

PERFECT SOLUTIONS FOR GAS ALARM SYSTEMS



Safe Medical and Laboratory Areas



Fixed Gas Alarm Systems

for Laboratory, Research and Medicine



Reliable Gas Monitoring

Perfect solutions for your medical applications

MSR-Electronic offers fixed gas alarm systems for reliable monitoring, analysis and leakage detection of toxic and combustible gases. On this basis MSR-Electronic develops individual gas sensors, controllers and warning devices for many applications.

Especially the sensitive medical and laboratory areas must be constantly monitored in order to protect against hazardous substances. MSR gas alarm systems are particularly flexible in this respect, as all requirements can be tailored to suit individual needs. Whether individual sensors with connection to existing BMS systems or complex self-sufficient gas detection systems for large-scale laboratories with different areas. The gas alarm system from MSR-Electronic in-

cludes freely configurable alarm thresholds for compliance with MAK values as well as various interfaces (Modbus, Bacnet, analog output) for connection to existing BMSs. The system is adapted to your requirements by means of a modular structure.

The MSR products comply with more than the general standards and regulations and can therefore guarantee the protection of employees and the safety of the plant.

LABORATORIES



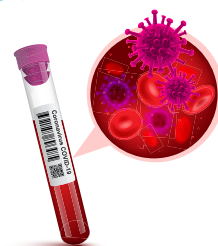
RESEARCH

- Research institutes
- University laboratories



MEDICINE

- Cryopreservation
- Anatomy
- Forensics
- Pathology
- Histology
- Ventilation



CHEMICAL INDUSTRY



PHARMACEUTICAL INDUSTRY

- Fermentation
- Clean room monitoring



Different Sensors

for different gases

Carbon dioxide (CO₂)

The laboratory gas as a cooling medium (dry ice) is used in sample transport and storage as well as in incubators and chromatography equipment in cryogenic areas.

Risk: Carbon dioxide hinders the absorption of oxygen and leads to death if the concentration is too high.

Oxygen (O₂)

Laboratories store and work with high concentrations of oxygen used in gas production and gas mixing stations.

Risk: The displacement of oxygen by other gases.

Nitrogen (N₂)

Nitrogen is used as a cooling medium for shock freezing and for storage of medical samples in laboratories and used in cryogenics. Risk: Danger of suffocation by oxygen displacement.

Hydrogen (H₂)

The carrier gas is increasingly used in gas chromatography and is gaining popularity as a substitute for helium, which has been the preferred carrier gas until now.

Risk: Danger of explosive gas mixtures.

Propane (C₃H₈) and Methane (CH₄)

Methane and its gas mixtures are used to operate Bunsen or Teclu burners in laboratories or as a starting product for technical syntheses.

Risk: Danger of explosive gas mixtures.

Room air monitoring

Keep an eye on the quality of the ambient air and, if necessary, bring about targeted ventilation. Risk: Indoor air enriched with toxic gases, e.g. with CO₂, formaldehyde.

Formaldehyde (CH₂O)

In the form of formalin, it is used to fix tissue samples. It is also used as a disinfectant for cleaning large surfaces.

Risk: Toxic, carcinogenic gas.

Ozone (O₃)

Ozone is proven to be effective against bacteria, microorganisms and other pathogens and is therefore used for disinfection in various applications. Risk: Toxic, headache, cough and irritation of the respiratory tract.

MSRSHOP24

Further sensors for toxic and explosive gases can be found in our webshop and on request:

www.msr-24.com



Laboratories and Medical Facilities

Detection of different gases

When handling various hazardous substances in laboratories and medical facilities, relevant safety measures according to the Ordinance on Hazardous Substances (GefStoffV) and the laboratory guidelines must be observed. Substances are produced, examined and monitored in production processes. For this purpose, mixtures of substances are separated, substances are detected and chemical reactions and measurements

