elmos

ELMOS MICROCHIPS MAKE MOBILITY
SAFER, SMARTER, AND MORE EFFICIENT



WE ENABLE WHAT MATTERS

WE UNDERSTAND WHAT MATTERS

Over 40 years of experience. Deep understanding of what really matters in a vehicle.

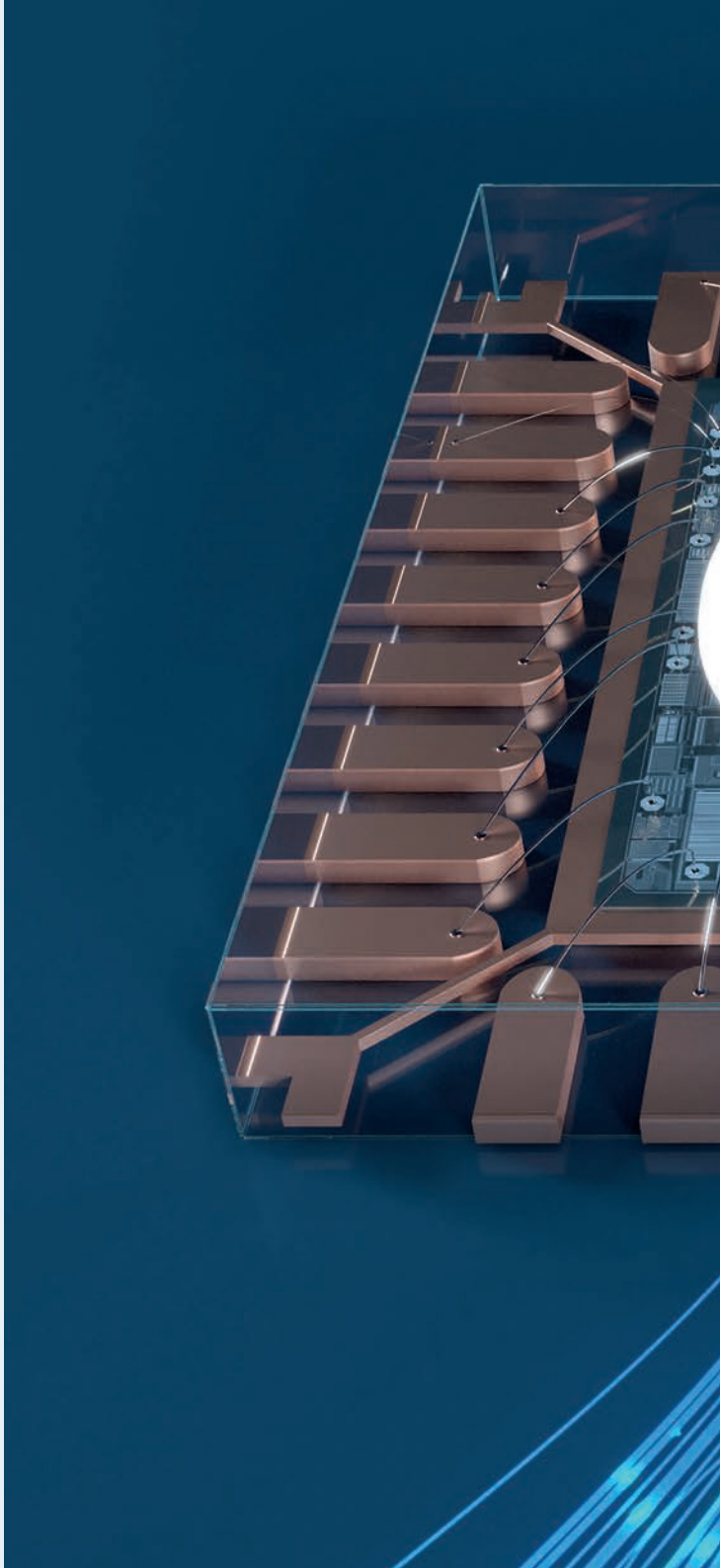
For more than 40 years, Elmos has been developing innovative microchips – the invisible building blocks of modern mobility. Our products are used worldwide in millions of vehicles from all leading automotive manufacturers.

