

Simplified Motion Series

FESTO

Plug
and
work



Motion made easy

Highlights

- Simplified functionality for simple movements
- A variety of movements with different mechanical systems
- Integrated products eliminate the need for a control cabinet
- Quick and easy commissioning without software and special expertise
- Digital I/O and IO-Link® integrated as standard

The simplicity of pneumatics is now combined for the first time with the advantages of electric automation thanks to the Simplified Motion Series. These integrated drives are the perfect solution for all users who are looking for an electric alternative for very simple movement 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.

Integrated

The Simplified Motion Series doesn't need an external servo drive, since all necessary electronic components are combined in the integrated drive. The complete solution is optimised for simple movements between two mechanical end positions without having to sacrifice optimised movement characteristics, for gently cushioned travel into the end position or simplified press-fitting and clamping functions.

Easy

This electric alternative for very simple movement tasks doesn't require the usual commissioning process for traditional electric drive systems that can often be quite complex. It can be done quickly and easily without software, computers or other accessories. All parameters can be manually set directly on the drive.

 IO-Link

Overview of the Simplified Motion Series

The Simplified Motion Series consists of different linear and rotary electromechanical components together with a simple and application-optimised combination of motor and servo drive, the so-called integrated drive. With

this solution there is no need for external servo drives or a control cabinet for installation, because the Simplified Motion Series is mounted directly in the machine. The electric alternative for very simple movement and position-

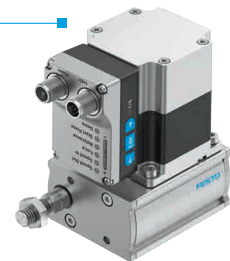
ing tasks between two mechanical end positions doesn't require the usual commissioning process for traditional electric drive systems that can often be quite complex. It also offers special motion characteristics such as

gently cushioned travel into the end position or simplified press-fitting and clamping functions. In addition, the end-position feedback is integrated as standard so that no external sensors are required.

Electric cylinder EPCE

The EPCE is an electric cylinder for short strokes and cycle times, offering a minimal zero stroke and excellent value for money.

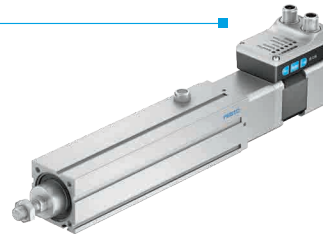
It is ideal for use in testing and inspection systems as well as for labelling, in simple centring tasks and for aligning workpieces.



Electric cylinder EPCS

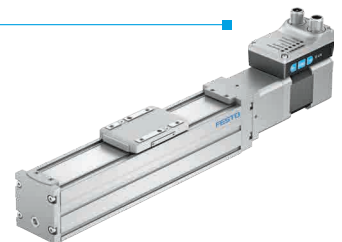
The EPCS with smooth-running ball screw is ideal for individual linear movements. As an extremely cost-effective complete solution, this electric

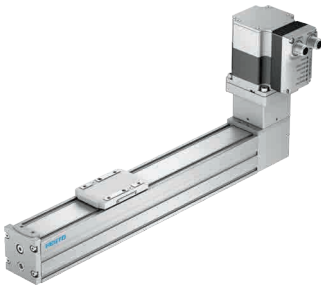
cylinder is perfect for applications such as clamping, distributing, sorting and ejecting, and as a simple Z-axis in handling systems.



Spindle axis ELGS-BS

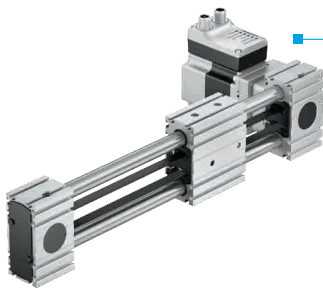
Extremely compact and cost-effective spindle axis with precise, resilient recirculating ball bearing guide for the slide and powerful ball screw.





