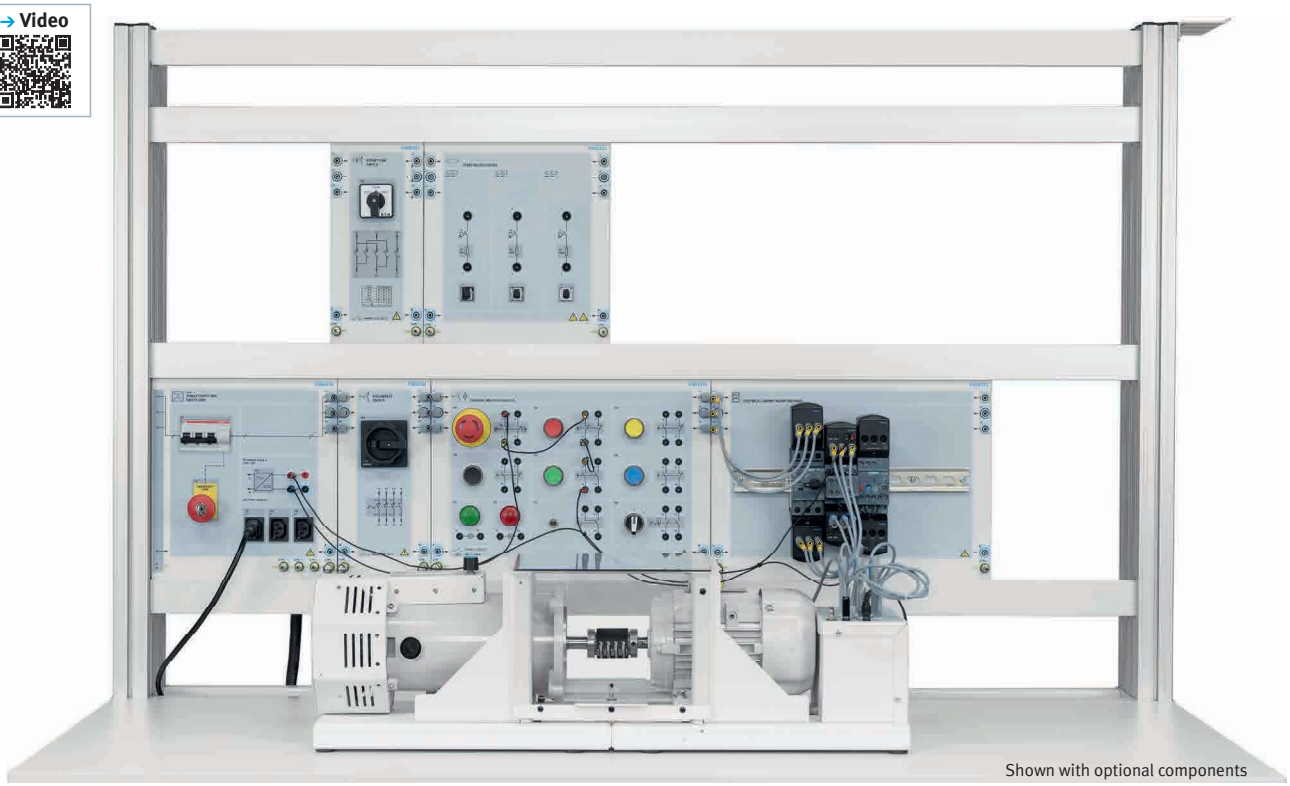
Basic Motor Control Technology

TP 1221

→ Video



Shown with optional components

The fundamentals of electric motor controllers

The equipment set Basic Motor Control Technology builds knowledge and skills in the fundamentals of industrial electric motor controllers. The curriculum is specially designed to develop soft skills in addition to technical skills. Equipment allows teachers to insert various faults to develop troubleshooting skills – a must for a good preparation for the workplace.

The course first familiarizes learners with the operation of individual components, then provides hands-on application opportunities to use them in realistic, industrial motor control circuits. Upon completion of this course, learners will be able to install, commission and troubleshoot the most common electric motor controllers using contactors and relays.

