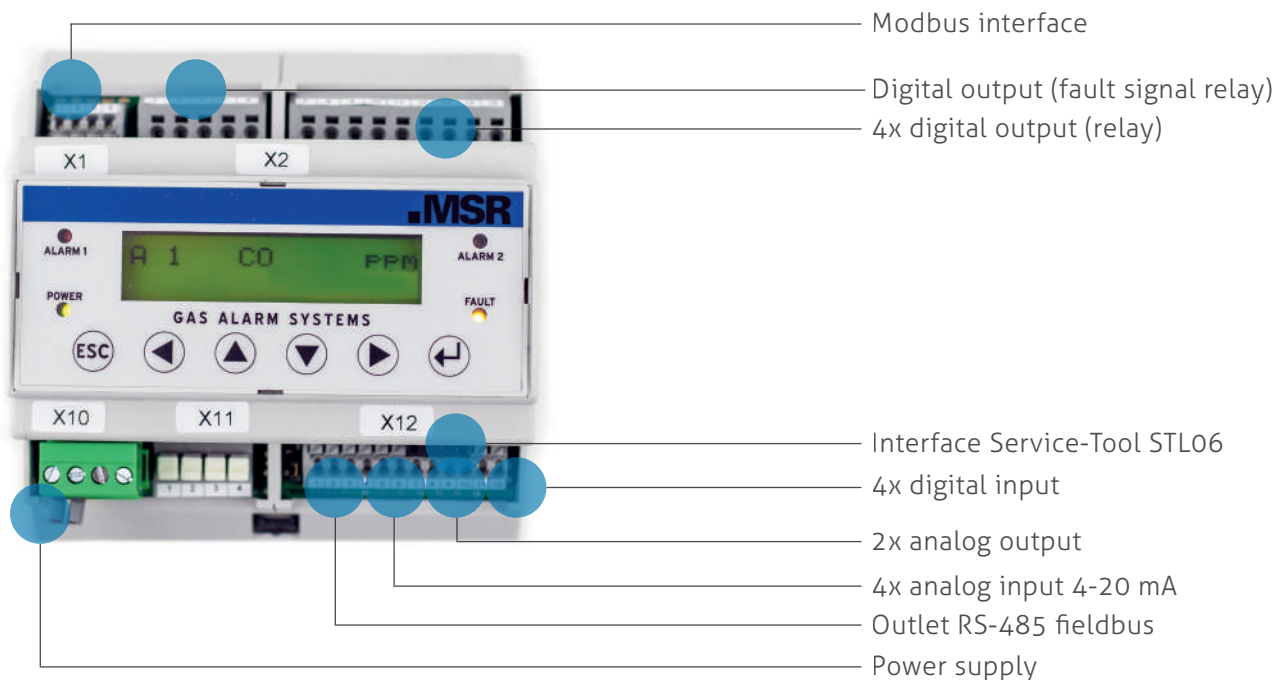
MSR-Electronic has extensive certification and many years of experience in the manufacture of controllers, professional preparation for complex acceptance tests is guaranteed. The modular technology allows for compact yet flexible and highly efficient systems.

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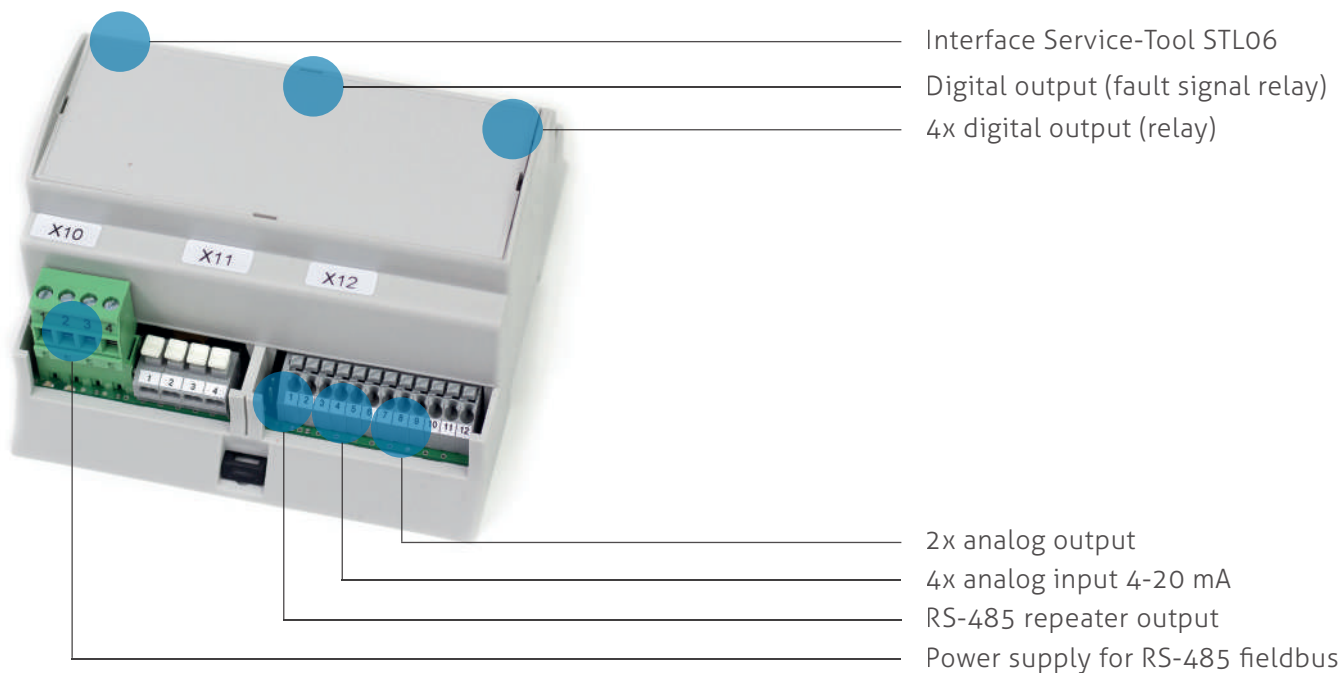
## **+ BENEFITS**

- 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
- Various options
- Serial bus

## Module GC-06



## Expansion module EP-06 for GC-06



**MSRSHOP24**

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# Door-Entrance-Module DEM-06

## Access monitoring

**The DEM-06 module 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 and entries can

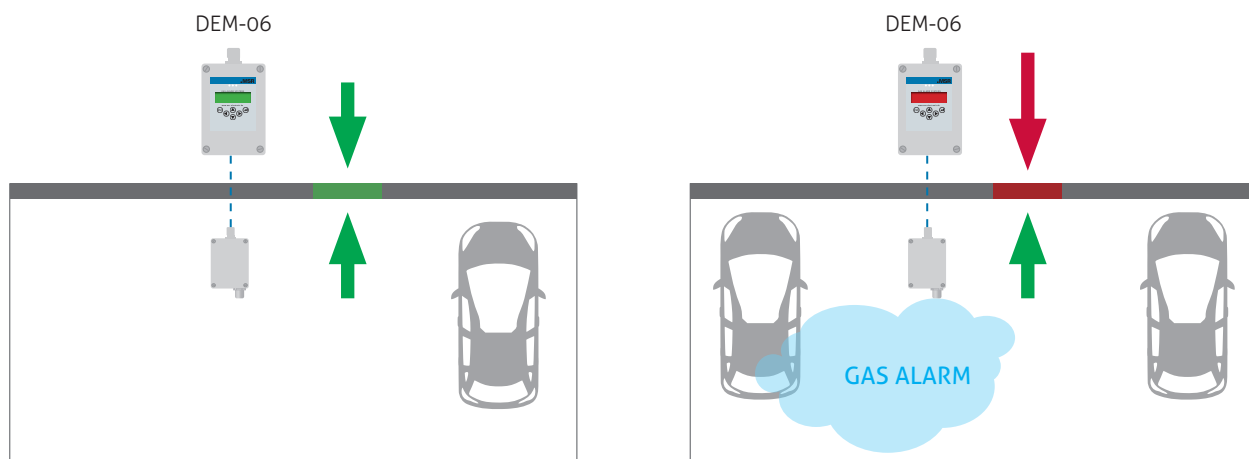
only be opened in one direction: From the inside to the outside. This ensures that persons can only move outwards from the hazardous area, but never inwards.

## + BENEFITS

- Visual and audible warning
- For buildings with different danger zones
- Stand-alone application (without DGC controller) possible
- No intervention in the DGC controller system necessary
- Configurable for up to 96 sensors in one DGC controller system
- Cost saving



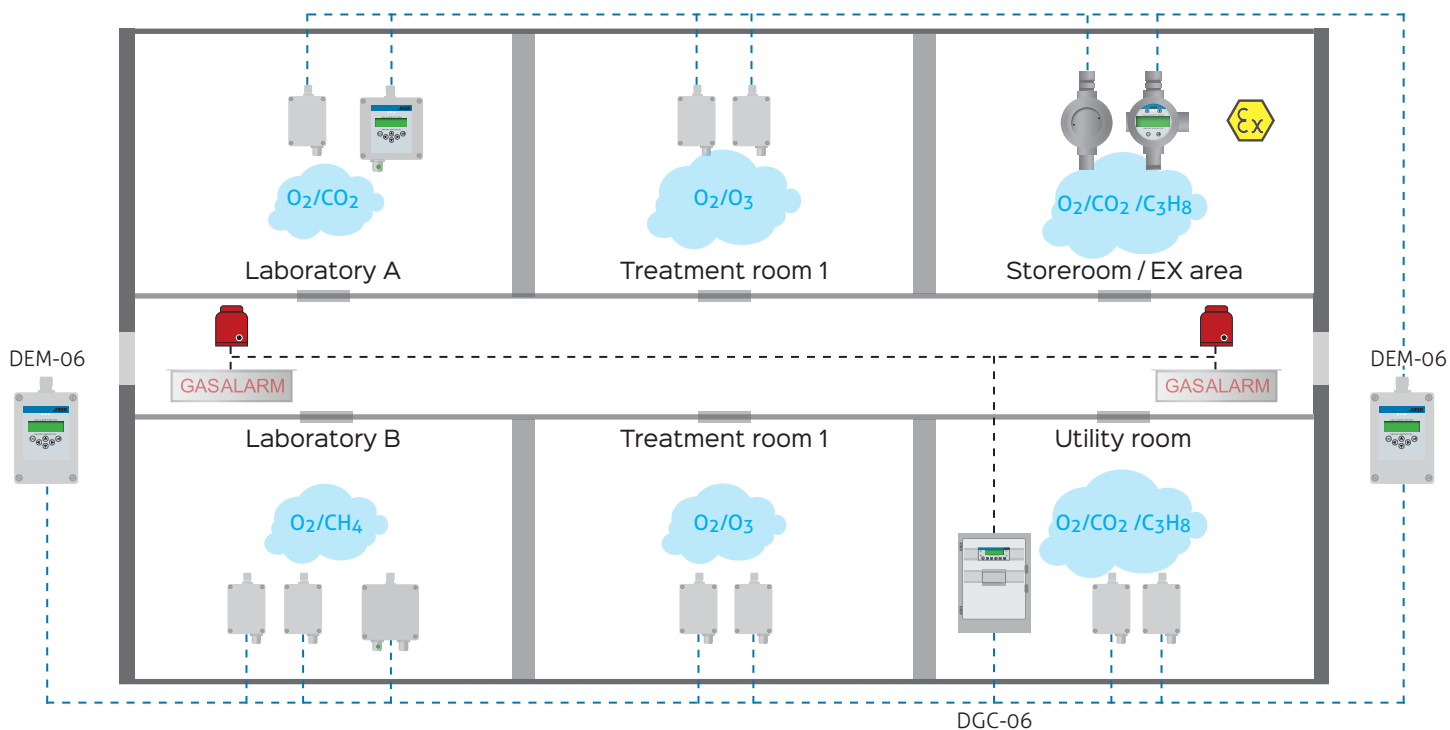
### Access monitoring of a parking garage



