



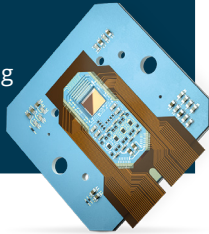
Electronic solutions  
for a better world.



## Advanced electronic modules

Customer-specific OEM solutions made in Germany

- Design and engineering
- Development
- Circuits, MEMS and electronics assembly, packing
- Complete supply chain incl. back end processes
- Application and engineering consulting



## Infrared components

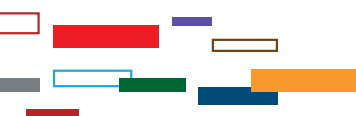
All-in-one IR supplier

- Worlds only supplier of all IR technology equipment on wafer or package
- IR emitter
- IR detectors in two technologies
  - Thermopile
  - Pyroelectric
- HermeSEAL technology



# One solution provider.

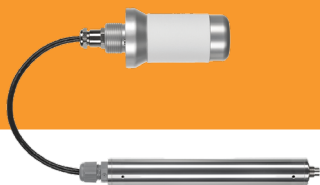
Micro-Hybrid Electronic GmbH is one of the world market leaders in the development and production of sophisticated customer-specific electronic solutions.



## NDIR gas sensors

Technology platform for high-performance gas sensors – winner of AMA technology award 2022

- Gas sensor modules with own and matching IR components for maximum efficiency and performance
- OEM solutions
- Sophisticated application know-how
- CO<sub>2</sub> sensors for harsh environments



## Inertial sensors

OEM safety sensors for trains and vehicles on rail to keep rolling stock on track

- High reliable sensors solutions for railway applications – EN 50155
- Acceleration
- Vibration
- Curve detection
- IMU



We have been developing and producing innovative microelectronics and infrared sensors for over 30 years. Our customers benefit from unsurpassed solutions for control and measurement tasks in difficult environmental conditions.

### Our technology portfolio:

- Ceramic circuits, assembly, and packaging of high-performance electronic modules
- Infrared components and sensors for temperature measurement and gas analysis
- Inertial measurement solutions and sensors for rail applications

From aerospace to cement industry, the fields of application of sensor technology and automation cover all sectors and industries worldwide. Device manufacturers as well as producers of sensors are equally confronted with industry-typical requirements and the solution to electrotechnical or sensor-technical tasks.

Micro-Hybrid solves this measurement task for them with

- High-level technologies,
- Development know-how and
- 30 years of application experience in all industries.

## Empowerment for electronic projects: experience, know-how, motivation

- OEM specialist for customer-specific applications
- Reliable partner for innovative and sustainable-successful electronics and sensor solutions in all areas of the industry
- Progress & constant development of technical solutions
- Unique innovations of measurement and sensory solutions and products
- With the unique Micro-Hybrid spirit: **Enter New Space.**

# 5 steps to your **individual electronic solution.**

## 01 Request

Project idea or product or development conception

With or without technical specifications

## 02 Examination

Feasibility analysis

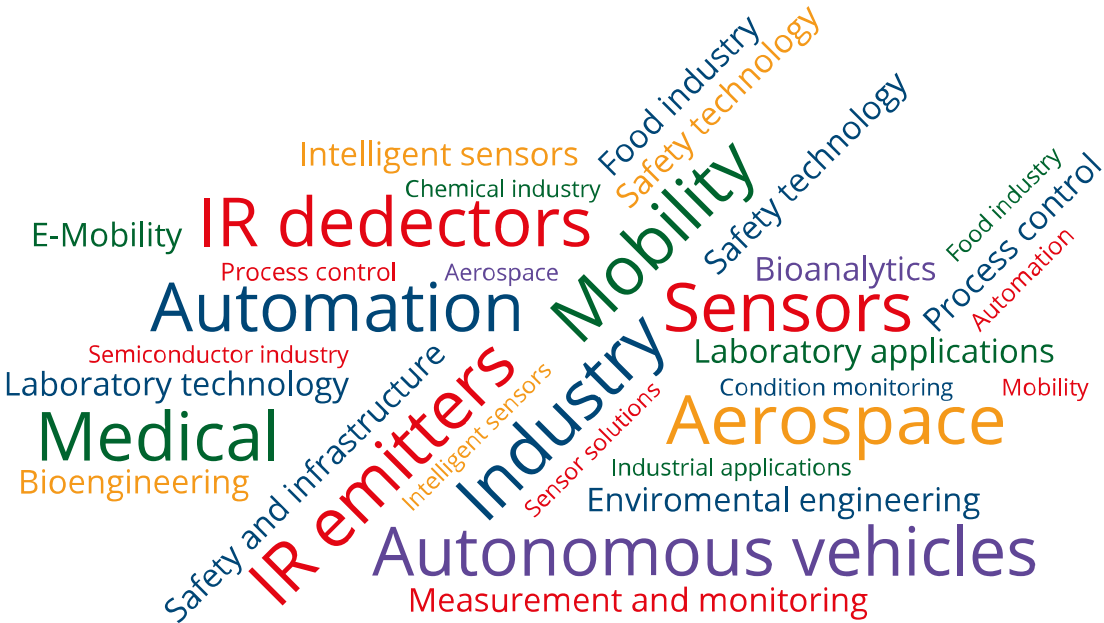
Examination of technological and time implementation

