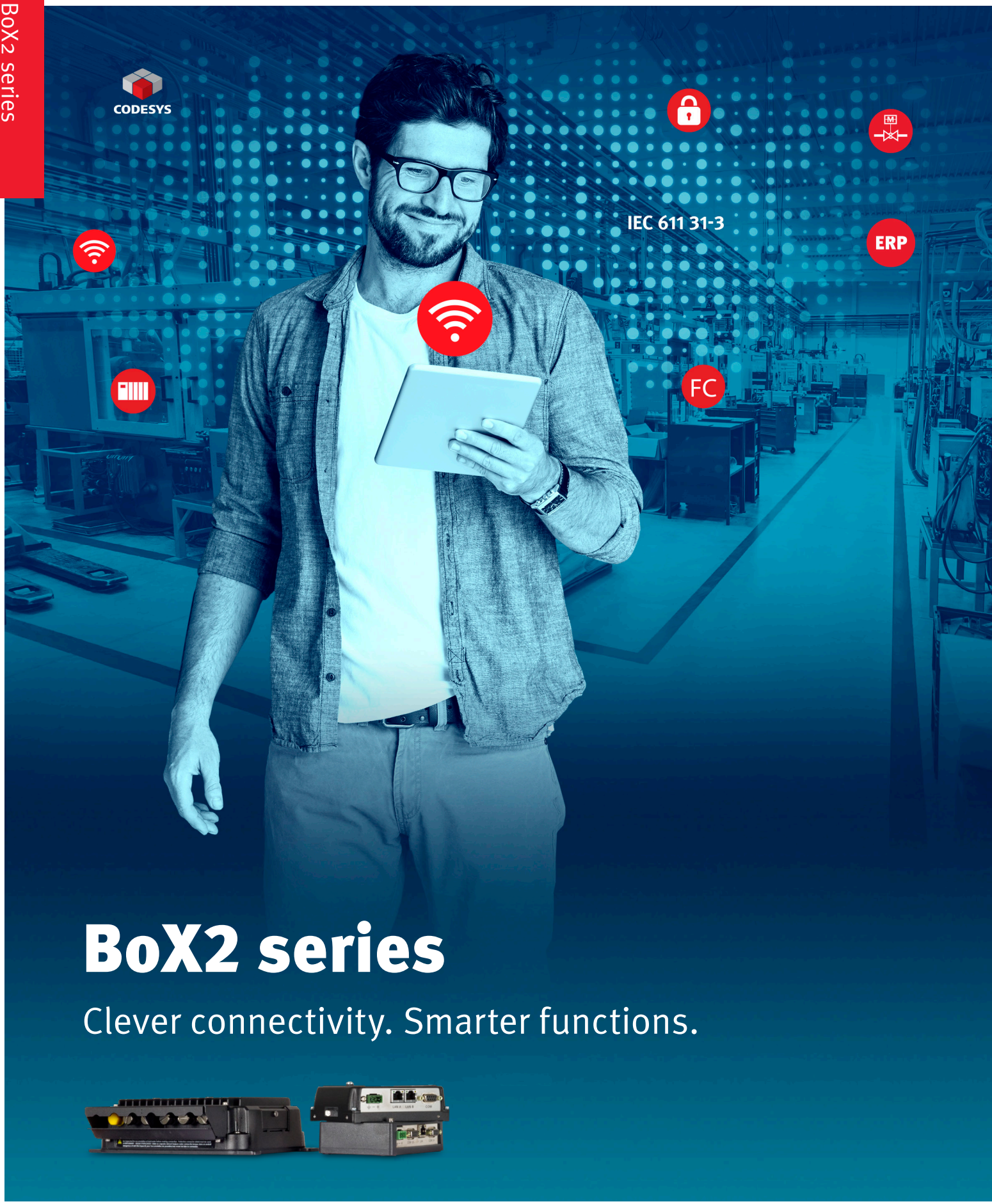


BoX2 series

Clever connectivity. Smarter functions.

Beijer ELECTRONICS

Making the complex simple

BoX2 series

Clever connectivity. Smarter functions.

