Anybus®

Embedded solutions

Embed an Anybus product into your device to connect
to any fieldbus or industrial Ethernet network.

HMS *Connecting Devices*™

How can I connect my products to all networks on the global market?

How do I certify my products with all the different network organizations?

What if my products need to connect to a new network in a new market?

How do I keep costs down for developing network connectivity?

What do I need to do if a network is upgraded?

How can my products communicate with safety networks?

Anybus: One solution for all networks!

As a manufacturer of industrial devices, you need to make sure that your products can communicate with the many industrial networks that exist on the automation market today. But developing and maintaining connectivity for all these networks is both time-consuming and resource-demanding.

By embedding an Anybus chip, brick or module into your products, you will be able to connect to all major industrial networks on the international market. Anybus products also take care of issues such as network upgrades, software maintenance and certifications.
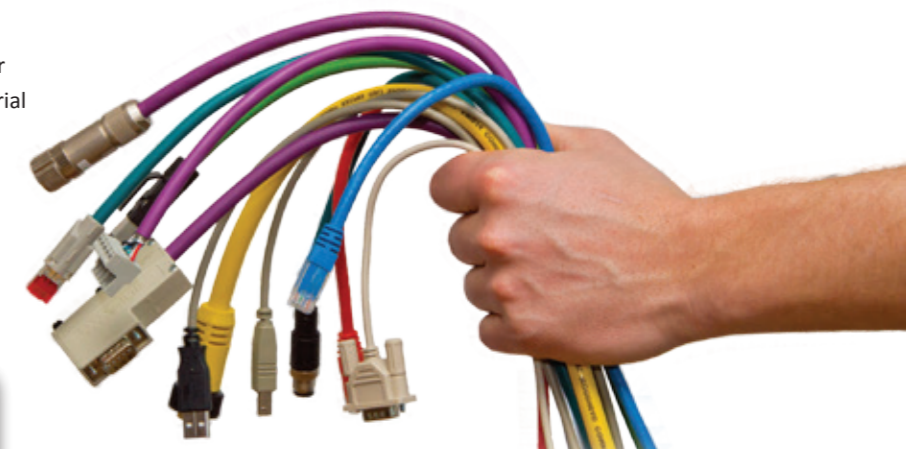
Use Anybus for network connectivity so you can focus on developing your products!

No network fits all

The choice of industrial network depends on several things. One deciding factor is geographical location as different PLC manufacturers have different home turfs.

Network preference also differ according to the physical networking requirements within different industries. Factory automation, building automation, the automotive industry, infrastructure and renewable energy are examples of industry segments with different preferred networks.

On top of that you have the co-existence of fieldbus networks and the newer industrial Ethernet standards.

In short, there are a lot of networks on the market and no consolidation is in sight.

Anybus® Embedded

Embedding the Anybus concept into your product

One development project gives you access to all networks

Anybus embedded products are ready-made to immediately get you connected to any industrial network. You design the Anybus module into your product, implement the Anybus driver in your processor and prepare your PCB.

Once you have implemented the Anybus product, your device has full network interchangeability. Simply change to another Anybus module to get connected to another network (for Ethernet versions, you can just download different software).

Naturally, HMS experts are with you throughout the development project with expertise and know-how.

2. Found Anybus: Start in-design

Host Processor

Data exchange

Anybus slot

1. Connection needed

3. Communication solved

Why Anybus?

By choosing Anybus, you make sure that you have the latest industrial connectivity technology inside your product. Anybus embedded solutions are built on HMS' own network processors providing flexibility, optimal functionality and low power consumption.

Since Anybus incorporates expertise gathered from thousands of device implementations, plus original technology from the network founders, you can rest assured that you get a fast and easy design project, and that there is proven technology inside your product.

