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Gas sensors safeguard research work in the extreme climate simulator in Bolzano, Italy

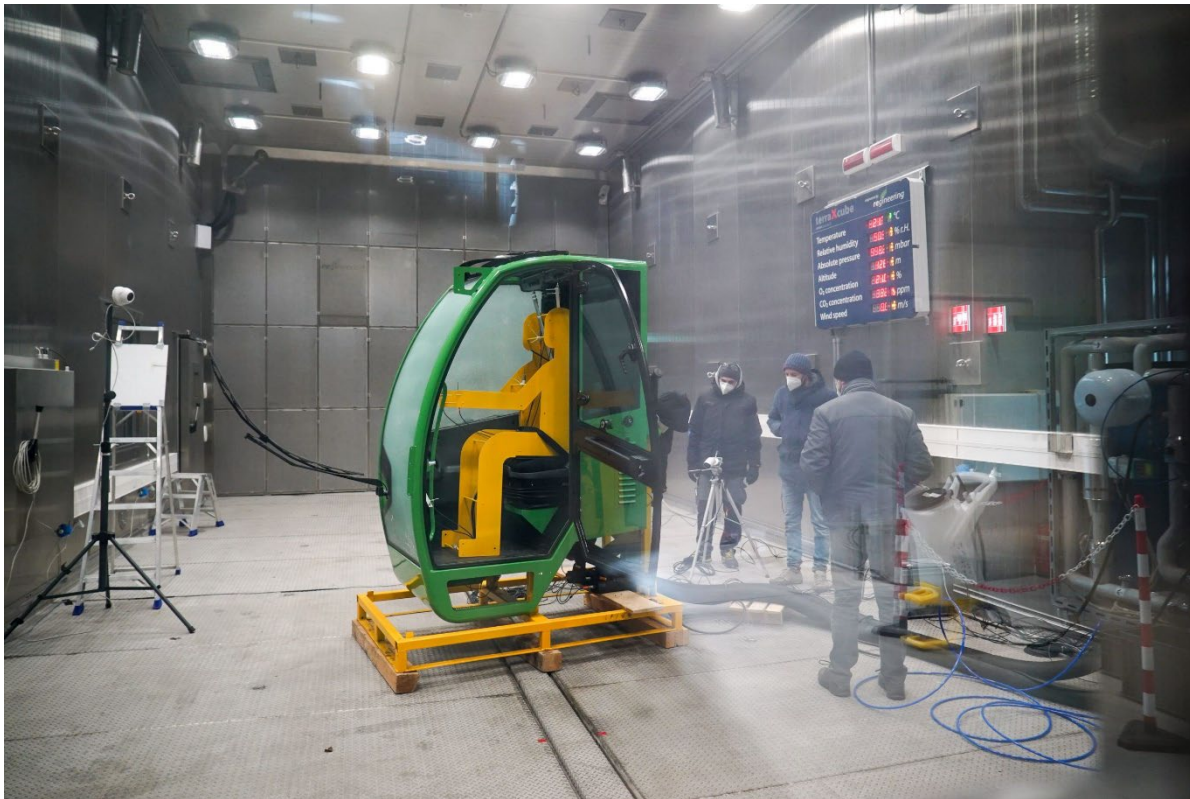
Gas detectors from MSR-Electronic monitor test procedures in climate chambers.

Various institutes of the private research centre Eurac Research based in Bolzano (South Tyrol) as well as public institutions and private companies use the **terraXcube** for medical and ecological research as well as for practical tests. The climate chambers of different sizes simulate a variety of environmental influences, such as temperatures from -40 °C to +40 °C, humidity, precipitation, wind or even altitude pressure. In the Small Cubes, the complete solar spectrum can be simulated.



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In the terraXcube, it is possible to carry out ecological tests, for example with plants, medical tests on the human organism as well as industrial tests on large equipment or special vehicles, among other things. Examples are the studies concerning the heating system performance standards of the cabin of a feed mixer truck or the cold start of a vehicle.