Toothed belt axis ELGS-TB

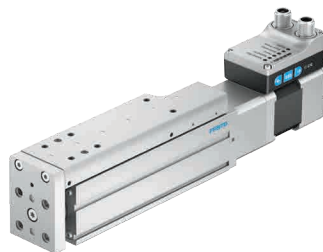
Compact and extremely cost-effective toothed belt axis with precise, resilient recirculating ball bearing guide for the slide and durable toothed belt.



Toothed belt axis ELGE

This attractively priced toothed belt axis with recirculating ball bearing guide offers very good, smooth running performance. It is ideal as an economical solu-

tion for very simple tasks with comparatively low requirements for mechanical load, dynamic response and precision as well as for the environment.



Mini slide EGSS

The powerful and resilient EGSS with smooth-running spindle is the precise solution for guided individual linear movements or vertical Z-movements.



Rotary drive ERMS

The rotary drive for simple swivelling tasks or for increased mechanical loads has sturdy, precise and backlash-free ball

bearings for the rotary plate, thus absorbing transverse loads and torques.

Note on the use of Simplified Motion Series

- All products have degree of protection IP40
- The Simplified Motion Series has been developed for end-to-end motion and is not suitable for flexible positioning applications

Electric cylinder EPCE

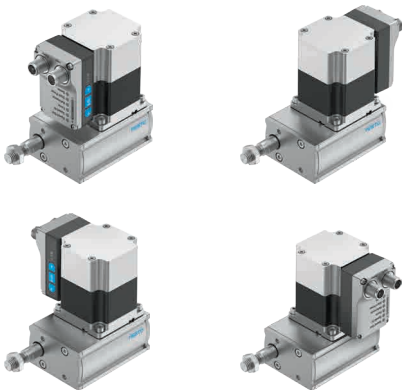


With the cylinder EPCE, Festo is extending the unique Simplified Motion Series to include a cost-effective electric cylinder unit for short strokes, very short cycle times as well as minimal zero stroke. The innovative toothed belt/cylinder concept makes the EPCE the perfect solution for all users looking for an electric short-stroke cylinder

optimised for speed and space, and a real alternative to pneumatic solutions. The flexible overall concept of the EPCE offers a wide range of piston rod, mounting and cable outlet variants as well as options for control and communication, something that current pneumatic drives cannot offer in the same way.

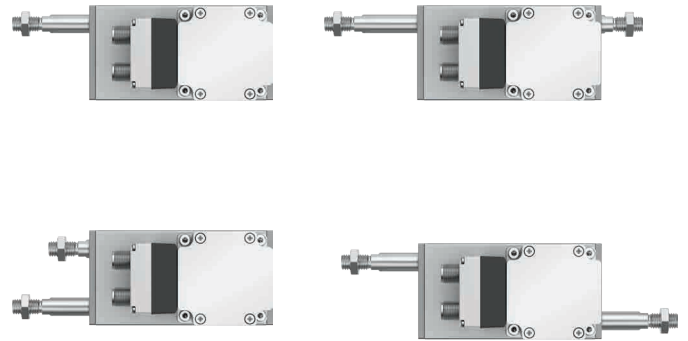
Flexible mounting and a wide range of applications

Integrated drive: mounting options



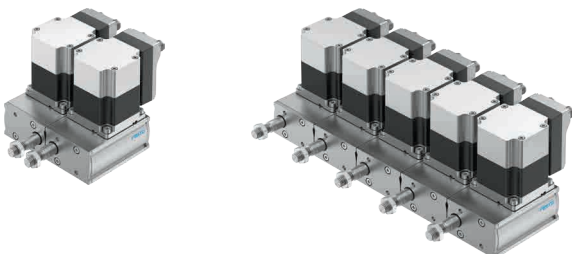
Freely selectable: motor alignment and cable outlet
Flexibility: optimised cable routing in the machine

