

**BECKHOFF** New Automation Technology

The control system  
for the process industry:  
PC-based control





The integrated  
control concept for  
all industries with  
explosion protection  
requirements

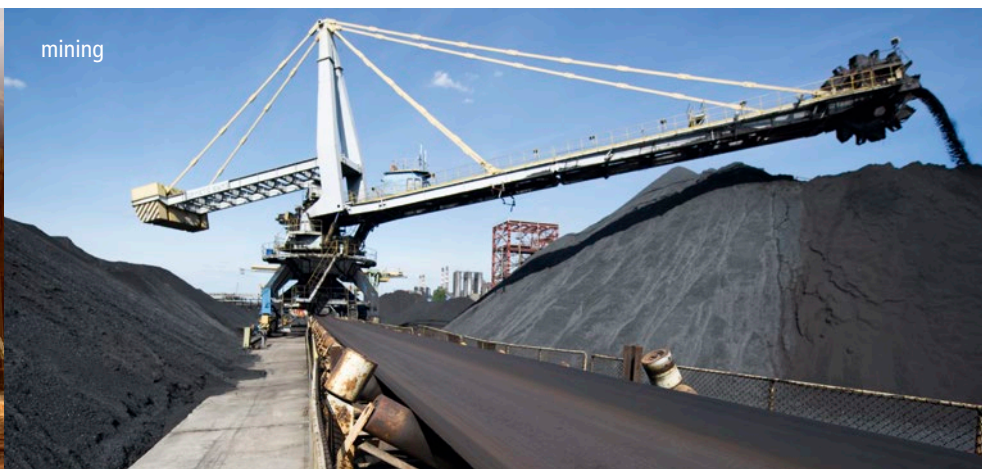


oil and gas production





metalworking



mining



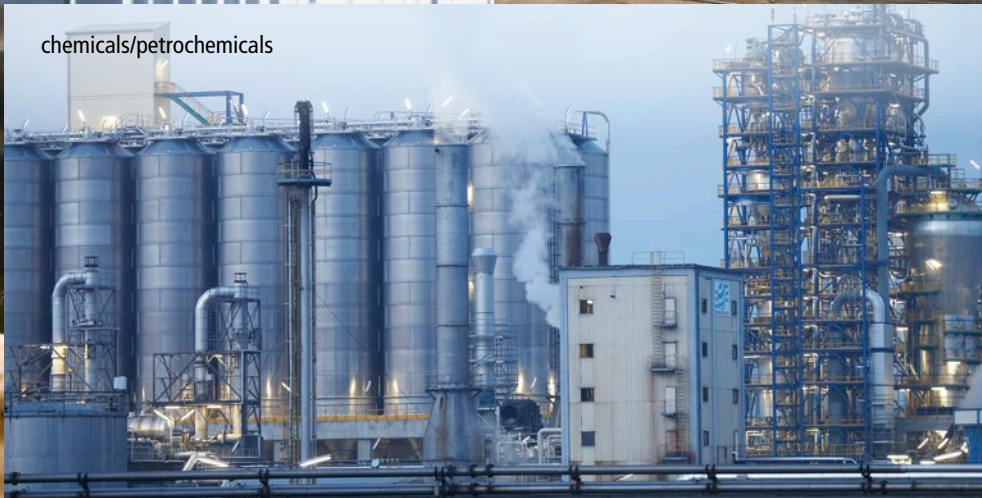
coating industry



energy economy



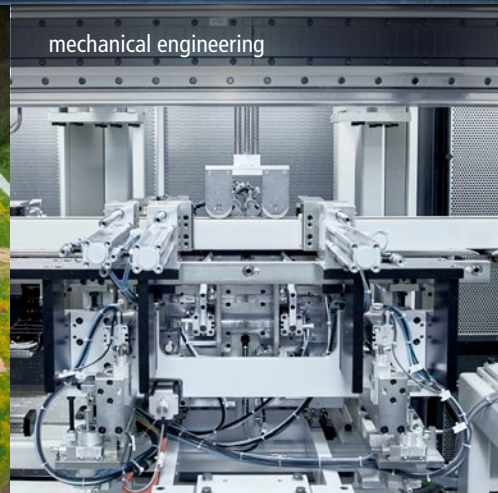
timber processing



chemicals/petrochemicals



water and waste water treatment



mechanical engineering



# PC-based Control: all control tasks on one platform

**All-purpose control platform: from explosion protection applications to large-scale process engineering plants**  
With a universal component construction kit and profound, cross-industry know-how, Beckhoff realizes open automation systems on the basis of PC-based control technology. Through the consistent bundling of control intelligence in the software and the use of established standard technologies from the worlds of IT and automation, PC-based Control combines all functions such as PLC, measurement technology and motion control in a single

system. For the process industry, a comprehensive portfolio of explosion-proof components is available for implementing integrated solution concepts for barrier-free communication from Zone 0 to the cloud. These include the EtherCAT Terminals of the ELX series with intrinsically safe interfaces, the Control Panels and Panel PCs of the CPX series with high-quality finish, the TwinCAT control software with specific process technology interfaces, hardware and software modules for simple IoT communication, and the application of cloud-based services and system networking. In the case of new plants, the

## Optimized process control

PC-based control realizes efficiency advantages in process control applications.

## Integrated cloud communication

Open communication standards enable simple, system-integrated connection to the private or public cloud.

## Simplified data analysis

TwinCAT Analytics supports data analysis and predictive maintenance concepts.





explosion protection can be integrated directly into the overall controller; in the case of existing plants the Beckhoff PC-based controller can be simply extended. With the embedding of process-specific interfaces such as NAMUR, HART, FDT/DTM, the standards commonly used in the industry are covered. The full integration of these standards in TwinCAT offers transparency even for users who have previously worked in other software environments. The system-integrated solution from Beckhoff offers an efficient alternative to traditional providers and is suitable for use in numerous industries such as oil and

gas production, chemicals and petrochemicals, mining, metalworking, coating processes, timber processing as well as water and energy management.

#### **Automation, process engineering and IoT communication in one system:**

- integrated hardware and software platform
- barrier-free process technology integration from Zone 0/20 to the cloud
- EtherCAT Terminals with intrinsically safe interfaces, explosion-proof Control Panels and Panel PCs and process-specific interfaces
- PC-based control technology is established worldwide and across all industries



#### **Integrated explosion protection**

The intrinsically safe terminals of the ELX series enable barrier-free communication from Zone 0 to the cloud.

#### **Integrated measurement technology**

Very precise, fast and robust: the high-speed and precision measurement technology of the ELM series.



## The comprehensive product portfolio for control concepts in the process industry

From barrier-free explosion protection to cloud connectivity: Beckhoff offers an integrated automation concept for different markets and applications in the process industry. Automation, process technology and cloud applications are combined on a single hardware and software platform. In addition to the extensive product portfolio of industrially proven Control Panels and Panel PCs, the CPX series from Beckhoff offers specific solutions for use in Ex Zone 2/22. The EtherCAT Terminals of the ELX series,

which have been developed completely in-house, are complex signal terminals for use in hazardous areas. Up to four intrinsically safe inputs are integrated into the 12 mm terminal housing and enable the direct connection of intrinsically safe field devices from Zones 0/20 and 1/21 to the Beckhoff overall control system. The development of customer-specific variants is also possible.

The universal explosion-proof range moreover reduces vendor dependencies: PC-based control integrates all essential automation functions in





one system. This also applies on the software side: In addition to the HMI and the use of IoT and cloud applications, TwinCAT control software supports NAMUR requirements for digital and analog signals as well as the HART protocol and FDT/DTM technologies. All Beckhoff components meet the requirements of high product, service and delivery quality: on the one hand through production "made in Germany", on the other hand through compliance with comprehensive European and worldwide standards such as ATEX, IECEx and NEC/CEC.



