

LinkBlu RT: How KNAPP replaced cables with real-time wireless communication in smart warehouse systems

**Cable-free control and functional safety communication.
Powered by DEWINE Labs.**

Case Study · 07/2026



About the customer



KNAPP AG, headquartered in Hart bei Graz, Austria, is a global leader in intralogistics automation and intelligent warehouse solutions.

Its portfolio spans advanced robotics, AI-powered software, vision technologies, and fully automated material handling platforms designed to deliver efficiency, precision, and scalability across modern logistics environments.

With customers across healthcare, fashion, retail, and e-commerce, KNAPP develops software-driven systems that orchestrate the seamless flow of goods across complex supply chains.

*When innovation is your core business,
infrastructure cannot become your bottleneck.*

KNAPP AG partnered with **DEWINE Labs** to replace traditional wired control and safety communication in their intralogistics systems with industrial-grade Bluetooth® Low Energy.

By implementing the LinkBlu RT software stack, KNAPP transitioned to a deterministic, dual-channel wireless architecture that delivers cable-equivalent reliability while enabling more flexible, scalable, and future-ready warehouse solutions.

Using DEWINE Labs' LinkBlu RT software stack, KNAPP successfully replaced both control and functional safety cables with wireless Bluetooth® Low Energy communication — without compromising reliability, safety, or latency.

Project snapshot

Customer

KNAPP AG

Intralogistics
automation leader

Headquarters

Hart bei Graz, Austria

Industry

Intralogistics &
Warehouse Automation

Challenge

Physical control and
safety cables limited
scalability in modular
warehouse systems

Solution

LinkBlu RT's
deterministic dual-
channel BLE architecture

Result

Wireless replacement of
control and safety cables
with zero recorded wireless
downtime in production

The challenge

Physical cables were limiting system evolution

KNAPP's warehouse systems are modular, distributed, and operate in real time.

Each unit traditionally required two physical cable connections:

- One for control and status data
- One for functional safety communication (including emergency stop signals)

This architecture was tried and proven, but it **was no longer future-proof**.



For next-generation smart warehouses, KNAPP's architecture would have to follow a more flexible model.

Structural constraints

- Limited flexibility in layout and movement
- Risk of mechanical wear and tear
- Reduced scalability in dense, parallel deployments
- Increased system complexity as installations grew

What KNAPP needed

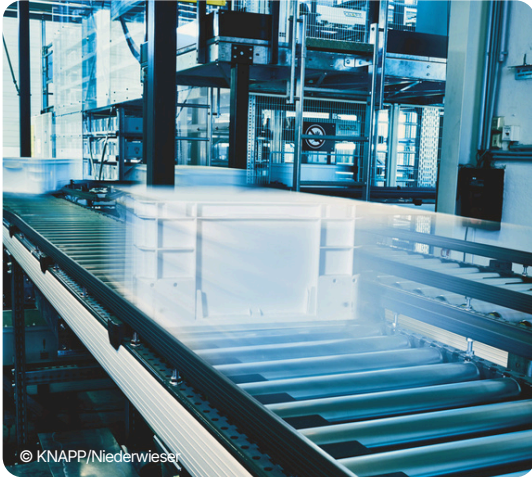
- Wireless architecture capable of replacing these cables
- Real-time responsiveness
- Deterministic latency
- High-density scalability
- Zero-compromise reliability

This was no simple “wireless experiment”.

It required **cable-equivalent performance**, delivered **wirelessly**.

The solution

LinkBlu RT by DEWINE Labs



KNAPP partnered with DEWINE Labs to implement LinkBlu RT, an industrial Bluetooth Low Energy (BLE) software stack engineered specifically for control- and time-critical systems.

To support this architecture, KNAPP deployed LinkBlu RT on advanced Bluetooth LE SoCs from Würth Elektronik, powered by Nordic Semiconductor chipsets, enabling fully wireless dual-channel communication for real-time control and functional safety signals.

Key capabilities

Dual-channel BLE architecture

- Reliable, high-throughput communication channel for standard control and status data
- Dedicated, isolated real-time communication channel for time-critical signals such as functional safety

Deterministic low latency

- Optimized for time-critical machine coordination and functional safety data
- Tuned to meet industrial response thresholds

Adaptive RF management

- Dynamic handling of interference and RF congestion
- Stable performance, even in high-density warehouse deployments
- Designed for coexistence with other wireless technologies

The solution: full replacement of both control and safety cables, with wireless communication matching wired-system performance.

The results

Cable-level reliability with wireless freedom

The system went live in production with

- Zero recorded wireless downtime
- All defined timing and safety thresholds met
- Wireless communication matching wired-system performance

Before LinkBlu RT

- Wired control & safety communication
- Mechanical wear
- Limited flexibility in system configuration
- Scaling required physical re-cabling

After LinkBlu RT

- Fully wireless real-time communication
- No moving cable components
- Modular, flexible system layouts
- Seamless scaling across parallel units
- Safety communication over isolated BLE channel

The successful deployment led KNAPP to expand LinkBlu RT across additional sites and product variants, establishing real-time BLE as a strategic technology within their automation portfolio.

Strategic impact

By eliminating physical cables, KNAPP achieved:

- Greater architectural freedom
- Reduced mechanical failure points
- Simplified installation and maintenance
- Improved scalability for high-density deployments
- Future-ready system infrastructure

Wireless was no longer a compromise.

It became an architectural enabler.

LinkBlu RT

Industrial Bluetooth you can trust

DEWINE Labs develops Bluetooth® Low Energy firmware for time-critical industrial environments where uptime, compliance, and deterministic latency are non-negotiable.

LinkBlu RT is deployed in:

- Intralogistics systems
- Automated Guided Vehicles (AGVs)
- Industrial robotics
- Smart automation platforms

For KNAPP, LinkBlu RT delivered:

- Real-time responsiveness
- OTA upgradability
- Secure safety signal transmission
- Cable-free architecture without operational risk



DEWINE Labs' solutions replace conventional non-deterministic BLE stacks with a deterministic dual-channel communication architecture designed for real-time industrial control systems.

The architecture ensures predictable latency, traffic isolation, and stable behavior under interference while running on existing Nordic Semiconductor hardware.

Want to know more?

**[Book a technical consultation
with DEWINE Labs](#)**