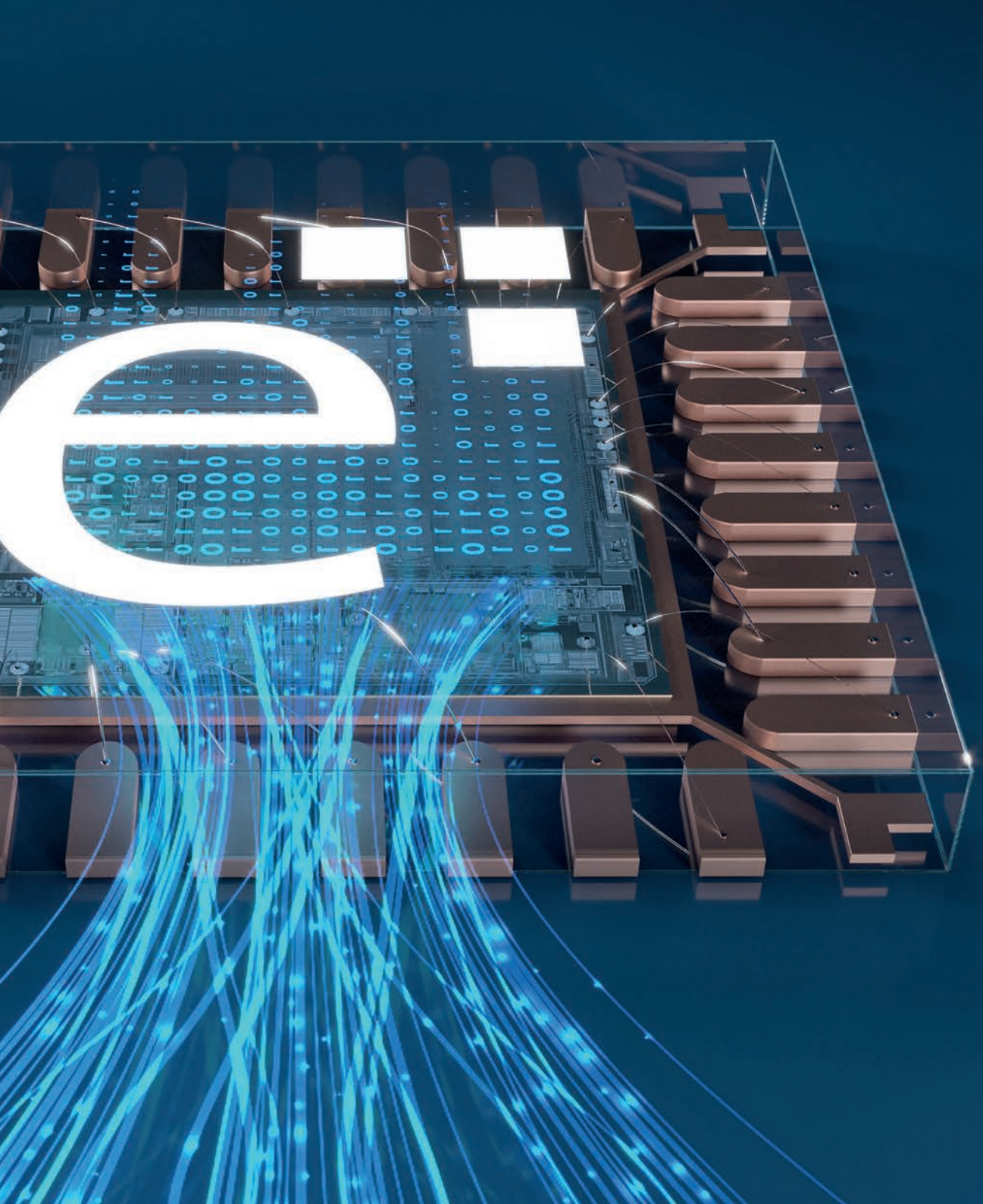
-> Over 40 years of automotive expertise

-> An innovation leader in five key segments

-> More than 1,200 design wins since 2021

For more than four decades, Elmos microchips have been shaping everyday life around the world. Elmos semiconductors detect, measure, illuminate, move, protect, and connect – thereby making mobility safer, smarter, more comfortable, and more efficient. Whether it's sensor technology, motor control, lighting, safety, intelligent energy management, or software – Elmos is right at the heart of it all, in millions of vehicles worldwide.





OUR PRODUCTS ARE CLUSTERED INTO FIVE KEY SEGMENTS

Ranging
Microchips for precise, ultrasonic-based 360° distance measurement around the vehicle.

Sensing
Microchips for sensing and analyzing pyhsical data.