The proven components for PC-based Control:  
IPC, I/O, Motion, TwinCAT

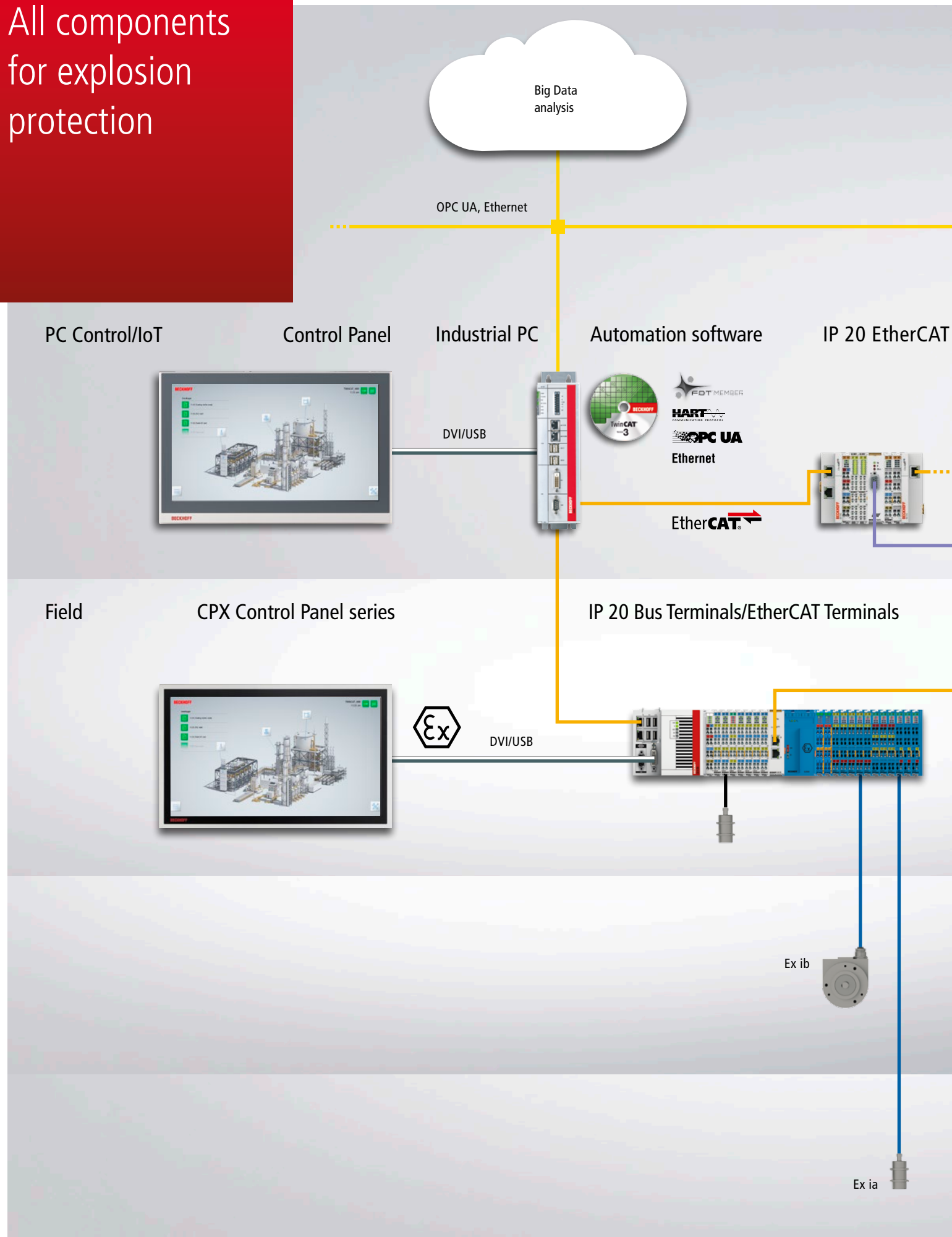
#### Barrierr-free system integration from Zone 0 to the cloud:

- CPX series: Control Panels and Panel PCs for use in Zone 2/22
- ELX series: EtherCAT Terminal integrates safety barrier in 12 mm housing
- direct connection of intrinsically safe field devices from Zones 0/20
- extensive HART integration
- integration of the FDT/DTM technology
- certification to ATEX, IECEx and NEC/CEC





# All components for explosion protection



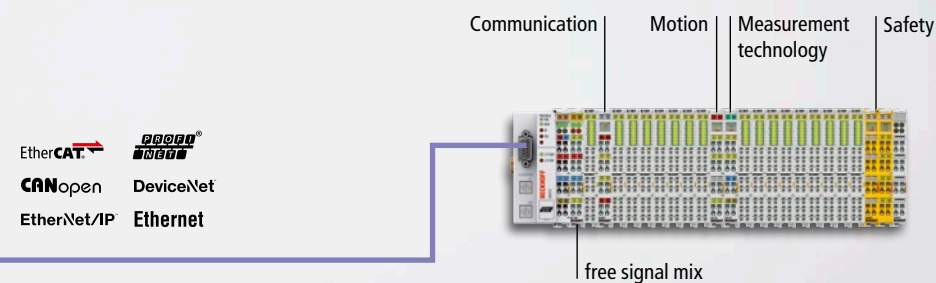


## The safe area

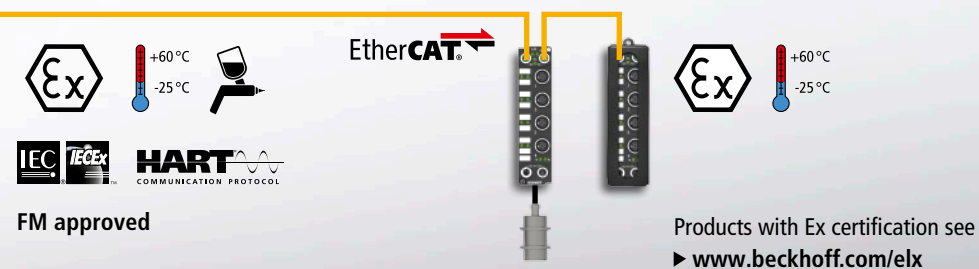
The Beckhoff product range includes all the components required for process automation: from PC-based control and the remote I/O level for all common signal types and bus systems to high-quality IP 65 Control Panels.

### Terminals

### IP 20 Bus Terminals



### IP 67 EtherCAT Box



## Zone 2/22

In addition to the IP 20 Bus Terminals/EtherCAT Terminals for control cabinet mounting, Beckhoff also supplies IP 67 modules (for direct mounting in the process environment) for use in Zone 2/22. Products with an increased temperature range and optional coating are available for use under harsh environmental conditions. All components for Zone 2/22 are tested by external certifying bodies.

## Zone 1/21

The connection of field devices from Zone 1/21 to the bus system can optionally be accomplished using Ex-d-/Ex-e connection technology or, in the case of intrinsically safe field devices, by means of a direct connection to the terminals from the ELX series.

## Zone 0/20

Intrinsically safe field devices in Zone 0/20 can be integrated directly into the automation system via the connection to ELX modules.



# System-integrated explosion protection in process technology

IoT/PLS

Big Data analysis

process data alarming

AMQP  
MQTT  
OPC UA  
ADS

Control room

PC Control/IoT



TwinCAT IoT

DVI/USB

USB



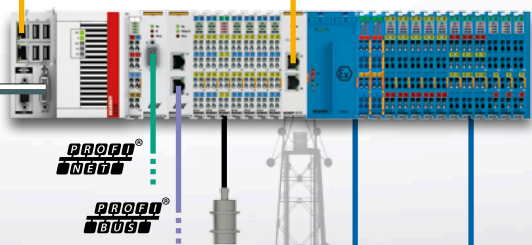
external memory

Field



DVI/USB, CP-Link 4

EtherCAT



PROFINET  
PROFINET

Ex ib

Ex ia





## The safe area

Whether centralized or decentralized: control solutions on the basis of powerful Beckhoff Industrial PCs enable various control topologies.

Due to the support of all important communication standards recorded process data can be forwarded to the local control room to be easily visualized or even to be analyzed in the cloud in the central control room.