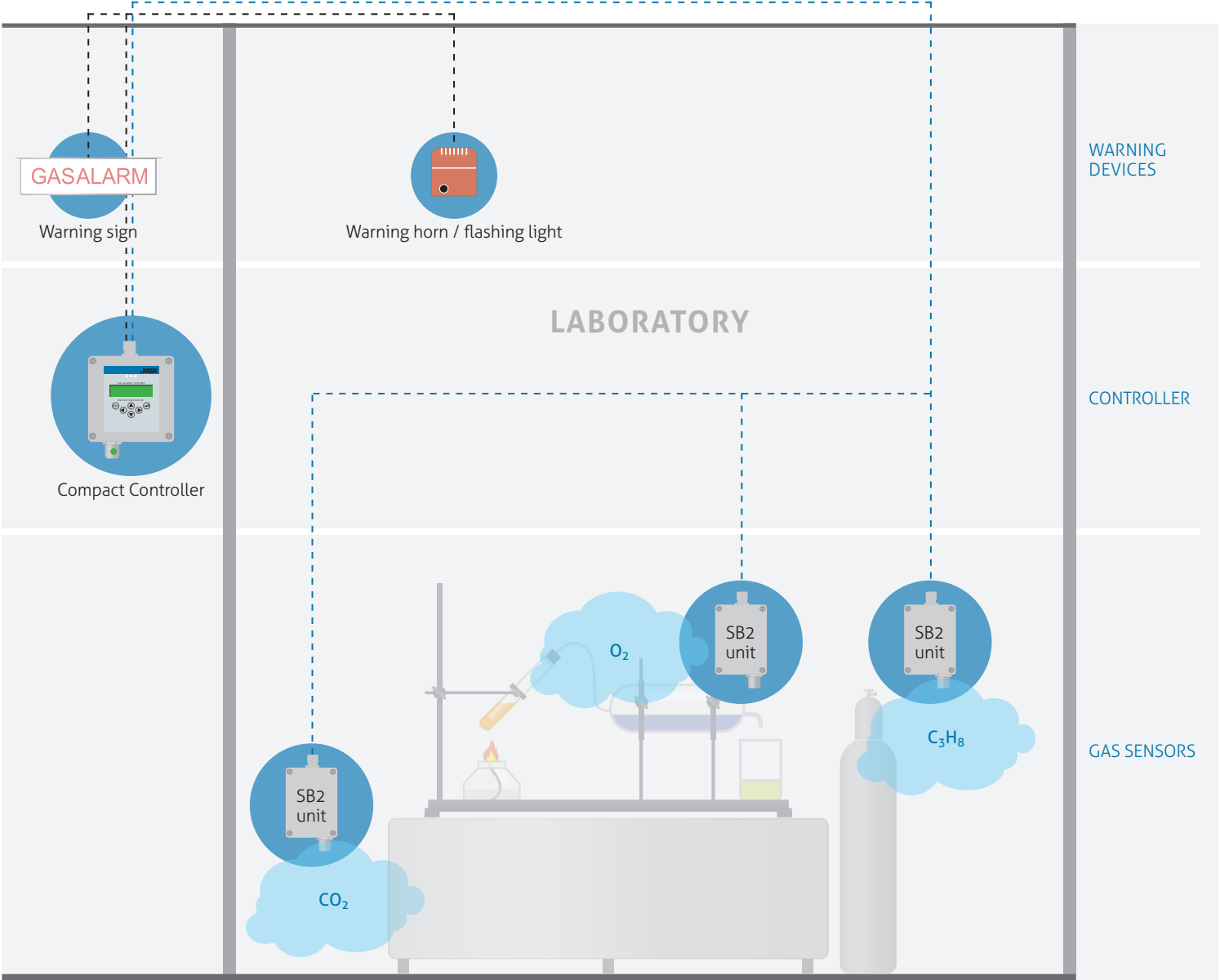
are performed. Reliable monitoring of the large number of gases in the ambient air must therefore be ensured.

The compact controller from MSR-Electronic is designed for the connection of up to 10 gas sensors via its own fieldbus and is used to warn of various gases. Multiple output and input options allow for easy integration into existing systems.