Your data is the key to preventing down-time, mal-operation, excessive power consumption and other issues that may occur. Use this crucial information and turn it into insights, optimize operations and plan for maintenance.

BoX2 solves the challenge of finding smart ways to access data and bridges the gap between the worlds of industrial automation and IT. It makes information from a deep industrial level easily accessible in a structured cloud-based data environment.

BoX2 offers true industrial strength. It can operate in tough environments including electrical noise, large temperature spans and vibration. It communicates with all the different types of controllers holding the data you need.

BoX2 facilitates data exchange, and transfers data securely to the cloud for remote access and analysis.

BoX2 allows you to create mobile solutions and add local control on the edge of the cloud to perform corrective measures on a machine. It's programmed with smart ready-made functions to manage whatever scenario you opt for.

This is Box2

BoX2 is a series of protocol converters, IoT gateways and edge controllers that combine clever connectivity in different ways:

- Share data between PLCs of different makes.
- Create IoT solutions to store and access data in the cloud.
- Present data on mobile devices via HTML5 screens and dashboards.
- Integrate local CODESYS control.

It also offers smart functions such as local data base storage, alarm servers, data exchange, reporting, C# scripting, and more.

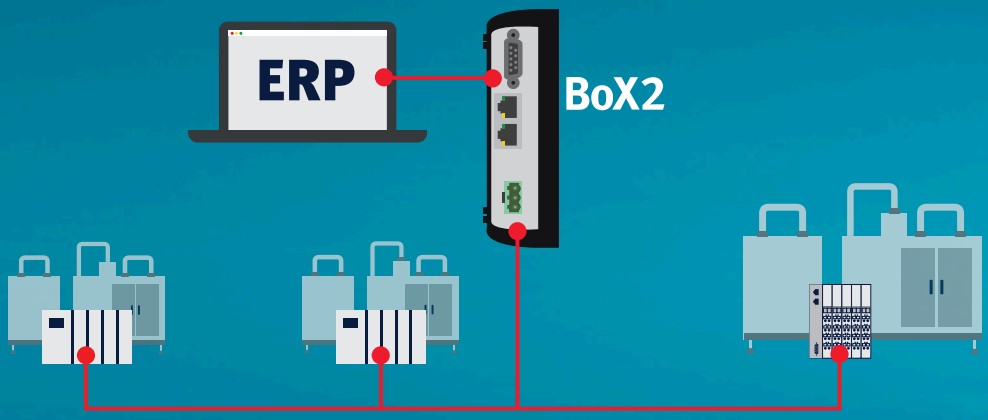
BoX2 is easily configured with just a few clicks in WARP Engineering Studio. Configure smart functions via iX software.

> Our software and hardware is so easy to use that automation engineers can configure and deploy an IIoT system within 10 minutes at a factory site.

Bring your production up to speed

Think. What if machines in your facility could communicate effectively together in smart ways to maximize efficiency and optimize operations?

BoX2 makes your machines – old and new – communicate efficiently, however complex the setup. BoX2 has communication drivers to all major brands of controllers on the market. This makes it easy to route key data and exchange it with the overlying systems in your facility. Optimizing operations and production speed.