No gas alarm: Display green

For gas alarm: Display red

### Access monitoring of a laboratory



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# Software PCE06

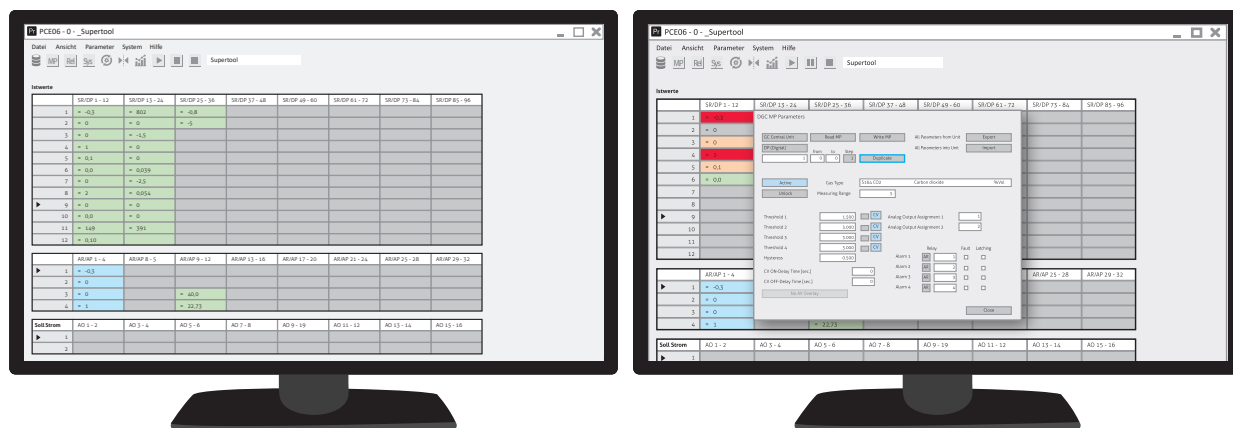
Perfect for the gas detection system service

**Autonomous, menu-driven PC tool for convenient addressing, parameter setting and calibration of the devices for the PolyGuard® and PolyXeta® product series.**

The communication to the PC is done via the supplied USB-RS-485 and USB/TTL adapter. The supply and data coupling with galvanic isolation to the devices is carried out via a cable with plug connection.

## + BENEFITS

- User-friendly design
- No installation required on the PC
- Available for operating systems Windows 8, 10
- Dongle protection in the adapter, thus PC change possible without problems
- Recording and exporting the measured values
- No external power supply required



Screenshots of the software PCE06



# Service-Tool STL06

With user friendly design

---

**Autonomous, menu-driven tool for convenient addressing, parameter setting and calibration of the devices for the PolyGard® and PolyXeta® product series.**

Communication and power supply are provided via a cable that is plugged into the respective devices.

---

## + BENEFITS

- User-friendly design
- Simple menu structure
- Two-line display / 16 characters
- 6 operating keys
- 3 LEDs for status display
- Communication and power supply via a cable



**MSRSHOP24**

Configure your products here.

# Control Box

In combination with GC-06, DGC-06

---

## Visualizing measurement data and identifying hazards at a glance.

The Control Box is used in combination with the gas controller GC-06 or DGC-06 (each with Modbus option) of a gas detection system. The display can show sensors, measured values and parameters such as alarm relay switching thres-

holds. Statistics can also be queried and exported. Thanks to the integrated network interface, the Control Box can be integrated into an existing network and all measured values can be retrieved remotely.

---

## + BENEFITS

- Plug & Play Software
- Automatic reading of the configuration and display of the AR/SR and the measured values
- Multiple user levels possible
- Display of current values, statistics, faults, alarms etc.
- Capacitive multi-touch screen
- Easy mounting
- Subsequent installation possible
- Network interface for integration into existing network
- Access with mobile devices and PCs via web browser



Installation example



**MSR SHOP24**  
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# Warning Devices

Always on alert

---

**Maintenance-free and energy-saving LED technology for static or flashing control.**

## Warning sign

Due to the flat design in the solid aluminum profile and the low weight, a simple one-man assembly is possible. The electrical connection is carried out in the supplied WT-box without opening the warning sign. It serves as optical warning of a dangerous gas concentration or a malfunction of the ventilation system in underground car parks, tunnels, car workshops, loading zones as well as in all areas where optical warning of a dangerous gas concentration or other hazards is necessary.

## Flashing light

The Xenon flashing light is made of solid plastic (ABS) according to EN 50545. It is universally applicable for fire alarm and safety technology according to VdS guidelines.

## Alarm horn

The alarm horns consist of solid housings, e. g. plastic (ABS) according to EN 50545. It is universally applicable with 32 adjustable tones, incl. DIN tone for fire alarm and safety technology in accordance with VdS guidelines.

## Alarm horn/flashing light combination

The alarm horn incl. flashing light made of solid plastic (ABS), according to EN 50545, is universally applicable. It consists of the alarm siren and a xenon flashing light for acoustic and optical warning with separate control.



---

### Standard versions warning signs

Version D3, 642 x 203 x 22 mm

Two-sided: Text red, background white

Version D3, 642 x 203 x 22 mm

Two-sided: Text yellow, background white

### Visibility information

According to the requirements for escape sign luminaires in accordance with DIN 4844, where applicable, there is a visual range of 26.4 m for backlit signs with a sign height of 132 mm and an average luminance of 200 cd / m. The material is not translucent and therefore easy to read even in bright light.



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# Additional Accessories

For sensor calibration and leakage protection

---

## Air duct system C2-Z2

Duct mounting set with plastic housing

---

### + BENEFITS

- Flow velocity: min. 5 000 m/h, max. 20 000 m/h
- Duct diameter: min. 0,1 m, max. 1,0 m
- Flammability: UL 94 V2
- Tube length: 2x 1.000 mm
- Sampling tube 250 mm adaptable to duct diameter





---

## Calibration adapter C2-Z4

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

The adapter is optimally designed to bring the gas directly to the respective sensor head. This enables the most accurate calibration, which is absolutely necessary for proper function. The tube can be connected directly to the pressure limiter of the gas cylinder.

---

### + BENEFITS

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



**MSR SHOP24**

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# Additional Accessories

For sensor calibration and leakage protection

---

## Splash protection cap SplashGuard C2-Z5

A cover that protects the SC2 or MC2 gas sensors from rain and splash water from all directions. The splash protection cap is put on the sensor head. Calibration can be performed with the mounted protective cover using a compatible calibration adapter.

---

### + BENEFITS

- Protection of SC2 and MC2 sensors against rain and splash water from all directions
- Protective cap is placed directly on the sensor head
- Calibration with mounted protective cover is possible using a compatible calibration adapter



---

## Gas Regulator (flow regulator)

Attachment for gas cylinder with integrated pressure reducer for regulating the volumetric flow rate of a gas to a predefined value. The valve is closed and opened using the rotary knob on the side. The gas level can be read via the pressure gauge.

---

### + BENEFITS

- Gas flow regulator for compact gas cylinders
- Perfect for mobile applications, for example calibration
- On-site maintenance and inspection
- Preset gas flow rate for optimum calibration results



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# MSR Cloud

Everything at a glance via PC, smartphone or tablet

---

A graphical trend monitoring can be accessed via the MSR Cloud. The intuitively designed rights management of access to the systems deserves special mention. This allows complete control over the systems, and this via worldwide access via the Internet. Not only visualizations can be displayed via the cloud. A complete overview of alarms, errors and other notifica-

tions is also possible. These can be routed via mail or SMS. In addition, links to data sheets, operating instructions or individual files are provided. This considerably simplifies the workflow for service staff. As a planning tool, the cloud is also an ideal partner for receiving information on upcoming maintenance and service activities early on.

---

## + BENEFITS

- Fully customizable information
- Adjustable notifications
- Clearly arranged dashboard
- Hosting with MSR-Electronic possible
- Real-time information such as warning and maintenance messages
- Configurable structure of rights
- Multiple projects in one cloud solution
- Access via web browser or with mobile devices (cell phone, tablet, ...)
- For all devices that have a compatible browser and access to the Internet

## PROJECT ADMINISTRATION

- Overview and administration of projects and user rights
- Creation of your own symbols and icons
- Individual notifications can be configured



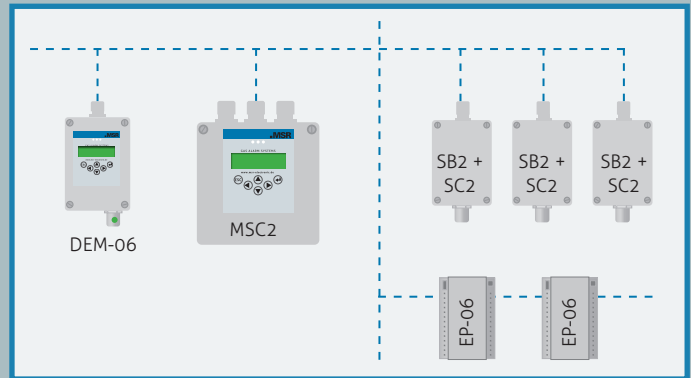
### HTTPS

Compatible for all devices



### GATEWAY

Up to 250 Modbus devices



Thanks to Plug & Play visualization, the innovative cloud solution works easily and uncomplicatedly, even with already installed systems.



# Intelligent Parking Guidance

## Systems by MSR-Traffic

---

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.

### **Indoor and outdoor:**

Ultrasonic sensors are used to record the availability of each individual parking space and manage it using a controller/control computer.

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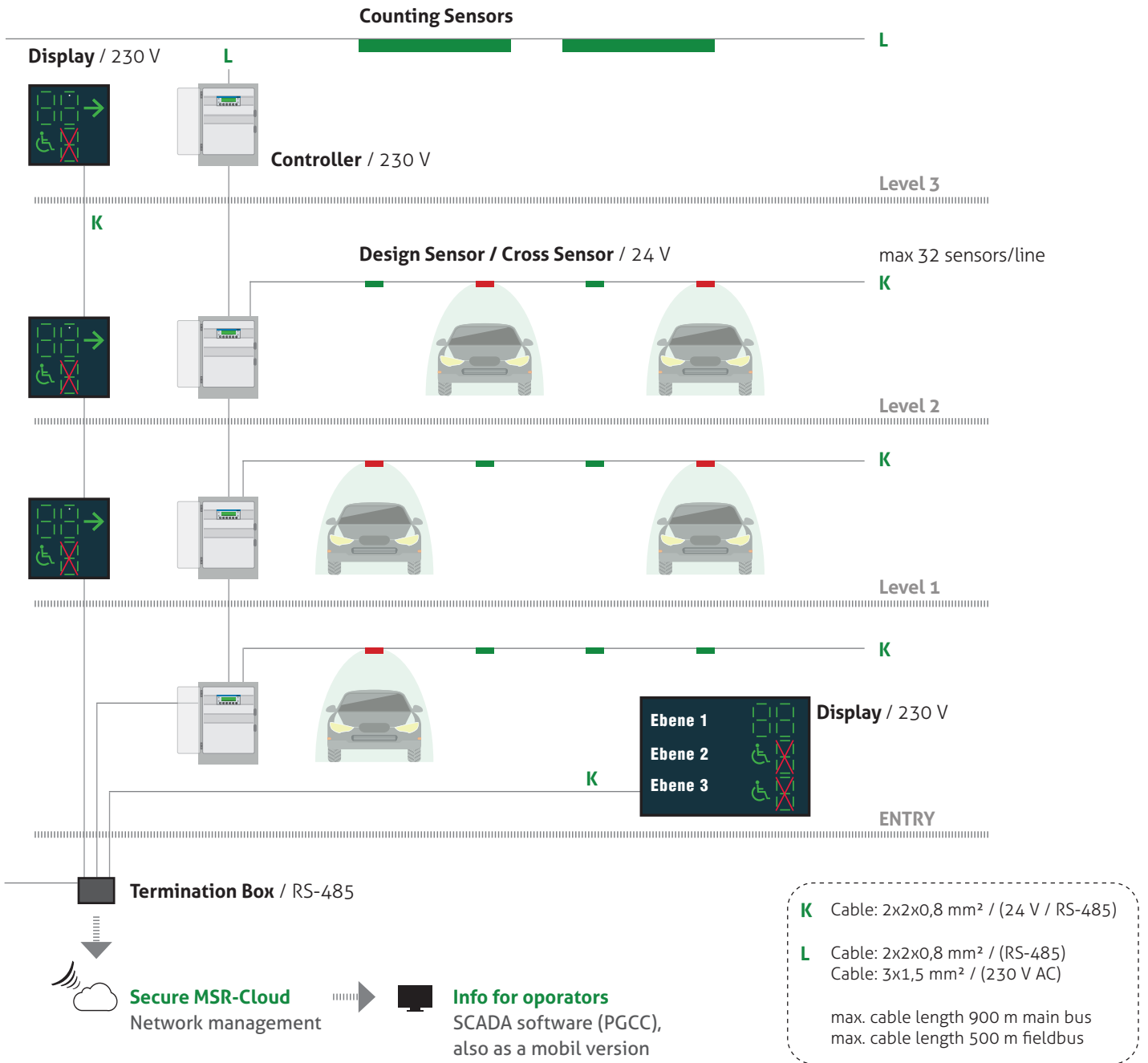
## **+ BENEFITS**

- 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 CO<sub>2</sub> emissions and reduction of ventilation costs
- Suitable for indoor use
- High detection accuracy
- Sensor and status display in one housing



**MSR-Traffic GmbH is a subsidiary of MSR-Group GmbH.**





**MSRTraffic PDF**  
See the current catalog here.

# 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/GLT**  
(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

- Gas distributors
- Terminals
- Gas storage

---

### Hazardous Substances

- Chemistry
  - Petrochemistry
  - Emission control
- 



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

Biogas Plants	92
Petrochemical Industry	94
Hydrogen	96
Waste Management Industry	98







# Biogas Plants

## Safety against CH<sub>4</sub> / H<sub>2</sub>S / CO<sub>2</sub> / O<sub>2</sub>

---

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.