+ BENEFITS

- Display for all notification, configuration and calibration functions (no more tool required)
- Fieldbus connection for up to 10 gas sensors (SB2 units)
- Automatic closing of the gas magnetic valves in the case of a gas alarm
- 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, various housing types with IP65
- Warning buzzer and status LED for warning, fault, operation and service (optional)





Air Circulation Stations + Fume Cupboards

Room and filter monitoring

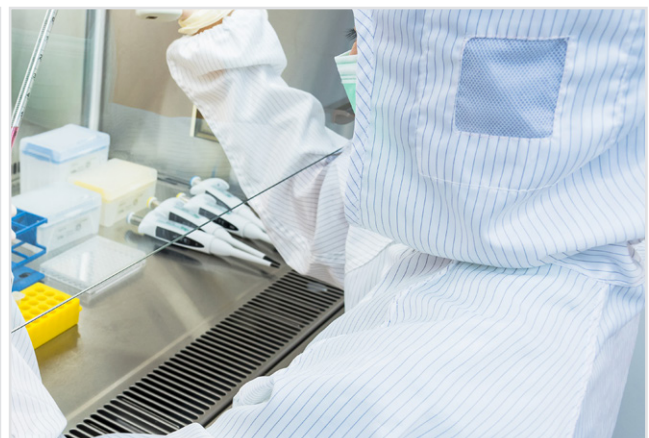