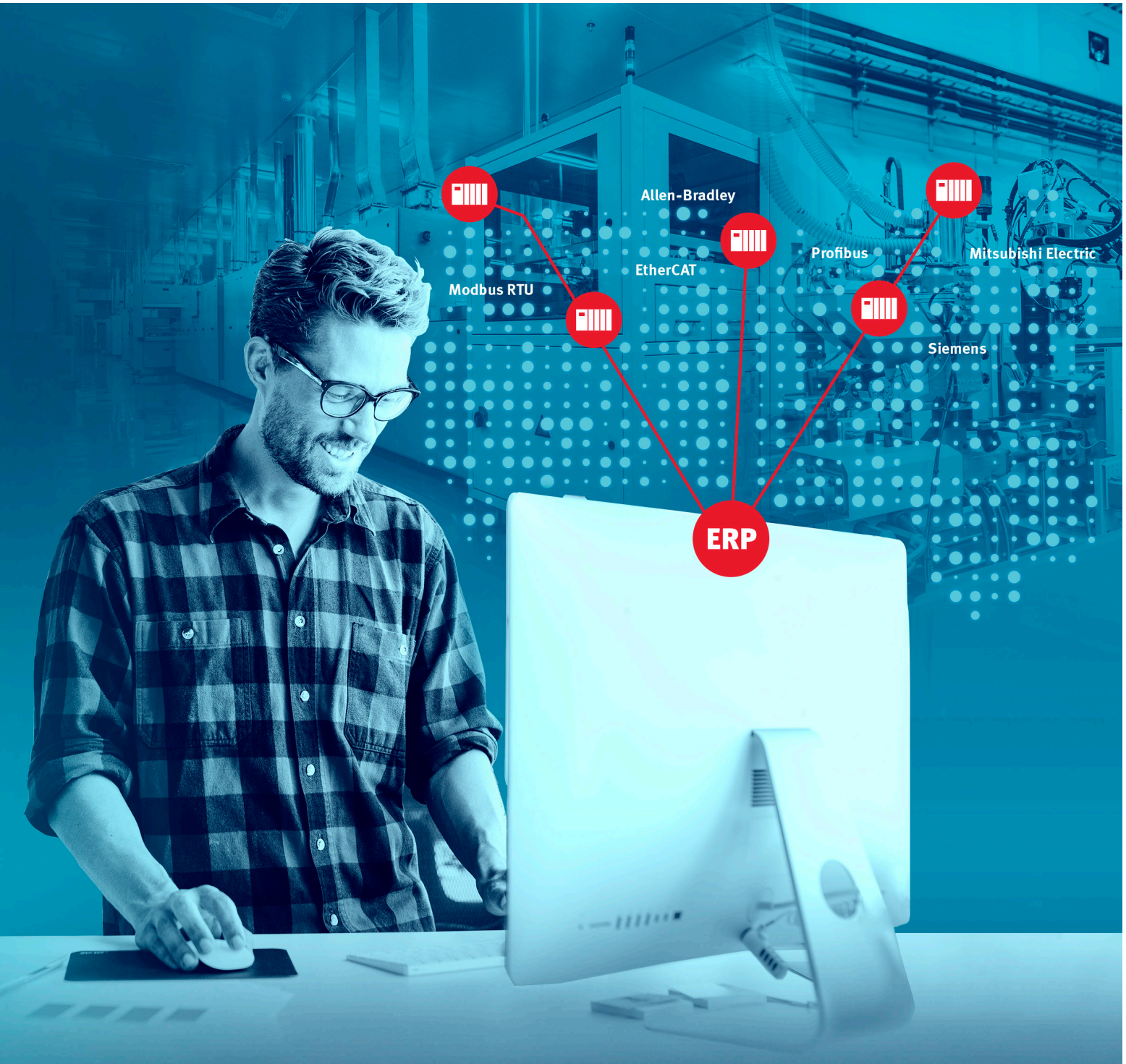
Protocol connectivity is supported by BoX2 base, BoX2 pro, BoX2 pro SC, BoX2 extreme, BoX2 extreme SC.

Use case example

Protocol conversion

BoX2 can operate as a protocol converter enabling two or more different controller devices to exchange data and achieve interoperability. Drivers for the different controllers are installed on BoX2, which converts data from one network into protocols of the network in which data is navigating.

BoX2 supports OPC UA, a secure communication protocol designed to connect ERP systems, analytic tools, databases and other enterprise systems with real-world data from controllers and other devices. Add additional smart functions such as local data base storage to optimize overall operational performance.



Drivers for all major brands

BoX2 can access all data hidden in your machines or facility through more than 75 PLC driver families from all leading controller brands.

Easy configuration with WARP

Create integrated solutions with WARP Engineering Studio and configure all hardware, software and communication in a few minutes.

Smarter functions

Add smarter functions such as local data base storage, alarm servers, data exchange, reporting, c# scripting, etc. via the iX software.

