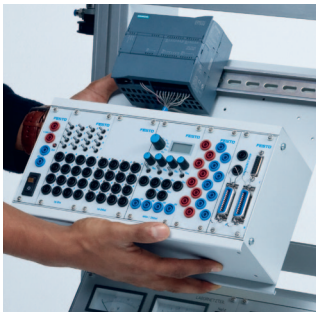
Automation technology/PLC training packages

Automation technology/PLC training packages

From buttons to automation solutions

Control system, Process, Didactics

Forward-looking training is ultimately all about reliable and efficient automation of production processes.
– Automation systems must correspond to those in future workplaces
– Processes must be as close as possible to those used in actual production
– The training content and methods must lead to expertise, which future specialist staff can use to secure their and their companies' future.



EduTrainer® Universal
– The universal holder system with control systems, power supply unit and simulations
– Alternative connections for 4 mm and SysLink
– In two lengths, as a table-top rack or A4 plate for A4 mounting frames
– Variable equipment including market leading control systems and 19" simulation plates

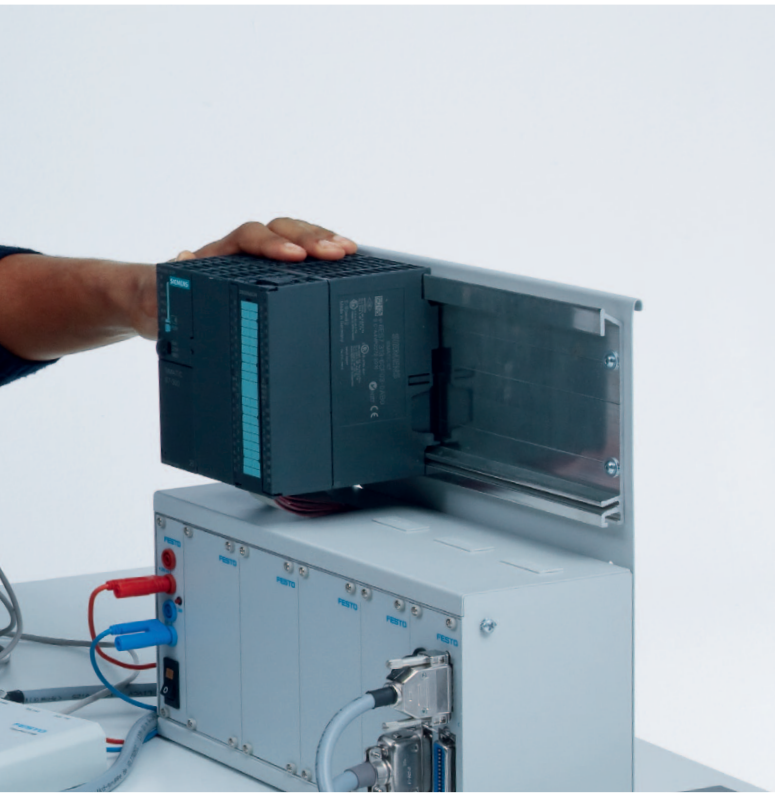
The online configurator provides support in selecting and combining the appropriate components.

EduTrainer® Compact
– The sturdy PLC for fluid engineering laboratories
– Suitable for the ER mounting frame
– With 4 mm connection technology and/or SysLink

The EduTrainer® Compact is the ideal control system for fluid engineering laboratories and has proven itself worldwide.

SCE Trainer Packages
As a certified Siemens Solution Partner Automation and Siemens SCE Partner we recommend the "First Choice" Siemens automation technology.

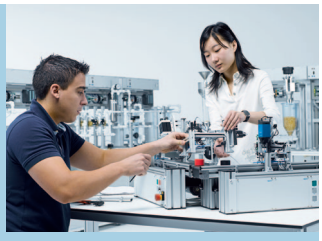
The SCE Trainer Packages offer crucial advantages for classroom equipment.



