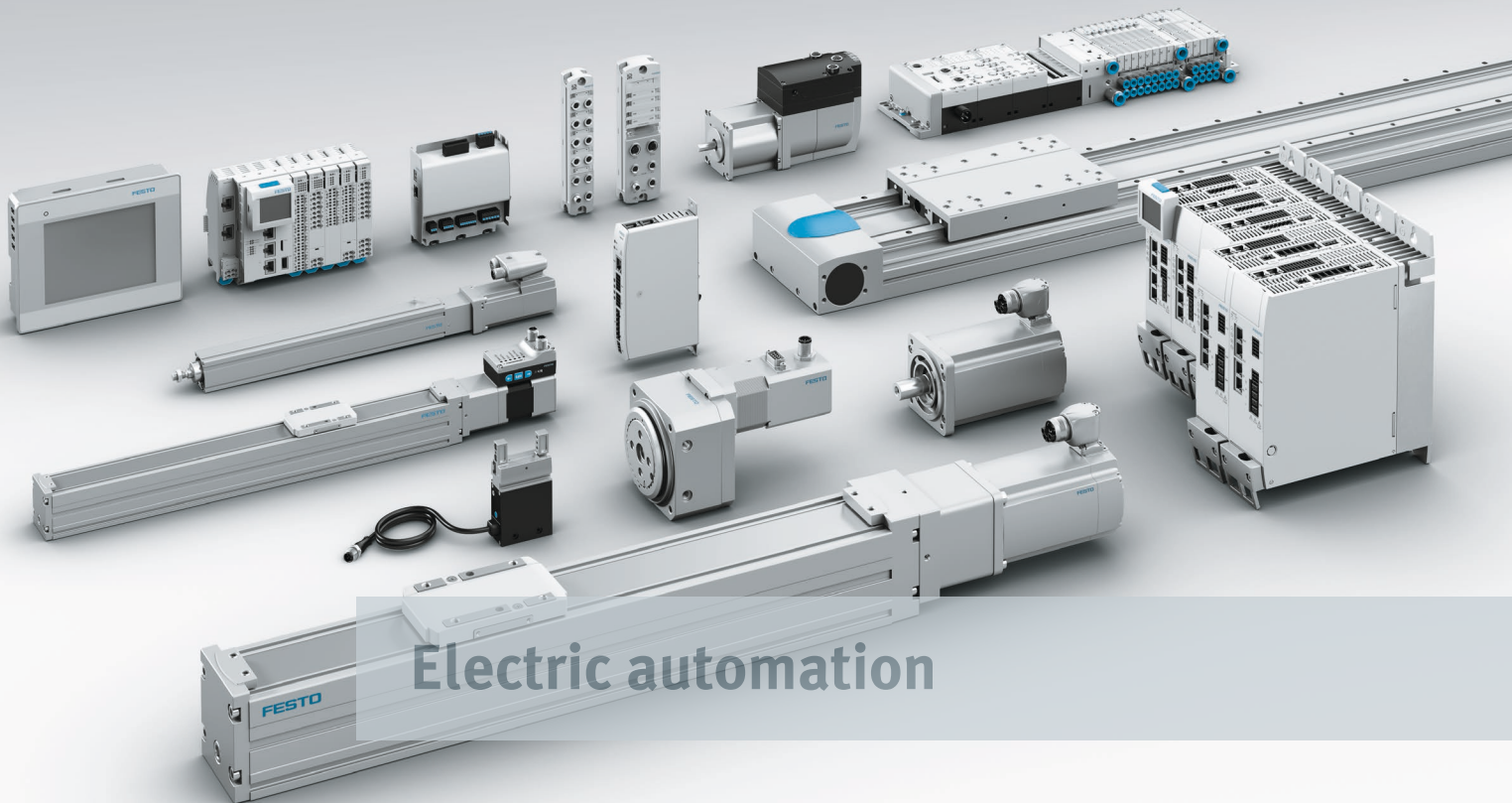


**Seamless connectivity
from the workpiece to the cloud!**

FESTO



Electric automation

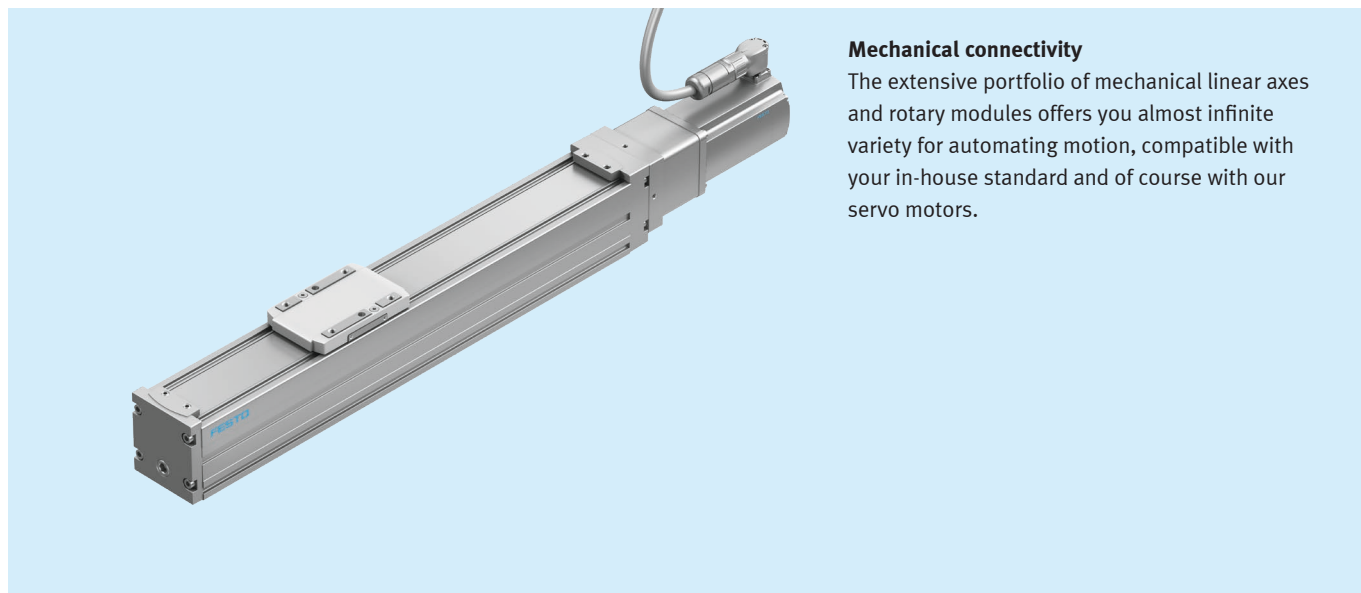
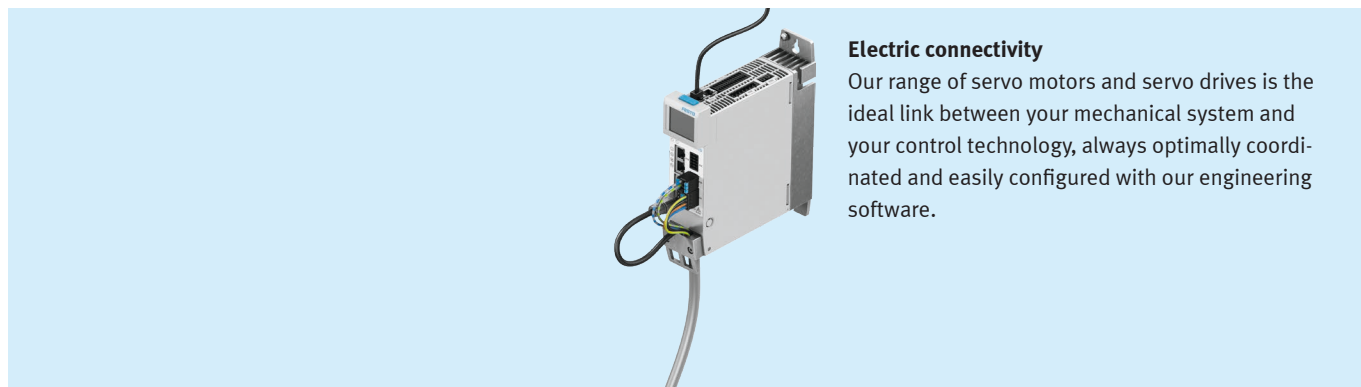