printer



Zone 2/22

Zone 1/21

Zone 0/20



# Automation of large installations requiring explosion protection

IoT/PLS/ERP

Big Data analysis

AMQP  
MQTT  
OPC UA

flow control inlet 1

temperature control tank 1

PC Control



OPC UA, ADS,  
EtherCAT  
automation protocol

ERP/PLS

TwinCAT  
Analytics  
Logger

TwinCAT  
IoT



Field



EtherCAT

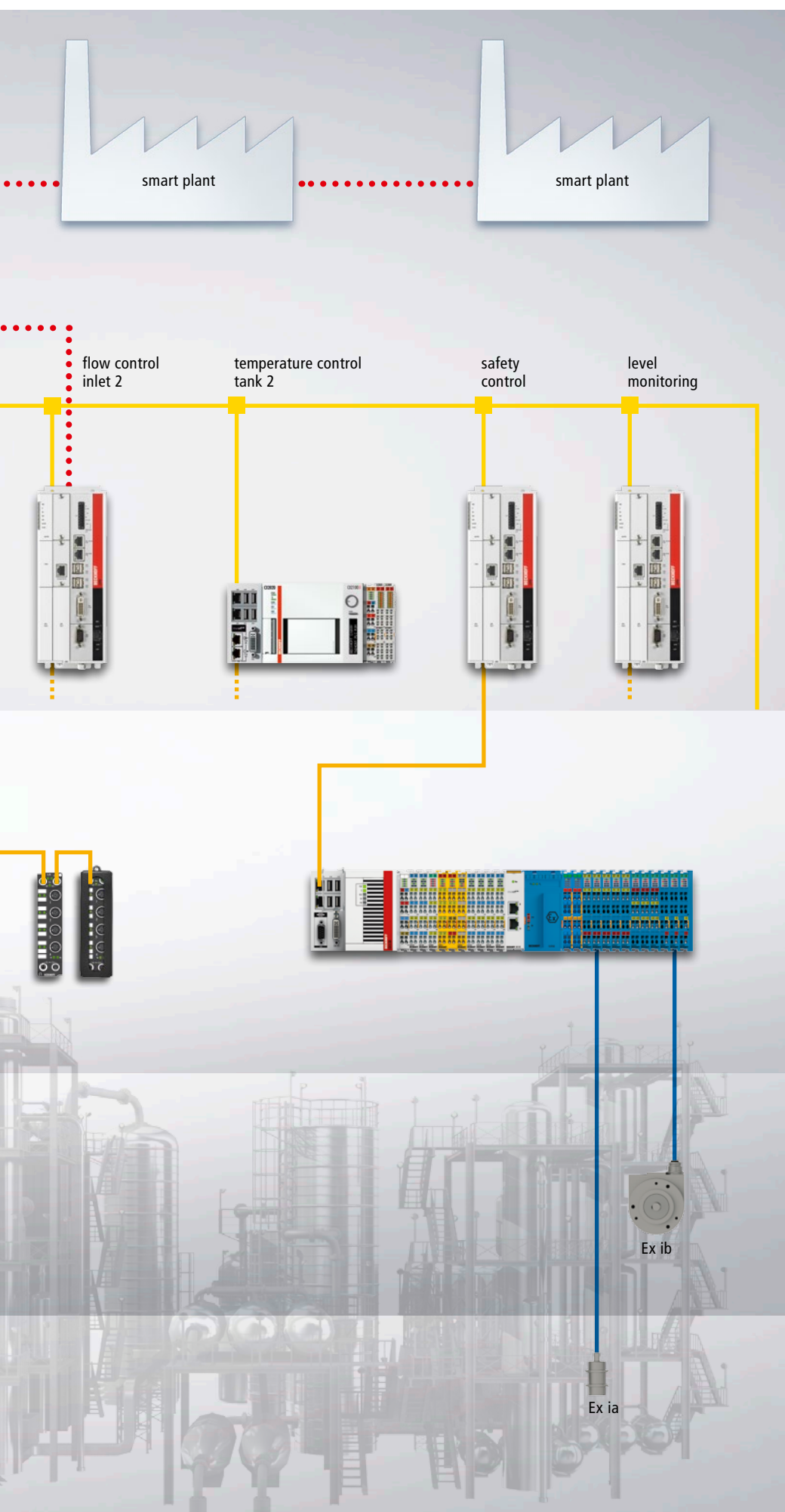
DVI/USB, CP-Link 4

EtherCAT



Ex ib

Ex ia



## The safe area

The integrated scalability of Beckhoff control technology enables various decentralized automation solutions. Plant sections can be modularly designed and easily integrated into the comprehensive control system.

Due to diverse connectivity solutions production plants can be easily connected and provide detailed information on the system status to the plant operator at any time.

Zone 2/22

Zone 1/21

Zone 0/20

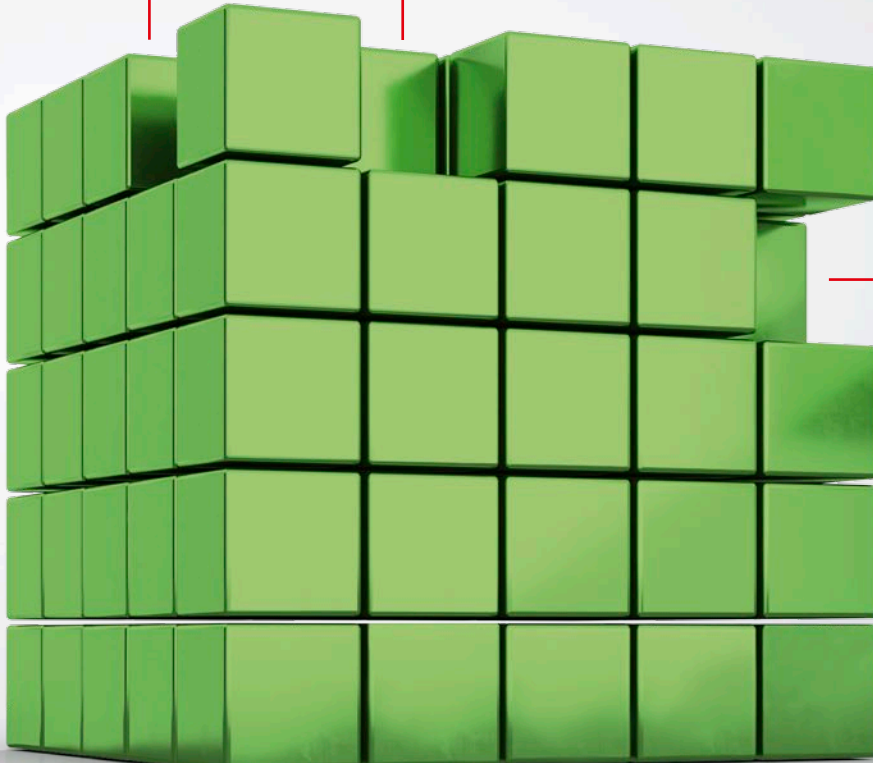


# Full HART integration and comprehensive libraries: with TwinCAT

## **TwinCAT: the control platform for process engineering**

In the TwinCAT control software Beckhoff provides a central platform for the control of even highly complex systems. Apart from classic PLC sequences, algorithms written in C++ or MATLAB®/Simulink® can also be executed in real time. Moreover, TwinCAT includes the HMI, the secure cloud connection via TwinCAT IoT and the use of cloud-based analytical functions via TwinCAT Analytics. The field of application of PC-based Control is expanded with the extensive integration of specific process technology protocols and interfaces. TwinCAT supports all com-

mon protocols such as NAMUR, HART and FDT/DTM, covering all application areas. The full integration of the HART functionality both in the remote I/O system and in the TwinCAT Engineering ensures simple project planning and commissioning. HART integration enables users to integrate HART field devices directly into the controller. TwinCAT also reduces the engineering effort: The TwinCAT FDT container allows integration of field device DTMs directly into TwinCAT Engineering and thus a comprehensive HART configuration from one tool. The Beckhoff CommDTM provides for the integration of the TwinCAT controller into existing process control systems. This enables the

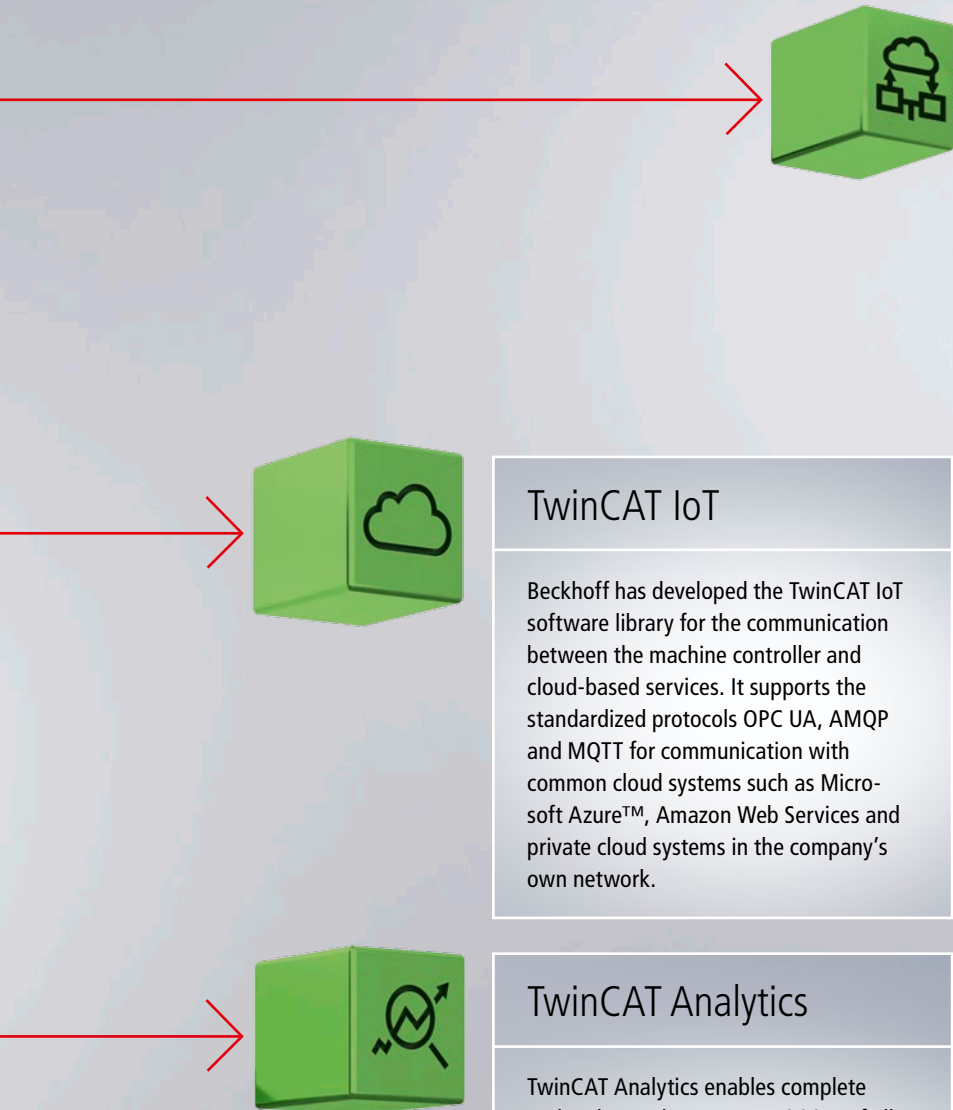


TwinCAT

parameterization of the field devices in the familiar FDT containers and pares down the plant operation to the essential elements. Global distribution of process data and convenient system control as well as the comfortable remote maintenance are implemented via the Beckhoff OPC UA server and client.

#### Automation and process technology on a single platform:

- one tool for engineering and runtime
- control-system-integrated Industrie 4.0 and IoT applications
- extensive HART integration
- TwinCAT FDT
- Beckhoff CommDTM



### OPC UA

Based on OPC UA (OPC Unified Architecture according to IEC 62541), secure, reliable and vendor-independent communication for transporting process data to the control system is very easy to implement. The use of Beckhoff OPC UA servers and OPC UA clients enables the exchange of data in a secure and reliable way. Data access is controlled via a user management interface in such a way that only authorized users can communicate permissible data securely.

