Anybus® BY HMS NETWORKS

Wireless communication

# Wireless industrial environments

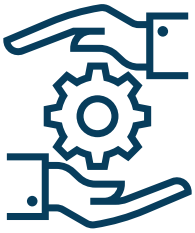
# Why wireless?

## In today's rapidly evolving world, wireless technology offers numerous advantages

Unlike traditional cables, wireless technology does not suffer from wear and tear, ensuring increased uptime and reliability. Its flexibility allows for connections to machines in hard-to-reach areas or the ability to move or modify installations to match operational needs.

Additionally, wireless technology provides easy access to data, improving monitoring and operator safety. It delivers cost savings through faster and more affordable installations, reduced maintenance, and enhanced scalability, making it a smart choice for modern industrial needs.

Improved flexibility



Increased uptime and reliability

Easy access to data

Cost savings

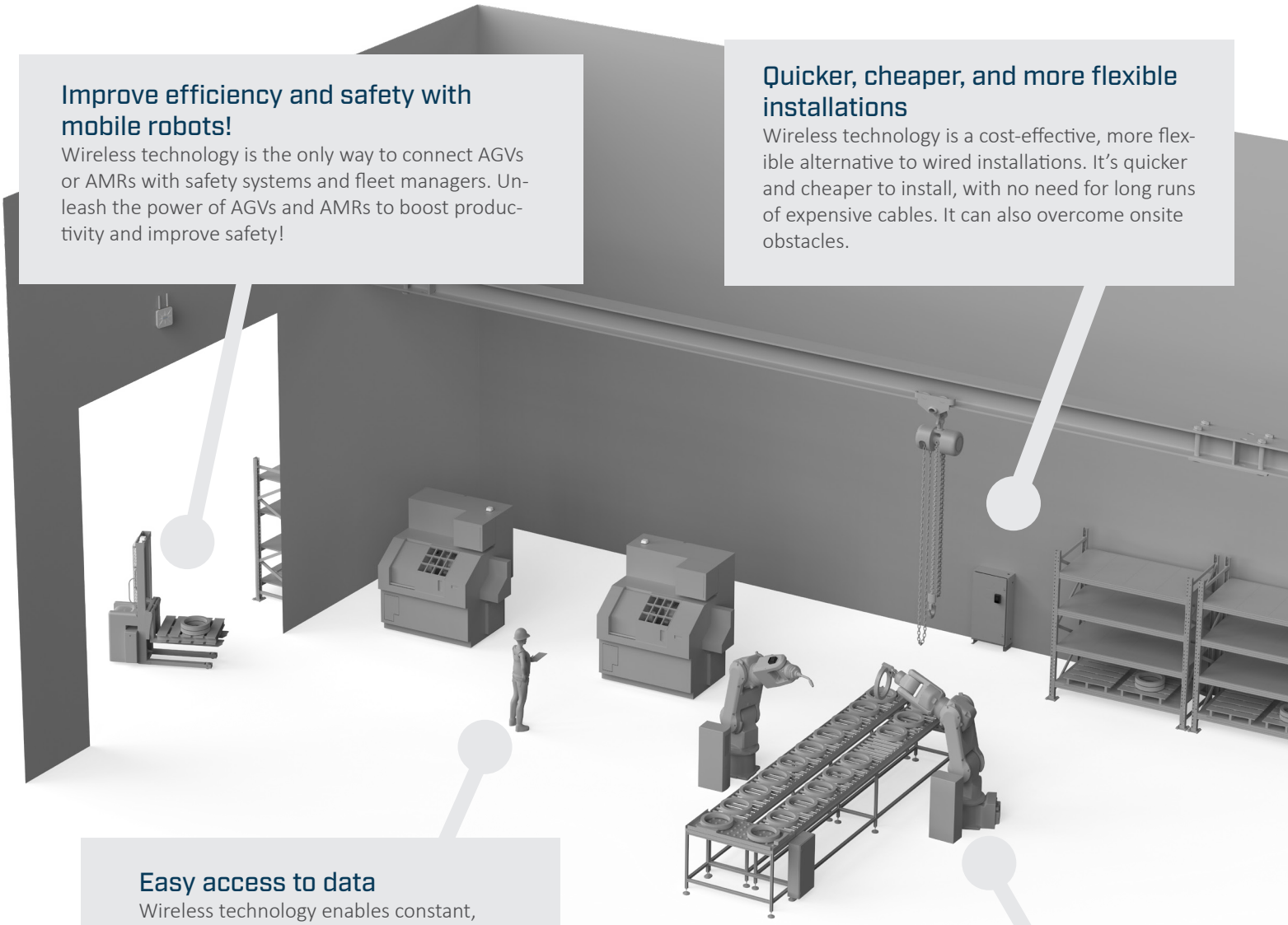
# Why HMS Networks?