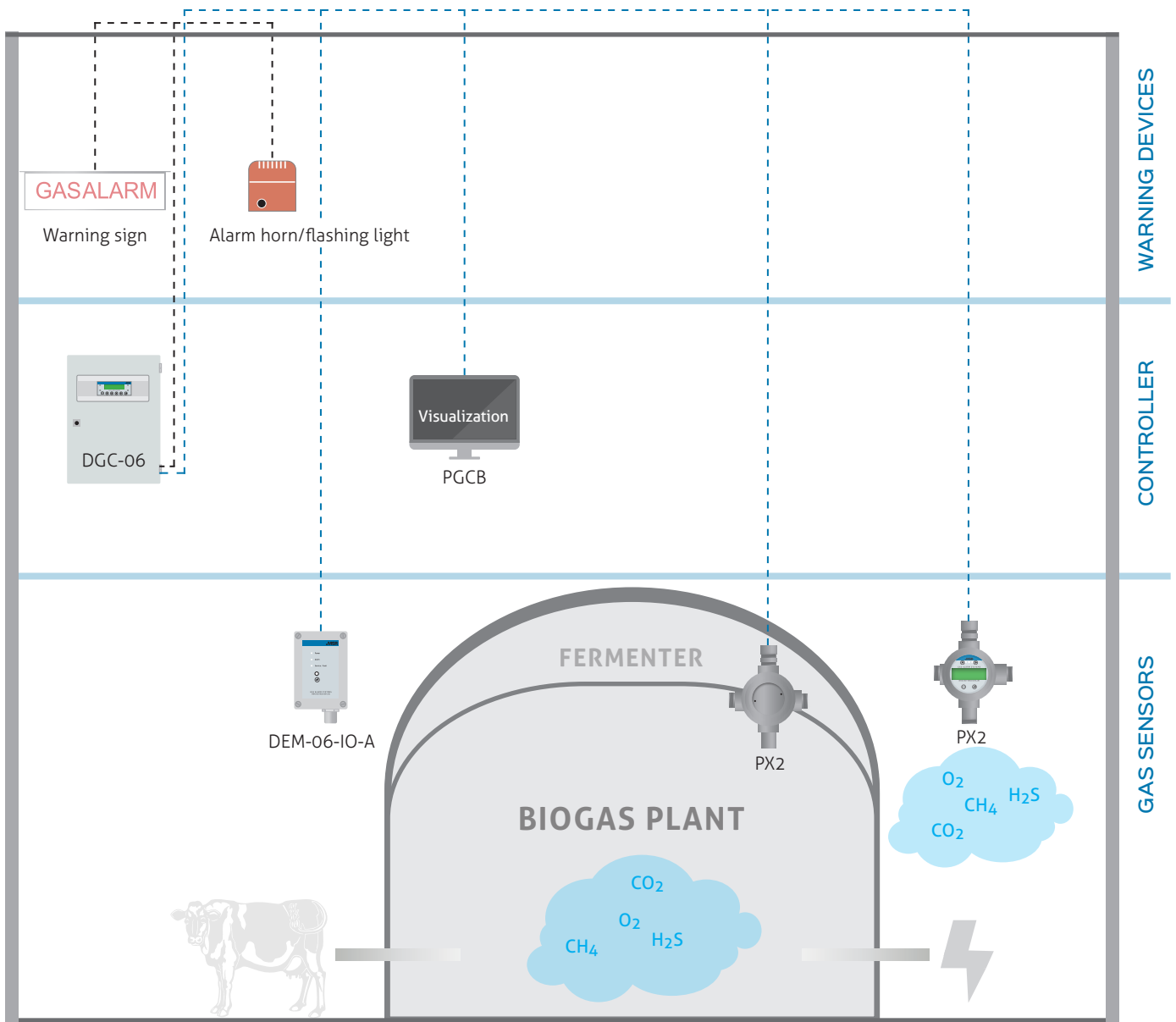
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### ! GAS HAZARDS

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

- SIL2-certified PolyXeta®2 sensor for ATEX zones 1 and 2
- Metrological testing of sensors and devices according to EN 60079-29-1 for combustible gases/ EN 50104 for oxygen
- Cost-reduced calibration through sensor head exchange on site (X-Change technology)
- Solution for individual requirements, easy mounting by means of mounting bracket
- Easy connection to existing systems (analog, Modbus)
- 2 potential-free relays, e.g. to control warning devices



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# Petrochemical Industry

Safe protection against CH<sub>4</sub> / C<sub>5</sub>H<sub>12</sub> / C<sub>3</sub>H<sub>8</sub> / H<sub>2</sub>S / O<sub>2</sub> / CO / NH<sub>3</sub>

---

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 MAK values and thus guarantee the health and safety of

employees. In addition, MSR-Electronic offers solutions for the protection of your plant against gas leakage and thus financial loss. Also, the MSR gas sensors can further optimize process safety. MSR-Electronic offers safe monitoring of combustible and toxic gases in petrochemical plants.

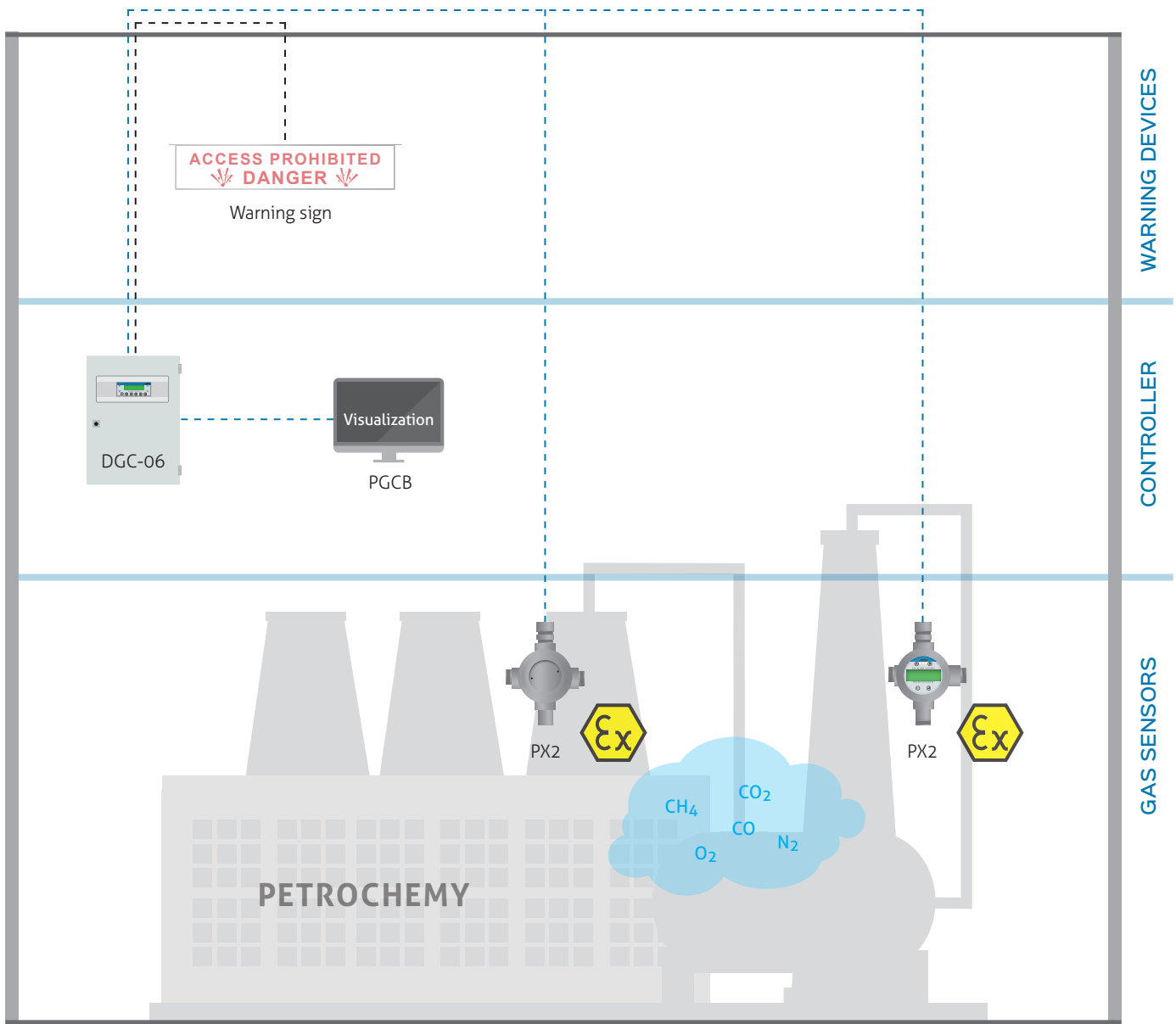
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## ! GAS HAZARDS

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® sensor for ATEX zones 1 and 2
- Metrological testing of sensors and devices according to EN 60079-29-1 for combustible gases/ EN 50104 for oxygen
- Cost-reduced calibration through sensor head exchange on site (X-Change technology)
- Preconfigured devices on request, easy integration into existing systems
- Protected according to IP66, 2 potential-free relays per device
- Modular design and individual configuration



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# H<sub>2</sub> Gas 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. H<sub>2</sub> 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.

