

# MOTION CONTROL MADE IN GERMANY



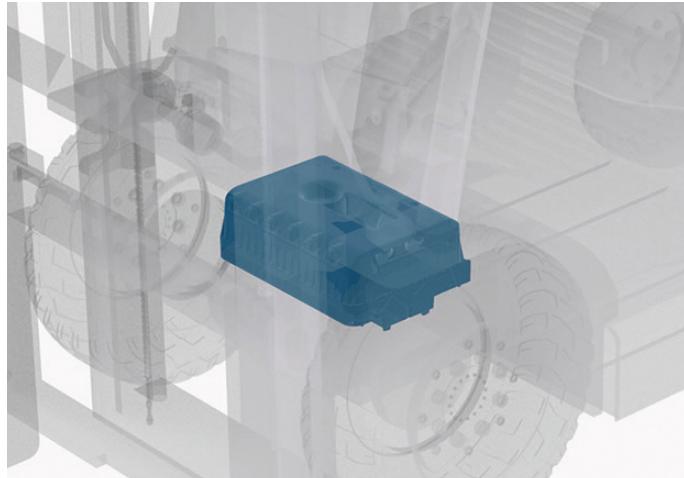
For a better tomorrow.

**INRO**  
ELEKTROTECHNIK

# Your partner for professional electronics

## Innovative power electronics from one provider

With our research and development department, we offer our customers the technology to implement sophisticated and efficient solutions in the fields of power electronics, drive controls, and motion control. We support our customers as a partner from the product idea to series production and manufacture the components in our professional production facility in the heart of Germany.



### Drive controls

Our power electronics enable voltages and currents to be converted and regulated reliably and efficiently.

