



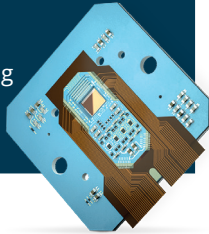
Electronic solutions
for a better world.



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

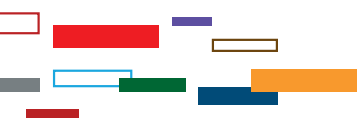
All-in-one IR supplier

- World's 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.

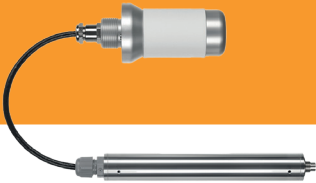
Micro-Hybrid Electronic GmbH is one of the world market leaders in the development and production of sophisticated customer-specific electronic solutions.



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
- CO₂ 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

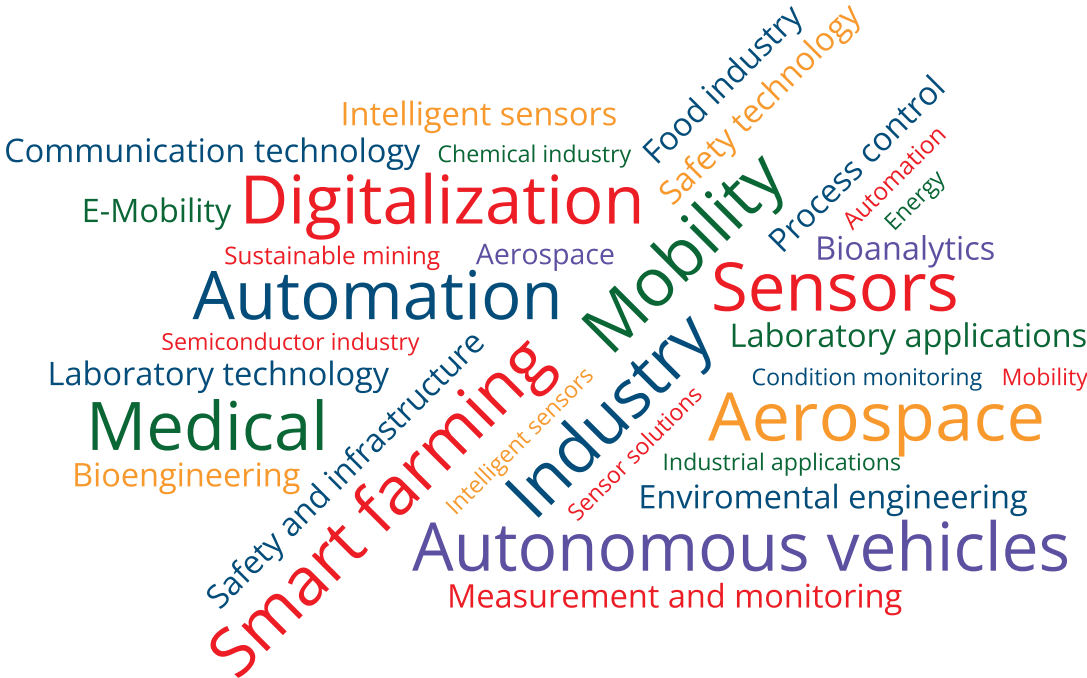
Examination of technological and time implementation

03 Development

Stage gate process

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

Process development assembly and integration technology, material and reliability