## 03 Development

Stage gate process

Product development  
design & simulation  
semiconductor electronics  
sensors and actuators  
sensor systems

Process development  
assembly and integration  
technology, materials  
and reliability



ment

ess

oment:

tion of

lements,

semblies,

oment:

terconnection

erial science

04

**Test and optimization**

Feedback cycle for customer agreement on milestones and optimization

05

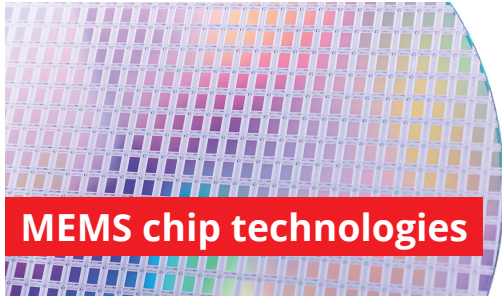
**Series production**

Industrial engineering

Supply chain from purchasing to process qualification

Manufacturing

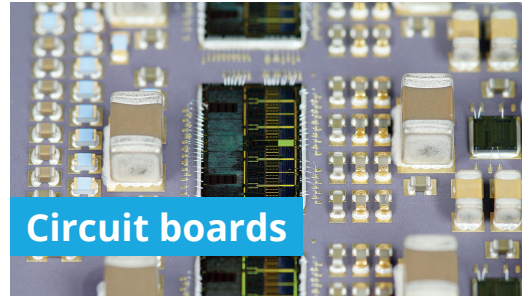
# Technology competences



**MEMS chip technologies**

## MEMS fab manufacturing

- IR sources based on CMOS , NAC
- IR pyroelectric sensors
- IR thermopile sensors



**Circuit boards**

## Board technologies

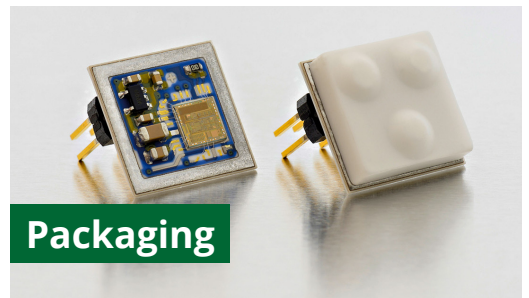
- Ceramic boards thickfilm, AlN thin film, LTCC technology: complex MCM embedded passives, 3D packages, alumina
- FRx



**Assembly**

## Electronic and chip on board (COB)

- SMD / THT assembly
- Wide soldering portfolio
- Adhesive bonding
- MEMS, optics, die attach
- Wire bonding



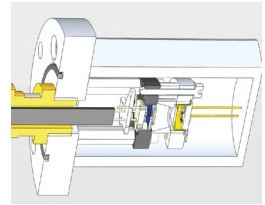
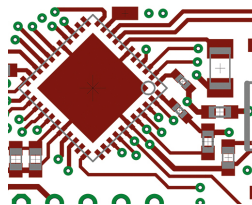
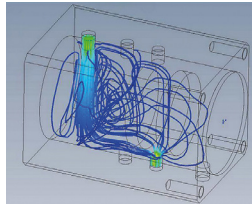
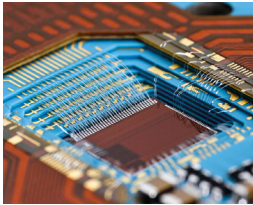
**Packaging**

## Protecting and housing

- Protective coating PARYLEN
- Hermetically / quasi hermetically sealed metal or ceramic housing
- Chip carrier / ball grid array (BGA)

# Customized electronic micro systems and modules

Development of MEMS wafer, electronic boards, packaging, sensor systems



- Analytical and systematic approach
- Stage gate development and product engineering process
- Team of 30 developers and engineers covering
  - Electronics
  - Software and mathematics
  - Mechanical design
  - Chemistry and materials
  - Physics and optics
- Development consulting

**Technology design**

**Engineering**  
from prototyping to serial production

**Hardware design**  
mechanical / electronical / optical

**Testing / screening / calibration**

**Software programming**  
PC and  $\mu$ C

**Environmental and lifetime analysis**

# All in one IR supplier.

Micro-Hybrid is the only manufacturer of infrared components to offer detectors and emitters worldwide.