### TwinCAT IoT

Beckhoff has developed the TwinCAT IoT software library for the communication between the machine controller and cloud-based services. It supports the standardized protocols OPC UA, AMQP and MQTT for communication with common cloud systems such as Microsoft Azure™, Amazon Web Services and private cloud systems in the company's own network.

### Beckhoff CommDTM

Beckhoff CommDTM enables seamless integration of TwinCAT controllers into existing process control systems. DTMs from the field devices connected to the HART-capable EtherCAT Terminals can be integrated in any desired FDT containers with the help of the CommDTM. This allows field devices to be configured and parameterized remotely in the containers without the need for access to the PLC.

### TwinCAT Analytics

TwinCAT Analytics enables complete and cycle-synchronous acquisition of all machine and process data. They serve as the basis for extensive analyses, which can be used to realise predictive maintenance to reduce machine downtimes. Moreover, cloud-supported big data evaluation concepts can be created in combination with TwinCAT IoT to ensure sustainable process quality control.

### HART und FDT

Thanks to the comprehensive integration of the HART protocol in TwinCAT, the functions from the Engineering interface can be used. The integration of the FDT container enables opening of the field device DTMs within TwinCAT, so that all configuration options are available from one software.

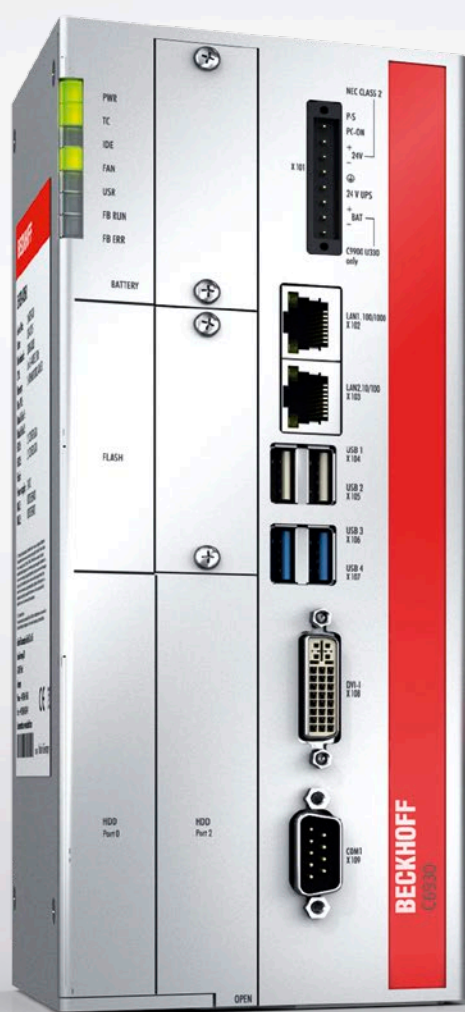


# Ideal for process technology: the open EtherCAT high-speed fieldbus

## Established across all industries: the high-speed EtherCAT fieldbus

The EtherCAT fieldbus system developed by Beckhoff has been in use around the world since 2003 and is now regarded as the communication standard in many industries: More than 5,535 members\* – including over 100 master device manufacturers – have joined forces in the EtherCAT Technology Group, the EtherCAT user organisation. As a universally usable and open high-speed fieldbus for PLC, Motion, I/O sensors, measurement technology and safety technology, EtherCAT is also suitable for explosion-proof connection. In other

words, users only need one single communication technology. They can put their trust in the profound know-how of the EtherCAT pioneer Beckhoff and benefit from the safety and flexibility of the universal EtherCAT architecture. EtherCAT-based control systems are flexible and open, permitting the integration of third-party EtherCAT devices as well as many other fieldbus systems. With this openness, EtherCAT optimises existing and new systems alike and ensures investment protection. This is aided by the fact that there is no need to worry about revision control: EtherCAT exists in one version only, which means that new develop-



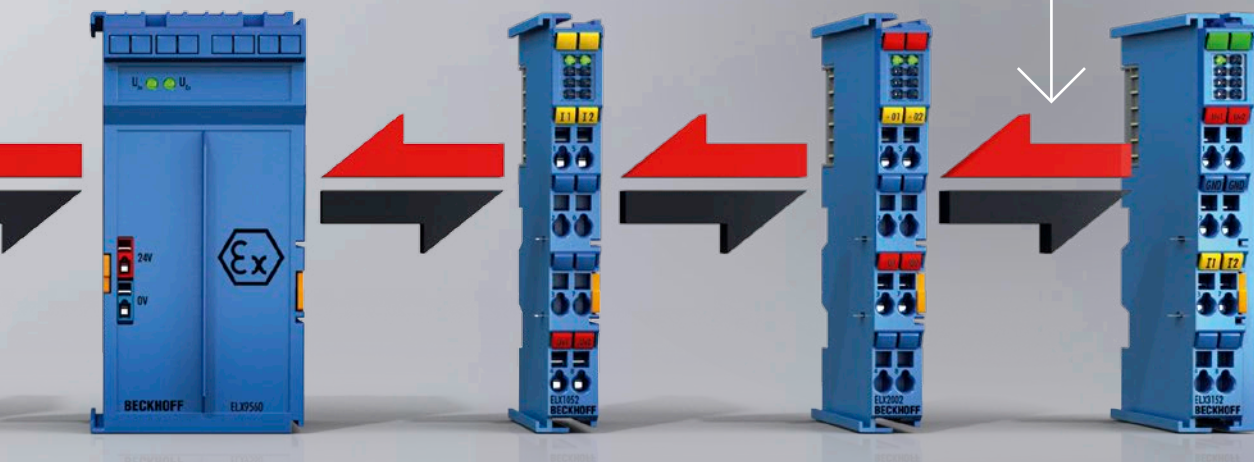
ments based on EtherCAT are always compatible with older device generations. Users in hazardous areas also benefit from EtherCAT's time stamp functionality, which guarantees high measuring quality and highly precise synchronization – even in extensive systems. Moreover, the EtherCAT concept with a 100 Mbit data rate and complete diagnostics integrated, enables fast error identification in systems and plants: downtime is minimised, while maintenance is simplified and uptime is increased. Via the ELX modules, the full performance of EtherCAT communication is supported right into each I/O terminal. The explosion-proof terminals

enable the direct connection of field devices from Zones 0/20, 1/21 and 2/22. Due to the isolation from the fieldbus side, which is fully integrated in every single terminal, the otherwise normally interconnected barrier and thus the second DIN rail in the control cabinet can be dispensed with, which saves further installation work and reduces the system footprint.

#### **EtherCAT optimizes the control architecture in the process technology:**

- worldwide established high-speed fieldbus
- only one communication technology for the entire system
- flexible topologies
- complete diagnostics
- implementation down to the individual terminal with ELX modules

EtherCAT – the global communication standard: The EtherCAT Technology Group brings together over 5,535 manufacturers\* and users from 65 countries. (\*as of November 2019)