Air circulation stations, fume cupboards and systems for filtering gases and ambient air are often an important part of a laboratory.

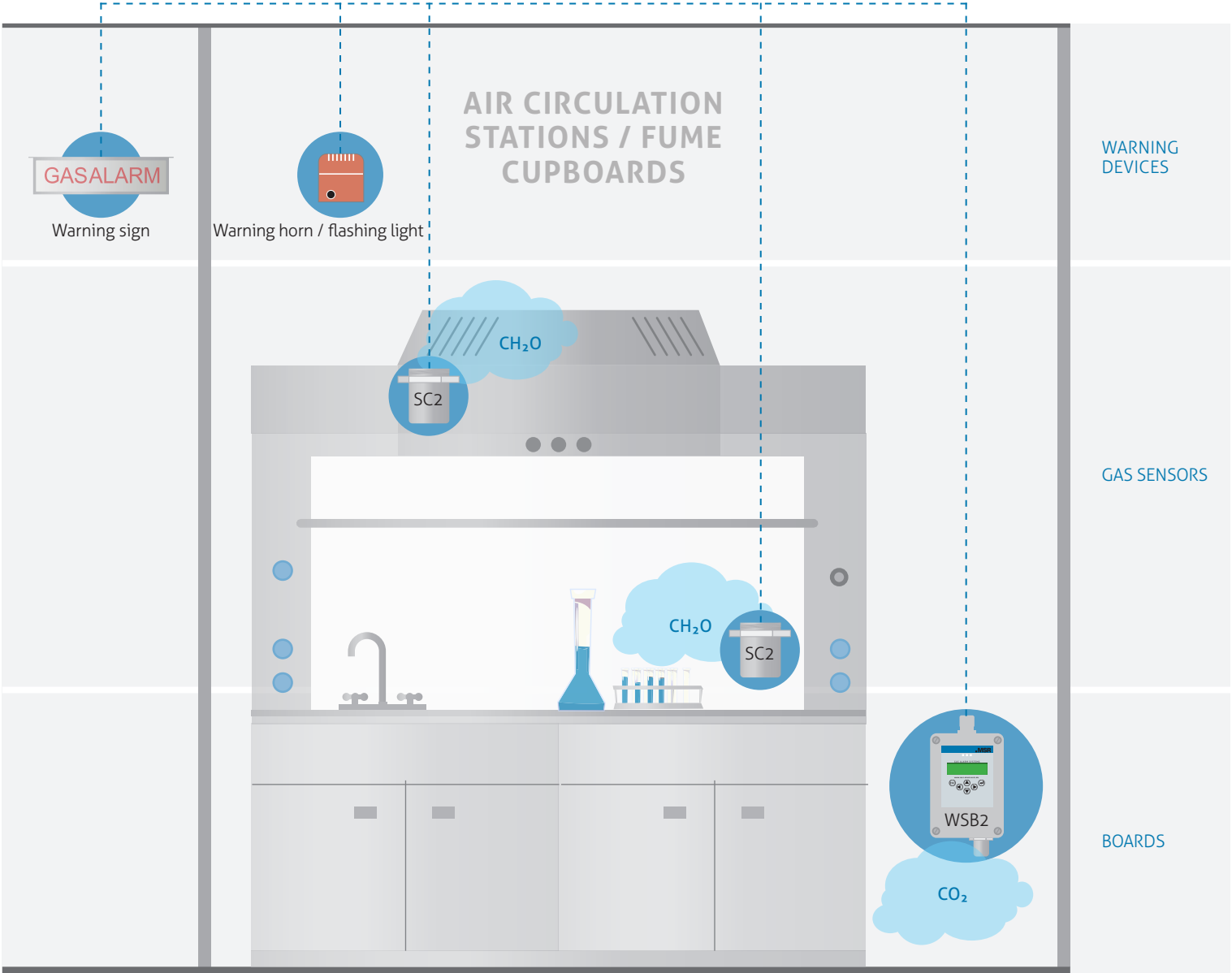
Monitoring the exhaust air behavior of the fume cupboard and the ambient air in the work area for toxic and combustible gases and vapors is an important criterion for fulfilling the protective function and thus maintaining occupational safety. Up to 3 different sensor heads can be connected to the WSB2 warning and