Leif Malmberg, Product Line Manager,
Embedded Solutions, HMS
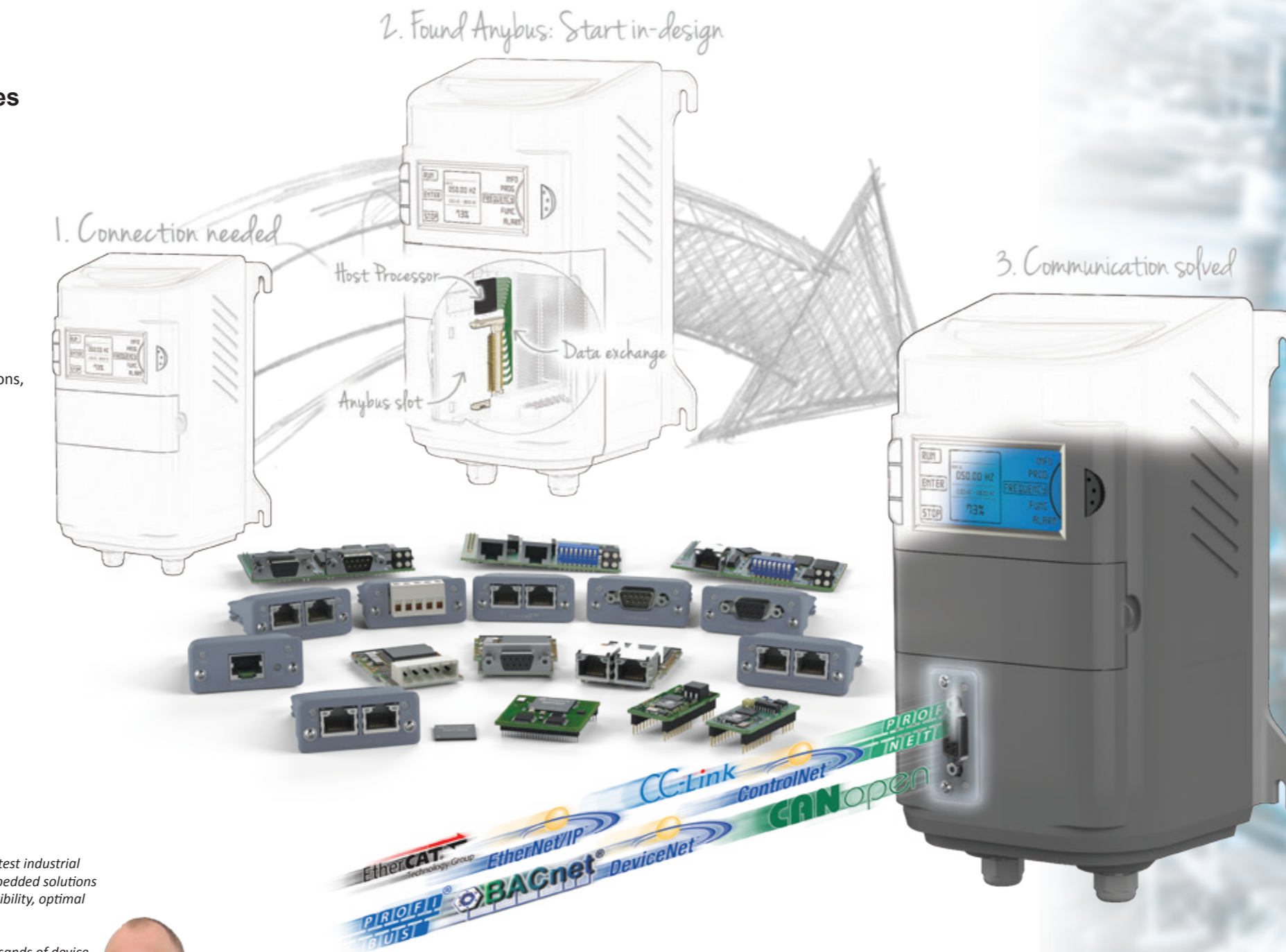
Which CompactCom suits you?

The Anybus CompactCom concept consists of ready-made communication interfaces for fieldbus and industrial Ethernet. Regardless of your needs in terms of format and performance in your communication solution, there is always an Anybus CompactCom solution for you.

Choose level of integration:
Chip, Brick or Module

Anybus CompactCom comes in several form factors. No matter which format you choose, CompactCom offers multi-network connectivity with a single development project, limiting your development efforts to an absolute minimum.

- **CHIP**: A full network connectivity solution on a single chip for integration into your PCB design.
- **BRICK**: A brick interface is ideal if you have limited space or want to add your choice of network connectors.
- **MODULE**: Complete and interchangeable communication modules giving you the fastest time to market.

Once the Anybus concept is implemented, it is easy to migrate to another form factor, re-using your development efforts.

Choose performance level:
30- or 40-series

- **30-SERIES**: The Anybus CompactCom 30-series (based on the Anybus NP30 network processor) is perfect if you need a connectivity solution for general automation such as drives, weight scales, valves, barcode scanners, sensors, HMIs etc.
- **40-SERIES**: The cutting-edge CompactCom 40-series is based on the award-winning Anybus NP40 network processor. It is especially suitable for high-end industrial Ethernet and fieldbus applications with fast network cycles and synchronization demands. Since the 40-series practically offers "zero delay" between the device and the network, it is ideal for high-performance, synchronized applications such as servo drive systems.

