kontron

5G MPN
FOR SECURITY AND QUALITY CONTROL
USE CASE

BUSINESS BENEFITS

30%
less infrastructure needed vs wired/fiber

50%
faster deployment, no fixed cabling

20–30%
fewer manual stations

40%
less cabling/ switching gear
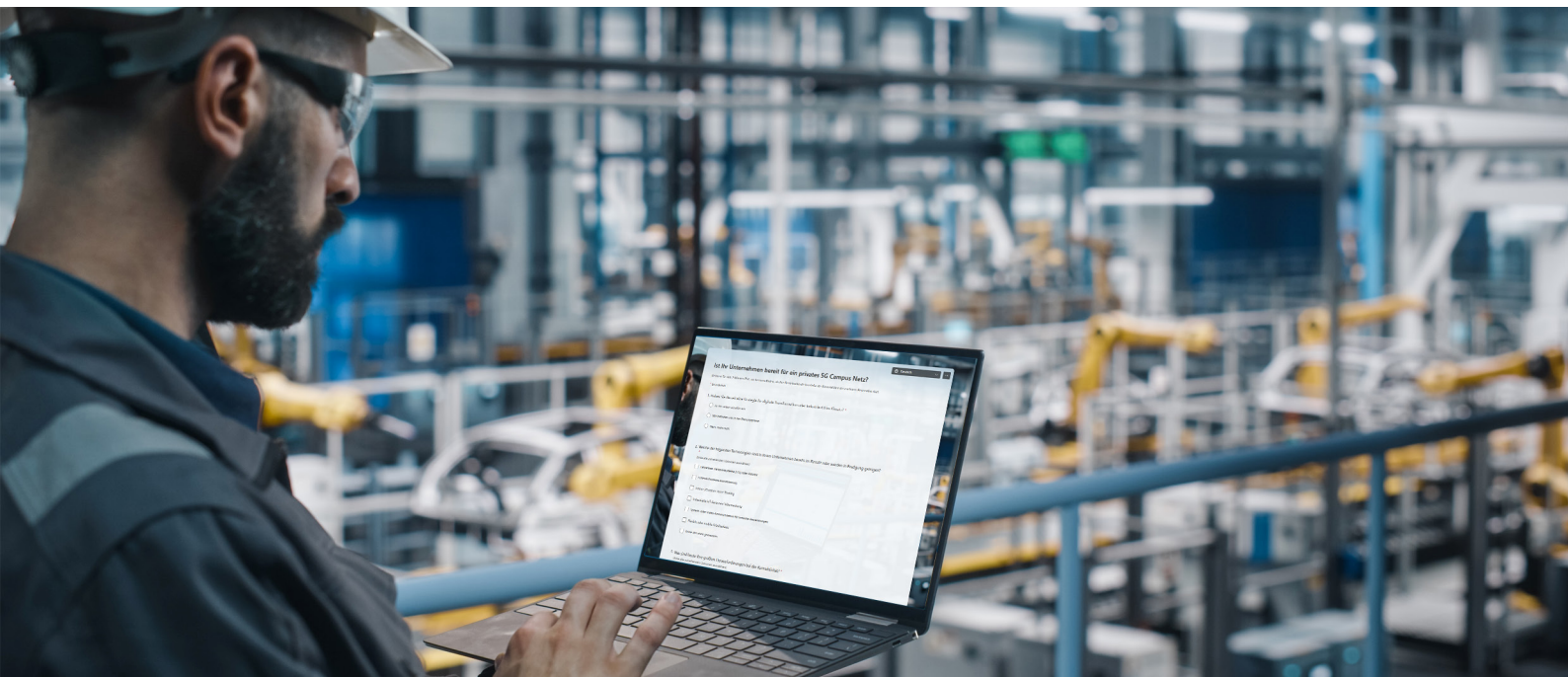
THE NEED FOR 5G IN FOR SECURITY AND QUALITY CONTROL

In industrial and production environments, security and quality are non-negotiable. Kontron's private 5G solution empowers manufacturers to enhance both through real-time monitoring, intelligent video analytics, and remote-control capabilities to address the most sensitive challenges in these domains.

Use Case 1: Industrial Security with Smart Video Surveillance

USE CASE	CHALLENGES AND LIMITATIONS ▼	KONTRON 5G MPN BENEFITS ▼
Network capacity	Limited bandwidth is unable to support a stream of multiple high-definition video feeds simultaneously. High latency delays monitoring, alerts, and incident response. Network congestion may occur when video traffic shares bandwidth with other factory's or enterprise's systems.	Enabling high-throughput video streams with low-latency performance over private 5G with 3GPP functionalities like QoS, scheduling, and network slicing.
Camera mobility	Stationary camera placement due to reliance on fixed cabling and lack of reliable wireless alternatives.	Deploying smart wireless cameras across the site – indoors and outdoors – without the constraints of network cabling, even at the edge of the property.
Security	Full network isolation is needed for ensuring data privacy and protection against cyber threats.	Guaranteeing end-to-end encryption, network slicing isolation, secure authentication, integrity protection, and advanced threat detection. Zero-trust concepts are part of our security frameworks, based on 3GPP and ENISA recommendations.

Use Case 2: Quality Control via Video Inspection on the Production Line

USE CASE	CHALLENGES AND LIMITATIONS ▼	KONTRON 5G MPN BENEFITS ▼
Human errors	Relying solely on manual-quality control and process monitoring in manufacturing can result in errors, delays, and high operational costs. Integrating AI-driven monitoring enhances accuracy and minimizes the risk of oversight.	Enabling real-time AI-powered video inspection with automatic defect detection on the assembly line, boosting efficiency, improving product consistency, and reducing manual effort and waste.
Traditional network	Traditional shared networks within factories are prone to congestion, which can compromise critical applications like real-time video analysis.	A dedicated, production-only, carrier-grade 5G network is ensuring zero downtime for business-critical process automation, while enabling data-driven improvement through visual records and advanced analytics.
Wired-first approach	Lack of wireless connectivity hinders production line reconfiguration, slows down processes, and reduces efficiency, limiting support for dynamic layouts to quickly adapt to introduction of new products or workflows.	Introducing a wireless-first 5G approach – enabling a flexible QA camera placement, a real-time defect detection with low latency, and a scalable, high-performance quality control without cabling constraints.

WHY KONTRON?

Kontron's 5G platform is optimized for **industrial-grade performance**, **low power edge deployments**, and **open integration** with third-party automation systems. Combined with our deep experience in embedded systems, telco software, and industrial computing, Kontron is uniquely positioned to support manufacturers on their **Industry 4.0 and digital transformation journey**—starting with a compact **5G Starter Pack** and scaling to full-factory coverage.