BECKHOFF New Automation Technology

Product Overview | 2025
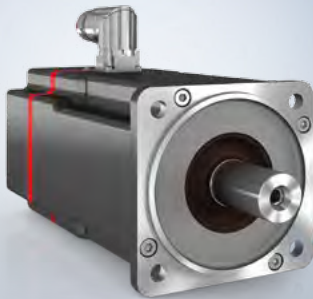
New Automation Technology

Beckhoff implements open automation systems using proven PC-based control technology. The main areas that the product range covers are industrial PCs, I/O and fieldbus components, drive technology, automation software, control cabinet-free automation, and hardware for machine vision. Product ranges that can be used as separate components or integrated into a complete and mutually compatible control system are available for all sectors. Our New Automation Technology stands for universal and industry-independent control and automation solutions that are used worldwide in a large variety of different applications, ranging from CNC-controlled machine tools to intelligent building control.

Since the foundation of the company in 1980, continuous development of innovative products and solutions using PC-based control technology has been the basis for the continued success of Beckhoff. Many automation technology standards that are taken for granted today were conceptualized by Beckhoff at an early stage and successfully introduced to the market.

The Beckhoff PC Control philosophy and the invention of the Lightbus system, the Bus Terminals and TwinCAT automation software represent milestones in automation technology and have become accepted as high-performance alternatives to traditional control technology. EtherCAT, the real-time Ethernet solution, makes forward-looking, high-performance technology available for a new generation of leading edge control concepts.
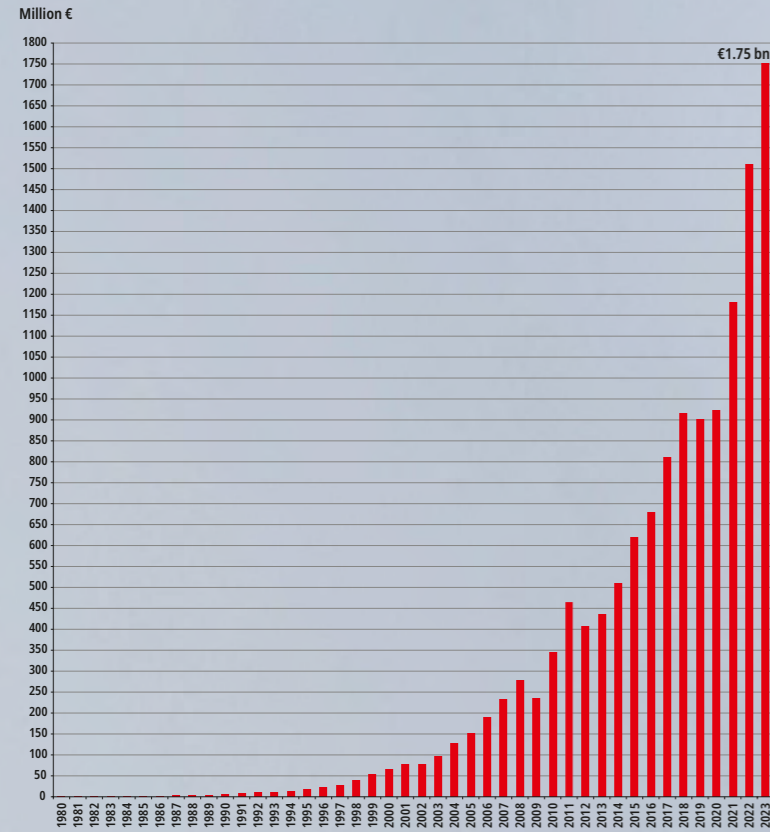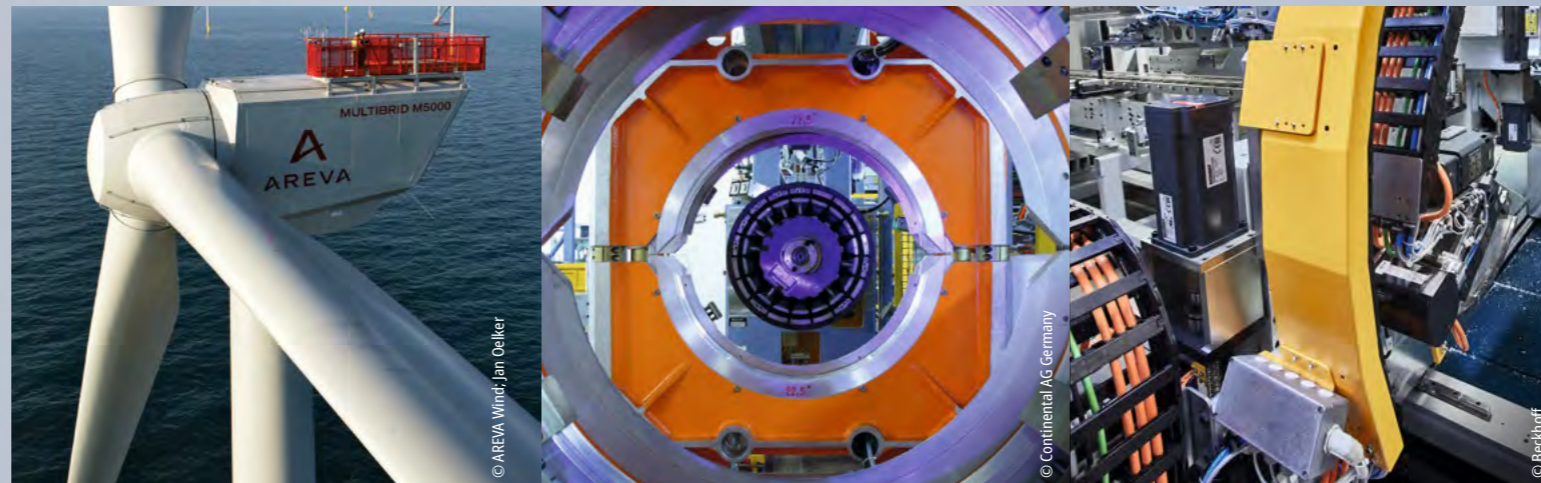
MX-System
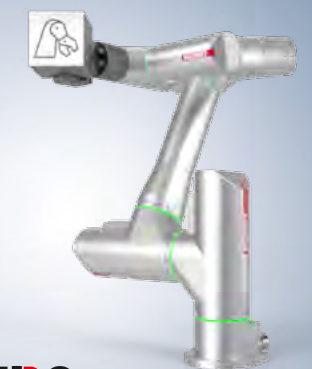
ATRO

Global presence

The central divisions of Beckhoff, such as development, production, administration, distribution, marketing, support and service are located at the Beckhoff Automation GmbH & Co. KG headquarters in Verl, Germany. Rapidly growing presence in the international market is taking place through subsidiaries. Through worldwide co-operation with partners, Beckhoff is represented in more than 75 countries.

Million €

€1.75 bn

Sales from 1980 through 2023.
Status: March 2024

EUROPE

NORTH AMERICA

ASIA

AFRICA

SOUTH AMERICA

AUSTRALIA AND OCEANIA

■ Headquarters
● Subsidiary
■ Distributor

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© Continental AG Germany

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Beckhoff Automation at a glance
- 2023 global sales:
  €1.75 billion (+16%)
- Headquarters: Verl, Germany
- Managing owner: Hans Beckhoff
- Employees worldwide: 5,500
- Engineers: 2,000
- Subsidiaries/representative offices worldwide: 41
- Sales offices in Germany: 23
- Representatives worldwide: > 75

We reserve the right to make changes.   We reserve the right to make changes.

System overview

IPC

12 Industrial PC

DVI/USB Extended, CP-Link 4
DVI/USB Extended, CP-Link 4
DVI/USB Extended
DVI/USB Extended

Panel PC CP22xx | Panel PC CP26xx | Panel PC CP27xx | Panel PC CP32xx | Panel PC CP37xx | Panel PC CP62xx | Panel PC CP66xx | Panel PC CP67xx | Panel PC CP72xx | Panel PC CP77xx | 19-inch slide-in PC C52xx | Control cabinet PC C66xx | Ultra-compact Industrial PC C60xx | Ultra-compact Industrial PC C70xx | Compact Industrial PC C69xx | Built-in Control Panel CP29xx | Control Panel CP39xx | Built-in Control Panel CP69xx | Control Panel CP79xx

22 Embedded PC

Embedded PC CX7xxx | Embedded PC CX80xx | Embedded PC CX81xx | Embedded PC CX82xx | Embedded PC CX9020 | Embedded PC CX9240 | Embedded PC CX5120, CX5130, CX5140 | Embedded PC CX5230, CX5240 | Embedded PC CX5330, CX5340 | Embedded PC CX5620, CX5630 | Embedded PC CX2033, CX2043 | Embedded PC CX2042, CX2062, CX2072

I/O

69 Infrastructure components

PCIe Ethernet FC902x

PCIe Ethernet FC902x

Branch controller CU1418

PCI PROFIBUS FC310x

PCIe CANopen FC512x

PCIe Ethernet FC902x

58 Bus Terminals

34 EtherCAT Terminals

54 EtherCAT plug-in modules

Bus Coupler BK1120 (K-bus interface), Bus Terminals KL/KSxxxx

Coupler EK1xxx

EtherCAT G

EtherCAT P

Bus Coupler BK3xx0, Bus Terminals KL/KSxxxx

Bus Coupler BK5xx0, Bus Terminals KL/KSxxxx

Bus Coupler BK9xxx, Bus Terminals KL/KSxxxx

Coupler EK1xxx, EtherCAT Terminals EL/ESxxxx/ELXxxxx/ELM3xxx

EtherCAT plug-in modules EJxxxx

Junction EK1322 | Extension EK1310 | Coupler EK1300

Coupler EK1400

EtherCAT

Bus Coupler EK3100, EtherCAT Terminals EL/ESxxxx

EtherCAT

Bus Coupler EK9x00, EtherCAT Terminals EL/ESxxxx

44 EtherCAT Box

66 Fieldbus Box

EtherCAT Box EPxxxx, EQxxxx, ERxxxx

EtherCAT P Box EPPxxxx

Compact Box IPxxxx-B31x | Coupler Box IL230x-B31x | Extension Box IExxxx

Compact Box IPxxxx-B51x | Coupler Box IL230x-B51x | Extension Box IExxxx

Coupler Box IL230x-B90x | Extension Box IExxxx

EtherCAT
CANopen
DeviceNet
CC-Link
Ethernet TCP/IP
EtherNet/IP
EtherNet/IP
LIGHTBUS
Modbus
PROFIBUS
PROFINET
RS232 RS485
sercos the automation bus
BACnet
DALI
AS-i
DMX
EIB/KNX
enocean
IO-Link
M-Bus
MP-BUS
OPC UA
PTP/IEEE 1588
SMI

Motion

76 Drive Technology

Variable frequency drives AF1xxx | Servo Drives AX1xxx, AX8xxx, AX5xxx | Distributed servo drive system AMP8xxx | Rotary servomotors AM8xxx | Integrated servo drives AMI81xx, ASI81xx | Planetary gears AGxxxx | Translatory servomotors AL8000, AAxxxx | Compact drive technology | XTS | Linear product transport | XPlanar | Planar motor system | ATRO | Automation Technology for Robotics

Automation

96 TwinCAT

TwinCAT 3 Engineering | TwinCAT 3 Base | TwinCAT 3 System Functions | TwinCAT 3 HMI Functions | TwinCAT 3 Measurement Functions | TwinCAT 3 Controller Functions | TwinCAT 3 Motion Functions | TwinCAT 3 Connectivity Functions | TwinCAT 3 Vision Functions | TwinCAT 3 Industry-specific Functions | TwinSAFE Software

MX-System

114 MX-System

Baseplates MBxxxx | IPC modules MCxxxx | I/O modules MOxxxx | Drive modules MDxxxx | Relay modules MRxxxx | System modules MSxxxx

Vision

124 Vision

Cameras VCSxxxx | Optics VOSxxxx | Illumination VIXxxxx | Units VUIxxxx

The IPC Company

The Industrial PC (IPC) is the hardware centerpiece 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**

Ultra-compact Industrial PC

Multi-touch Panel PCs   14
- large model variety
- high computing power
- display sizes from 7-inch to 24-inch
- easy installation in the front of a control cabinet or on mounting arms
- special versions for explosion protection
- customer-specific implementations

▶ www.beckhoff.com/multi-touch

Multi-touch Control Panels   15
- large model variety
- display sizes from 7-inch to 24-inch
- landscape and portrait orientation
- easy installation in the front of a control cabinet or on mounting arms
- special versions for explosion protection
- customer-specific implementations

▶ www.beckhoff.com/multi-touch-cp

Single-touch Panels   16
- Control Panels or Panel PCs
- display sizes from 5.7-inch to 19-inch
- easy installation in the front of a control cabinet or on mounting arms
- customer-specific implementations

▶ www.beckhoff.com/single-touch

Industrial PCs   18
- scalable performance range
- highest computing power
- industrial-strength housing designs
- multiple features
- high flexibility in terms of display connections

▶ www.beckhoff.com/pc

Embedded PCs   22
- scalable performance range
- up to 12 cores
- compact design
- direct I/O interface
- modular extension options
- DIN rail mounting

▶ www.beckhoff.com/embedded-pc

- **large model variety of Industrial PCs and Embedded PCs**
- **high-performance PCs, featuring a wide range of processors, from Intel® Celeron® to top of the line Intel® Core™ i9 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.**

Industrial PC

Industrial PC

The right Industrial PC for every application

CPXxxxx |
Panel PCs, Control Panels, hazardous areas, Zone 2/22 `14`

CP39xx |
Multi-touch Control Panels `15`

CP32xx |
Multi-touch Panel PCs `14`

CP39xx-14xx |
Stainless steel Control Panels `15`

CP29xx |
Multi-touch built-in Control Panels `15`

CP37xx |
Multi-touch Panel PCs `14`

CP2xxx |
Multi-touch built-in Panel PCs `14`

CPxxxx |
Customer-specific Panel PCs and Control Panels `20`

C6670 |
Control cabinet industrial server `19`

C6640/C6650/ C6675 |
Control cabinet Industrial PCs `18`

C69xx |
Compact Industrial PCs `18`

C65xx |
Compact Industrial PCs `18`

C60xx | Ultra-compact Industrial PCs `19`

C7015 |
Ultra-compact Industrial PC `19`

Accessories `20`

C52xx | 19-inch slide-in Industrial PCs `18`

CU81xx |
UPS components `20`

CXxxxx |
Embedded PCs `22`

Industrial PCs

	Compact motherboard Intel® Core™	Compact motherboard Intel Atom®	ATX motherboard Intel® Core™	3½-inch motherboard Intel® Core™	3½-inch motherboard Intel Atom®	3½-inch motherboard Arm® Cortex®-A8	Control Panels
Multi-touch Panel PCs/Control Panels				CP22xx CP32xx	CP27xx/CPX27xx CP37xx/CPX37xx	CP26xx	CP29xx/CPX29xx CP39xx/CPX39xx
Single-touch Panel PCs/Control Panels		CP77xx		CP62xx CP72xx	CP67xx	CP66xx	CP69xx CP79xx
19-inch slide-in Industrial PCs			C5240	C5210			
Control cabinet Industrial PCs	C6025/C6027 C6030/C6032 C6040/C6043	C6015 C6017	C6640/C6650 C6675	C6515/C6525 C6920/C6930	C6905/C6915 C6925		
IP65 Industrial PCs		C7015					

Control cabinet industrial server

SSI EEB motherboard 2 x Intel® Xeon®
C6670

Embedded PCs

Arm® CPU	Intel Atom® CPU	Intel® CPU	AMD CPU
CX7xxx	CX51xx	CX20x2	CX56xx
CX80xx	CX52xx		CX20x3
CX81xx	CX53xx		
CX82xx			
CX9020			
CX9240			

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Multi-touch Panel PCs

▶

CP22xx CP26xx CP27xx CP32xx CP37xx

Multi-touch built-in Panel PCs, front side IP65

	Display Resolution Format	7-inch 800 x 480 5:3	12-inch 800 x 600 4:3	12.1-inch 1280 x 800 16:10	15-inch 1024 x 768 4:3	15.6-inch 1366 x 768 16:9	18.5-inch 1366 x 768 16:9	19-inch 1280 x 1024 5:4	21.5-inch 1920 x 1080 16:9	24-inch 1920 x 1080 16:9
CP22xx – up to Intel® Core™ i3/i5/i7	multi-finger touch screen		CP2212	CP2213	CP2215	CP2216	CP2218	CP2219	CP2221	CP2224
CP26xx – Arm® Cortex®-A8	dual-finger touch screen	CP2607	CP2612	CP2613	CP2615	CP2616	CP2618	CP2619	CP2621	CP2624
CP27xx – Intel Atom®	multi-finger touch screen, only horizontal		CP2712	CP2713	CP2715 CPX2715	CP2716	CP2718	CP2719 CPX2719	CP2721 CPX2721	CP2724

Multi-touch Panel PCs, all sides IP65

	Display Resolution Format	7-inch 800 x 480 5:3	12-inch 800 x 600 4:3	12.1-inch 1280 x 800 16:10	15-inch 1024 x 768 4:3	15.6-inch 1366 x 768 16:9	18.5-inch 1366 x 768 16:9	19-inch 1280 x 1024 5:4	21.5-inch 1920 x 1080 16:9	24-inch 1920 x 1080 16:9
CP32xx – up to Intel® Core™ i3/i5/i7	multi-finger touch screen, only horizontal		CP3212		CP3215	CP3216	CP3218	CP3219	CP3221	CP3224
CP32xx-1600 – up to Intel® Core™ i3/i5/i7	multi-finger touch screen, only horizontal, mounting arm adapter selectable				CP3215-1600	CP3216-1600	CP3218-1600	CP3219-1600	CP3221-1600	CP3224-1600
CP37xx – Intel Atom®	multi-finger touch screen, only horizontal		CP3712	CP3713	CP3715 CPX3715	CP3716	CP3718	CP3719 CPX3719	CP3721 CPX3721	CP3724
CP37xx-1600 – Intel Atom®	multi-finger touch screen, only horizontal, fanless without cooling fins				CP3715-1600	CP3716-1600	CP3718-1600	CP3719-1600	CP3721-1600	CP3724-1600

Multi-touch Control Panels

▶

CP29xx CP39xx CP39xx-14xx-0010

Multi-touch built-in Control Panels, front side IP65

	Display Resolution Format	7-inch 800 x 480 5:3	12-inch 800 x 600 4:3	12.1-inch 1280 x 800 16:10	15-inch 1024 x 768 4:3	15.6-inch 1366 x 768 16:9	18.5-inch 1366 x 768 16:9	19-inch 1280 x 1024 5:4	21.5-inch 1920 x 1080 16:9	24-inch 1920 x 1080 16:9
CP29xx-0000 – DVI/USB Extended interface*	multi-finger touch screen	CP2907-0000	CP2912-0000	CP2913-0000	CP2915-0000 CPX2915-0000	CP2916-0000	CP2918-0000	CP2919-0000 CPX2919-0000	CP2921-0000 CPX2921-0000	CP2924-0000
CP29xx-0010 – CP-Link 4*	multi-finger touch screen	CP2907-0010	CP2912-0010	CP2913-0010	CP2915-0010	CP2916-0010	CP2918-0010	CP2919-0010	CP2921-0010	CP2924-0010

Multi-touch Control Panels, all sides IP65

	Display Resolution Format	7-inch 800 x 480 5:3	12-inch 800 x 600 4:3	12.1-inch 1280 x 800 16:10	15-inch 1024 x 768 4:3	15.6-inch 1366 x 768 16:9	18.5-inch 1366 x 768 16:9	19-inch 1280 x 1024 5:4	21.5-inch 1920 x 1080 16:9	24-inch 1920 x 1080 16:9
CP39xx-0000 – DVI/USB Extended interface*	multi-finger touch screen	CP3907-0000	CP3912-0000	CP3913-0000	CP3915-0000	CP3916-0000	CP3918-0000	CP3919-0000	CP3921-0000	CP3924-0000
CP39xx-0010 – CP-Link 4*	multi-finger touch screen	CP3907-0010	CP3912-0010	CP3913-0010	CP3915-0010 CPX3915-0010	CP3916-0010	CP3918-0010	CP3919-0010	CP3921-0010 CPX3921-0010	CP3924-0010
CP39xx-14xx-0010 – CP-Link 4*	multi-finger touch screen, stainless steel housing			CP3913-14xx-0010		CP3916-14xx-0010	CP3918-14xx-0010		CP3921-14xx-0010	

*For further information on DVI/USB Extended and CP-Link 4 see page 21

Single-touch panels

▶ www.beckhoff.com/single-touch

CP62xx CP66xx CP67xx

Without keys | Function keys | Numeric keyboard | Alphanumeric keyboard | With PLC keys on the sides

CP72xx CP77xx CP69xx CP79xx CP790x-14xx, stainless steel

Single-touch built-in Panel PCs, front side IP54/65

	Display	5.7-inch	6.5-inch	7-inch	10.1-inch	12-inch	15-inch	19-inch
	Resolution	640 x 480	640 x 480	800 x 480	1024 x 600	800 x 600	1024 x 768	1280 x 1024
	Format	4:3	4:3	5:3	17:10	4:3	4:3	5:4
	Protect. rating front	IP65	IP65	IP54	IP54	IP65	IP65	IP65
CP62xx	without keys					CP6201	CP6202	CP6203
– 3½-inch	function keys					CP6211	CP6212	CP6213
motherboard	numerical					CP6221	CP6222	CP6223
– up to Intel® Core™	alphanumerical					CP6231	CP6232	CP6233
i3/i5/i7							CP6242	
CP66xx	without keys	CP6607	CP6609			CP6601	CP6602	CP6603
– 3½-inch	function keys		CP6619			CP6611	CP6612	CP6613
motherboard	numerical		CP6629			CP6621	CP6622	CP6623
– Arm® Cortex®-A8	alphanumerical					CP6631	CP6632	CP6633
CP6606, CP6600	without keys			CP6606	CP6600			
– 3½-inch motherboard – Arm® Cortex®-A8								
CP67xx	without keys	CP6707				CP6701	CP6702	CP6703
– 3½-inch	function keys					CP6711	CP6712	CP6713
motherboard	numerical					CP6721	CP6722	CP6723
– Intel Atom®	alphanumerical					CP6731	CP6732	CP6733
							CP6742	
CP6706, CP6700	without keys			CP6706	CP6700			
– 3½-inch motherboard – Intel Atom®								
CP6706-1400, CP6700-1400	without keys, stainless steel front			CP6706-1400 ⓘ	CP6700-1400 ⓘ			
– 3½-inch motherboard – Intel Atom®								

Single-touch Panel PCs, all sides IP65

	Display	5.7-inch	6.5-inch	7-inch	10.1-inch	12-inch	15-inch	19-inch
	Resolution	640 x 480	640 x 480	800 x 480	1024 x 600	800 x 600	1024 x 768	1280 x 1024
	Format	4:3	4:3	5:3	17:10	4:3	4:3	5:4
CP72xx	without keys					CP7201	CP7202	CP7203
– 3½-inch	function keys					CP7211	CP7212	CP7213
motherboard	numerical					CP7221	CP7222	CP7223
– up to Intel® Core™	alphanumerical					CP7231	CP7232	CP7233
i3/i5/i7							CP7242	
CP77xx	without keys					CP7701	CP7702	CP7703
– CP motherboard	function keys					CP7711	CP7712	CP7713
– Intel Atom®	numerical					CP7721	CP7722	CP7723
	alphanumerical					CP7731	CP7732	CP7733

Single-touch built-in Control Panels, front side IP54/65

	Display	5.7-inch	6.5-inch	7-inch	10.1-inch	12-inch	15-inch	19-inch
	Resolution	640 x 480	640 x 480	800 x 480	1024 x 600	800 x 600	1024 x 768	1280 x 1024
	Format	4:3	4:3	5:3	17:10	4:3	4:3	5:4
	Protect. rating front	IP65	IP65	IP54	IP54	IP65	IP65	IP65
CP69xx	without keys	CP6907	CP6909	CP6906	CP6900	CP6901	CP6902	CP6903
– DVI/USB Extended	function keys		CP6919			CP6911	CP6912	CP6913
interface*	numerical		CP6929			CP6921	CP6922	CP6923
	alphanumerical					CP6931	CP6932/42	CP6933
CP69xx-1400	without keys,			CP6906-	CP6900-			
– DVI/USB Extended	stainless steel front			1400	1400			
interface*								

Single-touch Control Panels, all sides IP65

	Display	5.7-inch	6.5-inch	7-inch	10.1-inch	12-inch	15-inch	19-inch
	Resolution	640 x 480	640 x 480	800 x 480	1024 x 600	800 x 600	1024 x 768	1280 x 1024
	Format	4:3	4:3	5:3	17:10	4:3	4:3	5:4
CP79xx	without keys		CP7909			CP7901	CP7902	CP7903
– DVI/USB Extended	function keys		CP7919			CP7911	CP7912	CP7913
interface*	numerical		CP7929			CP7921	CP7922	CP7923
	alphanumerical					CP7931	CP7932/42	CP7933
CP790x-14xx	without keys,					CP7901-	CP7902-	CP7903-
– DVI/USB Extended	stainless steel					14xx	14xx	14xx
interface*	housing							

*For further information on DVI/USB Extended see page 21

BECKHOFF New Automation Technology

Industrial PCs

▶ www.beckhoff.com/pc

C5210

C65x5
basic configuration

C65x5
with PCIe
module slots

C6525
with plug-in
card slots

C69xx

C69x0
with plug-in
card slots

C5240

C6640

C6650

C6675

C60xx

C7015

C6670
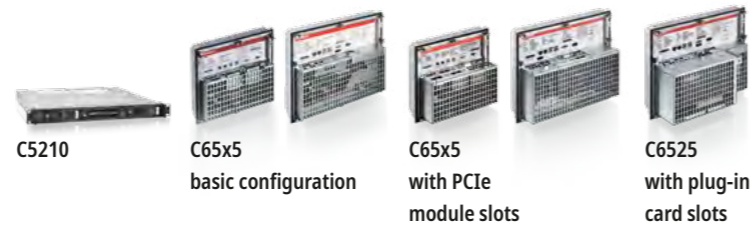
Control cabinet Industrial PCs with 3½-inch motherboard

	Processor	Intel Atom®	Intel® Celeron®, Intel® Pentium®, Intel® Core™ i3/i5/i7 6th/7th generation	Intel® Celeron®, Intel® Pentium®, Intel® Core™ i3/i5/i7 8th/9th generation	Intel® Celeron®, Intel® Core™ i3/i5/i7 11th generation
C5210, 19-inch slide-in Industrial PCs	1 rack unit		C5210-0030	C5210-0040	C5210-0050
C65xx	fanless		C6515-0060	C6515-0070	C6515-0080
	fanless, RAID		C6525-0060	C6525-0070	C6525-0080
C69xx, compact Industrial PCs, connectors on front	fanless	C6905-0010 C6905-0020 C6905-0030 ⓘ			
	fanless, 1 CFast card slot	C6915-0010 C6915-0020			
	fanless, 2 PCIe module slots	C6925-0030 C6925-0040			
	optional plug-in card slots		C6920-0060	C6920-0070	C6920-0080
	2 PCIe module slots, optional plug-in card slots		C6930-0060	C6930-0070	C6930-0080

Control cabinet Industrial PCs with ATX motherboard

	Processor	Intel® Celeron®, Intel® Pentium®, Intel® Core™ i3/i5/i7 6th/7th generation	Intel® Celeron®, Intel® Pentium®, Intel® Core™ i3/i5/i7 8th/9th generation	Intel® Celeron®, Intel® Pentium®, Intel® Core™ i3/i5/i7/i9 12th/13th generation
C5240, 19-inch slide-in Industrial PCs	7 slots, 4 rack units	C5240-0010	C5240-0020	C5240-0030
C6640/C6650, connectors on top	7 slots	C6640-0050	C6640-0060	C6640-0070
	7 slots, 2 removable frames	C6650-0050	C6650-0060	C6650-0070
C6675, connectors on top	7 slots, 2 removable frames		C6675-0060	C6675-0070

Control cabinet Industrial PCs with compact industrial motherboard

	Processor	Intel Atom®	Intel® Celeron®, Intel® Core™ i3/i5/i7 8th generation, series U	Intel® Celeron®, Intel® Pentium®, Intel® Core™ i3/i5/i7 6th/7th generation	Intel® Celeron®, Intel® Pentium®, Intel® Core™ i3/i5/i7 8th/9th generation	Intel® Celeron®, Intel® Core™ i3/i5/i7 11th generation	Intel® Celeron®, Intel® Pentium®, Intel® Core™ i3/i5/i7/i9 12th/13th generation
C60xx	fanless, without slots	C6015-0010 C6015-0020 C6015-0030	C6025-0000			C6025-0010	
	optional interfaces and/or an optional 1-second UPS	C6017-0010 C6017-0020 C6017-0030	C6027-0000			C6027-0010	
	up to 2 M.2 SSDs and/or 2 PCIe compact module slots			C6030-0060 C6032-0060	C6030-0070 C6032-0070	C6030-0080 C6032-0080	
	up to 2 M.2 SSDs						C6040-0090
	up to 2 M.2 SSDs, 1 PCIe compact module slot, external graphics card ex factory						C6043-0090 ⓘ

IP65 Industrial PCs with compact industrial motherboard

	Processor	Intel Atom®
C70xx, IP65	fanless	C7015-0020 C7015-0030 ⓘ

Control cabinet industrial server with SSI EEB motherboard

	Processor	2 x Intel® Xeon® 5th generation Scalable
C6670	6 slots, 2 removable frames	C6670-0020

ⓘ **Product announcement**   for availability status see www.beckhoff.com

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BECKHOFF New Automation Technology

Customization options for Panel PCs and Control Panels

- stainless steel housings
- special membrane keyboards
- integration of electro-mechanical keyboards
- flush-mounted touch screens
- adaptation of membrane colors
- integration of customer logos

Built-in panel with individual front laminate

Stainless steel panel

Stainless steel panel with emergency stop

Customer-specific multi-touch Control Panel

Multi-touch Control Panel for machine tools

Multi-touch Control Panel with push-button extension

Control Panel with CNC push-button extension

Industrial PC accessories

CU8xxx modules

Different modules enable the use of various technologies in the industrial environment. All modules are intended for DIN rail mounting. In addition, there are a variety of uninterruptible power supplies (UPS).

CU8006 | 4-port USB 3.0 hub

CU8801 | USB Extender 2.0 Tx

CU8871 | USB CFast slot

CU8851 | USB Extender 2.0 Rx

CU8880 | Ethernet controller with USB input
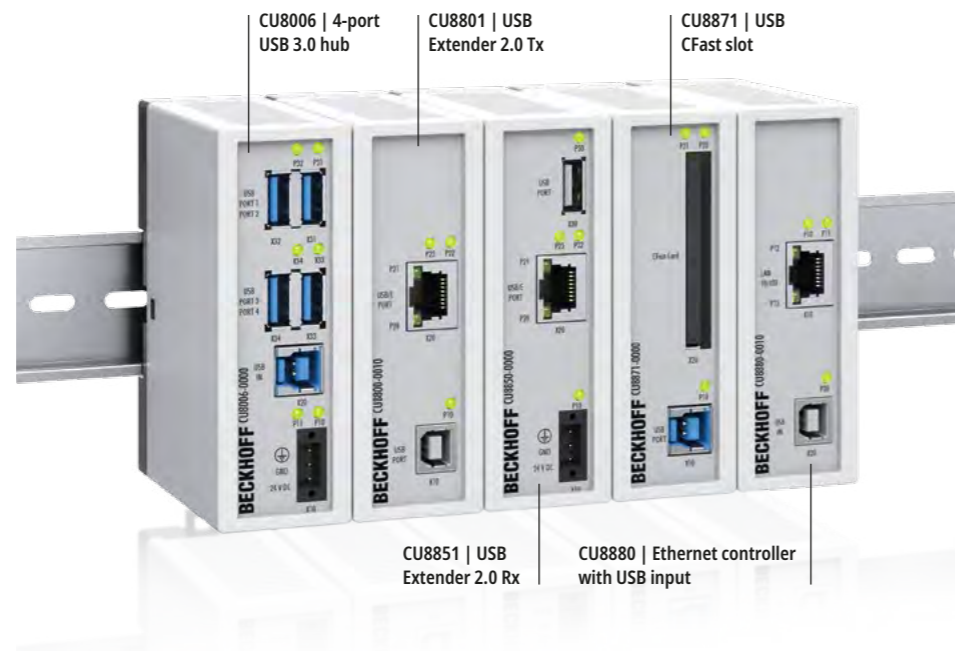
DVI/USB Extended

The DVI/USB Extended technology enables remote panel operation at a distance of up to 50 m from the industrial PC. The DVI graphics signal is directly transmitted from the PC via a DVI-E cable. A signal processor in the Control Panel restores the DVI signal after a distance of 50 m. For the CP29xx-0000, CP39xx-0000, CP69xx-xxxx-0010 and CP79xx-xxxx-0010 Control Panels, the USB signal from the PC is converted into USB Extended 2.0 by the CU8801 USB Extender box, transmitted to the Control Panel via a Cat.5 cable over 50 m max. to be reconverted into USB 2.0 with 480 Mbit/s. A USB hub in the Control Panel enables the connection of two external USB devices such as a keyboard or USB stick, in addition to touch screen and push-button extension.

DVI/USB Extended 2.0 for CP29xx-0000, CP39xx-0000, CP69xx-xxxx-0010 or CP79xx-xxxx-0010 via the CU8801 transmitter box

USB-E-2.0, 50 m
DVI-E, 50 m

Industrial PC   CU8801   CP29xx-0000, CP39xx-0000, CP69xx-xxxx-0010 or CP79xx-xxxx-0010
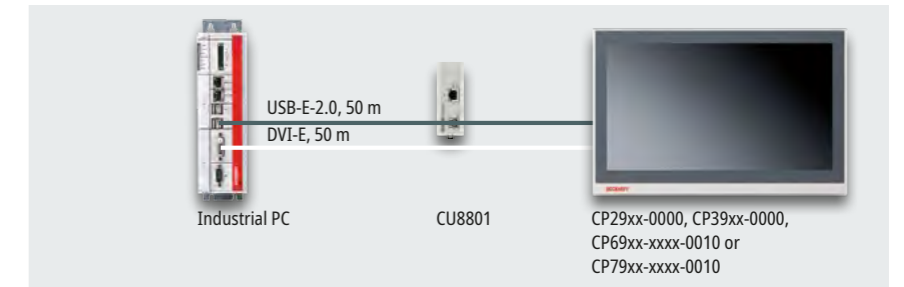
CP-Link 4: The One Cable Display Link

With CP-Link 4 operating panels can be located up to 100 m away from the Industrial PC. The one cable solution can be used to transfer video signals, USB 2.0 and the power supply in a Cat.6A cable, thus reducing cable and installation costs. The CP-Link 4 technology is supported by the Beckhoff multi-touch Control Panel series CP29xx-0010 for installation inside the wall of a control cabinet, CP39xx-0010 for mounting arm installation and CPX39xx-0010 for use in hazardous areas, Zone 2/22.