Lighting
Microchips for the intelligent lighting control.

Motor Control
Microchips for the precise and efficient control of electric motors.

Safety & Connectivity
Microchips for secure networking, data protection, and safety-critical functions.

WE MEASURE WHAT MATTERS

#1 in ultrasonic parking systems and 360° ranging.

Our ultrasonic technology accurately detects obstacles and enables advanced driver-assistance systems (ADAS) all around the vehicle – from parking to automated driving.

-> #1 in ultrasonic parking systems and 360° ranging

-> Over 2 billion ultrasonic ICs shipped

-> New software-defined vehicle architectures and AI are expanding our technological leadership

Elmos ultrasonic ICs give vehicles a sixth sense: for a vehicle to travel safely, it must be able to accurately detect its immediate surroundings very precisely and in real time. Ultrasonic sensor ICs emit short sound waves and measure how long it takes for the echoes to be reflected back from an object. Based on this data, object positions are calculated with highest accuracy.





RECOGNIZING THE VEHICLE'S SURROUNDINGS

How do Ranging ICs work?

Ultrasonic waves are emitted and their returning signals are analyzed to detect objects around the vehicle.

What is their role in the system?

They process signals in milliseconds providing precise information about the vehicle's surroundings for control systems.

Why is this important?

They support parking and automated driving, detect obstacles and help prevent accidents.

What are they used for?

-> Blind-spot monitoring
-> Parking assistance
-> Fully automatic parking
-> 360° environmental perception
-> Obstacle detection

WE SENSE WHAT MATTERS

The world's #1 supplier of pressure sensor ICs for braking systems.

Our sensor ICs translate real-world signals into precise data and provide reliable information for safe vehicle functions, especially during braking – when every millisecond counts.

-> #1 in pressure sensor ICs for braking systems

-> Sensor solutions for battery, pressure, and environmental monitoring

-> Precision as the foundation of modern vehicle functions for more safety, comfort, and efficiency

For a vehicle to operate safely, it must continuously capture and process critical data. In pressure sensing, for example, a sensor element measures the pressure in the braking system. Our sensor ICs process this signal, filter out interference signals, and convert them into digital values. This data is transmitted directly to the vehicle's control unit. This enables the vehicle to respond quickly to changes and control the braking system reliably.





THE INTERFACE BETWEEN THE REAL WORLD AND VEHICLE ELECTRONICS

How do Sensor ICs work?

Sensors measure physical parameters such as pressure, light intensity and temperature and provide this to the vehicle.

What is their role in the system?

They reliably capture safety- and energy-related data, filter out interferences and provide the basis for vehicle control decisions, for example in regard to braking or managing the battery.

Why is this important?

Precise sensor data helps the vehicle make reliable decisions, detect faults early and manage critical functions safely and efficiently.

What are they used for?

-> Brake pressure measurement
-> Tire pressure monitoring
-> Battery management
-> Climate sensors
-> Rain, light, and tunnel sensors

WE ILLUMINATE WHAT MATTERS

#1 in LED rear light ICs.

Today, light is much more than just illumination. Our chips dynamically control LEDs, thereby enhancing safety, creating emotional experiences, reinforcing brand identity, and opening up new possibilities for vehicle communication.

-> #1 in rear lighting LED controllers

-> #2 in interior lighting RGB LED controllers

-> Innovative technologies for static, dynamic and intelligent automotive lighting systems

Dynamic lighting concepts powered by Elmos LED controllers make vehicles stand out on the road, support communication with other road users, and at the same time create a distinctive driving experience inside the cabin. Modern LED technology from Elmos gives vehicles a striking and unmistakable design.





THE INTELLIGENCE BEHIND MODERN AUTOMOTIVE LIGHTING

How do Lighting ICs work?
Lighting control systems coordinate individual LEDs, adjust their brightness and color, and enable dynamic light animations.

What is their role in the system?
They make tailored lighting designs possible for both vehicle interiors and exteriors.

Why is this important?
Modern lighting improves visibility and road safety while making vehicle lighting more energy-efficient and personalized.

What are they used for?

-> LED and OLED rear lights
-> Lighting around the vehicle (turn signals, parking lights, or daytime running lights)
-> Illuminated front grille
-> Interior ambient lighting

WE CONTROL WHAT MATTERS

#1 in Motor Control ICs for smart HVAC actuators for air conditioning.