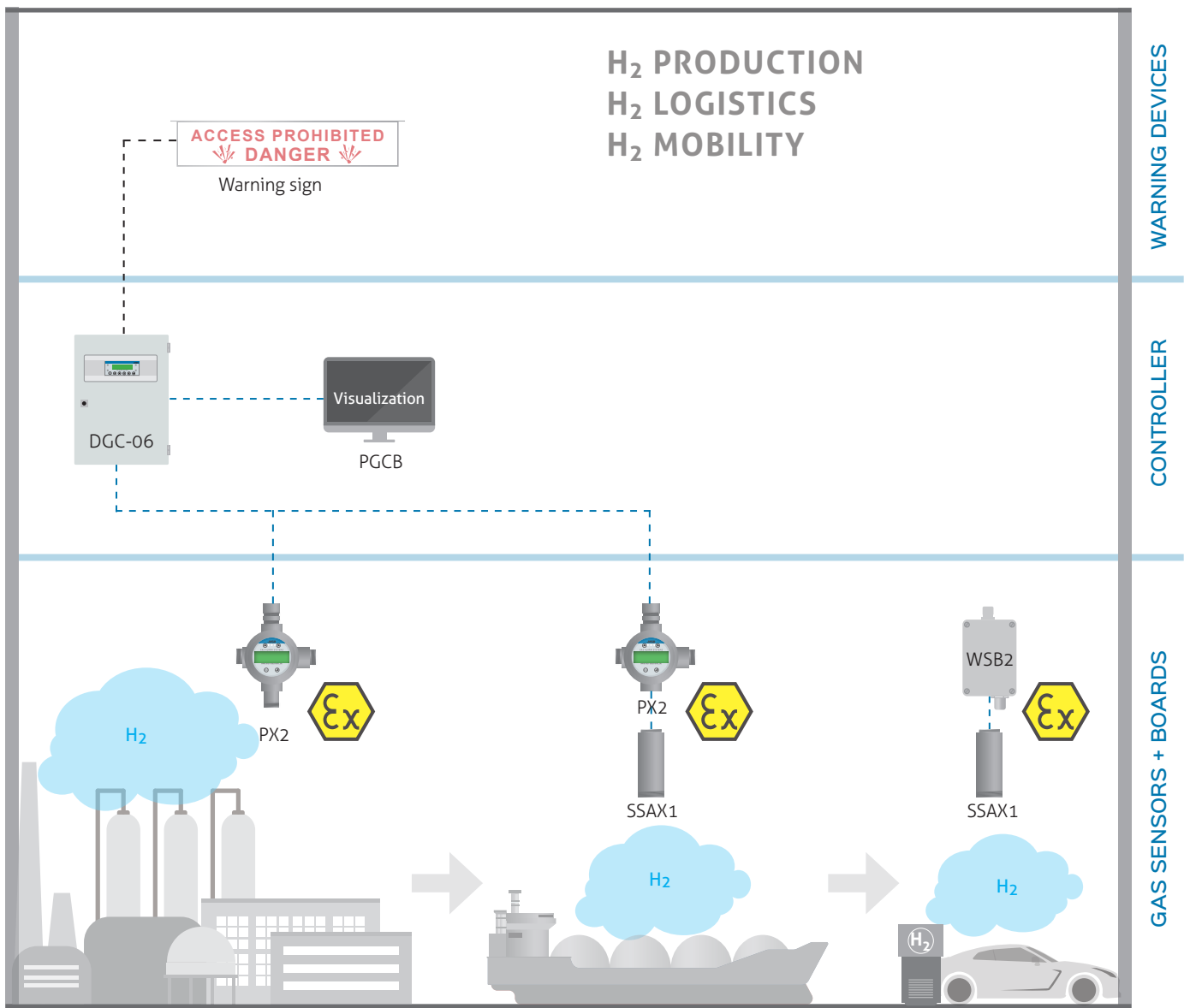
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## ! GAS HAZARDS

Hydrogen is an excellent energy carrier, but it is also one of the most difficult substances to transport anywhere. The extreme danger of hydrogen leaks lies here in the oxyhydrogen explosion. During research work, on test rigs and during the production of the gas, leakages can occur at any time and cause catastrophic damage in the event of ignition. Warning systems must also be installed in hydrogen production from ammonia and in filling stations to protect people and systems from this highly flammable gas.

## + BENEFITS

- SIL2-certified PolyXeta® sensor for ATEX zones 1 and 2
- Metrological testing of sensors and devices according to EN 60079-29-1 for combustible gases/ EN 50104 for oxygen
- Cost-reduced calibration through sensor head exchange on site (X-Change technology)
- Solution for individual requirements, easy mounting by means of mounting bracket
- Easy connection to existing systems (analog, Modbus)
- 2 potential-free relays, e.g. to control warning devices



**MSR SHOP24**

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**MSR VIDEO**

How-to: Commissioning the PolyXeta®.



# Waste Management Industry

Protection against CO<sub>2</sub> / CH<sub>4</sub> / H<sub>2</sub>S / C<sub>6</sub>H<sub>14</sub> / C<sub>6</sub>H<sub>6</sub> / C<sub>7</sub>H<sub>8</sub> 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.

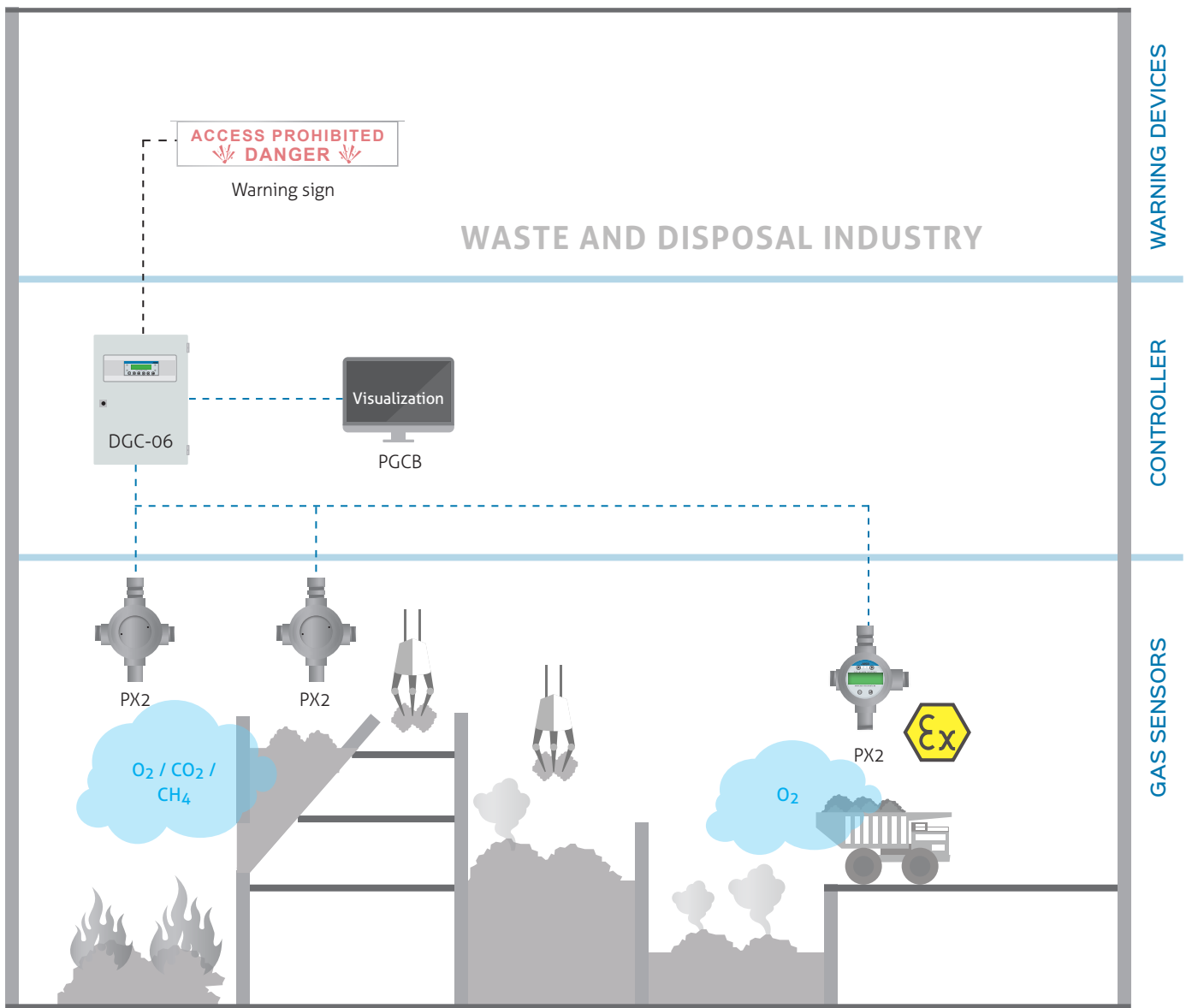
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## ! GAS HAZARDS

- 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

- Easy connection to existing systems (analog, Modbus), mounting via mounting bracket
- 2 potential-free relays, e.g. to control warning devices
- With or without display or keyboard
- Reduced costs due to easy maintenance, e.g. sensor head change (X-Change technology)
- Intelligent sensors display information on residual sensitivity, maintenance and condition
- Modular design and expandable up to 128 measuring points with the DGC-06 controller



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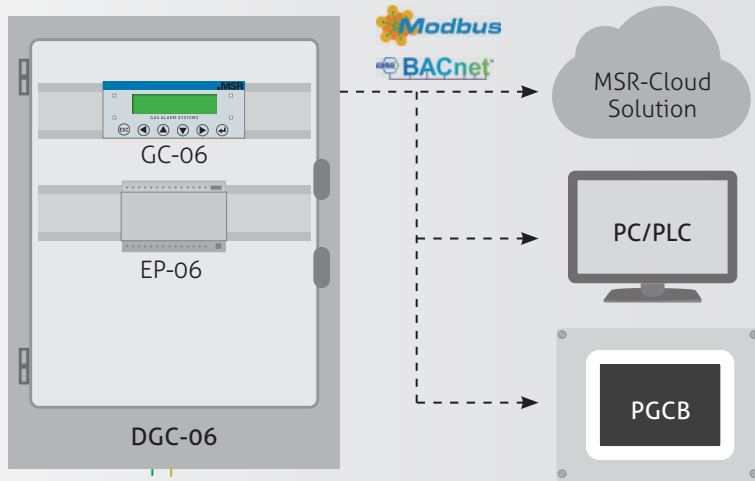
- Sensors
- Controllers and Modules
- Warning Devices and Accessories



# PolyXeta®

Gas detection systems for industry and marine  
ATEX zone 1 and 2

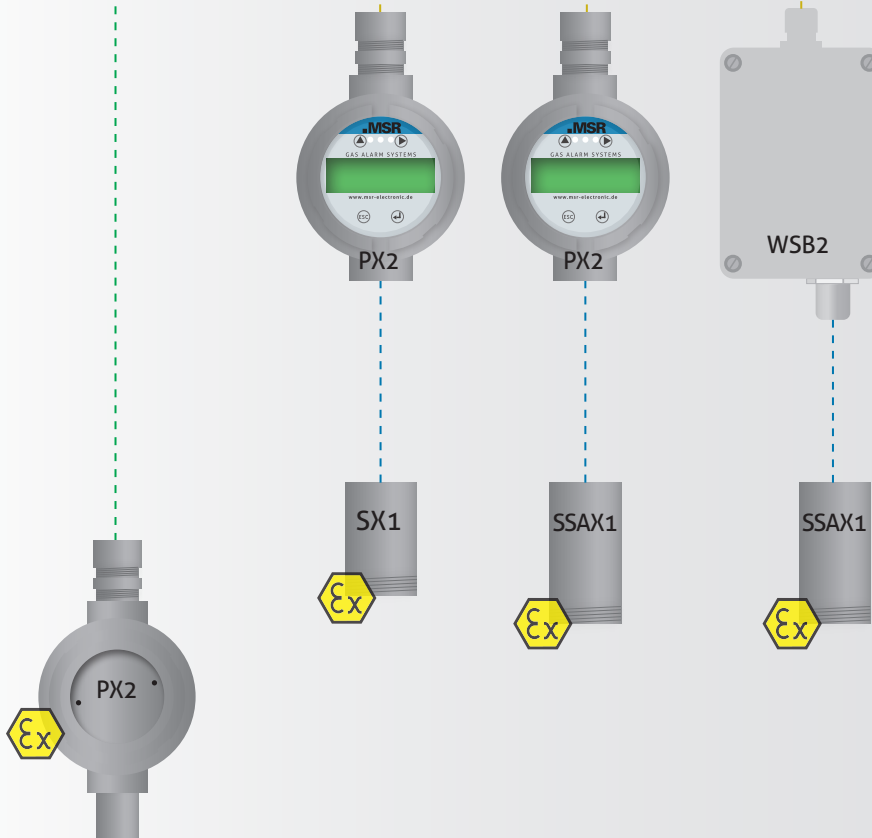
- SIL / RS-485 / DGC-Bus
- Digital / L-Bus
- RS-485 / Modbus / BACnet
- Analog, 4-20 mA



## CONTROLLERS AND MODULES

- DGC-06 Digital-Gas-Controller
- PGCB PolyGard® Control Box

SIL-Communication

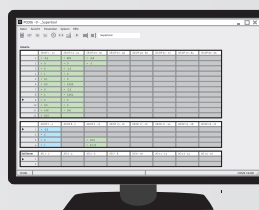
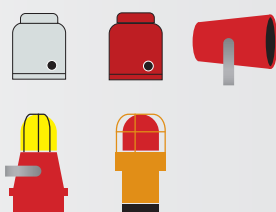
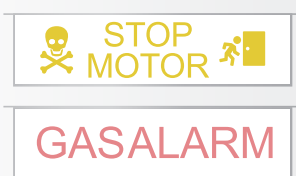