CP-Link 4 – The Two Cable Display Link: via C9900-E276 PCIe module integrated in the PC

UPS OUT 24 V
24 V
Cat.6A, 100 m
C9900-E276

Industrial PC with PCIe module slot   CP29xx-0010, CP39xx-0010 or CPX39xx-0010

CP-Link 4 – The Two Cable Display Link: via CU8802 transmitter box

UPS OUT 24 V
24 V
DVI/USB
Cat.6A, 100 m

Industrial PC   CU8802   CP29xx-0010, CP39xx-0010 or CPX39xx-0010

CP-Link 4 – The One Cable Display Link: DVI, USB and 24 V via CU8803 transmitter box

UPS OUT 24 V
24 V
DVI/USB
Cat.6A, 100 m
24 V

Industrial PC   CU8803   CP29xx-0010, CP39xx-0010 or CPX39xx-0010

▶ www.beckhoff.com/cp-link4
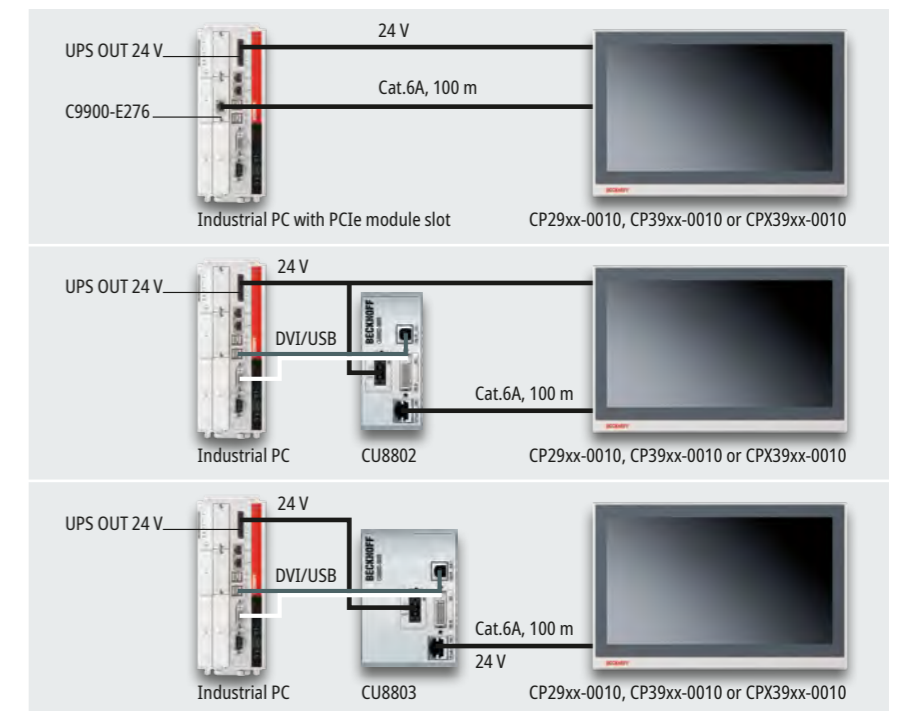
Embedded PC

▶ **www.beckhoff.com/embedded-pc**

Embedded PC

Basic CPU	CX70xx	CX72xx	CX80xx	CX81xx	CX82xx	CX9020	CX9240
Processor	Arm® Cortex®-M7, 480 MHz	Arm® Cortex®-A9, 720 MHz	Arm9™, 400 MHz	Arm® Cortex®-A9, 800 MHz	Arm® Cortex®-A53, 1.2 GHz	Arm® Cortex®-A8, 1 GHz	Arm® Cortex®-A53, 1.2 GHz
Flash memory	slot for microSD card, 512 MB included (optionally expandable)	slot for microSD card, 512 MB included (optionally expandable)	slot for microSD card, 512 MB included (optionally expandable)	slot for microSD card, 512 MB included (optionally expandable)	slot for microSD card, card not included (requires a microSD card with a minimum capacity of 16 GB)	2 x slot for microSD card, 512 MB included (optionally expandable)	slot for microSD card, card not included (requires a microSD card with a minimum capacity of 16 GB)
Main memory	32 MB SDR (not expandable)	512 MB DDR3 RAM (not expandable)	64 MB DDR2 RAM (not expandable)	512 MB DDR3 RAM (not expandable)	1 GB LPDDR4 RAM (not expandable)	1 GB DDR3 RAM (not expandable)	2 GB LPDDR4 RAM (not expandable)
Interfaces	1 x RJ45 10/100 Mbit/s, 1 x USB, 1 x bus interface	1 x RJ45 10/100/1000 Mbit/s, 1 x bus interface	1 x RJ45 10/100 Mbit/s, 1 x USB device (behind the front flap), 1 x bus interface	1 x RJ45 10/100 Mbit/s, 1 x bus interface	1 x RJ45 10/100/1000 Mbit/s, 1 x USB 3.0, 1 x bus interface	2 x RJ45 10/100 Mbit/s (internal switch), 1 x DVI-D, 4 x USB 2.0, 1 x optional interface	2 x RJ45 10/100/1000 Mbit/s, 1 x DisplayPort, 4 x USB 3.0, 1 x optional interface
I/O connection	E-bus or K-bus, automatic recognition	E-bus or K-bus, automatic recognition	E-bus or K-bus, automatic recognition	E-bus or K-bus, automatic recognition	E-bus or K-bus, automatic recognition	E-bus or K-bus, automatic recognition	E-bus or K-bus, automatic recognition
System interfaces	integrated	integrated	integrated	integrated	integrated	integrated	integrated
DVI/USB	USB in the basic CPU	–	–	–	USB in the basic CPU	in the basic CPU	USB in the basic CPU
RS232	CX7080	–	CX8080	CX8180	CX8280	CX9020-N030	CX9240-N030
RS422/RS485	CX7080	–	CX8080	CX8180	CX8280	CX9020-N031	CX9240-N031
Audio	–	–	–	–	–	CX9020-N020	–
Ethernet	in the basic CPU	in the basic CPU	in the basic CPU	in the basic CPU	in the basic CPU	in the basic CPU	in the basic CPU
4-port USB hub	–	–	–	–	–	in the basic CPU	in the basic CPU
Memory medium	in the basic CPU	in the basic CPU	in the basic CPU	in the basic CPU	in the basic CPU	2nd microSD slot in the basic CPU	in the basic CPU
Fieldbus interfaces	integrated or expandable via EtherCAT Terminals	integrated or expandable via EtherCAT Terminals	integrated or expandable via EtherCAT Terminals	integrated or expandable via EtherCAT Terminals	integrated or expandable via EtherCAT Terminals	integrated or expandable via EtherCAT Terminals	integrated or expandable via EtherCAT Terminals
EtherCAT	EL6695 slave	EL6695 slave	CX8010 slave	CX8110 slave	CX8210 slave	CX9020-B110 slave	CX9240-B110, CX9240-B140 slave
PROFIBUS	EL6731, EL6733 master CX7031 slave	EL6731, EL6733 master EL673x-0010 slave	CX8030 master CX8031 slave	EL6731, EL6733 master EL673x-0010 slave	EL6731, EL6733 master EL673x-0010 slave	CX9020-M310 master CX9020-B310 slave	CX9240-M310 master CX9240-B310 slave
CANopen	CX7050 commander (master) CX7051 responder (slave)	EL6751, EL6753 master EL6751-, EL6753-0010 slave	CX8050 master CX8051 slave	EL6751, EL6753 master EL6751-, EL6753-0010 slave	EL6751, EL6753 master EL6751-, EL6753-0010 slave	CX9020-M510 master CX9020-B510 slave	CX9240-M510 master CX9240-B510 slave
DeviceNet	EL6752, EL6754 master EL6752-, EL6754-0010 slave	EL6752, EL6754 master EL6752-, EL6754-0010 slave	EL6752, EL6754 master EL6752-, EL6754-0010 slave	EL6752, EL6754 master EL6752-, EL6754-0010 slave	EL6752, EL6754 master EL6752-, EL6754-0010 slave	EL6752, EL6754 master EL6752-, EL6754-0010 slave	EL6752, EL6754 master EL6752-, EL6754-0010 slave
PROFINET RT	EL6631, EL6633 controller EL6631-, EL6633-0010 device	EL6631, EL6633 controller CX7293	CX8093 device	EL6631, EL6633 controller EL6631-, EL6633-0010 device	CX8290 + TF6271 controller CX8290 + TF6270 device	CX9020-M930 controller CX9020-B930 device	TF6271 controller TF6270 device
EtherNet/IP	EL6652, EL6653 scanner EL6652-, EL6653-0010 adapter	EL6652, EL6653 scanner EL6652-, EL6653-0010 adapter	CX8095 adapter	EL6652, EL6653 scanner EL6652-, EL6653-0010 adapter	CX8290 + TF6281 scanner CX8290 + TF6280 adapter	EL6652, EL6653 scanner EL6652-, EL6653-0010 adapter	TF6281 scanner TF6280 adapter
UPS options	–	–	1-second UPS	1-second UPS	1-second UPS	1-second UPS (optional)	1-second UPS

i **Product announcement**   for availability status see www.beckhoff.com

We reserve the right to make technical changes.

BECKHOFF New Automation Technology
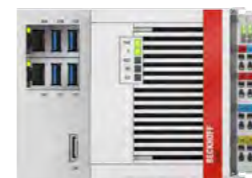
Embedded PC

Basic CPU	CX5120	CX5130	CX5140	CX52xx	CX53xx ℹ	CX56xx
Processor	Intel Atom® E3815, 1.46 GHz	Intel Atom® E3827, 1.75 GHz	Intel Atom® E3845, 1.91 GHz	CX5230: Intel Atom® x5-E3930, 1.3 GHz, CX5240: Intel Atom® x5-E3940, 1.6 GHz	CX5330: Intel Atom® x6214RE, 1.4 GHz, CX5340: Intel Atom® x6425RE, 1.9 GHz	CX5620: AMD Ryzen™ R1102G, 1.2 GHz, CX5630: AMD Ryzen™ R1505G, 2.0 GHz
Flash memory	slot for CFast card and microSD card, cards not included	slot for CFast card and microSD card, cards not included	slot for CFast card and microSD card, cards not included	slot for CFast card and microSD card, cards not included	slot for CFast card and microSD card, cards not included	slot for M.2 SSD (SATA) and microSD card (storage media not included)
Main memory	2 GB DDR3 RAM (not expandable)	4 GB DDR3 RAM (not expandable)	4 GB DDR3 RAM (not expandable)	CX5230: 4 GB DDR4 RAM (internal, not expandable), CX5230: 8 GB DDR4 RAM (internal, not expandable)	CX5330: 4 GB LPDDR4 RAM (internal, not expandable), CX5340: 8 GB LPDDR4 RAM (internal, not expandable)	CX5620: 4 GB DDR4 RAM, CX5630: 8 GB DDR4 RAM
Interfaces	2 x RJ45 10/100/1000 Mbit/s, 1 x DVI-I, 4 x USB 2.0, 1 x optional interface	2 x RJ45 10/100/1000 Mbit/s, 1 x DVI-I, 4 x USB 2.0, 1 x optional interface	2 x RJ45 10/100/1000 Mbit/s, 1 x DVI-I, 4 x USB 2.0, 1 x optional interface	2 x RJ45 10/100/1000 Mbit/s, 1 x DVI-D, 4 x USB 3.0, 1 x optional interface	2 x RJ45 10/100/1000/2500 Mbit/s, 1 x DisplayPort, 4 x USB 3.1, 1 x optional interface	2 x RJ45 10/100/1000 Mbit/s, 1 x DVI-D, 4 x USB 3.0, 1 x optional interface
I/O connection	E-bus or K-bus, automatic recognition	E-bus or K-bus, automatic recognition	E-bus or K-bus, automatic recognition	E-bus or K-bus, automatic recognition	E-bus or K-bus, automatic recognition	E-bus or K-bus, automatic recognition
System interfaces	**integrated**	**integrated**	**integrated**	**modularly expandable**	**modularly expandable**	**modularly expandable**
DVI/USB	in the basic CPU	in the basic CPU	in the basic CPU	in the basic CPU, 2nd DVI port as option CX52x0-N010	in the basic CPU, 2nd DVI port as option CX53x0-N010	in the basic CPU or CX56x0-N010
DisplayPort	–	CX5130-N011	CX5140-N011	CX52x0-N011	CX53x0-N011	CX56x0-N011
RS232	CX5120-N030	CX5130-N030	CX5140-N030	CX52x0-N030 or CX2500-0030	CX53x0-N030 or CX2500-0030	CX56x0-N030 or CX2500-0030
RS422/RS485	CX5120-N031	CX5130-N031	CX5140-N031	CX52x0-N031 or CX2500-0031	CX53x0-N031 or CX2500-0031	CX56x0-N031 or CX2500-0031
Audio	CX5120-N020	CX5130-N020	CX5140-N020	CX2500-0020	CX2500-0020	CX2500-0020
Ethernet	in the basic CPU	in the basic CPU	in the basic CPU	in the basic CPU or CX2500-1060	in the basic CPU or CX2500-1060	in the basic CPU or CX2500-1060
Power over Ethernet	–	–	–	CX2500-1061	CX2500-1061	CX2500-1061
4-port USB hub	in the basic CPU	in the basic CPU	in the basic CPU	in the basic CPU or CX2500-0070	in the basic CPU or CX2500-0070	in the basic CPU or CX2500-0070
Memory medium	in the basic CPU	in the basic CPU	in the basic CPU	in the basic CPU	in the basic CPU	in the basic CPU
Fieldbus interfaces	**integrated or expandable via EtherCAT Terminals**	**integrated or expandable via EtherCAT Terminals**	**integrated or expandable via EtherCAT Terminals**	**integrated or expandable via EtherCAT Terminals**	**integrated or expandable via EtherCAT Terminals**	**integrated or expandable via EtherCAT Terminals**
EtherCAT	CX5120-M112 2 x master / CX5120-B110 slave	CX5130-M112 2 x master / CX5130-B110 slave	CX5140-M112 2 x master / CX5140-B110 slave	CX52x0-M112 2 x master / CX52x0-B110 slave	CX53x0-M112 2 x master / CX53x0-B110 slave	CX56x0-M112 2 x master / CX56x0-B110 slave
PROFIBUS	CX5120-M310 master / CX5120-B310 slave	CX5130-M310 master / CX5130-B310 slave	CX5140-M310 master / CX5140-B310 slave	CX52x0-M310 or CX2500-M310 master / CX52x0-B310 or CX2500-B310 slave	CX53x0-M310 or CX2500-M310 master / CX53x0-B310 or CX2500-B310 slave	CX56x0-M310 or CX2500-M310 master / CX56x0-B310 or CX2500-B310 slave
CANopen	CX5120-M510 master / CX5120-B510 slave	CX5130-M510 master / CX5130-B510 slave	CX5140-M510 master / CX5140-B510 slave	CX52x0-M510 or CX2500-M510 master / CX52x0-B510 or CX2500-B510 slave	CX53x0-M510 or CX2500-M510 master / CX53x0-B510 or CX2500-B510 slave	CX56x0-M510 or CX2500-M510 master / CX56x0-B510 or CX2500-B510 slave
DeviceNet	EL6752, EL6754 master / EL6752-, EL6754-0010 slave	EL6752, EL6754 master / EL6752-, EL6754-0010 slave	EL6752, EL6754 master / EL6752-, EL6754-0010 slave	EL6752, EL6754 master / EL6752-, EL6754-0010 slave	EL6752, EL6754 master / EL6752-, EL6754-0010 slave	EL6752, EL6754 master / EL6752-, EL6754-0010 slave
PROFINET RT	TF6271 controller / TF6270 device	TF6271 controller / TF6270 device	TF6271 controller / TF6270 device	TF6271 controller / TF6270 device	TF6271 controller / TF6270 device	TF6271 controller / TF6270 device
EtherNet/IP	TF6281 scanner / TF6280 adapter	TF6281 scanner / TF6280 adapter	TF6281 scanner / TF6280 adapter	TF6281 scanner / TF6280 adapter	TF6281 scanner / TF6280 adapter	TF6281 scanner / TF6280 adapter
UPS options	**1-second UPS**	**1-second UPS**	**1-second UPS**	**1-second UPS**	**1-second UPS**	**1-second UPS**

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Embedded PC

Basic CPU	CX2033	CX2043	CX2042	CX2062	CX2072
Processor	AMD Ryzen™ V1202B 2.3 GHz	AMD Ryzen™ V1807B 3.35 GHz	Intel® Xeon® D-1527 2.2 GHz	Intel® Xeon® D-1548 2.0 GHz	Intel® Xeon® D-1567 2.1 GHz
Flash memory	slot for CFast card, card not included	slot for CFast card, card not included	slot for CFast card, card not included	slot for CFast card, card not included	slot for CFast card, card not included
Main memory	8 GB DDR4 RAM (expandable ex factory to 16 GB)	8 GB DDR4 RAM (expandable ex factory to 32 GB)	8 GB DDR4 RAM (expandable ex factory to 64 GB)	8 GB DDR4 RAM (expandable ex factory to 64 GB)	8 GB DDR4 RAM (expandable ex factory to 64 GB)
Interfaces	2 x RJ45 10/100/1000 Mbit/s, 1 x DVI-D, 4 x USB 3.2 Gen. 2, 1 x optional interface	2 x RJ45 10/100/1000 Mbit/s, 1 x DVI-D, 4 x USB 3.2 Gen. 2, 1 x optional interface	2 x RJ45 10/100/1000 Mbit/s, 1 x DVI-I, 4 x USB 3.0, 1 x optional interface	2 x RJ45 10/100/1000 Mbit/s, 1 x DVI-I, 4 x USB 3.0, 1 x optional interface	2 x RJ45 10/100/1000 Mbit/s, 1 x DVI-I, 4 x USB 3.0, 1 x optional interface
I/O connection	via power supply module (E-bus or K-bus, automatic recognition)	via power supply module (E-bus or K-bus, automatic recognition)	via power supply module (E-bus or K-bus, automatic recognition)	via power supply module (E-bus or K-bus, automatic recognition)	via power supply module (E-bus or K-bus, automatic recognition)
System interfaces	**modularly expandable**	**modularly expandable**	**modularly expandable**	**modularly expandable**	**modularly expandable**
DVI/USB	in the basic CPU, 2nd DVI port as option CX2033-N010	in the basic CPU, 2nd DVI port as option CX2043-N010	in the basic CPU, 2nd DVI port as option CX2042-N010	in the basic CPU, 2nd DVI port as option CX2062-N010	in the basic CPU, 2nd DVI port as option CX2072-N010
DisplayPort	CX2033-N011	CX2043-N011	CX2042-N011	CX2062-N011	CX2072-N011
RS232	CX2033-N030 or CX2500-0030	CX2043-N030 or CX2500-0030	CX2042-N030 or CX2500-0030	CX2062-N030 or CX2500-0030	CX2072-N030 or CX2500-0030
RS422/RS485	CX2033-N031 or CX2500-0031	CX2043-N031 or CX2500-0031	CX2042-N031 or CX2500-0031	CX2062-N031 or CX2500-0031	CX2072-N031 or CX2500-0031
Audio	CX2500-0020	CX2500-0020	–	–	–
Ethernet	in the basic CPU or CX2500-1060	in the basic CPU or CX2500-1060	in the basic CPU or CX2500-1060	in the basic CPU or CX2500-1060	in the basic CPU or CX2500-1060
10G Ethernet	–	–	CX2042-N067 or CX2042-N167	CX2062-N067 or CX2062-N167	CX2072-N067 or CX2072-N167
Power over Ethernet	CX2500-1061	CX2500-1061	CX2500-1061	CX2500-1061	CX2500-1061
4-port USB hub	in the basic CPU or CX2500-0070	in the basic CPU or CX2500-0070	in the basic CPU or CX2500-0070	in the basic CPU or CX2500-0070	in the basic CPU or CX2500-0070
Memory medium	in the basic CPU or CX2550-0010/ CX2550-0020	in the basic CPU or CX2550-0010/ CX2550-0020	in the basic CPU or CX2550-0010/ CX2550-0020	in the basic CPU or CX2550-0010/ CX2550-0020	in the basic CPU or CX2550-0010/ CX2550-0020
USB extension	CX2550-0179 (USB 1.1) or CX2550-0279 (USB 2.0)	CX2550-0179 (USB 1.1) or CX2550-0279 (USB 2.0)	CX2550-0179 (USB 1.1) or CX2550-0279 (USB 2.0)	CX2550-0179 (USB 1.1) or CX2550-0279 (USB 2.0)	CX2550-0179 (USB 1.1) or CX2550-0279 (USB 2.0)
Fieldbus interfaces	**integrated or expandable via EtherCAT Terminals**	**integrated or expandable via EtherCAT Terminals**	**integrated or expandable via EtherCAT Terminals**	**integrated or expandable via EtherCAT Terminals**	**integrated or expandable via EtherCAT Terminals**
EtherCAT	CX2033-M112 2 x master CX2033-B110 slave	CX2043-M112 2 x master CX2043-B110 slave	CX2042-M112 2 x master CX2042-B110 slave	CX2062-M112 2 x master CX2062-B110 slave	CX2072-M112 2 x master CX2072-B110 slave
Lightbus	EL6720 master	EL6720 master	EL6720 master	EL6720 master	EL6720 master
PROFIBUS	CX2033-M310 or CX2500-M310 master CX2033-B310 or CX2500-B310 slave	CX2043-M310 or CX2500-M310 master CX2043-B310 or CX2500-B310 slave	CX2042-M310 or CX2500-M310 master CX2042-B310 or CX2500-B310 slave	CX2062-M310 or CX2500-M310 master CX2062-B310 or CX2500-B310 slave	CX2072-M310 or CX2500-M310 master CX2072-B310 or CX2500-B310 slave
CANopen	CX2033-M510 or CX2500-M510 master CX2033-B510 or CX2500-B510 slave	CX2043-M510 or CX2500-M510 master CX2043-B510 or CX2500-B510 slave	CX2042-M510 or CX2500-M510 master CX2042-B510 or CX2500-B510 slave	CX2062-M510 or CX2500-M510 master CX2062-B510 or CX2500-B510 slave	CX2072-M510 or CX2500-M510 master CX2072-B510 or CX2500-B510 slave
DeviceNet	EL6752, EL6754 master EL6752-, EL6754-0010 slave	EL6752, EL6754 master EL6752-, EL6754-0010 slave	EL6752, EL6754 master EL6752-, EL6754-0010 slave	EL6752, EL6754 master EL6752-, EL6754-0010 slave	EL6752, EL6754 master EL6752-, EL6754-0010 slave
PROFINET RT	TF6271 controller TF6270 device	TF6271 controller TF6270 device	TF6271 controller TF6270 device	TF6271 controller TF6270 device	TF6271 controller TF6270 device
EtherNet/IP	TF6281 scanner TF6280 adapter	TF6281 scanner TF6280 adapter	TF6281 scanner TF6280 adapter	TF6281 scanner TF6280 adapter	TF6281 scanner TF6280 adapter
UPS options	CX2100-0914	CX2100-0914	–	–	–

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The I/O Company

Beckhoff supplies a complete range of fieldbus components for all common I/O and bus systems. With Bus Terminals offering IP20 protection and Fieldbus Box modules in IP67, 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 optimized for EtherCAT. Invented by Beckhoff, this real-time Ethernet solution for industrial automation has global acceptance and is characterized by outstanding performance and simple handling. The result is high-precision machine and plant control and significantly increased production efficiency.

▶ **www.beckhoff.com/io**
▶ **www.beckhoff.com/ethercat**

EtherCAT Terminals 34
- IP20 EtherCAT I/O system
- real-time Ethernet performance retained into each terminal
- standard digital and analog signals
- complex automation functions directly in the terminal system
- highly precise measurement technology
- condition monitoring
- drive technology, also in a robust metal housing
- process technology
- electronic overcurrent protection
- gateways for subordinate fieldbus systems
- TwinSAFE PLC and safety I/Os

▶ **www.beckhoff.com/ethercat-terminal**

EtherCAT Box 44
- IP67 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**

EtherCAT plug-in modules 54
- very compact EtherCAT I/O system in IP20 for plug-in into a circuit board (signal distribution board)
- optimized for high-volume production
- application-specific connector interface
- Use of cable harnesses avoids wiring errors.
▶ **www.beckhoff.com/ ethercat-plug-in-modules**

Bus Terminals 58
- open, fieldbus-neutral IP20 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**

Fieldbus Box 66
- open, fieldbus-neutral IP67 I/O system
- 8 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 69
- PC cards for all common fieldbus systems
- Industrial Ethernet switches
- EtherCAT junctions and media converters in IP20 and IP67 ratings
- EtherCAT G/G10 components

▶ **www.beckhoff.com/ infrastructure-components**

Current transformers and power supplies 70
- for new installations and for retrofitting
- different designs and power classes
- high efficiency
- high reliability
- wide range input

▶ **www.beckhoff.com/sct**
▶ **www.beckhoff.com/ps**

- **comprehensive, modular I/O system for all signal types and fieldbus systems**
- **universal product range optimized for EtherCAT**
- **high investment security: mature I/O technology based on more than 25 years of success in the field**
- **Beckhoff is the I/O pioneer, developing the Bus Terminal concept and EtherCAT.**

System overview EtherCAT I/O
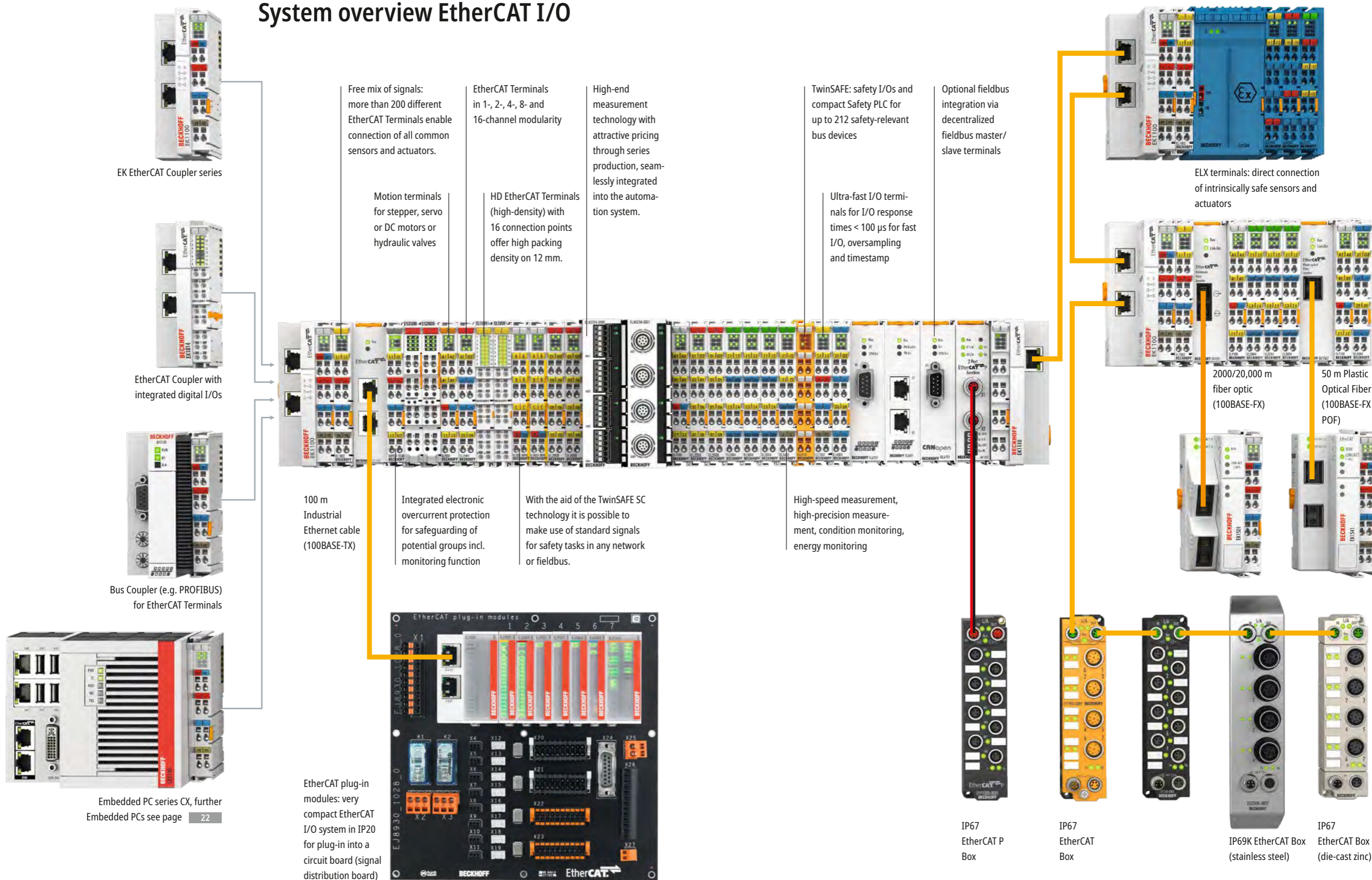
EK EtherCAT Coupler series

EtherCAT Coupler with integrated digital I/Os

Bus Coupler (e.g. PROFIBUS) for EtherCAT Terminals

Embedded PC series CX, further Embedded PCs see page 22

Free mix of signals: more than 200 different EtherCAT Terminals enable connection of all common sensors and actuators.

Motion terminals for stepper, servo or DC motors or hydraulic valves

EtherCAT Terminals in 1-, 2-, 4-, 8- and 16-channel modularity

HD EtherCAT Terminals (high-density) with 16 connection points offer high packing density on 12 mm.

High-end measurement technology with attractive pricing through series production, seamlessly integrated into the automation system.

TwinSAFE: safety I/Os and compact Safety PLC for up to 212 safety-relevant bus devices

Ultra-fast I/O terminals for I/O response times < 100 μs for fast I/O, oversampling and timestamp

Optional fieldbus integration via decentralized fieldbus master/ slave terminals

ELX terminals: direct connection of intrinsically safe sensors and actuators

100 m Industrial Ethernet cable (100BASE-TX)

Integrated electronic overcurrent protection for safeguarding of potential groups incl. monitoring function

With the aid of the TwinSAFE SC technology it is possible to make use of standard signals for safety tasks in any network or fieldbus.

High-speed measurement, high-precision measurement, condition monitoring, energy monitoring

2000/20,000 m fiber optic (100BASE-FX)

50 m Plastic Optical Fiber (100BASE-FX POF)

EtherCAT plug-in modules: very compact EtherCAT I/O system in IP20 for plug-in into a circuit board (signal distribution board)

IP67 EtherCAT P Box

IP67 EtherCAT Box

IP69K EtherCAT Box (stainless steel)

IP67 EtherCAT Box (die-cast zinc)

Fieldbus	EtherCAT Terminals	EtherCAT Box	EtherCAT plug-in modules	Bus Terminals		Fieldbus Box			Fieldbus Modules	Infrastructure components	Embedded PC	Drive Technology
	Couplers/gateways	Modules		Bus Couplers/ master terminals	PLC (IEC 61131-3)	Compact Box	Coupler Box	IO-Link box	For thermo-couples/mV	Interfaces	Master/slave	Servo drives
EtherCAT	EK1xxx, EKM1xxx	EPxxxx	EJ1xxx	BK1120			IL230x-B110		FM33xx-B110	FC90xx, FC11xx	CXxxxx	AX8000
	EL6695 bridge	ERxxxx		BK1150						CUxxxx	CXxxxx-M112	AX5000
		EQxxxx		BK1250						EP9xxx		AMI8100
EtherCAT P	EK13xx	EPPxxxx										
		EP1312										
LIGHTBUS	EL6720 master			BK2020								
PROFIBUS	EK3100			BK3xx0	BC3150	IPxxxx-B31x	IL230x-B31x		FM33xx-B310	FC31xx	CXxxxx	
	EL673x master/slave				BX3100						CX2500-M/B310	
INTERBUS	EL6740-0010 slave			BK40x0								
CANopen	EL675x master/slave			BK51xx	BC5150	IPxxxx-B51x	IL230x-B51x			FC51xx	CXxxxx	
					BX5100						CX2500-M/B510	
DeviceNet	EL675x master/slave			BK52x0	BX5200	IPxxxx-B52x	IL230x-B52x			FC52xx		
CC-Link	EL6711-0010 slave			BK7150								
Modbus	EK90x0			BK7350							CXxxxx	
sercos				BK75x0						FC75xx	CXxxxx	
RS485	EL1262-0010	EP600x	EJ2522	BK8000	BC8050						CXxxxx	
	EL6021, EL6022	EPP600x	EJ5112	KL6021	BX8000							
			EJ6002	KL6041								
RS232	EL6001, EL6002	EP600x	EJ6002	BK8100	BC8150						CXxxxx	
		EPP600x		KL6001	BX8000							
				KL6031								
Ethernet TCP/IP				BK9xx0	BC9xxx		IL230x-B90x			FC9xxx	CXxxxx	
	EL6601, EL6614 switch port	EP6601 switch port			BX9000					CU2xxx, CU2508 Ethernet Switch		
PROFINET	EK93x0	EP9300		BK9xx3			IL230x-B903			CU2508	CXxxxx	
	EL663x RT controller/device											
	EL663x IRT controller											
EtherNet/IP	EK95x0			BK9xx5			IL230x-B905			CU2508	CXxxxx	
	EL665x scanner/adapter											
AS-Interface	EL6201			KL62x1								
IO-Link	EL6224 master	EP622x, EPP622x master	EJ6224 master	KL6224 master					EPIxxxx, ERIxxxx devices			
KNX/EIB				KL6301								
MP-Bus				KL6771								
M-Bus				KL6781								
DALI/DSI	EL6821 master			KL6811								
DALI-2				KL6821								
IEEE 1588	EL6688											
DMX	EL6851											
EnOcean				KL658x								
SMI				KL6841								
BACnet	EL6861										CXxxxx	

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EK1xxx, BK1xx0 | EtherCAT Couplers

	EtherCAT				EtherCAT P	EtherCAT G	Ethernet/TSN
EtherCAT Couplers E-bus	EK1100 2 x RJ45	EK1101 ID switch	EK1101-0010 ID switch, Extended Distance	EK1101-0080 ID switch, Fast Hot Connect	EK1300 EtherCAT P	EK1400 ⓘ EtherCAT G	EK1000 Ethernet/TSN
	EK1100-0008 M8 connection	EK1101-0008 ID switch, M8 connection		EKM1101 ID switch and diagnostics			
	EK1501 ID switch, multi-mode fiber optic	EK1501-0010 ID switch, single-mode fiber optic	EK1501-0100 ID switch, multi-mode fiber optic to RJ45	EK1541 ID switch, POF			
EtherCAT Couplers E-bus with integrated digital I/Os	EK1814 4 inputs + 4 outputs	EK1818 8 inputs + 4 outputs	EK1828 4 inputs + 8 outputs	EK1828-0010 8 outputs			
	EK1914 4 standard inputs, 4 standard outputs, 2 safe inputs, 2 safe outputs	EK1960 TwinSAFE Logic, 20 safe inputs, 24 safe outputs					
EtherCAT Couplers K-bus	BK1120 Bus Coupler (Economy plus)	BK1150 Bus Coupler (Compact)	BK1250 E-bus to K-bus interface				
Extensions	EK1110 extension end terminal	EK1110-0008 extension end terminal, M8	EK1110-0043 EtherCAT EJ coupler, CX and EL terminal connection	EK1110-0044 EtherCAT EJ coupler, CX and EL terminal connection, EtherCAT junction	EK1310 EtherCAT P extension with feed-in		
Junctions	EK1122 2-port junction	EK1122-0008 2-port junction, M8	EK1121-0010 1-port junction, Extended Distance	EK1122-0080 2-port junction, Fast Hot Connect	EK1322 EtherCAT P junction with feed-in		
	EK1521 multi-mode fiber-optic junction	EK1521-0010 single-mode fiber-optic junction		EK1561 POF junction			

EKxxxx | Bus Couplers

Fieldbus	Standard		
IoT	EK9160 IoT (MQTT, OPC UA)		
EtherNet/IP	EK9500 100 Mbit/s	EK9520 100/1000 Mbit/s	ⓘ
Modbus	EK9000 100 Mbit/s	EK9020 100/1000 Mbit/s	ⓘ
PROFIBUS	EK3100 12 Mbaud		
PROFINET	EK9300 100 Mbit/s	EK9320 100/1000 Mbit/s	

ⓘ **Product announcement** — for availability status see www.beckhoff.com

EL1xxx | EtherCAT Terminals, digital input

Signal	2-channel	4-channel		8-channel	16-channel		32-channel
5 V DC	EL1252-0050 T_{ON}/T_{OFF} 1 μs, timestamp	EL1124 filter 0.05 μs					
	EL1262-0010 T_{ON}/T_{OFF} 0.1 μs, oversampling						
	EL1262-0050 T_{ON}/T_{OFF} 1 μs, oversampling						
12 V DC		EL1144 filter 10 μs					
24 V DC, filter 3.0 ms	EL1002 type 3	EL1004 type 3	EL1004-0020 functional isolation 2500 V	EL1008 type 3, 1-wire	EL1809 type 3		
		EL1104 type 3, with sensor supply	EL1804 type 3, 8 x 24 V, 4 x 0 V	EL1808 type 3, 8 x 24 V DC, 2-wire	EL1409 1-wire	EL1429 positive/ground switching	
		EL1084 ground switching	EL1024 type 2	EL1088 ground switching	EL1852 type 3, 8 inputs, 8 outputs, I_{max} = 0.5 A, flat-ribbon cable	EL1859 type 3, 8 inputs, 8 outputs, I_{max} = 0.5 A	
					EL1862 type 3, flat-ribbon cable	EL1862-0010 flat-ribbon cable, ground switching	
					EL1489 ground switching	EL1889 ground switching	
24 V DC, adjustable filter							EL1417 1-wire
24 V DC, filter 10 μs	EL1012 type 3	EL1014 type 3	EL1034 type 1, potential-free inputs	EL1018 type 3	EL1819 type 3		
	EL1252-0010 type 3, timestamp	EL1114 type 3, with sensor supply	EL1814 type 3, 8 x 24 V, 4 x 0 V, 3-wire		EL1872 type 3, flat-ribbon cable	EL1872-0010 flat-ribbon cable, ground switching	
			EL1094 ground switching	EL1098 ground switching	EL1899 ground switching		
24 V DC, XFC: T_{ON}/T_{OFF} 1 μs	EL1202 type 3						
	EL1252 type 3, timestamp	EL1254 type 3, timestamp		EL1258 multi-timestamping	EL1259 8 inputs, 8 outputs, multi-timestamping, I_{max} = 0.5 A		
	EL1262 type 3, oversampling			EL1258-0010 multi-timestamping, ground switching			
24 V DC, counter	EL1502 type 1, 100 kHz, 32 bit						
	EL1512 type 1, 1 kHz, 32 bit						
24 V DC, safe input		EL1904 TwinSAFE, 4 safe inputs	EL2911 TwinSAFE Logic, 4 safe inputs, 1 safe output	EL1918 TwinSAFE Logic, 8 safe inputs	EL1957 TwinSAFE Logic, 8 safe inputs, 4 safe outputs		
48 V DC		EL1134 type 1					

The standard EtherCAT Terminals (ELxxxx) can be optionally ordered as ESxxxx with pluggable wiring level.