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04

Test and optimization

Feedback cycle for customer agreement on milestones and optimization

05

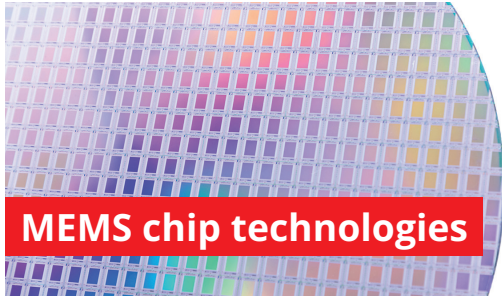
Series production

Industrial engineering

Supply chain from purchasing to process qualification

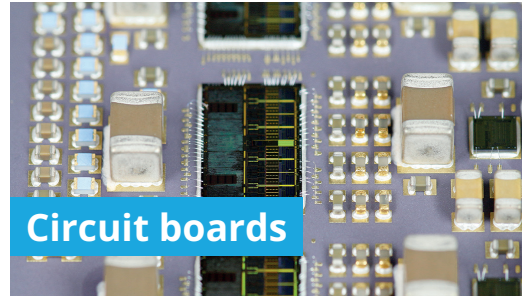
Manufacturing

Technology competences



MEMS fab manufacturing

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



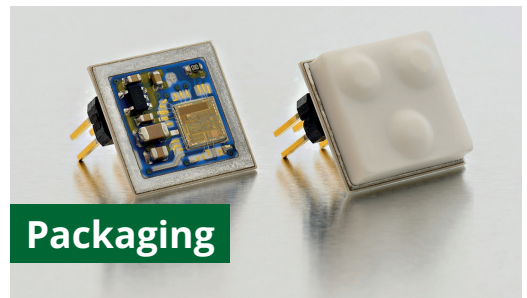
Board technologies

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



Electronic and chip on board (COB)

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

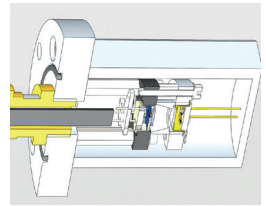
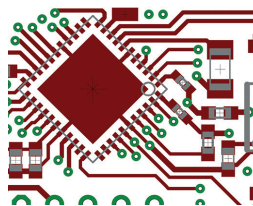
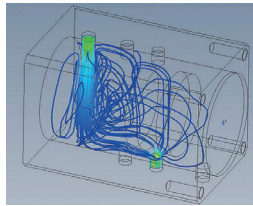
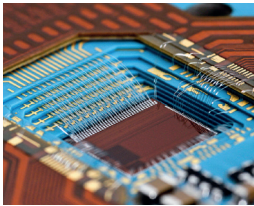


Protecting and housing

- 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 μ 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

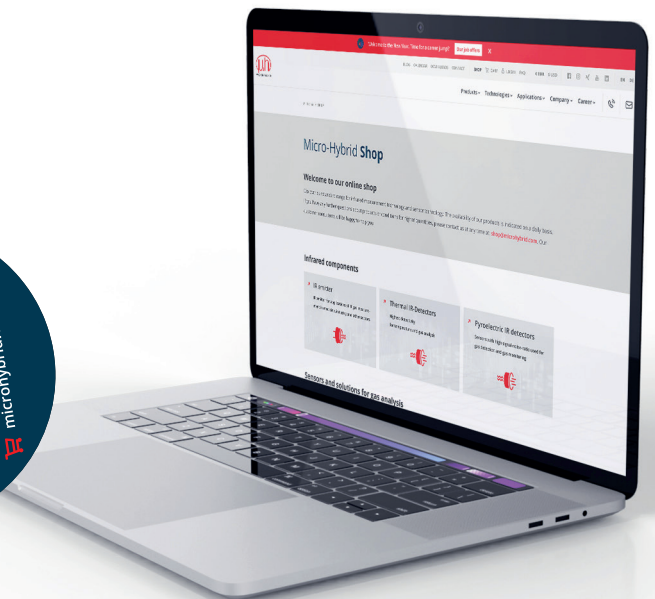
Online shop

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



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.

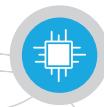
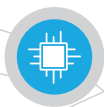


1992
Micro-Hybrid founded in
Hermisdorf / Germany

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 CO₂
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

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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

MICRO-HYBRID

 Germany  China  USA