### HMS Networks can help you enjoy the benefits of wireless technology

*"We offer ready-made, industrially verified products and expert guidance to ensure a smooth installation. Our comprehensive range of Anybus Wireless products allows you to select the wireless technology that precisely matches your requirements, while our experienced experts are with you every step of the way. They'll help you choose the ideal wireless technology and product for your specific application and provide hands-on support, fine-tuning the installation process for optimal results."*

*Samuel Åkesson*
*Business Line Director*
*Anybus Wireless at HMS Networks*

# How wireless technology can improve your installation!



### Improve efficiency and safety with mobile robots!

Wireless technology is the only way to connect AGVs or AMRs with safety systems and fleet managers. Unleash the power of AGVs and AMRs to boost productivity and improve safety!

### Quicker, cheaper, and more flexible installations

Wireless technology is a cost-effective, more flexible alternative to wired installations. It's quicker and cheaper to install, with no need for long runs of expensive cables. It can also overcome onsite obstacles.

### Easy access to data

Wireless technology enables constant, real-time access to Programmable Logic Controllers (PLCs) and control cabinets. Use handheld devices to access PLC data quickly and easily.

### Remove cables and increase uptime!

Replace stress-prone cables in moving equipment like robots and turntables with wireless options to prevent breakage and maintain uninterrupted production.

Case Study

# The Anybus Wireless Bolt – a baker's best friend

Östras Bakery embraced the future by installing a state-of-the-art control system from Softec, ensuring the continued production of their delicious bread and cakes. The new machine, featuring cylinder-shaped containers mounted on a carousel for dough mixing, presented a unique challenge. The continuous rotation could cause wear and tear on the slip rings used for control data, leading to eventual breakage. Moreover, the control cabinet's location on the other side of the room further complicated wiring. Softec's solution? The Anybus Wireless Bolt. The Anybus Wireless Bolt provided a flexible, reliable wireless connection, minimizing the risk of downtime and ensuring everyone can continue to enjoy Östras' tasty treats.


*"The alternative to using wireless communication, would be to use slip rings. But everything that moves and turns wears down after a while, so we decided to go with a wireless solution. It's worked well and was also easy to install – pretty much plug and play."*

Andreas Kisch, Softec

Case Study

# Wireless guides the way at Mercedes-Benz!

When Mercedes-Benz wanted to expand their AGV installation to increase throughput and to be able to comply with the soon-to-be mandatory Machinery Regulation (EU) 2023/1230, they called HMS. HMS provided the wireless expertise, products, and hands on support to ensure the AGVs moved efficiently and safely around the factory.  The wireless infrastructure uses Anybus Access Points powered by Anybus PoE L2 Managed Switches, with an Anybus Wireless Bolt II mounted on each AGV. The Anybus Wireless Bolts handle communication from the AGVs to the traffic control system and connect to the 12 different access points in the factory's ceiling. As an AGV moves out of range of one access point, it transitions to the next, ensuring uninterrupted communication.


*"Everything worked as we hoped. The connection is very stable, and we are now able to comply with the safety machinery regulation. The support for more bandwidth has even allowed us to manage and configure the AGVs remotely, which, while not a key objective is a nice bonus."*

Maximilian Lichan, Mercedes-Benz

# Anybus Wireless Bolt

## Connect machines in multi-directional applications via Bluetooth or Wi-Fi

**The Wireless Bolt is ideal for establishing wireless connections to roaming machines, such as AGVs, or to control cabinets from any angle. HMS offers a range of Anybus Wireless Bolts, ensuring that there's a Bolt to match your needs.**

### Wireless Bolt:

Ideal for connecting field-level devices that require short start-up times and high determinism.