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EL1xxx | EtherCAT Terminals, digital input

Signal	2-channel	4-channel	8-channel	16-channel	32-channel
120 V AC/DC	EL1712 power contacts				
120 V DC	EL1712-0020 power contacts				
120...230 V AC	EL1702 power contacts				
	EL1722 no power contacts				
220 V DC	EL1702-0020 power contacts				
Thermistor	EL1382				
NAMUR	EL1052	EL1054			
Ex i, NAMUR	ELX1052	ELX1054	ELX1058		

EL2xxx | EtherCAT Terminals, digital output

Signal	1-channel	2-channel	4-channel	8-channel	16-channel	32-channel
5 V DC			EL2124 Imax = ±20 mA			
12 V DC			EL2024-0010 Imax = 2.0 A			
24 V DC, Imax = 0.5 A		EL2002 4-wire	EL2004 2-wire; EL2014 with diagnostics; EL2878-0005 flat-ribbon cable, with diagnostics; EL2084 ground switching	EL2008 1-wire; EL2068 with channel diagnostics; EL2872 flat-ribbon cable; EL2808 8 x 0 V; EL2088 ground switching	EL2809 Imax = 0.5 A / EM2042 D-sub connection; EL2409 1-wire; EL2872-0010 flat-ribbon cable, ground switching; EL1852 type 3, 8 inputs, 8 outputs, Imax = 0.5 A, flat-ribbon cable / EL1859 type 3, 8 inputs, 8 outputs, Imax = 0.5 A; EL2819 with diagnostics / EL2869 with channel diagnostics; EL2889 ground switching / EL2489 ground switching	EL2407 1-wire
24 V DC, Imax = 2.0 A		EL2022 4-wire; EL2032 with diagnostics	EL2024 2-wire; EL2034 with diagnostics; EL2044 with extended diagnostics	EL2828; EL2838 with channel diagnostics		
24 V DC, Imax = 4.0 A/8.0 A		EL2042 2 x 4.0 A/1 x 8.0 A				
24 V DC, XFC: TON/TOFF 1 µs		EL2202 push-pull output; EL2202-0100 push-pull outputs, DC preset / EL2212 overexcitation, multi-timestamping; EL2252 timestamp / EL2262 oversampling		EL2258 multi-timestamping	EL1259 8 inputs, 8 outputs, multi-timestamping, Imax = 0.5 A	
Ex i, 24 V DC		ELX2002 45 mA / ELX2792 Imax = 0.5 A AC/1 A DC, change-over contact		ELX2008 30 mA		
24 V DC, safe output	EL2911 TwinSAFE Logic, 4 safe inputs, 1 safe output	EL2912 TwinSAFE Logic, 2 safe outputs	EL2904 TwinSAFE, 4 safe outputs			
30 V AC/48 V DC solid-state relay, Imax = 2.0 A			EL2784; EL2794 potential-free	EL2788; EL2798 potential-free		
Relay (up to 250 V AC)		EL2602 Imax = 5.0 A, make contact, power contacts / EL2622 Imax = 5.0 A, make contact, no power contacts; EL2602-0010 Imax = 5.0 A, make contact, power contacts, contact-protecting switching / EL2622-0010 Imax = 5.0 A, make contact, no power contacts, contact-protecting switching; EL2612 Imax = 2.0 A, change-over, no power contacts / EL2642 Imax = 1.0 A, change-over, no power contacts, reed relays; EL2652 Imax = 1.0 A, change-over, no power contacts	EL2624 Imax = 2.0 A, make contact; EL2634 Imax = 4.0 A, make contact, 250 V AC/30 V DC, no power contacts			
Triac (12...230 V AC)	EL2712 Imax = 0.5 A, power contacts	EL2722 Imax = 1.0 A, mutually locked outputs				
PWM		EL2502 push-pull output, separate frequency can be set for each channel / EL2502-0005 plastic optical fiber, separate frequency can be set for each channel; EL2502-0010 push-pull output, separate frequency can be set for each channel, timestamp; EL2535 24 V DC, Imax = ±50 mA, ±1 A, ±2 A / EL2535-0005 24 V DC, Imax = ±5 A				
Frequency output	EL2521 1-channel AB, 0...500 kHz, RS422	EL2522 2-channel AB, 1-channel ABC, 0...4 MHz				
LED control	EL2595 48 V DC, 300...700 mA, current control; EL2596 24 V DC, 3 A, pulse > 25 µs, current control; EL2596-0010 48 V DC, 3 A, pulse > 25 µs, current control		EL2564 5...48 V DC, 4 A, RGBW, common anode; EL2564-0010 8...48 V DC, 3 A, RGBW, common cathode; EL2574 pixel LED, 2048 individually addressable LEDs			
Multiplexer		ELM2742-0000 2 x multiplexer, 1 x 4 solid-state relays; ELM2642-0000 2 x multiplexer, 1 x 4 reed relays	ELM2744-0000 4 x multiplexer, 1 x 4 solid-state relays; ELM2644-0000 4 x multiplexer, 1 x 4 reed relays			

The standard EtherCAT Terminals (ELxxxx) can be optionally ordered as ESxxxx with pluggable wiring level.

EL3xxx | EtherCAT Terminals, analog input

Signal	1-channel		2-/3-channel		4-channel		5-/6-/8-channel
0...10 V, standard signal	EL3061 12 bit	EL3161 16 bit	EL3062 12 bit	EL3162 16 bit	EL3064 12 bit	EL3164 16 bit	EL3068 12 bit
0...±10 V, standard signal	EL3001 single-ended, 12 bit		EL3002 single-ended, 12 bit		EL3004 single-ended, 12 bit		EL3008 single-ended, 12 bit
	EL3101 differential input, 16 bit		EL3102 differential input, 16 bit	EL3602 differential input, 24 bit	EL3104 differential input, 16 bit		
			EL3702 differential input, 16 bit, oversampling				
0...±75 mV			EL3602-0010 differential input, 24 bit				
0...±150 mV			EL3702-0015 differential input, 16 bit, oversampling				
0...±200 mV			EL3602-0002 differential input, 24 bit				
0...30 V			EL3062-0030 12 bit				
0...±30 V			ELM3002-0000 24 bit, 20 ksps, push-in		ELM3004-0000 24 bit, 10 ksps, push-in		
0...±1200 V			ELM3002-0205 24 bit, 50 ksps, galv. isolated, 4 mm, 2 x ±1200...60 mV				
0...20 mA, standard signal	EL3041 single-ended, 12 bit	EL3141 single-ended, 16 bit	ELM3002-0305 24 bit, 50 ksps, galv. isolated, 4 mm, 2 x ±5 V...60 mV	ELM3002-0405 24 bit, 50 ksps, galv. isolated, 4 mm, 1 x ±1200 V...60 mV, 1 x 5 V...60 mV	EL3044 single-ended, 12 bit	EL3144 single-ended, 16 bit	EL3048 single-ended, 12 bit
	EL3011 differential input, 12 bit	EL3111 differential input, 16 bit	EL3042 single-ended, 12 bit	EL3142 single-ended, 16 bit	EL3014 differential input, 12 bit	EL3114 differential input, 16 bit	
			EL3012 differential input, 12 bit	EL3142-0010 single-ended, ±10 mA, 16 bit			
			EL3112 differential input, 16 bit	EL3612 differential input, 24 bit			
			EL3742 differential input, 16 bit, oversampling	EL3182 single-ended, 16 bit, HART	EL3184 single-ended, 16 bit, HART		
4...20 mA, standard signal	EL3051 single-ended, 12 bit	EL3151 single-ended, 16 bit	EL3052 single-ended, 12 bit	EL3152 single-ended, 16 bit	EL3054 single-ended, 12 bit	EL3154 single-ended, 16 bit	EL3058 single-ended, 12 bit
	EL3021 differential input, 12 bit	EL3121 differential input, 16 bit	EL3022 differential input, 12 bit	EL3122 differential input, 16 bit	EL3024 differential input, 12 bit	EL3124 differential input, 16 bit	
			EL3621-0020 differential input, 24 bit		EL3124-0090 16 bit, TwinSAFE SC		
0...±20 mA			EL3112-0011 differential input, 16 bit	ELM3102-0000 24 bit, 20 ksps, NAMUR NE43, push-in	ELM3104-0000 24 bit, 10 ksps, NAMUR NE43, push-in		
0...±10 V/ ±20 mA, standard signal			EL3072 12 bit, NAMUR NE43		EL3074 12 bit, NAMUR NE43		EL3078 16 bit, NAMUR NE43
			EL3172 16 bit, NAMUR NE43		EL3174 16 bit, NAMUR NE43	EL3174-0002 16 bit, electrically isolated, NAMUR NE43	

The standard EtherCAT Terminals (ELxxxx) can be optionally ordered as ESxxxx with pluggable wiring level.

EL3xxx | EtherCAT Terminals, analog input

Signal	1-channel		2-/3-channel		4-channel		5-/6-/8-channel
0...±10 V/ ±20 mA, standard signal					EL3174-0090 16 bit, NAMUR NE43, TwinSAFE SC		ELM3146-0000 24 bit, 1 ksps, push-in
			ELM3142-0000 24 bit, 1 ksps, push-in		ELM3144-0000 24 bit, 1 ksps, push-in		ELM3148-0000 24 bit, 1 ksps, push-in
0...±3 V/ 0...±20 mA					EL3174-0032 16 bit, electrically isolated, NAMUR NE43, ±3 V		
±3 V							EL3008-0003 [i] 16 bit, cascaded channels
0...±60 V					EL3174-0042 16 bit, electrically isolated, NAMUR NE43		
0...±60 V/ 0...±20 mA			ELM3102-0100 24 bit, 20 ksps, push-in, galv. isolated				
Multi-function	EL3751 24 bit, 10 ksps	EL3751-0004 24 bit, 10 ksps	ELM3702-0000 24 bit, 10 ksps, push-in	ELM3702-0101 24 bit, 10 ksps, galvanically isolated, LEMO	ELM3704-0000 24 bit, 10 ksps, push-in	ELM3704-0001 24 bit, 10 ksps, LEMO	
Temperature measurement, resistance thermometer RTD	EL3201 16 bit	EL3201-0010 16 bit, high-precision	EL3202 16 bit	EL3202-0010 16 bit, high-precision	EL3204 2-wire, 16 bit		EL3208 16 bit
					EL3204-0162 2-wire, 16 bit, 2 x RTD, 2 x ±10 V	EL3204-0200 16 bit, universal input for RTD	EL3208-0010 Pt1000, Ni1000, NTC 1.8...100 k, potentiom. 1, 5, 10 kΩ
					EL3214 3-wire, 16 bit	EL3214-0090 16 bit, TwinSAFE SC	EL3218 3-wire, 16 bit
					ELM3244-0000 [i] 24 bit, high-precision, 1 ksps, push-in	ELM3246-0000 [i] 24 bit, high-precision, 1 ksps, push-in	
Temperature measurement, thermocouple, mV	EL3311 16 bit		EL3312 16 bit		EL3314 16 bit	EL3314-0090 16 bit, TwinSAFE SC	EL3318 16 bit
					EL3314-0002 24 bit, electrically isolated	EL3314-0092 24 bit, galvanically isolated, TwinSAFE SC	
					EL3314-0010 24 bit	ELM3344-0000 24 bit, 1 ksps, push-in	ELM3348-0000 24 bit, 1 ksps, push-in
					ELM3704-1001 24 bit, 10 ksps, push-in, TC adjustment	ELM3344-0003 24 bit, 1 ksps, push-in, Mini-TC universal	ELM3348-0003 24 bit, 1 ksps, push-in, Mini-TC universal
Measurement bridge, strain gauge	EL3351 16 bit	EL3356 self-calibration	ELM3502-0000 24 bit, 20 ksps, push-in		ELM3504-0000 24 bit, 10 ksps, push-in		
	EL3356-0010 24 bit, 10 ksps	EL3356-0090 TwinSAFE SC	ELM3542-0000 [i] 24 bit, 1 ksps, push-in		ELM3544-0000 [i] 24 bit, 1 ksps, push-in		
	EL3361 [i] 24 bit, sensor supply 5/10 V DC, 1 x DI, 1 x DO	EL3361-0100 [i] 24 bit, sensor supply 10 V DC	EL3362 [i] 24 bit, sensor supply 5/10 V DC, 1 x DI, 1 x DO	EL3362-0100 [i] 24 bit, sensor supply 10 V DC			
Measurement technology	EL3681 digital multimeter terminal, voltage/current, 18 bit		EL3692 resistance measurement, 100 mΩ...10 MΩ				EL3255 potentiometer measurement, 5-channel
Acceleration measurement, position, vibration, condition monitoring, IEPE			EL3632 16 bit, 50 ksps	ELM3602-0000 24 bit, 50 ksps, push-in	ELM3604-0000 24 bit, 20 ksps, push-in		
			ELM3602-0002 24 bit, 50 ksps, BNC		ELM3604-0002 24 bit, 20 ksps, BNC		

We reserve the right to make technical changes.

[i] Product announcement for availability status see www.beckhoff.com

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EL3xxx | EtherCAT Terminals, analog input

Signal	1-channel	2-/3-channel		4-channel	5-/6-/8-channel
Pressure measuring	EM3701 differential pressure, ±100 hPa	EM3702 relative pressure, 7500 hPa	EM3712 relative pressure, ±1000 hPa		
Power measurement, ≤ 500 V		EL3403 500 V AC, 1 A	EL3423 480 V AC/DC, 1 A, economy		
			EL3443 480 V AC/DC, 1 A, extended functionalities		
		EL3443-0010 480 V AC/DC, 5 A, extended functionalities	EL3443-0011 480 V AC/DC, 100 mA, extended functionalities	EL3444 [i] distributed power measurement, galv. isolated	EL3446 distributed power measurement
		EL3443-0013 480 V AC/DC, 333 mV, extended functionalities			EL3446-0011 100 mA, distributed power measurement
Power measurement, > 500 V		EL3453 690 V AC, 5 A, extended functionalities	EL3453-0100 130 V AC, 5 A, extended functionalities		
Mains monitor, ±480 V		EL3483 480 V AC/DC	EL3483-0060 480 V AC/DC, with voltage measurement		
Power monitoring, ≤ 500 V		EL3773 500 V, 1 A AC/DC, 10 ksps			
Power monitoring, > 500 V		EL3783 690 V AC, 5 A AC, 20 ksps	EL3783-0100 130 V AC, 5 A AC, 20 ksps		
Ex i, 0/4...20 mA, standard signal	ELX3181 4...20 mA, single-ended, 16 bit, HART	ELX3152 0/4...20 mA, single-ended, 16 bit	ELX3152-0090 0/4...20 mA, single-ended, 16 bit, TwinSAFE SC	ELX3184 4...20 mA, single-ended, 16 bit, HART	ELX3158 4...20 mA, single-ended, 16 bit
Ex i, temperature measurement, resistance thermometer RTD		ELX3202 RTD, 2-, 3- and 4-wire, 16 bit	ELX3202-0090 RTD, 2-, 3- and 4-wire, 16 bit, TwinSAFE SC	ELX3204 RTD, 2-wire, 16 bit	ELX3204-0090 RTD, 2-wire, 16 bit, TwinSAFE SC
Ex i, temperature measurement, thermocouple, mV		ELX3312 2-wire, 16 bit	ELX3312-0090 2-wire, 16 bit, TwinSAFE SC	ELX3314 2-wire, 16 bit	ELX3314-0090 2-wire, 16 bit, TwinSAFE SC
Ex i, measurement technology	ELX3351 strain gauge, 24 bit	ELX3351-0090 strain gauge, 24 bit, TwinSAFE SC	ELX3252 potentiometer measurement, 16 bit		

EL4xxx | EtherCAT Terminals, analog output

Signal	1-channel	2-channel		4-channel		8-channel
0...10 V	EL4001 12 bit	EL4002 12 bit	EL4102 16 bit	EL4004 12 bit	EL4104 16 bit	EL4008 12 bit
±10 V	EL4031 12 bit	EL4032 12 bit	EL4132 16 bit	EL4034 12 bit	EL4134 16 bit	EL4038 12 bit
		EL4732 16 bit, oversampling				
0...20 mA	EL4011 12 bit	EL4012 12 bit	EL4112 16 bit	EL4014 12 bit	EL4114 16 bit	EL4018 12 bit
		EL4712 16 bit, oversampling				
4...20 mA	EL4021 12 bit	EL4022 12 bit		EL4024 12 bit		EL4028 12 bit
		EL4122 16 bit		EL4124 16 bit		
±10 V/±20 mA		EL4072 16 bit [i]		EL4074 16 bit [i]	EL4374 16 bit,	EL4078 16 bit [i]
		EL4172 16 bit, 10 ksps		EL4174 16 bit, 10 ksps	1 ksps, 2 x input, 2 x output	
Ex i, 0/4...20 mA	ELX4181 single-ended, 16 bit, HART			ELX4154 single-ended, 16 bit		
±10 mA		EL4112-0010 16 bit				

The standard EtherCAT Terminals (ELxxxx) can be optionally ordered as ESxxxx with pluggable wiring level.

EL5xxx | EtherCAT Terminals, position measurement

Signal	1-channel			2-channel		
Absolute position measurement	EL5001 SSI encoder interface	EL5001-0011 SSI monitor interface	EL5001-0090 SSI encoder interface, TwinSAFE SC	EL5002 SSI encoder interface	EL5032 EnDat® 2.2 interface	EL5032-0090 EnDat® 2.2 interface, TwinSAFE SC
		EL5031-0011 EnDat® 2.2 interface, oversampling		EL5042 BiSS® C interface	EL5072 inductive displacement sensor interface, LVDT	
Incremental position measurement	EL5021 SinCos encoder interface, 1 V_{PP}	EL5021-0090 SinCos encoder interface, 1 V_{PP}, TwinSAFE SC				
	EL5101 incremental encoder interface, RS422, TTL, 1 MHz	EL5101-0010 incremental encoder interface, RS422, 5 MHz	EL5101-0011 incremental encoder interface, RS422, 5 MHz, oversampling	EL5102 incremental encoder interface, RS422, TTL, open collector, 5 MHz	EL5112 incremental encoder interface, RS422, TTL, open collector, 5 MHz, 2 x AB/1 x ABC	
	EL5101-0090 incremental encoder interface, RS422, TTL, 1 MHz, TwinSAFE SC	EL5131 incremental encoder interface, RS422, TTL, 2 x 24 V DC push-pull outputs		EL5122 incremental encoder interface, TTL, open collector, 1 MHz, 2 x AB		
	EL5151 incremental encoder interface, 24 V HTL, 100 kHz	EL5151-0021 incremental encoder interface, 24 V HTL, 100 kHz, 1 x 24 V DC output	EL5151-0090 incremental encoder interface, 24 V HTL, 100 kHz, TwinSAFE SC	EL5152 incremental encoder interface, 24 V HTL, 100 kHz	EL5162 [i] incremental encoder interface, 24 V HTL, 100 kHz, 2 x ABC	
Ex i, incremental position measurement	ELX5151 incremental encoder interface, NAMUR	ELX5151-0090 incremental encoder interface, NAMUR, TwinSAFE SC				

EL6xxx | EtherCAT Terminals, communication

Signal	1-channel			2-channel		4-channel
System	EL6070 license key terminal	EL6071 [i] license key terminal	EL6072 [i] license key terminal, RTC			
	EL6080 memory terminal 128 kbyte	EL6090 display terminal				
Subsystem	EL6821 DALI-2 master and power supply terminal					
Serial	EL6001 RS232, 115.2 kbaud	EL6021 RS422/RS485, 115.2 kbaud		EL6002 RS232, 115.2 kbaud, D-sub	EL6022 RS422/RS485, 115.2 kbaud, D-sub	
EtherCAT/ Ethernet	EL6601 switch port	EL6688 IEEE 1588 master/slave	EL6689 [i] synchronization via GNSS	EL6692 EtherCAT bridge	EL6695 EtherCAT bridge, high performance	EL6614 switch port
Master/slave, slave function -0010	EL6201 AS-Interface, master	EL6631 PROFINET RT, controller	EL6631-0010 PROFINET RT, device	EL6632 PROFINET IRT, controller	EL6633 PROFINET RT, controller/i-device	EL6184 [i] HART, secondary master
	EL6711-0010 CC-Link, slave	EL6720 Lightbus, master	EL6731 PROFIBUS DP, master/slave	EL6633-0010 [i] PROFINET RT, device	EL6634 PROFINET IRT, controller	EL6224 IO-Link, master
	EL6731-0010 PROFIBUS, slave	EL6733 [i] PROFIBUS, master/slave	EL6733-0010 [i] PROFIBUS, slave	EL6652 EtherNet/IP, scanner	EL6652-0010 EtherNet/IP, adapter	EL6224-0090 IO-Link, TwinSAFE SC, master
	EL6740-0010 Interbus, slave	EL6751 CANopen, master/slave	EL6751-0010 CANopen, slave	EL6653 EtherNet/IP, scanner	EL6653-0010 [i] EtherNet/IP, adapter	
	EL6753 [i] CANopen, master/slave	EL6753-0010 [i] CANopen, slave	EL6752 DeviceNet, master			
	EL6752-0010 DeviceNet, slave	EL6754 DeviceNet, master	EL6754-0010 [i] DeviceNet, slave			
	EL6761 [i] ISO 15118 powerline, charge controller	EL6851 DMX, master/slave	EL6861 BACnet, MS/TP, RS485, master			

We reserve the right to make technical changes.

EL6xxx | EtherCAT Terminals, communication

Signal	1-channel			2-channel	4-channel
Safety	EL6900 TwinSAFE Logic	EL6910 TwinSAFE Logic, PROFIsafe master and slave support	EL6930 TwinSAFE Logic, PROFIsafe slave support		
Ex i				ELX6233 ⓘ communication interface, Ethernet-APL	

EL/ELM7xxx | EtherCAT Terminals, compact drive technology

Motor type	< 3 A	3…5 A	> 5 A			16 A
Servomotor			ELM7211-0010 I_{rms} = 4.5 A, 48 V DC			
			ELM7211-9016 I_{rms} = 4.5 A, 48 V DC, TwinSAFE Logic	ELM7211-9018 I_{rms} = 4.5 A, 48 V DC, Safe Motion, TwinSAFE Logic		
			ELM7212-0010 I_{rms} = 2 x 4.5 A, 48 V DC		ELM7222-0010 I_{rms} = 2 x 8.0 A, 48 V DC	
			ELM7212-9016 I_{rms} = 2 x 4.5 A, 48 V DC, TwinSAFE Logic	ELM7212-9018 I_{rms} = 2 x 4.5 A, 48 V DC, Safe Motion, TwinSAFE Logic	ELM7222-9016 I_{rms} = 2 x 8.0 A, 48 V DC, TwinSAFE Logic	ELM7222-9018 I_{rms} = 2 x 8.0 A, 48 V DC, Safe Motion, TwinSAFE Logic
	EL7201-0010 I_{rms} = 2.8 A, 48 V DC, OCT	EL7211-0010 I_{rms} = 4.5 A, 48 V DC, OCT	ELM7221-0010 I_{rms} = 8 A, 48 V DC		ELM7231-0010 I_{rms} = 16 A, 48 V DC	
	EL7201 I_{rms} = 2.8 A, 48 V DC, resolver	EL7211 I_{rms} = 4.5 A, 48 V DC, resolver	ELM7221-9016 I_{rms} = 8 A, 48 V DC, TwinSAFE Logic	ELM7221-9018 I_{rms} = 8 A, 48 V DC, Safe Motion, TwinSAFE Logic	ELM7231-9016 I_{rms} = 16 A, 48 V DC, TwinSAFE Logic	ELM7231-9018 I_{rms} = 16 A, 48 V DC, Safe Motion, TwinSAFE Logic
	EL7201-9014 I_{rms} = 2.8 A, 48 V DC, OCT, STO	EL7211-9014 I_{rms} = 4.5 A, 48 V DC, OCT, STO	EL7221-9014 I_{rms} = 7…8 A with ZB8610, 48 V DC, OCT, STO			
Stepper motor	EL7031 I_{max} = 1.5 A, 24 V DC	EL7041 I_{max} = 5.0 A, 48 V DC, incr. enc.				
	EL7031-0030 I_{max} = 2.8 A, 24 V DC	EL7041-0052 I_{max} = 5.0 A, 48 V DC				
	EL7037 I_{max} = 1.5 A, 24 V DC, incr. enc., vector control	EL7047 I_{max} = 5.0 A, 48 V DC, incr. enc., vector control				
		EL7047-9014 ⓘ I_{max} = 5.0 A, 48 V DC, incr. enc., vector control, STO				
		EL7062 I_{max} = 3 A, 5 V DC, incr. enc.				
DC motor output stage	EL7332 I_{max} = 1.0 A, 24 V DC	EL7342 I_{max} = 3.5 A, 48 V DC, incr. enc.				
BLDC motor		EL7411 I_{rms} = 4.5 A, 48 V DC				
		EL7411-9014 ⓘ I_{rms} = 4.5 A, 48 V DC, STO				
4-axis interface	EM7004 4 incr. enc., 32 digital I/Os 24 V DC, 4 analog outputs ±10 V					

EtherCAT Terminals

The standard EtherCAT Terminals (ELxxxx) can be optionally ordered as ESxxxx with pluggable wiring level.

EL8xxx | EtherCAT Terminals, multi-functional

Multi-functional	EL8601-8411 8 x digital input, 1 x counter, 4 x digital output, 2 x PWM, 1 x analog input, 1 x analog output, 1 x encoder

EL9xxx | EtherCAT Terminals, system

Signal	System				
Components for system bus	EL9011 bus end cover	EL9012 bus end cover for power and E-bus contacts	ELM9012 bus end cover for ELMxxxx, black	ELX9012 bus end cover for ELX, blue	EL9930 PROFIsafe, segment end terminal
	EL9195 shield terminal	EL9070 shield terminal	EL9080 isolation terminal		
Potential distribution	EL9180 2 clamping units per power contact	EL9181 2 x 8 terminal points	EL9182 8 x 2 terminal points	EL9183 1 x 16 terminal points	EL9184 8 x 24 V DC, 8 x 0 V DC
	EL9185 4 clamping units at 2 power contacts	EL9185-0010 4 clamping units at 2 power contacts, potential supply function	EL9186 8 x 24 V DC	EL9187 8 x 0 V DC	EL9188 16 x 24 V DC
	EL9189 16 x 0 V DC				
Potential supply, 24 V DC	EL9100 24 V DC	EL9110 diagnostics	EL9200 with fuse	EL9210 diagnostics, with fuse	EL9520 AS-Interface potential supply with filter
Potential supply, 120… 230 V AC	EL9150 with LED	EL9160 diagnostics	EL9190 any voltage up to 230 V		
Overcurrent protection, 24 V DC	EL9221-xxxx 1-channel	EL9222-xxxx 2-channel	EL9227-xxxx 2-channel, extended functionalities		
Power supply	EL9410 input 24 V DC, output 5 V DC/2 A	ELM9410 input 24 V DC, output 5 V DC/2 A	ELX9410 power supply terminal for E-bus refresh, 1 A	EL9501 ⓘ input 24 V DC, output 0…20 V/0…2 A	EL9505 input 24 V DC, output 5 V DC/0.5 A
	EL9508 input 24 V DC, output 8 V DC/0.5 A	EL9510 input 24 V DC, output 10 V DC/0.5 A	EL9512 input 24 V DC, output 12 V DC/0.5 A	EL9515 input 24 V DC, output 15 V DC/0.5 A	EL9560 input 24 V DC, output 24 V DC/0.1 A with electrical isolation
	EL9561 ⓘ input 24 V DC, output 0…20 V/0…2 A with electrical isolation	EL9562 input 24 V DC, output 2 x 24 V DC/0.2 A with electrical isolation	EL9562-0015 input 24 V DC, output 2 x 15 V DC/0.3 A with electrical isolation	ELX9560 power supply, 24 V DC, electrically isolated	
Filtering and smoothing	EL9540 surge filter terminal for field supply	EL9540-0010 surge filter terminal for field supply, onshore and offshore areas	EL9550 surge filter terminal for system/field supply	EL9550-0010 surge filter terminal for system/field supply, onshore and offshore areas	EL9550-0012 surge filter terminal for system/field supply with up to 10 A
	EL9570 buffer capacitor terminal, 500 µF, 48 V DC	EL9576 brake chopper terminal, up to 72 V DC, 155 µF			

EtherCAT Terminals

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EtherCAT Box

EPxxxx   ERxxxx   EQxxxx

EP1xxx | EtherCAT Box, digital input

Signal	8-channel		16-channel	
24 V DC, filter parameterizable 0...100 ms				EP1839-0022 8 x M12, with diagnostics
				EP1839-0042 8 x M12, with diagnostics, EtherCAT M12
24 V DC, filter 3.0 ms	EP1008-0001[1] 8 x M8	EP1008-0002[1, 2] 4 x M12	EP1809-0021[1] 16 x M8	EP1809-0022[1, 2] 8 x M12
		EP1008-0022[1] 8 x M12		EP1809-0042 8 x M12, EtherCAT M12
24 V DC, filter 10 µs	EP1018-0001[1] 8 x M8	EP1018-0002[1] 4 x M12	EP1819-0021[1] 16 x M8	EP1819-0022[1] 8 x M12
			EP1819-0005 16 x M8, 4-pin	
			EP1816-0003 connector with spring-loaded system	EP1816-0703 connector with spring-loaded system, ID switch
			EP1816-0008 D-sub, 25-pin	EP1816-3008 D-sub, 25-pin, acceleration sensor
			EP1816-1008 D-sub, 25-pin, changed pin assignment	EP1859-0042 8 x M12, 8 inputs + 8 outputs, I_{max} = 0.5 A, EtherCAT M12, 3.0 ms
24 V DC, ground switching	EP1098-0001[1] 8 x M8			
24 V DC, timestamp	EP1258-0001[1] 8 x M8, 2-channel timestamp	EP1258-0002[1] 4 x M12, 2-channel timestamp		
		EP1258-0502[1] ⓘ 4 x M12, 8-channel multi-timestamping		
24 V DC, counter		EP1518-0002[1] 4 x M12, multi-function input		
24 V DC, safe input	EP1908-0002 TwinSAFE, 8 safe inputs	EP1918-0002 TwinSAFE Logic, 8 safe inputs		
Ex i, NAMUR	EPX1058-0022 8 x M12			

EP2xxx | EtherCAT Box, digital output

Signal	4-channel	8-channel		16-channel	24-channel
24 V DC, I_{max} = 0.5 A		EP2008-0001[1] 8 x M8	EP2008-0002[1, 2] 4 x M12		EP2839-0022 ⓘ 8 x M12, with diagnostics
					EP2839-0042 8 x M12, with diagnostics, EtherCAT M12
			EP2008-0022[1] 8 x M12	EP2809-0021[1] 16 x M8	EP2809-0022[1, 2] 8 x M12
				EP2816-0003 connector with spring-loaded system	EP2816-0004 M16, 19-pin
				EP2816-0008 D-sub, 25-pin	EP2816-0010 2 x D-sub, 9-pin EP2817-0008 D-sub, 25-pin
24 V DC, I_{max} = 0.5 A, $\sum$ 16 A					EP2809-0042 8 x M12, EtherCAT M12
24 V DC, I_{max} = 2.0 A		EP2028-0001[1] 8 x M8	EP2028-0002[1] 4 x M12		
		EP2038-0001[1] 8 x M8, with diagnostics	EP2038-0002[1] 4 x M12, with diagnostics		
24 V DC, I_{max} > 2.0 A, $\sum$ 16 A			EP2038-0042 8 x M12, with diagnostics, EtherCAT M12		
			EP2028-0032 8 x M12		
			ER2028-1032 8 x M12		
24 V DC, safe output		EP2918-0032 TwinSAFE Logic, 8 safe outputs			
25 V AC/ 30 V DC	EP2624-0002[1] relay output, 4 x M12				
PWM	EP2534-0002 ⓘ PWM output, 2 A, 4 x M12, current-controlled				

EPxxxx: industrial housing in IP67, [1]also as ERxxxx: zinc die-cast housing in IP67, [2]also as EQxxxx: stainless steel housing in IP69K

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EP23xx | EtherCAT Box, digital combi

Signal	8-channel		12-channel	16-channel		
24 V DC, inputs + outputs	EP2308-0001[1] 8 x M8, 4 inputs + 4 outputs, I_{max} = 0.5 A, 3.0 ms	EP2308-0002[1] 4 x M12, 4 inputs + 4 outputs, I_{max} = 0.5 A, 3.0 ms		EP1859-0042 8 x M12, 8 inputs + 8 outputs, I_{max} = 0.5 A, EtherCAT M12, 3.0 ms		
	EP2318-0001[1] 8 x M8, 4 inputs + 4 outputs, I_{max} = 0.5 A, 10 µs	EP2318-0002[1] 4 x M12, 4 inputs + 4 outputs, I_{max} = 0.5 A, 10 µs		EP2316-0003 8 inputs + 8 outputs, I_{max} = 0.5 A, connector with spring-loaded system, 10 µs	EP2316-0008 8 inputs + 8 outputs, D-sub, 25-pin, 10 µs	
	EP2328-0001[1] 8 x M8, 4 inputs + 4 outputs, I_{max} = 2 A, 3.0 ms	EP2328-0002[1] 4 x M12, 4 inputs + 4 outputs, I_{max} = 2 A, 3.0 ms				
24 V DC, in-/outputs	EP2338-0001[1] 8 x M8, 8 in-/outputs, I_{max} = 0.5 A, 10 µs	EP2338-0002[1] 4 x M12, 8 in-/outputs, I_{max} = 0.5 A, 10 µs		EP2339-0021[1] 16 x M8, 16 in-/outputs, I_{max} = 0.5 A, 3.0 ms	EP2339-0022[1, 2] 8 x M12, 16 in-/outputs, I_{max} = 0.5 A, 3.0 ms	EP2339-0121 16 x M8, 16 in-/outputs, I_{max} = 0.5 A, 3.0 ms, ground switching
	EP2338-1001[1] 8 x M8, 8 in-/outputs, I_{max} = 0.5 A, 3.0 ms	EP2338-1002[1] 4 x M12, 8 in-/outputs, I_{max} = 0.5 A, 3.0 ms		EP2339-0003 16 in-/outputs, I_{max} = 0.5 A, connector with spring-loaded system, 3.0 ms	EP2339-0042 8 x M12, 16 in-/outputs, I_{max} = 0.5 A, ∑ 16 A, EtherCAT M12, 3.0 ms	EP2339-0703 connector with spring-loaded system, ID switch
		EP2338-2002 ⓘ 4 x M12, 8 in-/outputs, I_{max} = 0.5 A, 10 µs		EP2349-0021[1] 16 x M8, 16 in-/outputs, I_{max} = 0.5 A, 10 µs	EP2349-0022[1] 8 x M12, 16 in-/outputs, I_{max} = 0.5 A, 10 µs	
Safety, safe in-/outputs			EP1957-0022 TwinSAFE Logic, 8 safe inputs, 4 safe outputs			

EPxxxx: industrial housing in IP67, [1]also as ERxxxx: zinc die-cast housing in IP67, [2]also as EQxxxx: stainless steel housing in IP69K