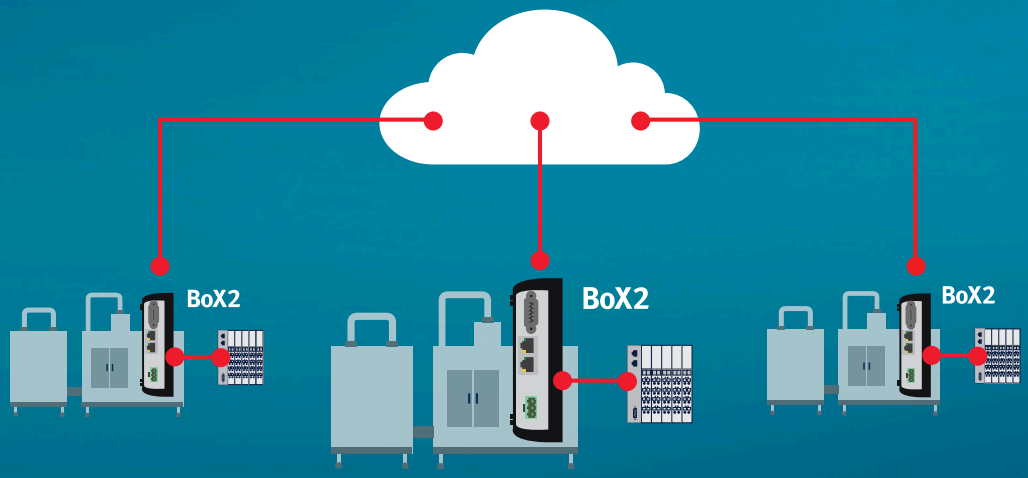
Connect to ERP systems, analytic tools, etc.

BoX2 supports OPC UA, a communication protocol designed to connect ERP systems, analytic tools, etc. with real-world data.

When your data is playing hide and seek

Think. What if you could access crucial data hidden deep in your facility from the cloud and turn it into insights?

BoX2 provides the data you need for analysis from your installed base of machines to optimize uptime and overall efficiency. BoX2 accesses data hidden in your machines via communication drivers to all major brands of controllers and transfers it through secure IoT connections to the cloud. It's then ready to be turned into insights. We supply other smart software functions to further refine and structure data.



Cloud connectivity is supported by BoX2 pro, BoX2 pro SC, BoX2 extreme, BoX2 extreme SC.

Use case example

Cloud connectivity

BoX2 acts as a cloud gateway transforming local machine data to being accessible in the cloud. Data is securely transmitted to the Beijer cloud using secure, bank-level encryption.

Each BoX2 has a traceable unique identity to identify the device in the cloud. All communication from devices to the cloud is outbound. Devices are never visible on the public internet. The Beijer cloud is hosted on Microsoft Azure with administration of organization, user, devices, device groups, cloud tags and roles via WARP Engineering Studio.

Safe storage, access and administration

Beijer cloud is hosted on Microsoft Azure with administration of organization, user, devices, device groups, cloud tags and roles via WARP.

Smarter functions

Add smarter functions such as local data base storage, alarm servers, data exchange, reporting, c# scripting, etc. via the iX software.

Secure all the way

BoX2 has a traceable unique identity used to identify the device in the cloud. BoX2 devices are never visible on the public internet.

Easy configuration with WARP

Create integrated solutions with WARP Engineering Studio and configure all hardware, software and communication in a few minutes.