## GAS SENSORS AND BOARDS

- WSB2 Warning+Sensor-Board
- PX2 PolyXeta® Housing
- SX1 Sensor head
- SSAX1 Sensor head

## WARNING DEVICES AND ACCESSORIES

- WH Alarm horn
- WH/BL Alarm horn/flashlight combination
- WT Warning sign





**Interactive** product overview  
Get to know our products here.



**MSR VIDEO**  
How-to: Commissioning the PolyXeta®.



# PolyXeta<sup>®</sup> with Sensor SX1

Innovative exchangeable sensor  
with X-Change technology

## PolyXeta<sup>®</sup> with microprocessor supported sensor SX1.

- 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

PolyXeta<sup>®</sup> sensor components with sensor head SX1 (X-Change technology)  
Communication: L-Bus



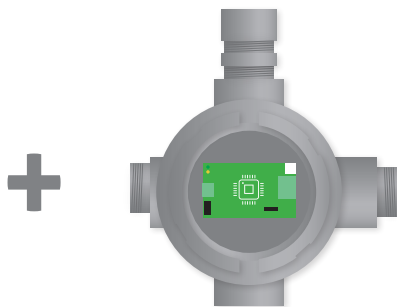
## + BENEFITS

- Signal output analog, Modbus
- Connection to DGC-06, MSC2, MSB2, WSB2
- Digital calibration
- X-Change housing with NPT 3/4"-threaded connection, protection type IP65

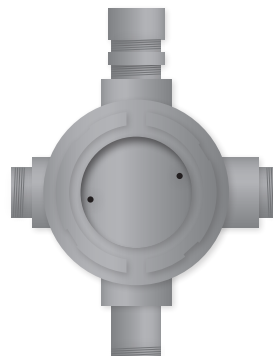
SX1 sensor head



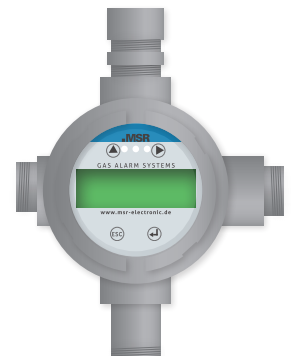
housing + sensor board



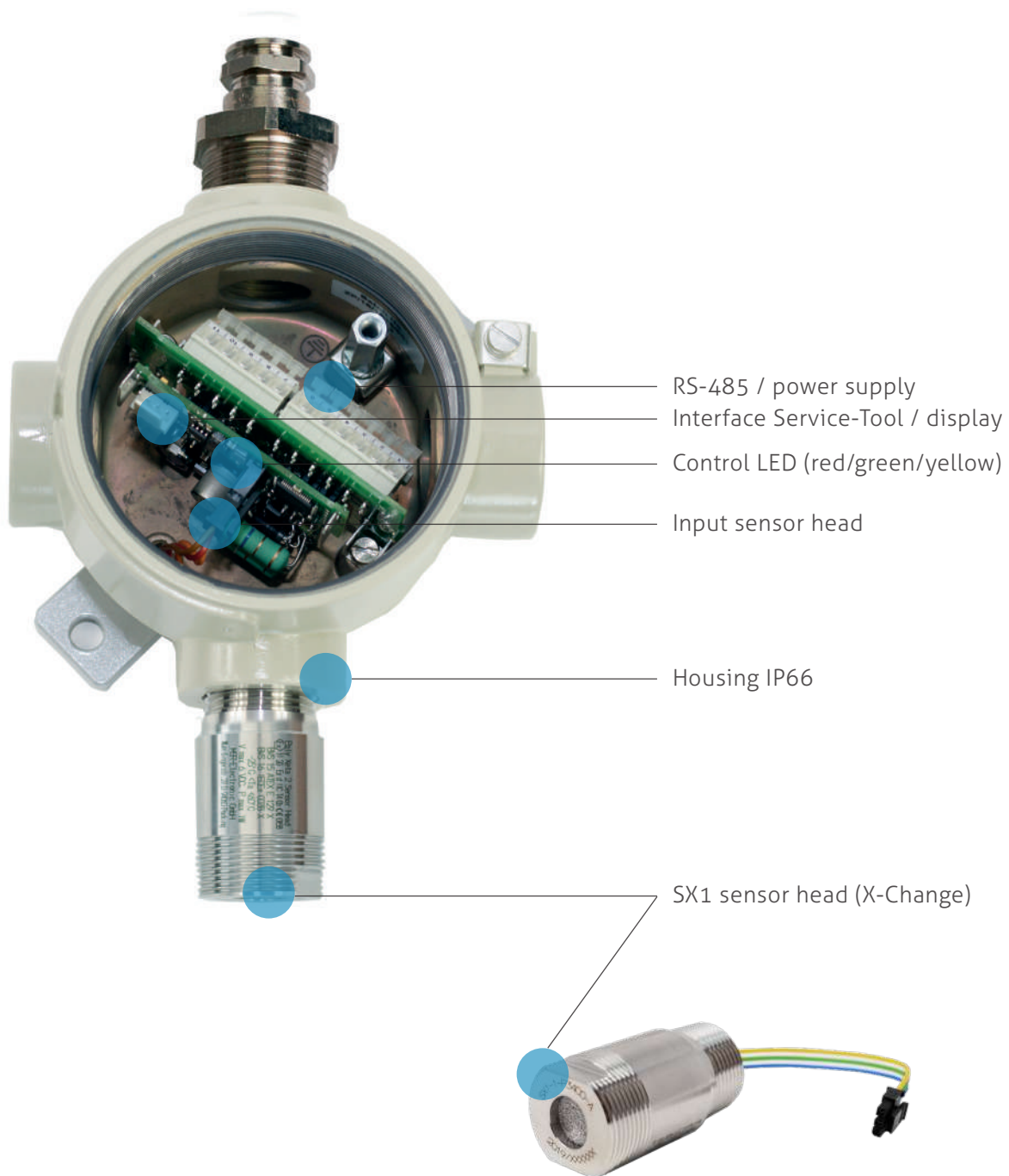
PolyXeta<sup>®</sup>2  
without display



PolyXeta<sup>®</sup>2  
with LC display







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# PolyXeta® Sensor Head SSAX1

The ATEX sensor head for remote applications

## The ATEX sensor for combustible and toxic gases.

In addition to the high-quality sensor element and the measuring amplifier, the sensor head SSAX1 contains a  $\mu$ Controller for processing the measured values. All relevant data and measured values of the sensor element are stored in the  $\mu$ Controller in a fail-safe manner and are transmitted digitally via the local bus to the WSB2 or output as PWM signal (pulse width modulation). The calibration management is also integrated in the  $\mu$ Controller of the sensor head. Calibration can be carried out by simply

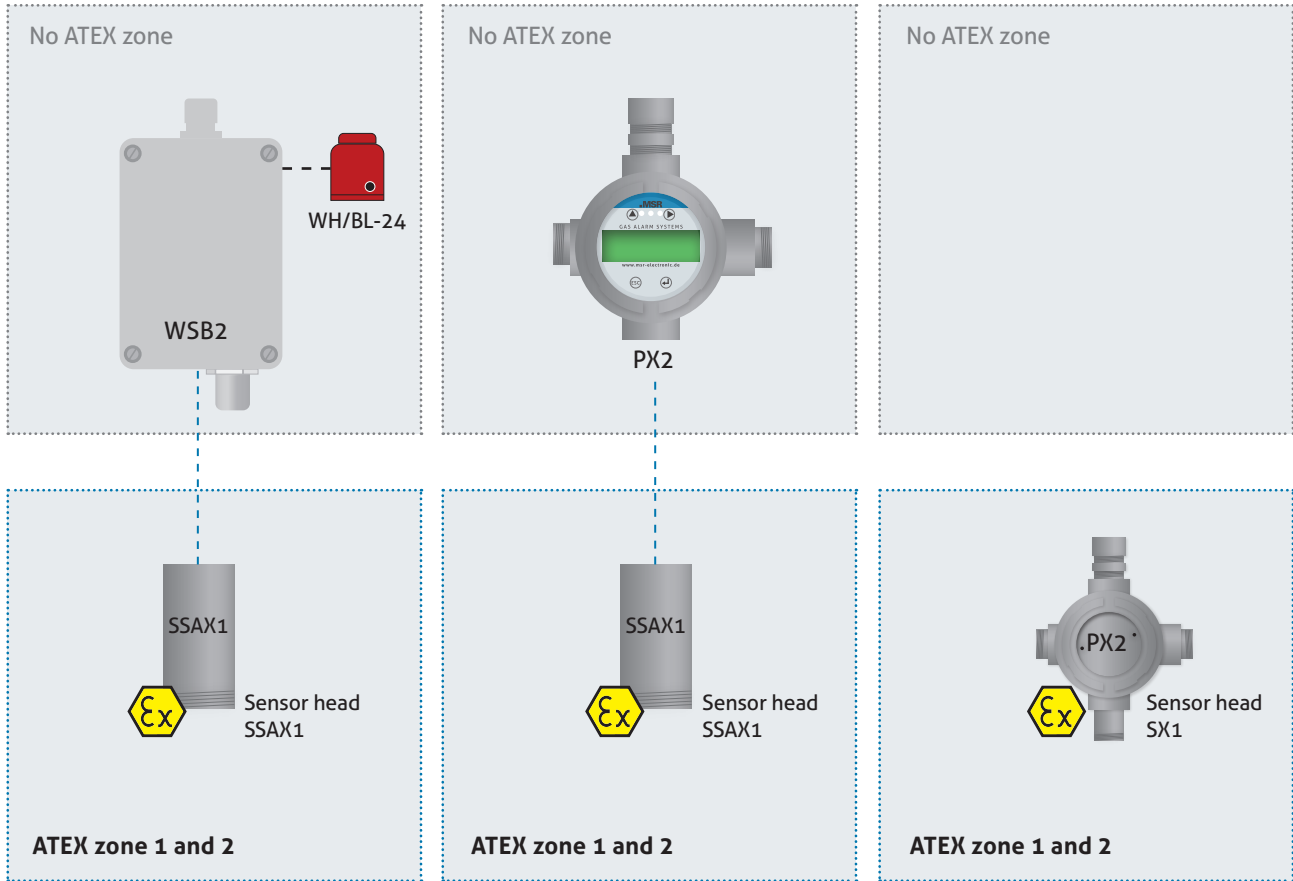
changing the sensor head or by the integrated, convenient calibration routine directly at the system.

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 SX1 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
- Continuous monitoring of toxic and flammable gases and oxygen
- Different measuring principles depending on customer requirements and application (infrared, electrochemical sensor, pellistor)
- High accuracy, selectivity and reliability
- Easy calibration
- Reverse polarity protected
- Overload protection
- 5 m cable length





PolyXeta®2 devices and sensors in the ATEX area

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Configure your products here.

# X-Change Technology

The 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-

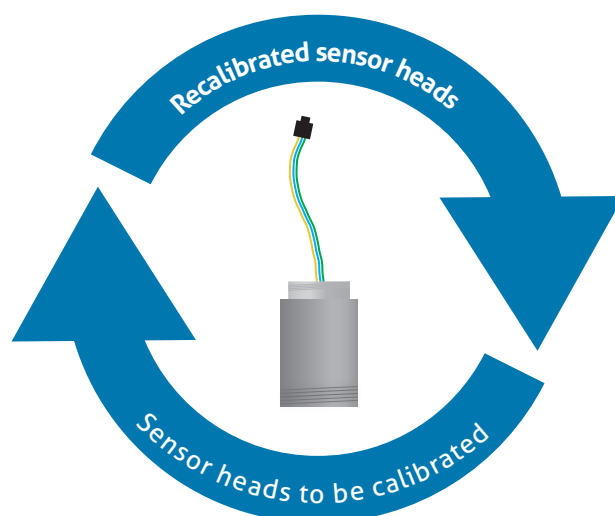
red, it was necessary to take the complete sensor with you and replace it afterwards. With the new X-Change technology this effort can be saved. The exchangeable head can be replaced on site at any time. The transmitter therefore remains untouched. This saves time and costs.

