

Stepper and Servo Motor Control Technology TP 1423

Position, Torque, and Speed Control Fundamentals

FESTO



Highlights

- Modern, industrial components from Festo
- One controller for both motors
- Linear- and angular-axis, and gantry applications
- Free, professional configuration software
- Safe experimentation
- Courses on **Festo LX**
- Focus on troubleshooting and diagnosis

Stepper and servo motors are essential in industry for precise and controlled motion. They enable automation, accuracy, and efficiency in various industrial applications for increased productivity and competitiveness.

Automation and robotics specialists, as well as **industrial electricians**, and **electrical and maintenance technicians** work extensively with stepper and servo motors.

These skilled workers are responsible for tasks such as **motor installation, commissioning, maintenance, and troubleshooting**, ensuring the reliable and optimal operation.

The **new stepper and servo motor control courses** focus on teaching the fundamentals of position, speed, and torque control.

Safe, modular training packages allow learners to gain **hands-on experience** in the configuration of stepper motor and servo motor controls before engaging with complex, real-world applications.



Video → bit.ly/TP1423-video-en

01 Learners' safety is ensured by protective guards that prevent contact with moving parts.

02 A magnetic brake can be used to apply a load during speed control experiments.

03 An accessory on the carriage block helps visualize the effects of oscillation and vibration during travel along a linear axis.

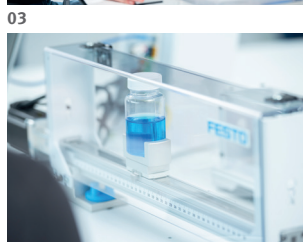
04 Two packages can be combined with an optional PLC and an add-on gantry kit to create a multi-axis application.

Build practical skills that can be applied quickly in the workplace, with the latest technology from Festo.

Instructors can select the course to cover either servo or stepper motors, or both. Each course corresponds to a training package that contains all necessary equipment to perform the learning activities.

What learners can study:

- Stepper and/or servo motor working principles, construction, and applications
- Torque calculations and motor selection for specific tasks
- Drive configuration and commissioning
- Diagnostics and troubleshooting techniques
- Wiring and manual motor operation
- Homing and creating smooth motion trajectories
- Power transmission methods for angular and linear motion
- Advantages and limitations of different transmission methods
- Open- and closed-loop control using encoders and feedback devices
- PID control for position, speed, and torque
- Control strategies using a PLC for motor applications
- Control and coordination of multiple axes independently
- And more



A look at the training package “Stepper and servo motor control technology”

Stepper/Servo Controller (with the **CMMT-ST** Servo Drive) that can be configured and diagnosed with the free professional **Festo Automation Suite**

Linear application (with the **ELGC-BS** Ball Screw Linear Actuator)



Servo motor

Stepper motor (EMMS-ST)

Angular application

For more details about TP 1423 Stepper and Servo Motor, TP 1422 Stepper Motor, or TP 1421 Servo Motor, contact a sales representative or an authorized dealer.