The New Automation Technology Advantage

Industrial PC
Embedded PC

EtherCAT
EtherCAT Terminal
EtherCAT Box
EtherCAT Plug-in Modules
Bus Terminal
Fieldbus Box
Infrastructure Components

Drive Technology

TwinCAT
TwinSAFE
Following the company’s establishment in 1980, Beckhoff pioneered a control principle that has since defined many of the established standards in automation technology such as PC-based control. The core idea is simple – bundling all automation processes on one CPU, with one universal software platform and one control system. The effect: a seamlessly integrated control platform that enables new application opportunities, thanks to the optimised utilisation of increasingly powerful, standard hardware. In addition, users enjoy significant efficiency improvements and a competitive edge gained through their partnership with Beckhoff.

The success of the PC-based control philosophy speaks for itself: Today Beckhoff is represented in more than 75 countries. The company provides a product portfolio that covers all areas of PC-based control technology, and can be scaled to answer all engineering requirements from simple to complex: IPC, I/O, Motion, and Automation software.

▶ www.beckhoff.com
Beckhoff is a leading control system provider for all automation tasks.
Development and production “Made in Germany” quality assurance
2017 Sales: 810 million € (+19 %)
Staff worldwide: 3,900 (+16 %)
Engineers: 1,400
Subsidiaries/Branch Offices worldwide: 37
Sales Offices Germany: 22
Distributors worldwide: 75 (as of 04/2018)
The IPC Company

The Industrial PC (IPC) is the hardware centrepiece of PC-based control technology. Beckhoff supplies Industrial PCs suitable for any application, which are based on open standards, enabling individual configuration to meet a wide range of control requirements.

Whether in the form of an Embedded PC with a compact form-factor for DIN rail mounting, a control cabinet PC, or as a Panel PC, in-house motherboard development enables Beckhoff to respond quickly to IT trends and customer-specific requirements.

► www.beckhoff.com/IPC

Multi-touch Panel PCs
- Large model variety
- High computing power
- Display sizes from 7-inch to 24-inch
- Easy installation in control cabinets or on mounting arms
- Special versions for explosion protection
- Customer-specific implementations

► www.beckhoff.com/multi-touch

Multi-touch Control Panels
- Large model variety
- Display sizes from 7-inch to 24-inch
- Landscape and portrait orientation
- Easy installation in control cabinets or on mounting arms
- Special versions for explosion protection
- Customer-specific implementations

► www.beckhoff.com/multi-touch

Single-touch Panels
- Control Panels or Panel PCs
- Display sizes from 5.7-inch to 19-inch
- Easy installation in control cabinets or on mounting arms
- Customer-specific implementations

► www.beckhoff.com/single-touch
Wide variety of device variants of Industrial PCs and Embedded PCs
- High-performance PCs, featuring a wide range of processors, from Intel® Celeron® to top of the line Core™ i7 processors
- Long-term availability of all Industrial PCs and Embedded PCs
- As the inventor of PC-based control technology, Beckhoff closely cooperates with global technology partners Intel and Microsoft.

Control cabinet Industrial PCs
- High computing power
- Industrial-strength housing designs
- Easy installation
- High flexibility in terms of display connections

Embedded PCs
- Scalable performance range
- Up to 12 cores
- Compact design
- Direct I/O interface
- Modular extension options
- DIN rail mounting

www.beckhoff.com/Control-cabinet-PC
www.beckhoff.com/Embedded-PC
EtherCAT Terminals
- IP 20 EtherCAT I/O system
- Real-time Ethernet performance retained into each terminal
- Integration of highly precise measurement technology, condition monitoring, drive technology and process technology
- Electronic overcurrent protection
- Gateways for subordinate fieldbus systems
- TwinSAFE PLC and safety I/Os

www.beckhoff.com/EtherCAT-Terminal

EtherCAT Box
- IP 67 EtherCAT I/O system
- High performance for harsh environments
- Compact and robust
- Can be mounted directly on machines, outside of control cabinets and terminal boxes
- Integrated sensor/actuator supply directly via EtherCAT P

www.beckhoff.com/EtherCAT-Box
www.beckhoff.com/EtherCAT-P-Box

EtherCAT Plug-in Modules
- Very compact EtherCAT I/O system in IP 20 for plug-in into a circuit board (signal distribution board)
- Optimised for high-volume production
- Application-specific connector interface
- Use of cable harnesses avoids wiring errors.

www.beckhoff.com/EtherCAT-Plug-in-Modules

Bus Terminals
- Open, fieldbus-neutral IP 20 I/O system
- More than 400 different Bus Terminals
- Support for more than 20 fieldbus systems
- Gateways for subordinate bus systems
- System-integrated safety I/O terminals available

www.beckhoff.com/BusTerminal
The I/O Company

Beckhoff supplies a complete range of fieldbus components for all common I/O and bus systems. With Bus Terminals offering IP 20 protection and Fieldbus Box modules in IP 67, a comprehensive range of devices is available for a wide variety of signal types and fieldbus systems. In addition to components for conventional bus systems, Beckhoff offers an integrated product range optimised for EtherCAT. Invented by Beckhoff, this real-time Ethernet solution for industrial automation has global acceptance and is characterised by outstanding performance and simple handling. The result is high-precision machine and plant control and significantly increased production efficiency.