Choice of piston rod options

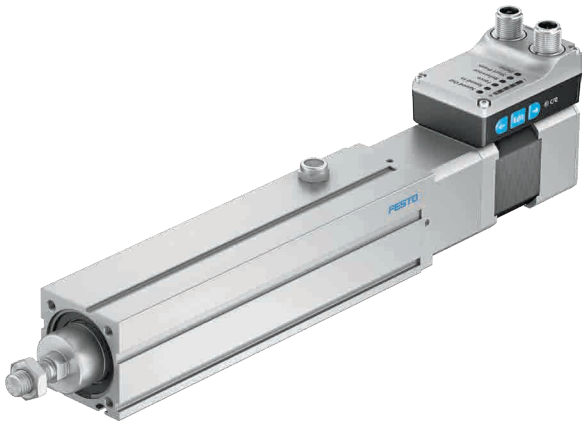


Variety: different variants with one or two piston rods
Flexibility: free combination for different tasks in the machine

Maximum component density with the EPCE



Electric cylinder EPCS

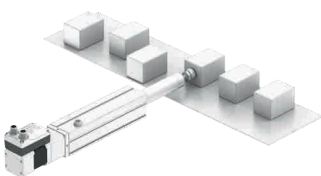


The EPCS is suitable for individual linear movements in every mounting position and its smoothly running ball screw allows precise and rapid motion. As an extremely cost-effective complete solution, this electric cylinder is perfect for applications such as clamping, distributing, sorting or ejecting and as a simple Z-axis in handling systems.

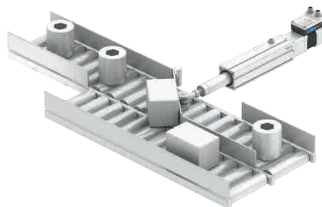
- Three sizes with a max. stroke of 500 mm

- Simple and cost-effective position sensing with proximity switch
- Optional: ducted compressed air compensation prevents particles or moisture from entering and particles leaking into the environment
- Unique “one-size-down” assembly system in conjunction with the spindle and toothed belt axes ELGS-BS/-TB
- The motor can be rotated 4 x 90° and its position can be changed at any time

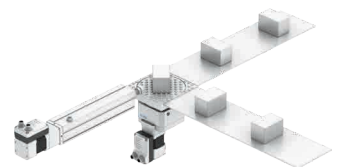
Application examples EPCS



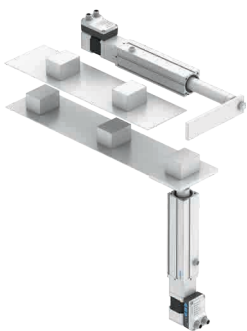
Positioning with the electric cylinder EPCS



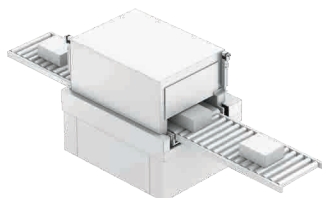
Sorting with the electric cylinder EPCS



Transferring with the electric cylinder EPCS and rotary drive ERMS



Lifting with short stroke using the electric cylinder EPCS



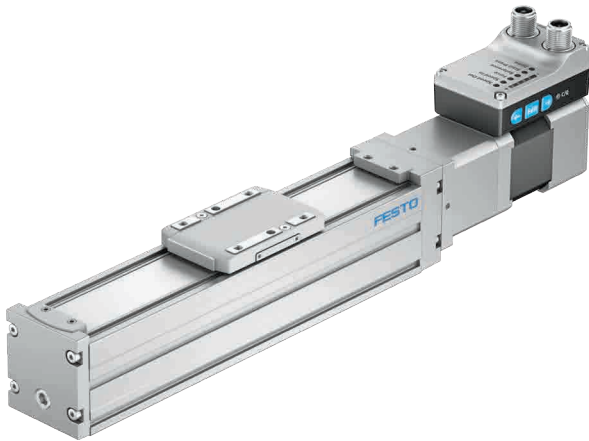
Vertical door opener with the electric cylinder EPCS



