



Festo AX Controls – The automation platform

Better software. Better machines. Shorter ROI.



Highlights

- Real-time platform with Festo AX OS, based on PLCnext Technology – the open ecosystem for modular automation
- Consistent use of all engineering data from mechanics, commissioning and programming to AI optimization.
- Scalable. Open. Expandable. Reliable.

Digital transformation with Festo AX Controls!

Increase your productivity by optimizing the engineering, programming and commissioning phases of your machines, systems and laboratory devices.

With the Festo Automation Experience (AX), you can rely on open software technologies, tried-and-tested tools and unique end-to-end data utilization with an experienced, global and competent partner.

Quicker and easier to commission and use

An end-to-end software solution from a single source: from the design of the mechanics to the AX ecosystem with convenient commissioning, high-level programming and real-time-capable hardware and operating system.

Thanks to Festo's complete application knowledge, the new AX Application Framework enables consistent data utilization and thus revolutionizes programming.

Modern and future-proof

- Real-time capable, Linux-based operating system
- Programming according to the IEC standard or with state-of-the-art tools such as Python® and C++
- High IoT functionality and cloud connectivity
- Machine visualization based on WebIQ from SmartHMI
- Expandable functionality through apps from the Festo AX or PLCnext ecosystems

The benefits to you

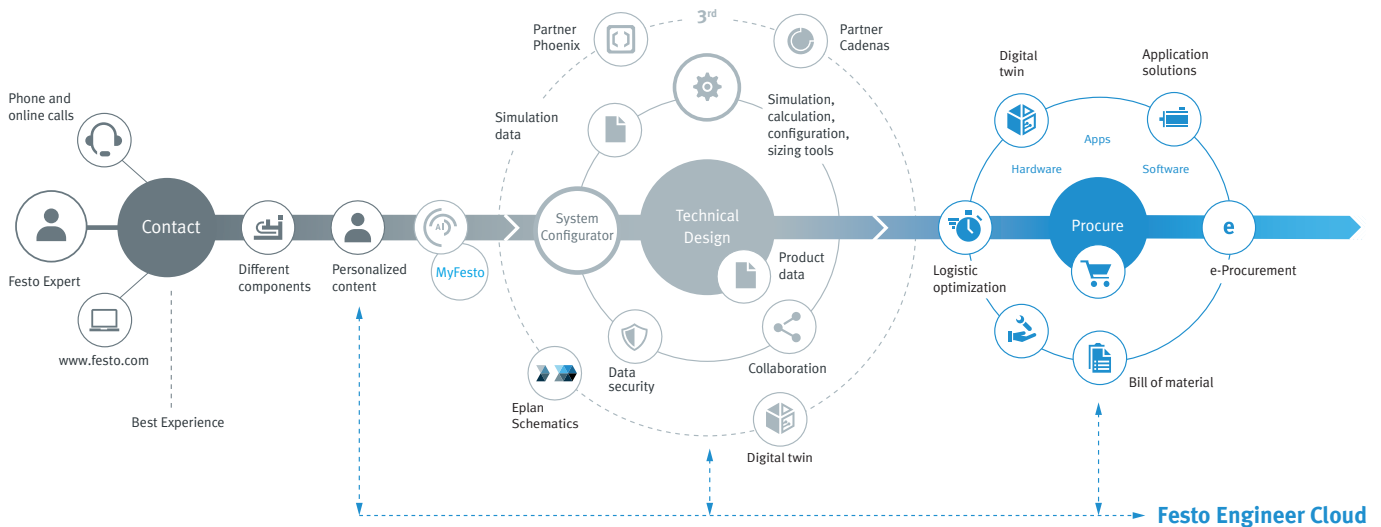
- Free combination of hardware and software functions: fully compatible and interoperable
- Automation of machines and systems, even in complex, demanding applications
- Life cycle management of your machines through to the AI optimization and digital maintenance of your machines
- Expertise in solutions for electrical and pneumatic movement

Additional information:



Festo AX Controls in the complete life cycle of a machine or system

The consistent utilization of all data is the be-all and end-all for the software developers at Festo. There are already many automation software solutions and platforms – but none of them yet enable end-to-end data utilization from the mechanical system to the cloud, across the entire life cycle of a machine. Until now! Because our goal at Festo is a comprehensive customer experience from first contact to commissioning - with Festo AX:



Design

Select and optimize your components and system solutions.