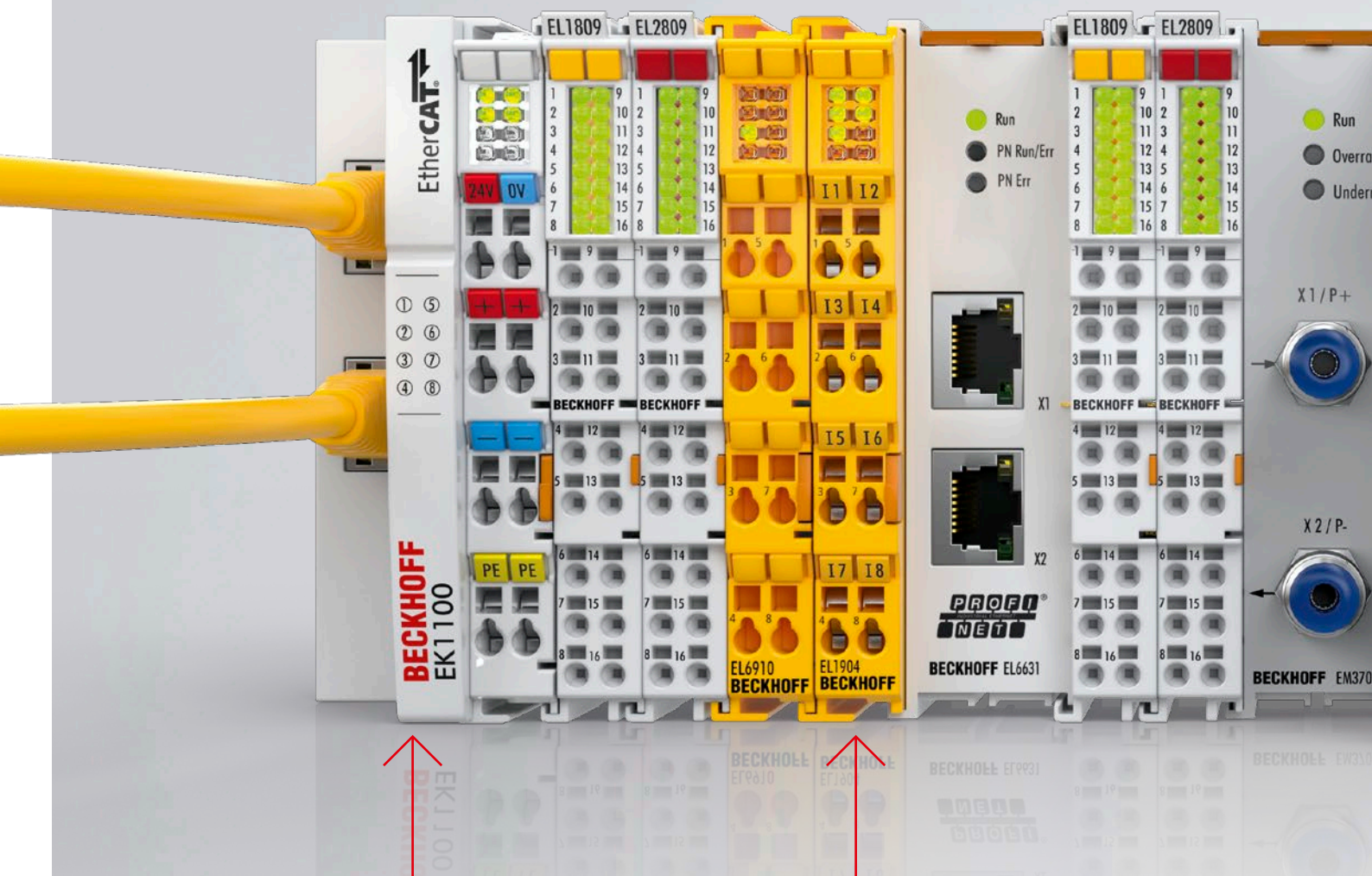




# Safety, explosion protection, measurement technology: integrated in real time

## One platform, one CPU, one bus

One control platform and one high-performance fieldbus for all control tasks. With its PC-based control technology, Beckhoff makes it possible to combine the widest range of I/O components in a single system. With only a single CPU and a single fieldbus, all EtherCAT Terminals for measurement tasks, functional safety and explosion protection can be easily integrated into a comprehensive control system for real-time applications. Users no longer have to rely on multiple standalone solutions, but can benefit from the efficiencies of an integrated solution.

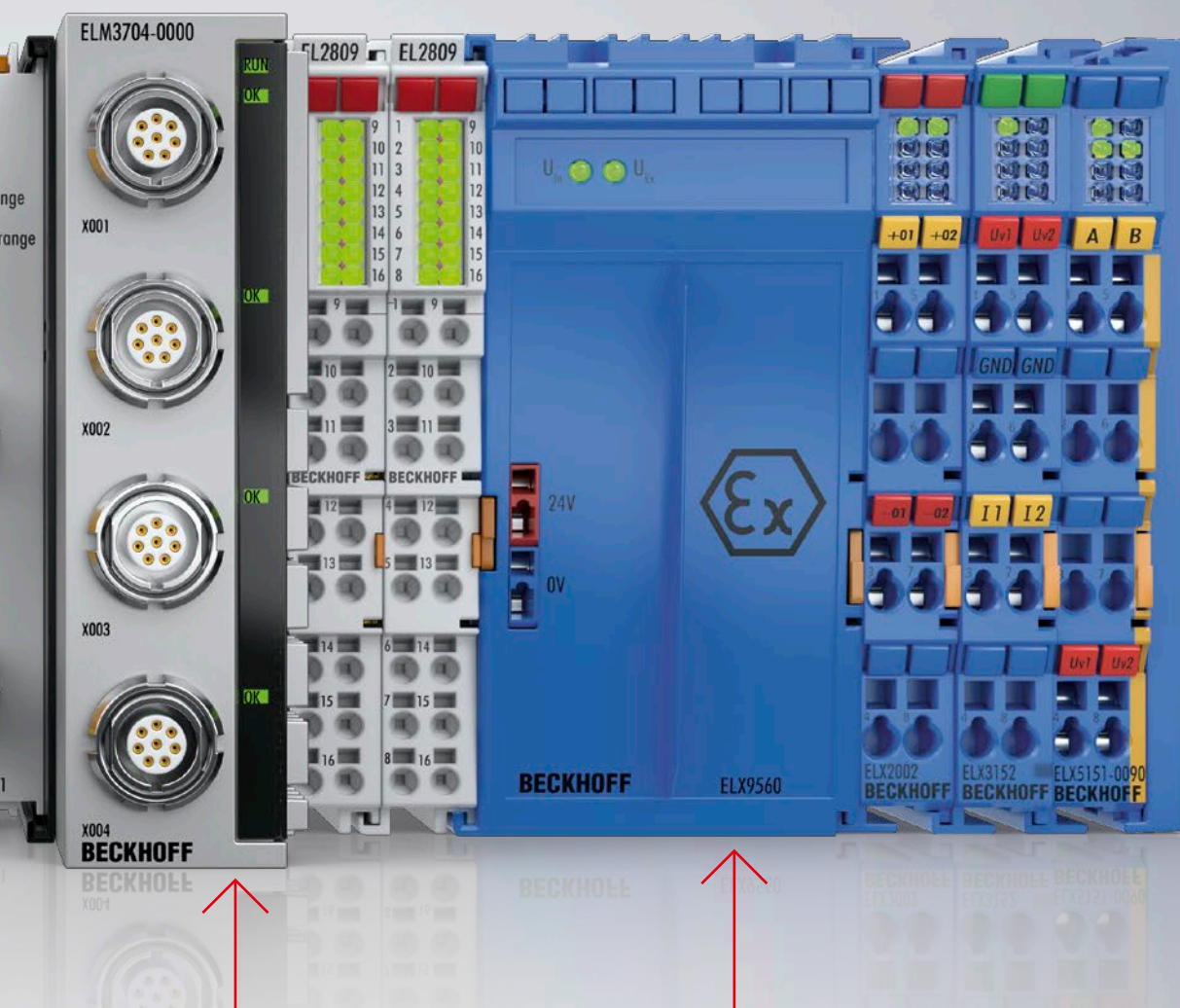


## Fieldbus couplers

With controllers or fieldbus couplers, multiple topologies are possible

## Safety

Integration of functional safety into the control system with TwinSAFE



## Measurement technology

ELM modules in metal housings for precision and high-speed measurement technology

## Explosion protection

Highly compact I/O modules with integrated safety barriers for the direct connection of intrinsically safe field devices



# Bridges up to 300 m: EtherCAT Extended Distance

**Ideal for large and distributed installations**  
With its Extended Distance technology, EtherCAT simplifies the capturing of data in large and distributed installations such as refineries, water treatment or chemical plants. It does this, for example, with two EK1101-0010 EtherCAT Couplers, whose ports support extended distances. They can communicate over distances of up to 300 m without the need for intermediate infrastructure components. The Couplers accept standard EtherCAT Terminal blocks. With the EK1121-0010 terminal module users can also integrate an Extended Distance branch directly into the terminal segment and connect a remote

I/O station. Due to its compatibility with standard EtherCAT devices, the Extended Distance technology does not place any extra demands on the system topology, which makes it possible to configure the EtherCAT network simply based on individual requirements.