EP3xxx | EtherCAT Box, analog input

Signal	1-channel	2-channel	4-channel		8-channel
±10 V, ±20 mA		EP3162-0002 parameterizable, electrically isolated, single-ended			EP3048-0002 16 bit, NAMUR NE43
±10 V, 0/4…20 mA			EP3174-0002[1, 2] parameterizable, differential inputs	EP3174-0092 parameterizable, differential inputs, TwinSAFE SC	
		EP3182-1002 2 analog inputs, parameterizable, single-ended, 2 digital control outputs (sink/source type), 24 V DC, short-circuit proof	EP3184-0002[1] parameterizable, single-ended	EP3184-1002[1] parameterizable, single-ended, 2 channels per socket	
Resistance thermometer (RTD)			EP3204-0002[1, 2] Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni1000		
Thermo-couple/mV			EP3314-0002[1, 2] type J, K, L, B, E, N, R, S, T, U		
Measurement bridge (SG)	EP3356-0022 24 bit, self-calibration				
Condition monitoring/ IEPE		EP3632-0001			
Acceler-ometers	EP3751-0160 1 x 3 axes	EP3752-0000 2 x 3 axes			
	EP3751-0260 ⓘ 1 x 3 axes, acceleration/gyroscope				
Pressure measuring			EP3744-0041 4 pressure inputs -1…1 bar (differential pressure to fifth connection)	EP3744-1041 4 pressure inputs 0…7 bar (differential pressure to fifth connection)	
			EP3744-2041 ⓘ 4 pressure inputs -1…1 bar (differential pressure to fifth connection), high-precision	EP3744-3041 ⓘ 4 pressure inputs 0…12 bar (differential pressure to fifth connection)	
Multi-function			EP3754-0002 ⓘ ±10 V/±20 mA differential inputs, RTD, thermocouple	EP3754-0702 ±10 V/±20 mA differential inputs, RTD, thermocouple, ID switch	
Ex i, 4…20 mA			EPX3184-0022 4 x M12, single-ended, HART	EPX3184-0092 4 x M12, single-ended, HART, TwinSAFE SC	EPX3158-0022 8 x M12, single-ended

EP4xxx | EtherCAT Box, analog output

Signal	4-channel
±10 V, 0/4…20 mA	EP4174-0002[1] parameterizable

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EP43xx | EtherCAT Box, analog combi

Signal	4-channel	8-channel
±10 V, 0/4…20 mA	EP4374-0002[1] 2 inputs + 2 outputs, parameterizable	EP4378-1022 4 inputs + 4 outputs, U/I parameterizable per channel, 8 digital I/Os, 24 V DC/3.0 ms
±10 V	EP4304-1002 2 inputs + 2 outputs, single-ended, 2 digital inputs, 24 V DC, 10 μs	
±20 mA	EP4314-1002 2 inputs + 2 outputs, single-ended, 2 digital inputs, 24 V DC, 10 μs	

EP5xxx | EtherCAT Box, position measurement

Function	M12	D-sub
SSI encoder interface	EP5001-0002 1 MHz, 32 bit	
Incremental encoder interface RS422	EP5101-0002 32/16 bit, 5 V DC sensor supply, 4 million increments/s	EP5101-0011 32/16 bit, 5 V DC sensor supply, 4 million increments/s
	EP5101-1002 32/16 bit, 24 V DC sensor supply	EP5101-2011 32/16 bit, 5 V DC sensor supply, 20 million increments/s
Incremental encoder interface 24 V DC	EP5151-0002 32/16 bit	

EP6xxx | EtherCAT Box, communication

Function	1-channel	2-channel	4-channel	8-channel	Other
System	EP6070-0060 license key module				
	EP6080-0000 memory box 128 kbyte				
Serial interface	EP6001-0002[1] RS232, RS422/RS485, 5 V DC/1 A	EP6002-0002[1] RS232, RS422/RS485			
EtherCAT/Ethernet	EP6601-0002 switch port				
IO-Link master		EP6222-0002 Class A	EP6224-0002 Class A		
			EP6224-2022 Class A	EP6228-0022 Class A	
			EP6224-0042 Class A, EtherCAT M12	EP6228-0042 Class A, EtherCAT M12	
			EP6224-0092 Class A, TwinSAFE SC		
			EP6224-3002 Class B	EP6228-3032 Class B	
			EP6224-3022 Class B	EP6228-3132 4 x Class A, 4 x Class B	
				EP6228-3142 4 x Class A, 4 x Class B, EtherCAT M12	
2 x 16 character display				EP6090-0000 display box	

EPxxxx: industrial housing in IP67, [1]also as ERxxxx: zinc die-cast housing in IP67, [2]also as EQxxxx: stainless steel housing in IP69K

EP7xxx | EtherCAT Box, compact drive technology

Motor type	< 3 A	> 3 A	
Servomotor		EP7211-0034 I$_{rms}$ = 4.5 A, 48 V DC, OCT, STO suitable	EP7211-0035 I$_{rms}$ = 4.5 A, 48 V DC, OCT, STO suitable, drive profile CiA DS402
Stepper motor		EP7047-1032 I$_{max}$ = 5.0 A, 48 V DC	
	EP7041-1002[1] I$_{max}$ = 1.5 A, 48 V DC, incremental encoder, 2 digital inputs, 1 digital output	EP7041-0002[1] I$_{max}$ = 5 A, 48 V DC, incremental encoder, 2 digital inputs, 1 digital output	EP7041-2002[1] I$_{max}$ = 5 A, 48 V DC, incremental encoder, 2 digital inputs, 1 digital output, motor connection via plug
		EP7041-3002[1] I$_{max}$ = 5 A, 48 V DC, incremental encoder, for high-speed applications, encoder system (24 V DC encoder)	EP7041-3102 I$_{max}$ = 5 A, 48 V DC, incremental encoder, for high-speed applications, encoder system (5 V DC encoder)
		EP7041-4032　ⓘ I$_{max}$ = 5.0 A, 48 V DC, BiSS® C encoder	
DC motor		EP7342-0002[1] I$_{max}$ = 3.5 A, 48 V DC	
BLDC motor		EP7402-0057 for roller conveyor systems, 24 V DC, EtherCAT junction	EP7402-0067 for roller conveyor systems, 48 V DC, EtherCAT junction	EP7402-0167 for roller conveyor systems, 48 V DC

EP8xxx | EtherCAT Box, multi-functional

Function	8-channel	12-channel
Multi-functional	EP8309-1022 8 digital inputs/outputs, 2 x tacho input, 2 x 0/4…20 mA input, 1 x 0/4…20 mA output, 1 x 1.2 A PWMi output	EP8601-0022　ⓘ 8 x digital input, 1 x counter, 4 x digital output, 2 x PWM, 1 x analog input, 1 x analog output, 1 x encoder

EPxxxx | EtherCAT Box, system

Function			
Identification	EP1111-0000 3 decimal ID switches		
Junctions	EP1122-0001 EtherCAT, 2-channel	EP1312-0001 EtherCAT P, 2-channel	EP9128-0021 EtherCAT, 8 x M8
Power distribution	EP9208-1035 8-channel, M12, L coded, 7/8"	EP9214-0023 4/4-channel, 7/8"	EP9214-0024　ⓘ 4/4-channel, M12, L-coded
	EP9224-0023 4/4-channel, current measurement and data logging, 7/8"	EP9224-0024　ⓘ 4/4-channel, current measurement and data logging, M12, L-coded	EP9224-0037 4-channel, ENP B17, ENP to EtherCAT P	EP9224-2037 4-channel junction, with power supply, ENP B17
PROFINET RT EtherCAT Box	EP9300-0022 EtherCAT Box interface with PROFINET RT	EP9320-0022　ⓘ EtherCAT Box interface with PROFINET RT	
EtherCAT media converters fiber optic	EP9521-0020 1-channel, multi-mode		
Brake chopper box	EP9576-1032 up to 72 V DC		

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EtherCAT P Box

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EPP1xxx | EtherCAT P Box, digital input

Signal	4-channel	8-channel		16-channel	
24 V DC, filter 3.0 ms	EPP1004-0061 4 x M8	EPP1008-0001 8 x M8	EPP1008-0002 4 x M12	EPP1809-0021 16 x M8	EPP1809-0022 8 x M12
			EPP1008-0022 8 x M12	EPP1839-0022 ⓘ 8 x M12, with diagnostics	EPP1859-0022 8 x M12
24 V DC, filter 10 µs		EPP1018-0001 8 x M8	EPP1018-0002 4 x M12	EPP1819-0021 16 x M8	EPP1819-0022 8 x M12
				EPP1819-0005 16 x M8, 4-pin	
				EPP1816-0008 D-sub, 25-pin	EPP1816-3008 D-sub, 25-pin, acceleration sensor
				EPP1816-0003 connector with spring-loaded system	EPP1816-0703 connector with spring-loaded system, ID switch
24 V DC, ground switching		EPP1098-0001 8 x M8			
24 V DC, timestamp		EPP1258-0001 8 x M8, 2-channel timestamp	EPP1258-0002 4 x M12, 2-channel timestamp		
24 V DC, counter			EPP1518-0002 4 x M12, multi-function input		

EPP2xxx | EtherCAT P Box, digital output

Signal	1-channel	4-channel	8-channel		16-channel	24-channel
24 V DC, Imax = 0.5 A			EPP2008-0001 8 x M8	EPP2008-0002 4 x M12		
			EPP2008-0022 8 x M12	EPP2809-0021 16 x M8		
			EPP2809-0022 8 x M12			
			EPP2839-0022 ⓘ 8 x M12, with diagnostics			
			EPP2816-0008 D-sub, 25-pin	EPP2817-0008 D-sub, 25-pin		
			EPP2816-0010 2 x D-sub, 9-pin			
			EPP2816-0003 connector with spring-loaded system			
			EPP2816-0004 M16, 19-pin			

EPP2xxx | EtherCAT P Box, digital output

Signal	1-channel	4-channel	8-channel		16-channel	24-channel
24 V DC, Imax = 2.0 A			EPP2028-0001 8 x M8	EPP2028-0002 4 x M12		
			EPP2038-0001 8 x M8, with diagnostics	EPP2038-0002 4 x M12, with diagnostics		
25 V AC/ 30 V DC		EPP2624-0002 relay output, 4 x M12				
Current control, LED control	EPP2596-0002 ⓘ 24 V DC					

EPP23xx | EtherCAT P Box, digital combi

Signal	4-channel	8-channel		16-channel	
24 V DC, inputs + outputs		EPP2308-0001 8 x M8, 4 inputs + 4 outputs, Imax = 0.5 A, 3.0 ms	EPP2308-0002 4 x M12, 4 inputs + 4 outputs, Imax = 0.5 A, 3.0 ms	EPP2316-0003 8 inputs + 8 outputs, Imax = 0.5 A, connector with spring-loaded system, 10 µs	EPP2316-0008 8 inputs + 8 outputs, Imax = 0.5 A, D-sub, 25-pin, 10 µs
		EPP2318-0001 8 x M8, 4 inputs + 4 outputs, Imax = 0.5 A, 10 µs	EPP2318-0002 4 x M12, 4 inputs + 4 outputs, Imax = 0.5 A, 10 µs		
		EPP2328-0001 8 x M8, 4 inputs + 4 outputs, Imax = 2 A, 3.0 ms	EPP2328-0002 4 x M12, 4 inputs + 4 outputs, Imax = 2 A, 3.0 ms		
24 V DC, in-/outputs		EPP2338-0001 8 x M8, 8 in-/outputs, Imax = 0.5 A, 10 µs	EPP2338-0002 4 x M12, 8 in-/outputs, Imax = 0.5 A, 10 µs	EPP2339-0021 16 x M8, 16 in-/outputs, Imax = 0.5 A, 3.0 ms	EPP2339-0022 8 x M12, 16 inputs/outputs, Imax = 0.5 A, 3.0 ms
			EPP2338-2002 ⓘ 4 x M12, 8 in-/outputs, Imax = 0.5 A, 10 µs	EPP2349-0021 16 x M8, 16 in-/outputs, Imax = 0.5 A, 10 µs	EPP2349-0022 8 x M12, 16 inputs/outputs, Imax = 0.5 A, 10 µs
	EPP2334-0061 4 x M8, 4 inputs/outputs, Imax = 0.5 A, 10 µs	EPP2338-1001 8 x M8, 8 in-/outputs, Imax = 0.5 A, 3.0 ms	EPP2338-1002 4 x M12, 8 in-/outputs, Imax = 0.5 A, 3.0 ms	EPP2339-0003 16 inputs/outputs, Imax = 0.5 A, connector with spring-loaded system, 3.0 ms	EPP2339-0703 connector with spring-loaded system, ID switch

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ⓘ **Product announcement** for availability status see www.beckhoff.com

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EPP3xxx | EtherCAT P Box, analog input

Signal	1-channel	2-channel	4-channel	8-channel
±10 V, 0/4…20 mA, standard signal			EPP3174-0002 parameterizable, differential inputs	EPP3048-0002 16 bit, NAMUR NE43
			EPP3184-0002 parameterizable, single-ended	
4…20 mA, standard signal			EPP3184-0802 single-ended, HART	
Temperature measurement, resistance thermometer RTD			EPP3204-0002 Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni1000	
Temperature measurement, thermocouple, mV			EPP3314-0002 type J, K, L, B, E, N, R, S, T, U	
Measuring bridge, strain gauge	EPP3356-0022 24 bit, self-calibration		EPP3504-0023 24 bit, 10 ksps, push-in	
			ERP3504-0022 24 bit, 10 ksps, M12, zinc die-cast	
Acceleration measurement, position, vibration, condition monitoring, IEPE		EPP3632-0001 16 bit, 50 ksps, 2 x M8		
		EPP3752-0000 2 x 3 axes		
Pressure measuring			EPP3744-0041 4 pressure inputs -1…1 bar (differential pressure to fifth connection)	
			EPP3744-1041 4 pressure inputs 0…7 bar (differential pressure to fifth connection)	
Multi-function			EPP3754-0702 ±10 V/±20 mA differential inputs, RTD, thermocouple, ID switch	

EPP4xxx | EtherCAT P Box, analog output

Signal	4-channel
±10 V, 0/4…20 mA	EPP4174-0002 parameterizable

EPP43xx | EtherCAT P Box, analog combi

Signal	4-channel
±10 V, 0/4…20 mA	EPP4374-0002 2 inputs + 2 outputs, parameterizable
±10 V	EPP4304-1002 2 inputs + 2 outputs, single-ended, 2 digital inputs, 24 V DC, 10 µs
±20 mA	EPP4314-1002 2 inputs + 2 outputs, single-ended, 2 digital inputs, 24 V DC, 10 µs

EPP5xxx | EtherCAT P Box, position measurement

Function	M12		D-sub
SSI encoder interface	EPP5001-0002 1 MHz, 32 bit		
Incremental encoder interface RS422	EPP5101-0002 32/16 bit, 5 V DC sensor supply, 4 million increments/s	EPP5101-1002 32/16 bit, 24 V DC sensor supply	EPP5101-0011 32/16 bit, 5 V DC sensor supply, 4 million increments/s
Incremental encoder interface 24 V DC	EPP5151-0002 32/16 bit		

EPP6xxx | EtherCAT P Box, communication

Function	1-channel	2-channel	4-channel	8-channel	Other
Serial interface	EPP6001-0002 RS232, RS422/RS485, 5 V DC/1 A	EPP6002-0002 RS232, RS422/RS485			
IO-Link master			EPP6224-0522 Class A, 4 ports, timestamp	EPP6228-0022 Class A, 8 ports	
2 x 16 character display					EPP6090-0000 display box

EPP7xxx | EtherCAT P Box, compact drive technology

Motor type	< 3 A	> 3 A
Stepper motor	EPP7041-1002 I_{max} = 1.5 A, 48 V DC, incremental encoder	EPP7041-3002 I_{max} = 5.0 A, 48 V DC, incremental encoder
DC motor output stage		EPP7342-0002 I_{max} = 3.5 A, 48 V DC

EPPxxxx | EtherCAT P Box, system

Function			
Identification	EPP1111-0000 with ID switch		
EtherCAT P diagnostics	EPP9022-0060 4 x diagnostics (U_s, U_P, I_s, I_P)		
Converter EtherCAT P to EtherCAT	EPP9001-0060 EtherCAT P/EtherCAT connector with power transmission		
Junctions	EPP1322-0001 3 ports, with feed-in	EPP1332-0001 3 ports, with refresh	EPP1342-0001 3 ports
Supply module EtherCAT to EtherCAT P	EPP1321-0060		
Power distribution ENP to EtherCAT P	EP9224-0037 4-channel, ENP B17		
TwinSAFE SC	EPP9022-9060 4 x diagnostics (U_s, U_P, I_s, I_P), TwinSAFE SC		

EtherCAT plug-in modules

EJ11xx | EtherCAT Couplers

EtherCAT Couplers E-bus	EJ1100 EtherCAT Coupler, 2 x RJ45	EJ1101-0022 EtherCAT Coupler, external: connectors, power supply module and optional ID switches
Extension system and junctions	EK1110-0043 EtherCAT EJ coupler, CX and EL terminal connection	EK1110-0044 EtherCAT EJ coupler, CX and EL terminal connection, EtherCAT junction
	EJ1122 2-port junction, external: connectors	

EJ1xxx | EtherCAT plug-in modules, digital input

Signal	4-channel	8-channel	16-channel
3.3 V DC/5 V DC		EJ1128 filter 0.05 µs	
24 V DC, filter 3.0 ms		EJ1008 type 3	EJ1809 type 3
			EJ1859 type 3, 8 inputs, 8 outputs, I_{max} = 0.5 A
			EJ1889 ground switching
24 V DC, filter 10 µs			EJ1819 type 3
24 V DC, filter 1 µs	EJ1254 type 3, timestamp		
24 V DC, safe input	EJ1914 TwinSAFE Logic, 4 safe inputs	EJ1918 TwinSAFE Logic, 8 safe inputs	
		EJ1957 TwinSAFE Logic, 8 safe inputs, 4 safe outputs	

EJ2xxx | EtherCAT plug-in modules, digital output

Signal	1-channel	2-channel	4-channel	8-channel	16-channel
3.3 V DC/5 V DC				EJ2128 I_{max} = ±20 mA	
24 V DC, I_{max} = 0.5 A		EJ2262 oversampling		EJ2008	EJ2809
					EJ2889 ground switching
					EJ1859 type 3, 8 inputs, 8 outputs, I_{max} = 0.5 A
24 V DC, safe output			EJ2914 TwinSAFE Logic, 4 safe outputs	EJ2918 TwinSAFE Logic, 8 safe outputs	
				EJ1957 TwinSAFE Logic, 8 safe inputs, 4 safe outputs	
PWM		EJ2502 24 V DC, 0.5 A	EJ2564 5...48 V DC, 3 A, RGBW, common anode		
Frequency output	EJ2521-0224 24 V DC, 1 A	EJ2522 24 V DC, 50 mA			

EJ3xxx | EtherCAT plug-in modules, analog input

Signal	2-channel	4-channel	5-channel	8-channel
±10 V, standard signal		EJ3004 single-ended, 12 bit		
		EJ3104 differential input, 16 bit		EJ3108 6 x differential inputs, 2 x single-ended, 16 bit
0...10 V, standard signal				EJ3068 single-ended, 12 bit
0...20 mA, standard signal				EJ3048 single-ended, 12 bit
4...20 mA, standard signal		EJ3124-0090 TwinSAFE SC, 16 bit		EJ3058 single-ended, 12 bit
0...±20 mA		EJ3114-0010 differential input, 16 bit, high-precision		

EJ3xxx | EtherCAT plug-in modules, analog input

Signal	2-channel	4-channel	5-channel	8-channel
Temperature measurement, resistance thermometer (RTD)	EJ3202 16 bit	EJ3214 16 bit		
Temperature measurement, thermocouple/mV		EJ3314-0090 TwinSAFE SC, 16 bit		EJ3318 type J, K, L...U, 16 bit
Measurement technology, potentiometer			EJ3255 16 bit	

EJ4xxx | EtherCAT plug-in modules, analog output

Signal	2-channel	4-channel	8-channel
0...10 V	EJ4002 12 bit	EJ4004 12 bit	EJ4008 12 bit
±10 V	EJ4132 16 bit	EJ4134 16 bit	
0...20 mA			EJ4018 12 bit
4...20 mA		EJ4024 12 bit	

EJ5xxx | EtherCAT plug-in modules, position measurement

Signal	1-channel				2-channel	
Absol. position measurement					EJ5002 SSI encoder interface	EJ5042-0010 BiSS® C interface
Incremental position measurement	EJ5021 SinCos encoder interface, 1 V$_{PP}$	EJ5101 incremental encoder interface, RS422, TTL, 1 MHz	EJ5101-0090 incremental encoder interface, RS422, TTL, 1 MHz, TwinSAFE SC	EJ5151 incremental encoder interface, 24 V HTL, 100 kHz	EJ5112 incremental encoder interface, RS422, TTL, open collector, 5 MHz, 2 x AB/1 x ABC	

EJ6xxx | EtherCAT plug-in modules, communication

Signal	1-channel	2-channel	4-channel
System	EJ6070 license key module		
	EJ6080 memory module 128 kbyte		
Master		EJ6002 serial interface RS232, RS485 or RS422	EJ6224 IO-Link	EJ6224-0090 IO-Link, TwinSAFE SC
Safety	EJ6910 TwinSAFE Logic		

EJ7xxx | EtherCAT plug-in modules, compact drive technology

Motor type	< 3 A		3...5 A	
Servomotor			EJ7211-0010 I_{rms} = 4.5 A, 48 V DC, OCT	EJ7211-9414 I_{rms} = 4.5 A, 48 V DC, OCT, STO, TwinSAFE SC
Stepper motor	EJ7031 I_{max} = 1.5 A, 24 V DC	EJ7037 I_{max} = 1.5 A, 24 V DC, incremental encoder, vector control	EJ7041-0052 I_{max} = 5.0 A, 48 V DC	EJ7047 I_{max} = 5.0 A, 48 V DC, incremental encoder, vector control
DC motor output stage			EJ7334-0008 I_{max} = 3.0 A, 24 V DC, incremental encoder	EJ7342 I_{max} = 3.5 A, 48 V DC, incremental encoder
BLDC			EJ7411 I_{rms} = 4.5 A, 48 V DC	

EJ9xxx | EtherCAT plug-in modules, system

Signal	Power supply and accessories		System
Power supply	EJ9400 input 24 V DC, E-bus power supply, 2.5 A	EJ9404 input 24 V DC, E-bus power supply, 12 A	
	EJ9505 input 24 V DC, output 5 V DC, 0.5 A		
Filtering and smoothing	EJ9576 brake chopper module, up to 72 V DC, 155 µF		
System			EJ9001 placeholder module

EtherCAT plug-in modules

We reserve the right to make technical changes.

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System overview fieldbus I/O
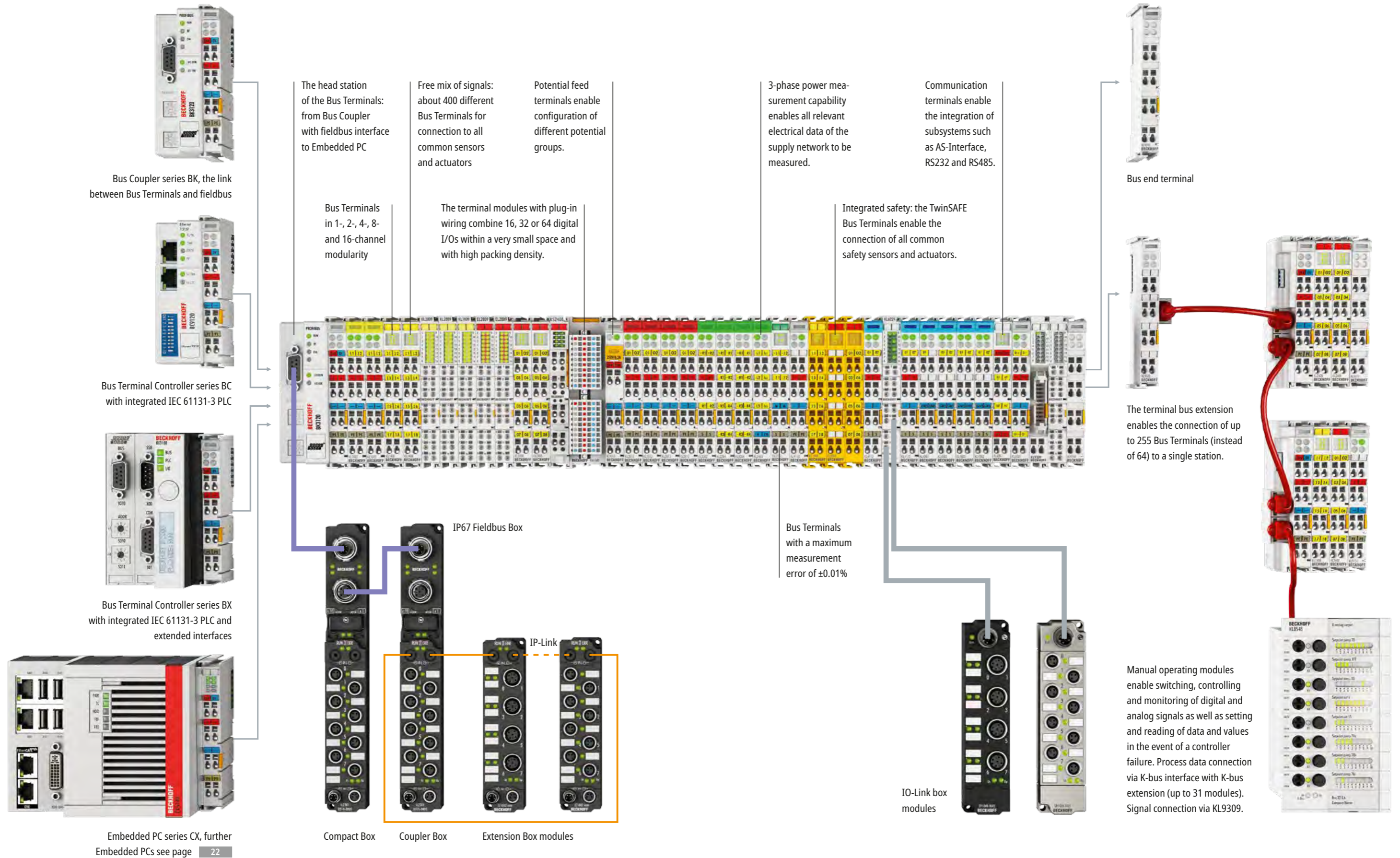
Bus Coupler series BK, the link between Bus Terminals and fieldbus

Bus Terminal Controller series BC with integrated IEC 61131-3 PLC

Bus Terminal Controller series BX with integrated IEC 61131-3 PLC and extended interfaces

The head station of the Bus Terminals: from Bus Coupler with fieldbus interface to Embedded PC

Bus Terminals in 1-, 2-, 4-, 8- and 16-channel modularity

Free mix of signals: about 400 different Bus Terminals for connection to all common sensors and actuators

The terminal modules with plug-in wiring combine 16, 32 or 64 digital I/Os within a very small space and with high packing density.

Potential feed terminals enable configuration of different potential groups.

3-phase power measurement capability enables all relevant electrical data of the supply network to be measured.

Integrated safety: the TwinSAFE Bus Terminals enable the connection of all common safety sensors and actuators.

Communication terminals enable the integration of subsystems such as AS-Interface, RS232 and RS485.

Bus end terminal

The terminal bus extension enables the connection of up to 255 Bus Terminals (instead of 64) to a single station.

IP67 Fieldbus Box

Bus Terminals with a maximum measurement error of ±0.01%

IP-Link

Compact Box   Coupler Box   Extension Box modules

IO-Link box modules

Manual operating modules enable switching, controlling and monitoring of digital and analog signals as well as setting and reading of data and values in the event of a controller failure. Process data connection via K-bus interface with K-bus extension (up to 31 modules). Signal connection via KL9309.

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Bus Terminals

BKxxxx | Bus Couplers

Fieldbus	Standard	Economy plus	Compact
EtherCAT		BK1120	BK1150
			BK1250 E-bus to K-bus interface
Ethernet TCP/IP	BK9000		BK9050
	BK9100 2-channel switch		
EtherNet/IP	BK9105 2-channel switch		BK9055
CANopen		BK5120	BK5150
			BK5151
CC-Link			BK7150
DeviceNet	BK5200	BK5220	BK5250
INTERBUS	BK4000	BK4020	
LIGHTBUS	BK2000	BK2020	
Modbus			BK7350
PROFIBUS	BK3100 12 Mbaud	BK3120 12 Mbaud	BK3150 12 Mbaud
		BK3520 12 Mbaud, fiber optic	
PROFINET	BK9103 2-channel switch		BK9053
RS485	BK8000		
RS232	BK8100		
sercos the automation bus	BK7500	BK7520	

BCxxxx, BXxxxx | Bus Terminal Controllers

Fieldbus	Programm storage 32/96 kbytes	48 kbytes	64/96 kbytes	128 kbytes	256 kbytes
Ethernet TCP/IP		BC9050	BC9000	BC9020	BX9000
			BC9100 2-channel switch	BC9120 2-channel switch	
		BC9191 room controller		BC9191-0100 room controller, RS485 interface	
CANopen		BC5150			BX5100
DeviceNet		BC5250			BX5200
Modbus	BC7300				
PROFIBUS	BC3100 12 Mbaud	BC3150 12 Mbaud			BX3100 12 Mbaud
RS485		BC8050			BX8000
RS232		BC8150			

KL1xxx | Bus Terminals, digital input

Signal	2-channel		4-channel		8-channel	16-channel	KM1xxx
5 V DC			KL1124 filter 0.2 ms				
24 V DC, filter 3.0 ms	KL1002 type 3		KL1104 type 3	KL1804 type 3, 8 x 24 V, 4 x 0 V	KL1808 type 3, 8 x 24 V DC	KL1809 type 3	KM1002 16-channel, type 1
	KL1402 type 3	KL1302 type 2	KL1404 type 3, 4 x 2-wire connection	KL1304 type 2	KL1408 type 3		KM1004 32-channel, type 1
	KL1052 positive/ground switching		KL1154 positive/ground switching	KL1184 ground switching	KL1488 ground switching	KL1889 ground switching	KM1008 64-channel, type 1
	KL1212 type 1, short-circuit pro- tected sensor supply	KL1362 break-in alarm				KL1859 type 3, 8 inputs, 8 outputs, I_{max} = 0.5 A	
						KL1862 type 3, flat-ribbon cable	
						KL1862-0010 type 3, flat-ribbon cable, ground switching	
24 V DC, filter 0.2 ms	KL1012 type 3	KL1412 type 3	KL1114 type 3	KL1814 type 3, 8 x 24 V, 4 x 0 V	KL1418 type 3	KL1819 type 3	KM1012 16-channel, type 1
		KL1312 type 2		KL1314 type 2			KM1014 32-channel, type 1
			KL1414 type 3, 4 x 2-wire connection	KL1434 type 2, 4 x 2-wire connection			KM1018 64-channel, type 1
			KL1164 positive/ground switching	KL1194 ground switching	KL1498 ground switching		
						KL1872 type 3, flat-ribbon cable	
24 V DC	KL1232 pulse expansion	KL1382 thermistor	KL1904 TwinSAFE, 4 safe inputs				KM1644 4-channel, manual operation
24 V DC, counter	KL1501 type 1, 100 kHz, 32 bit	KL1512 type 1, 1 kHz, 16 bit					
≥ 48 V DC	KL1032 48 V DC, filter 3.0 ms	KL1712-0060 60 V DC					
120 V AC/DC	KL1712						
230 V AC	KL1702	KL1722 no power contacts	KL1704				
NAMUR	KL1352						

The standard Bus Terminals (KLxxxx) can be optionally ordered as KSxxxx with pluggable wiring level.

Bus Terminals

KL2xxx | Bus Terminals, digital output

Signal	1-channel	2-channel		4-channel	8-channel	16-channel	KM2xxx
5 V DC				KL2124 I_{max} = ±20 mA			
24 V DC, I_{max} = 0.5 A		KL2012 short-circuit proof		KL2114 short-circuit proof	KL2808 8 x 0 V	KL2809 reverse voltage protection	KM2002 16-channel
		KL2032 reverse voltage protection		KL2134 reverse voltage protection			KM2004 32-channel
				KL2404 4 x 2-wire	KL2408 reverse voltage protection		KM2008 64-channel
		KL2212 diagnostics, protected sensor supply				KL2819 with diagnostics	KM2042 16-channel, D-sub connection
				KL2184 ground switching	KL2488 ground switching	KL2889 ground switching	
						KL1859 type 3, 8 inputs, 8 outputs, I_{max} = 0.5 A	
						KL2872 flat-ribbon cable	
						KL2872-0010 flat-ribbon cable, ground switching	
24 V DC, I_{max} = 2.0 A		KL2022		KL2424 4 x 2-wire	KL2828 8 x 2-wire		
24 V DC, I_{max} = 4.0 A/8.0 A		KL2442 2 x 4 A/1 x 8 A					
24 V DC, safe output				KL2904 TwinSAFE, 4 safe outputs			
30 V AC/48 V DC solid-state relay, I_{max} = 2.0 A				KL2784			
				KL2794 potential-free	KL2798 potential-free		
230 V AC solid-state relay	KL2701 I_{max} = 3 A	KL2702 I_{max} = 0.3 A					
Relay (up to 400 V AC)	KL2641 make contact, manual operation, I_{max} = 16 A	KL2602 make contact, I_{max} = 5 A	KL2622 make contact, no power contacts, I_{max} = 5 A	KL2634 make contact, 250 V AC/30 V DC			KM2604 I_{max} = 16 A, 4-channel
		KL2602-0010 make contact, I_{max} = 5 A, contact-protecting switching	KL2622-0010 make contact, no power contacts, I_{max} = 5 A, contact-protecting switching				KM2614 I_{max} = 16 A, 4-channel, manual operation
		KL2652 change-over, I_{max} = 5 A					KM2642 I_{max} = 6 A, manual/automatic operation, relay state readable
	KL2631 400 V AC, make contact	KL2612 125 V AC, change-over	KL2692 cycle monitoring (watchdog)				KM2652 I_{max} = 6 A, manual/automatic operation, switch and relay state readable

The standard Bus Terminals (KLxxxx) can be optionally ordered as KSxxxx with pluggable wiring level.

KL2xxx | Bus Terminals, digital output

Signal	1-channel	2-channel		4-channel	8-channel	16-channel	KM2xxx
Triac (12...230 V AC)		KL2712	KL2722 mutually locked outputs				
		KL2732 mutually locked outputs, no power contacts					
PWM		KL2502 24 V DC, I_{max} = 0.1 A	KL2512 24 V DC, I_{max} = 1.5 A, ground switching				
		KL2535 I_{max} = ±1 A, 24 V DC, current-controlled	KL2545 I_{max} = ±3.5 A, 50 V DC, current-controlled				
Frequency output	KL2521 1-channel AB, 0...500 kHz, RS422						
Current control, dimmer control	KL2751 universal dimmer, 300 W						
	KL2761 universal dimmer, 600 W						

KL2xxx | Bus Terminals, compact drive technology

Motor type	< 3 A		3...5 A
Stepper motor	KL2531 I_{max} = 1.5 A, 24 V DC		KL2541 I_{max} = 5.0 A, 48 V DC, incremental encoder
DC motor output stage	KL2532 I_{max} = 1.0 A, 24 V DC	KL2284 reverse switching, I_{max} = 2.0 A, 0...24 V DC	KL2552 I_{max} = 5.0 A, 48 V DC, incremental encoder
AC motor speed controller	KL2791 230 V AC, 200 VA, 1-phase AC motor		

KL3xxx | Bus Terminals, analog input

Signal	1-channel	2-/3-channel		4-channel	8-channel
0...2 V, 0...500 mV		KL3172 0...2 V, 16 bit, 0.05%	KL3172-0500 0...500 mV, 16 bit, 0.05%		
±2 V			KL3182 16 bit, 0.05%		
0...10 V	KL3061 single-ended, 12 bit	KL3062 single-ended, 12 bit	KL3162 16 bit, 0.05%	KL3064 single-ended, 12 bit	
				KL3464 with sensor supply, single-ended, 12 bit	KL3468 single-ended, 12 bit
±10 V	KL3001 differential input, 12 bit	KL3002 differential input, 12 bit	KL3102 differential input, 16 bit	KL3404 single-ended, 12 bit	KL3408 single-ended, 12 bit
			KL3132 16 bit, 0.05%		
0...20 mA	KL3011 differential input, 12 bit	KL3012 differential input, 12 bit	KL3112 differential input, 16 bit	KL3044 single-ended, 12 bit	KL3448 single-ended, 12 bit
	KL3041 with sensor supply, 12 bit	KL3042 with sensor supply, 12 bit	KL3142 16 bit, 0.05%	KL3444 with sensor supply, single-ended, 12 bit	
4...20 mA	KL3021 differential input, 12 bit	KL3022 differential input, 12 bit	KL3122 differential input, 16 bit	KL3054 single-ended, 12 bit	KL3458 single-ended, 12 bit
	KL3051 with sensor supply, 12 bit	KL3052 with sensor supply, 12 bit	KL3152 16 bit, 0.05%	KL3454 with sensor supply, single-ended, 12 bit	
Resistance thermometer (RTD)	KL3201 Pt100...1000, Ni100, 16 bit	KL3202 Pt100...1000, Ni100, 16 bit	KL3222 Pt100, 4-wire connection, high-precision	KL3204 Pt100...1000, Ni100...1000, 2-wire connection	KL3208-0010 Pt1000, Ni1000, NTC 1.8...100 k, potentiom. 1, 5, 10 kΩ
				KL3204-0030 NTC (10 kΩ)	
				KL3214 Pt100...1000, Ni100...1000, KTY, 3-wire connection	KL3228 Pt1000, Ni1000
Thermo-couple/mV	KL3311 type J, K, L...U, 16 bit	KL3312 type J, K, L...U, 16 bit		KL3314 type J, K, L...U, 16 bit	
Measurement bridge (SG)	KL3351 16 bit				
	KL3356 16 bit, self-calibration				
Oscilloscope	KL3361 ±16 mV	KL3362 ±10 V			
Measurement technology	KL3681 digital multimeter, 18 bit				
Pressure measuring	KM3701 differential pressure, -100...+100 hPa	KM3702 relative pressure, 7500 hPa	KM3712 relative pressure, -1000...+1000 hPa		
	KM3701-0340 differential pressure, up to 340 hPa				
Power measurement		KL3403 power measurement, 3-phase, 1 A	KL3403-0010 power measurement, 3-phase, 5 A		
		KL3453 690 V AC, 5 A, extended functionalities			

The standard Bus Terminals (KLxxxx) can be optionally ordered as KSxxxx with pluggable wiring level.