- Comprehensive information on the Festo website and in the Festo online shop, including all free sizing and design tools for electric and pneumatic drives, as well as complete handling systems
- All layout and design tools integrated in the AX System Configurator
- Visualization and simulation of individual timing chains and complete gantry systems
- Fast and error-free generation of EPLAN macros
- And best of all, all the data collected here is retained in the Festo AX Controls ecosystem and the Engineering Cloud, making commissioning, programming and maintenance easier for you.

Procure

Planning finalized? Add hardware and software to the Festo shopping cart.

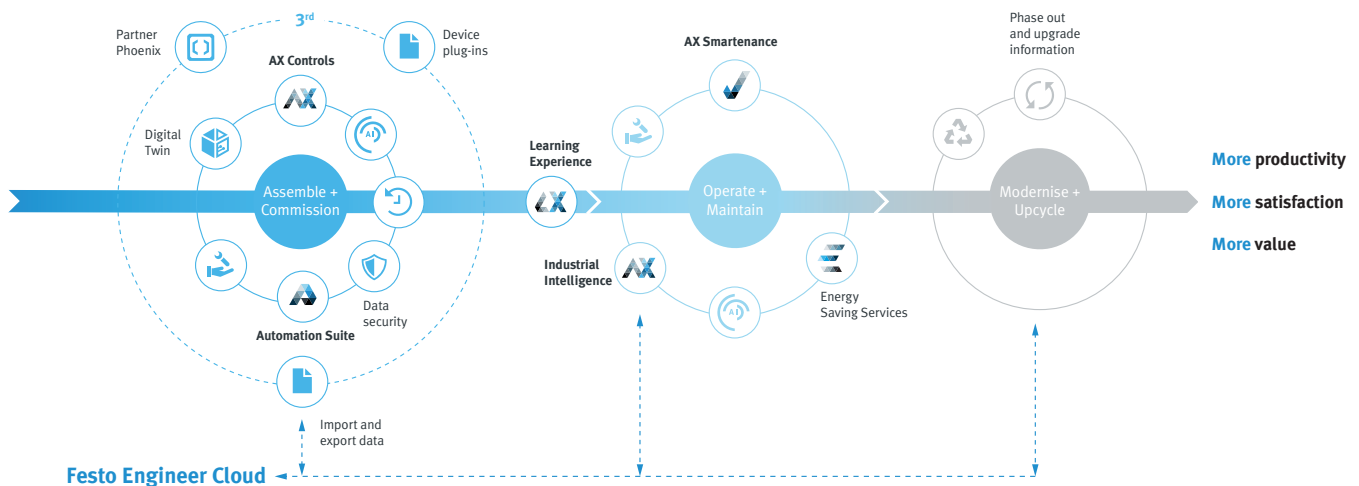
- The big shop advantage with Festo: you get all mechanical, pneumatic and electrical components plus software from a single source and order everything in one shop.
- On request, we can deliver on a fixed delivery date
- The Festo Shop also makes it possible to set up a community, which means that all project partners, the purchasing department and Festo experts are always informed online – and the parts list is guaranteed to be complete.

Assemble

Start Festo AX Controls and experience a head start with Festo.

- The plug-in functions of the Festo Automation Suite import all design and simulation data into your machine project,
- allowing you to optimally design all mechatronic processes: for stable processes, fast movement, marginal sizing and therefore a minimized CO₂ footprint.
- All your projects are globally available in the AX Ecosystem and your section of the Engineering Cloud.