One CompactCom integration — access to all networks!

Anybus®	Chip	Brick	Module
	If you want a fully integrated Anybus CompactCom solution.	If you want to add your choice of connectors to an all-inclusive brick interface.	If you want complete CompactCom communication modules.
CompactCom 30-series (NP30-based) Proven and trusted Anybus technology targeting general automation.	Anybus CompactCom C30	Anybus CompactCom B30	Anybus CompactCom M30
CompactCom 40-series (NP40-based) High performance industrial communication supporting motion and sync applications.	Anybus CompactCom C40	Anybus CompactCom B40	Anybus CompactCom M40

Under the hood: The Anybus network processors

HMS' own network processors, the Anybus NP30 and NP40, make up the core of the Anybus communication solutions. They work as a complement to your micro-processor by offloading it from communication tasks.

Anybus NP30

Released in 2005, the Anybus NP30 is used by millions of industrial devices all over the world. This ASIC includes a RISC processor including PROFIBUS, Ethernet, CAN and other communication interfaces as well as internal RAM and flash memories. With its 10x10 mm BGA housing it is the smallest network processor on the market.

Anybus NP40

This is a flash-based, single chip network processor that includes a high-performance ARM® Cortex™-M3 and an FPGA fabric. The FPGA fabric is used to implement the various network interfaces while the ARM core runs the protocol and application stacks.

Flexibility

The NP40 makes it possible to use the same hardware for several Ethernet networks. You simply download ready-made firmware to connect to the desired network (for example EtherNet/IP, PROFINET IRT or Modbus-TCP).

High performance

For certain high-performance networks, the data bypasses the ARM processor enabling practically immediate data transfer. This direct communication between the network and the host API results in almost "zero data delay" in demanding applications – a unique feature for the NP40.

The flash-based technology also gives a very low power consumption and power dissipation, unbeaten in the industry.
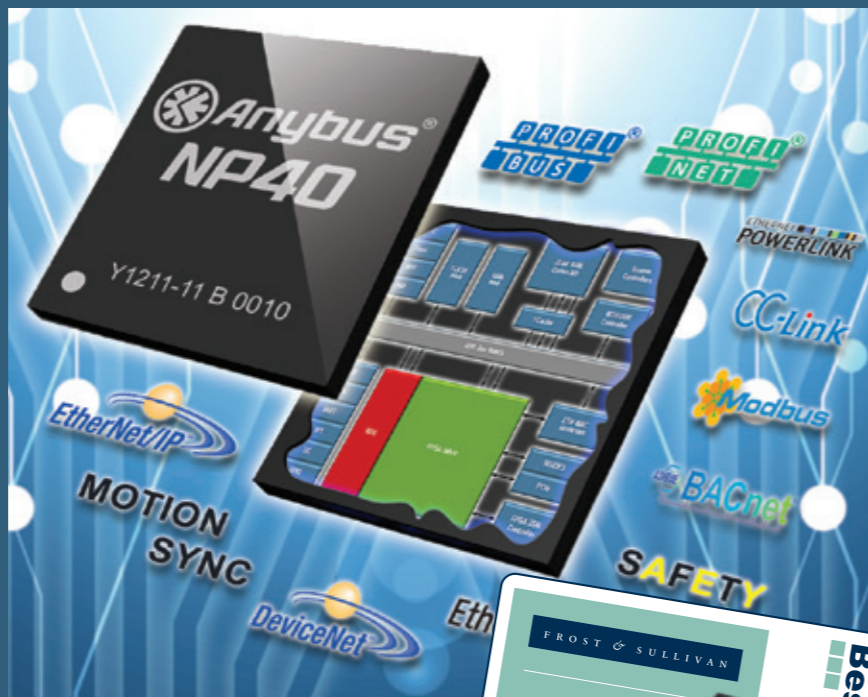
The independent research company Frost & Sullivan has deemed the Anybus NP40 to be the best network processor on the market.

Best in class

FROST & SULLIVAN
2013 BEST PRACTICES AWARD
EUROPEAN
INDUSTRIAL COMMUNICATION PROCESSORS
NEW PRODUCT INNOVATION AWARD

Into the future with HMS

The Anybus CompactCom 40-series combines our NP40 processor for industrial networking with cutting edge technology for protocol stacks, network controllers and APIs — all developed by communication experts here at HMS.