Horizontal door opener, with short stroke, using the electric cylinder EPCS

(Note: Special safety precautions need to be observed for the safe implementation of this application)

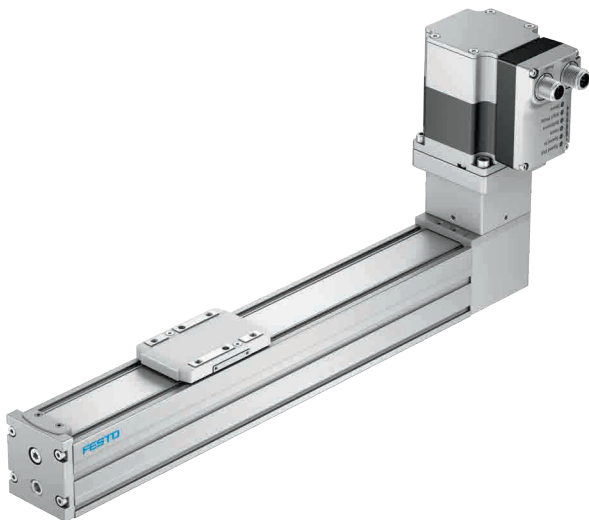
Spindle axis ELGS-BS and toothed belt axis ELGS-TB



Spindle axis ELGS-BS

Extremely compact and cost-effective spindle axis with precise, resilient recirculating ball bearing guide for the slide and powerful ball screw.

- Three sizes for a payload of up to 20 kg at a max. stroke of 800 mm



Toothed belt axis ELGS-TB

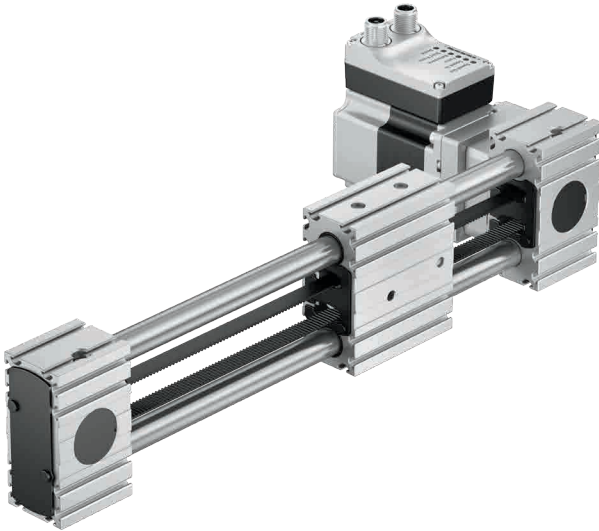
Compact and extremely cost-effective toothed belt axis with durable toothed belt and precise, resilient recirculating ball bearing guide for the slide.

- Two sizes for up to 1.3 m/s at a max. stroke of 2000 m

Common features

- Permanent stainless steel cover strip protects the internal guide and spindle or toothed belt
- Unique “one-size-down” assembly system for mounting with each other and with the mini slide EGSS
- Optional: vacuum connection to minimise particulate emissions from the axis
- The motor can be rotated by 4 x 90° and its position can be modified at any time

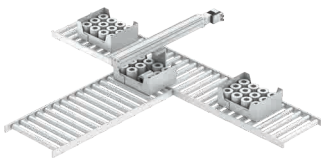
Toothed belt axis ELGE



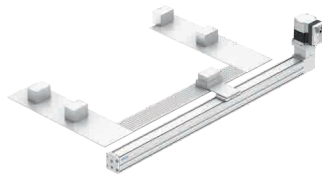
The toothed belt axis ELGE-TB is very smooth in operation thanks to its recirculating ball bearing guide. As an attractively priced complete solution with a cost-optimised design, it is ideal as an economical solution for very simple tasks with comparatively low requirements for mechanical load, dynamic response and precision as well as for the environment.

