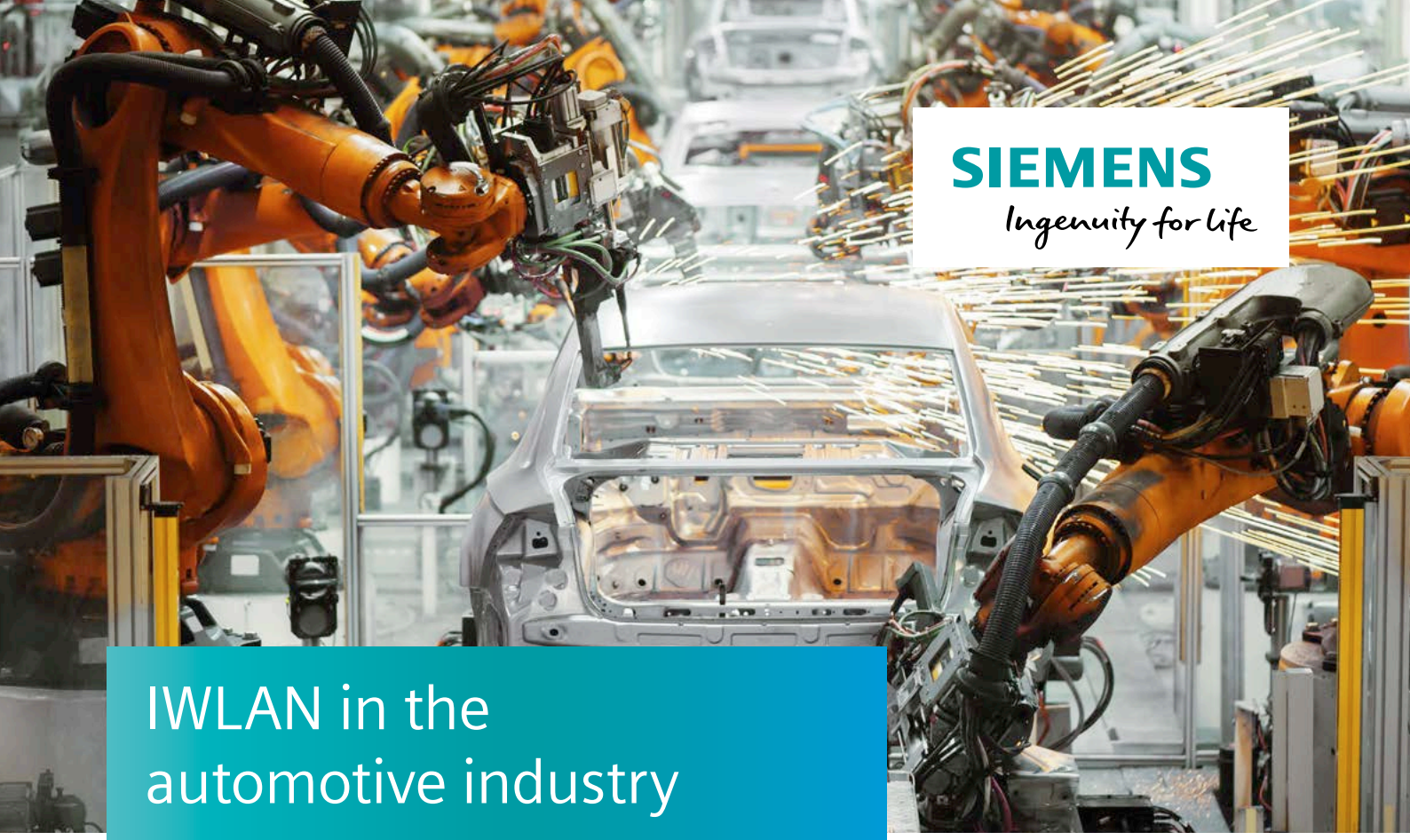


SIEMENS
Ingenuity for life

IWLAN in the automotive industry

High availability and personal safety

Efficient production is essential

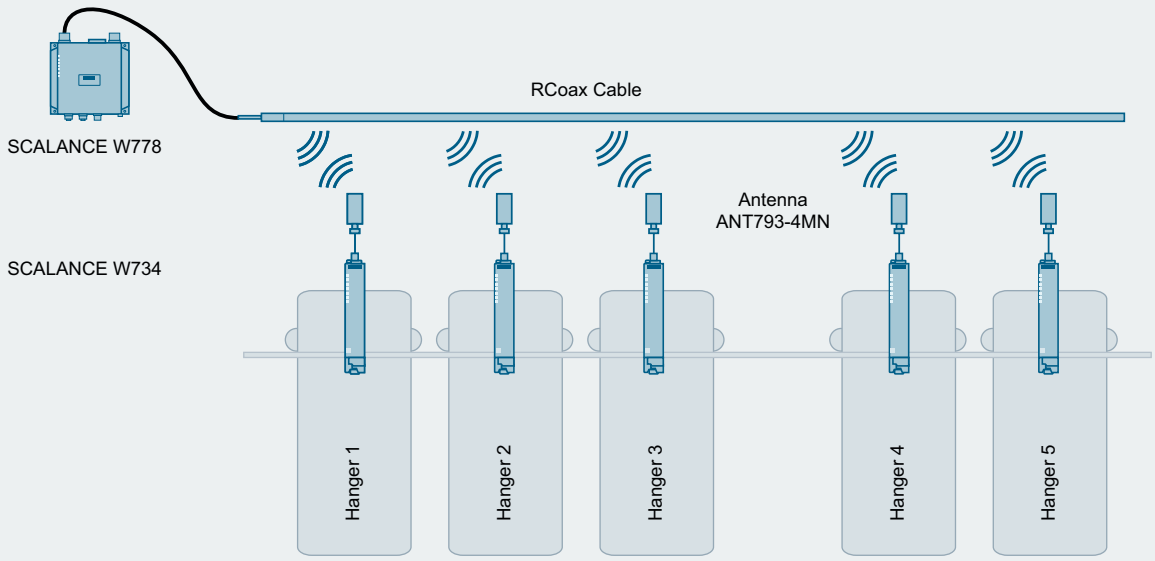
Automotive manufacturing is among the most profitable and fastest-moving industries worldwide. The huge production pressure makes it mandatory to avoid plant downtimes that can result in significant losses. Production in the automotive industry is also strongly influenced by automation. Robots handle many of the work steps, a lot more than in most other industries – so smooth collaboration between humans and machines poses especially high requirements for personal safety.

Reliable processes are critical for success

Wireless data communication with Industrial Wireless LAN (IWLAN) plays an important role in many areas of the automotive industry in supporting reliable and safe operations. An example is controlling robots in the production cells where body, engine, and drivetrain are brought together, or through wireless networking of heavy load overhead monorails in logistics. Safety of the personnel is ensured at all times. The plant performs an emergency stop immediately in critical situations, thanks to real-time communication via PROFINET or EtherNet/IP applications.

Advantages of IWLAN in car manufacturing

- Failsafe, wireless communication for high performance and personal safety
- Cost reduction and minimized downtimes thanks to wear-free connection with RCoax
- Exact positioning of car parts with an optional bar code along an overhead monorail
- Very fast roaming times of <50 ms for uninterruptible communication
- Safe emergency stop function for automation components
- Connection to existing production networks is based on standards
- Cross-industry solution for diverse applications in the industry or in amusement parks



Wear-free system for higher efficiency