Our motor controllers operate air flaps, pumps, valves, and many other features – from comfort and efficiency functions to powerful 48V applications.

-> #1 in HVAC Motor Control – precise and extremely quiet

-> From small actuators to powerful 48V applications

-> Solutions for thermal management and energy efficiency

Many vehicle functions rely on motion – often working quietly in the background. From air flaps to pumps for thermal management, powered by small, smart electric motors. As vehicles become increasingly electrified, 48V applications are gaining importance. Precise motor control ensures reliable, quiet, and efficient operation.





THE CONTROL BEHIND ELECTRIC MOTORS IN THE VEHICLE

How do Motor Control ICs work?
Motor control systems operate the many small electric motors that enhance comfort and efficiency.

What is their role in the system?
They regulate the movement and position of components such as fans, valves or pumps.

Why is this important?
They enable comfort and energy-efficiency features and support essential vehicle systems while operating efficiently, quietly and with low energy consumption.

What are they used for?

-> Cooling fans
-> Water and oil pumps
-> Valves for thermal management
-> 48V motor applications
-> Air flow control
(e.g., HVAC system, grille shutter)

WE PROTECT WHAT MATTERS

Security starts at chip level.

From airbags to quantum random number generators, Elmos develops technologies that make vehicles and communication safer today and in the future.

-> In-vehicle technologies for highest safety

-> Hardware-based cybersecurity for Software-Defined Vehicles

-> Smart safety solutions for the mobility of tomorrow

Modern vehicles are increasingly connected and continuously exchange data with other vehicles, infrastructure, and digital services. This raises the bar for protection of data, systems, and safety-critical functions. Cybersecurity safeguards information against unauthorized access, manipulation, and misuse.





PROTECTING VEHICLE SYSTEMS AND DATA

How do Safety ICs work?

Safety and security systems process signals, trigger mechanisms such as airbags and help protect data through secure communication.

What is their role in the system?

They respond quickly to critical situations and enable secure data exchange within and beyond the vehicle.

Why is this important?

They help protect drivers, passengers, other road users, and vehicle data, and are designed to operate reliably even under extreme conditions.

What are they used for?

-> Airbag systems
-> Quantum-based random number generators (QRNG)
-> Encryption
-> Over-the-air-updates
-> Keyless entry
-> Secure communication

WE CONNECT WHAT MATTERS

Software-Defined Vehicles require intelligent power distribution.

Elmos develops key technologies for the next generation of vehicles. Smart eFuse controllers protect and control modern automotive electrical systems and enable intelligent and energy-efficient power distribution in zonal vehicle architectures.