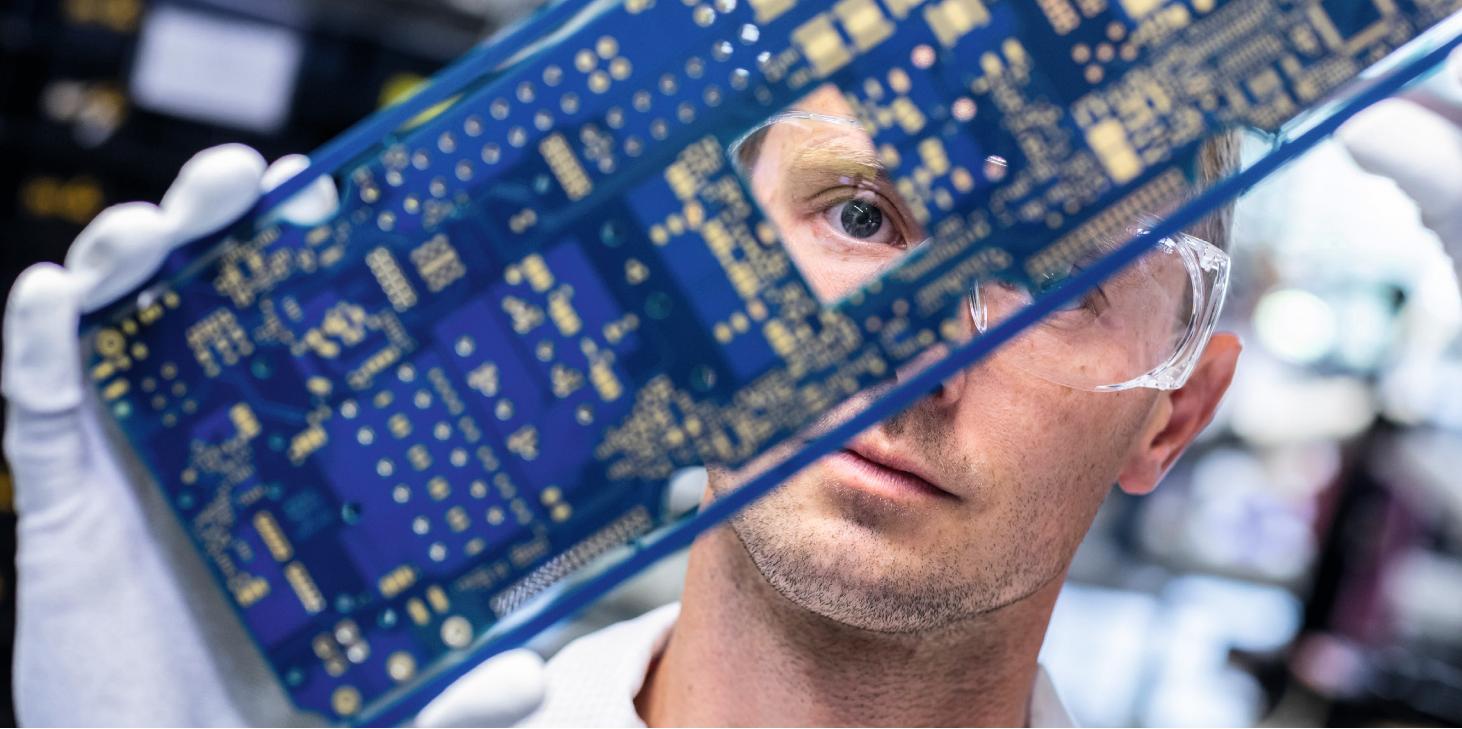
### Machine controls

With our electronic controls, the entire machine operation can be managed by a single component.

### Additional modules

With additional modules, we expand the customization options for your project.





## INRO competence stack

We work with you to develop your product ideas and manufacture them in accordance with the highest safety standards.

### PRODUCT FEATURES

Product features – functions, quality, and performance developed according to wishes of our customers.

### SAFETY

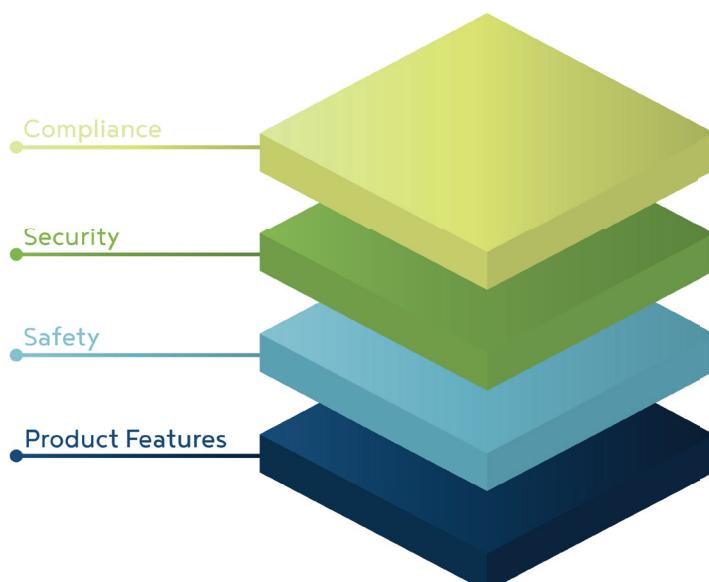
Safety comes first: With our experience in functional safety, we professionally safeguard your electrical systems.

### SECURITY

Protection on new levels: Our cyber security experts protect the components in your system.

### COMPLIANCE

We ensure compliance with legal, normative, and safety-related regulations, standards and guidelines.



# Together for a better tomorrow.



## What motivates us

With enthusiasm, curiosity, and many years of experience, we work on future-oriented technologies and see ourselves as a driver of innovation in the field of power electronics.

We are INRO: With 150 employees at a single location, we represent a medium-sized company that makes a difference.

Flexibility and speed are our hallmarks, enabling us to find new solutions, advance the state of the art, and develop power electronics solutions for a better tomorrow. We want to play an active role in shaping the future: For our planet, our customers, and our employees.

For a better tomorrow.



MADE IN GERMANY

## All the necessary expertise under one roof

### ELECTRONICS DEVELOPMENT

We develop high-performance electronics with a focus on functional safety and efficient layout design.