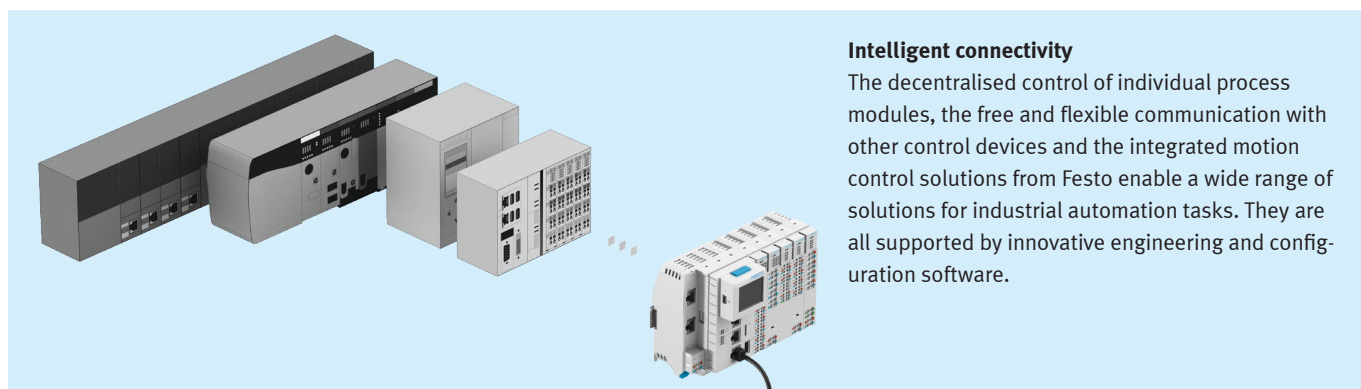
**A perfect fit of controllers, servo drives and mechanics – thanks
to quick configuration with PositioningDrives and commissioning
with just a few clicks with the Festo Automation Suite.**