The detector portfolio includes thermopile and pyro detectors. The MEMS IR emitter chips come from our own MEMS fabs and are available in NAC or CMOS technology.

On top of all, we also develop and manufacture IR sensor modules and gas sensors, offering unique advantages to our customers:

- **Product quality** – all components are ideally matched to each other
- **Efficiency** – everything from one supplier, including backend processes
- **Service** – one contact person for the whole development process and also for retro fit projects



IR emitters



IR detectors



Gas sensors



# Online shop

All Micro-Hybrid standard products can be ordered from stock in our online store.

- IR emitters and detectors for NDIR gas analysis
- NDIR bundles and products for evaluation and test – this saves a lot of time in development projects
- IR thermopiles for non-contact temperature measurement

Online shop for IR components and sensors.

 [microhybrid.com/shop](https://microhybrid.com/shop)



# Corporate mission

Our value proposition shows what we stand for and what we want to achieve together: sustainable growth. These core values determine our actions and create a secure basis for cooperation with international colleagues, customers and partners.



**Progress** **Innovation** **Openness**

**1992**  
Micro-Hybrid founded in  
Hermisdorf / Germany

**2008**  
Starting with LTCC  
technology

**2015**  
53 % participation  
Nova **IR** MEMS fab

**2017**  
Participation **CMOS IR**:  
IR emitter and thermopile  
detector fab

**1998**  
Starting with IR components  
IR thermopile detectors

**2013**  
First NDIR CO<sub>2</sub>  
sensor

**2016**  
Building conversion  
investment

# Facts & figures

**300** Employees  
worldwide



Advanced electronic  
modules

**6** Locations incl. 5 production  
sites in three continents



All in one  
IR supplier

**12%** Average  
annual growth



Online shop for IR  
components and sensors

**2021**

Foundation of Micro-Hybrid  
China Asia sales center in  
Qingdao (CN)

**2023**

Merger of Micro-Sensor GmbH  
and Micro-Hybrid Electronic

New global headquarters  
at Citycube Hermsdorf

Foundation MH North America

**2019**

Starting NDIR gas sensor portfolio  
Opening LTCC competence center

**2022**

Growing portfolio of NDIR gas sensors

**Innovation award**  
„Technology platform for highly reliable  
NDIR gas sensors“

**30 years** Micro-Hybrid

# Micro-Hybrid **worldwide**

Headquarters | Germany

 Germany



- Management, research and development, international sales team, assembly hub
- LTCC competence center
- Gas sensor center

 China

 USA



**Micro-Hybrid Electronic Technology Co., Ltd | Qingdao China**

- Sales and application center Asia



**Micro-Hybrid Electronics, Tucson Arizona USA**

- MEMS fab and sales North America

# Global sales and distribution

Micro-Hybrid Electronic GmbH

[sales@microhybrid.com](mailto:sales@microhybrid.com)

T +49 36601 592 0

Heinrich-Hertz-Straße 8  
07629 Hermsdorf  
Germany



Company	LKZ	Contact	E-mail	Phone
Laser Components USA, Inc	USA	Matthew Robinson	robinson@laser-components.com	+1 603 821 7040-303
CO2 Meter, Inc.	USA	Travis Lenander	Travis.Lenander@co2meter.com	+1 386-310-4933
NOVA IR Inc.	USA	Jenny Taubert	jenny.taubert@nova-ir.com	+1 520 2895021
Hawkeye Technologies	USA	Alexander Sorokin	asorokin@hawkeye-technologies.com	+1 203 878 6892
CaTeC bv	Netherlands	Hans Oosterling	hans.oosterling@catec.nl	+31 174 79 27 34
IR System Co., Ltd	Japan	Masami Okiura	okiura@irsystem.com	+81 42 400-0373
IMPORTEC	Italy	Gianni Quaia	gianni@importec.it	+39 0434 740 72
SAS High Technologies Detection Systems	France	Philippe Marchais	philippe.marchais@htds.fr	+33 1 64862823
Qingdao Micro-Hybrid Electronic Technology Co., Ltd	China	Lisa Wen	lisa.wen@micro-hybrid.cn	+86 532-5557 2656



## Micro-Hybrid Electronic GmbH

The one solution provider for OEM development and production of innovative

- Advanced electronic modules
- Infrared components
- NDIR gas sensors
- Inertial sensors

[microhybrid.com](https://microhybrid.com)

**MICRO-HYBRID**

📍 Germany 📍 China 📍 USA