Anybus® BY HMS NETWORKS

Solutions for Industrial IoT

Gateways, wireless and embedded solutions which enable data communication for the Industrial Internet of Things

HMS Connecting Devices™

Future proof your business by connecting to the Industrial Internet of Things with HMS Networks

The Internet of Things, IoT, is all about connecting devices and harnessing the power of data. In the industry, the Industrial Internet of Things, IIoT, can fundamentally transform a manufacturing business. Digital and physical systems become integrated within factories, improving visibility, increasing efficiency and adding flexibility.

With its proven and trusted competence and portfolio, HMS Networks opens up your door to IIoT, with new solutions that make industrial data available to IT-systems and IIoT applications – in an easy and secure way.

Get access to your data

Tap data in an easy and secure way and provide on-the-fly statistics from your devices, machines and systems to discover how they are used. Real-time data improves the visibility of your manufacturing operations and enables you to make smarter decisions across your business.

Predictive maintenance

Every failure leaves a trail of data that can be used to identify the cause of the underlying issue. Prevent quality issues at an early stage before they become serious problems to your operations, reducing unplanned downtime cutting into production time.

Analyze and enhance

Use your collected data to analyze and enhance your roductivity in a sustainable way. Make sure you have all the needed information to future proof your business, keeping your edge in the marketplace.

Monitor your devices and networks from anywhere

Monitoring the vast amount of data flowing from all parts of the factory is the first step in realizing the potential of the Internet of Things. For that you need stable and secure industrial grade connections that do not interfere with operations.

In reality, the act of connecting components within a factory might not be as straight forward as one might believe. Factory systems are typically built one bit at a time by different teams and in different places using different networks , such as fieldbuses, industrial Ethernet networks, wireless installations, not to mention the entire IT infrastructure. For all of the components on these networks to coexist and work together they need to communicate properly in between them, putting a lot of demand on the facilitating connectivity infrastructure. And the Internet of Things just adds another layer of complexity.

OPC UA and MQTT are two network protocols developed to connect the operational technology on the factory floor with the information technology systems supporting the business, targeting to feed data into emerging IIoT-applications. MQTT, being the more nimble protocol of the two, is flexible and easier to implement. On the other hand OPC UA brings the user more in terms of data and service models as well as security schemes.

Regardless of your choice of protocol, HMS now offers a straight-forward path to IIoT. The leading gateway families Anybus® Communicator™ and Anybus® X-gateway™ from HMS support MQTT and OPC UA as standard, allowing users to introduce these technologies into factories in an easy and secure way.

Bring your networks to the next level with the Anybus X-gateway IIoT

The Anybus X-gateway IIoT allows you to seamlessly connect PLC control systems and their connected devices on industrial networks, to IT and IoT-systems supporting OPC UA or MQTT. The X-gateway IIoT receives cyclic I/O data from your industrial network, converts it to well identified, tagged datapoints and transmits it via OPC UA or MQTT.

When the X-gateway IIoT is installed to make the IT connections, the network will remain secure and isolated since the data flow is being controlled from an independent device. Only one-way data communication from OT to IT is allowed through X-gateway IIoT, ensuring that the monitoring IT-system cannot influence the underlying industrial networks.

- Supports OPC-UA micro-embedded profile
- Supports Discovery Services
- User name and password authentication
- Supports DataChange Subscription
- MQTT client acting as publisher
- Proven and tested with PLC's from all leading manufacturers
- Possibility to build web pages to display and control a factory floor

Anybus Communicator IIoT makes even your legacy equipment state of the art

The Anybus Communicator IIoT is a proven and trusted protocol converter gateway that connects non-networked industrial devices and equipment based on serial and CAN communication to IIoT applications based on OPC-UA and MQTT. The gateway performs an intelligent protocol conversion after which is transmits the data to its subscribers inside a user created data model.