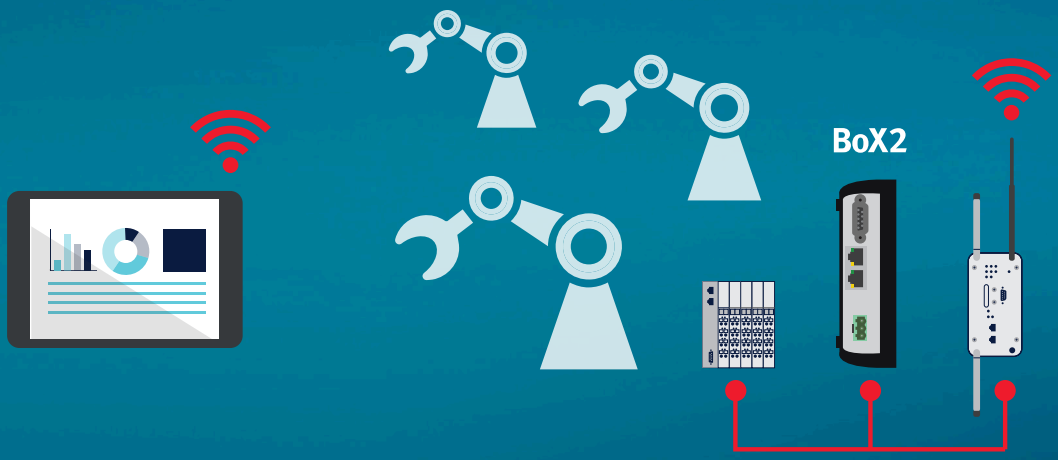
Drivers for all major brands

BoX2 can access all data hidden in your machines or facility through more than 75 PLC driver families from all leading controller brands.

Mobility for peace of mind

Think. What if you could keep up with the status of your plant without being tied to a work station or a production line?

BoX2 is the perfect platform for HMI and dashboard applications on the go. It keeps you updated with status information and vital data from your machines presented in clear, interactive graphics. Mobile and agile, it gives you vital data on production trends, alarms and upcoming maintenance so you can take decisions and corrective measures from anywhere within your facility.



Mobile HMI is supported by BoX2 base, BoX2 pro, BoX2 pro SC, BoX2 extreme, BoX2 extreme SC.

Use case example

Communication server for mobile HMI

BoX2 acts as a next-generation HMI server combining server functionality via the built-in web server, serving HTML5 based visualization to any compatible device.

HTML5 appears the same across all platforms and browsers, simplifying coding and is faster and more adaptive to users. BoX2 enables powerful, modern web HMI functionality in situations where an operator or plant manager needs to be mobile instead of being tied up at a fixed work station or production line.

Smarter functions

Add smarter functions such as local data base storage, alarm servers, data exchange, reporting, c# scripting, etc. via the iX software.

Cross-platform mobile applications

HTML5 appears the same across all platforms and browsers, simplifying coding and is faster and more adaptive.

Easy configuration with WARP

Create integrated solutions with WARP Engineering Studio and configure all hardware, software and communication in a few minutes.

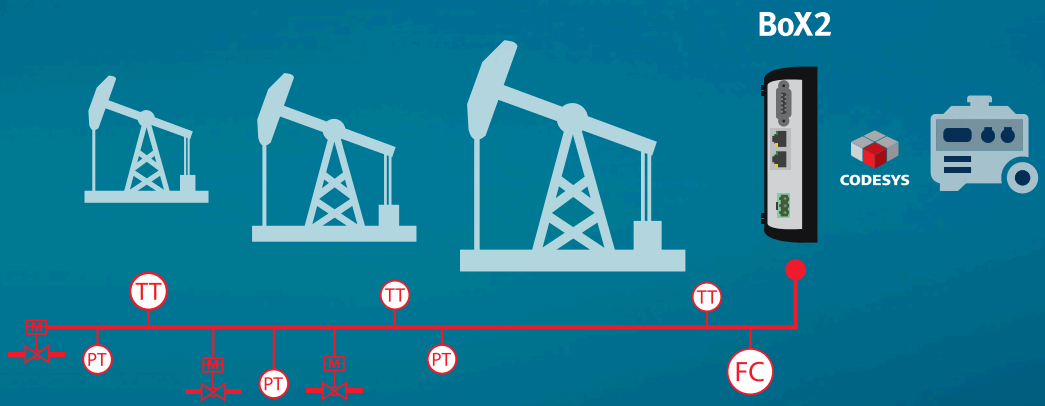
Drivers for all major brands

BoX2 can access all data hidden in your machines or facility through more than 75 PLC driver families from all leading controller brands.

Control everything from one device

Think. What if you could control every aspect of your machine operation from a single device?

BoX2 enables you to perform powerful local logic control. It integrates IEC 61131-3 CODESYS applications with HMI server functions, IIoT and cloud connectivity, as well as offering smart functions. So you can make killer applications including all aspects of control from one single device.



Integrated CODESYS control is supported by BoX2 pro SC, BoX2 extreme SC.