Benefits

– Innovative design for power switchgear from Siemens with safe and faultable connection boxes
– Faultable components to develop troubleshooting skills
– Curriculum with high focus on soft skills development along with technical skills

Learning objectives

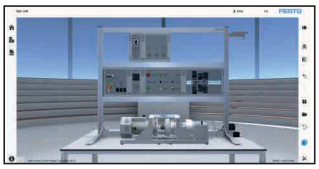
– Lockout/tagout procedures
– Symbols and schematics
– Troubleshooting components and circuits
– Control and pilot devices
– Protections (breakers, overloads)
– Manual starters
– Two- and three-wire control
– Reversing starters
– Jogging control
– Time-delay relays
– Primary resistors starters
– Star-delta starters
– Motor testing and troubleshooting

BMC SIM:
Basic Motor Control Simulator

BMCSIM enables the study of basic motor control technology in an easy-to-use 3D digital environment that can be accessed anytime, anywhere.

This online simulation software faithfully reproduces the characteristics and behaviors of the two equipment sets, enabling remote virtual lab sessions without the need for physical hardware.

Students can use BMCSIM to complete most of the exercises in the Basic Motor Control Technology student workbook.



– Interactive tool that allows remote study or lab preparation
– User-friendly interface and easy license management
– Hands-on learning activities with electrical schematics included in PDF format
– Fault-injection feature to develop troubleshooting skills

Free trial version:
→ bmcsim.festo.com

Complete Equipment Set TP 1221, 120 V, 60 Hz	**8158355**
Complete Equipment Set TP 1221, 230 V, 50/60 Hz	**8158356**

The most important components at a glance:

1 Basic motor controls component set	On request
2 Electrical cabinet mounting panel	8141608
3 Control and pilot devices	8140123
4 Disconnect switch	8140373
5 Cam switch	8140444
6 Starting resistors, 120 V, 60 Hz or	8142976
6 Starting resistors, 230 V, 50/60 Hz	8144625

Note: Make sure you have the required accessories and recommended workstations listed below, or suitable equivalents, in your laboratory.

Required accessories, also order:

7 Three-phase induction motor, 120 V, 60 Hz or	8143697
Three-phase induction motor, 230 V, 50/60 Hz	8143698
8 Mechanical load for electrical machines	8147352
Inertia wheel for Basic Motor Control	8156783
Protective guard – face-to-face	794194
Coupling	792271
Safety laboratory cables for Basic Motor Control	8150799
Digital multimeter	579782
Amprobe AMP-220 clamp meter	8158976
Klein tools ET600 insulation resistance tester	8158399
AC 24 V wall mount power supply, 120 V, 60 Hz or	579696
AC 24 V wall mount power supply, 230 V, 50/60 Hz	793290
Three-phase AC Power supply and safety unit, 120 V, 60 Hz or	8143154
Three-phase AC Power supply and safety unit, 230 V, 50/60 Hz	8143155
or	
Three-phase AC Power supply and safety unit, Type B RCD, 230 V, 50/60 Hz	8162950

Recommended workstations:

Tabletop workstation (DIN A4)	8153360
Tabletop double-sided workstation (DIN A4)	8158409
Mobile Frameline, complete model without energy duct	8075133
Frameline mobile table	8087149

Recommended extensions:

EduTrainer soft starter	8121090
BMC SIM (1 user, 1 year)	8219723
BMC SIM (1 user, 3 year)	8219724
BMC SIM (1 user, 5 year)	8219725
SkillsConveyor *	8184210

Note: When using the SkillsConveyor in combination with the TP 1221, suitable additional motor protection devices are required and must be ordered separately: Manual Starter (order no. 8229017) and Overload Relay (order no. 8229231).



By connecting TP 1221 with the SkillsConveyor, students gain a deeper understanding of how basic motor controls integrate into modern automated processes.

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8



Recommended Learning Material

Workbooks (→ page 162)



Campus license:

en	8174636

Note: The campus license is currently offered in English only, but other languages will be added as they become available. Campus licenses include the student and the instructor PDF versions of the workbook "Basic Motor Control Technology". Printed workbooks available upon request.

Course on Festo LX

→ Basic Motor Control Technology