Seamless connectivity!

Mechanical, electrical and intelligent: the unique, scalable electric automation platform combines electrical variety and tried-and-tested servo technology.

On the road to seamless automation of machines and systems, Festo offers a unique range of solutions. We help you to connect your automation components and modules so that they interact perfectly at all times, mechanically, electrically and intelligently.

This enables you to implement numerous applications, from simple machine and control systems to preprocessing for complex mechatronic subsystems.



Electric motion made easy: Simplified Motion Series

The simplicity of pneumatics is now combined for the first time with the advantages of electric automation: Simplified Motion Series.

These integrated drives are the perfect solution for all users who are looking for an electric alternative for very simple movement and positioning tasks, but don't want the commissioning process for traditional electric drive systems that can often be quite complex.

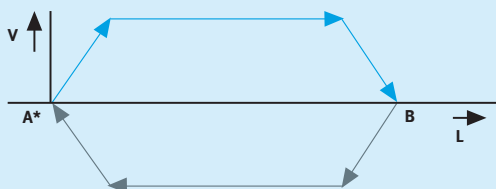
There is no need for any software since operation is simply based on the plug and work principle. Digital I/O (DIO) and IO-Link® are always automatically included – a product with two types of control as standard.

The products in the Simplified Motion Series:

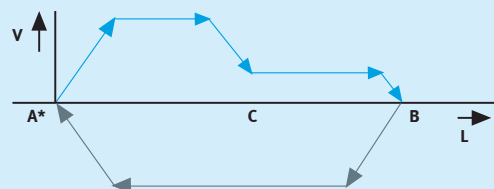
- Spindle and toothed belt axis ELGS-BS/-TB
- Mini slide EGSS
- Electric cylinder EPCS
- Short-stroke cylinder EPCE
- Toothed belt axis ELGE
- Rotary drive ERMS



