



SENSORS AND COMPONENTS FOR NDIR GAS ANALYSIS



Sensors & components for gas measurement

For process control, environmental measurement and laboratory analysis, over 100 different gases can be detected reliably from ppm to percent by means of NDIR analysis.

This reliable measuring method is used in particular in:

- Biotechnology for incubated cell growth processes
- Environmental and agricultural technology, ripening processes in greenhouses
- Automotive industry for exhaust gas measurements or chemical applications
- Industrial process- and production control, exhaust gas monitoring, refrigerant leak detection, fruit storage
- Medical for respiratory and anesthesia gas analysis

Micro-Hybrid supplies all infrared components right through to the complete gas sensor for diverse measurement applications in a wide variety of industries. We develop customized systems with the latest IR technology and our own, optimally matching IR components for a wide range of measurable gases.

WE DEVELOP HIGH QUALITY AND ADVANCED GAS SENSOR SYSTEMS

- Suitable for use in harsh environmental conditions
- High reliability + accuracy
- Long lifetime
- Multi-gas solutions

Incubator IR CO₂ Sensor

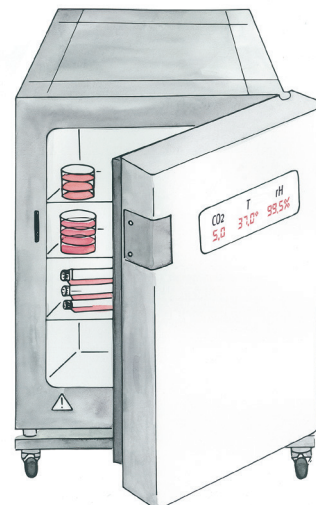


ADVANTAGES

- Withstands dry heat sterilization up to 190° C
- Pressure and temperature compensated for better accuracy
- Water vapor pressure calculation (integrated humidity correction)
- Pre-calibration for easy set up

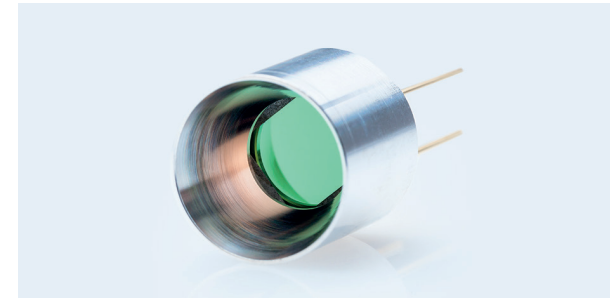
This **IR CO₂ sensor** has been specially optimized for the measurement of 5 Vol-% CO₂ in cell incubators to manage ideal cell and tissue growth. The sensor can be placed directly in the incubation chamber to measure the exact cell experienced environment. It determines the CO₂ concentration based on its IR absorption.

The very robust design of the sensor and its integrated humidity correction ensure accurate measurement. The sensor performance is longterm stable and precise even with frequent sterilization cycles. An easy handling guarantees the cost effective integration into your system.



➤ Find more information about our products at www.micro-hybrid.de

IR sources



ADVANTAGES

- Gas-tight encapsulation **HermeSEAL**
 - Harsh environments (high temperature, partial gas pressure and humidity)
 - Backfilling with different gases increases intensity
 - Increased lifetime by reduction of oxidation
- High radiation intensity in the middle IR range of 2 – 15 µm
- Long life time > 100.000 h and vibration resistant

Micro-Hybrid IR sources are MEMS based hot plate emitters¹ for all applications of non dispersive measurement technology. We developed a worldwide unique process to hermetically seal our emitters. The **HermeSEAL** emitters are gastight and suitable for use in harsh environments.