For all markets:  
approved  
as per ATEX,  
IECEX, NEC/CEC

**For use worldwide:**

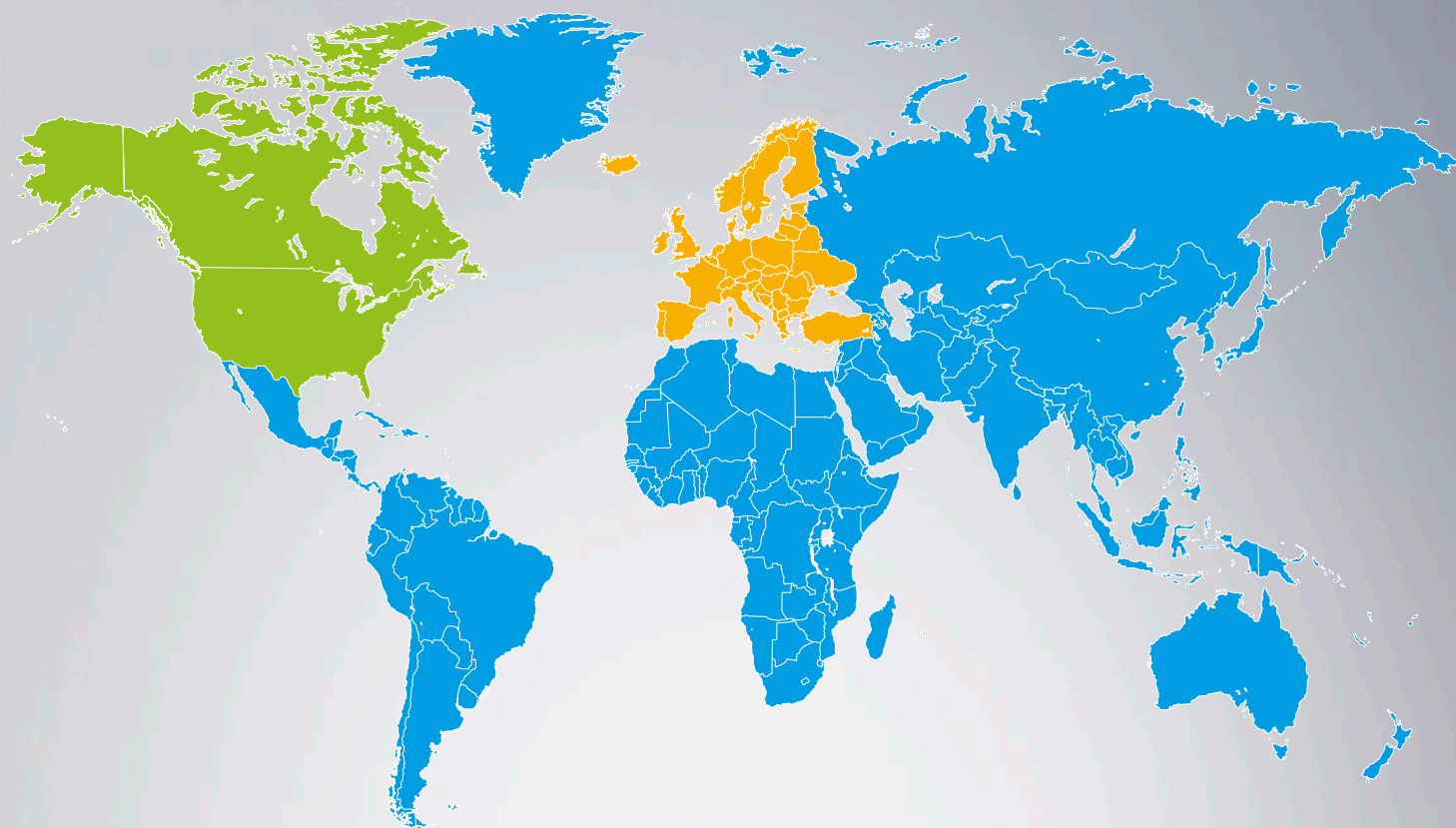
**the explosion protection portfolio**

For systems and equipment in areas exposed to explosion hazards, different standards apply all over the world:

- International explosion protection (IECEX)
- European explosion protection (ATEX)
- North American explosion protection (NEC/CEC)

Country-specific approvals such as IA for South Africa may also be required. Users must make sure that their installations meet applicable guidelines and standards. The Ex component portfolio

from Beckhoff meets all listed standards and is certified for the intended use in hazardous areas in compliance with applicable regulations. As a result, PC-based control makes globally uniform solution concepts possible for barrier-free system integration up to Zone 0/20.





# Highly compact and intrinsically safe: EtherCAT Terminals for explosion protection

## The ELX series: intrinsically safe according to IECEx, ATEX and NEC/CEC

With the ELX terminals Beckhoff combines highly compact remote I/O modules with isolating barriers for the direct connection of intrinsically safe field devices. The result: very slim EtherCAT Terminals for direct connection of intrinsically safe sensors and actuators. The high resolution and accuracy of the Beckhoff ELX terminals guarantee the same measuring quality that is familiar from the non-hazardous areas. The compact design of the I/O terminals provides a further advantage: there are up to four intrinsically safe inputs avail-

able in the 12 mm housing and up to eight in the 24 mm housing. Dispensing with interconnected external barriers leads to a significant reduction in the space requirements inside the control cabinet and thus to cost advantages. With ATEX, IECEx and NEC/CEC certification, the ELX terminals comply with all industry-specific guidelines for explosion protection and can be used in nearly all markets worldwide, which reduces the user's dependence on different suppliers for different regions. The wide range of uses is also supported by the enormous variety of signals handled by the Beckhoff I/O range: there is a suitable I/O

System  
ELX9410

1 A E-bus  
refresh

System  
ELX9560

24 V Ex power  
supply

Digital output  
ELX2002/08

2/8-channel

24 V

Analog input  
ELX3152/58

2/8-channel

0/4...20 mA

16 bit

Analog input  
ELX3162

2-channel

0...10 V

16 bit

Analog input  
ELX3181/84

1/4-channel

4...20 mA

HART

16 bit

Digital input  
ELX1052/54

2/4-channel

NAMUR

module for every application. Using the ELX terminals, process technology users can realize extremely compact and economical control architectures where the outstanding diagnostic function of EtherCAT helps to minimize system downtimes.

### The ELX terminals optimize virtually all process technology applications:

- Highly compact design of 12 mm housing width reduces space requirement by up to 50%.
- safety barrier and signal terminal combined
- direct connection of intrinsically safe field devices
- EtherCAT right up to the terminal
- wide variety of signals
- fulfils a comprehensive range of certificates
- considerable cost advantages

#### Analog input ELX3202/04

2/4-channel

Resistance  
sensor (RTD)

16 bit

#### Analog input ELX3252

2-channel

Potentiometer

16 bit

#### Analog input ELX3312/14

2/4-channel

Thermo-  
couple/mV

16 bit

#### Analog input ELX3351

1-channel

Strain gauge

24 bit

#### Analog output ELX4181

1-channel

0/4...20 mA

HART

16 bit

#### Encoder ELX5151

1-channel

NAMUR

32 bit

#### System ELX9012

Bus end cap





# Twice as safe: the safety solution for explosion protection

## ELX terminals for intrinsically safe signal transmission and functional safety

Beckhoff meets the increasing demands on process control technology with regard to functional safety by fully integrating safety technology into the automation system. The compact and modular design of the TwinSAFE safety solution integrates seamlessly into the control platform. Thanks to the fieldbus-neutral safety protocol (TwinSAFE/ Safety-over-EtherCAT), the TwinSAFE devices can be integrated into any fieldbus system. These safety I/Os form the interfaces to the safety-relevant sensors and actuators.

The TwinSAFE SC (TwinSAFE Single Channel) technology enables the use of standard signals for safety tasks in any networks of fieldbuses. The data of a TwinSAFE SC terminal are transferred to the TwinSAFE logic for secure processing in multiple channels. The data from various sources are analysed, plausibility-checked and subjected to "voting". Certified function blocks such as Scale, Compare/Voting (1oo2, 2oo3, 3oo5), Limit etc. are used for this purpose. For safety reasons, however, at least one of the data sources must be a TwinSAFE SC component. In this way, all process data available in the system can be made accessible to the safety technology.

### TwinSAFE-Logic EL6910

Analog value processing

Customizing

512 FBs

212 connections

### System ELX9560

24 V Ex power supply

### Analog input ELX3152-0090

2-channel

4...20 mA

16 bit

TwinSAFE SC

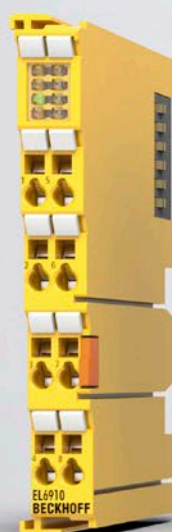
### Analog input ELX3202/04-0090

2/4-channel

Resistance sensor (RTD)

16 bit

TwinSAFE SC



## Explosion protection

according to:

- IECEx
- ATEX
- NEC
- CEC

## Safety

TwinSAFE SC uses the Safety-over-EtherCAT protocol for functional safety.

In combination with the ELX terminals, TwinSAFE SC technology offers a highly compact solution for applications with requirements for intrinsically safe signal transmission and functional safety. The ELX terminals extended with TwinSAFE SC enable direct connection of intrinsically safe field devices up to Zone 0/20, with safety levels up to PL d/Cat 3 according to EN ISO 13849-1 or SIL 2 according to EN 62061.

### Functional safety

#### and intrinsic safety in one system:

- highly compact solution with up to four channels across only 12 mm
- large analog signal diversity
- ELX terminals with TwinSAFE SC function enable direct connection of intrinsically safe field devices up to Zone 0/20
- safety level up to PL d/SIL 2 achievable
- considerable cost advantages