sensor board via the local bus in order to ensure safety in the working area in addition to system and filter monitoring. The power supply of the sensors is ensured by the board WSB2 and the measured values are digitally processed. Calibration can be performed by simply changing the sensor heads or by using the integrated, convenient calibration routine directly in the device.

+ BENEFITS

- Digital processing of measured values incl. temperature compensation
- Up to 3 different sensors
- Analog input and output, 4-20 mA, Modbus (optional), 2 potential-free relays
- Display for continuous measured value indication and optical signaling in case of alarm (optional)
- Easy calibration by replacing the sensor cartridge or by calibration on site





Gas Monitoring in the Respirator

Reliable measurement of the oxygen concentration

The safety of patients in anesthesia and intensive care depends on how quickly sudden changes in condition are detected. In addition to the modern technology of anesthesia and respiration equipment, reliable monitoring of the oxygen concentration is required. Gas sensors from MSR-Electronic for medical devices meet all important international requirements and thus protect people and equipment in these

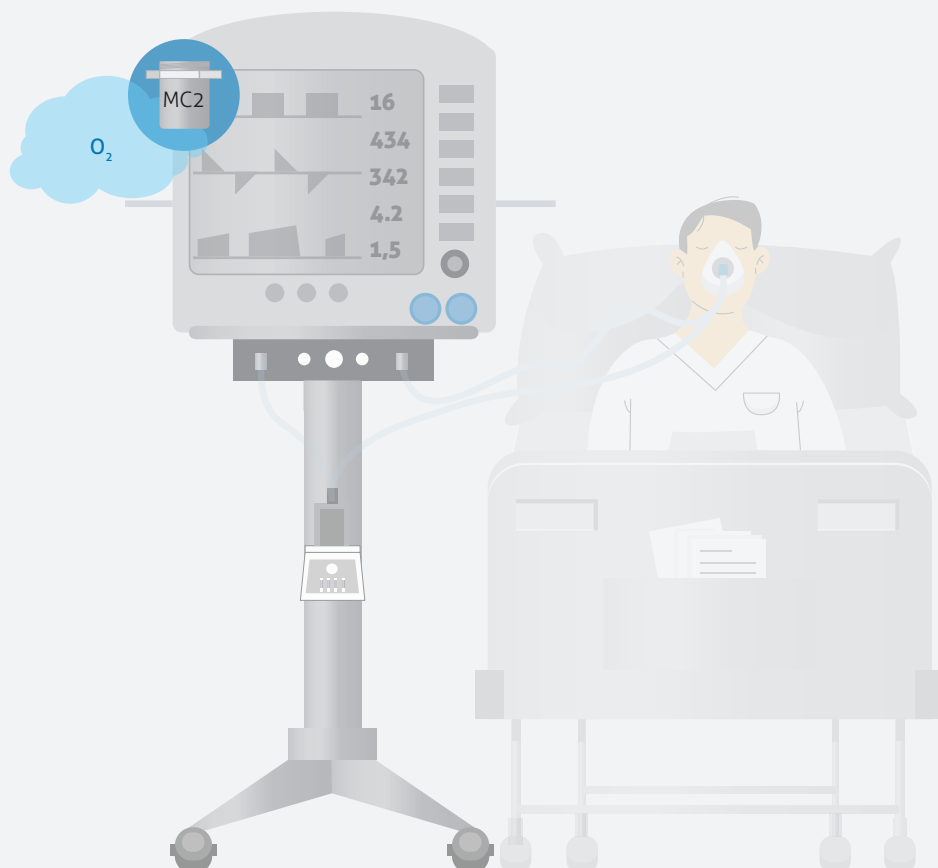
areas. The MSR exchangeable sensors with digital measurement value processing, temperature compensation and self-monitoring for continuous control of the oxygen concentration are therefore ideal for the application. Calibration can be performed by simply changing the sensor heads or by using the integrated, convenient calibration routine directly in the device.

+ BENEFITS

- High accuracy and stable output signals over the entire service life
- Low cross-sensitivity to anesthetic gases
- Individual solution for your requirements
- Easy calibration by replacing the sensor cartridge or by calibration on site



RESPIRATION



GAS SENSOR

Gas Monitoring for Large Laboratories

Centralized evaluation of complex gas alarm systems

The Digital Gas Controller DGC-06 – the central unit for gas monitoring. The controller has been specially developed for large systems or also for extensive connections. There is hardly any scenario in gas monitoring, which this controller does not cover. From complex systems to access functions that are switched via gas alarm, everything is possible. The DGC-06 gas controller series was developed in a SIL2-compliant process and meets all current standards. It can

