

## 5G MPN FOR VIDEO-DRIVEN MACHINERY USE CASE

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### EMPOWERING CRITICAL CONTROL WITH 5G MPN FOR VIDEO-DRIVEN MACHINERY

In modern industrial environments, real-time video, critical remote control, and high-bandwidth uplink traffic are becoming mission-critical for safe and efficient operations. Kontron's 5G Mobile Private Network (MPN) is purpose-built to meet these demands—powering video-enabled machinery, remote supervision, and high-precision control with unmatched reliability and performance.

Whether it's controlling heavy equipment from a safe distance, supervising operations via high-definition video, or replacing traditional wired systems with secure wireless communication, Kontron 5G delivers the foundation for safer, smarter, and more flexible operations.

### BUSINESS BENEFITS

**30%**  
fewer fiber runs and  
converters

**40%**  
fewer control cabins,  
smaller footprint

**60%**  
less intercom,  
VoIP and conferencing

Main challenges and motivations are:

- High risk in hazardous and challenges of handling hard-to-access areas,
- Low-bandwidth for video in uplink – inability to deliver real-time video transmission from machines and field equipment,
- Legacy communication systems with high complexity and wireless industrial links,
- Low-latency control – unpredictable jitter which is reducing performance,
- Lack of mobility and flexibility – assets cannot be connected while in motion,
- Low security and isolation –sensitive operations cannot be done only on-premise.

## KONTRON'S 5G SOLUTION: USE CASES & BENEFITS

Industries like manufacturing, oil & gas, mining, and even healthcare (e.g., robotic tools) demand real-time control, high-definition video streaming, and secure wireless connectivity to operate safely and efficiently. In such environments, uplink-intensive applications, remote supervision, and critical control of devices are no longer optional—they are essential.

Kontron's 5G Mobile Private Network (MPN) is purpose-built to meet these high-stakes requirements. By delivering ultra-low latency, robust mobility, and secure network, it enables industries to remotely monitor and control heavy machinery, track operations via live video feeds, and replace legacy wired systems with agile, wireless connectivity—all while maintaining the highest levels of safety and performance. Key benefits delivered by Kontron 5G MPN:

USE CASE ▼	CHALLENGES AND LIMITATIONS ▼	KONTRON 5G MPN BENEFITS ▼
Machinery supervision	Supervising and controlling a fleet of machinery is challenging due to high bandwidth demands of real-time video streaming. Mobility adds complexity, making it difficult to ensure a reliable and consistent video quality across the entire operating area.	Connecting cameras, inspection drones, and mobile robots wirelessly to a centralized control system. With guaranteed uplink performance, operators get live HD-video streams for quality assurance, safety supervision, and predictive maintenance, improving both productivity and safety, especially in high-risk areas.
Remote control	Ensuring a reliable, low-latency, and secure connectivity in dynamic, interference-prone industrial environments.	Enabling a safe remote operation of vehicles, cranes, and drilling systems in industries like mining and oil & gas with ultra-reliable low latency (URLLC). Operators can respond in real time, reducing workforce exposure and minimizing operational delays.
Collaboration and communication	Maintaining stable, high-bandwidth, low-latency video streams across mobile units, while ensuring seamless handover, synchronization, and real-time data exchange in complex and interference-heavy industrial environments.	Delivering instant and secure voice communication and group coordination across industrial sites, combined with real-time video streaming for situational awareness, incident response, and operational safety. Ideal for factories, utilities, logistics hubs, and security operations.

## 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.