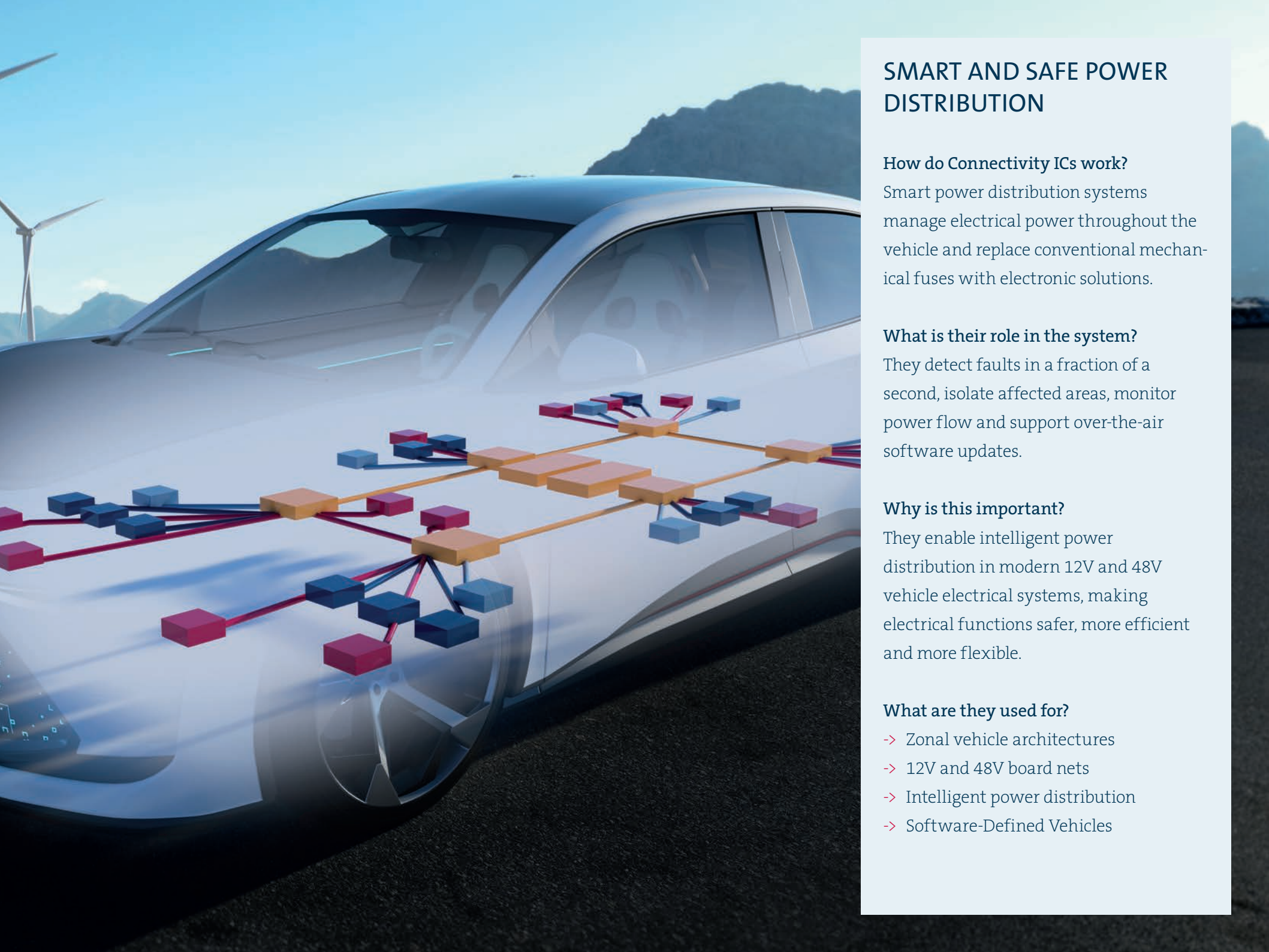
-> Smart eFuse controllers for 12V and 48V electrical systems

-> Intelligent and energy-efficient power distribution and electronic protection

-> Key technology for zonal architectures and Software-Defined Vehicles

Modern vehicles require increasing amounts of electrical power for sensors, control units, and actuators. At the same time, 48V electrical systems and zonal architectures are changing power distribution within the vehicle. Smart eFuse controllers not only replace traditional mechanical fuses but can intelligently monitor and control the flow of current, and enanble OTA software updates. Faults are detected in the milliseconds, and affected areas are protected. This makes vehicle electrical systems safer, more efficient, and more flexible – a key enabler of the Software-Defined Vehicle.





SMART AND SAFE POWER DISTRIBUTION

How do Connectivity ICs work?

Smart power distribution systems manage electrical power throughout the vehicle and replace conventional mechanical fuses with electronic solutions.

What is their role in the system?

They detect faults in a fraction of a second, isolate affected areas, monitor power flow and support over-the-air software updates.

Why is this important?

They enable intelligent power distribution in modern 12V and 48V vehicle electrical systems, making electrical functions safer, more efficient and more flexible.

What are they used for?

-> Zonal vehicle architectures
-> 12V and 48V board nets
-> Intelligent power distribution
-> Software-Defined Vehicles

WE ENABLE WHAT'S NEXT

Proven in automotive. Ready for robotics.