From manual to machine

Clarity on the one hand, maximum industrial relevance and practical transfer on the other. The equipment and solutions for automation/PLC technology meet all requirements:
– from simple to complex models
– from manual control to relay
– from digital mini control system to PLC

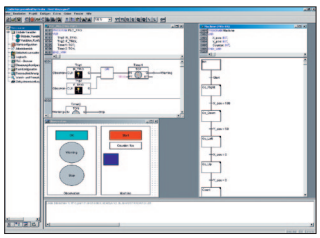
The balance is achieved because the learning system for automation technology is vertically and horizontally integrated.



The process is the key

An ongoing production process cannot be taken "out of operation" for training purposes. Therefore, the key is to offer the right "artificial" training processes that are economical, flexible and practical.

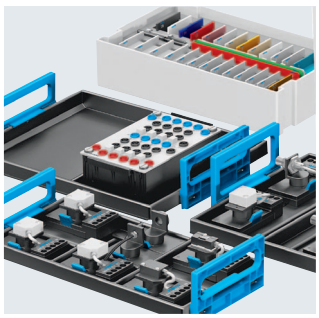
– Virtual: CIROS®, FluidSIM® or EasyVeep offer hundreds of different processes for actuation via EasyPort or OPC.
– Actual: The best process environment is provided by the modular production system MPS®.



Automation with CODESYS®
We recommend Codesys® as an IEC 61131-3 compatible programming system for the Festo CPX or CECC range of controllers.
– Flexible and open for all kinds of control tasks
– Very simple to commission and program
– Ethernet communication for simple programming with module library

Note: With an OPC interface, Codesys® is suitable for controlling the processes in CIROS® and thus for purely PC-based training in programming.

Mini control system
Operation and monitoring
Electrical engineering laboratories are equipped with mounting frames and training devices in A4 format as standard. Training devices, e.g. with mini control system or touch panel supplement your electrical laboratory:
– Siemens LOGO!
– Eaton easyRelay
– Siemens TP700 und KTP700 – the touch panel for training and professional applications