KL4xxx | Bus Terminals, analog output

Signal	1-channel	2-channel	4-channel	8-channel	KM4xxx
0...10 V	KL4001 12 bit, potential-free output	KL4002 12 bit	KL4004 12 bit, no power contacts		KM4602 12-bit manual/automatic operation
			KL4404 12 bit	KL4408 12 bit	
±10 V	KL4031 12 bit, potential-free output	KL4032 12 bit	KL4034 12 bit, no power contacts		
		KL4132 16 bit	KL4434 12 bit	KL4438 12 bit	
			KL4494 12 bit, 2 x input, 2 x output		
0...20 mA	KL4011 12 bit	KL4012 12 bit	KL4414 12 bit	KL4418 12 bit	
		KL4112 16 bit			
4...20 mA	KL4021 12 bit	KL4022 12 bit	KL4424 12 bit	KL4428 12 bit	

KL5xxx | Bus Terminals, position measurement

Signal	1-channel	2-channel
Absolute position measurement	KL5001 SSI encoder interface	
	KL5051 SSI encoder interface, bidirectional	
Incremental position measurement	KL5101 incremental encoder interface, RS422, TTL, 1 MHz	
	KL5111 incremental encoder interface, 24 V HTL, 250 kHz, 16 bit counter	
	KL5151 incremental encoder interface, 24 V HTL, 100 kHz, 32 bit counter	KL5152 incremental encoder interface, 24 V HTL, 100 kHz, 32 bit counter
	KL5121 incremental encoder interface, 24 V HTL, path control, 250 kHz	

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KL6xxx | Bus Terminals, communication

Signal			
Serial interfaces	**KL6001** RS232, 19.2 kbaud	**KL6031** RS232, 115.2 kbaud	**KL6011** TTY, 20 mA current loop
	KL6051 data exchange terminal, 32 bit	**KL6021** RS422/RS485, 19.2 kbaud	**KL6041** RS422/RS485, 115.2 kbaud
Subsystems	**KL6201** AS-Interface master terminal	**KL6211** AS-Interface master terminal with power contacts	**KL6224** IO-Link master
	KL6301 KNX/EIB Bus Terminal		
	KL6581 EnOcean master	**KL6583** EnOcean transmitter/receiver	
	KL6771 MP-Bus master terminal	**KL6781** M-Bus master terminal	
	KL6811 DALI/DSI master and power supply terminal	**KL6821** DALI-2 multi-master and power supply terminal	
	KL6831 SMI terminal, LoVo	**KL6841** SMI terminal, 230 V AC	
Safety	**KL6904** TwinSAFE Logic, 4 safe outputs		

KL85xx | Bus Terminals, manual operation modules

Technology	4-channel	8-channel	16-channel	Other
Manual operation modules	**KL8524** 4 x 2-channel digital output, 24 V DC, 0.5 A	**KL8528** digital output, 24 V DC, 0.5 A	**KL8519** digital input signal module	**KL8500** placeholder module
		KL8548 analog output, 0…10 V		
System				**KL9309** adapter terminal for manual operating modules

KL9xxx | Bus Terminals, system

Signal	System		Potential supply	Power supply and accessories
System	**KL9010** bus end terminal	**KL9070** shield terminal		
	KL9020 terminal bus extension end terminal	**KL9050** terminal bus extension coupler terminal		
	KL9309 adapter terminal for manual operating modules	**KL9080** isolation terminal		
	KL9195 shield terminal			

The standard Bus Terminals (KLxxxx) can be optionally ordered as KSxxxx with pluggable wiring level.

KL9xxx | Bus Terminals, system

Signal	System		Potential supply	Power supply and accessories
Potential distribution terminals	**KL9180** 2 terminal points per power contact	**KL9181** 2 x 8 terminal points		
	KL9182 8 x 2 terminal points	**KL9183** 1 x 16 terminal points		
	KL9184 8 x 24 V DC, 8 x 0 V DC	**KL9185** only 2 power contacts		
	KL9186 8 x 24 V DC	**KL9187** 8 x 0 V DC		
	KL9188 16 x 24 V DC	**KL9189** 16 x 0 V DC		
	KL9380			
Filter	**KL9540** surge filter terminal for field supply			
	KL9540-0010 surge filter field supply for analog terminals	**KL9550** surge filter terminal for system/field supply		
Diode arrays	**KL9300** 4 diodes, potential-free			
	KL9301 7 diodes, common cathode	**KL9302** 7 diodes, common anode		
24 V DC			**KL9100**	**KL9400** K-bus power supply, 2 A
			KL9110 diagnostics	**KL9505** output 5 V DC, 0.5 A
			KL9200 with fuse	**KL9508** output 8 V DC, 0.5 A
			KL9210 diagnostics, with fuse	**KL9510** output 10 V DC, 0.5 A
				KL9512 output 12 V DC, 0.5 A
				KL9515 output 15 V DC, 0.5 A
			KL9520 AS-Interface potential supply	**KL9528** AS-Interface power supply terminal
				KL9560 output 24 V DC, 0.1 A
50 V DC				**KL9570** buffer capacitor terminal, 500 µF
120… 230 V AC				**KL9150**
				KL9160 diagnostics
				KL9250 with fuse
				KL9260 diagnostics, with fuse
				KL9190 any voltage up to 230 V AC
				KL9290 with fuse

Fieldbus Box and IO-Link box

▶ www.beckhoff.com/fieldbusbox

Fieldbus Box	Compact Box		Coupler Box	
Fieldbus	**Fieldbus Box** without IP-Link interface		**Fieldbus Box** with IP-Link interface	
EtherCAT			IL230x-B110	
PROFIBUS	IPxxxx-B310	IPxxxx-B318 with integrated tee-connector	IL230x-B310	IL230x-B318 with integrated tee-connector
CANopen	IPxxxx-B510	IPxxxx-B518 with integrated tee-connector	IL230x-B510	IL230x-B518 with integrated tee-connector
DeviceNet	IPxxxx-B520	IPxxxx-B528 with integrated tee-connector	IL230x-B520	IL230x-B528 with integrated tee-connector
Ethernet TCP/IP			IL230x-B900	IL230x-B901
PROFINET			IL230x-B903	
EtherNet/IP			IL230x-B905	

IP1xxx-Bxxx | Fieldbus Box, digital input

Signal	2-channel	8-channel	
24 V DC, filter 3.0 ms		IP1001-Bxxx[1] 8 x M8	IP1002-Bxxx[1] 4 x M12
24 V DC, filter 0.2 ms		IP1011-Bxxx[1] 8 x M8	IP1012-Bxxx[1] 4 x M12
Counter	IP1502-Bxxx[1] up/down counter 24 V DC, 100 kHz		

IP2xxx-Bxxx | Fieldbus Box, digital output

Signal	2-channel	8-channel		16-channel
24 V DC, I_{max} = 0.5 A		IP2001-Bxxx[1] 8 x M8	IP2002-Bxxx[1] 4 x M12	
24 V DC, I_{max} = 0.5 A, $\sum$ 4 A				IE2808 D-sub
24 V DC, I_{max} = 2 A, $\sum$ 4 A		IP2021-Bxxx[1] 8 x M8	IP2022-Bxxx[1] 4 x M12	
24 V DC, I_{max} = 2 A, $\sum$ 12 A		IP2041-Bxxx[1] 8 x M8	IP2042-Bxxx[1] 4 x M12	
PWM, I_{max} = 2.5 A	IP2512-Bxxx[1] 4 x M12			

[1]also as IExxxx: Extension Box, [2]also as ILxxxx-Bxxx: Coupler Box

IP23/24xx-Bxxx | Fieldbus Box, digital combi

Signal	8-channel		16-channel	
24 V DC, filter 3.0 ms, I_{max} = 0.5 A	IP2301-Bxxx[1, 2] 8 x M8, 4 inputs + 4 outputs	IP2302-Bxxx[1, 2] 4 x M12, 4 inputs + 4 outputs	IP2401-Bxxx[1] 8 x M8, 8 inputs/outputs	IE2403 IP20 plug
24 V DC, filter 0.2 ms, I_{max} = 0.5 A	IP2311-Bxxx[1] 8 x M8, 4 inputs + 4 outputs	IP2312-Bxxx[1] 4 x M12, 4 inputs + 4 outputs		
24 V DC, filter 3.0 ms, I_{max} = 2 A, $\sum$ 4 A	IP2321-Bxxx[1] 8 x M8, 4 inputs + 4 outputs	IP2322-Bxxx[1] 4 x M12, 4 inputs + 4 outputs		
24 V DC, filter 0.2 ms, I_{max} = 2 A, $\sum$ 4 A	IP2331-Bxxx[1] 8 x M8, 4 inputs + 4 outputs	IP2332-Bxxx[1] 4 x M12, 4 inputs + 4 outputs		

IP3xxx-Bxxx | Fieldbus Box, analog input

Signal	4-channel
±10 V	IP3102-Bxxx[1] differential inputs, 16 bit
0/4…20 mA	IP3112-Bxxx[1] differential inputs, 16 bit
Resistance thermometer	IP3202-Bxxx[1] Pt100, Pt200, Pt500, Pt1000, Ni100, 16 bit
Thermo-couple/mV	IP3312-Bxxx[1] type J, K, L, B, E, N, R, S, T, U, 16 bit

IP4xxx-Bxxx | Fieldbus Box, analog output

Signal	4-channel
0/4…20 mA	IP4112-Bxxx[1] 16 bit
±10 V	IP4132-Bxxx[1] 16 bit

IP5xxx-Bxxx | Fieldbus Box, position measurement

Function	M12	
SSI encoder interface	IP5009-Bxxx[1]	
Incremental encoder interface RS422	IP5109-Bxxx[1] 1 MHz	
SinCos encoder interface	IP5209-Bxxx 12-pin	IP5209-Bxxx-1000 9-pin

IP6xxx-Bxxx | Fieldbus Box, communication

Function			
Serial interfaces	IP6002-Bxxx[1] RS232	IP6012-Bxxx[1] 0…20 mA (TTY)	IP6022-Bxxx[1] RS422/RS485

Fieldbus Box and IO-Link box

Fieldbus Box and IO-Link box

Infrastructure components

▶ www.beckhoff.com/infrastructure-components

EPIxxxx   ERIxxxx

EPI1xxx | Fieldbus Box, IO-Link box, digital input

Signal	8-channel		16-channel	
24 V DC, filter 3.0 ms	EPI1008-0001[1] 8 x M8	EPI1008-0002[1] 4 x M12	EPI1809-0021[1] 16 x M8	EPI1809-0022[1] 8 x M12

EPI2xxx | Fieldbus Box, IO-Link box, digital output

Signal	8-channel		16-channel	
24 V DC, I_{max} = 0.5 A	EPI2008-0001[1] 8 x M8	EPI2008-0002[1] 4 x M12		
24 V DC, I_{max} = 0.5 A, ∑ 4 A			EPI2809-0021[1] 16 x M8	EPI2809-0022[1] 8 x M12

EPI23xx | Fieldbus Box, IO-Link box, digital combi

Signal	8-channel		16-channel	
24 V DC, filter 3.0 ms, I_{max} = 0.5 A	EPI2338-0001[1] 8 x M8	EPI2338-0002[1] 4 x M12		
24 V DC, filter 3.0 ms, I_{max} = 0.5 A, ∑ 4 A			EPI2339-0021[1] 16 x M8	EPI2339-0022[1] 8 x M12

EPI3xxx | Fieldbus Box, IO-Link box, analog input

Signal	4-channel	8-channel
±10 V, 0/4...20 mA	EPI3174-0002[1] parameterizable, differential input, 16 bit	EPI3188-0022 parameterizable, single-ended, 16 bit

EPI4xxx | Fieldbus Box, IO-Link box, analog output

Signal	4-channel
±10 V, 0/4...20 mA	EPI4374-0002[1] 2 inputs + 2 outputs, parameterizable, 16 bit

EPIxxxx: industrial housing in IP67, [1]also as ERIxxxx: zinc die-cast housing in IP67

CUxxxx, EPxxxx | EtherCAT components

	100 Mbit/s, IP20		100 Mbit/s, IP67	1 Gbit/s, IP20	
Junctions	CU1123 junction, 3 x RJ45	CU1123-0010 junction, 3 x RJ45, Extended Distance		CU1423 ⓘ junction, 3 x RJ45	
	CU1124 junction, 4 x RJ45	CU1128 junction, 8 x RJ45	EP9128-0021 EtherCAT, 8 x M8	CU1411 ⓘ branch controller, 1 port	CU1418 ⓘ branch controller, 8 ports
Media converters	CU1521 1-channel, multi-mode/ single-mode	CU1521-0020 1-channel, SFP slot	EP9521-0020 1-channel, multi-mode		
	CU1561 1-channel, POF				

CUxxxx, EPxxxx | Ethernet switches/components

	100 Mbit/s, IP20			100 Mbit/s, IP67	1 Gbit/s, IP20
Switches	CU2005 5-port, RJ45	CU2008 8-port, RJ45	CU2016 16-port, RJ45	CU2608 8-port, M12 (D-coded)	CU2208 8-port, RJ45
Media converters	CU1521 1-channel, multi-mode/ single-mode	CU1561 1-channel, POF		EP9521-0020 1-channel, multi-mode	

CUxxxx | Ethernet port multiplier

	1 Gbit/s	
Multiplier	CU2508 1 x RJ45 (+ 8 x RJ45: 100 Mbit/s)	CU2508-0022 1 x M12 (+ 8 x M12: 100 Mbit/s)

Fieldbus Box and IO-Link box

Infrastructure components

ⓘ Product announcement   for availability status see www.beckhoff.com

We reserve the right to make technical changes.

BECKHOFF New Automation Technology

Current transformers

▶ **www.beckhoff.com/sct**

SCT1111   SCT21xx   SCT32xx   SCT4xxx   SCT5564   SCT61xx   SCT72xx   SCT01xx

SCT1xxx | Mini ring-type current transformers

Primary current	Max. diameter round conductor 7.6 mm
0...32 to 0...64 A AC	SCT1111 accuracy class 1

SCT2xxx | Ring-type current transformers

Primary current	Max. diameter round conductor				
	25.7 mm	31.8 mm	43.7 mm	54.7 mm	70 mm
0...60 to 0...500 A AC	SCT2111 accuracy class 1				
0...125 to 0...600 A AC	SCT2121 accuracy class 0.5				
0...600/ 0...750 A AC		SCT2211 accuracy class 1			
		SCT2221 accuracy class 0.5			
0...800/ 0...1000 A AC			SCT2311 accuracy class 1	SCT2321 accuracy class 0.5	
0...1250/ 0...1500 A AC			SCT2411 accuracy class 1	SCT2421 accuracy class 0.5	
0...2000 A AC				SCT2515 accuracy class 1	
				SCT2525 accuracy class 0.5	
0...2500 A AC				SCT2615 accuracy class 1	SCT2625 accuracy class 0.5

SCT3xxx | 3-phase ring-type current transformers

Primary current	Max. diameter round conductor		
	13.5 mm	18 mm	22 mm
0...50 to 0...150 A AC	SCT3111 accuracy class 1		
0...125/ 0...150 A AC	SCT3121 accuracy class 0.5		
0...100 to 0...250 A AC		SCT3215 accuracy class 1	
0...250 to 0...600 A AC			SCT3315 accuracy class 1

SCT4xxx | Differential current transformers, type A

Primary current	Max. diameter round conductor					
	20 mm	35 mm	50 mm	60 mm	80 mm	120 mm
0...18 A AC	SCT4616-0018 split-core current transformer		SCT4716-0018 split-core current transformer		SCT4816-0018 split-core current transformer	
0...25 A AC	SCT4116-0025 ring-type current transformer	SCT4216-0025 ring-type current transformer		SCT4316-0025 ring-type current transformer		SCT4416-0025 ring-type current transformer

SCT5xxx | Differential current transformers

Primary current	Diameter transformer opening 70 mm
0...100 and 0...300 A	SCT5564 residual current measuring range 0.4 A or 2 A

SCT6xxx | Split-core current transformers

Primary current	Max. diameter round conductor			
	18.5 mm	27.9 mm	42.4 mm	2 x 42.4 mm
0...60 to 0...150 A AC	SCT6101 accuracy class 3			
0...200/ 0...250 A AC	SCT6311 accuracy class 1			
	SCT6321 accuracy class 0.5			
0...300 to 0...500 A AC		SCT6411 accuracy class 1		
0...400/ 0...500 A AC		SCT6421 accuracy class 0.5		
0...600/ 0...750 A AC			SCT6615 accuracy class 1	SCT6625 accuracy class 0.5
0...800/ 0...1000 A AC			SCT6715 accuracy class 1	SCT6725 accuracy class 0.5

SCT7xxx | Busbar split-core current transformers

Primary current	Max. diameter round conductor		
	20 mm	50 mm	80 mm
0...100/ 0...200 A AC	SCT7105 accuracy class 3		
0...250/ 0...400 A AC	SCT7115 accuracy class 1		
0...400 A AC	SCT7125 accuracy class 2		
0...500/ 0...600 A AC		SCT7215 accuracy class 1	SCT7225 accuracy class 2
0...750 to 0...1500 A AC			SCT7315 accuracy class 1 / SCT7325 accuracy class 2
0...1500/ 0...5000 A AC			SCT7415 accuracy class 1 / SCT7425 accuracy class 2

SCT0xxx | Coil current transformers

Primary current	Primary conductor for connection	
0...1 to 0...30 A AC	SCT0111 accuracy class 1	SCT0121 accuracy class 0.5

Power supplies

▶ www.beckhoff.com/ps

PS1000 | Power supplies

Output current	Output voltage 24 V DC (1-phase)	48 V DC (1-phase)	24 V DC (3-phase)	48 V DC (3-phase)
2.5 A	PS1111-2402-0002 24 V DC, 2.5 A DC, 1-phase			
3.8 A	PS1111-2403-0000 24 V DC, 3.8 A DC, 1-phase, NEC			
	PS1111-2403-0002 24 V DC, 3.8 A DC, 1-phase			
5 A	PS1061-2405-0000 24 V DC, 5 A DC, 1-phase, AC 200…240 V			
	PS1021-2405-0000 24 V DC, 5 A DC, 1-phase			
10 A	PS1061-2410-0000 24 V DC, 10 A DC, 1-phase, AC 200…240 V			
	PS1011-2410-0000 24 V DC, 10 A DC, 1-phase			
20 A	PS1061-2420-0000 24 V DC, 20 A DC, 1-phase, AC 200…240 V			
	PS1011-2420-0000 24 V DC, 20 A DC, 1-phase			

PS2000 | Power supplies

Output current	Output voltage 24 V DC (1-phase)	48 V DC (1-phase)	24 V DC (3-phase)	48 V DC (3-phase)
5 A	PS2001-2405-0000 24 V DC, 5 A DC, 1-phase			
10 A	PS2001-2410-0000 24 V DC, 10 A DC, 1-phase	PS2001-4810-0000 48 V DC, 10 A DC, 1-phase	PS2031-2410-0000 24 V DC, 10 A DC, 3-phase	
20 A	PS2001-2420-0000 24 V DC, 20 A DC, 1-phase			

PS2000 | Power supplies with EtherCAT

Output current	Output voltage 24 V DC (1-phase)	48 V DC (1-phase)	24 V DC (3-phase)	48 V DC (3-phase)
10 A	PS2001-2410-1001 24 V DC, 10 A DC, 1-phase, EtherCAT	PS2001-4810-1001 48 V DC, 10 A DC, 1-phase, EtherCAT		
20 A	PS2001-2420-1001 24 V DC, 20 A DC, 1-phase, EtherCAT			

PS3000 | Power supplies

Output current	Output voltage 24 V DC (1-phase)	48 V DC (1-phase)	24 V DC (3-phase)	48 V DC (3-phase)
10 A	PS3001-2410-0001 24 V DC, 10 A DC, 1-phase			PS3031-4810-0001 48 V DC, 10 A DC, 3-phase
20 A	PS3001-2420-0001 24 V DC, 20 A DC, 1-phase	PS3011-4820-0000 48 V DC, 20 A DC, 1-phase	PS3031-2420-0001 24 V DC, 20 A DC, 3-phase	PS3031-4820-0000 48 V DC, 20 A DC, 3-phase
40 A	PS3011-2440-0000 24 V DC, 40 A DC, 1-phase		PS3031-2440-0000 24 V DC, 40 A DC, 3-phase	

PS9000 | Buffer modules

Output current	Input voltage 24 V DC	48 V DC
20 A	PS9011-2420-0001 24 V DC, 20 A, 200 ms	PS9031-4820-0001 48 V DC, 20 A, 100 ms
40 A	PS9011-2440-0000 24 V DC, 40 A, 160 ms	

PS9400 | Redundancy modules

Output current	Input voltage 12…28 V DC	24…56 V DC
20 A	PS9401-2420-0000 I_{in}: 2 x 10 A	
40 A	PS9401-2440-0000 I_{in}: 2 x 20 A	PS9421-4840-0000 I_{in}: 2 x 20 A

PS9700 | DC/DC converter

Output current	Input voltage 18…36 V DC	36…60 V DC	475…750 V DC
10 A	PS9711-2410-0000 24 V DC, 10 A	PS9731-2410-0000 24 V DC, 10 A	
40 A			PS9771-2440-0000 24 V DC, 40 A

The Motion Company

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. Servomotors with One Cable Technology (OCT), combining power and feedback systems into one standard motor cable, reduce material and commissioning costs.

▶ **www.beckhoff.com/motion**

Intelligent linear product transport   `92`
- 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**

XTS.

Planar motor system   `91`
- free-floating movers for non-contact movement
- 6 degrees of freedom
- integrated position feedback
- individual machine layout
- ideal for all application areas

▶ **www.beckhoff.com/xplanar**

XPlanar.

ATRO: Automation Technology for Robotics
- modular industrial robot system
- limitless combinations due to easily pluggable motor and link modules
- endlessly rotating axes due to internal media feed
- complete integration into the control platform
- standardized interfaces

▶ **www.beckhoff.com/atro**
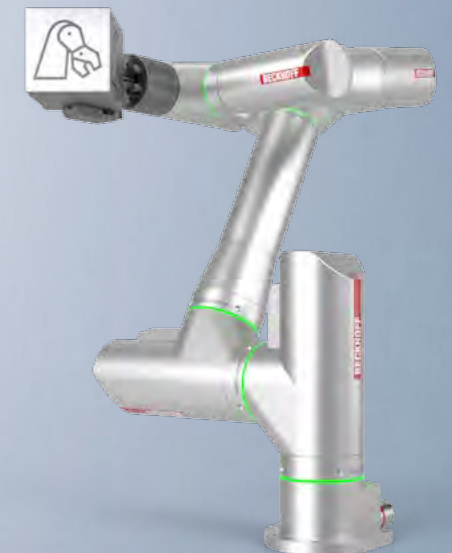
ATRO

Variable frequency drives   `76`
- prize-optimized and highly efficient
- single- and double-axis variants
- up to 6 digital I/Os
- fully integrated into TwinCAT
- optional drive-integrated safety functions

▶ **www.beckhoff.com/ variable-frequency-drives**

Servo drives   `76`
- available as multi-axis system, stand-alone or economy version (1-/2-channel)
- high-speed EtherCAT communication
- nominal current types, up to 170 A
- flexible motor type selection
- optimized for multi-axis applications
- 17 drive-integrated safety functions

▶ **www.beckhoff.com/servo-drives**

Distributed drive systems   `78`
- servo drives directly integrated into the motor
- STO/SS1 safety function or Safe Motion available
- minimal derating
- no changes in machine design required

▶ **www.beckhoff.com/ distributed-drive-systems**

Servomotors   `80`
- for demanding positioning tasks
- highly dynamic behavior
- maximum speed
- optimum force density

▶ **www.beckhoff.com/ rotary-servomotors**
▶ **www.beckhoff.com/ translatory-servomotors**

Compact drive technology   `86`
- high performance in small design
- motors and output stages for the < 48 V DC low voltage range
- servo, BLDC, stepper and DC motor output stages in IP20 or IP67
- servo and stepper motor drive with integrated output stage

▶ **www.beckhoff.com/ compact-drive-technology**
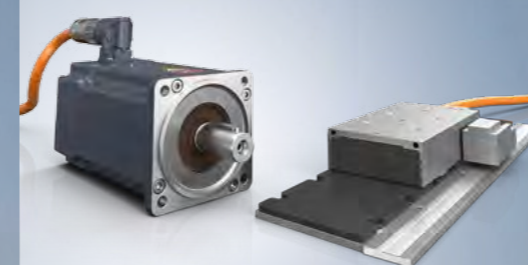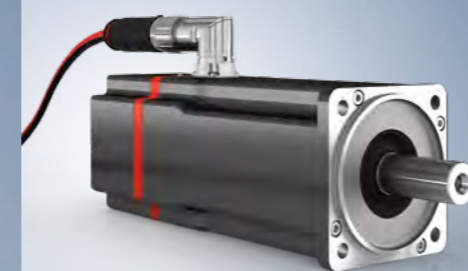
- scalable product range of servo drive technology
- integrated safety technology in compliance with safety performance level PL e, integrated into compact drive technology up to safety performance level PL d
- As the pioneer of One Cable Technology and the eXtended Transport System, Beckhoff specializes in manufacturing efficient, space-saving motion solutions.

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Drive Technology   75

Variable frequency drives

AX8000

AX5000

AF1000 | Economy variable frequency drives

Rated supply voltage	1-channel			2-channel		
1 x 110...240 V AC	AF1103-1xxx single-axis module, 1 x 110...240 V AC, 0.37 kW	AF1107-1xxx single-axis module, 1 x 110...240 V AC, 0.75 kW	AF1115-1xxx single-axis module, 1 x 110...240 V AC, 1.5 kW	AF1203-1xxx dual-axis module, 1 x 110...240 V AC, 0.37 kW	AF1207-1xxx dual-axis module, 1 x 110...240 V AC, 0.75 kW	
3 x 208...480 V AC	AF1107-3xxx single-axis module, 3 x 208...480 V AC, 0.75 kW	AF1115-3xxx single-axis module, 3 x 208...480 V AC, 1.5 kW	AF1130-3xxx single-axis module, 3 x 208...480 V AC, 3 kW	AF1207-3xxx dual-axis module, 3 x 208...480 V AC, 0.75 kW	AF1215-3xxx dual-axis module, 3 x 208...480 V AC, 1.5 kW	AF1222-3xxx dual-axis module, 3 x 208...480 V AC, 2.2 kW

Servo drives

AX1000 | Economy servo drives

Rated supply voltage	1-channel			2-channel	
1 x 110...240 V AC	AX1101-1xxx single-axis module, 1 x 110...240 V AC, 1.65 A	AX1103-1xxx single-axis module, 1 x 110...240 V AC, 3.4 A	AX1106-1xxx single-axis module, 1 x 110...240 V AC, 6.9 A	AX1201-1xxx dual-axis module, 1 x 110...240 V AC, 2 x 1.65 A	AX1203-1xxx dual-axis module, 1 x 110...240 V AC, 2 x 3.4 A
3 x 208...480 V AC		AX1103-3xxx single-axis module, 3 x 208...480 V AC, 3.4 A	AX1106-3xxx single-axis module, 3 x 208...480 V AC, 6.9 A	AX1203-3xxx dual-axis module, 3 x 208...480 V AC, 2 x 3 A	AX1206-3xxx dual-axis module, 3 x 208...480 V AC, 2 x 6 A

AX8000 | Multi-axis servo system

Function				
Power supply modules	AX8620 20 A DC	AX8640 40 A DC		
Power supply module DC	AX8600 50 A DC, for supply voltage 24...680 V DC			
Axis modules	AX8108 single-axis module 8 A, feedback: OCT, multi-feedback interface, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	AX8118 single-axis module 18 A, feedback: OCT, multi-feedback interface, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	AX8128 single-axis module 28 A, feedback: OCT, multi-feedback interface, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	AX8206 dual-axis module 2 x 6 A, feedback: OCT, multi-feedback interface, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion
Combined power supply and axis modules	AX8525 combined power supply and axis module 25 A, feedback: OCT, multi- feedback interface, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	AX8540 combined power supply and axis module 40 A, feedback: OCT, multi- feedback interface, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion		
Option modules	AX8810 capacitor module	AX8820 universal regenerative unit	AX8831 coupling module, 1-channel	AX8832 coupling module with two outputs

AX5000 | Digital compact servo drives

Function	1-channel				2-channel		
Servo drives	AX5101 100...480 V AC, 1.5 A	AX5103 100...480 V AC, 3 A	AX5106 100...480 V AC, 6 A	AX5112 100...480 V AC, 12 A	AX5201 100...480 V AC, 2 x 1.5 A	AX5203 100...480 V AC, 2 x 3 A	AX5206 100...480 V AC, 2 x 6 A
	AX5118 100...480 V AC, 18 A	AX5125 100...480 V AC, 25 A	AX5140 100...480 V AC, 40 A				
	AX5160 3 x 400...480 V AC, 60 A	AX5172 3 x 400...480 V AC, 72 A	AX5190 3 x 400...480 V AC, 90 A	AX5191 3 x 400...480 V AC, 110 A AX5192 3 x 400...480 V AC, 143 A AX5193 3 x 400...480 V AC, 170 A			
Encoder option cards	AX5701 EnDat® 2.1, Hiperface, BiSS® B, SinCos 1 V_{PP}	AX5721 1 x EnDat® 2.2, BiSS® C			AX5702 EnDat® 2.1, Hiperface, BiSS® B, SinCos 1 V_{PP}	AX5722 2 x EnDat® 2.2, BiSS® C	
TwinSAFE safe drive technology	AX5801 drive-integrated safety functions: STO, SS1	AX5805 drive-integrated safety functions: Safe Motion, for AX5x01 to AX5140	AX5806 drive-integrated safety functions: Safe Motion, for AX5160 to AX5193				
Option module	AX8820 universal regenerative unit						

ℹ **Product announcement**   for availability status see www.beckhoff.com

We reserve the right to make technical changes.

BECKHOFF New Automation Technology

Distributed drive systems

AMI8100,
rear view

ASI8100,
rear view

AMP8000 | Distributed servo drives (400 V AC)

Flange code	Motor length 1	Motor length 2	Motor length 3	Motor length 4
F3 (72 mm)	AMP8031 M_0 = 1.36...1.38 Nm, nn = 3000...9000 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	AMP8032 M_0 = 2.35...2.37 Nm, nn = 3000...9000 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	AMP8033 M_0 = 3.10...3.15 Nm, nn = 3000...8000 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	
F4 (87 mm)	AMP8041 M_0 = 2.35...2.40 Nm, nn = 3000...8000 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	AMP8042 M_0 = 3.84...4.10 Nm, nn = 2500...7000 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	AMP8043 M_0 = 4.70...5.40 Nm, nn = 2500...7000 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	
F5 (104 mm)	AMP8051 M_0 = 4.40...4.60 Nm, nn = 2500...8000 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	AMP8052 M_0 = 5.60...7.60 Nm, nn = 2000...7300 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	AMP8053 M_0 = 9.60...10.20 Nm, nn = 2000...4000 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	AMP8054 M_0 = 11.8 Nm, nn = 2000 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion

AMP8500 | Distributed servo drives with increased rotor moment of inertia (400 V AC)

Flange code	Motor length 1	Motor length 2	Motor length 3
F3 (72 mm)	AMP8531 M_0 = 1.36...1.38 Nm, nn = 3000...9000 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	AMP8532 M_0 = 2.35...2.37 Nm, nn = 3000...9000 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	AMP8533 M_0 = 3.10...3.15 Nm, nn = 3000...8000 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion
F4 (87 mm)	AMP8541 M_0 = 2.35...2.40 Nm, nn = 3000...8000 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	AMP8542 M_0 = 3.84...4.10 Nm, nn = 2500...7000 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	AMP8543 M_0 = 4.70...5.40 Nm, nn = 2500...7000 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion
F5 (104 mm)	AMP8551 M_0 = 4.40...4.60 Nm, nn = 2500...8000 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	AMP8552 M_0 = 5.60...7.60 Nm, nn = 2000...7300 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	AMP8553 M_0 = 9.60...10.20 Nm, nn = 2000...4000 min^{-1}, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion

AMP8600 | Distributed power supply modules

Function			
Supply modules	AMP8620-2005-0000 20 A DC for 400...480 V AC supply voltage, 5-channel, 24 V DC power supply	AMP8620-2005-0100 20 A DC for 400...480 V AC supply voltage, 5-channel, 24 V DC power supply, with regen resistor	AMP8620-2005-0200 20 A DC for 400...480 V AC supply voltage, 5-channel, 24 V DC power supply, with connector for regen resistor
	AMP8620-2005-0010 20 A DC for 1 x 120...240 V AC, 3 x 200...480 V AC supply voltage, 5-channel, 24 V DC power supply	AMP8620-2005-0110 20 A DC for 1 x 120...240 V AC, 3 x 200...480 V AC supply voltage, 5-channel, 24 V DC power supply, with regen resistor	AMP8620-2005-0210 20 A DC for 1 x 120...240 V AC, 3 x 200...480 V AC supply voltage, 5-channel, 24 V DC power supply, with connector for regen resistor

AMP8800 | Decentralized distribution modules

Function		
Distribution modules	AMP8805-1000-0000 5-channel, 24 V DC power supply, 430...848 V DC	AMP8805-1010-0000 5-channel, 24 V DC power supply, 155...848 V DC

AX8800 | Coupling modules

Function	1-channel	2-channel
Coupling modules	AX8831	AX8832

AMI8100 | Compact integrated servo drives (48 V DC)

Flange code	Motor length 1	Motor length 2	Motor length 3
F2 (58 mm)	AMI8121 M_0 = 0.48 Nm, nn = 3000 min^{-1}	AMI8122 M_0 = 0.78 Nm, nn = 2000...4500 min^{-1}	AMI8123 M_0 = 1.00 Nm, nn = 3000 min^{-1}
F3 (72 mm)	AMI8131 M_0 = 1.20 Nm, nn = 1800 min^{-1}	AMI8132 M_0 = 2.18 Nm, nn = 1000 min^{-1}	AMI8133 M_0 = 2.85 Nm, nn = 800 min^{-1}

ASI8100 | Compact integrated stepper motor drives (48 V DC)

Flange code	Motor length 1	Motor length 2	Motor length 3	Motor length 4
N1 (42 mm)	ASI8111 M_H = 0.29 Nm	ASI8114 M_H = 0.80 Nm		
N2 (56 mm)	ASI8121 M_H = 0.75 Nm	ⓘ ASI8122 M_H = 1.40 Nm	ⓘ ASI8123 M_H = 2.35 Nm	ⓘ ASI8124 M_H = 2.50 Nm ⓘ

We reserve the right to make technical changes.