### Wireless Bolt II:

Ideal for connecting machines on the Control and SCADA levels that require higher data transfer rates.

| | Wireless Bolt | Wireless Bolt II |
|---|---|---|
| Wi-fi standard | 802.11 a, b, g, n<br>802.11r (Fast roaming) | 802.11 a/b/g/n/ac<br>802.11r (Fast roaming) |
| Max data rate | 65 Mbit/s | 867 Mbit/s |
| NAT support | No | Yes |
| MAC cloning | Yes | Yes |
| Security | WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise (PEAP-MSCHAPv2) | WPA2/3-Personal, WPA2/3-Enterprise (PEAP-MSCHAPv2/TLS) |
| Operating mode | Access point, Client, Bluetooth NAP, Bluetooth PANU | WDS Access point, WDS client, Access point, Client |
| Antenna | Single antenna | Dual antenna |
| Max. clients | 7 | 50 |

# Anybus Wireless Bridge

## Connect Ethernet machines in point-to-point and multi-point applications via Bluetooth or Wi-Fi


### Anybus Wireless Bridge II

The Anybus Wireless Bridge II Ethernet connects industrial machines with Ethernet ports to wireless networks via Bluetooth® or Wi-Fi. Designed for both point-to-point and multi-point applications, it's ideal for stationary yet moving machines (e.g., cranes, turntables, robots) or to offer wireless access to control cabinets in point-to-point setups.

| | Wireless Bridge II |
|---|---|
| Wi-fi standard | 802.11 a, b, g, n<br>802.11r (Fast roaming) |
| Max data rate | 65 Mbit/s |
| NAT support | No |
| MAC cloning | Yes |
| Security | WEP, WPA/WPA2-Personal, WPA/WPA2-Enterprise (PEAP-MSCHAPv2) |
| Operating mode | Access point, Client, Bluetooth NAP, Bluetooth PANU |
| Antenna | Dual (MIMO) 2.4GHz antenna, single (SISO) 5GHz antenna or single external antenna (SISO).<br>(Two versions available, with internal antennas and with external antennas) |
| Max. clients | 7 |

# Anybus Wireless Access Point

## Connect machines seamlessly in harsh environments - indoors or outdoors


### Anybus Wireless Access Point

With industrial reliability and support for fast roaming, the Anybus Wireless LAN Access Points are the perfect complement to the Bolt and Bridge family of products. Available in indoor and outdoor versions.

| | Wireless access points |
|---|---|
| Wi-fi standard | IEEE 802.11ac Wave 2 compliant, backward compatible with 802.11a/b/g/nIEEE<br>802.11r (Fast roaming) |
| Max data rate | 867 Mbit/s |
| NAT support | Yes |
| MAC cloning | No |
| Security | TLS v1.2, HTTPs/SSH<br>WLAN AP Security: WPA/WPA2-PSK, WPA/WPA2 Enterprise<br>DMZ, IP/Port Filter<br>NAT: 1-1 NAT, NAPT(SNAT/DNAT), Port forwarding<br>VPN: IPSec, OpenVPN, L2TP, GRE |
| Operating mode | Access point, Client, WDS Access Point, WDS Client |
| Antenna | Dual antenna |

# Wireless Technical Services

## Let Anybus' wireless experts help you in your project

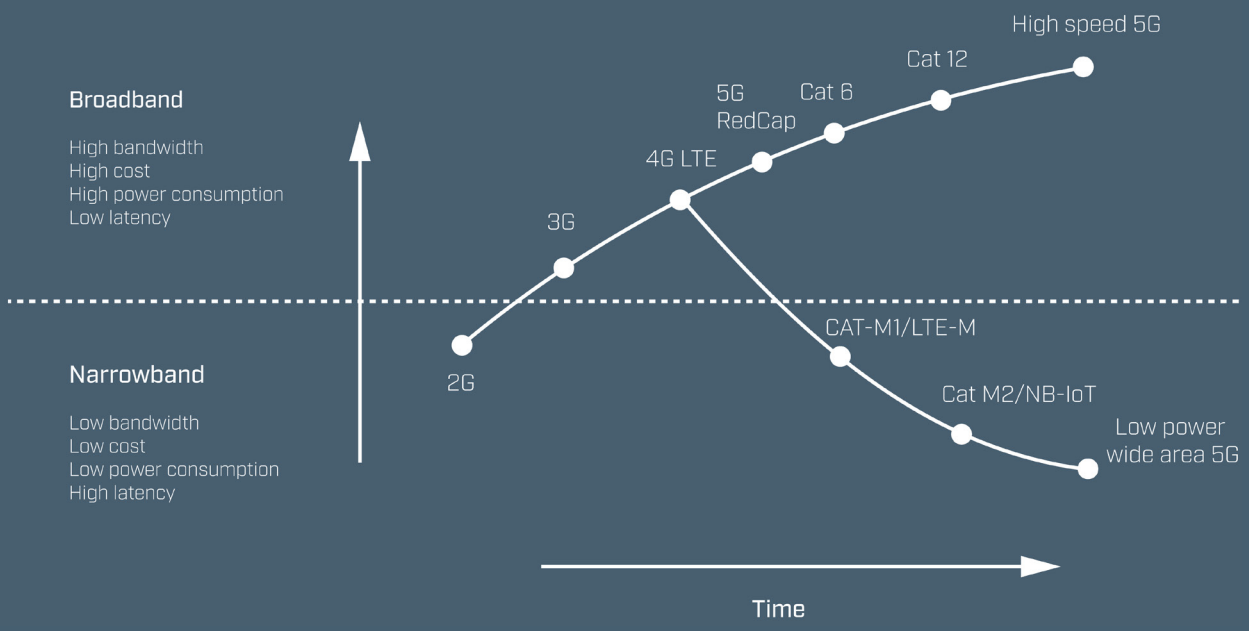
### Go wireless with confidence!