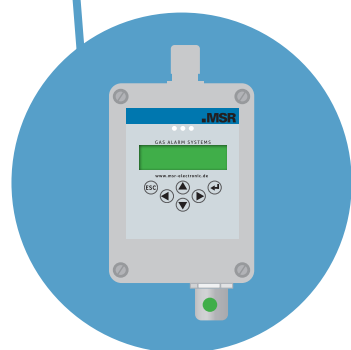
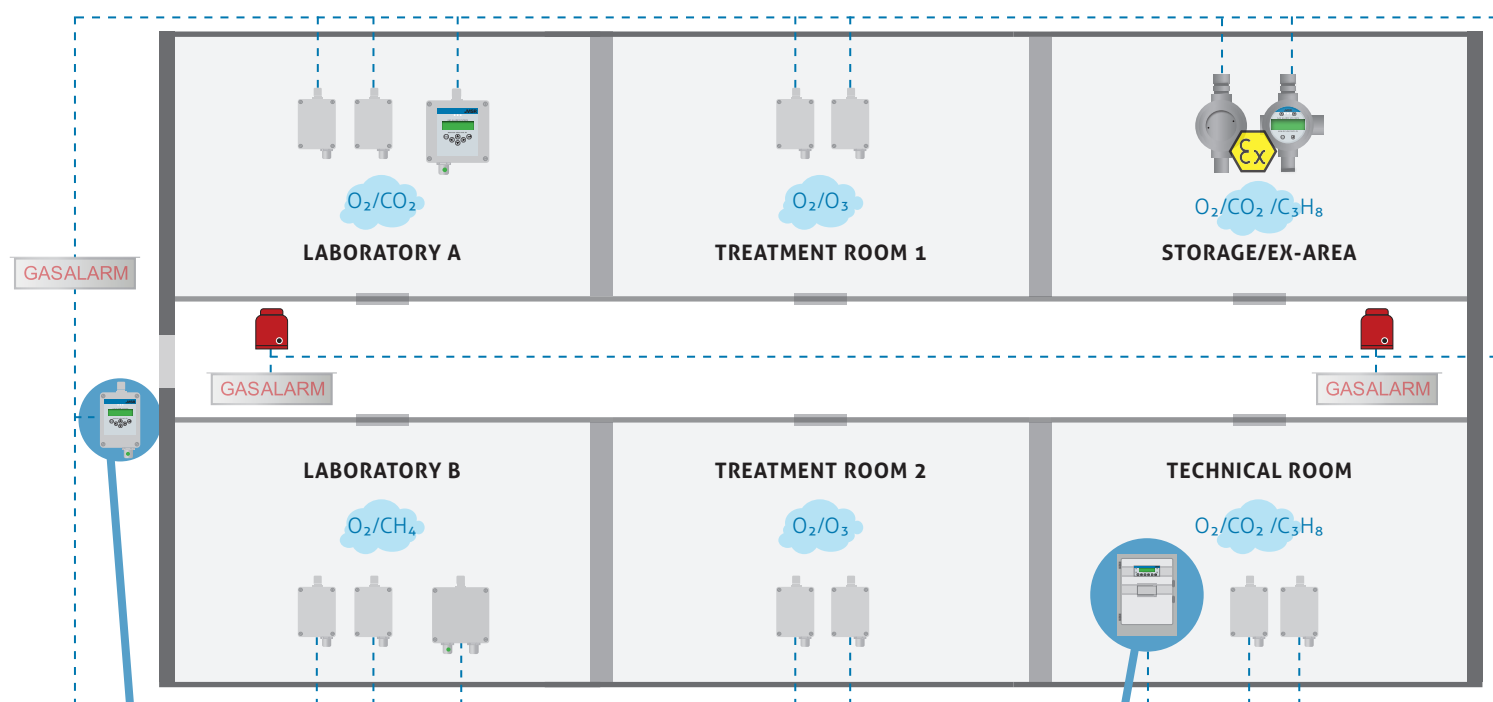
monitor and evaluate up to 128 gas sensors, 96 of which are digital and 32 analog sensors (4-20 mA). There are 4 freely adjustable alarm thresholds per sensor. For alarm messages, the controller system has up to 32 relays with potential-free changeover contact and up to 16 analog outputs with 4-20 mA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

The Door Entrance Module DEM-06 offers additional security at the entrances and warns of possible dangers even before entering.

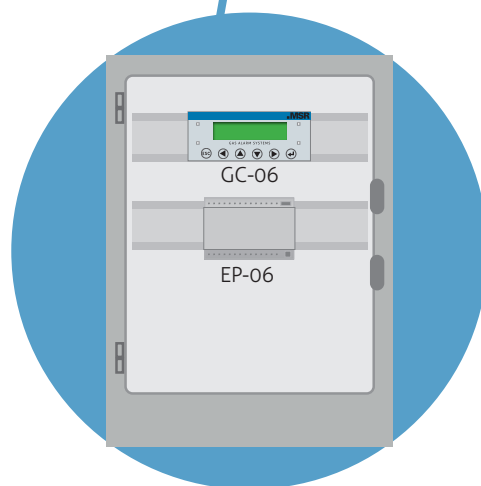
+ BENEFITS

- For complex and autarchic gas monitoring
- Scalable: Up to 128 different sensors and 32 relays
- Automatic closing of the gas magnetic valves in the case of a gas alarm
- Relays can be extended with EP modules
- Display with LED
- Option UPS / data logger
- Can be integrated into switch cabinet





DEM-06



DGC-06

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