BECKHOFF New Automation Technology

Rotary servomotors

▶ www.beckhoff.com/rotary-servomotors

AM8000   AM8300

AM8500   AM8000, AM8500   AM8700   AM8800
              with fan

AM8000 | Servomotors

Flange code	Motor length 1	Motor length 2	Motor length 3	Motor length 4
F1 (40 mm)	AM8011 M_0 = 0.20 Nm, nn = 8000 min^{-1}	AM8012 M_0 = 0.38 Nm, nn = 8000 min^{-1}	AM8013 M_0 = 0.52 Nm, nn = 8000 min^{-1}	
F2 (58 mm)	AM8021 M_0 = 0.50 Nm, nn = 8000...9000 min^{-1}	AM8022 M_0 = 0.80 Nm, nn = 8000...9000 min^{-1}	AM8023 M_0 = 1.20 Nm, nn = 8000...9000 min^{-1}	
F3 (72 mm)	AM8031 M_0 = 1.37...1.40 Nm, nn = 3000...9000 min^{-1}	AM8032 M_0 = 2.37...2.38 Nm, nn = 3000...9000 min^{-1}	AM8033 M_0 = 3.20...3.22 Nm, nn = 3000...9000 min^{-1}	
F4 (87 mm)	AM8041 M_0 = 2.37...2.45 Nm, nn = 3000...8000 min^{-1}	AM8042 M_0 = 4.10 Nm, nn = 2500...8000 min^{-1}	AM8043 M_0 = 5.60...5.65 Nm, nn = 2500...8000 min^{-1}	AM8044 M_0 = 7.10 Nm, nn = 2500...5000 min^{-1}
F5 (104 mm)	AM8051 M_0 = 4.80...6.30 Nm, nn = 2500...8000 min^{-1}	AM8052 M_0 = 8.20...10.7 Nm, nn = 2000...7300 min^{-1}	AM8053 M_0 = 11.4...15.4 Nm, nn = 2000...7000 min^{-1}	AM8054 M_0 = 13.8...17.2 Nm, nn = 2000...4000 min^{-1}
F6 (142 mm)	AM8061 M_0 = 12.8...17.1 Nm, nn = 1400...5000 min^{-1}	AM8062 M_0 = 21.1...29.9 Nm, nn = 1400...5000 min^{-1}	AM8063 M_0 = 29.0...41.4 Nm, nn = 1400...4000 min^{-1}	AM8064 M_0 = 35.0...49.0 Nm, nn = 1500...4000 min^{-1}
F7 (197 mm)	AM8071 M_0 = 31.8...42.8 Nm, nn = 1500...4000 min^{-1}	AM8072 M_0 = 54.6...80.7 Nm, nn = 1000...3000 min^{-1}	AM8073 M_0 = 70.0...104 Nm, nn = 1000...3000 min^{-1}	AM8074 M_0 = 92.0...129 Nm, nn = 1000...3000 min^{-1}

AM8300 | Servomotors with water cooling

Flange code	Motor length 2	Motor length 3	Motor length 4
F3 (72 mm)	AM8332 M_0 = 5.00...5.60 Nm, nn = 2200...8500 min^{-1}	AM8333 M_0 = 8.40 Nm, nn = 2300...8000 min^{-1}	
F4 (87 mm)	AM8342 M_0 = 10.90 Nm, nn = 1700...6000 min^{-1}	AM8343 M_0 = 14.77...16.35 Nm, nn = 1700...7000 min^{-1}	AM8344 M_0 = 22.30 Nm, nn = 1900...3700 min^{-1}
F5 (104 mm)	AM8352 M_0 = 19.20 Nm, nn = 1600...6300 min^{-1}	AM8353 M_0 = 28.80 Nm, nn = 1700...6300 min^{-1}	AM8354 M_0 = 33.10...38.40 Nm, nn = 2000...6500 min^{-1}
F6 (142 mm)	AM8362 M_0 = 43.89...49.80 Nm, nn = 1200...4000 min^{-1}	AM8363 M_0 = 60.65...74.70 Nm, nn = 1200...4900 min^{-1}	AM8364 M_0 = 98.10...99.60 Nm, nn = 1200...2500 min^{-1}
F7 (197 mm)	AM8372 M_0 = 129.00 Nm, nn = 850...3000 min^{-1}	AM8373 M_0 = 193.50 Nm, nn = 850...3000 min^{-1}	AM8374 M_0 = 233.00...258.50 Nm, nn = 750...2500 min^{-1}

AM8500 | Servomotors with increased rotor moment of intertia

Flange code	Motor length 1	Motor length 2	Motor length 3
F3 (72 mm)	AM8531 M_0 = 1.37...1.40 Nm, nn = 3000...9000 min^{-1}	AM8532 M_0 = 2.37...2.38 Nm, nn = 3000...9000 min^{-1}	AM8533 M_0 = 3.20...3.22 Nm, nn = 3000...9000 min^{-1}
F4 (87 mm)	AM8541 M_0 = 2.37...2.45 Nm, nn = 3000...8000 min^{-1}	AM8542 M_0 = 4.10 Nm, nn = 2500...8000 min^{-1}	AM8543 M_0 = 5.60...5.65 Nm, nn = 2500...8000 min^{-1}
F5 (104 mm)	AM8551 M_0 = 4.80...6.30 Nm, nn = 2500...8000 min^{-1}	AM8552 M_0 = 8.20...10.7 Nm, nn = 2000...7300 min^{-1}	AM8553 M_0 = 11.4...15.4 Nm, nn = 2000...7000 min^{-1}
F6 (142 mm)	AM8561 M_0 = 12.8...17.1 Nm, nn = 1400...5000 min^{-1}	AM8562 M_0 = 21.1...29.9 Nm, nn = 1400...5000 min^{-1}	AM8563 M_0 = 29.0...41.1 Nm, nn = 1400...4000 min^{-1}

AM8700 | Servomotors with anodized housing

Flange code	Motor length 1	Motor length 2	Motor length 3
R2 (77 mm)	AM8721 M_0 = 0.5 Nm, nn = 8000 min^{-1}	AM8722 M_0 = 0.8 Nm, nn = 8000 min^{-1}	AM8723 M_0 = 1.2 Nm, nn = 8000 min^{-1}
R3 (89 mm)	AM8731 M_0 = 1.38 Nm, nn = 6000 min^{-1}	AM8732 M_0 = 2.37 Nm, nn = 6000 min^{-1}	AM8733 M_0 = 3.22 Nm, nn = 6000 min^{-1}
R4 (114 mm)	AM8741 M_0 = 2.45 Nm, nn = 6000 min^{-1}	AM8742 M_0 = 4.10 Nm, nn = 5000 min^{-1}	AM8743 M_0 = 5.65 Nm, nn = 5000 min^{-1}
R5 (134 mm)	AM8751 M_0 = 4.90 Nm, nn = 5000 min^{-1}	AM8752 M_0 = 8.20 Nm, nn = 4000 min^{-1}	AM8753 M_0 = 11.4 Nm, nn = 4000 min^{-1}
R6 (189 mm)	AM8761 M_0 = 12.8 Nm, nn = 3000 min^{-1}	AM8762 M_0 = 21.1 Nm, nn = 3000 min^{-1}	AM8763 M_0 = 29.0 Nm, nn = 3000 min^{-1}

AM8800 | Stainless steel servomotors in hygienic design

Flange code	Motor length 1	Motor length 2	Motor length 3
R3 (89 mm)	AM8831 M_0 = 0.85 Nm, nn = 3000 min^{-1}	AM8832 M_0 = 1.40 Nm, nn = 3000 min^{-1}	AM8833 M_0 = 1.85 Nm, nn = 3000 min^{-1}
R4 (114 mm)	AM8841 M_0 = 1.60 Nm, nn = 3000 min^{-1}	AM8842 M_0 = 2.60 Nm, nn = 2500 min^{-1}	AM8843 M_0 = 3.50 Nm, nn = 2500 min^{-1}
R5 (134 mm)	AM8851 M_0 = 3.10 Nm, nn = 2500 min^{-1}	AM8852 M_0 = 4.80 Nm, nn = 2000 min^{-1}	AM8853 M_0 = 6.40 Nm, nn = 2000 min^{-1}
R6 (189 mm)	AM8861 M_0 = 7.75 Nm, nn = 1500 min^{-1}	AM8862 M_0 = 13.1 Nm, nn = 1500 min^{-1}	AM8863 M_0 = 16.7 Nm, nn = 1500 min^{-1}

Drive Technology

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Planetary gear units

▶ **www.beckhoff.com/planetary-gears**

AG2300   AG2400   AG2800

AG3210   AG3300   AG3400

AG2300 | High-end planetary gear units with output shaft

Sizes	Straight design
SP060	AG2300-+SP060S
	nominal output torque 21...40 Nm
SP075	AG2300-+SP075S
	nominal output torque 41...106 Nm
SP100	AG2300-+SP100S
	nominal output torque 76...277 Nm
SP140	AG2300-+SP140S
	nominal output torque 127...581 Nm
SP180	AG2300-+SP180S
	nominal output torque 289...1162 Nm
SP210	AG2300-+SP210S
	nominal output torque 728...2200 Nm
SP240	AG2300-+SP240S
	nominal output torque 1344...3784 Nm

AG2400 | High-end planetary gear units with output flange

Sizes	Straight design
TP004	AG2400-+TP004S
	nominal output torque 26...48 Nm
TP010	AG2400-+TP010S
	nominal output torque 77...126 Nm
TP025	AG2400-+TP025S
	nominal output torque 169...304 Nm
TP050	AG2400-+TP050S
	nominal output torque 316...607 Nm
TP110	AG2400-+TP110S
	nominal output torque 861...1408 Nm
TP300	AG2400-+TP300S
	nominal output torque 1354...2353 Nm
TP500	AG2400-+TP500S
	nominal output torque 2800...4400 Nm

AG2800 | Planetary gear units in hygienic design

Sizes	Straight design
HDV015	AG2800-+HDV015S
	nominal output torque 15...16 Nm
HDV025	AG2800-+HDV025S
	nominal output torque 35...40 Nm
HDV035	AG2800-+HDV035S
	nominal output torque 90...100 Nm

AG3210 | Economy planetary gear units

Sizes	Straight design
NP005	AG3210-+NP005S
	nominal output torque 5.1...6.5 Nm
NP015	AG3210-+NP015S
	nominal output torque 17...21 Nm
NP025	AG3210-+NP025S
	nominal output torque 40...50 Nm
NP035	AG3210-+NP035S
	nominal output torque 100...130 Nm
NP045	AG3210-+NP045S
	nominal output torque 200...350 Nm

AG3300 | Economy planetary gear units

Sizes	Straight design
NPS015	AG3300-+NPS015S
	nominal output torque 17...21 Nm
NPS025	AG3300-+NPS025S
	nominal output torque 40...50 Nm
NPS035	AG3300-+NPS035S
	nominal output torque 100...130 Nm
NPS045	AG3300-+NPS045S
	nominal output torque 200...350 Nm

AG3400 | Economy planetary gear units with output flange

Sizes	Straight design
NPT005	AG3400-+NPT005S
	nominal output torque 5.1...6.5 Nm
NPT015	AG3400-+NPT015S
	nominal output torque 17...21 Nm
NPT025	AG3400-+NPT025S
	nominal output torque 40...50 Nm
NPT035	AG3400-+NPT035S
	nominal output torque 100...130 Nm
NPT045	AG3400-+NPT045S
	nominal output torque 200...350 Nm

Translatory servomotors

▶ www.beckhoff.com/translatory-servomotors

AL8000

AA3000   AA2518

AL8000 | Highly dynamic linear servomotors

Peak force	Overall width W2 (50 mm)	Overall width W4 (80 mm)	Overall width W6 (130 mm)
≤ 500 N	AL8021 F_{max} = 120 N, I_{max} = 7.3 A, v_{max} = 12 m/s	AL8041 F_{max} = 230 N, I_{max} = 7.2 A, v_{max} = 7 m/s	
	AL8022 F_{max} = 240 N, I_{max} = 7.3 A, v_{max} = 12 m/s	AL8042 F_{max} = 460 N, I_{max} = 7.2 A, v_{max} = 7 m/s	
	AL8024 F_{max} = 480 N, I_{max} = 12 A, v_{max} = 12 m/s		
> 500... 1500 N	AL8026 F_{max} = 720 N, I_{max} = 12 A, v_{max} = 10 m/s	AL8043 F_{max} = 690 N, I_{max} = 7.2/12 A, v_{max} = 3.5/7 m/s	
		AL8044 F_{max} = 920 N, I_{max} = 7.2/15 A, v_{max} = 3.5/7 m/s	
		AL8045 F_{max} = 1150 N, I_{max} = 12/24 A, v_{max} = 3.5/7 m/s	
		AL8046 F_{max} = 1380 N, I_{max} = 12/24 A, v_{max} = 3.5/7 m/s	
> 1500 N		AL8048 F_{max} = 1840 N, I_{max} = 15/29 A, v_{max} = 3.5/7 m/s	AL8064 F_{max} = 1800 N, I_{max} = 12/24 A, v_{max} = 3/6 m/s
			AL8065 F_{max} = 2250 N, I_{max} = 15/24 A, v_{max} = 3/6 m/s
			AL8066 F_{max} = 2700 N, I_{max} = 18/42 A, v_{max} = 3/6 m/s
			AL806A F_{max} = 4500 N, I_{max} = 24/72 A, v_{max} = 3/6 m/s
			AL806B F_{max} = 4950 N, I_{max} = 29 A, v_{max} = 3 m/s
			AL806F F_{max} = 6750 N, I_{max} = 42/100 A, v_{max} = 3/6 m/s

AA3000 | Electric cylinders (400 V AC)

Peak force	Flange code 58 mm	Flange code 75 mm	Flange code 110 mm
3125... 6250 N	AA3023 F_c = 700/1400 N		
6250... 12,500 N		AA3033 F_c = 1850/3700 N	
12,500... 25,000 N			AA3053 F_c = 3200/6400 N

AA2500 | Tubular motors (400 V AC)

Peak force	Continuous force ≥ 300 N
> 500... 1500 N	AA2518 **i** F_p = 1050 N, I_p = 15 A, F_c = 300 N

i **Product announcement**   for availability status see www.beckhoff.com

We reserve the right to make technical changes.

BECKHOFF New Automation Technology

Compact drive technology

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

AM8100   AG2250   AL8100

AS1000   AS2000   AG1000   AA3100

AM8100 | Servomotors for compact drive technology

Flange code	Motor length 1	Motor length 2	Motor length 3
F1 (40 mm)	AM8111	AM8112	AM8113
	$M_0 = 0.20$ Nm, $n_N = 4000$ min^{-1}	$M_0 = 0.38$ Nm $n_N = 4500$ min^{-1}	$M_0 = 0.52$ Nm, $n_N = 3000$ min^{-1}
F2 (58 mm)	AM8121	AM8122	AM8123
	$M_0 = 0.50$ Nm, $n_N = 3000...6000$ min^{-1}	$M_0 = 0.80$ Nm, $n_N = 2000...8000$ min^{-1}	$M_0 = 1.20$ Nm, $n_N = 5000$ min^{-1}
F3 (72 mm)	AM8131	AM8132	AM8133
	$M_0 = 1.30...1.35$ Nm, $n_N = 1000...4000$ min^{-1}	$M_0 = 2.37...2.40$ Nm, $n_N = 1000...2500$ min^{-1}	$M_0 = 3.20$ Nm, $n_N = 2000$ min^{-1}
F4 (87 mm)	AM8141	AM8142	
	$M_0 = 2.40$ Nm, $n_N = 1000...2500$ min^{-1}	$M_0 = 3.90$ Nm, $n_N = 1500$ min^{-1}	

AG2250 | Planetary gear units for servo and stepper motors

Sizes	Straight design	Angled design
PLE40	AG2250-+PLE40	
	nominal output torque 5...20 Nm	
PLE60	AG2250-+PLE60	
	nominal output torque 15...64 Nm	
PLE80	AG2250-+PLE80	
	nominal output torque 38...120 Nm	
WPLE40		AG2250-+WPLE40
		nominal output torque 4.5...20 Nm
WPLE60		AG2250-+WPLE60
		nominal output torque 14...64 Nm
WPLE80		AG2250-+WPLE80
		nominal output torque 38...120 Nm

AL8100 | Highly dynamic linear servomotors for compact drive technology

Peak force	Overall width W2 (50 mm)		
≤ 500 N	AL8121	AL8122	AL8124
	$F_{max} = 100$ N, $I_{max} = 5.6...9.0$ A, $v_{max} = 2.5...4.5$ m/s	$F_{max} = 170...220$ N, $I_{max} = 5.6...32$ A, $v_{max} = 1.3...6$ m/s	$F_{max} = 440$ N, $I_{max} = 16...32$ A, $v_{max} = 1.7...3.5$ m/s
> 500... 1500 N	AL8126		
	$F_{max} = 650$ N, $I_{max} = 32$ A, $v_{max} = 2.3$ m/s		

ASxxxx | Stepper motors

Flange code	Rated current (per phase)						
	1.00 A	1.50 A	2.00 A	5.00 A	5.60 A	6.50 A	5.60 A | 6.40 A
N1 (NEMA17/ 42 mm)	AS1010 0.40 Nm						
	AS1020 0.5 Nm						
N2 (NEMA23/ 56 mm)		AS1030 0.6 Nm	AS2021 0.8 Nm		AS2022 1.50 Nm		AS2023 1.8 Nm | 2.3 Nm
N3 (NEMA34/ 86 mm)				AS1050 1.2 Nm	AS2041 3.3 Nm	AS2043 8.0 Nm	
				AS1060 5.0 Nm	AS2042 6.4 Nm		

AG1000 | Planetary gear units for AS1000 stepper motors

Sizes	Straight design
PM52	AG1000-+PM52.i
	nominal output torque 4 Nm
PM81	AG1000-+PM81.i
	nominal output torque 20 Nm

AA3100 | Electric cylinders (48 V DC)

Peak force	Flange code 58 mm	Flange code 75 mm
2650... 5300 N	AA3123	
	$F_c = 650/1300$ N	
6000... 12,000 N		AA3133
		$F_c = 1400/2800$ N

EtherCAT Terminals

EL/ELM7xxx | EtherCAT Terminals, compact drive technology

Motor type	< 3 A	3...5 A	> 5 A		16 A	
Servomotor			ELM7211-0010 I_{rms} = 4.5 A, 48 V DC			
			ELM7211-9016 I_{rms} = 4.5 A, 48 V DC, TwinSAFE Logic	ELM7211-9018 I_{rms} = 4.5 A, 48 V DC, Safe Motion, TwinSAFE Logic		
			ELM7212-0010 I_{rms} = 2 x 4.5 A, 48 V DC		ELM7222-0010 I_{rms} = 2 x 8.0 A, 48 V DC	
			ELM7212-9016 I_{rms} = 2 x 4.5 A, 48 V DC, TwinSAFE Logic	ELM7212-9018 I_{rms} = 2 x 4.5 A, 48 V DC, Safe Motion, TwinSAFE Logic	ELM7222-9016 I_{rms} = 2 x 8.0 A, 48 V DC, TwinSAFE Logic	ELM7222-9018 I_{rms} = 2 x 8.0 A, 48 V DC, Safe Motion, TwinSAFE Logic
	EL7201-0010 I_{rms} = 2.8 A, 48 V DC, OCT	EL7211-0010 I_{rms} = 4.5 A, 48 V DC, OCT	ELM7221-0010 I_{rms} = 8 A, 48 V DC		ELM7231-0010 I_{rms} = 16 A, 48 V DC	
	EL7201 I_{rms} = 2.8 A, 48 V DC, resolver	EL7211 I_{rms} = 4.5 A, 48 V DC, resolver	ELM7221-9016 I_{rms} = 8 A, 48 V DC, TwinSAFE Logic	ELM7221-9018 I_{rms} = 8 A, 48 V DC, Safe Motion, TwinSAFE Logic	ELM7231-9016 I_{rms} = 16 A, 48 V DC, TwinSAFE Logic	ELM7231-9018 I_{rms} = 16 A, 48 V DC, Safe Motion, TwinSAFE Logic
	EL7201-9014 I_{rms} = 2.8 A, 48 V DC, OCT, STO	EL7211-9014 I_{rms} = 4.5 A, 48 V DC, OCT, STO	EL7221-9014 I_{rms} = 7...8 A with ZB8610, 48 V DC, OCT, STO			
Stepper motor	EL7031 I_{max} = 1.5 A, 24 V DC	EL7041 I_{max} = 5.0 A, 48 V DC, incr. enc.				
	EL7031-0030 I_{max} = 2.8 A, 24 V DC	EL7041-0052 I_{max} = 5.0 A, 48 V DC				
	EL7037 I_{max} = 1.5 A, 24 V DC, incr. enc., vector control	EL7047 I_{max} = 5.0 A, 48 V DC, incr. enc., vector control				
		EL7047-9014 I_{max} = 5.0 A, 48 V DC, incr. enc., vector control, STO				
		EL7062 I_{max} = 3 A, 5 V DC, incr. enc.				
DC motor output stage	EL7332 I_{max} = 1.0 A, 24 V DC	EL7342 I_{max} = 3.5 A, 48 V DC, incr. enc.				

The standard EtherCAT Terminals (ELxxxx) can be optionally ordered as ESxxxx with pluggable wiring level.

EtherCAT Box modules

EL/ELM7xxx | EtherCAT Terminals, compact drive technology

Motor type	< 3 A	3...5 A	> 5 A	16 A
BLDC motor		EL7411 I_{rms} = 4.5 A, 48 V DC		
		EL7411-9014 I_{rms} = 4.5 A, 48 V DC, STO		
4-axis interface	EM7004 4 incr. enc., 32 digital I/Os 24 V DC, 4 analog outputs ±10 V			

EP7xxx | EtherCAT Box, compact drive technology

Motor type	< 3 A	> 3 A		
Servomotor		EP7211-0034 I_{rms} = 4.5 A, 48 V DC, OCT, STO suitable	EP7211-0035 I_{rms} = 4.5 A, 48 V DC, OCT, STO suitable, drive profile CiA DS402	
Stepper motor		EP7047-1032 I_{max} = 5.0 A, 48 V DC		
	EP7041-1002[1] I_{max} = 1.5 A, 48 V DC, incremental encoder, 2 digital inputs, 1 digital output	EP7041-0002[1] I_{max} = 5 A, 48 V DC, incremental encoder, 2 digital inputs, 1 digital output	EP7041-2002[1] I_{max} = 5 A, 48 V DC, incremental encoder, 2 digital inputs, 1 digital output, motor connection via plug	
		EP7041-3002[1] I_{max} = 5 A, 48 V DC, incremental encoder, for high-speed applications, encoder system (24 V DC encoder)	EP7041-3102 I_{max} = 5 A, 48 V DC, incremental encoder, for high-speed applications, encoder system (5 V DC encoder)	
		EP7041-4032 I_{max} = 5.0 A, 48 V DC, BiSS® C encoder		
DC motor		EP7342-0002[1] I_{max} = 3.5 A, 48 V DC		
BLDC motor		EP7402-0057 for roller conveyor systems, 24 V DC, EtherCAT junction	EP7402-0067 for roller conveyor systems, 48 V DC, EtherCAT junction	EP7402-0167 for roller conveyor systems, 48 V DC

EPxxxx: industrial housing in IP67, [1]also as ERxxxx: zinc die-cast housing in IP67, [2]also as EQxxxx: stainless steel housing in IP69K

BECKHOFF New Automation Technology

EtherCAT P Box modules   EtherCAT plug-in modules   Bus Terminals

EPP7xxx | EtherCAT P Box, compact drive technology

Motor type	< 3 A	> 3 A
Stepper motor	EPP7041-1002 Imax = 1.5 A, 48 V DC, incremental encoder	EPP7041-3002 Imax = 5.0 A, 48 V DC, incremental encoder
DC motor output stage		EPP7342-0002 Imax = 3.5 A, 48 V DC

EJ7xxx | EtherCAT plug-in modules, compact drive technology

Motor type	< 3 A		3…5 A	
Servomotor			EJ7211-0010 Irms = 4.5 A, 48 V DC, OCT	EJ7211-9414 Irms = 4.5 A, 48 V DC, OCT, STO, TwinSAFE SC
Stepper motor	EJ7031 Imax = 1.5 A, 24 V DC	EJ7037 Imax = 1.5 A, 24 V DC, incremental encoder, vector control	EJ7041-0052 Imax = 5.0 A, 48 V DC	EJ7047 Imax = 5.0 A, 48 V DC, incremental encoder, vector control
DC motor output stage			EJ7334-0008 Imax = 3.0 A, 24 V DC, incremental encoder	EJ7342 Imax = 3.5 A, 48 V DC, incremental encoder
BLDC			EJ7411 Irms = 4.5 A, 48 V DC	

KL2xxx | Bus Terminals, compact drive technology

Motor type	< 3 A		3…5 A
Stepper motor	KL2531 Imax = 1.5 A, 24 V DC		KL2541 Imax = 5.0 A, 48 V DC, incremental encoder
DC motor output stage	KL2532 Imax = 1.0 A, 24 V DC	KL2284 reverse switching, Imax = 2.0 A, 0…24 V DC	KL2552 Imax = 5.0 A, 48 V DC, incremental encoder
AC motor speed controller	KL2791 230 V AC, 200 VA, 1-phase AC motor		

The standard Bus Terminals (KLxxxx) can be optionally ordered as KSxxxx with pluggable wiring level.

XPlanar | Planar motor system

▶ www.beckhoff.com/xplanar

Movers

Tile   Starter kits

XPlanar | Planar motor system

Movers	APM4220-0000-0000 0.6 kg payload, 113 mm x 113 mm x 12 mm	APM4230-0000-0000 0.8 kg payload, 115 mm x 155 mm x 12 mm	ℹ APM4221-0000-0000 1.0 kg payload, 127 mm x 127 mm x 12 mm	APM4330-0001-0000 1.2 kg payload, 155 mm x 155 mm x 12 mm, stainless steel
	APM4330-0000-0000 1.8 kg payload, 155 mm x 155 mm x 12 mm	APM4350-0000-0000 3.0 kg payload, 155 mm x 235 mm x 12 mm	ℹ APM4550-0000-0000 4.5 kg payload, 235 mm x 235 mm x 12 mm	
Tile	APS4322-0000-0000 240 mm x 240 mm	APS4244-1x00-0000 320 mm x 320 mm	APS4224-1x00-0000 160 mm x 320 mm, alignment to the y axis	APS4242-1x00-0000 320 mm x 160 mm, alignment to the x axis
Accessories	APM9001-0000-4xxx XPlanar ID bumper, 90-degree mover rotation			
Starter kits	APS9000 6 (2 x 3) APS4322 planar motor tiles, 2 APM4330 movers, Industrial PC, software, pre-installed, ready for operation	APS9001 12 (4 x 3) APS4322 planar motor tiles, 4 APM4330 movers, Industrial PC, software, pre-installed, ready for operation	APS9002-0000-0001 2 APS4322 planar motor tiles, 2 APM4220 movers, Industrial PC, software, pre-installed, ready for operation, with plexiglass cover and transport case	

BECKHOFF New Automation Technology

XTS | Linear product transport

▶ www.beckhoff.com/xts

Standard motor modules

Hygienic motor modules

Standard guide rails

Hygienic guide rails

Standard movers

Hygienic movers

NCT electronics

Starter kits

XTS | Motor modules

Design form	XTS Standard	XTS Hygienic
Straight	AT2000 straight, without infeed	ATH2000 straight, without infeed
	AT2200 EcoLine, straight, without infeed	
	AT2001 straight, with connection cables for infeed	ATH2001 straight, with infeed
	AT2002 straight, with plug connector for infeed	ATH2002 straight, with angled infeed
	AT2202 EcoLine, straight, with plug connector for infeed	
	AT2100 straight, without infeed, with integrated NCT functionality	
	AT2102 straight, with plug connector for infeed, with integrated NCT functionality	
22.5° curved segment (Ø 1273 mm)	AT2020 22.5° curved segment, without infeed	
	AT2021 22.5° curved segment, with connection cables for infeed	
-22.5° curved segment (Ø 1273 mm)	AT2025 -22.5° curved segment, without infeed	
	AT2026 -22.5° curved segment, with connection cables for infeed	
45° curved segment (Ø 637 mm)	AT2040 45° curved segment, without infeed	ATH2040 45° curved segment, without infeed
	AT2041 45° curved segment, with connection cables for infeed	ATH2041 45° curved segment, with straight infeed
		ATH2042 45° curved segment, with angled infeed
180° curved segment (clothoid)	AT2050 180° curved segment, without infeed	ATH2050 180° curved segment, without infeed
		ATH2051 180° curved segment, with straight infeed
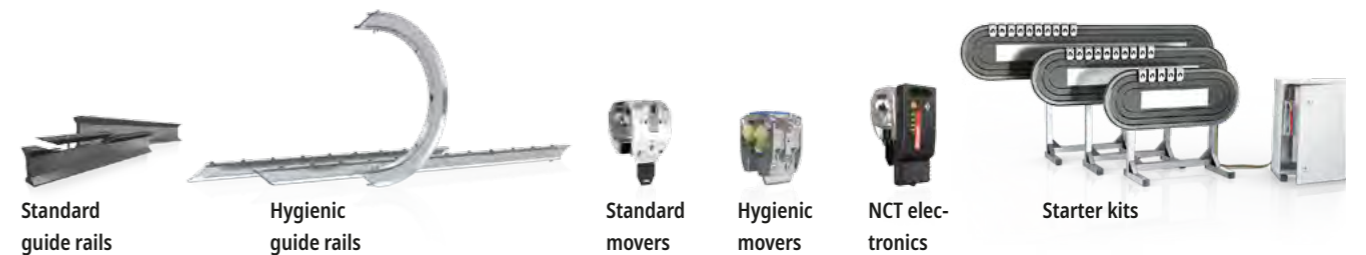
XTS | Guide rails

Design form	XTS Standard	XTS Hygienic	
Straight	AT9000 straight, without lock	ATH9000 straight, without lock	
	AT9100 straight, with lock	ATH9100 straight, with lock	ATH9200 straight, connector
45° curved segment (Ø 637 mm)	AT9040 45° curved segment, without lock		
180° curved segment (clothoid)	AT9050 180° curved segment, without lock	ATH9050 180° curved segment	

XTS | Movers

Material	XTS Standard		XTS Hygienic
Aluminum	AT9011 mover, length 70 mm	AT9014 mover, length 55 mm or 70 mm, spring-loaded	ATH9013 mover, length 75 mm
	AT9001 magnetic plate sets		
Stainless steel			ATH9011 mover, length 75 mm
			ATH9001 magnetic plate sets

XTS | NCT electronics

	Version			
Basic electronics	AT8200-1000-0100 NCT electronics, with housing, without mover	AT8200-2000-0100 NCT electronics, with housing, without mover, suitable for third-party movers	AT8300-1100-0100 NCT electronics, with housing, mounted on AT9014-1070-0550 mover	AT8300-1200-0100 NCT electronics, with housing, mounted on AT9014-1070-1550 mover (mover 1)

XTS | Starter kits

	Mover 55 mm length	Mover 70 mm length	With NCT functionality
Small	AT2000-0500-0055	AT2000-0500-0170	AT2100-0011-0001
Medium	AT2000-1000-0055	AT2000-1000-0170	AT2100-0012-0001
Large	AT2000-1500-0055	AT2000-1500-0170	AT2100-0032-0001

The Automation Company

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® and Simulink®, Safety C/FBD
- modular software development
- code generation interface
- link to source control systems
- TwinCAT PLC++: new PLC technology

High performance
- cycle times from 50 µs
- multi-core support
- support of 32-bit and 64-bit operating systems
- pre-emptive multitasking
- TwinCAT PLC++: new PLC technology

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/twincat**

TwinCAT 3 `96`
- 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, machine learning

TwinCAT 2 `106`

TwinSAFE `110`
- 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

▶ **www.beckhoff.com/twinsafe**
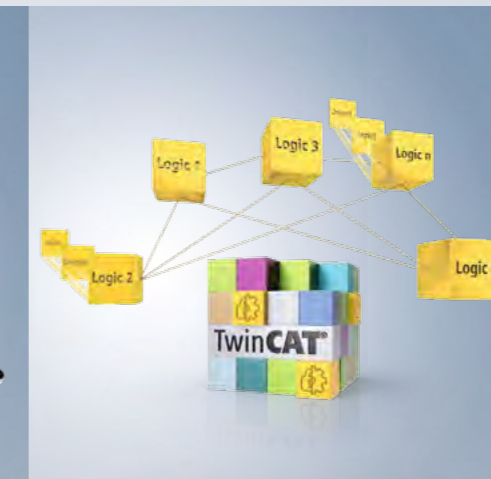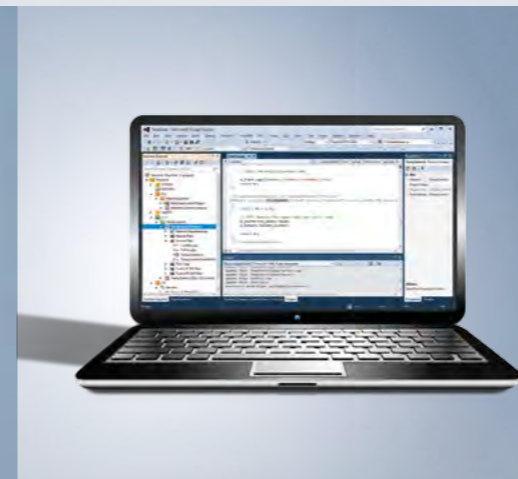
- efficient, universal engineering
- programming in different languages
- Open, hardware-independent control system gives freedom of choice in terms of automation and control components.
- scalable control platform from single- to multi-core CPUs
- all control functions on a single, centralized platform: PLC, motion control, robotics, measurement technology, a.o.

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We reserve the right to make technical changes.

TwinCAT 3

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The TwinCAT 3 runtime components are available for different platform levels.
The platform levels correspond to the various TwinCAT 3 platform levels of the Beckhoff PCs. The TwinCAT 3 platform level of a Beckhoff PC depends on the configuration and the technical data of the PC (including the processor).

The overview shows the various TwinCAT 3 platform levels. The controllers integrated in the platform levels represent sample configurations. The TwinCAT 3 platform level required for a TwinCAT 3 Runtime component can be found in the product description of the respective Beckhoff PC.

TwinCAT 3 – Platform levels

Example of a TwinCAT 3 platform level:
C6920-0080 | Control cabinet Industrial PC with Intel® Core™ i3 processor, 4 cores, TwinCAT 3 platform level: **(TC3: 60)**, corresponds to the TwinCAT 3 platform level P60 Mid Performance

P10 Basic
Arm® Cortex®-M7, Arm® Cortex®-A9

P20 Economy
Arm® Cortex®-A9, Arm® Cortex®-A53

P30 Economy Plus
Arm® Cortex®-A8, Arm® Cortex®-A53

P40 Performance
Intel Atom®, AMD Ryzen™

P50 Performance Plus
Intel® Celeron® U, Celeron®, Pentium®, Atom®, Core™ i3-U, AMD Ryzen™

P60 Mid Performance
Intel® Core™ i3, Core™ i5-U, Core™ i7-U, AMD Ryzen™

P70 High Performance
Intel® Xeon®, Core™ i5

P80 Very High Performance
Intel® Xeon®, Core™ i7

P81...P84 Very High Performance
P81
Intel® Xeon®, 12 Cores, Intel® Core™ i9
P83
Intel® Xeon®, 24...32 Cores
P84
Intel® Xeon®, 48...64 Cores

P90 Other
1...4 Cores
P91 Other
5...8 Cores
P92 Other
9...16 Cores
P93 Other
17...32 Cores
P94 Other
33...64 Cores

The controllers integrated in the platform classifications are only example configurations.

TwinCAT 3 – eXtended Automation Engineering (XAE)

TwinCAT 3 – eXtended Automation Runtime (XAR)

Base

TC1220 | TwinCAT 3 PLC/C++/MATLAB® and Simulink®
TC1210 | TwinCAT 3 PLC/C++
TC1100 | TwinCAT 3 I/O
TC1000 | TwinCAT 3 ADS

TC1270 | TwinCAT 3 PLC/NC PTP 10/NC I/CNC
TC1260 | TwinCAT 3 PLC/NC PTP 10/NC I
TC1250 | TwinCAT 3 PLC/NC PTP 10
TC1200 | TwinCAT 3 PLC
TC1100 | TwinCAT 3 I/O
TC1000 | TwinCAT 3 ADS

TC1320 | TwinCAT 3 C++/MATLAB® and Simulink®
TC1300 | TwinCAT 3 C++
TC1100 | TwinCAT 3 I/O
TC1000 | TwinCAT 3 ADS

Functions

TF1xxx	System	TF5xxx	Motion
TF2xxx	HMI	TF6xxx	Connectivity
TF3xxx	Measurement	TF7xxx	Vision
TF4xxx	Controller	TF8xxx	Industry-specific

TwinCAT 3 is divided into components. The TwinCAT 3 engineering components enable the configuration, programming and debugging of applications. The TwinCAT 3 runtime consists of further components – basic components and functions. The basic components can be extended by functions.