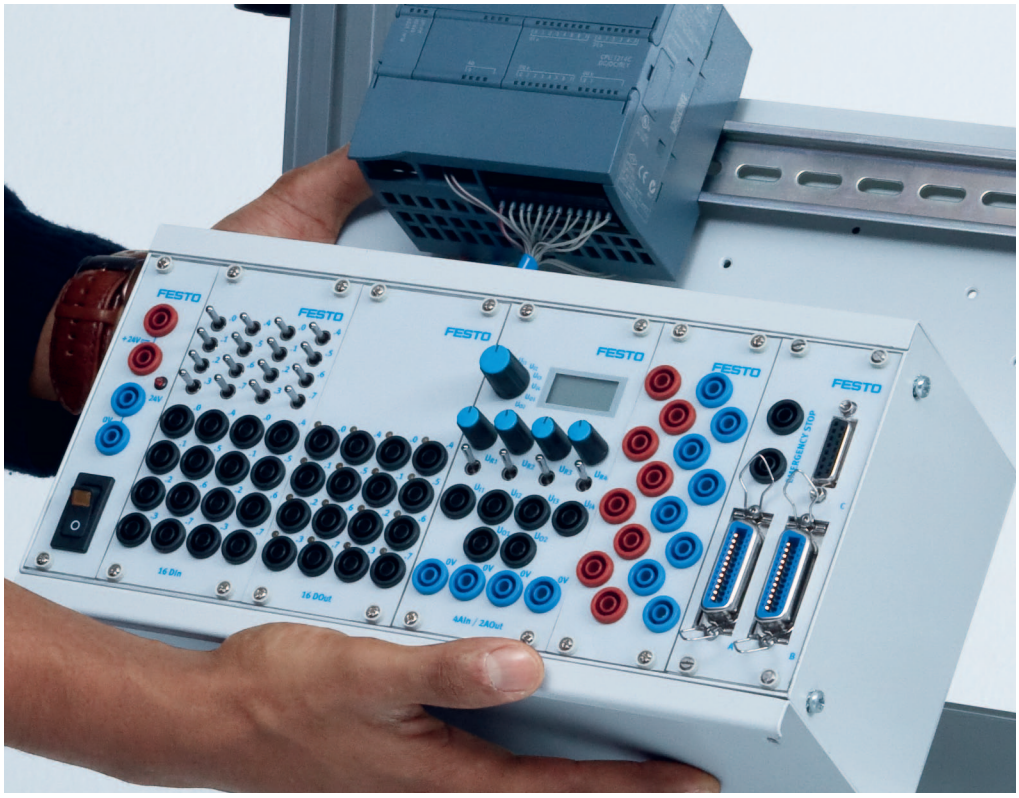


Equipment sets for your course
Having the correct and practically relevant automation equipment is important. However, it is the right concepts, processes and exercises that really give your equipment the critical added value. This is what our equipment sets and their course-documents provide:
– The TP 1311 clarifies the use of sensors in automation
– The TP 301 makes the leap from electropneumatics into PLC technology
– The TP 401 and 402 provide a practical introduction to the world of fieldbuses

Terminal, 4 mm and SysLink
Requirements for connection technology can differ greatly. The Edu-Trainer® for PLC training meets all of them:
– 4 mm safety sockets are correct if the circuit diagram is to lead into the controller configuration
– SubD or Centronics for complex circuits or if the correct wiring is no longer the key focus

EduTrainer® Universal

For maximum flexibility

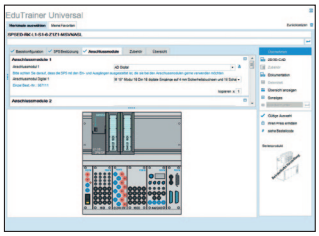


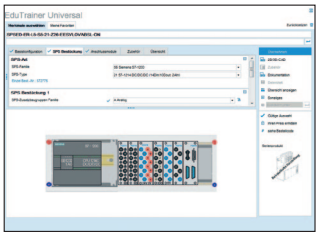
The EduTrainer® Universal

Do you rely on a PLC from a global market leader? Does your training tend to focus on mastering processes and technologies rather than safe handling of wires and screwdrivers?

If so, the EduTrainer® Universal is the right solution for you!

Whatever is particularly important to you: You can get exactly the EduTrainer® Universal that you need – so you can focus on what is important to you:
- Fully set up and configured or your own design
- With PLCs from Siemens, Festo and other leading manufacturers
- With or without power supply unit
- With or without 4 mm safety sockets
- And always with the standard SysLink interface





Universal shape and size
The EduTrainer® Universal deserves its name:
- It fits in the A4 and ER mounting frames.
- However, it can also stand on a table or lie flat.
- It is available ready to use in every conceivable configuration – or you can set it up yourself.
- Narrow and wide designs are available – so that you only pay for what you need.

Universal equipment
There are many more than just 5 or 6 leading manufacturers of programmable logic controllers worldwide. That is why we have prepared the EduTrainer® Universal for different H-rails so that it can be fitted with any PLC.

Below the PLC, the 19” plug-in format ensures that you can equip it with any conceivable combination of connecting plates and simulation modules.

Online configurator for EduTrainer® Universal and Compact

Configuration made easy!

The EduTrainer® online configurator provides you with assistance when selecting components, in order to ensure that the mounting system and the PLC equipment will work well together. After configuration has been completed, you can view an illustration of your EduTrainer® Universal or Compact, and you have an order code for placing your order.

Trouble-free on the Internet:
- Select a mounting system (Universal A4, rack or Compact in various widths)
- Select controller manufacturer, controller range and controller type
- Select modules in addition to the controller if desired
- Select 19” simulation modules (digital, analogue or other)
- Select accessories
- Done – and you can request a quote from us for the desired configuration.