The functions of Simplified Motion Series



Basic profile for movement between two end positions, with speed control



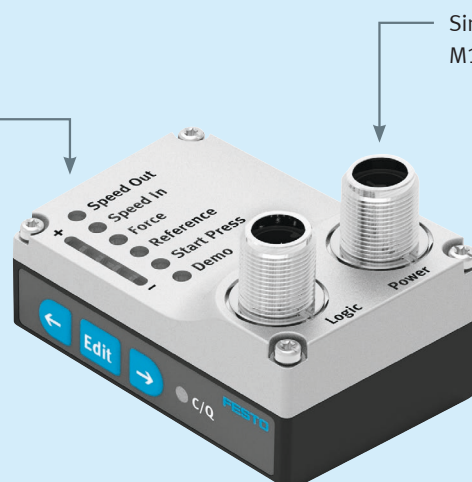
Extended motion profile for simplified press-fitting and clamping functions as well as speed and force control

- "Out" movement
- "In" movement
- A* Reference end position
- B Operating position
- C Start position "press"

Simple technology, but with excellent communication

For commissioning, simply set all relevant parameters directly on the drive:

- Speed for "out" and "in" movement
- Drive force in the "out" position
- Setting the reference end position
- Setting the position "Start force-controlled movement"
- Manual start (similar to a manual override)



Simple electrical connection via M12 connector technology

IO-Link

Expanded functions possible via IO-Link®: remote setting of the motion parameters, copy and backup functions for transferring parameters, read functions for essential process parameters

Mechanical connectivity: linear motion

Spindle and toothed belt axes ELGC

The spindle axes ELGC-BS and the toothed belt axes ELGC-TB stand out thanks to their internal recirculating ball bearing guide protected by a permanent stainless steel cover strip.

- ELGC-BS: precise and smooth – horizontally and vertically
- ELGC-TB: high acceleration and speed, with good rigidity and load-bearing capacity
- Compact
- Flexible with wide range of mounting options
- Unique “one-size-down” mounting system



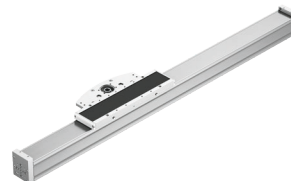
Toothed belt and spindle axis ELGA

The ELGA series with protected guide offers different variants: recirculating ball bearing guide, roller bearing guide, plain-bearing guide. It has a clean look design and free choice of motor mounting, which can be changed at a later date.



Toothed belt and spindle axes EGC and heavy-duty variant EGC-HD

Rigidity and high load-bearing capacity with toothed belt and spindle drive or as driveless guide axis. Extremely high load-bearing capacity: the heavy-duty axis HD with maximum rigidity for absorbing heavy loads and high torques. With numerous safety features.



Cantilever axis with toothed belt ELCC

Rigid and lightweight, ideal for palletising or erecting boxes, for a wide range of positioning tasks with long strokes vertically, horizontally or at other installation angles. Up to 50% fewer vibrations and up to 30% shorter cycle times thanks to lower moving mass.



Mini slides EGSL and EGSC

Extremely compact, smooth operation, load-bearing guide: all the essentials for economical positioning. For highly precise pushing, picking up and inserting, even with high mechanical loads with vertical Z-movements or guided individual linear movements in any mounting position.

Electric cylinders with plain bearing guide and ball screw



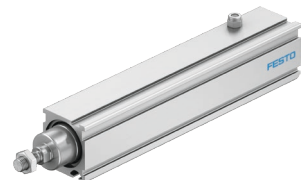
Electric cylinder ESBF

Dynamic positioning with feed force of up to 17 kN and smooth surfaces with a clean look design.



Electric cylinder EPCO

The complete package consists of the cylinder and the permanently mounted, optimally matched motor. Clean look, motor with or without encoder as well as optional holding brake.



Electric cylinder EPCC

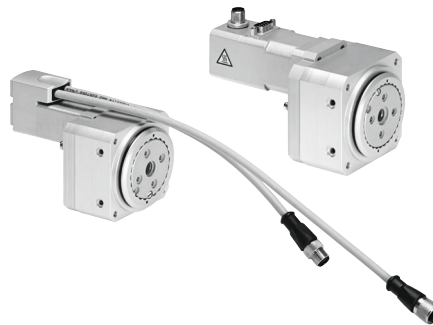
Powerful, yet inexpensive: the EPCC combines precision and speed with high load-bearing capacity and robustness for simple positioning tasks.