TwinCAT 3 Engineering	TE1000	TwinCAT 3 engineering environment
TwinCAT 3 Realtime Monitor	TE1010	tool for precise diagnostics and optimization of the runtime behavior of tasks in the TwinCAT 3 runtime
TwinCAT 3 Documentation Generation	TE1030	tool for simplified creation of documentation from the current PLC code of the machine via specific markups
TwinCAT 3 EtherCAT Simulation	TE1111	easy configurations of simulation environments with several EtherCAT slaves
TwinCAT 3 XCAD Interface	TE1120	interface between ECAD tools and TwinCAT 3
TwinCAT 3 Interface for Inventor®	TE1130	link between TwinCAT and the Inventor® 3D CAD software for SiL simulation ⓘ
TwinCAT 3 Interface Maintenance for Inventor®	TE1131	optional annual expansion of functions for TwinCAT 3 Interface for Inventor® ⓘ
TwinCAT 3 PLC Static Analysis	TE1200	analysis tool that tests PLC software on the basis of coding rules
TwinCAT 3 PLC Profiler	TE1210	analyzes the runtime characteristics of a PLC project and identifies time-intensive call-ups and program sections
TwinCAT 3 Scope View Professional	TE1300	software oscilloscope for the graphical display of data captured from several target systems
TwinCAT 3 Filter Designer	TE1310	graphical engineering tool for determining coefficients of digital filters
TwinCAT 3 Target for Simulink®	TE1400	TwinCAT target for Simulink® for generating TwinCAT 3 modules
TwinCAT 3 Target for MATLAB®	TE1401	TwinCAT target for MATLAB® for generating TwinCAT 3 modules
TwinCAT 3 Target for Embedded Coder®	TE1402	TwinCAT Target for generating TwinCAT 3 modules with Embedded Coder®
TwinCAT 3 Interface for MATLAB® and Simulink®	TE1410	communication interface between MATLAB® and Simulink® and the TwinCAT 3 runtime
TwinCAT 3 Target for FMI	TE1420	interface for simulation tools that support the Functional Mockup Interface (FMI)
TwinCAT 3 Simulation Runtime for FMI	TE1421	Co-Simulation interface for tools that support the Functional Mockup Interface (FMI)
TwinCAT 3 Valve Diagram Editor	TE1500	graphical tool for designing the characteristic curve of a hydraulic valve
TwinCAT 3 Cam Design Tool	TE1510	graphic design tool for electronic cam plates
TwinCAT 3 EAP Configurator	TE1610	tool for visualizing and configuring communication networks, in which data exchange based on the EtherCAT Automation Protocol (EAP) takes place
TwinCAT 3 HMI Engineering	TE2000	tool for developing platform-independent user interfaces
TwinCAT 3 Analytics Workbench	TE3500	engineering tool for creating continuous data analysis of machines and plants with automatic code and dashboard generation
TwinCAT 3 Analytics Workbench Maintenance	TE3501	optional annual expansion of functions for TwinCAT 3 Analytics Workbench
TwinCAT 3 Analytics Service Tool	TE3520	tool for process data analysis, ideal for commissioning and service technicians
TwinCAT 3 Analytics Service Tool Maintenance	TE3521	optional annual expansion of functions for TwinCAT 3 Analytics Service Tool
TwinCAT 3 Motion Designer	TE5910	TwinCAT 3 Motion Designer for drive dimensioning
TwinCAT 3 Cogging Compensation for linear motors	TE5920	engineering environment for AL8000 linear motors, to reduce cogging forces ⓘ
TwinCAT 3 Drive Manager 2	TE5950	TwinCAT 3 Drive Manager 2 for commissioning the AX8000 multi-axis servo system, AX5000 digital compact servo drive, AMP8000 distributed servo drive system, AMI8100 integrated servo drives or the I/O components EL72xx, EL74xx, EL70x7, ELM72xx, EP72xx and EJ72xx
TwinCAT 3 Autotuning	TE5960	TwinCAT 3 Autotuning to simplify the commissioning of servo axes by automatically identifying the mechanics and determining the load inertia, controller parameters and filter settings
TwinCAT 3 OPC UA Nodeset Editor	TE6100	Engineering tool for creating and editing OPC UA nodeset files, which are used in particular for companion specifications. With the help of the editor, existing companion specifications or also own information models can be mapped on a Beckhoff controller and linked with data points from the PLC.
TwinCAT 3 OPC UA Nodeset Editor L2	TE6101	extension of the TE6100 Nodeset Editor basic license to include additional functions, e.g. PLC code generation ⓘ

TwinCAT 3 ADS	TC1000	The Automation Device Specification (ADS) is the communication protocol of TwinCAT. It enables the data exchange and the control of TwinCAT systems. ADS is media-independent and can communicate via serial or network connections.
TwinCAT 3 I/O	TC1100	Using TwinCAT I/O, cyclic data can be collected by different fieldbuses in process images. Cyclic tasks drive the corresponding fieldbuses. Various fieldbuses can be operated with different cycle times on one CPU. Applications can directly access the process image. The fieldbuses and the process images are configured in TwinCAT Engineering.
TwinCAT 3 PLC	TC1200	TwinCAT PLC realizes one or more PLCs on an Industrial PC. The international standard IEC 61131-3 3rd is used to program the PLC; all programming languages described in this standard are supported. Various convenient debugging options facilitate troubleshooting and commissioning. Program modifications can be carried out at any times and in any size online, i.e. when the PLC is running.
TwinCAT 3 PLC/C++	TC1210	Based on the TwinCAT PLC TC1200, TC1210 offers the additional option of using C++ modules in the runtime parallel to the PLC through TC1300 TwinCAT 3 C++.
TwinCAT 3 PLC/C++/ MATLAB® and Simulink®	TC1220	MATLAB® and Simulink® are established development environments in science and industry. Using the TE140x products from Beckhoff and the MATLAB Coder™ or the Simulink Coder™ from MathWorks®, TwinCAT 3 runtime modules (TcCOM objects and PLC function blocks) can be created from MATLAB® and Simulink®. TC1220 is an extension of TC1210 with the possibility to execute these modules.
TwinCAT 3 PLC/NC PTP 10	TC1250	Extension of the TwinCAT PLC TC1200 by the possibility to realize point-to-point movements in software (TwinCAT Motion Control PTP 10). The axes are represented by axis objects and provide a cyclic interface, e.g. for the PLC. This axis object is then linked to a corresponding physical axis.
TwinCAT 3 PLC/NC PTP 10/ NC I	TC1260	Extension of the TwinCAT PLC/NC PTP 10 by the possibility to interpolate movements with up to three path axes and up to five auxiliary axes. Various axis types with various fieldbus interfaces are supported. The movement is usually programmed in DIN 66025, but it can also alternatively be carried out via PLC function blocks.
TwinCAT 3 PLC/NC PTP 10/ NC I/CNC	TC1270	Extension of the TwinCAT PLC/NC PTP 10/NC I by the possibility to realize an interpolation with up to 32 simultaneously interpolating axes. The number of axes and/or the number of channels can be adapted to the requirements of the application via the option packages. Various transformations can be supplemented via option packages.
TwinCAT 3 PLC/NC PTP 10/ NC I/CNC E	TC1275	TwinCAT CNC export version (E version) is an extension of the TwinCAT PLC/NC PTP 10 by the possibility to realize an interpolation with up to 4 simultaneously interpolating axes. The number of axes and/or the number of channels can be adapted to the requirements of the application via the option packages. Various transformations can be supplemented via option packages.
TwinCAT 3 C++	TC1300	TwinCAT C++ implements a real-time execution of C++ code on an Industrial PC. For programming, the widely used programming language C++ is supported, which is connected to the real-time via the TwinCAT SDK and CRT. Extensive debugging interfaces are supported by Visual Studio and also supplemented by representations typical of real-time.
TwinCAT 3 C++/ MATLAB® and Simulink®	TC1320	MATLAB® and Simulink® are established development environments in science and industry. Using the TE140x products from Beckhoff and the MATLAB Coder™ or the Simulink Coder™ from MathWorks®, TwinCAT 3 runtime modules (TcCOM objects and PLC function blocks) can be created from MATLAB® and Simulink®. TC1320 is an extension of TC1300 with the possibility to execute these modules.

TC1xxx | TwinCAT 3, Base

TwinCAT 3 Usermode Runtime	TC1700	The TwinCAT 3 Usermode Runtime provides a way to run the applications programmed in TwinCAT without real-time properties in the user mode of the operating system. The TwinCAT 3 Usermode Runtime can be used free of license costs purely for engineering purposes and only requires (trial) licenses of the TwinCAT products used.
TwinCAT 3 Usermode Runtime: External Control	TC1701	The TwinCAT Usermode runtime provides a way to run the applications programmed in TwinCAT without real-time properties in the user mode of the operating system. The "External Control" option provides an interface that runs the application, clocked by an external application. Synchronization with other programs can be achieved with this option.
TwinCAT 3 Usermode Runtime: Fast As Possible	TC1702	The TwinCAT Usermode runtime provides a way to run the applications programmed in TwinCAT without real-time properties in the user mode of the operating system. The "Fast As Possible" option provides an interface that runs the application as fast as the hardware allows. A simulation of calculated results of an application can be realized with this option.

TF1xxx | TwinCAT 3, Functions, System

TwinCAT 3 Controller Redundancy	TF1100	provides an extension to enable redundant processing of TwinCAT 3 PLC programs in two run-time environments and increases the availability of the entire system in the process
TwinCAT 3 UI Client	TF1200	cross-platform desktop application for displaying web applications
TwinCAT 3 Runtime for MATLAB® and Simulink®	TF1400	execution of runtime modules in TwinCAT 3 generated from MATLAB® and Simulink®
TwinCAT 3 Runtime for FMI	TF1420	enables the execution of TwinCAT 3 runtime modules generated via the TE1420 simulation tools interface
TwinCAT 3 PLC HMI	TF1800	stand-alone tool for displaying visualizations from the PLC development environment
TwinCAT 3 PLC HMI Web	TF1810	display of visualizations from the PLC development environment in a web browser
TwinCAT 3 UML	TF1910	UML (Unified Modeling Language) for modeling of PLC software

TF2xxx | TwinCAT 3, Functions, HMI

TwinCAT 3 HMI Server	TF2000	modular web server, includes a client connection and a target connection
TwinCAT 3 HMI Clients Packs	TF20x0	optional extension of the TwinCAT 3 HMI Server to increase the number of client connections
TwinCAT 3 HMI Targets Packs	TF20xx	optional extension of the TwinCAT 3 HMI Server to increase the number of connections to target systems
TwinCAT 3 HMI OPC UA	TF2110	server extension for access to TwinCAT target systems or other controllers via OPC UA
TwinCAT 3 HMI Extension SDK	TF2200	software development kit (.NET) for programming application-specific solutions
TwinCAT 3 HMI Scope	TF2300	software oscilloscope for graphic display of time sequences
TwinCAT 3 HMI Audit Trail	TF2400	server extension for logging operator changes and events that have occurred in the HMI server
TwinCAT 3 HMI Audit Trail Symbols Pack	TF24x0	optional extension of TwinCAT 3 HMI Audit Trail to increase the number of Audit Trail symbols

TF3xxx | TwinCAT 3, Functions, Measurement

TwinCAT 3 Scope Server	TF3300	data recording and preparation for visual display in TwinCAT 3 Scope View
TwinCAT 3 Analytics Logger	TF3500	analytics logger for cycle-synchronous data recording, storage and sending via MQTT to a message broker
TwinCAT 3 Analytics Library	TF3510	PLC library with analysis algorithms from simple edge counters and extreme value calculations to more complex correlation methods and unsupervised clustering algorithms
TwinCAT 3 Analytics Storage Provider	TF3520	IoT client as part of the Analytics workflow: Raw and analytic data can be received and stored in a storage; access for all Analytics tools.
TwinCAT 3 Analytics Runtime	TF3550	container running the Analytics application configured and developed in Analytics Workbench; including HMI server and client pack for Analytics dashboards
TwinCAT 3 Analytics Runtime Base	TF3551	container running the Analytics application configured and developed in Analytics Workbench; without HMI; ideal for headless applications or existing visualizations
TwinCAT 3 Condition Monitoring	TF3600	PLC library for the realization of a condition monitoring for a machine with algorithms like magnitude spectrum, envelope, kurtosis, order analysis or zoom FFT
TwinCAT 3 Power Monitoring	TF3650	PLC library for realization of power monitoring applications; algorithms for calculation of RMS values of current, voltage and power as well as THD fit to EL3773 and EL3783
TwinCAT 3 Filter	TF3680	PLC library for implementing digital filters
TwinCAT 3 Weighing Library	TF3685	PLC library for mapping a weighing scale in TwinCAT controllers based on Beckhoff load cell I/Os. The main focus is on dynamically weighing industrial goods.
TwinCAT 3 Interface for LabVIEW™	TF3710	enables the exchange of data between LabVIEW™ and the TwinCAT runtime
TwinCAT 3 Machine Learning Inference Engine	TF3800	execution module of trained classical machine learning algorithms
TwinCAT 3 Neural Network Inference Engine	TF3810	execution module of trained neural networks
TwinCAT 3 Machine Learning Server	TF3820	inference engine for trained machine learning and deep learning models with support for hardware accelerators
TwinCAT 3 Machine Learning Server Client	TF3830	client license for remote connections to a TF3820 TwinCAT 3 Machine Learning Server
TwinCAT 3 Solar Position Algorithm	TF3900	precise calculation of the sun's position

TF4xxx | TwinCAT 3, Functions, Controller

TwinCAT 3 Controller Toolbox	TF4100	basic controllers (P, I, D), complex controllers (PI, PID), pulse width modulation, ramps, signal generators and filters
TwinCAT 3 Temperature Controller	TF4110	temperature control for monitoring and controlling different temperature ranges
TwinCAT 3 Speech	TF4500	TwinCAT 3 Speech enables multilingual input and output of queries and information implemented in an industrially compatible way

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TwinCAT 3 NC PTP 10 Axes	**TF5000**	TwinCAT 3 NC PTP enables point-to-point movements to be implemented in software; the axes are represented by axis objects and provide a cyclic interface for e.g. the PLC, the axis object is then linked to a corresponding physical axis
TwinCAT 3 NC PTP Axes Pack 25	**TF5010**	extension of TwinCAT 3 NC PTP to a maximum of 25 axes
TwinCAT 3 NC PTP Axes Pack unlimited	**TF5020**	extension of TwinCAT 3 NC PTP to 255 axes
TwinCAT 3 NC Camming	**TF5050**	TwinCAT 3 NC Camming (cam plates) enables the modeling of a non-linear relationship between master and slave axes
TwinCAT 3 NC Flying Saw	**TF5055**	TwinCAT 3 NC Flying Saw enables the coupling of a slave axis to a master axis in a specific synchronous position (flying saw)
TwinCAT 3 NC FIFO Axes	**TF5060**	TwinCAT 3 NC FIFO Axes enables the output of externally generated position setpoints to an axis group
TwinCAT 3 Motion Control XFC	**TF5065**	TwinCAT 3 Motion Control XFC enables time-accurate acquisition and switching of digital signals related to axis positions in conjunction with EtherCAT XFC terminals
TwinCAT 3 NC I	**TF5100**	TwinCAT 3 NC I enables interpolating path movements with three path axes and up to five auxiliary axes, whereby master/slave couplings can also be formed
TwinCAT 3 Kinematic Transformation L1	**TF5110**	TwinCAT 3 Kinematic Transformation L1 enables the control of various robot kinematics at level 1
TwinCAT 3 Kinematic Transformation L2	**TF5111**	TwinCAT 3 Kinematic Transformation L2 enables the control of various robot kinematics at level 2
TwinCAT 3 Kinematic Transformation L3	**TF5112**	TwinCAT 3 Kinematic Transformation L3 enables the control of various robot kinematics at level 3
TwinCAT 3 Kinematic Transformation L4	**TF5113**	TwinCAT 3 Kinematic Transformation L4 enables the control of various robot kinematics at level 4
TwinCAT 3 Robotics mxAutomation	**TF5120**	TwinCAT 3 Robotics mxAutomation allows direct communication between the PLC and a KUKA robot control via a common interface
TwinCAT 3 Robotics uniVAL PLC	**TF5130**	TwinCAT 3 Robotics uniVAL PLC allows direct communication between the PLC and a Stäubli robot control via a common interface
TwinCAT 3 CNC	**TF5200**	CNC path control software
TwinCAT 3 CNC E	**TF5210**	CNC path control software export version
TwinCAT 3 CNC Axes Pack 64	**TF5220**	extension to up to a total of 64 axes/controlled spindles, of which a maximum of 32 can be path axes and a maximum of 12 can be controlled spindles
TwinCAT 3 CNC Axes Pack unlimited	**TF5221**	extension to up to a total of 128 axes/controlled spindles, of which a maximum of 32 can be path axes and a maximum of 12 can be controlled spindles
TwinCAT 3 CNC Measurement	**TF5225**	optional package of CNC cycles that supports the measurement of tools or workpieces directly on the machine
TwinCAT 3 CNC Channel Pack	**TF5230**	further CNC channel, extension to a maximum of 32 channels, channel synchronization, axis transfer between channels
TwinCAT 3 CNC Transformation	**TF5240**	transformation functionality (5-axis functionality)
TwinCAT 3 CNC Kinematic Optimization	**TF5245**	optional CNC package that optimizes the determination of kinematic parameters for rotary axes in 5-axis kinematics
TwinCAT 3 CNC HSC Pack	**TF5250**	extending the CNC with HSC technology (high-speed cutting)
TwinCAT 3 CNC Spline Interpolation	**TF5260**	path programming via splines with programmable spline type, Akima-spline, B-spline
TwinCAT 3 CNC Realtime Cycles	**TF5261**	allows concurrent execution of G code in the interpolation cycle of the TwinCAT CNC
TwinCAT 3 CNC Online Adaption	**TF5262**	TcCom interfaces for integrating customer-specific interpolation functions
TwinCAT 3 CNC Extended Interpolation	**TF5263**	two-path programming and two-path compensation

TwinCAT 3 CNC Virtual NCK Basis	**TF5270**	virtual TwinCAT CNC for simulation in a Windows environment
TwinCAT 3 CNC Virtual NCK Options	**TF5271**	virtual TwinCAT CNC for simulation in a Windows environment
TwinCAT 3 CNC Volumetric Compensation	**TF5280**	allows compensation of geometric machine errors according to DIN ISO 230 or ISO/TR 16907
TwinCAT 3 CNC Cutting Plus	**TF5290**	technology package for extending the CNC functionality for cutting operations
TwinCAT 3 CNC AM Plus	**TF5291**	function package for predictive process control
TwinCAT 3 CNC EDM Plus	**TF5292**	function package for wire-erosion machines and die-sinking machines
TwinCAT 3 CNC Milling Base	**TF5293**	CNC cycle package for triple-axis milling and drilling
TwinCAT 3 Motion Collision Avoidance	**TF5410**	TwinCAT 3 Motion Collision Avoidance enables collision avoidance when operating multiple axes with TwinCAT 3 NC PTP in linear and/or translational dependency
TwinCAT 3 Motion Pick-and-Place	**TF5420**	TwinCAT 3 Motion Pick-and-Place enables the implementation of handling tasks by gantry robots or other kinematics
TwinCAT 3 Hydraulic Positioning	**TF5810**	manufacturer-independent control of hydraulic axes and replacement of external controllers; support of a wide variety of applications and different axis control concepts; number of axes depends only on the performance of the PC
TwinCAT 3 XTS Extension	**TF5850**	TwinCAT 3 XTS Extension enables the individual movement of XTS movers along a specific path; basic software package for the use and integration of XTS into the TwinCAT 3 environment; further use of the extensive possibilities of TwinCAT and XTS
TwinCAT 3 XPlanar	**TF5890**	TwinCAT 3 XPlanar enables free movement of XPlanar movers on freely arranged XPlanar tiles; basic software package for integration of the XPlanar system into the TwinCAT 3 environment; access to further extensive TwinCAT functions
TwinCAT 3 Planar Motion	**TF5430**	TwinCAT 3 Planar Motion enables efficient and intelligent implementation of individual XPlanar applications and is a component of TF5890 TwinCAT 3 XPlanar
TwinCAT 3 Cogging Compensation Runtime	**TF5920**	runtime for AL8000 linear motors, to reduce cogging forces ⓘ

TF6xxx | TwinCAT 3, Functions, Connectivity

TwinCAT 3 ADS Monitor	**TF6010**	recording and diagnostics functions for the communication of TwinCAT systems
TwinCAT 3 JSON Data Interface	**TF6020**	interface for the exchange of data in JSON format between the TwinCAT system and custom applications
TwinCAT 3 OPC UA	**TF6100**	access to TwinCAT in accordance with OPC UA with UA server (DA/HA/AC) and UA client (DA)
TwinCAT 3 OPC UA Pub/Sub	**TF6105**	protocol implementation for OPC UA Pub/Sub (UDP and MQTT)
TwinCAT 3 EtherCAT Redundancy 250	**TF6220**	extension of the TwinCAT EtherCAT master with cable redundancy capability for up to 250 slaves
TwinCAT 3 EtherCAT Redundancy 250+	**TF6221**	extension of the TwinCAT EtherCAT master with cable redundancy capability for more than 250 slaves
TwinCAT 3 EtherCAT External Sync	**TF6225**	extension of the TwinCAT EtherCAT master with an option to synchronize the Beckhoff real-time communication with external signals
TwinCAT 3 Parallel Redundancy Protocol (PRP)	**TF6230**	TwinCAT Parallel Redundancy Protocol (PRP) provides a redundant network communication according to IEC 62439-3. It offers a transparent Ethernet connection via two separate networks. The diagnostics information is provided in TwinCAT.
TwinCAT 3 Modbus TCP	**TF6250**	communication with Modbus TCP devices (server and client functionality)
TwinCAT 3 Modbus RTU	**TF6255**	serial communication with Modbus end devices

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TF6xxx | TwinCAT 3, Functions, Connectivity

TwinCAT 3 PROFINET RT Device	TF6270	communication via PROFINET (PROFINET slave)
TwinCAT 3 PROFINET RT Controller	TF6271	communication via PROFINET (PROFINET master)
TwinCAT 3 EtherNet/IP Adapter	TF6280	communication via EtherNet/IP (EtherNet/IP adapter)
TwinCAT 3 EtherNet/IP Scanner	TF6281	communication via EtherNet/IP (EtherNet/IP scanner)
TwinCAT 3 FTP Client	TF6300	easy access from TwinCAT PLC to FTP server
TwinCAT 3 TCP/IP	TF6310	communication via generic TCP/IP server
TwinCAT 3 TCP/UDP Realtime	TF6311	TwinCAT 3 TCP/UDP Realtime enables fast and convenient access from real-time to an Ethernet network
TwinCAT 3 Serial Communication	TF6340	communication via serial Bus Terminals or PC COM ports with the 3964R and RK512 protocol
TwinCAT 3 SMS/SMTP	TF6350	sending SMS and e-mails from the PLC
TwinCAT 3 Virtual Serial COM	TF6360	virtual serial COM driver for Windows platforms
TwinCAT 3 Database Server	TF6420	interface for communication with various database systems from Microsoft SQL to MySQL and SqLite to MongoDB or InfluxDB
TwinCAT 3 XML Server	TF6421	read and write access to XML files from the PLC
TwinCAT 3 IEC 60870-5-10x	TF6500	communication according to IEC 60870-101 (master and slave), -102 (master), -103 (master), -104 (master and slave)
TwinCAT 3 IEC 61850/ IEC 61400-25	TF6510	communication according to IEC 61850 and IEC 61400-25 in the versions client and server, as well as via GOOSE as publisher and subscriber
TwinCAT 3 RFID Reader Communication	TF6600	connection of RFID readers to the TwinCAT PLC
TwinCAT 3 S7 Communication	TF6620	enables TCP/IP based communication with variables of a Siemens S7 controller
TwinCAT 3 DBC File Import for CAN	TF6650	reading of DBC file formats
TwinCAT 3 FDT ComDTM	TF6680	With the TwinCAT 3 FDT ComDTM, the FDT/DTM technology can be used with Beckhoff components in third-party systems. For this purpose, the ComDTM establishes the connection between the FDT frame application and the target system, e.g. a TwinCAT-based controller. This allows the configuration of the connected field devices via their device-specific DTMs.
TwinCAT 3 IoT Communication (MQTT)	TF6701	provides basic publisher/subscriber-based data connectivity via MQTT
TwinCAT 3 IoT Functions	TF6710	provides connectivity for cloud-based communication services
TwinCAT 3 IoT Data Agent	TF6720	gateway application for data connectivity between TwinCAT runtime and IoT services
TwinCAT 3 IoT Communicator	TF6730	sends process data and notifications from TwinCAT to smartphones and tablets through a messaging service
TwinCAT 3 IoT Communicator App	TF6735	smartphone and tablet app to receive and visualize live data and push notifications sent from TwinCAT
TwinCAT 3 IoT HTTPS/REST	TF6760	basic functions for HTTP/HTTPS communication in the form of a PLC library providing the ability to address REST APIs as a client
TwinCAT 3 IoT WebSockets	TF6770	basic functions for WebSockets communication as server and client
TwinCAT 3 IoT OCPP	TF6771	basic functions for communication with charging stations for electric vehicles and higher-level management systems

TF7xxx | TwinCAT 3, Functions, Vision

TwinCAT 3 GigE Vision Connector	TF700x	interface for the configuration and integration of GigE Vision cameras directly into TwinCAT
TwinCAT 3 Vision Beckhoff Camera Connector	TF7020	interface for configuring and using Beckhoff cameras directly in TwinCAT
TwinCAT 3 Vision Base	TF7100	extensive PLC library with a large number of different functions and algorithms for solving image processing tasks in TwinCAT real-time
TwinCAT 3 Vision Matching 2D	TF7200	extension of the basic package with the possibility to find and compare objects based on taught-in references, contours, feature points or other properties
TwinCAT 3 Vision Code Reading	TF7250	extension of the basic package with functions for reading various 1D and 2D codes
TwinCAT 3 Vision Code Quality	TF7255	extension of the basic package with functions for quality assessment of various 1D and 2D codes
TwinCAT 3 Vision OCR	TF7260	extension of the basic package with an option for optical character recognition
TwinCAT 3 Vision Metrology 2D	TF7300	extension of the basic package with a variety of functions: calibration, subpixel-accurate detection of edges, holes and circular arcs, determination of lengths, distances, diameters, angles and coordinates
TwinCAT 3 Vision Machine Learning	TF7800	extension of the basic package with the possibility to use classic machine learning algorithms for data analysis
TwinCAT 3 Vision Neural Network	TF7810	extension of the basic package to include an option for using neural networks for data analysis

TF8xxx | TwinCAT 3, Functions, Industry-specific

TwinCAT 3 BACnet	TF8020	communication with data networks of building automation and building control systems	
TwinCAT 3 Building Automation	TF8040	PLC library for the automation of heating, ventilation and air conditioning technology, as well as the automation of rooms with the functions of sun protection and lighting	
TwinCAT 3 Lighting Solution	TF8050	TwinCAT 3 Lighting Solution: software package for easy commissioning of DALI-2 lighting controllers	
TwinCAT 3 Wind Framework	TF8310	framework for the development of operational management software for wind turbines	
TwinCAT 3 MTP Runtime	TF8400	implementation of directive-compliant MTP interfaces in plant modules	i
TwinCAT 3 MTP Engineering	TF8401	engineering environment for specifying properties and services of a software-based plant module and for defining the dependencies	i
TwinCAT 3 Plastic Processing Framework	TF8540	software library with temperature controller especially for plastics machines	
TwinCAT 3 Plastic HMI Framework	TF8550	assembly of HMI elements for plastics machinery in NuGet packages	
TwinCAT 3 Plastic Technology Functions	TF8560	technology package including abstracting motion control level for plastics machinery based on PLCopen standard	
TwinCAT 3 AES70 (OCA)	TF8810	communication library for operating a system as an OCA (Open Control Architecture) controller in an OCA network	

TwinCAT 2

▶ www.beckhoff.com/twincat

TwinCAT Supplements

| System | Motion | Communication | Controller | Building Automation |

TwinCAT system

System Manager
TwinCAT CP
TwinCAT I/O
TwinCAT PLC
TwinCAT NC PTP
TwinCAT NC I
TwinCAT CNC
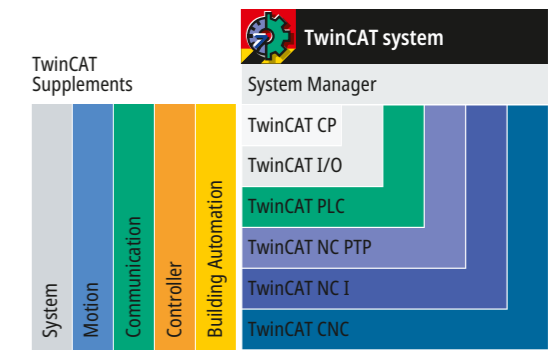
TX1000 | TwinCAT 2, TwinCAT CP

PC hardware	standard PC/IPC hardware, no extras
Operating systems	Windows 7/10, Windows Embedded WES2009/WES7*
Real-time	Beckhoff real-time kernel

Windows driver for Beckhoff Control Panels

TX1100 | TwinCAT 2, TwinCAT I/O

PC hardware	standard PC/IPC hardware, no extras
Operating systems	Windows 7/10, Windows CE*
Real-time	Beckhoff real-time kernel

Multi-purpose I/O interface for all common fieldbus systems, PC Fieldbus Cards and interfaces with integrated real-time driver

TX1200 | TwinCAT 2, TwinCAT PLC

PC hardware	standard PC/IPC hardware, no extras
Operating systems	Windows 7/10, Windows CE*
Real-time	Beckhoff real-time kernel
I/O system	EtherCAT, Lightbus, PROFIBUS DP/MC, Interbus, CANopen, DeviceNet, SERCOS, Ethernet
Runtime system	4 multi-tasking PLCs each with 4 tasks in each PLC runtime system, development and runtime systems on one PC or separately (CE: only runtime)
Memory	process image size, flags area, program size, POU size, number of variables only limited by the size of the user memory (max. 2 GB with NT/2000/XP/Vista)
Cycle time	adjustable from 50 µs
Link time	1 µs (Intel® Core™ 2 Duo)
Programming	IEC 61131-3: IL, FBD, LD, SFC, ST, CFC, powerful library management

TX1250 | TwinCAT 2, TwinCAT NC PTP

TwinCAT PLC	inclusive
PC hardware	standard PC/IPC hardware, no extras
Operating systems	Windows 7/10, Windows CE*
Real-time	Beckhoff real-time kernel
I/O system	EtherCAT, Lightbus, PROFIBUS DP/MC, Interbus, CANopen, DeviceNet, SERCOS, Ethernet
Programming	performed using function blocks for TwinCAT PLC according to IEC 61131-3 (standardized PLCopen motion control libraries), convenient axis commissioning menus in the System Manager
Runtime system	NC point-to-point including TwinCAT PLC
Number of axes	up to 255
Axis types	electrical and hydraulic servo drives, frequency converter drives, stepper motor drives, switched drives (fast/crawl axes)
Cycle time	50 µs upwards, typically 1 ms (selectable)
Axis functions	standard axis functions: start/stop/reset/reference, velocity override, special functions: master/slave cascading, cam plates, electronic gearings, online distance compensation of segments, flying saw

*Version-dependent/older operating system versions are available on request from our service department.

TX1260 | TwinCAT 2, TwinCAT NC I

TwinCAT PLC	inclusive
TwinCAT NC PTP	inclusive
PC hardware	standard PC/IPC hardware, no extras
Operating systems	Windows 7/10, Windows CE*
Real-time	Beckhoff real-time kernel
I/O system	EtherCAT, Lightbus, PROFIBUS DP/MC, Interbus, CANopen, DeviceNet, SERCOS, Ethernet
Programming	DIN 66025 programs for NC interpolation, access via function blocks from TwinCAT PLC according to IEC 61131-3
Runtime system	NC interpolation, including TwinCAT NC PTP and PLC
Number of axes	max. 3 axes and up to 5 auxiliary axes per group, 1 group per channel, max. 31 channels
Axis types	electrical servo axes, stepper motor drives
Interpreter functions	subroutines and jumps, programmable loops, zeroshifts, tool compensations, M and H functions
Geometries	straight lines and circular paths in 3D space, circular paths in all main planes, helixes with base circles in all main planes linear, circular, helical interpolation in the main lanes and freely definable planes, Bezier splines, look-ahead function
Axis functions	online reconfiguration of axes in groups, path override, slave coupling to path axes, auxiliary axes, axis error and sag compensation, measuring functions
Operation	automatic operation, manual operation (jog/inching), single block operation, referencing, handwheel operation (motion/superposition)
Options	TS511x TwinCAT Kinematic Transformation

TX1270 | TwinCAT 2, TwinCAT CNC

TwinCAT PLC	inclusive		
TwinCAT NC PTP	inclusive		
TwinCAT NC I	inclusive		
PC hardware	standard PC/IPC hardware, no extras		
Operating systems	Windows 7/10*		
Real-time	Beckhoff real-time kernel		
I/O system	EtherCAT, Lightbus, PROFIBUS DP/MC, CANopen, DeviceNet, SERCOS, Ethernet		
Programming	DIN 66025 programming language with high-level language extensions, access via function blocks from TwinCAT PLC according to IEC 61131-3		
Runtime system	CNC, including TwinCAT NC I, NC PTP, PLC		
Axes/spindles	8 path axes/controlled spindles, max. of 64 axes/controlled spindles (optional), max. 12 channels (optional)		
Axis types	electrical servo-axes, analog/encoder interface via fieldbus, digital interface via fieldbus		
Interpreter functions	subroutines and jumps, programmable loops, zero shifts, tool compensations, M and H functions, mathematical functions, programming of parameters/variables, user macros, spindle and help functions, tool functions		
Geometries	linear, circular, helical interpolation in the main planes and freely definable planes, max. 32 interpolating path axes per channel, look-ahead function		
Axis functions	coupling and gantry axis function, override, axis error and sag compensation, measuring functions		
Operation	automatic operation, manual operation (jog/inching), single block operation, referencing, block search, handwheel operation (motion/superposition)		
Options	TS5220	TwinCAT CNC Axes Pack	TS5250	TwinCAT CNC HSC Pack
	TS5230	TwinCAT CNC Channel Pack	TS5260	TwinCAT CNC Spline Interpolation
	TS5240	TwinCAT CNC Transformation		

TSxxxx | TwinCAT 2, Supplements, System

TwinCAT PLC HMI	TS1800	displaying visualizations created in PLC Control
TwinCAT PLC HMI Web	TS1810	displaying visualizations created in PLC Control in a web browser
TwinCAT Scope 2	TS3300	graphical analysis tool for displaying time-continuous signals
TwinCAT Solar Position Algorithm	TS3900	precise calculation of the sun's position
TwinCAT EtherCAT Redundancy	TS622x	extension of the TwinCAT EtherCAT master with cable redundancy capability
TwinCAT Database Server	TS6420	accessing databases from the PLC
TwinCAT XML Data Server	TS6421	reading and writing of XML-based data by the PLC

TS4xxx | TwinCAT 2, Supplements, Controller

TwinCAT PLC Controller Toolbox	TS4100	modules for basic controllers (P, I, D), complex controllers (PI, PID), pulse width modulation, ramps, signal generators and filters
TwinCAT PLC Temperature Controller	TS4110	instanced temperature control function block for monitoring and controlling different temperature ranges

TSxxxx | TwinCAT 2, Supplements, Motion

TwinCAT Valve Diagram Editor	TS1500	graphical tool for designing the characteristic curve of a hydraulic valve
TwinCAT Cam Design Tool	TS1510	graphic design tool for electronic cam plates
TwinCAT NC Camming	TS5050	providing the cam plate functionality (table coupling) of TwinCAT NC
TwinCAT NC Flying Saw	TS5055	providing flying saw functionality
TwinCAT NC FIFO Axes	TS5060	providing a FIFO interface for setpoint generation of an NC axis group
TwinCAT PLC Motion Control XFC	TS5065	high-precision logging and switching of digital signals in relation to axis positions
TwinCAT Kinematic Transformation	TS511x	implementation of different kinematic transformations for TwinCAT PTP or TwinCAT NC I
TwinCAT Digital Cam Server	TS5800	software implementation of fast cam controller
TwinCAT PLC Hydraulic Positioning	TS5810	control and adjustment of hydraulic axes

TS6xxx | TwinCAT 2, Supplements, Communication

TwinCAT OPC UA Server	TS6100	access to TwinCAT in accordance with OPC UA with UA server (DA/HA/AC) and UA client (DA)
TwinCAT Modbus TCP Server	TS6250	communication with Modbus TCP devices (server and client functionality)
TwinCAT PLC Modbus RTU	TS6255	serial communication with Modbus end devices
TwinCAT PROFINET RT Device	TS6270	license for using the TwinCAT PROFINET RT Device
TwinCAT PROFINET RT Controller	TS6271	license for using the TwinCAT PROFINET RT Controller
TwinCAT EtherNet/IP Adapter	TS6280	TwinCAT EtherNet/IP Adapter turns every PC-based controller into an EtherNet/IP adapter.
TwinCAT FTP Client	TS6300	basic access from TwinCAT PLC to FTP server
TwinCAT TCP/IP Server	TS6310	communication via generic TCP servers
TwinCAT PLC Serial Communication	TS6340	communication via serial Bus Terminals or PC COM ports
TwinCAT PLC Serial Communication 3964R/RK512	TS6341	communication via serial Bus Terminals or PC COM ports with the 3964R and RK512 protocol
TwinCAT SMS/SMTP Server	TS6350	sending SMS and e-mails from the PLC
TwinCAT Virtual Serial COM Driver	TS6360	virtual serial COM driver for Windows and Windows CE platforms
TwinCAT PLC IEC 60870-5-101, -102, -103, -104 Master	TS650x	license for using a PLC library for the implementation of IEC 60870-5-10x masters
TwinCAT PLC IEC 60870-5-101, -104 Slave	TS650x	license for using a PLC library for the implementation of IEC 60870-5-10x slaves
TwinCAT PLC IEC 61400-25 Server	TS6509	IEC 61400-25 communication
TwinCAT PLC IEC 61850 Server	TS6511	IEC 61850 communication
TwinCAT PLC RFID Reader Communication	TS6600	connection of RFID readers to the TwinCAT PLC