Easily expand your functionality with apps from the Festo AX, PLCnext and other ecosystems.



Commission

Festo AX Motion provides numerous solution packages and functions, including

- Simple point-to-point movements
- Synchronous movement, including cam discs, gear units, rotating blades and flying saws
- Basic robotics and CNC functions

Programming with high-level tools

The Festo AX Controls multi-programming environment supports IEC 61131-3 (e.g., CODESYS), C/C++, Python®, etc. The operating system enables high performance, flexibility and real-time.

- Hardware and software are scalable and grow with your requirements.
- Many cloud services are available via IOT interfaces.
- Integrated, robust IT/OT safety functions

Operate

Monitor and optimize your machines with Festo AX Industrial Intelligence.

Festo AX offers pretrained and real-time capable AI algorithms to optimize the processing of your production data.

Predictive maintenance is available “plug-and-work” for pneumatic and electric drives (AI app Motion Insights Pneumatic/Electric). AI solution packages are also available for many portal systems.

Predictive Quality recognizes declining quality indicators.

Predictive Energy keeps your machine on track in terms of consumption and is also an indicator for maintenance.

Maintain

Ensure perfect service, e.g., by means of a training concept and optimized digital maintenance.

Festo LX is a Festo Didactic service that allows you to plan and carry out your personalized online training courses. Festo LX enables OEMs to create a customized learning experience for their own customers.

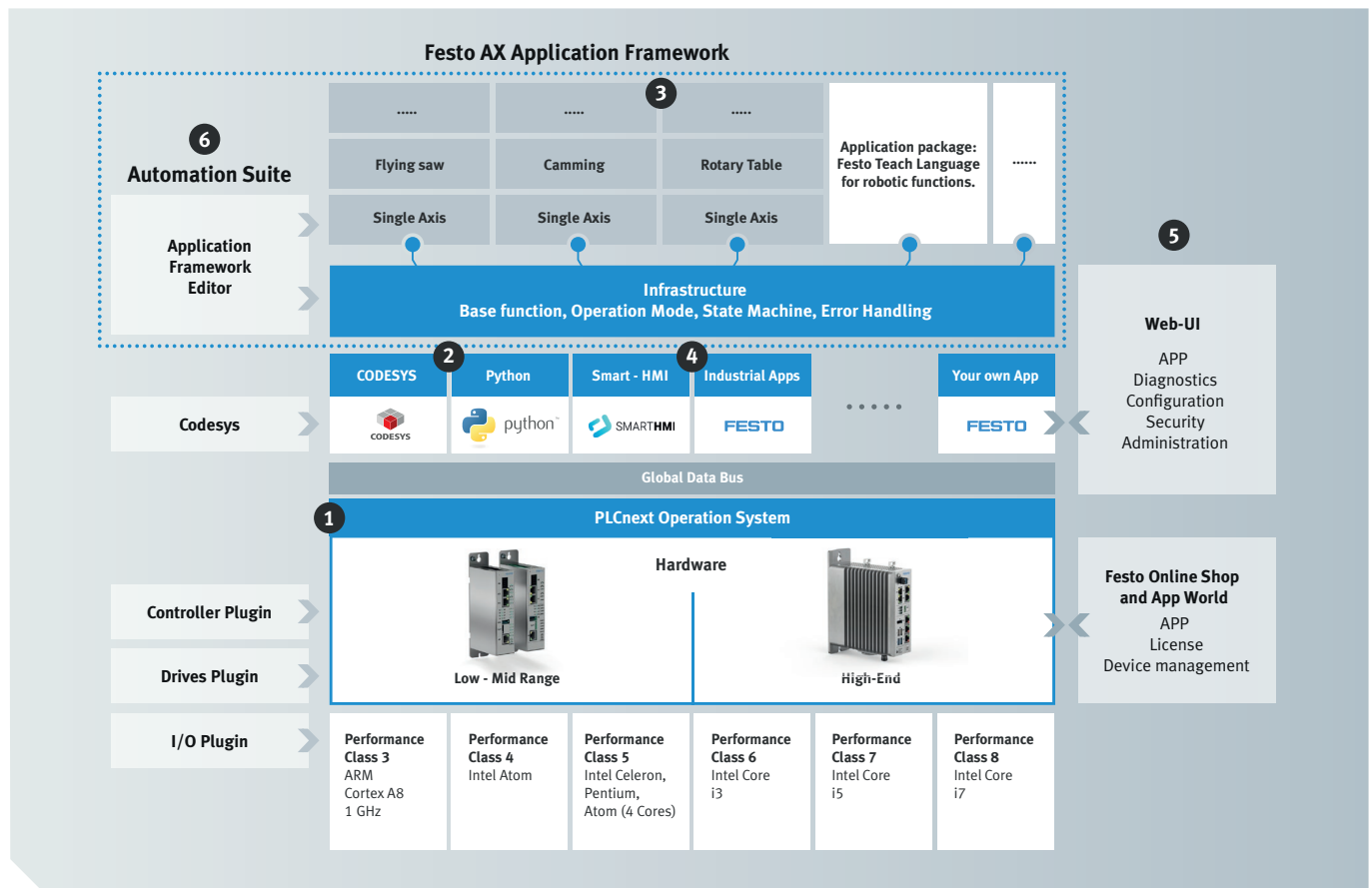
Festo AX Smartenance provides a maintenance management system (CMMS): global and mobile, while enabling the connection to AI solutions, as well as SAP and other IT/OT systems.