The combination of an ARM core processor and an FPGA fabric enables a solution with the speed and accuracy you need for demanding Ethernet applications. The 40-series has the flexibility you need to easily connect to new industrial Ethernet networks as well as a wide range of traditional fieldbuses.

Kevin Knake, Executive Vice President & General Manager
*HMS Industrial Networks, USA*

More Anybus embedded products:

Anybus-IC: Ideal if you have limited space or want to add your choice of connectors

Anybus-ICs are small connectivity modules with a size of only 9 cm². This connectivity solution is designed for integration into small-sized devices with limited space for the communication interface.

The flexible Anybus-IC can be used with various network connectors such as M12 or screw terminals which makes it an ideal solution for devices that are used in harsh industrial environments. The Modbus-based application interface is easy to use and ensures a simple and fast development project. As an alternative, the Anybus-IC can be used in stand-alone mode without the need for a host microprocessor.
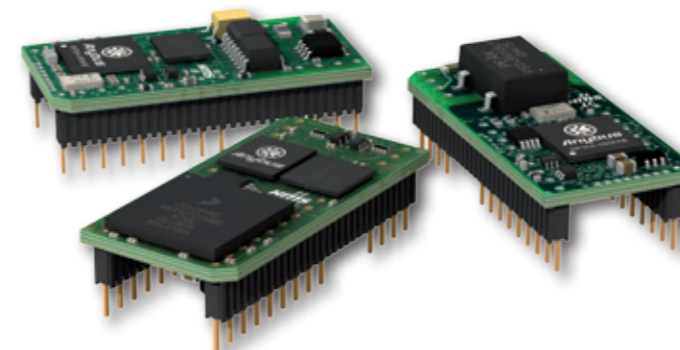
Anybus-S: Trusted by thousands of device manufacturers all over the world

Anybus-S (Slave) is a range of proven communication modules used in millions of industrial applications worldwide. Anybus-S modules are credit card-sized multi-network connectivity products that are easily integrated into a host automation device.
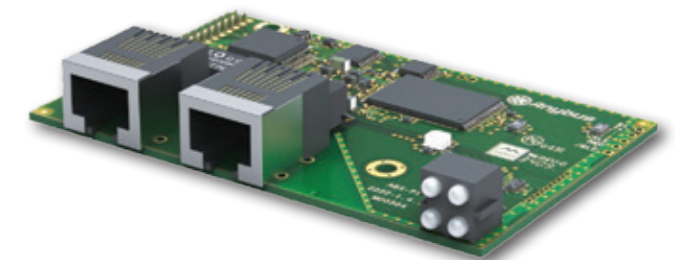
Need to connect to safety networks?

The IXXAT Safe T100 is designed to work together with Anybus CompactCom to provide access to safety networks.
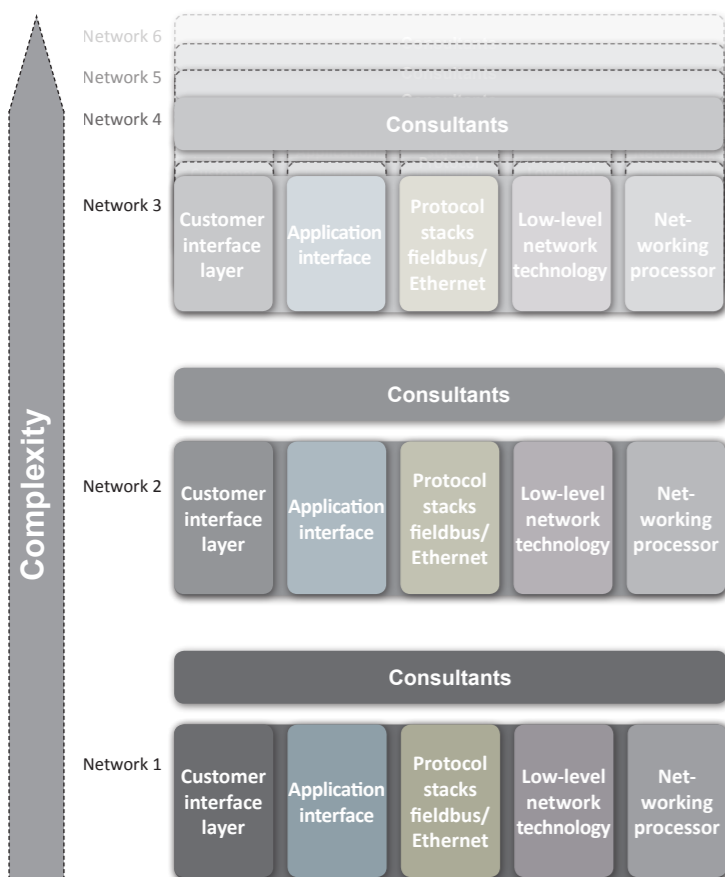
Anybus®