Mechanical connectivity: rotating, gripping, stopping

Rotary drive ERMO

The sturdy and backlash-free bearing absorbs high forces and torques. The electromechanical complete solution is ideal for rotating and aligning parts and

workpieces, for example at simple rotary indexing tables, or for swivelling tasks subjected to heavy loads. For infinite rotation or optionally with external mounting kit up to max. 270°.



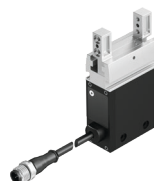
Rotary module ERMB

Freely positionable and with any swivel angle >360°. Dynamic and flexible rotation as a single rotary axis or as a small, stand-alone NC rotary table with a maximum payload of 15 kg.



Rotary lifting module EHMB

Complete handling unit with rotary and linear movement for independent positioning with a maximum payload of 8 kg. The positioning time for a 1 kg load with a swivel angle of 180° is 0.25 s.



Parallel gripper EHPS

For flexible and economical gripping in handling and assembly technology as well as in the electronics industry or small parts assembly. Control is via digital I/O and IO-Link® and it can be quickly commissioned without an external controller. The self-locking feature of the EHPS holds the gripped workpiece in case of power failure.



Stopper cylinder EFSD

The EFSD stops workpiece carriers and packaged goods in transfer systems. It is controlled via digital I/O and no additional controller is required. M12 plugs are used for the connection with the drive and integrated position sensing. Comes in three sizes for stopping conveyed goods weighing between 0.25 kg and 100 kg.

Intelligent connectivity: configuration software



Handling Guide Online HGO – configuration software for handling systems

Get a finished handling system in next to no time: configure single-axis systems, linear, planar surface and three-dimensional gantries as well as highly dynamic and compact handling systems quickly and easily in 20 minutes, including CAD model and commissioning file.

PositioningDrives – engineering software for electric single-axis systems

Provides support when planning electromechanical drive systems. Designing the mechatronic drive solution complete with mechanical system, motor and servo drive is simplified, design mistakes are prevented and the energy efficiency of the axis system is improved.

Results	Selected drive	Overview about performance data
Results No. 1	Selected drive	Overview about performance data
Results No. 2	Selected drive	Overview about performance data
Results No. 3	Selected drive	Overview about performance data
Results No. 4	Selected drive	Overview about performance data
Results No. 5	Selected drive	Overview about performance data
Results No. 6	Selected drive	Overview about performance data
Results No. 7	Selected drive	Overview about performance data
Results No. 8	Selected drive	Overview about performance data
Results No. 9	Selected drive	Overview about performance data
Results No. 10	Selected drive	Overview about performance data
Results No. 11	Selected drive	Overview about performance data
Results No. 12	Selected drive	Overview about performance data
Results No. 13	Selected drive	Overview about performance data
Results No. 14	Selected drive	Overview about performance data
Results No. 15	Selected drive	Overview about performance data
Results No. 16	Selected drive	Overview about performance data
Results No. 17	Selected drive	Overview about performance data
Results No. 18	Selected drive	Overview about performance data
Results No. 19	Selected drive	Overview about performance data
Results No. 20	Selected drive	Overview about performance data

Electric connectivity: servo drives

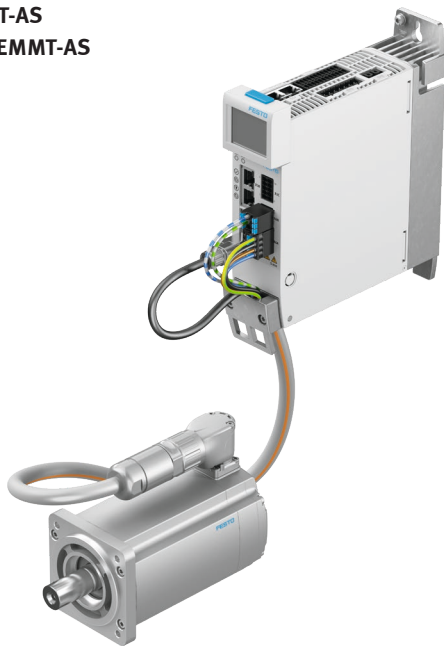
Servo drive CMMT-AS and servo motor EMMT-AS