### SOFTWARE DEVELOPMENT

Our in-house software development with the highest security standards in the areas of embedded software and IoT for customized solutions.



### CONSTRUCTION

Whether dust, water, or clean rooms – we design tailor-made solutions based on customer requirements.



### MANUFACTURING

Modern production facilities, experienced employees and an internal testing center – all combined at our location.



“

*With a team of specialists in the field of industrial trucks INRO Elektrotechnik GmbH has established itself as a competent development and manufacturing company after 30 years of experience.*

*Technology and process developments and just right adaptation to customer applications are the focus of our work.*

”

**Michael Ries**

Founding partner and managing director of INRO Elektrotechnik GmbH und INRO ETMS GmbH



## Reliable. Personal. Efficient.

Tradition and innovation go hand in hand at our company. The development of innovative drive solutions has always been part of our daily work. Our interdisciplinary teams of experts will also guide your company toward a better future in the field of motion control.

As our customer, you are our focus: We develop customized solutions across a wide range of professional electronics solutions.



### FAST

Efficient processes and short distances ensure that your projects progress quickly.



### CUSTOMER-FOCUSED

We are fully committed to collaborative developments – and always keep you in focus as a customer.



### LONG-TERM

We see ourselves as your long-term partner. Our products are designed to last – just like our collaboration.



### FLEXIBLE

We respond flexibly to your requirements in order to find the right solution for you.



## Smart solutions

### Single Motion Controller

Efficient motor control in the smallest space: With the SMC as a space-saving drive control we can achieve a service life of over 50,000 hours – for low-maintenance use even in hard-to-reach places.

- Control of various motor types, such as ASM, SRM, BLDC, etc. (also sensorless)
- Nominal battery voltage 48 V DC
- Input voltage range 25 V..60 V
- Various bus systems for communication such as CAN bus or MODBUS implemented
- Compliance with CE, cULus, RoHS, REACH, EMC
- Long service life with > 50,000 h
- Weight 560 g

### Triple Motion Controller

Demanding use in the most adverse environmental and weather conditions: Our technology withstands heat and cold, sand, dust, and moisture, making it perfect for construction vehicles and work machines.

- Drive control for all types of mobile machines with up to three drives, such as driving, steering, and pump drives, or two variable drives and one hydraulic unit
- Nominal battery voltage 80 V
- Input voltage range 56 V..104 V
- Highly efficient 3-axis power output stages with recuperation function (energy recovery)
- Boost mode mit 900 Aeff
- Various bus systems for communication, such as CAN bus or MODBUS

### Your advantages:

#### **⊕ More space for your application:**

The compact design saves space and allows for flexible integration even in confined spaces.

#### **⊕ Higher security for your investment:**

Durable components for reduced maintenance costs and maximum availability.

#### **⊕ Safety included:**

Certified compliance guarantees reliability.

### Your advantages:

#### **⊕ One controller for three drives:**

Less cabling means less installation work and fewer sources of error – and above all, lower costs.

#### **⊕ Maximum flexibility:**

Whether AC, DC, or BLDC drives – one application for all types.

#### **⊕ Wide voltage range:**

For use in a wide variety of applications.

# As diverse as your requirements



## LOGISTICS

Whether narrow aisle forklifts, or lifting platforms: Our motor controllers ensure maximum productivity in daily use.



## OFF-HIGHWAY VEHICLES

Robust controllers for the harshest conditions: Our technology withstands extreme temperatures and dirt, making it perfect for construction vehicles and agricultural machinery.



## PLANT ENGINEERING

Efficient motor control for state-of-the-art systems: With a long service life and low-maintenance technology.



## AND MORE

Our drive controllers power your motor: For efficiency, speed, and flexibility.



## YOUR NEXT STEP TOWARDS THE BEST CONTROL SOLUTION

Discover customized drive controls that make your  
systems more efficient and reliable.



Any questions?  
Contact now:



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