Analog input  
ELX3312-0090

2/4-channel

Thermo-  
couple/mV

16 bit

TwinSAFE SC

Analog input  
ELX3314-0090

2/4-channel

Thermo-  
couple/mV

16 bit

TwinSAFE SC

Analog input  
ELX3351-0090

1-channel

Strain gauge

24 bit

TwinSAFE SC

Encoder  
ELX5151-0090

1-channel

NAMUR

32 bit

TwinSAFE SC

System  
ELX9012

Bus end cap





## Full flexibility: the ELX system

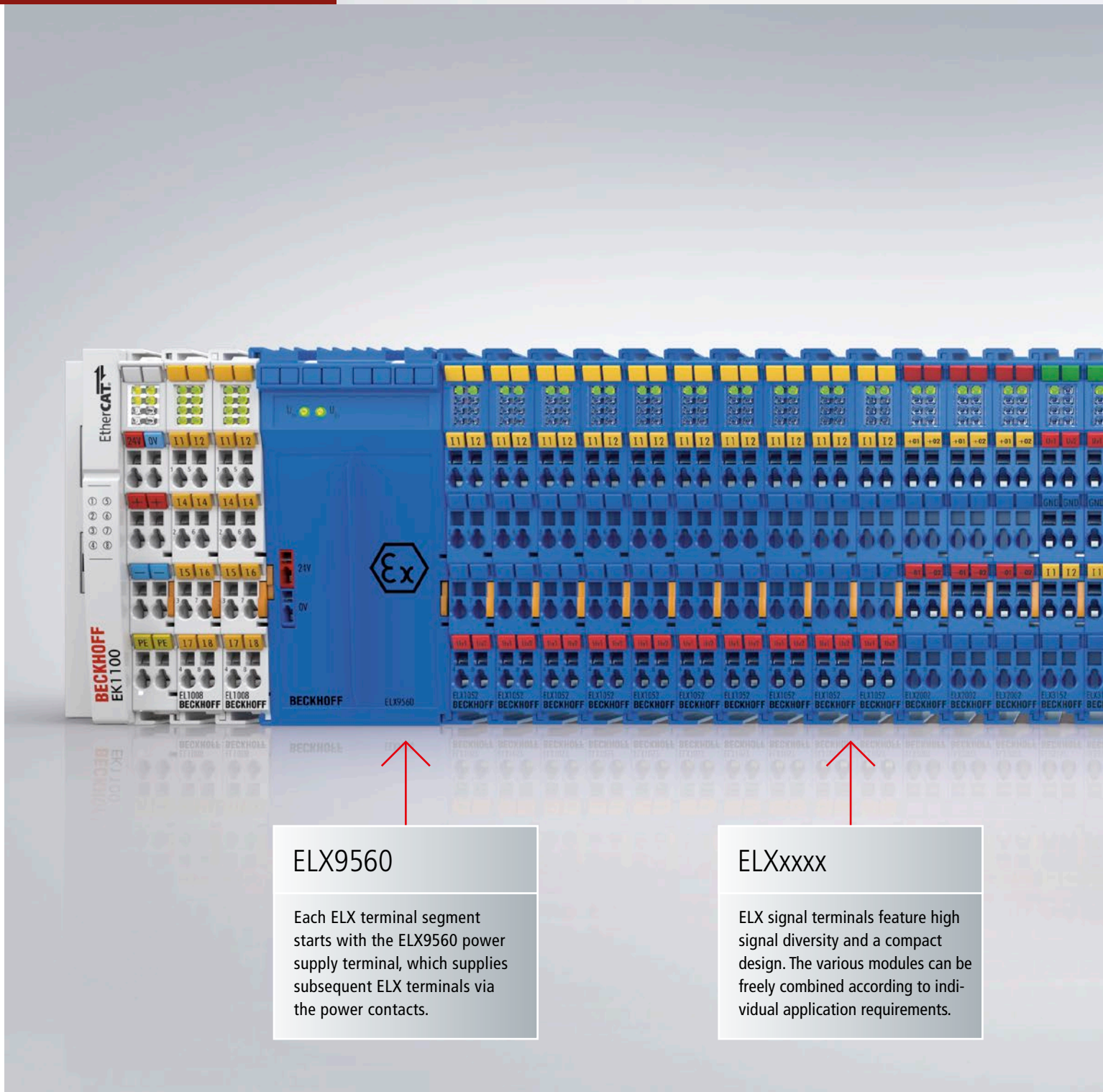
## Flexible configuration with E-bus refresh

The ELX system not only enables users to meet explosion protection requirements but also gives them complete freedom as far as the configuration is concerned. The flexibility and ability to combine the ELX terminals with the entire Beckhoff product portfolio makes it possible to build application-specific solutions that leverage the advantages of the terminals in terms of space efficiency and performance.

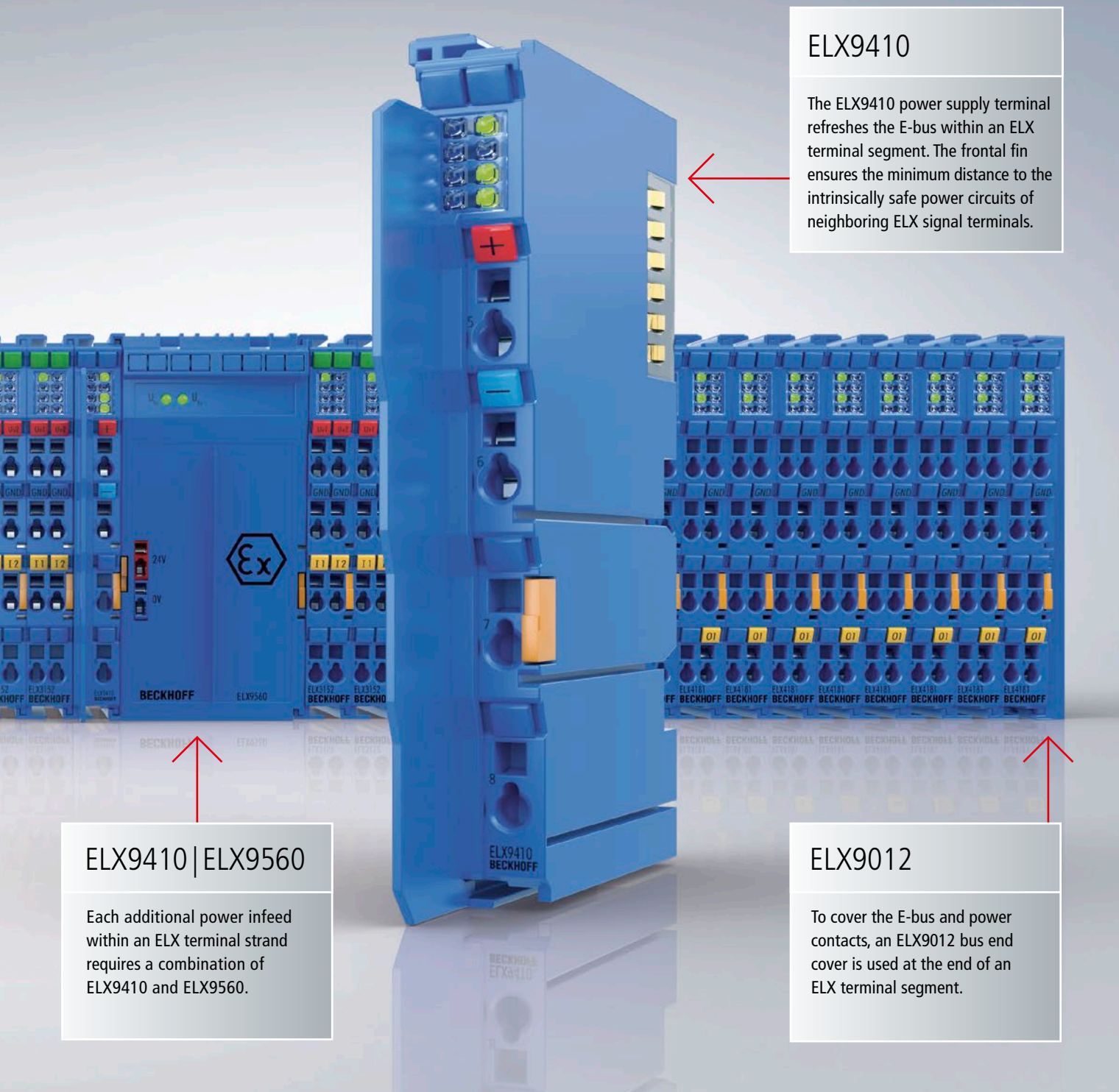
An ELX terminal segment begins with the ELX9560 power supply terminal, which ensures

required distances to non-intrinsically safe circuits through its design and supplies the downstream ELX signal terminals via their power contacts. To the right of the ELX9560, any ELX signal terminals can be connected in sequence.

By combining the ELX9560 with the ELX9410 power supply terminal, it is possible to add more ELX terminals and extend the ELX terminal segment in order to make use of the total cabinet width. The frontal fin of the ELX9410 ensures that the minimum distance to the ELX terminals arranged to its left is maintained.



Cable redundancy can be implemented by using two ELX9410 terminals and the EK1110 EtherCAT extension at the end of the terminal segment.



## ELX9410

The ELX9410 power supply terminal refreshes the E-bus within an ELX terminal segment. The frontal fin ensures the minimum distance to the intrinsically safe power circuits of neighboring ELX signal terminals.

## ELX9410 | ELX9560

Each additional power infeed within an ELX terminal strand requires a combination of ELX9410 and ELX9560.

## ELX9012

To cover the E-bus and power contacts, an ELX9012 bus end cover is used at the end of an ELX terminal segment.



# Explosion-proof panel solution: the elegant CPX series in robust aluminium design

**Control Panels and Panel PCs for multi-touch operating concepts in Zone 2**  
With the models from the CPX Panel series, the proven multi-touch technology of the Beckhoff Control Panel and Panel PCs is available in a particularly robust version and thus fulfils the requirements for use in hazardous areas of Zone 2/22. The high functionality and high quality of workmanship ensure the durability of the CPX panel even under harsh environmental conditions. Local operation is comfortable as usual thanks to the capacitive touch technology. The appealingly aesthetic appearance of the

Beckhoff Panel with regard to feel and design of the aluminium housing is virtually unchanged, making it a visual highlight in the explosion-proof system environment. The extensive CPX range includes a large selection of formats, sizes, mounting options and performance features. Depending on the area of application, panels for control cabinet installation and stand-alone panels for free mounting in the room are available in the CPX29xx and CPX39xx series. The fanless Panel PCs from the CPX27xx and CPX37xx series additionally offer a reliable system controller.