If you're unsure which wireless technology to choose for your application or need help with installation or troubleshooting, our team of wireless experts is ready to assist you. They can guide you through the installation process, conduct a site survey for optimal access point locations and interference mitigation, and help choose the right antenna. They'll also assist in selecting and installing certified equipment and validate the setup upon completion.

## Focus on your area of expertise, leave the networking to Anybus!

# 5G just around the corner!

With the arrival of 5G, the manufacturing industry faces its biggest transformation yet. Safer, flexible and more efficient manufacturing systems will be possible thanks to the ultra-low-latency and reliability of 5G connectivity.




# It's not only about speed

The standardization of 5G is an ongoing process within the 3GPP organization. Vendors have been testing the technology in selected factories around the world and we are starting to see companies selecting 5G as the core infrastructure for plantwide wireless networks. The current 3GPP release 16 provide a very reliable wireless technology very suitable for demanding industrial applications, including the Ultra-Reliable Low Latency Communications (URLLC) critical for control applications. With the release of 3GPP release 17 we will also see the introduction of 5G RedCap, which aims at offering a cost-reduced wireless connectivity with performance similar to LTE over the 5G network. 5G radio modules and network infrastructure supporting release 17 are expected by the end of 2023 and deployment in factories will start in 2024.

# 5G routers and gateways

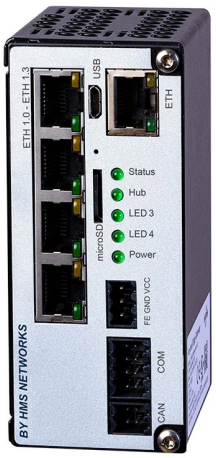
## Enables ultra-fast and reliable industrial wireless connections

HMS Industrial Networks is a trailblazer in Industrial Information and Communications Technology (ICT). Collaborating with partners like Ericsson, Verizon, and IFM, HMS has been pioneering 5G connectivity solutions for industrial use. Currently, several proof-of-concept installations are operational with major automotive manufacturers worldwide. These applications include advanced Automated Guided Vehicle (AGVs), ensuring maximum uptime, reliability, and safety. While HMS already offers an array of 5G devices and demo kits through its innovative labs department, the HMS business unit Anybus is gearing up to launch a standard product in the Anybus Wireless Bolt series in 2024.

HMS collaborates with the telecommunications company Ericsson to explore the deployment of 5G in industrial applications. At the Hannover Messe 2024, Ericsson demonstrated how AGVs can enhance safety by implementing industrial safety protocols through the use of 5G access points provided by HMS Networks.

*The Wireless Bolt 5G is packaged in an elegant and innovative form factor that mounts securely onto a machine or cabinet for an integrated look.*

The Wireless Bolt 5G from HMS Networks enables you to create a robust cellular connection in an industrial production environment. Go to www.hms-networks.com for more information.


Industrial protocols and layer 2 functions commonly used in industrial networks cannot typically be transmitted over 5G. However, the 'Tunneling gateway' from HMS Networks allows you to reliably tunnel industrial protocols and layer 2 functions over 5G.

# Work with HMS.
# The number one choice for Industrial ICT - Information and Communication Technology.

## HMS Networks - Contact

HMS is represented all over the world.
Find your nearest contact here:

www.hms-networks.com/contact