Thanks to the unique, consistent use of data from design to programming, Festo customers save **over 50 % in time** in all engineering processes.



Festo AX Controls: Architecture, platform and ecosystem

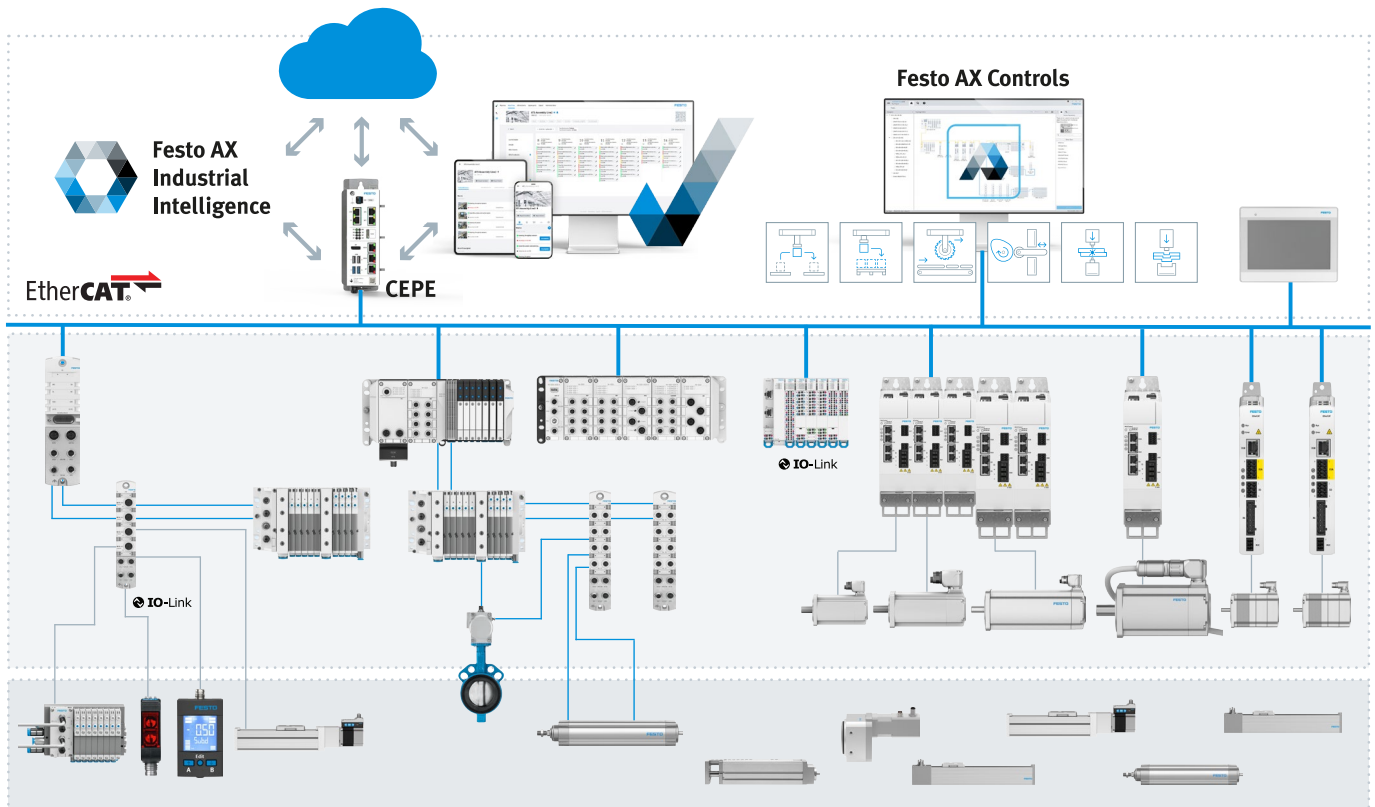
Festo AX Controls is a real-time hardware platform that includes an open operating system and software ecosystem. It enables simple programming with a standardized CODESYS programming interface. Additionally, it provides many advanced software functions: Motion Application Framework, Software Development Kits (SDK) and software packages and apps from third-party providers. The platform offers an industrial Ethernet multiprotocol connection to a higher-level PLC and an EtherCAT master to seamlessly combine servo drives and stepper motor technology, as well as standard and servo-pneumatics.



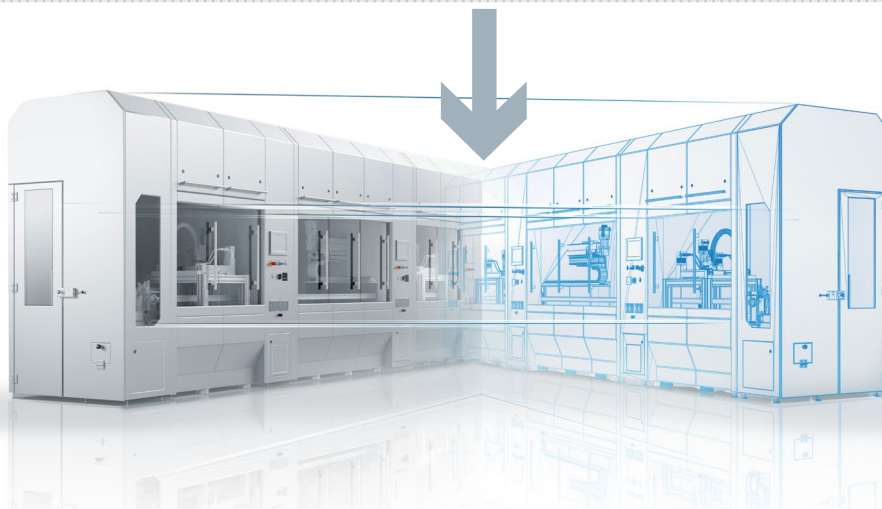
- 1** The open-source operating system **Festo AX OS** securely connects IT, OT and cloud. It enables real-time control in standard IEC 61131-3 programming and programming languages, such as C/C++, C# and Python®, as well as remote monitoring, data analysis and a wide range of IoT functions.
- 2** **Festo AX Motion:** The multi-core software for seamless machine automation, fast system speed, simple operation and flexibility. From pick-and-place to multi-axis applications – from motion control in submodules to implementation in complete machines.
- 3** **Festo AX Application Framework:** user software, infrastructure and editor for fast, simple engineering and commissioning. Projects and software are created intuitively and generated automatically – from configuration to download. With Open Application SDK for customized functionalities.
- 4** **Festo AX machine visualization**, based on WebIQ, the flexible, web-based HMI/SCADA system. Easily create customized web HMIs with HTML5, CSS and JavaScript for a wide range of devices. Optimum performance with Festo HMIs such as CDPX.
- 5** Python®, Node-RED or AX Industrial Intelligence AI apps: Expand with numerous apps in the **Festo AX Ecosystem**. Your automation options – integrate third-party software, use web-based engineering and create containerized apps and Linux services with the SDK. More apps in the Festo Online Shop.
- 6** The **Festo Automation Suite** makes commissioning child's play, because all the basic functions of your Festo drive components are already integrated. Plus: parameterization, programming and maintenance are all in one program and the software visualizes a machine topology in an easy-to-understand way.