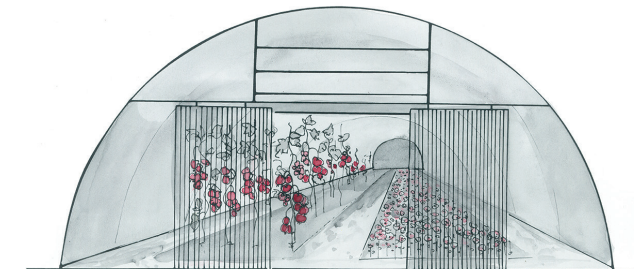
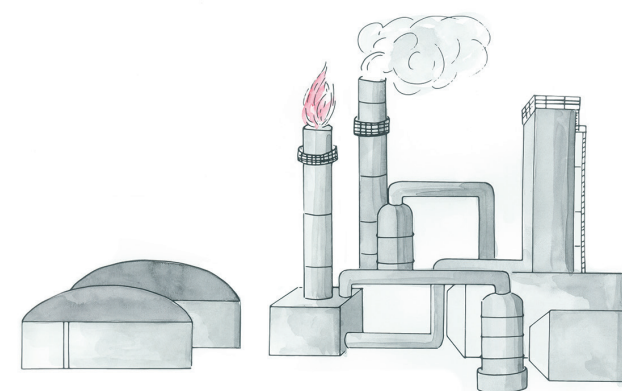
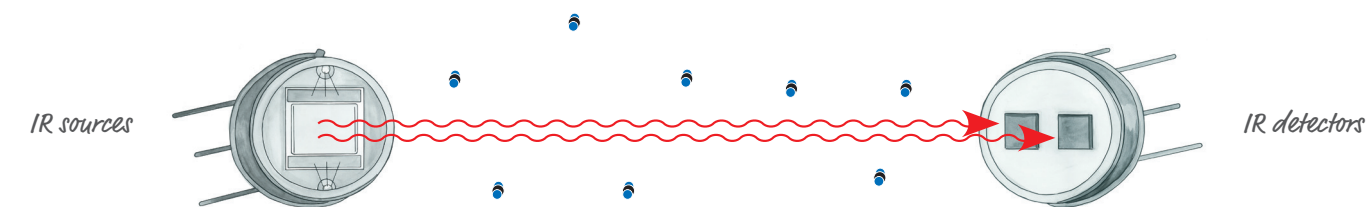
IR detectors



ADVANTAGES

- High sensitivity up to 295 V / W
- Very good signal to noise ratio (SNR) due to high detectivity
- High temperature resistant
- Soldered filter for moisture resistance
- Short response time & high reliability
- Optimal distance to spot ratio

Micro-Hybrid detectors reliably measure the spectral emission of hot materials. In industrial applications such as flame detection, gas analysis, IR spectrometry and for non-contact temperature measurement, the detectors are used. Here, the high accuracy of the measurement results is the decisive advantage.



We offer:

- **1 channel detectors²** for remote temperature measurement
- 1, 2 and 4 channel detectors²** for gas analysis

¹ MEMS emitter chips are manufactured by our subsidiary fab NOVA IR in the USA.

² Also available as thermopile array for spectrometry applications. Suitable for gas measurement, for spectral fingerprint analysis in a wide range of applications (environment, point-of-care, quality control) or and for non-contact temperature measurement.

With more than 20 years of experience in the development and production of IR components, Micro-Hybrid Electronic is one of the world's leading manufacturer of high-quality measurement systems. Micro-Hybrid is a company of Micro-Epsilon Group.

Applications of gas & fluid detection

We develop and produce sensors and components for analyzing the concentration of a wide range of gases and fluids in various technical applications:

ENVIRONMENTAL & TECHNICAL GASES	REFRIGERANTS	ANESTHETIC GASES	FLUIDS
CO (carbon monoxide)	R134a	N ₂ O (nitrous oxide)	Oil
CO ₂ (carbon dioxide)	R404a	C ₄ H ₃ F ₇ O (sevoflurane)	Beer
CH ₄ (methane)	R1234ze	C ₃ H ₂ ClF ₅ O (isoflurane)	Others on request
C ₃ H ₈ (propane)	R449a	C ₂ HBrClF ₃ (halothane)	
C ₄ H ₁₀ (n-butane)	R407c	C ₃ H ₂ F ₆ O (desflurane)	
SF ₆ (sulfur hexafluoride)	...	C ₃ H ₄ Cl ₂ F ₂ O (methoxyflurane)	
C ₂ H ₄ (ethylene)		CHCl ₃ (chloroform)	
C ₂ H ₂ (acetylene)			
SO ₂ (sulfur dioxide)			

Micro-Hybrid IR sources and detectors are available in different, customizable options: **Chip size, packaging (housing T0, SMD)** and others. Please contact us for your request.

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