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H₂ variety - on the safe side with reliable gas detection

MSR-Electronic monitors gases in H₂ research, H₂ production as well as in H₂ transport and H₂ mobility.

Grey, blue, turquoise or green hydrogen?

Depending on the type of production used, different colours are assigned to the hydrogen even though it is colourless. In its national climate protection and hydrogen strategy for the future, the German government is focusing in particular on green hydrogen produced in climate-neutral way. However, the most widely produced hydrogen at present is the climate-damaging grey hydrogen. Here, hydrogen is split off from a fossil hydrocarbon - natural gas - by means of steam reforming. The natural gas reacts with water vapour, producing H₂ and CO₂. During this production process, CO₂ gas monitoring is indispensable, because in the event of a leakage, the CO₂ displaces the oxygen in the ambient air and thus endangers human life.

Properties and effects of carbon dioxide. CO₂ is extremely dangerous in higher concentrations and can even be fatal: The danger of poisoning begins at 0.5 % vol CO₂, while a concentration of over 10 % vol can lead to death by asphyxiation. Since carbon dioxide is one of the odourless and colourless gases, the danger is usually only recognised when it is too late.



Not only during production, but also during transportation of hydrogen, e.g. by truck, ship or pipeline, gas sensors and controllers from MSR-Electronic warn of the explosive gas; because H₂ is highly flammable - comparable to petrol or diesel, and neither visible nor smellable.

With the use of the energy source of the future, the demand for a correspondingly large H₂ filling station network is also growing in parallel. Not only pressure, temperature and flow have to be monitored at hydrogen filling stations, but also the detection of gas is becoming a great necessity.

Solutions from MSR-Electronic for reliable CO₂ and H₂ detection and for monitoring O₂ deficiency.

MSR-Electronic employs various methods of gas detection. On this basis, MSR develops individual gas sensors and controllers for many applications, such as underground garages, tunnels, petrochemical plants, laboratories and medical facilities, as well as for the waste disposal industry, wherever toxic or combustible gas concentrations may form.

MSR solutions for fixed gas warning systems

Measuring devices for gases protect people and facilities located in hazardous zones.



The PolyXeta®2 PX2 is a microprocessor-based gas detector with 4-20 mA / RS-485 Modbus output signal, alarm and fault relay, for monitoring the ambient air to detect combustible gases and vapours (H₂) by means of a catalytic sensor element, for toxic gases and oxygen concentration (O₂) by means of an electrochemical sensor element or for carbon dioxide (CO₂) by means of an infrared sensor element.

Sensors without LC display are calibrated with the handy calibration device STL06-PGX2 or the PC software PCE06-PGX2. Sensors with LC display have an integrated calibration routine that is started from the outside with a permanent magnet without opening the housing. In addition, the background lighting changes from green to red in the event of an alarm or error.

BENEFITS

- ATEX 1/2 and IECEx certificates (for electrical Ex protection)
- Approved Measuring Function & SIL2 safety functions 4–20 mA, RS-485 and relays
- For zone 1/2: Type “Ex db” protection flame-proof enclosure
- For zone 2: Type “Ex nR” protection
- MED Certificate and TA Certificate:
Approval according to Marine Equipment Directive 2014/90/EU by DNV



- Enclosure: additional FM and CSA certificates for Class I, Div. 1
- Continuous self-monitoring
- Microprocessor with 12-bit converter resolution
- Easy calibration
- Calibration service by exchanging the sensor head
- Proportional 4–20 mA output
- Serial interface to the control centre
- Alarm and fault signal relays
- Reverse polarity protection and overload protection
- Option: LCD display with status LEDs (optional)

Thanks to the X-Change technology, calibration can be carried out by simply exchanging the sensor head (type SX1) or by using the integrated, convenient calibration routine directly on the system.

Further information on **MSR products** can be found in the current **Online-Catalog** or in the webshop **www.msr-24.com**.

MSR-Electronic is a manufacturer of fixed gas warning systems with decades of experience in the area of building automation and gas measuring technology. The international company with headquarters in Germany offers a wide range of methods for the detection of toxic and combustible gases. On this basis, MSR-Electronic develops individual gas sensors, controllers and warning devices for many applications, such as parking garages, tunnels, the petrochemical industry and shipping. The products meet and surpass general standards and regulations and can thus guarantee the safety of the plant. **www.msr-electronic.de**

MSR-Electronic GmbH | Bürgermeister-Schönbauer-Str. 13 | 94060 Pocking, Germany | Tel.: +49 8531 9004-0

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Contact: MSR-Group GmbH, Michaela Kosmella-Rauner, Bgm.-Schoenbauer-Str. 13, 94060 Pocking, **m.kr@msr-group.eu**