HMS *Connecting Devices*™

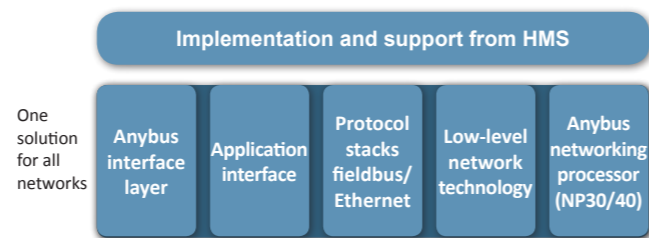# Benefits of using a ready-made solution

As a device manufacturer, you need to choose between developing a network connectivity solution in-house or using a ready-made solution. When multi-network connectivity is needed, the Anybus solution will give you up to 70 % lower development costs.

Developing and assembling your own solution

The Anybus proposal —
One solution for all networks

Complexity ↑

Network 6
Network 5
Network 4

| Consultants | | | | |

| Customer interface layer | Application interface | Protocol stacks fieldbus/ Ethernet | Low-level network technology | Net-working processor |

Network 3

| Consultants | | | | |

| Customer interface layer | Application interface | Protocol stacks fieldbus/ Ethernet | Low-level network technology | Net-working processor |

Network 2

| Consultants | | | | |

| Customer interface layer | Application interface | Protocol stacks fieldbus/ Ethernet | Low-level network technology | Net-working processor |

Network 1

One solution for all networks

| Implementation and support from HMS | | | | |

| Anybus interface layer | Application interface | Protocol stacks fieldbus/ Ethernet | Low-level network technology | Anybus networking processor (NP30/40) |

This way, you have different vendors for each layer of the solution. An in-house connectivity solution may give you exactly the solution you want (at least in theory), but you still have to cater for the maintenance of each part yourself. If you want to connect to a new network, you have to start over from scratch and create new hardware and software for the new network.

With Anybus, you have a unified solution covering all layers needed for network connectivity. You don't have to worry about updates to stacks and network certifications — all is included in your Anybus solution. Most importantly, it is easy to get connectivity to another network by simply plugging in another module or choosing another brick. (For Ethernet networks, you can even use the same hardware and just download new software for the respective networks.)

Work with the world's number one choice for industrial communication!

Network connectivity expertise at your service

With millions of communication solutions installed globally, HMS Industrial Networks is undisputedly the world's number one provider of industrial connectivity solutions.

Customers include most major industrial automation companies such as Siemens, Mitsubishi, Yaskawa, Rockwell Automation, Schneider Electric, Toshiba, Panasonic, ABB and Hitachi, as well as small and medium-sized companies in a variety of industries.

Focus on what you do best

By partnering with HMS, you get access to the knowledge of some of the world's leading experts on industrial connectivity — experts who are with you all the way from the design project and throughout the product lifecycle.

With HMS as your communication partner, you will not have to worry about network upgrades, new technologies or conformance testing. HMS handles all connectivity issues, so you can focus on your core business.

Facts about HMS

- Operations in 10 countries: Sweden, Germany, USA, Japan, Denmark, China, Italy, France, UK and India.

- Customers in more than 50 countries.

- Head office in Halmstad, Sweden.

- Founded in 1988.

- More than 350 employees.

- Listed on NASDAQ-OMX Nordic Exchange in Stockholm.

- Free support.

Partnership with HMS is for the long-term

We work closely with our customers to offer expertise and know-how. As a customer of HMS, we help you broaden your market and stay up-to-date when it comes to network connectivity. Indeed, many of our customers regard HMS as their internal development department for industrial communication.

Get in touch with us, and we'll tell you more about how to get connected.

Staffan Dahlström
Chief Executive Officer, HMS

HMS Industrial Networks

Through Anybus technology, HMS Industrial Networks provides reliable solutions to connect devices to any majorindustrial network. Anybus is a globally recognized brand, offering customers a competitive advantage in all types of applications. HMS' knowledgeable staff along with distributors and partners in over 50 countries worldwide, are there to help you and your business increase productivity and performance while lowering cost and time to market.

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