Use case example

Integrated CODESYS control

CODESYS is the leading hardware-independent IEC 61131-3 development tool on the market – the industry standard in PLC and controller programming. CODESYS fits perfectly with BoX2 and our software in terms of openness, communication and ability to exchange data.

With BoX2 you can perform powerful local logic control. CODESYS is a fully integrated development system complete with integrated compilers, object-oriented programming, alarm management and add-ons such as UML/SYN integration. CODESYS can be embedded in virtually any system offering code transparency between systems.

Drivers for all major brands

BoX2 can access all data hidden in your machines or facility through more than 75 PLC driver families from all leading controller brands.

Powerful local logic control

Fully integrated IEC 61131-3 development tool with integrated compilers, object-oriented programming, alarm management, add-ons, etc.

Smarter functions

Add smarter functions such as local data base storage, alarm servers, data exchange, reporting, c# scripting, etc. via the iX software.

Smarter functions

BoX2 connectivity can be added smart functions such as local data base storage, alarm servers, data exchange, reporting, C# scripting, etc. Smarter functions are executed locally in the BoX2 device and configured in the iX software.

Efficient workflow

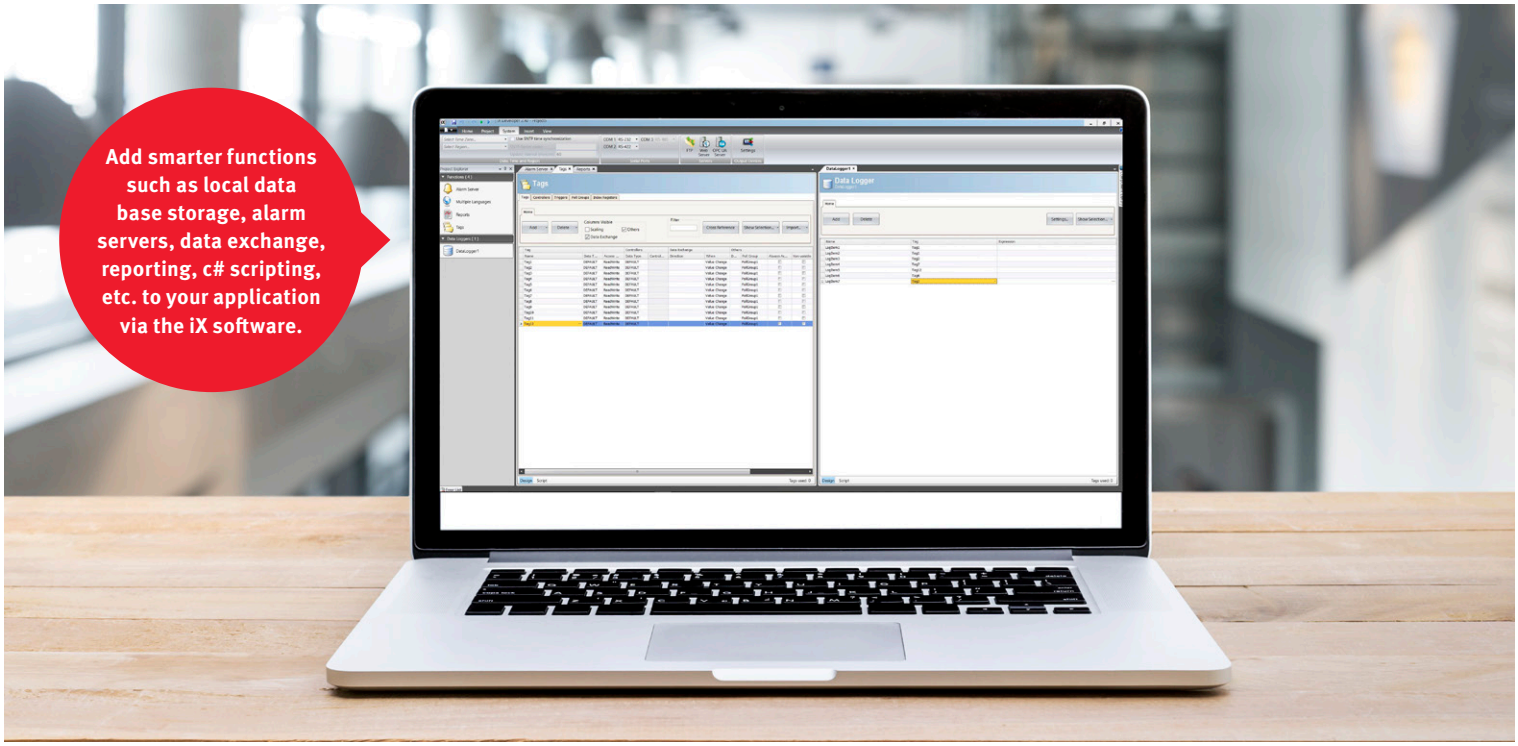
Speed up engineering in an intuitive development environment filled with shortcuts. A customizable workspace, a component library and a smart property grid are some of the features that'll boost your workflow. Share your customized objects and advanced script modules with colleagues.