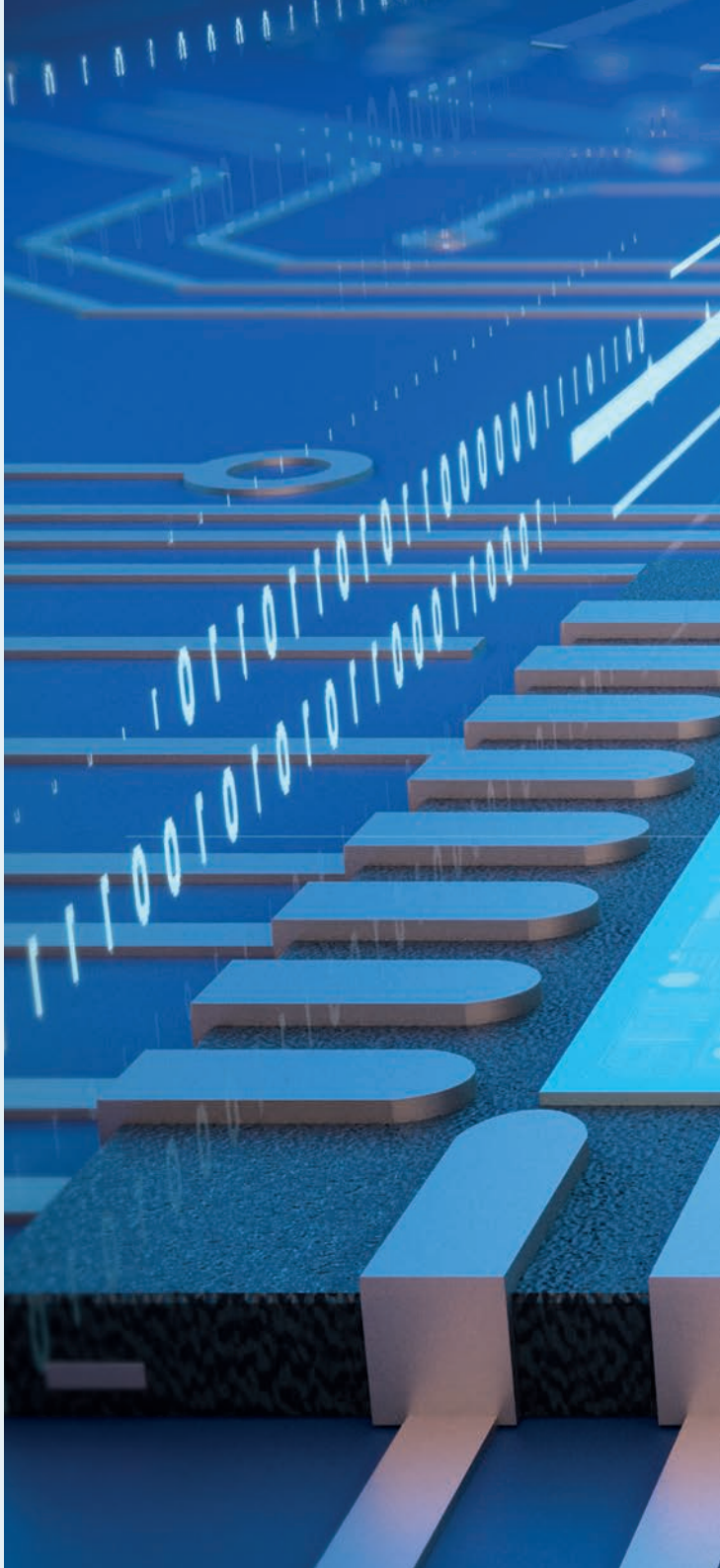
Humanoid robotics opens up a new area of growth for Elmos – with more than 120 potential IC applications in areas such as motion, sensing, power, and communication.