- Retro-fit legacy products to publish data on OPC UA and MQTT
- Stream diagnostic data and status information from devices directly into the IT system
- Requires no hardware or software changes to be made to the connected device
- Connects and converts data from Modbus RTU, ASCII, DF1, CAN-based, or user-specific protocols
- Connect up to 31 RS485 sub-net nodes to IT systems with one gateway

Keeping your data safe and secure

Traditionally, security in industrial control systems has been based on the fact that these systems are relatively isolated and not connected to other IT-systems or the Internet. Therefore, there has not been a great need to add security to the control network itself, until now.

Control networks are undoubtedly getting increasingly connected to the outside world — and thereby also a target for hackers, espionage, sabotage and data manipulation. Hence, it becomes increasingly important also for the devices and machines on the factory floor to defend themselves. This is why several industrial networks now are developing security standards enabling machines to:

- Reject data that has been altered (Integrity)
- Reject messages sent by untrusted people or devices (Authenticity)
- Reject messages that request actions that are not allowed (Authorization)
- Protect sensitive data (Confidentiality)
- Be robust against high traffic loads and malformed packets (Availability)

At HMS Networks, security is a key integral dimension of the product development and maintenance processes. We continually test our products using industry standard test suites to check the resistance against packet storms - to prevent from e.g. denial-of-service attacks, known security holes and malformed packets – so called fuzzing attacks. In this process, HMS uses tools like Achilles, Netload and Nessus for our Ethernet-based products.

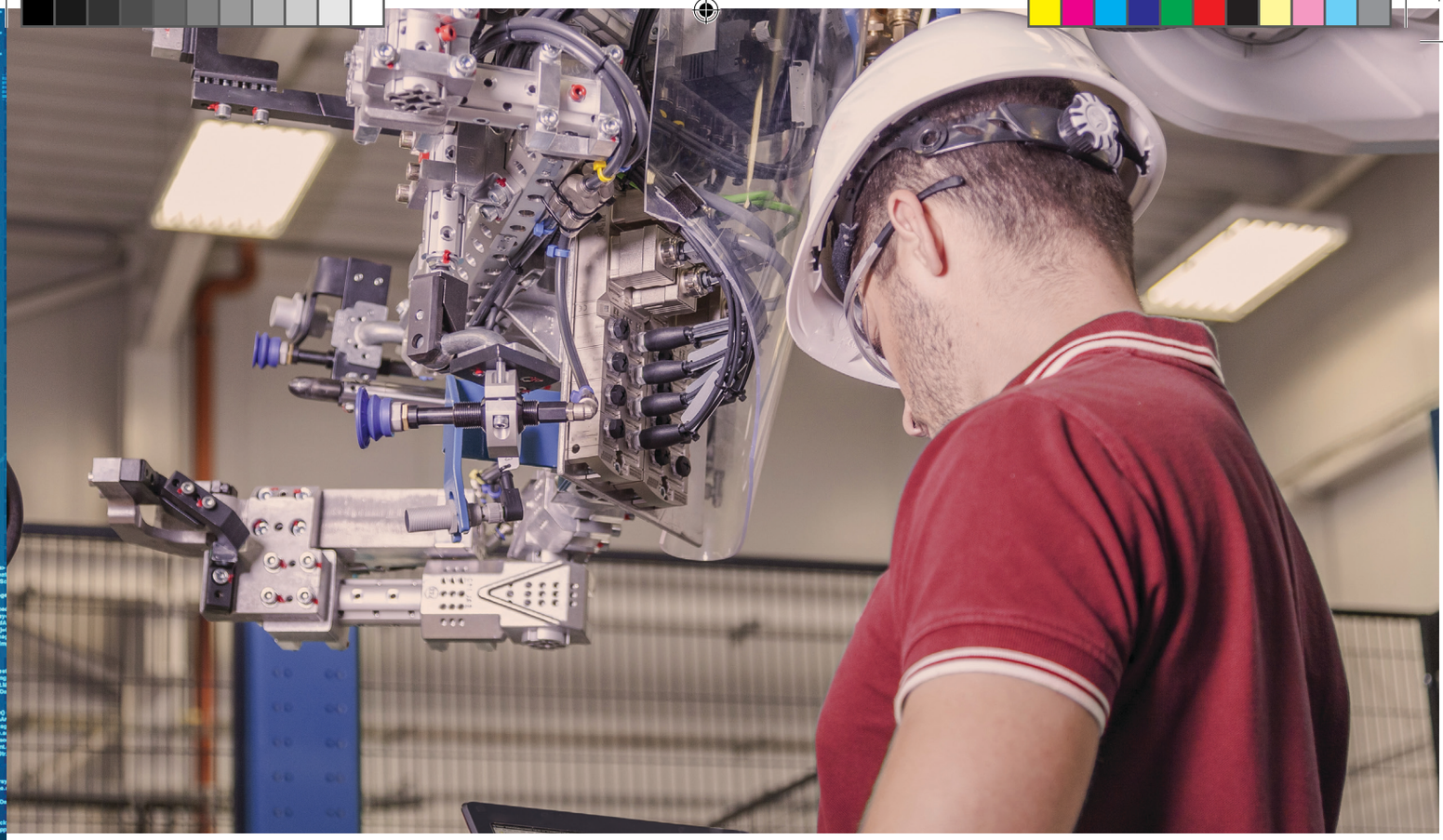
Furthermore, all firmware files generated are validated with signed firmware certificates, ensuring that the firmware is authentic and unmodified. Access control is another important security feature, which gives only selected users access to features such as webservers, FTP, and firmware updates. The access can also be shut down completely, and unused protocols and functionality can be disabled as necessary by the host application.