Smarter functions

It's easy to get your application up and running. All essential functions you need are included, such as data logging, reports, data exchange, alarms, trends, etc. iX has support for .NET technology, providing options to design specialized functionality. Use C# scripting or .NET components. Take advantage of third party objects and import .NET assemblies to extend the functionality further. Control and exchange data with multiple controllers and enjoy connectivity via SQL, FTP, OPC and web.

Connect to all automation brands

An extensive driver list enables communication with hundreds of unique PLCs and automation equipment from all major manufacturers. Share information easily between users and have safe control of complex systems, even over long distances. Transfer files and control panels remotely with FTP and VNC servers.



Download iX HMI software

Go to smartstore.beijerelectronics.com and try out the free demo version of iX.

Fast forward engineering

Create integrated HMI, control, drives and data communication solutions with WARP Engineering Studio. WARP automatically configures all hardware, software and communication in your application. What used to take days to set up, can be up and running in a few minutes.

Features

- Seamless integration of Beijer Electronics products.
- Structured and integrated workflow with drag & drop.
- Auto-configuration of all hardware, software and communication settings.
- Simply draw lines to interconnect devices.
- Avoid mistakes and work failsafe with auto-resolve.
- Access all individual application program editors automatically.
- Smart objects with embedded functionality such as PLC code.
- Easy distribution, backup and recovery of projects.
- Shortcuts to important documentation.
- Generate bill of material for simplified purchase.

Save time with smart objects

A great feature of WARP Engineering Studio is the introduction of smart objects. A smart object includes ready-made, embedded functionality such as PLC code, etc. Drag a smart object into your workspace and just drop it on a device. All embedded code is then injected into the targeted devices. Smart and time-saving.

Industrial apps in Smart Store

The future of automation engineering is object-oriented, visual and user-community based. With the introduction of our Smart Store, you will find a growing multitude of industrial apps – smart objects, software and software updates that you can download and use immediately.

Download WARP Engineering Studio

Go to smartstore.beijerelectronics.com and try out the full version of WARP Engineering Studio for free.