## + 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.

# #recalibrate



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



Loosen the sensor cable and unscrew the used sensor head. **The yellow LED lights up.**



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



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

# Gas-Controller Industry

Arbitrarily extendable for individual requirements

## Measuring, warning and controller system for toxic and combustible gases.

The DGC-06 digital gas controller 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

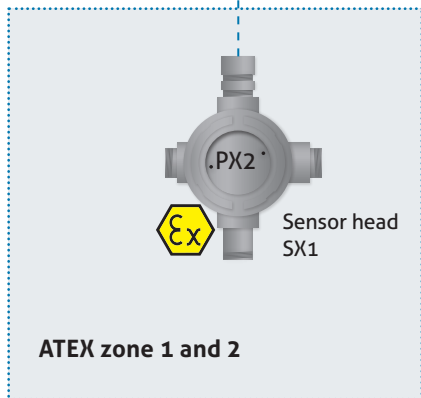
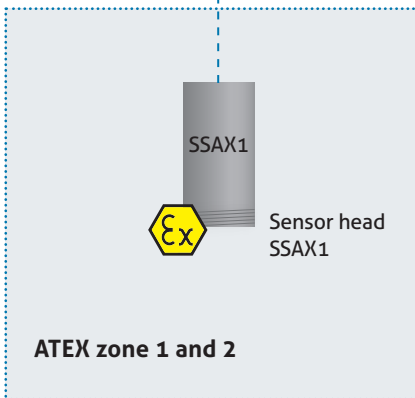
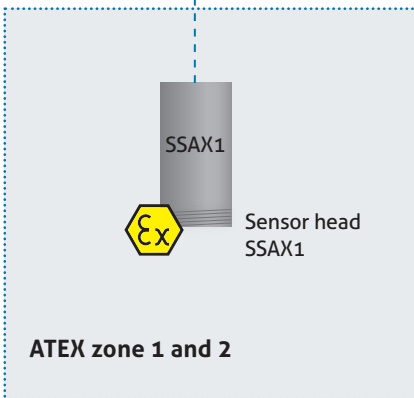
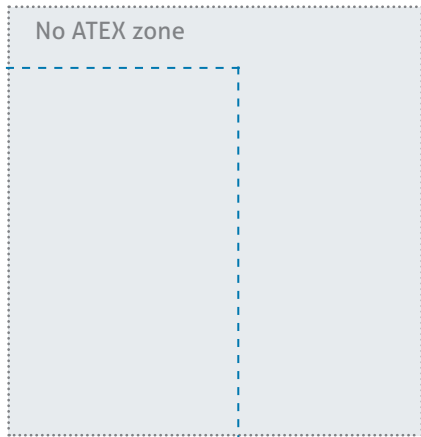
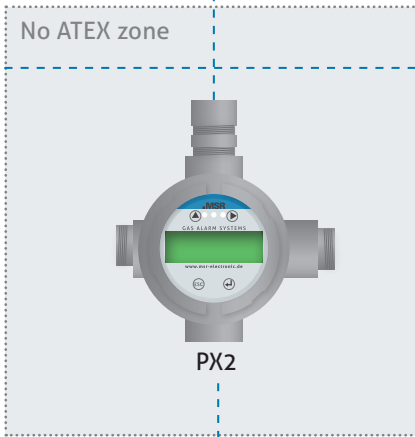
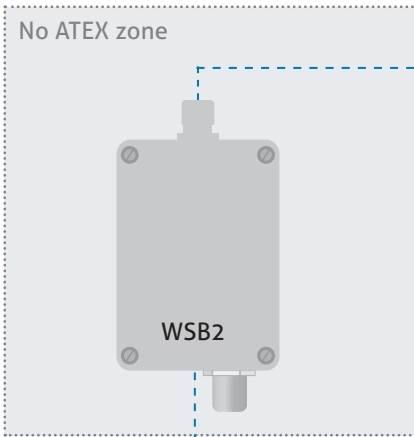
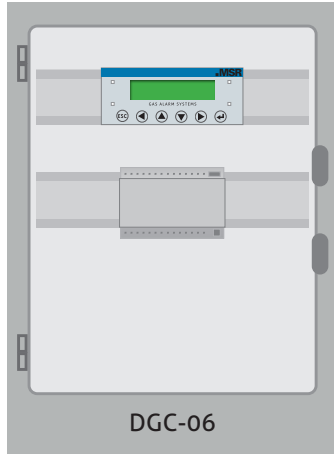
can monitor and evaluate up to 128 gas sensors, 96 of which are digital and/or 32 analog sensors (4-20 mA). There are 4 freely adjustable alarm thresholds per sensor. For alarm messages, the controller system has up to 128 relays with potential-free changeover contact and up to 16 analog outputs with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

## + BENEFITS

- 128 sensors
- Relay expandable with EP modules
- Display with LED
- Service-Tool for configuration
- Direct connection to GLT, GC-06 integrated
- Units are adjustable
- UPS / datalogger (optional)
- Can be installed in switch cabinet
- Safety product, scalable
- Expandable for up to 7 EP-06 modules







**MSRSHOP24**

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# Modules

## Measurement, warning and control

---

### **Controller system for toxic, flammable gases and vapors.**

The modules are designed to perfectly complement the centralization of the overall PolyXeta® system. 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

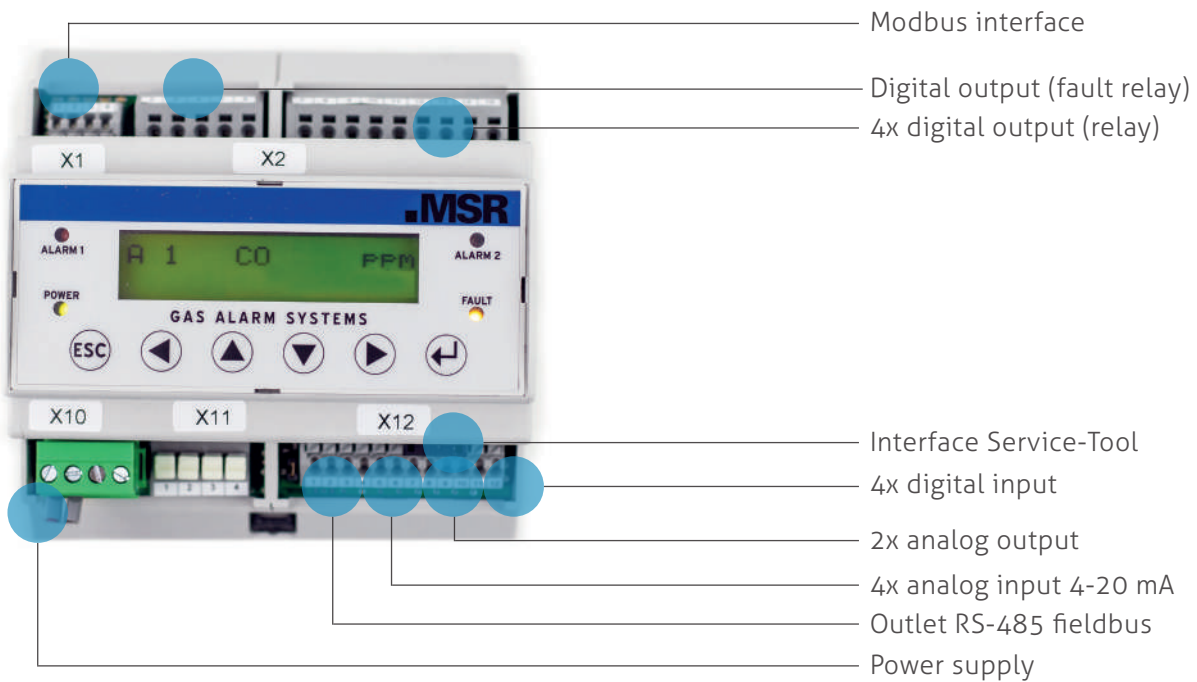
extensive certification and many years of experience in the manufacture of controllers, professional preparation for complex acceptance tests is guaranteed. The modular technology allows for compact yet flexible and highly efficient systems.

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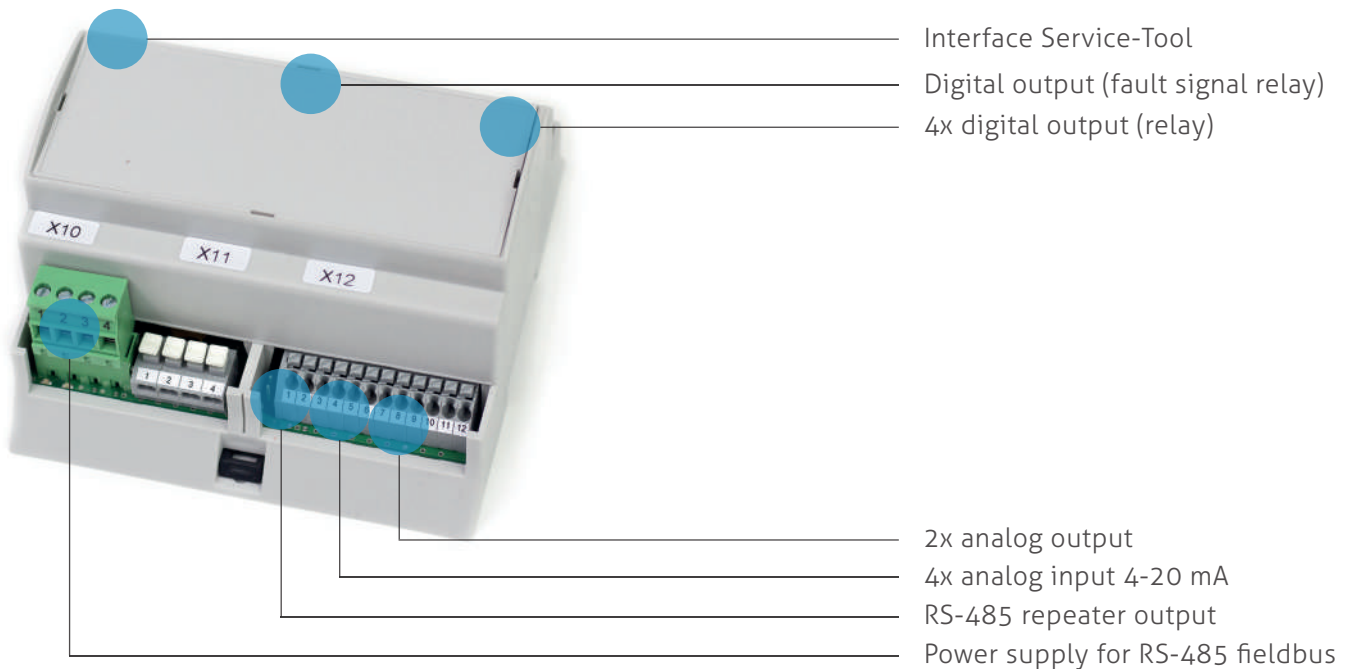
## **+ BENEFITS**

- Extension module with
  - 4 analog inputs (4-20 mA)
  - 4 alarm relays with potential-free changeover contact
  - 2 analog outputs (4-20 mA)
- For connection to the PolyXeta® gas controller module DGC-06
- Modular design of the system possible
- Individual configuration
- A wide range of options
- Serial bus

### Module GC-06



### Extension module EP-06 for GC-06



**MSR SHOP24**

Configure your products here.

# Warning Devices

Reliable warning in ATEX zone 1 or 2

---

**For areas where special requirements exist due to explosive substances.**

MSR-Electronic offers an extensive repertoire of acoustic and optical signaling devices with various approvals for use in hazardous areas. The signal transmitters of the Ex-series are characterized by a particularly robust design and insensitivity to environmental influences and chemicals. These are information, warning and emergency signals for safety, hazard and fire

alarm systems, building, industrial and commercial automation, disaster warning and danger areas.

The products are suitable for use in gas and steam atmospheres as well as in dust atmospheres. MSR-Electronic offers Ex-signal towers, optical, acoustic and optical-acoustic Ex-signal devices.

---

## + BENEFITS

- Compatible with all controllers from MSR-Electronic
- For use in zone 1 and zone 2
- Durable and robust



## ALARM HORN AND XENON FLASHING LIGHT

- Explosion-proof LED multifunctional light
- Double / triple door opener flash



## OMNIDIRECTIONAL XENON FLASHING LIGHT

- Xenon flashing light
- Suitable for zone 1 and 2
- Approved according to IECEx, ATEX, Ex EAC



## ALARM HORN

- Suitable for zone 1 and 2
- Flame retardant ABS



**MSRSHOP24**

Configure your products here.