In full technology control

Using own technology, HMS is in full control of the design and all security aspects. Performance can be optimized in an efficient way and possible vulnerabilities can easily be fixed. Furthermore, HMS stays at the forefront of technology by participating in the network user organizations, working together with leading customers on cyber security.

Security in product development

HMS has a well-established development process that is ISO9001 certified. The internal security guidelines make sure the security aspect is included from development start. All source code is reviewed by programmers trained in secure coding technologies.

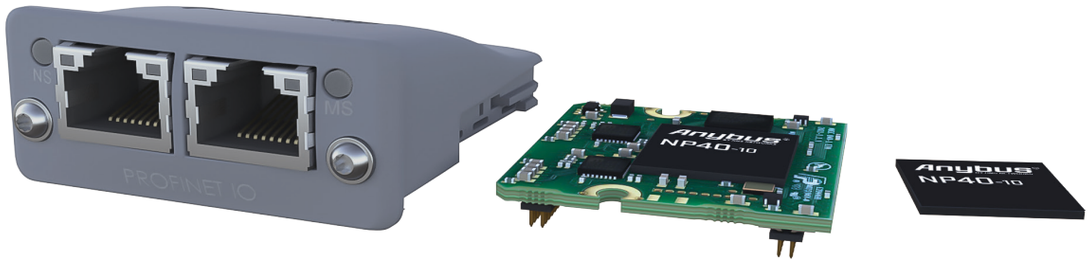


Embed IoT connectivity into your industrial devices

Anybus® CompactCom™ is the world's leading 3rd party solution for embedding networking capabilities into industrial devices in a flexible, simple and cost effective way. Thousands of device manufacturers and machine builders have standardized on CompactCom for fieldbus and industrial Ethernet communication.

Through just one development project, CompactCom allows users to communicate on all the major industrial networks on the market – industrial Ethernet as well as fiedbuses. Now, with the addition of the protocols OPC UA and MQTT, all CompactCom can make their data available to IT systems and IoT software - in an easy and secure way.

- Support for micro-embedded profile
- Supports Discovery Services
- User name and password authentication
- Supports DataChange Subscription
- OPC UA and MQTT available for PROFINET and Ethernet/IP



Connect your devices using Bluetooth and Wireless LAN

With the performance, security and reliability of wireless technology now being on par with wired communication, Anybus® Wireless products will enable you to keep up with the demands of the modern factory and the Industrial Internet of Things.