Technical data – BoX2

	BoX2 base Cost-effective protocol converter	BoX2 pro High-performance protocol converter/ IoT gateway/edge controller
General description		
Part number	100-0973	100-0974
Warranty	2 year	
Certifications		
General	CE, FCC, KCC	
Hazardous	NA	
Marine	NA	DNVGL, BV, LR, ABS*2
Safety	UL 61010-2-201	
Mechanical		
Mounting option	DIN rail	DIN rail/mounting plate
System		
CPU	ARM9 400 MHz	i.MX6DualLite Dual Cortex-A9 1.0GHz 512kBL2cache
RAM	128 MB	1 GB
FLASH	256 MB, 200 MB free	2GB SSD (eMMC), 1.5GB free for application
Supported functionality		
Protocol conversion	Yes	
Cloud connectivity*1	NA	Yes
HMI and web server	Yes	
Integrated CODESYS control*1	NA	
Smart functions via iX	Yes	
Softcontrol		
CODESYS runtime version	NA	
CODESYS EtherCAT	NA	
CODESYS Modbus Ethernet	NA	
CODESYS Modbus RTU	NA	
Non volatile variables	NA	
Communication serial		
Number of serial ports	2 Port 9pin DSUB	1 Port 9pin DSUB
Serial port 1	RS 232 (RTS/CTS)	
Serial port 2	RS422/485	
Serial port 3	RS 232	RS485 (only if COM 2 is RS485)
Serial port 4	RS 485	NA
Ethernet communication		
Number of ethernet ports	1	2
Ethernet port 1	1×10/100 Base-T (shielded RJ45)	
Ethernet port 2	NA	1×10/100 Base-T (shielded RJ45)
Expansion interface		
SD card	NA	SD and SDHC
USB	1×USB 2.0 500mA	
Environmental		
Operating temperature	-10 °C to +50 °C	-10°C to +60°C
Storage temperature	-20 °C to +60 °C	-20°C to +70°C
Shock	15g, half-sine, 11ms according to IEC60068-2-27	
Vibration	1g, according to IEC 60068-2-6, Test Fc	
Sealing	IP20	
Humidity	5% – 85% non-condensed	

BoX2 pro SC[*1] High-performance protocol converter/ IoT gateway/edge controller	**BoX2 extreme** Rugged protocol converter/ IoT gateway/edge controller	**BoX2 extreme SC**[*1] Rugged protocol converter/ IoT gateway/edge controller
100-0980	100-0975	100-0981
2 year		
CE, FCC, KCC		
NA	ULC1D2, ATEX (Zone2), ATEX (Zone22), IEXEx (Zone2), IEXEx (Zone22)	
DNVGL, BV, LR, ABS[*2]		
UL 61010-2-201		
DIN rail/mounting plate	DIN rail/mounting plate/Vesa mount	
i.MX6DualLite Dual Cortex-A9 1.0GHz 12kBL2cache	i.MX6Quad, Quad ARMCortex-A9 1.0GHz 1MBL2cache	
1 GB	2 GB	
2GB SSD (eMMC), 1.5GB free for application		
Yes		
Yes		
Yes		
Yes[*1]	NA	Yes[*1]
Yes		
3.5	NA	3.5
Yes	NA	Yes
Yes	NA	Yes
Yes	NA	Yes
Yes	NA	Yes
1 Port 9pin DSUB	2 Port 8pin M12	
RS 232 (RTS/CTS)	RS 232 (RTS)	
RS422/485	RS422 or RS485 or CAN	
RS485 (only if COM 2 is RS485)	RS 485 or CAN galv. isolated on 2. M12 serial (if no RS422 on 1. M12 is selected)	
NA		
2		
1×10/100 Base-T (shielded RJ45)	1×10/100 Base-T (4 pin M12)	
1×10/100 Base-T (shielded RJ45)	1×10/100 Base-T (4 pin M12)	
SD and SDHC		
1×USB 2.0 500mA	2×USB 2.0 500mA (8pin M12)	
-10 °C to +60 °C	-30°C to +70°C	
-20 °C to +70 °C	-40°C to +80°C	
15g, half-sine, 11ms according to IEC60068-2-27	40g, half-sine, 11ms according to IEC60068-2-27	
1g, according to IEC 60068-2-6, Test Fc	4g, according to IEC 60068-2-6, Test Fc	
IP20	IP66, NEMA 4X/ 12 and UL Type 4X/ 12	
5% – 85% non-condensed	5% – 95% non-condensed	

**1 Visit www.beijerelectronics.com/box2 for an overview of functions/timeline of the different BoX2 models.*

**2 Certifications pending.*

About Beijer Electronics

Beijer Electronics is a multinational cross-industry innovator of flexible solutions to control, connect and present data for business-critical applications. Our open software, hardware and IIoT solutions help customers optimize processes and create reliable secure communication, complete with leading-edge user experiences. By making the complex simple, our passion is to work together with our customers to capture the opportunities of tomorrow.

Beijer Electronics is a Beijer Group company. Beijer Group has a sale over 1.2 billion SEK in 2017 and is listed on the NASDAQ OMX Nordic Stockholm Small Cap list under the ticker BELE. www.beijergroup.com

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