Overhead monorails can be networked wirelessly along the rails with RCoax radiating cables from Siemens. Laying of this cable-based antenna is a highly reliable and virtually wear-free solution. When using RCoax instead of a regular antenna, various applications benefit from a reliable and permanently uniform signal quality, even with complex overhead monorail installations. This provides you with the required high plant availability and allows you to avoid additional maintenance costs.

Safe human-machine interaction

Humans and robots work hand in hand at the assembly lines of car manufacturers. Personal safety plays a crucial role in this interaction. If a failure occurs, the use of cyclic protocols like PROFINET and EtherNet/IP enables the plant to be stopped immediately via WLAN and PROFIsafe in order to exclude any personal or material damage as far as possible.

Determinists via WLAN – thanks to iPCF

Controllers and I/O systems in the PROFINET environment and EtherNet/IP applications cannot communicate reliably with one another via the IEEE 802.11 standard. The clients communicate in a random manner, thus connection failures can occur. Only Industrial Point Coordination Function (iPCF) provides the determinists and fast roaming which are required for uninterrupted data exchange.

The entire data flow of a cell can be structured with iPCF to make communication deterministic. An Access Point takes control by polling all Clients in a cell cyclically. Thanks to quick polling cycles, a Client quickly determines if the connection to its access point is still working. iPCF enables fast and reliable switching between cells. This enables constant roaming times at well below 50 ms.

Even more advantages in other applications and markets

Full integration in PROFINET or EtherNet/IP environments also offers advantages for commissioning and diagnosis in other applications, such as harbor cranes or passenger transport in amusement parks. The iPCF feature can be used in every industry that requires high availability through real-time communication and fail-safe applications.

Siemens AG
Siemens Deutschland
Process Industries and Drives
P.O. Box 48 48
90026 Nuremberg, Germany
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