# Accessories

For calibration and easy menu operation

---

## Calibration adapter CAL01-PX2

Calibration adapter for convenient gassing of PX2 (SX1) and SSAX1 series sensors.

---

### + BENEFITS

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





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## Magnetic pen for operation MSR\_PEN\_PX2

The MSR\_Pen\_PX2 magnetic pen is equipped with a permanent magnet and is used for contactless menu operation of the PolyXeta® sensor series PX2 with display.

---

### + BENEFITS

- Easy handling
- Pinpoint operation
- No need to open the PX2 housing in ATEX zone



**MSR SHOP24**

Configure your products here.

# Accessories

For additional protection and wall mounting

---

## Sensor protection cap ZU-PX2-SHP-20

Plastic protective cap with peel-off tab to cover the SX1 and SSAX1 sensors.

---

### BENEFITS

- +
- Easy handling
- Perfect cover of the sensor head
- Protection against contamination/poisoning



---

## Mounting set / Mounting kit

Mounting set consisting of a 2-part spacer clamp with the matching screws, as well as 1x dowel and 1x screw for wall mounting.

---

### + BENEFITS

- Easy mounting
- Perfect fit of the SSAX1 sensor head



**MSRSHOP24**

Configure your products here.

# PolyMarine®

## Gas detection systems for shipping and offshore

---

Ships are 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. With the gas detection products from MSR-Electronic you are on the safe side on board. The products provide perfect pro-

tection against gas leaks on board. These leaks are often not perceptible through the sense of smell or only when an accident could 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 with X-Change technology**  
Significantly lower maintenance costs
- **Accurate planning with overall lower costs**
- **Integration in BMS/GLT**  
(analog, Modbus)









# Applications for Marine

---

## Freight Transport

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



## Passenger Transport

- Cruise
  - Ferries
- 



## Logistics

- Bunker ships and stations
- 



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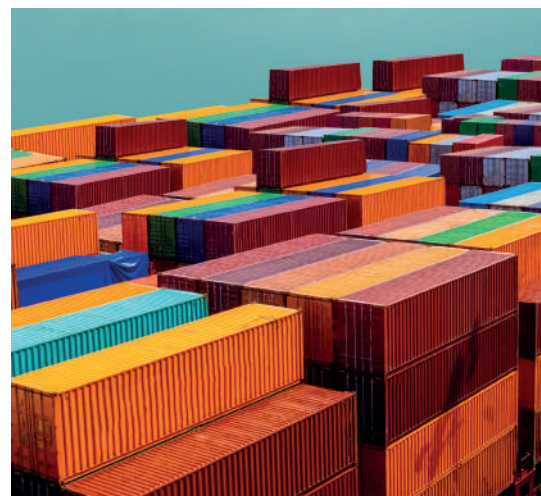
**Privat**

- Yachts

---

**Offshore**

- Oil refineries
- 







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

Shipping and Offshore 126

Private Shipping 128



# Shipping and Offshore

Protection against H<sub>2</sub> / CH<sub>4</sub> / C<sub>3</sub>H<sub>8</sub> / NH<sub>3</sub> 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-

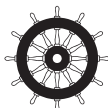
tection in the event of gas leaks occurring on board. In addition, a reliable gas detection system not only protects the lives of the crew, but can also protect the ship's cargo and even the ship itself from harm.

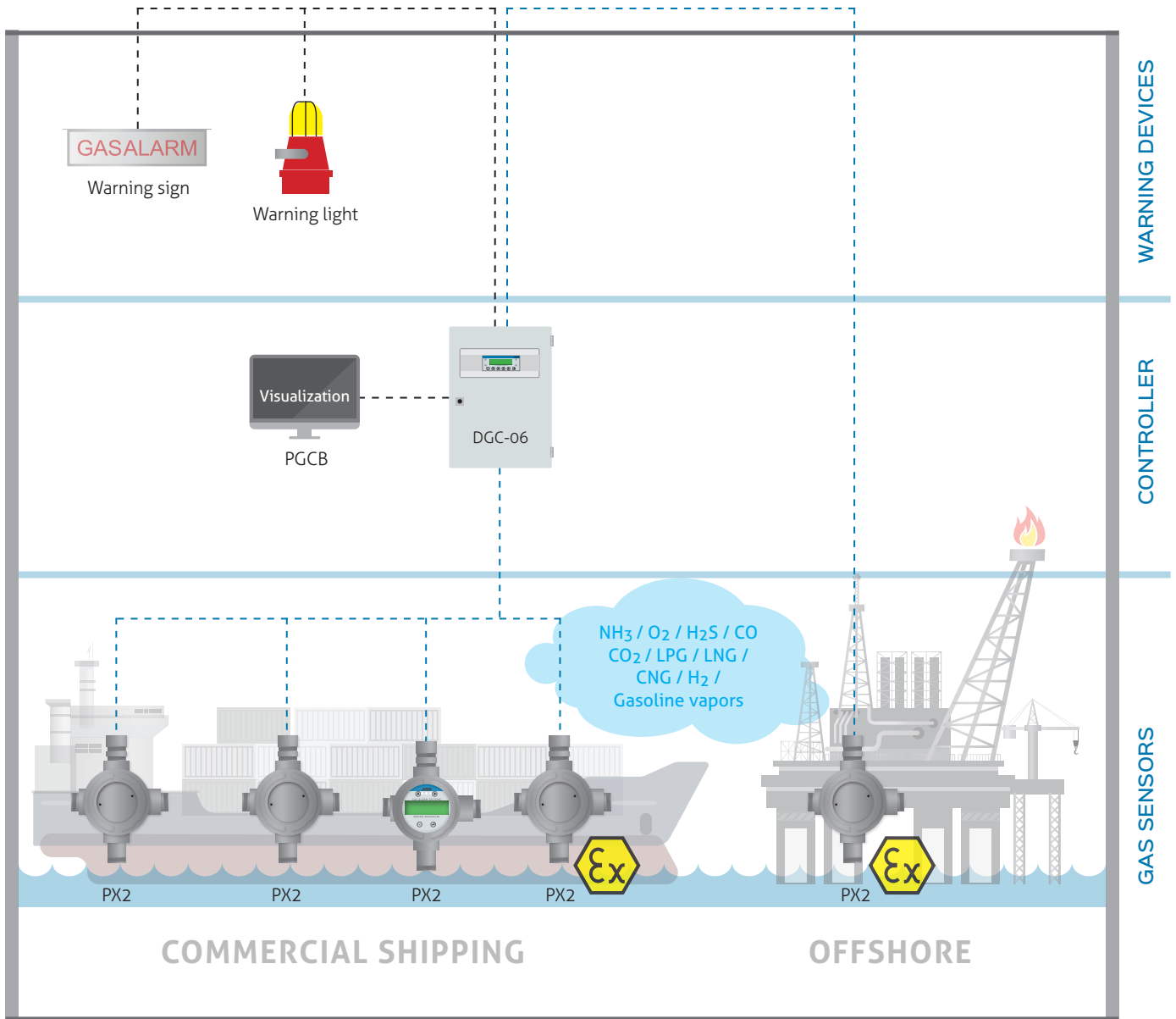
## ! GAS HAZARDS

- Engine and crew rooms
- Hazardous material transports
- Detection of fuel leakage (LPG) and exhaust gases
- Gas transport (H<sub>2</sub>/CH<sub>4</sub>/C<sub>3</sub>H<sub>8</sub>/NH<sub>3</sub> 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





**MSR SHOP24**  
Configure your products here.



**MSR VIDEO**  
How-to: Commissioning the PolyXeta®.

# Private Shipping

## Protection from propane / CO / NO<sub>2</sub>

---

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.

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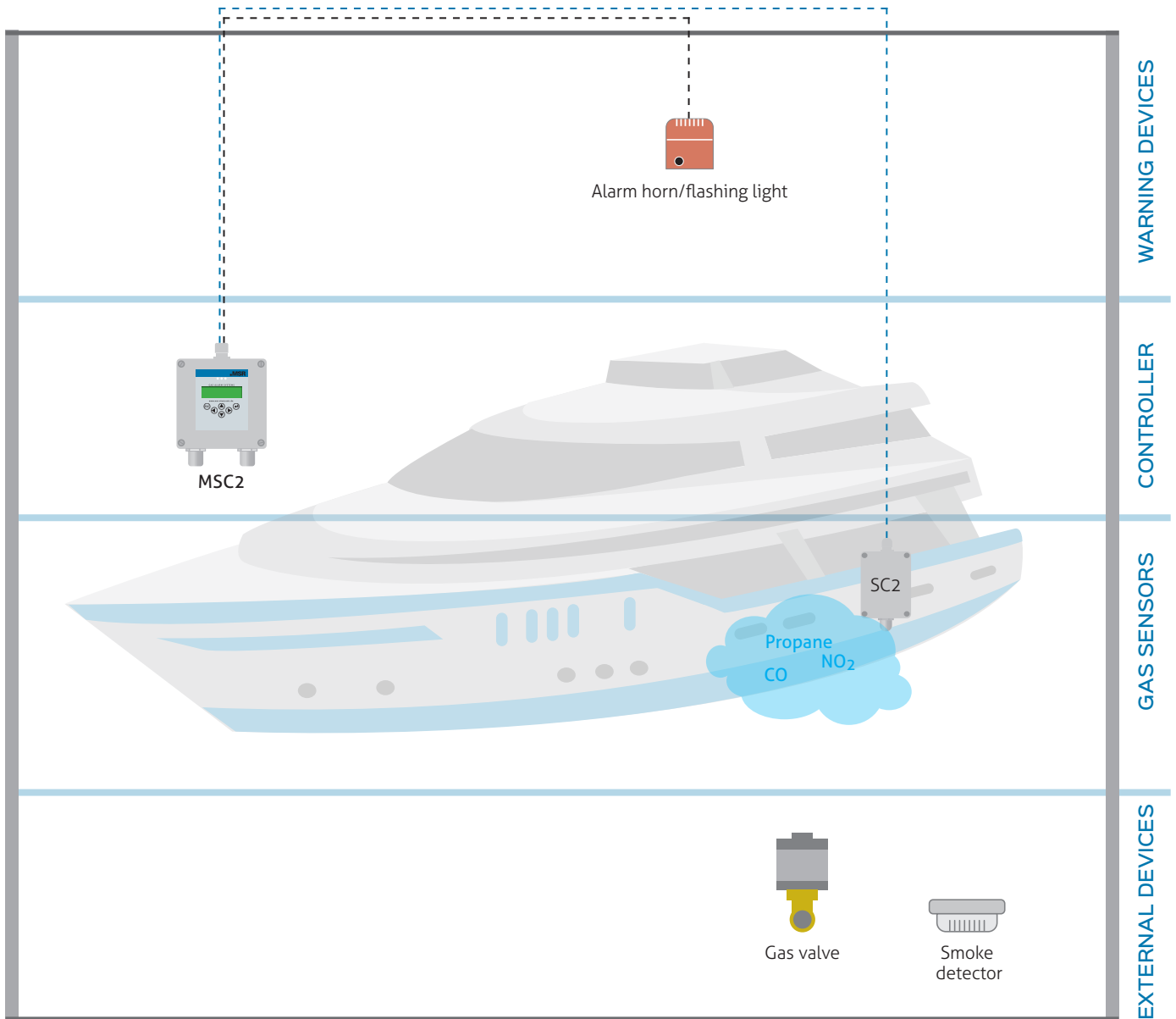
### **GAS HAZARDS**

- 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 alarm buzzer and display



**MSR SHOP24**  
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# Appendix

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# MSR Academy

User knowledge directly from the manufacturer

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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 up close while participating in a **BASIC webinar** and a further 2-day **ADVANCED training course** in Pocking and to

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

The training will cover 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](http://www.msr-electronic.de/en/academy).





# MSR Product Configurator

With Webshop [www.msr-24.com](http://www.msr-24.com)

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

With this variety of applications and requirements it is not always easy to find the right gas warning product. At [www.msr-24.com](http://www.msr-24.com) customers can enter the key data (e.g. application and room size) of the project in the product confi-

gurator. 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.