## Robust:

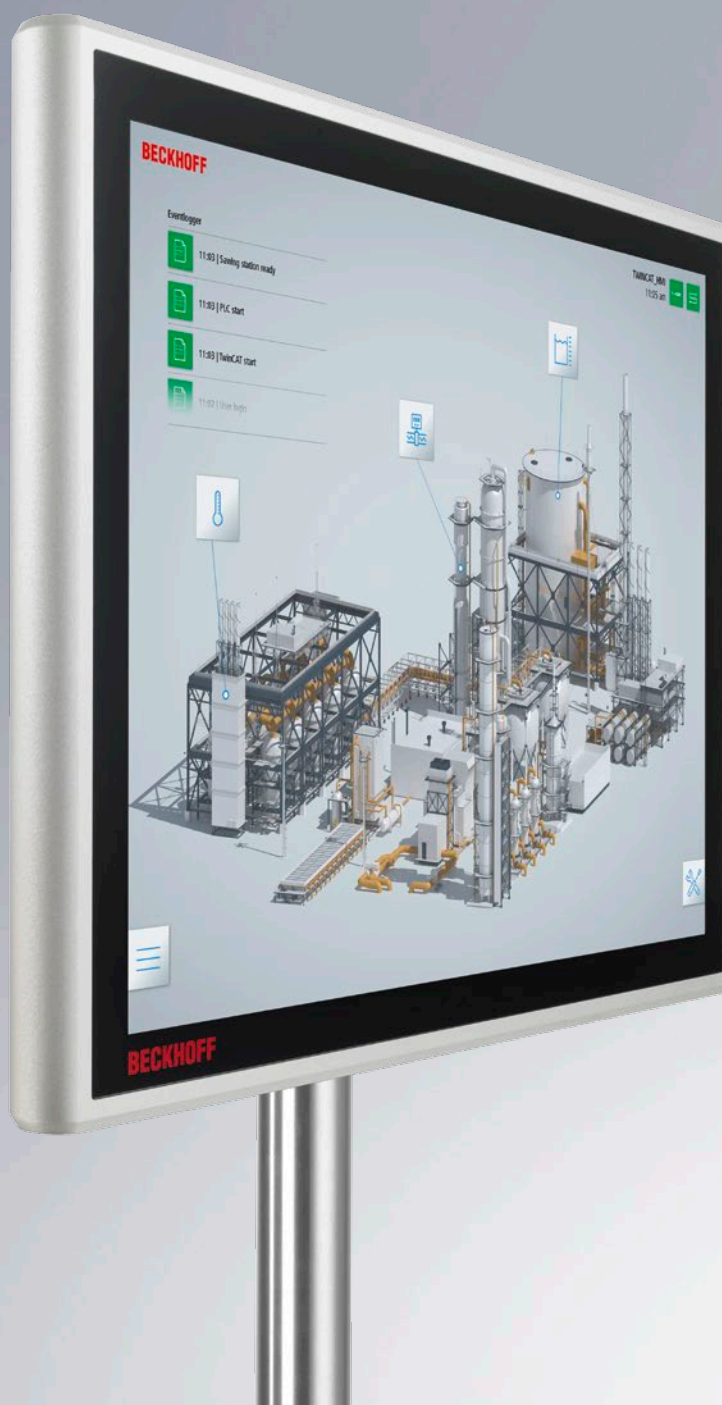
All CPX models have a high-quality, resistant aluminium housing.

## Intuitive:

All CPX models offer the advantages of the Beckhoff multi-touch technology.

## Adaptable:

All CPX models impress with a wide variety of mounting concepts.

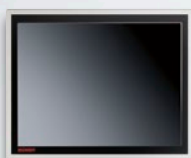


### Multi-touch for process technology:

- capacitive touch technology for optimized operation
- high-grade design
- robust and durable
- large selection of Control Panels and Panel PCs
- flexible mounting
- Up to 100 m of distance between an explosion-proof panel and an Industrial PC can be bridged with CP-Link 4, which transmits video signals, USB 2.0 and power over a standard Cat7 cable.

## Installation

### CPX29xx/CPX27xx series



**CPX29xx multi-touch built-in Control Panel:**

**CPX2915-0000**  
15-inch display  
1024 x 768 resolution  
4:3 format

**CPX2919-0000**  
19-inch display  
1280 x 1024 resolution  
5:4 format

**CPX2921-0000**  
21.5-inch display  
1920 x 1080 resolution  
16:9 format

**CPX27xx multi-touch Panel PCs for control cabinet integration:**

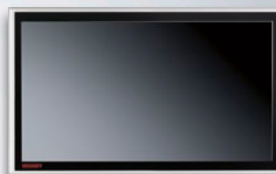
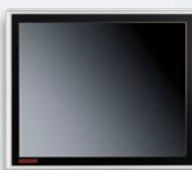
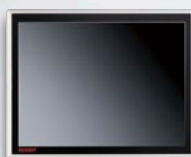
**CPX2715-0010**  
15-inch display  
1024 x 768 resolution  
4:3 format  
Intel® Atom™

**CPX2719-0010**  
19-inch display  
1280 x 1024 resolution  
5:4 format  
Intel® Atom™

**CPX2721-0010**  
21.5-inch display  
1920 x 1080 resolution  
16:9 format  
Intel® Atom™

## Stand-alone

### CPX39xx/CPX37xx series



**CPX39xx multi-touch Control Panels:**

**CPX3915-0010**  
15-inch display  
1024 x 768 resolution  
4:3 format

**CPX3919-0010**  
19-inch display  
1280 x 1024 resolution  
5:4 format

**CPX3921-0010**  
21.5-inch display  
1920 x 1080 resolution  
16:9 format

**CPX37xx multi-touch Panel PCs:**

**CPX3715-0010**  
15-inch display  
1024 x 768 resolution  
4:3 format  
Intel® Atom™

**CPX3719-0010**  
19-inch display  
1280 x 1024 resolution  
5:4 format  
Intel® Atom™

**CPX3721-0010**  
21.5-inch display  
1920 x 1080 resolution  
16:9 format  
Intel® Atom™



Globally available:  
Beckhoff  
expertise for the  
process industry

## New Automation Technology

Beckhoff implements open automation systems using PC-based control technology. The product portfolio comprises these main areas: Industrial PCs, I/O and fieldbus components, drive technology and automation software. Product lines are available for all areas and can be used as individual components or as a complete system. The New Automation Technology philosophy from Beckhoff represents innovative and open control and automation solutions that are used worldwide in a variety of applications ranging from CNC machine tools to intelligent building automation.

**Worldwide presence on all continents**

With local presence in 75 countries, Beckhoff ensures fast service worldwide and technical support in the local language for globally operating customers. In addition, Beckhoff sees close geographic proximity to customers as a prerequisite for a profound understanding of the technical challenges facing customers.



## Beckhoff at a glance

- headquarters: Verl, Germany
- 2018 sales: € 916 million (+13%)
- employees worldwide: 4300
- offices in Germany: 22
- subsidiaries/representative offices worldwide: 38
- distributors worldwide: in 75 countries

(as of 04/2019)

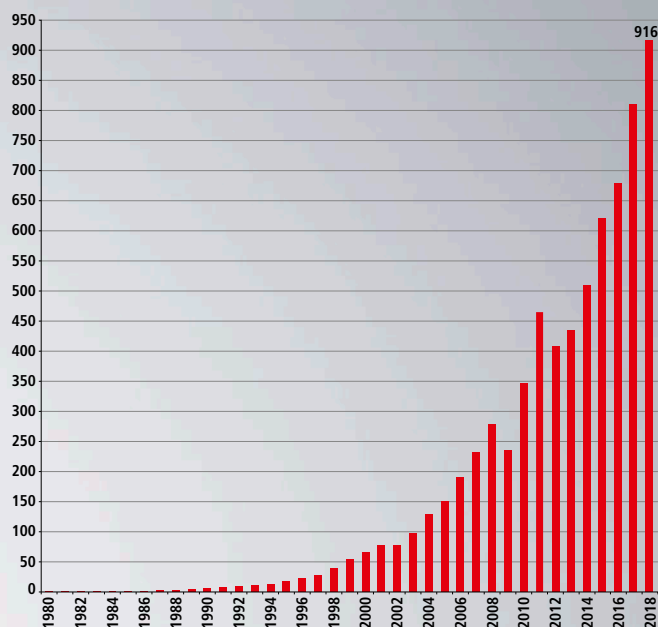
## Further information

The Beckhoff catalogs and flyers are available for download on our website.

► [www.beckhoff.com/media](http://www.beckhoff.com/media)



Million €



Sales development

■ Headquarters  
● Subsidiary

■ Distributor



Secure your lead in the process industry  
with PC-based Control:  
► [www.beckhoff.com/process-industries](http://www.beckhoff.com/process-industries)

#### Beckhoff Automation GmbH & Co. KG

Huelshorstweg 20  
33415 Verl  
Germany  
Phone: + 49 5246 963-0  
[info@beckhoff.com](mailto:info@beckhoff.com)  
[www.beckhoff.com](http://www.beckhoff.com)

Beckhoff®, TwinCAT®, EtherCAT®, EtherCAT G®, EtherCAT G10®, EtherCAT P®, Safety over EtherCAT®, TwinSAFE®, XFC®, XTS® and XPlanar® are registered trademarks of and licensed by Beckhoff Automation GmbH. Other designations used in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owners.

© Beckhoff Automation GmbH & Co. KG 11/2019

The information provided in this brochure contains merely general descriptions or characteristics of performance which in case of actual application do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

We reserve the right to make technical changes.

Picture Proof: pichitstocker/Fotolia.com | tramvaen/Fotolia.com | industrieblick/Fotolia.com | iStockphoto.com/casadaphoto | PhotoAlto/Sigrid Olsson/GettyImages.com | Prasit photo/GettyImages.com | Syahrel Azha Hashim/GettyImages.com | zhaojiankang/Fotolia.com | Georgy Rozov/EyeEm/GettyImages.com | Monty Rakusen/GettyImages.com | Bertold Werkmann/Fotolia.com | simonkr/GettyImages.com | Franz Pfluegl/Fotolia.com | Stockr/Fotolia.com