EduTrainer® Universal
Your advantages

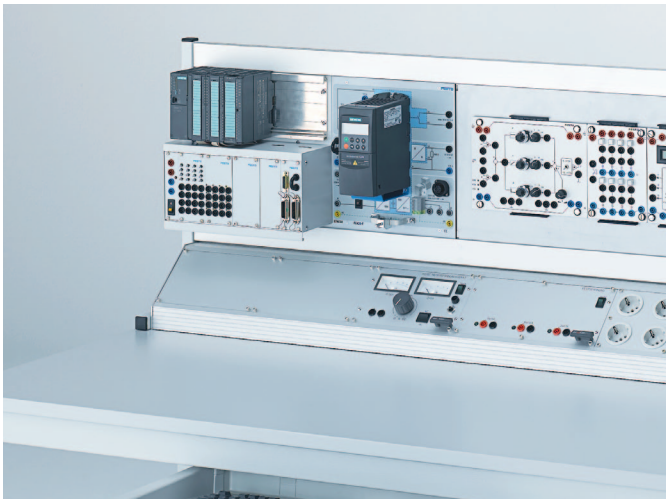
The holder system

Huge freedom: 305 or 458 mm
The powder-coated A4 steel plate of the holder system and the mounting frame for the 19" modules are either 305 mm or 458 mm wide. This means that the smaller EduTrainer® fits perfectly in the trolleys in the MPS® stations. And the size provides space for numerous expansions.

For ER and A4
The EduTrainer® Universal fits in any A4 mounting frame. It can also be hung in an ER mounting frame thanks to the appropriate hooks on the rear.

Upright and horizontal
The handle on the rear allows the EduTrainer® to be taken anywhere. When working standing up, the EduTrainer® can be placed on its back. To allow this, care has been taken to make sure that the 120/230 Volt connection on the rear is not in the way.

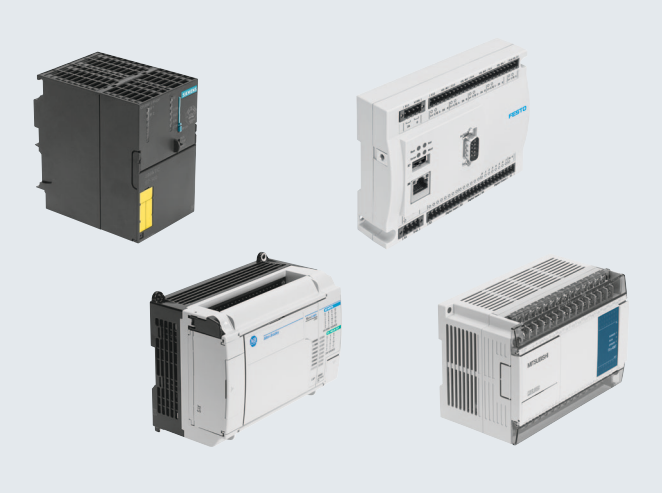
Rack version
If it is to be used upright on a table, we give it two feet and call it the EduTrainer® A4 Rack. The feet can easily be removed so that it fits in the mounting frame for the laboratory furniture.



Control systems and PLC modules

This EduTrainer® is universal because it can be fitted with all industrial controllers from the market leaders:
– Siemens S7
– Siemens LOGO!
– Festo CECC
– Festo CPX
– Allen-Bradley
– Mitsubishi
– and more

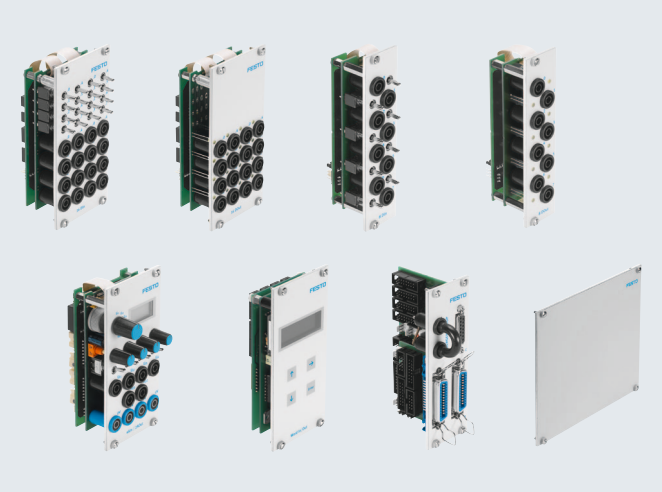
Your preferred PLC not listed?
No problem. You can fit your PLC yourself on the "blank" EduTrainer®.