---



**MSR-Electronic configurator with webshop**

## + BENEFITS

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

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

### 1. SELECT APPLICATION

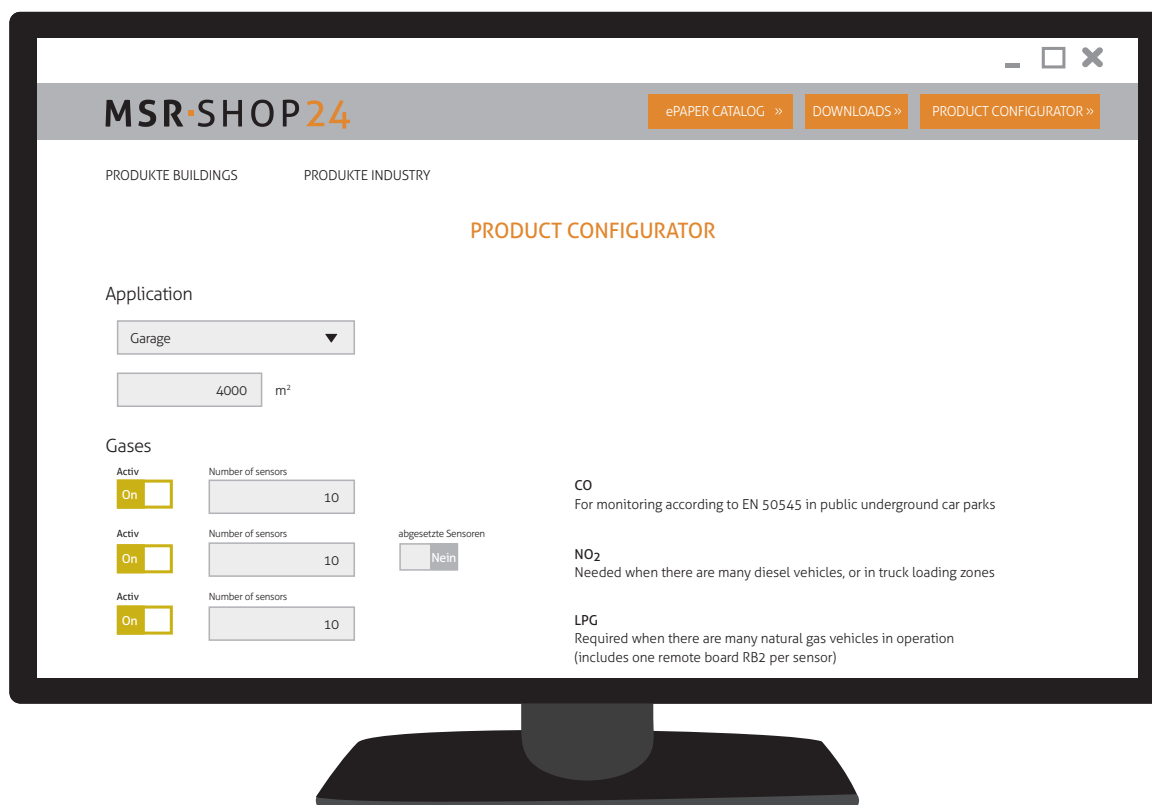
Select application (garage, refrigeration, etc.) and specify the size of the room to be measured. The required gas sensors are then automatically displayed and can be limited as desired.

### 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/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 in-

dustries in complying with all current national and international regulations on product safety and technical market safety requirements.

**Contact us and learn more about the possibility of personalization.**

[info@msr-electronic.de](mailto:info@msr-electronic.de)

---

## + YOUR PROJECT TEAM

**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 quality management, up to the release sample (PPAP) and subsequent series production, we are in close contact with you.

**MSR-Electronic is a manufacturer of stationary gas alarm systems with decades of experience in the field of building automation and gas measurement technology.**



## Applications

- Tunnel
- Parking garage
- Building
- Industry
- Petrochemistry
- Biogas Plant
- Shipping
- and more



## Accessories

- Acoustic: horn, buzzer
- Optical: flashlight, warning sign
- and more



## Assembly

- Standard in housing
- Remote with cable

## Gases

- CO<sub>2</sub>
- NH<sub>3</sub>
- CH<sub>4</sub>
- and more



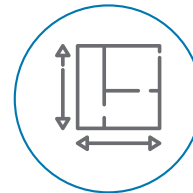
## Sensor

- Infrared
- Electrochemical
- Semiconductor
- Catalytic



## Housings

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



## Approvals

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



## More Features

- Relay
- Display
- Analog / digital outputs
- Analog / digital Inputs
- Modbus, BACnet
- and more

# 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. Basically, e-learning 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+Sensor-Board WSB2

### ▶ Commissioning

Multi-Sensor-Controller MSC2

### ▶ Commissioning

PolyXeta®

### ▶ 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



**MSR** LinkedIn

Find out all the news about us.



# Commissioning and Maintenance

With an international partner network

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

As a 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 or 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.



## 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 275 ppm.

Furthermore, triggering devices such as warning signs, alarm horns or flashing lights are tested during maintenance. The switching contacts, operating display and fault message are also checked. If an emergency power supply is available, its functional activity is also verified. Afterwards, the system receives an inspection sticker and the completion of the maintenance is noted in the inspection book. All test procedures as well as necessary, upcoming maintenance are documented in the maintenance protocol and the absence of defects is certified.

For an existing gas detection system, it is absolutely necessary to observe the maintenance intervals. This helps to always obtain correct sensor values in the evaluation unit. It also ensures that the plant will function properly in the event of increased gas volumes and that people and equipment will be safe.



# Gas Directory

## Toxic gases

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

## Combustible gases

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

# Gas Directory

## Refrigerant gases

Gas	Formula	Measuring range
<b>Refrigerant gas sensor</b>		
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
<b>Refrigerant gas sensor in LEL range</b>		
Refrigerant gas	R32	0-50% UEG
Refrigerant gas	R455a	0-50% UEG
Refrigerant gas	R454b	0-50% UEG
Refrigerant gas	R1234yf	0-50% UEG
Refrigerant gas	R1234ze	0-50% UEG

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

# Products

## Overview



### **Digital-Gas-Controller DGC-06**

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.

[Page 64](#)



### **PolyGard® Control Box PGCB**

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

[Page 74](#)



### **Analog-Relay-Board ARB2**

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

[Page 56](#)



### **Analog Sensor MC2**

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

[Page 42](#)



### **Digital Sensor SC2**

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.

[Page 42](#)



### **Sensor-Board SB2**

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

[Page 50](#)



### **Door-Entrance-Module DEM-06**

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

[Page 70](#)



## Interactive Product overview

Learn more about our products here.



### Multi-Sensor-Controller MSC2

Compact gas warning device (Plug & Play) 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.

Page 58



### 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.

Page 60



### Warning+Sensor-Board WSB2

Compact gas detector (Plug & Play) 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.

Page 52



### 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.

Page 104



### Digital Sensor SX1

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

Page 104



### Digital Sensor SSAX1

Remote sensor probe for connection to the WSB2 board, for use in ATEX and IECEx zone 1/2 and SIL2. In addition to the measured value, the probe provides information on the calibration interval and service life.

Page 106



### Accessories

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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# Housings

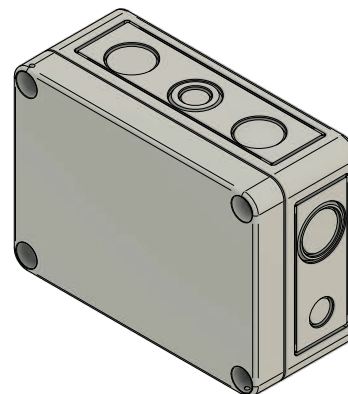
PolyGard®

(W x H x D)

## A-HOUSING

Plastic

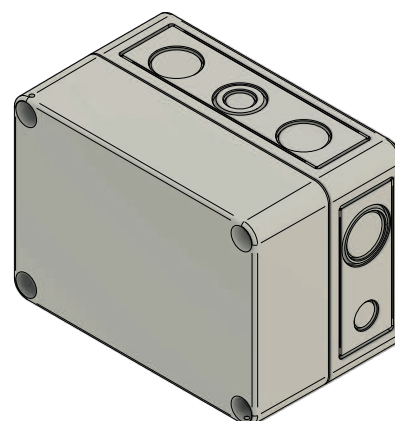
130 x 94 x 57 mm



## G-HOUSING

Plastic

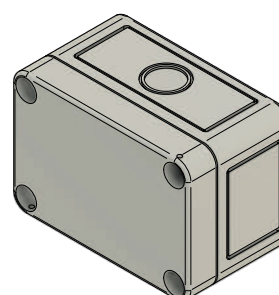
130 x 94 x 81 mm



## D-HOUSING

Plastic

94 x 65 x 57 mm



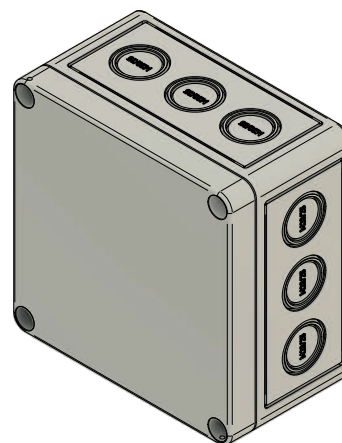
Images similar, not to scale

(W x H x D)

## C-HOUSING

Plastic

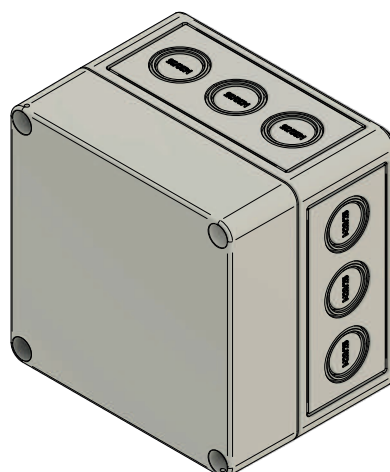
130 x 130 x 75 mm



## 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

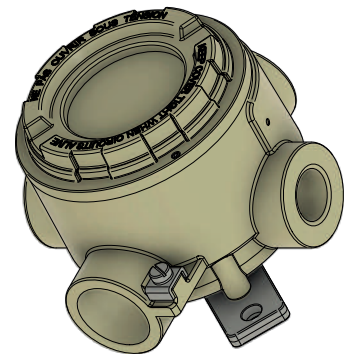
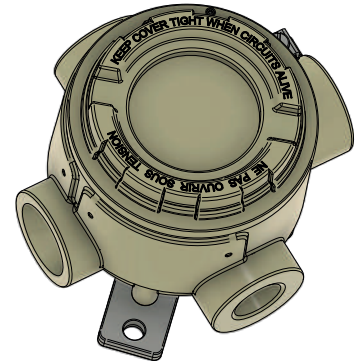
# Housing

PolyXeta®

(W x H x D)

## K-HOUSING

Aluminum pressure glass (Ø) 95 x 82 mm



Images similar, not to scale

# Housing

## 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 Warning devices	Display
<b>ARB2</b>	1	0	A, C	1	1	with MC2
<b>SB2</b>	0	3*	A, C, 5	1	1	1
<b>WSB2</b>	1	2	C, E	1	1	1
<b>MSB2</b>	3*	2*	C, E	1	1	1
<b>MSC2</b>	2*	2*	C, E	1	1	1
<b>DGC-06</b>	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	<b>ARB2</b>
0	0	0	0	1	0	<b>SB2</b>
1	1	1	2	1	1	<b>WSB2</b>
3	1	2	3	1	0	<b>MSB2</b>
2	1	2	3	1	1	<b>MSC2</b>
32**	16**	16**	32**	1	1	<b>DGC-06</b>



# Product Abbreviations

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
PGCB	PolyGard® Control Box
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 Service-Tool
STL06	Service-Tool
SX1	Sensor head SX1 (PolyXeta®2)
WAO	Warning unit: visual/audible indicator
WH	Alarm horn
WH-24	Alarm horn, 24 V DC
WH-230	Alarm horn, 230 V AC
WH/BL	Alarm horn/flashing light combination
WH/BL-24	Alarm horn/flashing light combination, 24 V DC
WH/BL-24-Tast	Alarm horn/flashing light combination, 24 V DC + button
WH/BL-230	Alarm horn/flashing light combination, 230 V AC
WSB2	Warning+Sensor-Board
WT	Warning sign



Gas Detection.



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