- High running performance of 5000 km
- Optional end-position sensing using proximity switches
- The motor can be fitted on both sides, above or below, rotated by $4 \times 90^\circ$, and its position can be changed at any time

Application examples ELGS-BS/-TB and ELGE



Sorting with the spindle axis
ELGS-BS



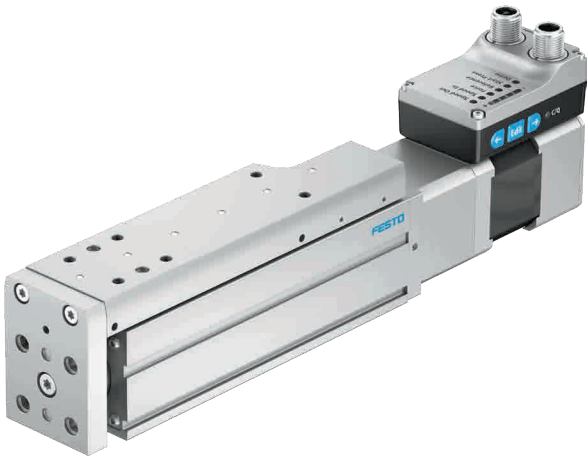
Transferring horizontally with the
toothed belt axis ELGS-TB



Horizontal door opener, with long
stroke, using the toothed belt
axis ELGS-TB

(Note: Special safety precautions need to be observed for the safe implementation of this application)

Mini slide EGSS

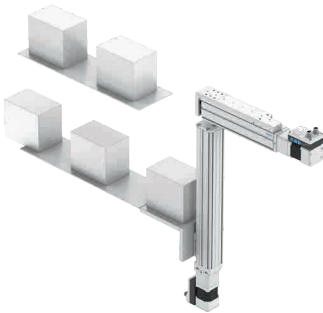


Cost-effective and resilient EGSS with smooth spindle operation for vertical Z-movements or guided individual linear movements in every mounting position. The internal linear guide absorbs lateral forces and provides very good resistance to torsion at high torques.

- Three sizes with a max. stroke of 200 mm
- The electric rotary drive ERMS can be mounted directly without the need for adapters

- Optional: ducted compressed air compensation prevents particles or moisture from entering and particles leaking into the environment
- Unique “one-size-down” assembly system in conjunction with ELGS-BS/-TB
- The motor can be rotated 4 x 90° and its position can be changed at any time

Application examples EGSS



Lifting with long stroke using the spindle axis ELGS-BS and with the mini slide EGSS



Press-fitting with the mini slide EGSS

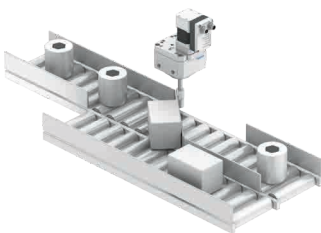
Rotary drive ERMS



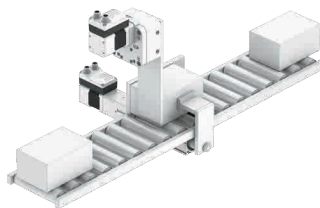
As a cost-effective solution package, the rotary drive ERMS is ideal for simple swivel tasks as well as for increased mechanical loads. The rotary plate has sturdy, precise and backlash-free ball bearings so it can absorb lateral loads and torques.

- Two sizes, each with a swivel angle of 90° and 180°
- Sealed hollow shaft for the integrated through-feed of cables or tubing
- The standardised mounting interface allows it to be connected directly to the electric mini slides EGSL, EGSC and EGSS.