➤ www.beckhoff.com/I0
➤ www.beckhoff.com/EtherCAT

Fieldbus Box
- Open, fieldbus-neutral IP 67 I/O system
- 12 fieldbus systems, 24 signal types
- Compact and robust
- Can be mounted directly on machines, outside of control cabinets and terminal boxes while reducing machine footprint
- IO-Link box modules for inexpensive point-to-point connections
➤ www.beckhoff.com/FieldbusBox

Infrastructure Components
- PC cards for all common fieldbus systems
- Industrial Ethernet switches
- EtherCAT junctions and media converters in IP 20 and IP 67 ratings
➤ www.beckhoff.com/Infrastructure-components
AX8000 multi-axis EtherCAT drive

The Motion Company

Servo Drives
- Available as multi-axis system or stand-alone version (1-/2-channel)
- High-speed EtherCAT communication
- Wide range of nominal current types, up to 170 A
- Flexible motor type selection
- Optimised for multi-axis applications

Distributed Servo Drive system
- Servo drives directly integrated into the motor
- STO/SS1 safety function as standard; optionally Safe Motion
- Advanced power electronics ensure minimal derating
- No changes in machine design required

Synchronous Servomotors
- For demanding positioning tasks
- Highly dynamic behaviour
- Brushless three-phase motors
- Permanent magnet in the rotor

► www.beckhoff.com/Servo-Drives
► www.beckhoff.com/AMP8000
► www.beckhoff.com/Servomotors
In combination with the motion control solutions offered by the company’s TwinCAT automation software, Beckhoff Drive Technology provides an advanced, all-inclusive drive system. PC-based control technology from Beckhoff is ideally suited for single- and multi-axis positioning tasks with high dynamic requirements.

The AX5000 and AX8000 Servo Drive series with high-performance EtherCAT communication offer the best-possible performance and dynamics. Servo-motors with One Cable Technology (OCT), combining power and feedback systems into one standard motor cable, reduce material and commissioning costs.

► www.beckhoff.com/DriveTechnology

Compact Drive Technology
- Solutions for up to 8 A in the space-saving I/O system
- Simple connection of stepper, servo, DC or AC motors
- IP 20 or IP 67 connection options
- Matching motors and gearboxes

► www.beckhoff.com/compact-drive-technology

eXtended Transport System XTS
- Linear motor on an endless path
- Replaces traditional mechanics with advanced mechatronic solutions
- Software-based functional changes
- Individual product transport with continuous material flow

► www.beckhoff.com/XTS

- Scalable product range of servo drive technology
- Integrated safety technology in compliance with safety performance level PL e, integrated into Compact Drive Technology up to safety performance level PL d
- As the pioneer of One Cable Technology and the eXtended Transport System, Beckhoff specialises in manufacturing efficient, space-saving motion solutions.
Beckhoff offers comprehensive system solutions in numerous performance classes for all areas of automation. The control technology is exceptionally scalable – from high-performance Industrial PCs to mini-PLCs – and can be adapted precisely to application-specific requirements. TwinCAT automation software integrates real-time control with PLC, NC and CNC functions in a single feature-filled package.

▶ www.beckhoff.com/Automation

**Efficient engineering**
- Integration into Microsoft Visual Studio®
- Wide selection of programming languages: IEC 61131-3, C/C++, MATLAB®/Simulink®, Safety C/FBD
- Modular software development
- Automatic code generation interface
- Link to source code control systems

**High performance**
- Cycle times from 50 μs
- Multi-core support
- Support of 32-bit and 64-bit operating systems
- Pre-emptive multitasking

**Connectivity**
- Useable with all fieldbus systems
- Open and expandable for IT trends – today and tomorrow
- Adheres to industry-specific and standard protocols
- Ideal for IoT and cloud computing applications

▶ www.beckhoff.com/TwinCAT3
TwinCAT 3
- One software platform for engineering and runtime
- Integrated real-time support
- Software modules for PLC, NC, CNC, robotics, HMI, measurement technology, analytics, safety, machine vision

TwinCAT 2
- Open, compatible PC hardware
- Embedded IEC 61131-3 software PLC, software NC and software CNC
- Connection to all common fieldbuses

TwinSAFE
- Integrated safety system from I/Os to drives
- Compact safety PLC
- Certified for solutions up to IEC 61508 SIL 3 and DIN EN ISO 13849-1:2008 PL e
- Safety engineering integrated into TwinCAT 3

Efficient, universal engineering
- Programming in different languages
- Open, hardware-independent control system gives freedom of choice in terms of automation and control components.
- Scalable control platform from single- to multi-core CPUs
- All control functions on a single, centralised platform: PLC, motion control, robotics, measurement technology, a.o.

www.beckhoff.com/TwinCAT2
www.beckhoff.com/TwinSAFE
For the Beckhoff main catalogs, our company magazine PC Control as well as product, technology and industry flyers please see here:

- www.beckhoff.com/media
- www.pc-control.net

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