Festo AX Controls in a typical communication network

From the edge device to the actuator: Festo offers an integrated concept and all components from a single source with maximum flexibility. Whether customized solutions developed by Festo or additional functions and software modules from third-party providers such as PLCnext – the simple integration in the Festo AX ecosystem guarantees maximum functionality for your automation solutions.



Complete machines
For assembly, labelling, packaging, handling, LifeTech, special machine construction and much more.



Festo AX

Artificial intelligence in real time, predictive maintenance

In addition to Festo's electric, pneumatic and servo-pneumatic drives and remote I/O in IP65, IP20 remote I/O and – as a service – control cabinet solutions are also available. With the Festo AX Controls portfolio, you can solve IOT requirements in the areas of networking, data processing and AI analysis, as well as the automation of complete, complex machines, including their visualization.



All automation requirements under one roof

We set the world in motion for our customers: by making complex things simple and compatible with innovations. We place the highest value on quality and efficiency. Our automation solutions offer everything you need for sustainable success – from pneumatics and controlled pneumatics to the broad field of electrical automation, digitalization and AI.

The Festo AX Industrial Intelligence – The AI portfolio at a glance



Festo AX Industrial Apps

The standardized AI solution for self-connection for various applications and machines – e.g., monitoring and maintenance of electric and pneumatic drives.

[Find out more](#)



Festo AX solutions

AI applications that can be easily adapted to your specific case and standardized AI projects at a fixed price for various applications, e.g., welding guns.

[Find out more](#)

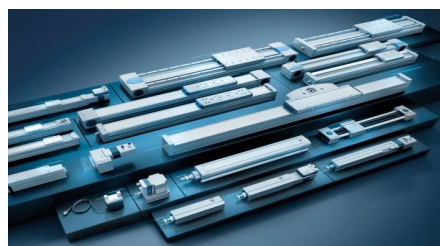


Software for maintenance and servicing (CMMS)

Smartenance: the computerized maintenance management system software for efficient, transparent planning and processing of maintenance and malfunctions.

[Find out more](#)

Festo Electrical Automation – The portfolio at a glance



Electric drive highlights

Our highlights for the best mechanical connectivity: perfect and easy to combine at an attractive price!

[Find out more](#)



Highlights of servo drives and motors

Customized electrical combinations, independent of your electromechanical system and control environment – perfectly integrated with electrical connectivity from Festo.

[Find out more](#)



Highlights of I/O systems and controllers

Installation and control concepts influence each other – for seamless connectivity, it is therefore important to network cleverly. With intelligent connectivity!

[Find out more](#)

Take a step towards the future with Festo AX Controls and the flexible Festo system solutions: **With a strong partner.**
Better software. Better machines. And shorter ROI.