Anybus Wireless products work seamlessly together, covering every aspect of modern industrial requirements for infrastructure, machine access and cable replacement.

Available in different form factors and wireless transmission capabilities, Anybus Wireless products all suitable for the varying physical demands of industrial wireless applications. So what do you need? Wireless access points, wireless machine access, a cable replacement solution, or a combination?

Set up a WLAN infrastructure with the Anybus WLAN Access Point

The Anybus® WLAN Access Point allows you to set up an industrial wireless infrastructure by acting as an access point for several clients. It comes in two different versions, one for IP30 applications and one for IP67. Both have the same characteristics when it comes to range and functionality.

Range:	Up to 400 meters
Mounting:	DIN-rail, wall-mount, or pole mount
IP class:	IP67 or IP30
Configuration:	Web based
Connector:	M12 (IP67 version) or RJ45 (IP30 version)
Wired:	Ethernet
Wireless:	Wireless LAN only

Replace serial or Ethernet cabling with the Anybus Wireless Bridge

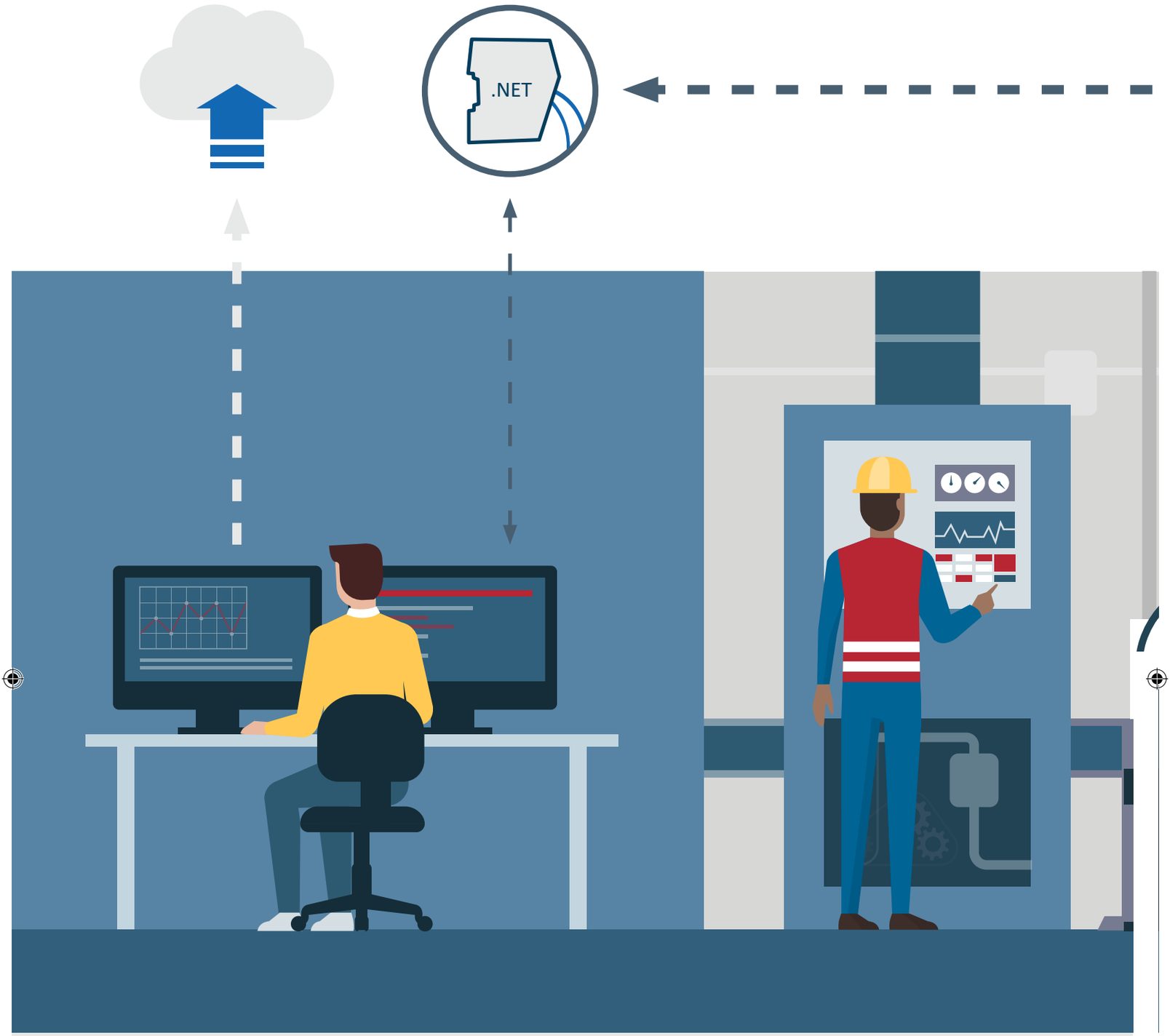
Anybus® Wireless Bridge™ is ideal for system integrators needing to establish a robust wireless connection for industrial use. The Wireless Bridge is often used in pairs but can also be used as an access point connecting up to 7 clients.