EtherCAT

EtherNet/IP

PROFINET

Modbus



It is one of the most compact servo drives on the market for low-voltage drives. The price- and size-optimised servo drive for point-to-point and interpolating motion is suitable for different Ethernet-based bus systems and can be directly integrated in the system environments of various manufacturers, where it functions just like the servo drive of the controller supplier. The identical behaviour

and the availability of manufacturer-specific function blocks mean that no drive-specific expertise is required. And commissioning the CMMT-AS with the servo motor EMMT-AS only takes a few minutes with the Festo Automation Suite. The space-saving one-cable solution and the extremely low cogging torque ensure good control and path accuracy for positioning tasks.



Servo motor controller CMMT-AS and servo motor EMMT-AS

Highly functional solution for dynamic motion and enhanced safety features.

- Speed and position control
- Current and torque control
- Jerk-free positioning
- Infinitely variable positioning in closed-loop operation
- Electronic cam disc



Extra low voltage servo drive CMMT-ST

Ideal for extremely economical positioning tasks and motion solutions with minimal power requirements of up to 300 W. Like its big brother, the CMMT-AS, the CMMT-ST can be seamlessly integrated in the system environments of different manufacturers and commissioned within a few minutes using the Festo Automation Suite.



Motor controller CMMO-ST

CMMO-ST as a closed-loop motor controller for stepper motors with integrated web browser offers a broad connectivity with IO-Link®, Modbus TCP or I/O interface as well as jerk-limited acceleration.



Stepper motor series EMMS-ST

In addition to the simple and cost-effective connection technology, the motors based on two-phase hybrid technology stand out thanks to their problem-free operation and the long service life as well as protection to IP54/65.

Intelligent connectivity: controllers and motion control



Control system CPX-E

High-performance automation system as an EtherCAT master controller and motion controller to IP20 or as a low-cost remote I/O.

- Comprehensive PLC functions, multi-axis applications with interpolation
- Easy to integrate in host systems or as a controller for decentralised automation solutions
- For Industry 4.0 host environments: cloud and digitalisation concepts, OPC UA client and server functions



Electrical terminal CPX

CPX is used as a modular and flexible automation platform, including embedded CODESYS controller, or as a versatile remote I/O in IP65 for scalable installation concepts. For universal communication via fieldbus/Ethernet.

- For decentralised and networked intelligence
- Industry 4.0 thanks to OPC UA and CODESYS V3
- Optimised versions for IP20 and potentially explosive environments
- Diagnostics and condition monitoring, also via IoT gateway and Festo Cloud



Compact controller CECC

The versatile controller with CODESYS is ideal for simple control of electric and pneumatic drives. CECC stand-alone or as part of mechatronic solutions enables interpolating motion control for up to 3 axes.

- IO-Link® variant with master and device interface
- Direct connection of the Simplified Motion Series via IO-Link®
- Integrated IO-Link® interface for connecting Festo valve terminals, electric drives, sensors
- Digital I/O



Operator unit CDPX

The front end display CDPX with touchscreen visualises data and simplifies the communication with machines and systems. Project engineering and programming are easy and intuitive.

- CODESYS controller, CANopen master, digital and analogue I/O modules for easier control at field level
- Optional: digital and analogue I/O