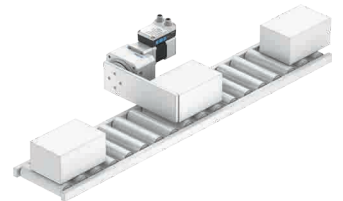
Application examples ERMS



Sorting using deflectors with the rotary drive ERMS



Stopping and clamping with the rotary drive ERMS



Stopping with the rotary drive ERMS

The integrated drive: connection and commissioning

The Simplified Motion Series is directly connected to the controller and control is either via digital I/O (DIO) or IO-Link®, because both types of control are integrated as standard. Control

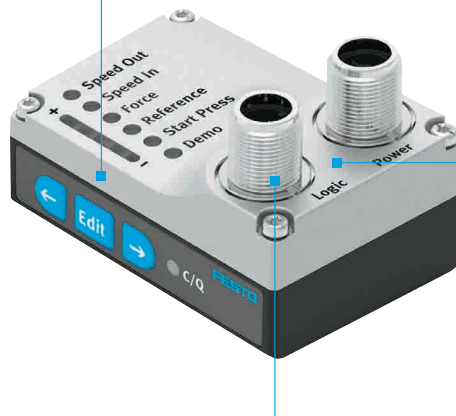
via digital I/O (DIO) is very easy and similar to controlling a pneumatic valve, while the alternative connection via IO-Link® provides highly flexible control as well as additional functions. End-posi-

tion feedback is integrated as standard, with its functionality similar to that of a conventional proximity sensor. Commissioning is quick and easy to carry out without the need for any soft-

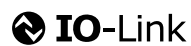
ware, computers or other accessories, because all parameters can be manually set directly on the drive.

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

- Speed for “out” and “in” movement
- Force of the drive in the “out” position
- Setting the reference end position
- Setting the position “Start force-controlled movement”
- Manual start (similar to a manual override)

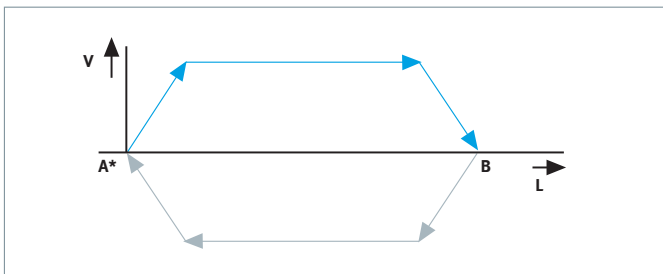


- Simple electrical connection via M12 connector technology
- Power (4-pin): power supply for the motor
 - Logic (8-pin): control signal, sensor signal and power for the integrated electronics

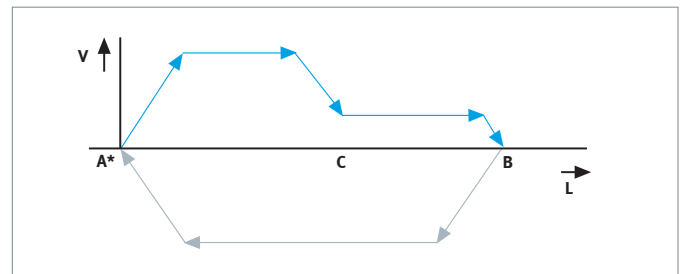


Expanded functions via IO-Link® possible: Remote setting of the motion parameters, copy and backup functions for parameter transfer, read functions for essential process parameters.

The functions of the Simplified Motion Series



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



Expanded motion profile for simplified press-fitting and clamping functions with speed and power control

- “Out” movement
- ← “In” movement
- A* Reference end position
- B Operating position
- C Start position “press”