TS8xxx | TwinCAT 2, Supplements, Building Automation

TwinCAT PLC HVAC	TS8000	automation of HVAC and sanitary installations
TwinCAT PLC Building Automation Basic	TS8010	executing basic room automation functions
TwinCAT BACnet/IP	TS8020	communication with the data networks of the building automation and building control systems
TwinCAT FIAS Server	TS8035	communication between TwinCAT PLC and a system using the FIAS standard
TwinCAT Crestron Server	TS8036	communication between a TwinCAT PLC and a Crestron controller
TwinCAT Building Automation	TS8040	software package covering all technical building automation services
TwinCAT Building Automation Framework	TS8100	configuration and commissioning of building automation projects

TwinSAFE

▶ **www.beckhoff.com/twinsafe**

Software   EK1960   EJ1914

AF1000   AX1000   AX8000   AMI8000   AMP8x00

TwinSAFE software

TwinCAT 3 Safety Editor	TE9000	implementing of safety applications in graphical environment
TwinSAFE Loader/User	TE9200	TwinSAFE command line tools: Loader for downloading/customizing safety projects at runtime;
		User for handling user management of TwinSAFE logic components
TwinSAFE Logic Simulator	TE9100	virtual commissioning of a safety application based on TE1111 TwinCAT 3 EtherCAT Simulation ⓘ

TwinSAFE hardware, I/O

	Input	Dedicated Logic	Output	Input and Logic	Logic and Output	Input, Logic and Output
EtherCAT Terminals	**EK1914** 4 standard inputs, 4 standard outputs, 2 safe inputs, 2 safe outputs	**EL6900** TwinSAFE Logic	**EK1914** 4 standard inputs, 4 standard outputs, 2 safe inputs, 2 safe outputs	**EL1918** TwinSAFE Logic, 8 safe inputs	**EL2912** TwinSAFE Logic, 2 safe outputs	**EK1960** TwinSAFE Logic, 20 safe inputs, 24 safe outputs
	EL1904 TwinSAFE, 4 safe inputs	**EL6910** TwinSAFE Logic, PROFIsafe master and slave support	**EL2904** TwinSAFE, 4 safe outputs			**EL1957** TwinSAFE Logic, 8 safe inputs, 4 safe outputs
		EL6930 TwinSAFE Logic, PROFIsafe slave support			**ELM72xx-9016** I_{rms} = 4.5 A, 48 V DC, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**EL2911** TwinSAFE Logic, 4 safe inputs, 1 safe output
					ELM72xx-9018 I_{rms} = 4.5 A, 48 V DC, Safe Motion, TwinSAFE Logic	
EtherCAT Box	**EP1908-0002** TwinSAFE, 8 safe inputs			**EP1918-0002** TwinSAFE Logic, 8 safe inputs	**EP2918-0032** TwinSAFE Logic, 8 safe outputs	**EP1957-0022** TwinSAFE Logic, 8 safe inputs, 4 safe outputs
EtherCAT plug-in modules		**EJ6910** TwinSAFE Logic		**EJ1914** TwinSAFE Logic, 4 safe inputs	**EJ2914** TwinSAFE Logic, 4 safe outputs	**EJ1957** TwinSAFE Logic, 8 safe inputs, 4 safe outputs
				EJ1918 TwinSAFE Logic, 8 safe inputs	**EJ2918** TwinSAFE Logic, 8 safe outputs	
Bus Terminals	**KL1904** TwinSAFE, 4 safe inputs		**KL2904** TwinSAFE, 4 safe outputs		**KL6904** TwinSAFE Logic, 4 safe outputs	

TwinSAFE hardware, Drive Technology

	Output		
AX5000, TwinSAFE drive option card	**AX5801** drive-integrated safety functions: STO, SS1	**AX5805** drive-integrated safety functions: Safe Motion, for AX5x01 to AX5140	**AX5806** drive-integrated safety functions: Safe Motion, for AX5160 to AX5193

TwinSAFE hardware, Drive Technology

	Input, Logic and Output			
AF1000, economy variable frequency drives	**AF1103-1xxx** single-axis module, 1 x 110...240 V AC, 0.37 kW ⓘ	**AF1107-1xxx** single-axis module, 1 x 110...240 V AC, 0.75 kW ⓘ	**AF1115-1xxx** single-axis module, 1 x 110...240 V AC, 1.5 kW ⓘ	**AF1203-1xxx** dual-axis module, 1 x 110...240 V AC, 0.37 kW ⓘ
	AF1207-1xxx dual-axis module, 1 x 110...240 V AC, 0.75 kW ⓘ	**AF1107-3xxx** single-axis module, 3 x 208...480 V AC, 0.75 kW ⓘ	**AF1115-3xxx** single-axis module, 3 x 208...480 V AC, 1.5 kW ⓘ	**AF1130-3xxx** single-axis module, 3 x 208...480 V AC, 3 kW ⓘ
	AF1207-3xxx dual-axis module, 3 x 208...480 V AC, 0.75 kW ⓘ	**AF1215-3xxx** dual-axis module, 3 x 208...480 V AC, 1.5 kW ⓘ	**AF1222-3xxx** dual-axis module, 3 x 208...480 V AC, 2.2 kW ⓘ	
AX1000, economy servo drives	**AX1101-1xxx** single-axis module, 1 x 110...240 V AC, 1.65 A ⓘ	**AX1103-1xxx** single-axis module, 1 x 110...240 V AC, 3.4 A ⓘ	**AX1106-1xxx** single-axis module, 1 x 110...240 V AC, 6.9 A ⓘ	**AX1201-1xxx** dual-axis module, 1 x 110...240 V AC, 2 x 1.65 A ⓘ
	AX1203-1xxx dual-axis module, 1 x 110...240 V AC, 2 x 3.4 A ⓘ	**AX1103-3xxx** single-axis module, 3 x 208...480 V AC, 3.4 A ⓘ	**AX1106-3xxx** single-axis module, 3 x 208...480 V AC, 6.9 A ⓘ	**AX1203-3xxx** dual-axis module, 3 x 208...480 V AC, 2 x 3 A ⓘ
	AX1206-3xxx dual-axis module, 3 x 208...480 V AC, 2 x 6 A ⓘ			
AX8000, multi-axis servo drives	**AX8108** single-axis module 8 A, feedback: OCT, multi-feedback interface, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**AX8118** single-axis module 18 A, feedback: OCT, multi-feedback interface, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**AX8128** single-axis module 28 A, feedback: OCT, multi-feedback interface, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**AX8206** dual-axis module 2 x 6 A, feedback: OCT, multi-feedback interface, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion
	AX8525 combined power supply and axis module 25 A, feedback: OCT, multi-feedback interface, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**AX8540** combined power supply and axis module 40 A, feedback: OCT, multi-feedback interface, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion		
AMI8000, compact integrated servo drives	**AMI8121** M_0 = 0.48 Nm, TwinSAFE Logic, TwinSAFE: STO/SS1	**AMI8122** M_0 = 0.78 Nm, TwinSAFE Logic, TwinSAFE: STO/SS1	**AMI8123** M_0 = 1.00 Nm, TwinSAFE Logic, TwinSAFE: STO/SS1	
	AMI8131 M_0 = 1.20 Nm, TwinSAFE Logic, TwinSAFE: STO/SS1	**AMI8132** M_0 = 2.18 Nm, TwinSAFE Logic, TwinSAFE: STO/SS1	**AMI8133** M_0 = 2.85 Nm, TwinSAFE Logic, TwinSAFE: STO/SS1	
AMP8000, distributed servo drives	**AMP8031** M_0 = 1.36...1.38 Nm, n_n = 3000...9000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**AMP8032** M_0 = 2.35...2.37 Nm, n_n = 3000...9000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**AMP8033** M_0 = 3.10...3.15 Nm, n_n = 3000...8000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	
	AMP8041 M_0 = 2.35...2.40 Nm, n_n = 3000...8000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**AMP8042** M_0 = 3.84...4.10 Nm, n_n = 2500...7000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**AMP8043** M_0 = 5.30...5.40 Nm, n_n = 2500...5000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	
	AMP8051 M_0 = 4.40...4.60 Nm, n_n = 2500...8000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**AMP8052** M_0 = 7.60 Nm, n_n = 2000...4000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**AMP8053** M_0 = 9.60...10.20 Nm, n_n = 2000...4000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**AMP8054** M_0 = 11.8 Nm, n_n = 2000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion
AMP8500, distributed servo drives, higher rotor inertia	**AMP8531** M_0 = 1.36...1.38 Nm, n_n = 3000...9000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**AMP8532** M_0 = 2.35...2.37 Nm, n_n = 3000...9000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**AMP8533** M_0 = 3.10...3.15 Nm, n_n = 3000...8000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	
	AMP8541 M_0 = 2.35...2.40 Nm, n_n = 3000...8000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**AMP8542** M_0 = 3.84...4.10 Nm, n_n = 2500...7000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**AMP8543** M_0 = 4.70...5.40 Nm, n_n = 2500...7000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	
	AMP8551 M_0 = 4.40...4.60 Nm, n_n = 2500...8000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**AMP8552** M_0 = 5.60...7.60 Nm, n_n = 2000...7300 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	**AMP8553** M_0 = 9.60...10.20 Nm, n_n = 2000...4000 min⁻¹, TwinSAFE Logic, TwinSAFE: STO/SS1, Safe Motion	

We reserve the right to make technical changes.

BECKHOFF New Automation Technology

The System Company

For the first time in machine and system engineering, the MX-System enables completely control cabinet-free automation solutions. By consistently combining, applying and further developing Beckhoff's expertise, a holistic, modular pluggable system has been created. The combination of MX-System baseplate and MX-System function modules resulting from the modular construction kit combines all tasks and features of a control cabinet: energy supply, fuse protection and distribution, generation and monitoring of auxiliary voltages, sequence control with the inputs and outputs, control of motors and actuators as well as the connection level for the field devices. The full system integration of all machine functionalities is achieved via freely selectable IPC, I/O, drive, relay and system modules, which can be configured and combined suitable for the specific application.

▶ **www.beckhoff.com/mx-system**
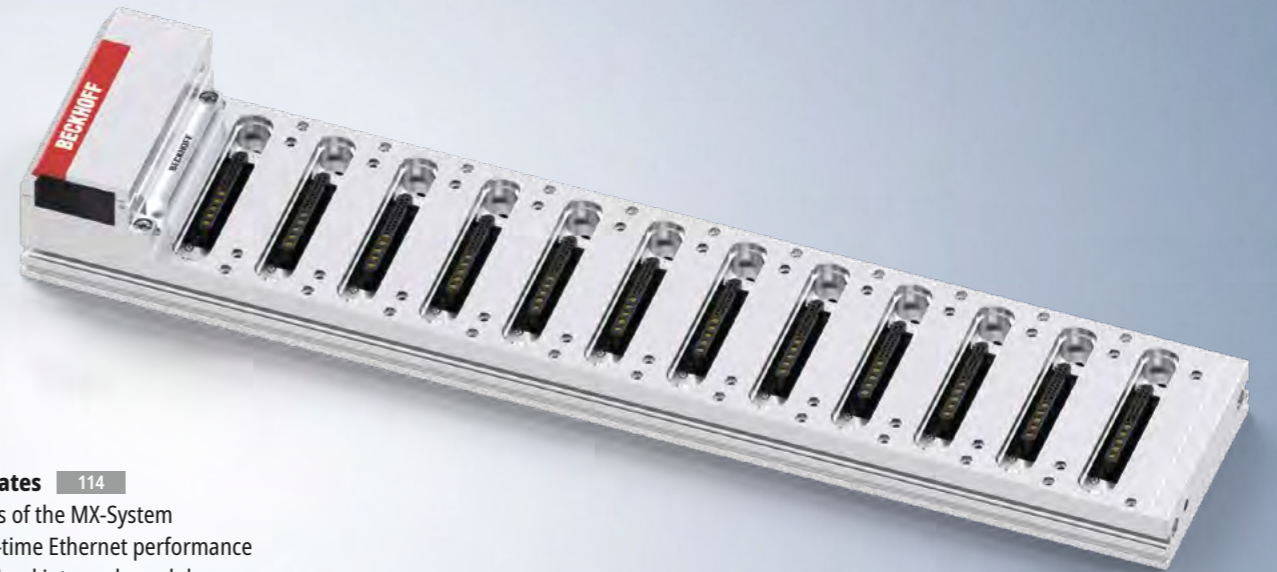
Baseplates [114]
- basis of the MX-System
- real-time Ethernet performance retained into each module
- standardized interfaces
- integrated housekeeping functions

▶ **www.beckhoff.com/mbxxxx**

IPC modules [116]
- robust industrial PCs of various performance classes
- control of the function modules
- fanless design
- Microsoft Windows or TwinCAT/BSD

▶ **www.beckhoff.com/mcxxxx**

I/O modules [117]
- modules for all signal types and directions
- integrated electronic fuse
- diagnostic functions as well as diverse setting options

▶ **www.beckhoff.com/moxxxx**

Drive modules [119]
- compact multi-axis systems for drives of all kinds
- frequency inverter for controlling three-phase asynchronous motors
- servo drives for controlling synchronous servomotors
- DC link power supplies and capacitors

▶ **www.beckhoff.com/mdxxxx**

Relay modules [120]
- direct switching of high outputs
- relay modules for direct switching of lighting or fans
- direct motor starters and reversing starters for operating three-phase asynchronous motors
- solid-state relay

▶ **www.beckhoff.com/mrxxxx**

System modules [121]
- power distribution and fieldbus connection
- modules for power infeed and power output
- power supplies, switches and UPS

▶ **www.beckhoff.com/msxxxx**

- designed for the greatest possible resistance over a long period of time
- distribution of voltage and EtherCAT via standardized connectors
- assembly and wiring in the shortest possible time thanks to the modular design principle
- flexible and precisely adaptable to production requirements
- advantages throughout the entire machine life cycle with the MX-System

MX-System

MX-System

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Baseplates

MBxxxx | Baseplates

Slots	1-row	2-row	3-row
6	MB1106-0000-0000 ℹ data slots	MB2106-0000-0000 ℹ data and power slots	
8	MB1108-0000-0000 ℹ data slots	MB2108-0000-0000 ℹ data and power slots	
10	MB1110-0000-0000 ℹ data slots	MB2110-0000-0000 ℹ data and power slots	
12	MB1112-0000-0000 ℹ data slots	MB2112-0000-0000 ℹ data and power slots MB2112-0000-4000 ℹ data and power slots (12 + 4, 8)	MB3112-0000-0000 ℹ data and power slots (12 + 12, 12)
14		MB2114-0000-0000 ℹ data and power slots MB2114-0000-4000 ℹ data and power slots (14 + 4, 10)	MB3114-0000-0000 ℹ data and power slots (14 + 14, 14)
16		MB2116-0000-0000 ℹ data and power slots MB2116-0000-4000 ℹ data and power slots (16 + 4, 12)	MB3116-0000-0000 ℹ data and power slots (16 + 16, 16)
18		MB2118-0000-0000 ℹ data and power slots MB2118-0000-4000 ℹ data and power slots (18 + 4, 14) MB2118-0000-6000 ℹ data and power slots (18 + 6, 12)	MB3118-0000-0000 ℹ data and power slots (18 + 18, 18)
20		MB2120-0000-0000 ℹ data and power slots MB2120-0000-4000 ℹ data and power slots (20 + 4, 16) MB2120-0000-6000 ℹ data and power slots (20 + 6, 14)	MB3120-0000-0000 ℹ data and power slots (20 + 20, 20)

MBxxxx | Baseplates

Slots	1-row	2-row	3-row
22		MB2122-0000-0000 ℹ data slots MB2122-0000-4000 ℹ data and power slots (22 + 4, 18) MB2122-0000-6000 data and power slots (22 + 6, 16) MB2122-0000-8000 ℹ data and power slots (22 + 8, 14)	MB3122-0000-0000 ℹ data and power slots (22 + 22, 22)
24		MB2124-0000-0000 ℹ data slots MB2124-0000-4000 ℹ data and power slots (24 + 4, 20) MB2124-0000-6000 data and power slots (24 + 6, 18) MB2124-0000-8000 ℹ data and power slots (24 + 8, 16)	MB3124-0000-0000 ℹ data and power slots (24 + 24, 24)
26			MB3126-0000-0000 ℹ data and power slots (26 + 26, 26)
28			MB3128-0000-0000 ℹ data and power slots (28 + 28, 28)
30			MB3130-0000-0000 ℹ data and power slots (30 + 30, 30)
32			MB3132-0000-0000 ℹ data and power slots (32 + 32, 32)

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IPC modules

MCxxxx | IPC modules

	Type		
	Intel Atom®	Intel® Celeron® or Intel® Core™	Arm® Cortex®-A53
IPC module	MC6015-0030-1217 ⓘ	MC6030-0080-2217 ⓘ	MC9240-0000-1217 ⓘ
	2 or 4 cores	4 or 6 cores	4 cores

I/O modules

MO1xxx | I/O modules, digital input

Input voltage	8-channel	
24 V DC	MO1008-0000-1111 ⓘ	MO1008-0000-1112 ⓘ
	M8	M12

MO2xxx | I/O modules, digital output

Output voltage, type	4-channel		8-channel		16-channel
24 V DC	MO2024-0000-1112 ⓘ		MO2008-0000-1111 ⓘ	MO2008-0000-1112 ⓘ	MO2316-0000-1112 ⓘ
	2.0 A, M12		0.5 A, M8	0.5 A, M12	2.0 A, M12, digital combi
			MO2338-0000-1111 ⓘ	MO2338-0000-1112 ⓘ	
			0.5 A, M8, digital combi	0.5 A, M12, digital combi	
Pneumatics	MO2414-0000-1110 ⓘ	MO2414-0900-1110 ⓘ			
	0.5 A, Festo	0.5 A, Festo, safe switching			
	MO2424-0000-1110 ⓘ	MO2424-0900-1110 ⓘ			
	0.5 A, SMC	0.5 A, SMC, safe switching			

MO3xxx | I/O modules, analog input

Type	4-channel
Multi-function, 12 bit, ±10 V, ±20 mA	MO3004-2255-1112 ⓘ
	single-ended, 1 ksps, M12
Temperature (RTD/TC)	MO3204-6666-1112 ⓘ
	16 bit, 1 ksps, M12

MO5xxx | I/O modules, position measurement

Type	2-channel
Incremental	MO5162-0000-1112 ⓘ
	HTL, 100 kHz, M12

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Drive modules

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MO6xxx | I/O modules, communication

Type	1-channel		2-channel	4-channel
IO-Link				MO6224-0020-1112 ⓘ MO6224-0039-1112 ⓘ IO-Link, master, Class A, M12 IO-Link, master, Class B, M12
RS485/RS422			MO6021-0000-1112 ⓘ RS422/RS485, M12, B-coded	
System	MO6070-0000-1110 ⓘ license key	MO6070-0033-1110 ⓘ license key, factory-installed licenses		
	MO6071-0000-1110 ⓘ license key, 2nd generation	MO6071-0033-1110 ⓘ license key, 2nd generation, factory-installed licenses		
	MO6072-0000-1110 ⓘ license key, 2nd generation, RTC	MO6072-0033-1110 ⓘ license key, 2nd generation, factory-installed licenses, RTC		

MO7xxx | I/O modules, compact drive technology

Type	1-channel		2-channel
Servomotor	MO7221-9016-1114 ⓘ 24 V DC, 7 A, B17, STO/SS1	MO7221-9016-1124 ⓘ 48 V DC, 7 A, B17, STO/SS1	
	MO7221-9018-1114 ⓘ 24 V DC, 7 A, B17, Safe Motion	MO7221-9018-1124 ⓘ 48 V DC, 7 A, B17, Safe Motion	
Stepper motor			MO7062-0000-1112 ⓘ MO7062-0000-1122 ⓘ 24 V DC, 3 A, M12 48 V DC, 3 A, M12
			MO7062-9016-1112 ⓘ MO7062-9016-1122 ⓘ 24 V DC, 3 A, M12, STO 48 V DC, 3 A, M12, STO

MOx9xx | I/O modules, TwinSAFE

	2-channel	4-channel	8-channel
I/O module	MO2962-0000-1112 ⓘ relay output	MO2912-0000-1112 ⓘ digital output, 0.5 A	MO1918-0000-1112 ⓘ digital input
		MO2914-0000-1112 ⓘ digital output, 2 A	

MD3xxx | Drive modules, frequency inverters

Output current	1-channel	2-channel
1.8 A		MD3202-0100-2254 ⓘ 1.8 A, STO/SS1
3.4 A	MD3104-0100-2254 ⓘ 3.4 A, STO/SS1	

MD6xxx | Drive modules, DC link power supplies

Output current	
20 A	MD6020-0003-2345 ⓘ 20 A
40 A	MD6040-0003-3445 ⓘ 40 A

MD8xxx | Drive modules, servo drives

Output current	1-channel		2-channel	
6 A	MD8106-0100-2254 ⓘ STO/SS1	MD8106-0190-2254 ⓘ STO/SS1, multi-feedback interface	MD8206-0100-2254 ⓘ STO/SS1	MD8206-0200-2254 ⓘ Safe Motion
	MD8106-0200-2254 ⓘ Safe Motion	MD8106-0290-2254 ⓘ Safe Motion, multi-feedback interface		
12 A	MD8112-0100-2254 ⓘ STO/SS1	MD8112-0190-2254 ⓘ STO/SS1, multi-feedback interface		
	MD8112-0200-2254 ⓘ Safe Motion	MD8112-0290-2254 ⓘ Safe Motion, multi-feedback interface		
28 A	MD8128-0100-3255 ⓘ STO/SS1	MD8128-0190-3255 ⓘ STO/SS1, multi-feedback interface		
	MD8128-0200-3255 ⓘ Safe Motion	MD8128-0290-3255 ⓘ Safe Motion, multi-feedback interface		

MD9xxx | Drive modules, capacitors

Capacity	
2025 µF	MD9000-2025-2250 ⓘ 2025 µF

Relay modules

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MRxxxx | Relay modules

Category/version	1-channel	2-channel	3-channel
Relay output			MR1307-0031-2242 ⓘ 7 A
Motor starter	MR3107-2001-2245 ⓘ 7 A	MR3203-1001-2244 ⓘ 2.8 A	
	MR3107-2901-2245 ⓘ 7 A, safe shutdown	MR3203-1901-2244 ⓘ 2.8 A, safe shutdown	
Solid-state relay	MR4107-1021-2245 ⓘ 7 A		MR4307-1031-2242 ⓘ 7 A, residual current measurement
	MR4107-1041-2245 ⓘ 7 A, residual current measurement		MR4307-1931-2242 ⓘ 7 A, residual current measurement, safe shutdown
	MR4107-1941-2245 ⓘ 7 A, residual current measurement, safe shutdown		

System modules

► www.beckhoff.com/msxxxx

MSxxxx | System modules

Category/version				
Power infeed	MS1010-0021-1114 ⓘ 24 V DC/10 A, 48 V DC/10 A	MS1010-1002-1334 ⓘ 230 V AC/10 A	MS1020-0001-1124 ⓘ 48 V DC/20 A	
	MS1025-0001-1145 ⓘ 400 V AC/25 A	MS1025-0011-2245 ⓘ 24 V DC/10A, 400 V AC/25 A	MS1132-2001-2349 ⓘ 400 V AC/32 A	MS1132-2201-2349 ⓘ 400 V AC/32 A, energy measurement, residual current measurement
	MS1163-2001-3449 ⓘ 400 V AC/63 A	MS1163-2201-3449 ⓘ 400 V AC/63 A, energy measurement, residual current measurement	MS1332-2001-2349 ⓘ 400 V AC/32 A	MS1332-2201-2349 ⓘ 400 V AC/32 A, energy measurement, residual current measurement
	MS1363-2001-3449 ⓘ 400 V AC/63 A	MS1363-2201-3449 ⓘ 400 V AC/63 A, energy measurement, residual current measurement		
EtherCAT power infeed	MS2204-0002-1112 ⓘ 24 V DC/4 A	MS2210-0021-1114 ⓘ 24 V DC/10 A	MS2210-0022-1214 ⓘ 24 V DC/10 A, 48 V DC/10 A	MS2520-8011-2255 ⓘ 400 V AC, 600 V DC, 20 A
	MS2610-1002-1334 ⓘ 24 V DC/10 A, 48 V DC/10 A	MS2625-0011-2245 ⓘ 24 V DC/10 A, 400 V AC/25 A	MS2625-1001-2245 ⓘ 400 V AC/25 A	
Power output	MS3010-1002-1145 ⓘ 400 V AC/10 A	MS3010-1003-1114 ⓘ 2 x 24 V DC/10 A	MS3010-1023-1114 ⓘ 24 V DC/10 A, 48 V DC/10 A	
	MS3025-1001-2245 ⓘ 400 V AC/25 A	MS3025-1011-2245 ⓘ 24 V DC/10 A, 400 V AC/25 A		
EtherCAT power output	MS4208-2003-1112 ⓘ 24 V DC/2 x 4 A	MS4208-2903-1112 ⓘ 24 V DC/2 x 4 A, safe shutdown	MS4210-1003-1114 ⓘ 2 x 24 V DC/10 A	MS4210-1023-1114 ⓘ 24 V DC/10 A, 48 V DC/10 A
	MS4306-1003-1111 ⓘ 24 V DC/2 x 3 A	MS4306-2003-1111 ⓘ 24 V DC/2 x 3 A, 2-channel	MS4625-1001-2245 ⓘ 400 V AC/25 A	MS4625-1011-2245 ⓘ 24 V DC/10 A, 400 V AC/25 A
Power supplies	MS6010-2100-2240 ⓘ 48 V DC/10 A, 400 V AC	MS6010-2100-2250 ⓘ 48 V DC/10 A, 600 V DC	MS6020-1100-2240 ⓘ 24 V DC/20 A, 400 V AC	MS6020-1100-2250 ⓘ 24 V DC/20 A, 600 V DC
	MS6040-2200-2350 ⓘ 48 V DC/40 A, 600 V DC			
Ethernet switches	MS7204-0000-1112 ⓘ 24 V DC			
UPS	MS8132-0120-1212 ⓘ 24 V DC			
Extensions	MS9100-2020-2209 ⓘ 24 V DC			

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The Vision Company

As a specialist for PC-based control technology, Beckhoff consistently aims to integrate all machine functionalities into one control platform. With TwinCAT Vision, this has included image processing within software since 2017. The machine vision product spectrum is now complete thanks to the introduction of the comprehensive hardware range. Machine builders and end users thus have a complete image processing system at their disposal that covers all the necessary components from software to illumination which, integrated into the system, provides users with significant competitive advantages.

▶ www.beckhoff.com/vision

Full scalability of the vision system
All components are optimally matched to each other and can be combined according to the modular principle to suit the vision application.

Cameras [124]
- 2.5 Gbit/s area scan cameras
- robust IP65/67 anodized aluminum housing with flexible mounting options
- color or monochrome image sensors with a resolution of 2.3 to 24 MP
- full synchronization with all EtherCAT-based machine processes
- via distributed clocks
▶ www.beckhoff.com/cameras

Lenses [125]
- robust and universal thanks to C-mount connection
- vibration/shock resistant up to 10 g
- for up to 2.0 μm pixel size and image circle diameters of 11 and 19.3 mm
- broadband anti-reflection coating for the visible spectrum (VIS) and near infrared region (NIR)
▶ www.beckhoff.com/lenses

Illumination [126]
- multicolor LED panel, ring illumination or bar light in IP65/67
- spectrally complete white light
- spectrally adjustable pulse mode
- simple wiring and full EtherCAT integration
- precisely synchronized through distributed clocks
▶ www.beckhoff.com/illumination

Units [127]
- unit consisting of camera, ring illumination and focusable optics in IP65/67 aluminum anodized housing
- color or monochrome image sensors with a resolution of 2.3 to 5 MP
- directly integrated into the PC-based control technology
- focus adjustment during runtime
▶ www.beckhoff.com/units

TwinCAT Vision [105]
- program and configure vision applications directly in TwinCAT Engineering
- superior real-time applications: PLC, motion control, robotics, high-end measurement technology and vision on one platform
- hardware-independent and open
▶ www.beckhoff.com/twincat-vision

- **complete hardware portfolio for industrial image processing**
- **ultra-fast EtherCAT performance and robust design**
- **perfect synchronization with any process**
- **simple, direct integration into the control**
- **open and scalable machine vision system**

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Cameras

VCS2000 | Area scan cameras, 2.5 Gbit/s

Number of pixels	Spectral sensitivity monochrome	color	polarization/monochrome	polarization/color
2.3…3.1 MP	VCS2000-0200 2.3 MP, 167 fps, Δpx = 3.45 µm	VCS2001-0200 2.3 MP, 167 fps, Δpx = 3.45 µm		
	VCS2000-0300 3.1 MP, 55 fps, Δpx = 3.45 µm	VCS2001-0300 3.1 MP, 55 fps, Δpx = 3.45 µm		
5.0…8.1 MP	VCS2000-0500 5.0 MP, 35 fps, Δpx = 3.45 µm	VCS2001-0500 5.0 MP, 35 fps, Δpx = 3.45 µm	VCS2002-0500 5.0 MP, 35 fps, Δpx = 3.45 µm	VCS2003-0500 5.0 MP, 35 fps, Δpx = 3.45 µm
	VCS2020-0500 ⓘ 5.1 MP, 56 fps, Δpx = 2.74 µm	VCS2021-0500 ⓘ 5.1 MP, 56 fps, Δpx = 2.74 µm		
	VCS2020-0800 ⓘ 8.1 MP, 35 fps, Δpx = 2.74 µm	VCS2021-0800 ⓘ 8.1 MP, 35 fps, Δpx = 2.74 µm		
12.4…16.2 MP	VCS2020-1200 ⓘ 12.4 MP, 23 fps, Δpx = 2.74 µm	VCS2021-1200 ⓘ 12.4 MP, 23 fps, Δpx = 2.74 µm		
	VCS2030-1600 ⓘ 16.2 MP, 17 fps, Δpx = 2.74 µm	VCS2031-1600 ⓘ 16.2 MP, 17 fps, Δpx = 2.74 µm		
20.4…24.6 MP	VCS2030-2000 ⓘ 20.4 MP, 14 fps, Δpx = 2.74 µm	VCS2031-2000 ⓘ 20.4 MP, 14 fps, Δpx = 2.74 µm		
	VCS2030-2400 ⓘ 24.6 MP, 11 fps, Δpx = 2.74 µm	VCS2031-2400 ⓘ 24.6 MP, 11 fps, Δpx = 2.74 µm		

Specified values for the product: number of pixels, max. frame rate, pixel size

Lenses

VOS2000   VOS3000

VOS2000 | Lenses

Focal length	Image circle Ø 11 mm
6 mm	VOS2000-0625 2.0 µm, f = 6 mm, f/2.5
8 mm	VOS2000-0822 2.0 µm, f = 8 mm, f/2.2
12 mm	VOS2000-1218 2.0 µm, f = 12 mm, f/1.8
16 mm	VOS2000-1616 2.0 µm, f = 16 mm, f/1.6
25 mm	VOS2000-2516 2,0 µm, f = 25 mm, f/1,6
35 mm	VOS2000-3522 2.0 µm, f = 35 mm, f/2.2
50 mm	VOS2000-5028 2.0 µm, f = 50 mm, f/2.8

VOS3000 | Lenses

Focal length	Image circle Ø 19.3 mm
16 mm	VOS3000-1632 2.0 µm, f = 16 mm, f/3.2
25 mm	VOS3000-2532 2.0 µm, f = 25 mm, f/3.2
35 mm	VOS3000-3528 2.0 µm, f = 35 mm, f/2.8

Specified values for the product: pixel size, focal length, starting aperture

Illumination

VIP2000   VIR2000   VIB2000

VIP2000 | Panel illumination

Light emitting surface (W x H)	Light color OGB-IR850			
100 x 100 mm	VIP2000-1010 wide beam, 90°	i	VIP2010-1010 narrow beam, 50°	i
150 x 150 mm	VIP2000-1515 wide beam, 90°	i	VIP2010-1515 narrow beam, 50°	i
200 x 200 mm	VIP2000-2020 wide beam, 90°	i	VIP2010-2020 narrow beam, 50°	i
250 x 250 mm	VIP2000-2525 wide beam, 90°	i	VIP2010-2525 narrow beam, 50°	i
300 x 300 mm	VIP2000-3030 wide beam, 90°	i	VIP2010-3030 narrow beam, 50°	i

VIR2000 | Ring illumination

Light emitting surface (W x H)	Light color OGB-IR850			
100 x 100 mm	VIR2000-1010 wide beam, 90°	i	VIR2010-1010 narrow beam, 50°	i
150 x 150 mm	VIR2000-1515 wide beam, 90°	i	VIR2010-1515 narrow beam, 50°	i
200 x 200 mm	VIR2000-2020 wide beam, 90°	i	VIR2010-2020 narrow beam, 50°	i
250 x 250 mm	VIR2000-2525 wide beam, 90°	i	VIR2010-2525 narrow beam, 50°	i
300 x 300 mm	VIR2000-3030 wide beam, 90°	i	VIR2010-3030 narrow beam, 50°	i

VIB2000 | Bar light

Light emitting surface (W x H)	Light color OGB-IR850			
150 x 50 mm	VIB2000-0155 wide beam, 90°	i	VIB2010-0155 narrow beam, 50°	i
200 x 50 mm	VIB2000-0205 wide beam, 90°	i	VIB2010-0205 narrow beam, 50°	i
250 x 50 mm	VIB2000-0255 wide beam, 90°	i	VIB2010-0255 narrow beam, 50°	i
300 x 50 mm	VIB2000-0305 wide beam, 90°	i	VIB2010-0305 narrow beam, 50°	i
400 x 50 mm	VIB2000-0405 wide beam, 90°	i	VIB2010-0405 narrow beam, 50°	i
500 x 50 mm	VIB2000-0505 wide beam, 90°	i	VIB2010-0505 narrow beam, 50°	i
600 x 50 mm	VIB2000-0605 wide beam, 90°	i	VIB2010-0605 narrow beam, 50°	i
800 x 50 mm	VIB2000-0805 wide beam, 90°	i	VIB2010-0805 narrow beam, 50°	i
1000 x 50 mm	VIB2000-1005 wide beam, 90°	i	VIB2010-1005 narrow beam, 50°	i

Specified values for the product: light distribution, beam angle

Units

VUI2000 | Units

Number of pixels	Spectral sensitivity monochrome		color	
2.3 MP	VUI2000-0208 2.3 MP, f = 8 mm, 167 fps, Δpx = 3.45 µm	i	VUI2001-0208 2.3 MP, f = 8 mm, 167 fps, Δpx = 3.45 µm	i
	VUI2000-0212 2.3 MP, f = 12 mm, 167 fps, Δpx = 3.45 µm	i	VUI2001-0212 2.3 MP, f = 12 mm, 167 fps, Δpx = 3.45 µm	i
	VUI2000-0216 2.3 MP, f = 16 mm, 167 fps, Δpx = 3.45 µm	i	VUI2001-0216 2.3 MP, f = 16 mm, 167 fps, Δpx = 3.45 µm	i
3.1 MP	VUI2000-0308 3.1 MP, f = 8 mm, 55 fps, Δpx = 3.45 µm	i	VUI2001-0308 3.1 MP, f = 8 mm, 55 fps, Δpx = 3.45 µm	i
	VUI2000-0312 3.1 MP, f = 12 mm, 55 fps, Δpx = 3.45 µm	i	VUI2001-0312 3.1 MP, f = 12 mm, 55 fps, Δpx = 3.45 µm	i
	VUI2000-0316 3.1 MP, f = 16 mm, 55 fps, Δpx = 3.45 µm	i	VUI2001-0316 3.1 MP, f = 16 mm, 55 fps, Δpx = 3.45 µm	i
5.0 MP	VUI2000-0512 5.0 MP, f = 12 mm, 35 fps, Δpx = 3.45 µm	i	VUI2001-0512 5.0 MP, f = 12 mm, 35 fps, Δpx = 3.45 µm	i
	VUI2000-0516 5.0 MP, f = 16 mm, 35 fps, Δpx = 3.45 µm	i	VUI2001-0516 5.0 MP, f = 16 mm, 35 fps, Δpx = 3.45 µm	i

Specified values for the product: number of pixels, focal length, max. frame rate, pixel size

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