Decentralised remote I/O system CPX-AP-I

Ultra-lightweight and compact

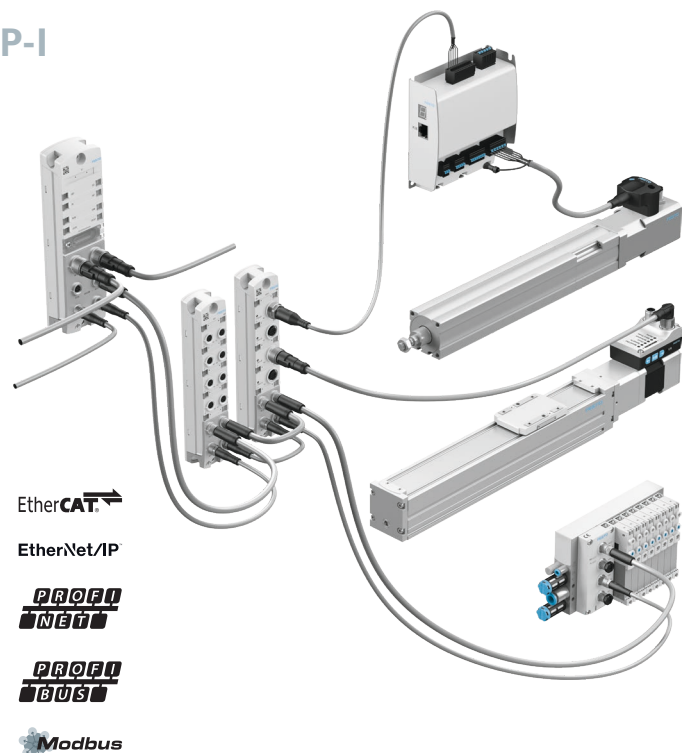
The CPX-AP-I consists of a bus interface, I/O modules and IO-Link® master and can be integrated directly in the customer's system. The system architecture and bills of materials can be standardised below the level of the bus interfaces, irrespective of the host PLC used. All I/Os are visualised as if they were directly in the host network. All IO-Link® devices commonly found on the market can be connected to the IO-Link® master.

- IO-Link® master and Festo IO-Link tool integrated
- Short bus cycle times up to 250 µs

- Valve terminals are easy to integrate and can be integrated directly in the main host systems, all the way to the cloud
- Currently up to 80 modules, in the future up to 500 including bus interface in line topology, in the future also in star and tree topology

CPX-AP-I modules

- Bus interfaces
- Digital I/O modules with 8 inputs or with 4 inputs and 4 outputs
- Analogue 4x input module
- IO-Link® master



EtherCAT

EtherNet/IP

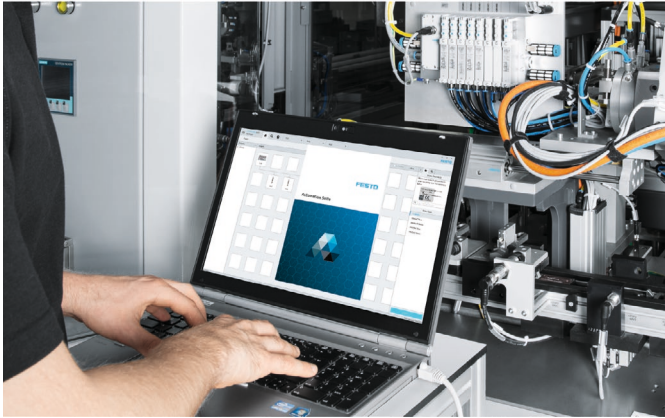
PROFINET

PROFIBUS

Modbus

Intelligent connectivity: digital services

Commissioning software: Festo Automation Suite



The PC-based software Festo Automation Suite combines the parameterisation, programming and maintenance of Festo components in one program. It enables the entire drive

package, from the mechanical system to the controller, to be commissioned. Perfect for making industrial automation simple, efficient and seamless.



The benefits at a glance

- + Only five steps to get a drive system up and running
- + Greatly simplified integration into the control program
- + Customisable thanks to device-specific plug-ins and add-ons
- + Integrated controller programming
- + Access to device information and instructions directly from the software

See, understand and apply straightaway: Service2see

Practical support for maintenance, commissioning and repair.



On our YouTube channel “Festo Service” we show you how you can configure, repair, commission and retrofit Festo products. Our new service perfectly complements the technical hotline – by watching

the video tutorials on your smartphone or tablet you can follow the correct sequence step by step and directly at the machine. And they are available around the clock!



The benefits at a glance

- + Step-by-step instructions
- + Practical and intuitive
- + Available around the clock
- + Quick support without having to wait
- + Overview of the required tools
- + Information on the time required and the level of difficulty
- + Image comparisons to avoid typical sources of errors