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The terraXcube also provides a safe and controlled training environment under extreme conditions. Students of physiology at the University of Ulm, for example, studied the physiological effects of



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simulated extreme altitude exposure on the human body. After the lectures at the university on the theory, they were able to experience the effects in practice on their own body at an absolute air pressure of 600 mbar (corresponds to an altitude of 4000 m) in the climate chamber.

Gas warning systems must be reliable at all times.



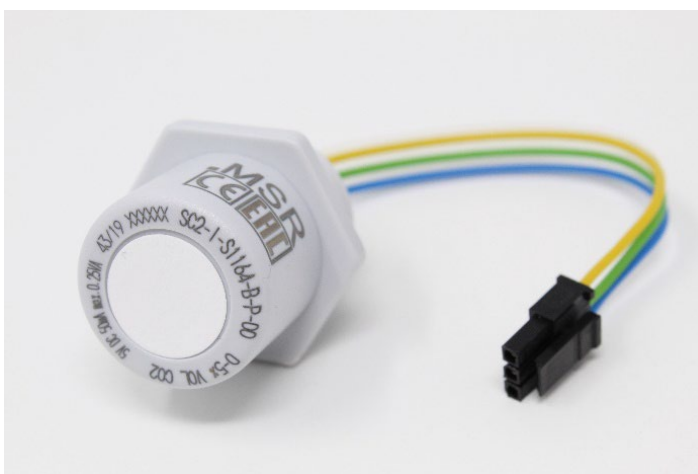
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Gases are used in research work of this kind. In order to study different climate conditions or the effects of the growing proportion of the climate gas CO₂ in the atmosphere, the climate simulator needs a fixed gas warning system.

If the gases escape or if the oxygen concentration in the ambient air of the climate chamber drops, fast alarming with reliable gas warning devices are required.

Gas sensors, controllers and warning devices from MSR-Electronic monitor the test rooms. If a limit value is reached, the gas warning system alerts with acoustic and visual signals to protect people and equipment in time. The alarming of the control centre as well as evacuation and rescue measures take place in parallel.

MSR-Electronic solution for reliable gas detection.



Digital gas sensors (type SC2) are used for monitoring toxic and combustible gases. In addition to the sensor element (electrochemical, catalytic, semiconductor or infrared) and the measuring amplifier, the gas sensor SC2 contains a μ Controller for processing the measured values. All relevant data and measured values of the sensor element are stored in the μ Controller in a fail-safe manner and are transmitted digitally to the board

via the local bus. The calibration management is also integrated in the μ Controller of the gas sensor.

Thanks to the X-Change technology, calibration can be carried out by simply exchanging the sensor head or by using the integrated, convenient calibration routine directly on the system. The gas sensors are designed for connection to the MSR controllers and boards.

The heart of the system is the GC-06 Gas-Controller.



The **GC-06** from MSR-Electronic was installed in the existing control cabinet of the climate chamber.

It is used for monitoring and warning of toxic and combustible gases and vapours in a wide range of gas measurement technology. The large number of freely configurable parameters and setpoints allows **individual adaptation** to many applications. The GC-06 also fulfils, for example, the functions for carbon monoxide (CO) monitoring in garages, tunnels and go-kart tracks etc. in accordance with the current EN 50545-1.

MSR-Italy Srl (www.msr-italy.it) carried out a system update on the long-standing gas warning system at terraXcube and provided advice. MSR-Italy Srl is a subsidiary of MSR-Group GmbH from Germany.

Further information on **MSR products** can be found here in the current **MSR-Electronic 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 field of building automation and gas measurement technology. The international company with headquarters in Germany has 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, petrochemical industry or shipping. The products meet more than the general standards and regulations and can therefore guarantee the safety of the plant. **www.msr-electronic.de/en**

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