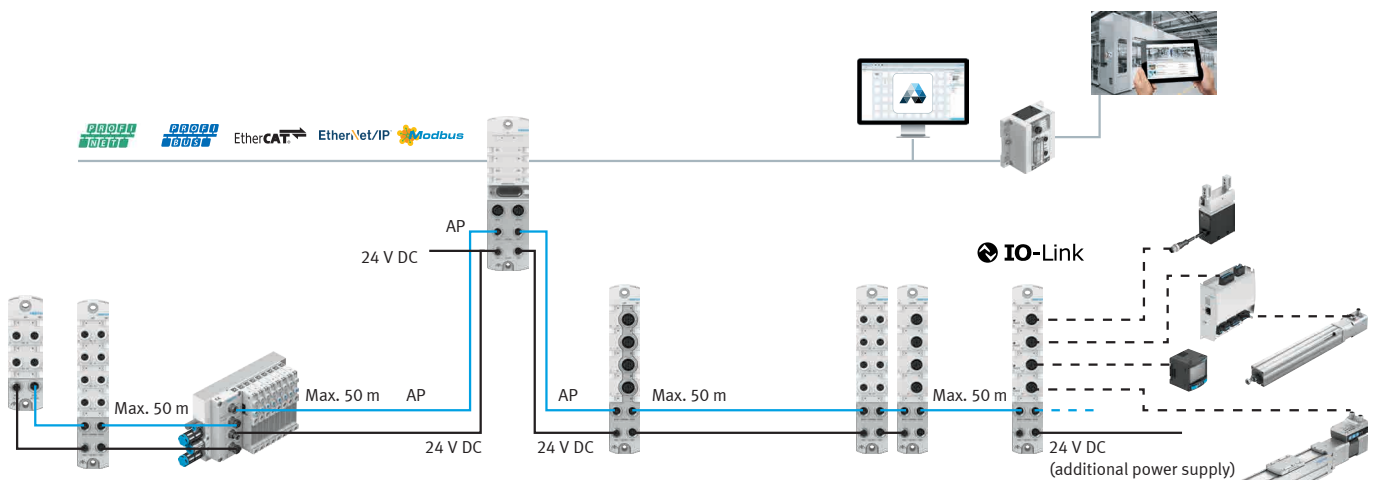
Seamless connectivity to the cloud

Seamless connectivity is electric automation without any compromise. It ranges from mechanical systems, integrated motion control solutions and subsystems to

modern cloud solutions for a variety of industries. Simplified Motion Series combines mechanical, electric and intelligent connectivity in one

product. All products in the series communicate flexibly and conveniently with the controller via IO-Link® and right up to the cloud via the IoT gateway. The

Simplified Motion Series can be integrated into the decentralised remote I/O system CPX-AP-I from Festo or any IO-Link® network on the market.



AP = AP system communication

Integrated network with CPX-AP-I combines electric and pneumatic components thanks to AP system communication and IO-Link®

- The remote I/O system enables electric and pneumatic components to be connected to form an integrated network
- To achieve this, the CPX-AP-I offers an impressive speed of 200 Mbaud/s, making it twice as fast as current Ethernet-based networks
- The products in the Simplified Motion Series are connected directly to the IO-Link® network via the IO-Link® master CPX-AP-I
- Other electric servo drives such as the CMMO-ST for stepper motors or electric grippers are integrated in the system via IO-Link®, just as the vacuum suction nozzles or sensors from Festo
- The pneumatic components in the form of valve terminals can either be integrated directly into the AP system communication or into the network via IO-Link®, and even right up to the cloud via the IoT gateway
- Integrating valve terminals into the system reduces complexity and integration costs, since this eliminates the need for expensive Ethernet-based valve terminal modules
- Another plus: quick and easy configuration of the entire network with the Festo Automation Suite
- As a powerful point-to-point connection, IO-Link® enables communication between the field and control level, regardless of whether sensors, actuators, valve terminals or servo drives are used.



Productivity

Maximum productivity is a question of ambition

Do you share this attitude? We will be glad to help you achieve this goal – through our four outstanding qualities:

- Security • Efficiency • Simplicity • Competency

We are the engineers of productivity.

Discover new dimensions for your company:

→ www.festo.com/whyfesto