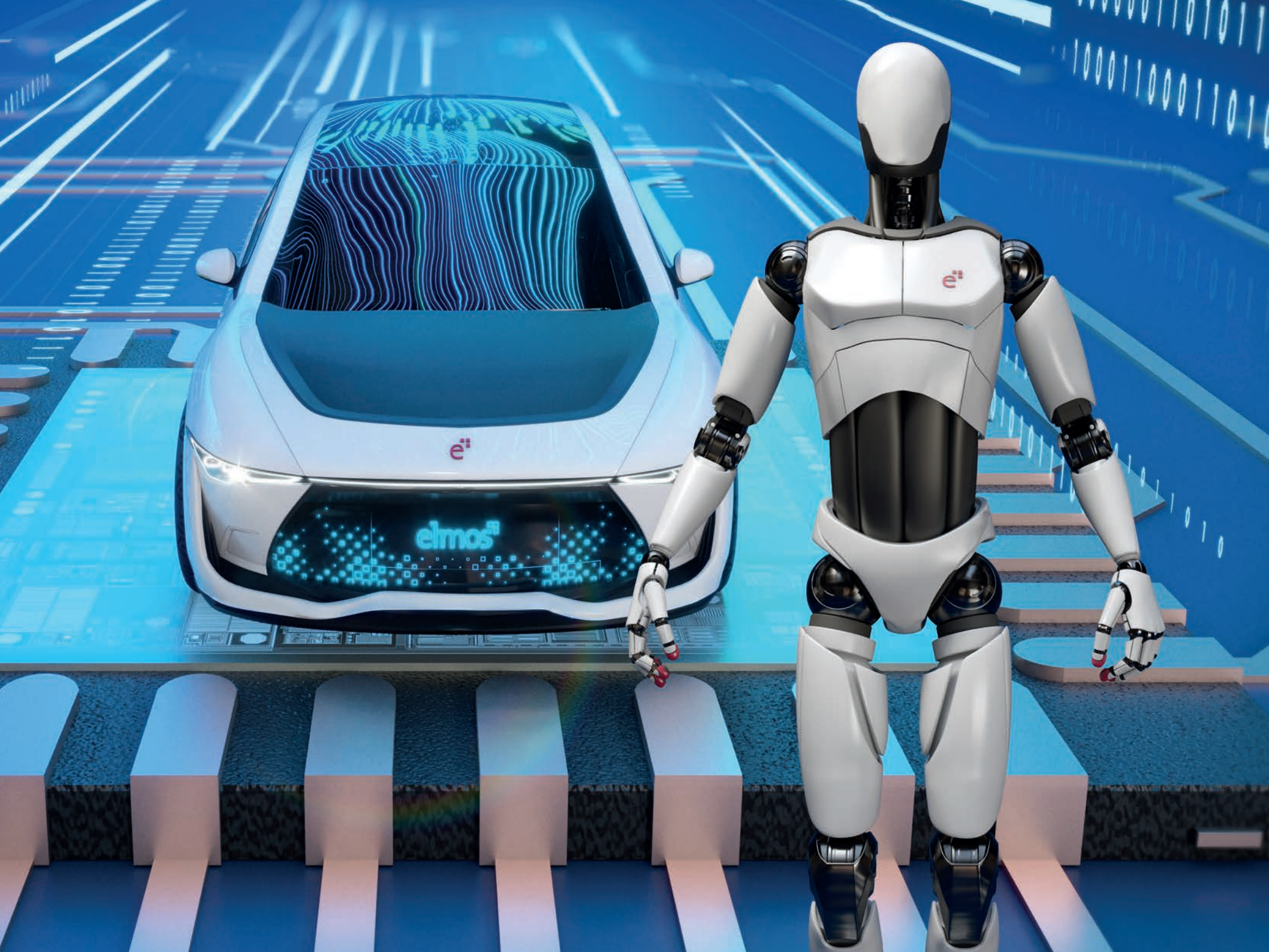
-> More than 120 potential IC applications within the robot architecture

-> Proven automotive technologies for motion, sensing, power, and connectivity

-> New growth opportunities based on our existing systems expertise

Humanoid robots rely on many of the technologies that already make vehicles intelligent today. Movements must be precisely controlled, forces and positions reliably measured, and energy and data safely distributed. Elmos brings decades of automotive expertise to these emerging robotic applications. Robot manufacturers are increasingly turning to automotive-grade ICs because they are designed for high reliability and demanding operating conditions – qualities essential to precise, dependable robot performance. This creates a new growth market closely aligned with Elmos' existing strengths.




elmos

WE CARE FOR WHAT MATTERS

Strong together – Connected worldwide.

Behind every innovation are people who share their knowledge, experience, and ideas with one another around the world.

-> More than 1,100 employees

-> 20 locations in 10 countries

-> A global team with a common goal

Innovation happens when bright minds work together to shape the future. At Elmos, we develop semiconductor solutions that solve today's challenges while helping to define the mobility of tomorrow. From the initial idea through development to serial production, our teams around the world are working to turn smart technologies into reality. This leads to innovations that are used in millions of vehicles every day, paving the way for the next generation of mobility.

5
Megatrends
Electrification & Efficiency,
Comfort & Premium, Safety,
ADAS & Autonomous Driving,
Software-Defined Vehicle

5
Product Segments
Ranging, Sensing, Lighting,
Motor Control, Safety & Connectivity

20
Locations Worldwide
in 10 countries
Headquarters: Leverkusen
Main site: Dortmund

> 40
Years Experience
in analog mixed signal IC solutions

>1,100
Employees
thereof ~500 product developers
and engineers


Nijmegen
Brno
Detroit
Seoul
Tokyo
Pune
Singapore
Berlin
Dortmund
Frankfurt Oder
Dusseldorf
Leverkusen
Dresden
Tianjin
Changzhou
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