Range:	Up to 400 meters
Mounting:	DIN-rail or wall-mounted
IP class:	IP65
Configuration:	Push-button or web based
Connectors:	M12 (DSUB on serial version)
Wired:	Ethernet or Serial
Wireless:	Bluetooth, Bluetooth Low Energy or Wireless LAN

Establish wireless machine access with the Anybus Wireless Bolt

Anybus® Wireless Bolt™ is ideal for machine builders wanting to give their machines wireless access. It is mounted onto a cabinet or a machine and connects using Ethernet, CAN or Serial communication.

Range:	Up to 100 meters
Mounting:	Screwed onto machine (M50 hole — 50.5 mm)
IP class:	IP67 outside (IP21 inside)
Configuration:	Web based, AT Commands or Easy Config modes
Connector:	2x9p;3,5 Plug Connector or RJ45 connector with PoE (inside the machine)
Wired:	Ethernet
Wireless:	Bluetooth, Bluetooth Low Energy or Wireless LAN



Connect your .NET application directly with industrial data from PLC systems

As the IIoT pushes the boundaries on what is possible in the world of manufacturing, a true industrial connection between industrial PLC-managed networks and IT-systems and IIoT-applications become very important. Not only will we need to tap into the real time data of the various machines and devices in factories, in order to fully realize the potential of Industry 4.0, IT systems must start taking actions themselves, making the dream of the smart factory a reality. For this purpose, data needs to be bridged between the factory and the IT-systems, in a seamless way.

Control and monitor your devices and networks using Anybus .NET Bridge

With the Anybus® .NET Bridge™ real-time data from industrial machinery can get synchronized with .NET-based IT applications. Once connected, the data can be monitored and analyzed, statistics can be created, and the need for maintenance can be predicted. In addition, the .NET Bridge can be setup to allow the IT network to control processes on the PLC-based industrial networks. Commands can be sent to the PLC-based networks, and automated systems can be setup which can be closely integrated to existing the office environment, including e.g. sales and factory management systems.

- Connects the worlds of the PLC and .NET programmers by creating a bridge between the logic in a PLC and a .NET solution in a PC
- Offers synchronized communication with handshakes for data integrity
- Full duplex communication enabling data to be monitored and controlled
- Easy configuration with simulation tools for offline development
- Data configuration is done in a single table which autogenerates the PLC and .NET components

Work with HMS. The number one choice for industrial communication and IIoT.

HMS Networks - Contact

HMS is represented all over the world.
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HMS Connecting Devices™

www.anybus.com