19" simulation modules

Modules for all situations
Thanks to a wide variety of simulation modules, all of which can be ordered individually, a huge range of different processes can be connected and simulated during the training. The modules are compatible with any PLC and are easy to assemble.

Existing EduTrainer® Universal units can be expanded with these modules at any time.



EduTrainer® Universal Preferred versions Laboratory

A4 rack with SIMATIC S7-300 and 19” simulation modules

1

1 S7-314C-2PN/DP	**8034580**
2 S7-313C-2DP (458 mm)	**567108**
3 S7-314C-2DP (458 mm)	**567109**
4 S7-315F-2PN/DP (305 mm)	**567110**

Recommended accessories:

I/O data cable with SysLink connectors (IEEE 488), 2.5 m	34031
Analogue cable, parallel, 2 m	529141
Safety laboratory cable, 3 m	571817
PC adapter, USB	539006
Programming software STEP 7 ➔ Page 46	
IEC power cable 90° ➔ Page 239	

Other accessories:

Digital I/O module SM323 8I/8O	184550
Digital I/O module SM323 16I/16O	529142
Front-panel connector, Screwed contacts	184554
Front-panel connector, Screwed contacts	660560
Analogue I/O module S7-SM334-4E/2A	184804
AS-Interface master upgrade S7-300 CP 343-2 AS-i Master	533028
Trainer Package Internet link S7-300, CP343-1 Advanced	533027
Analogue cable, crossover, 2 m	533039

2

4

3

The industrial standard for the laboratory

The modular concept of the SIMATIC S7-300 offers professional PLC technology from the market leader, Siemens. With various CPUs, CPs and I/O modules, the S7-300 meets all automation requirements. This controller facilitates the use of a wide range of fieldbuses such as AS-interface, Profibus DP and Profinet.

The STEP 7 programming environment makes all industrially used PLC programming languages available, such as Il, LD, FBD, STEP 7-SCL, STEP 7-GRAPH and STEP 7-HiGraph.

EduTrainer® Universal with:

CPU 313C-2DP
– 128 KB RAM for program and data
– Includes MMC
– Interface: MPI, Profibus DP
I/Os:
– 16 digital inputs (24 V DC)
– 16 digital outputs (24 V DC, 400 mA)
SM 334:
– 4 analogue inputs, 8 bit (0–10 V, 0 – 20 mA)
– 2 analogue outputs (0 – 10 V, 0 – 20 mA)

CPU 314C-2DP
– 192 KB RAM for program and data
– Includes MMC
– Interfaces: MPI, Profibus DP
I/Os:
– 24 digital inputs (24 V DC)
– 16 digital outputs (24 V DC, 400 mA)
– 4 analogue inputs, 11 bit, 20 ms, (±10 V, 0 – 10 V, ±20 mA, 0/4 – 20 mA), 1 Pt100 input
– 2 analogue outputs, (±10 V, 0 – 10 V, ±20 mA, 0/4 – 20 mA)

EduTrainer® Universal Preferred versions for MPS®/MPS® PA
➔ Pages 338 – 341

CPU 314C-2PN/DP
– 192 KB RAM for program and data
– Includes MMC
– Interfaces: MPI, Profibus DP, Profi-Net
I/Os:
– 24 digital inputs (24 V DC)
– 16 digital outputs (24 V DC, 500 mA)
– 4 analogue inputs, 12 bit, 20 ms, (±10 V, 0 – 10 V, ±20 mA, 0/4 – 20 mA), 1 Pt100 input
– 2 analogue outputs, (±10 V, 0 – 10 V, ±20 mA, 0/4 – 20 mA)

CPU 315F-2PN/DP
– 512 KB RAM for program and data
– Includes MMC
– Interfaces: MPI, DP, PN
SM 323:
– 16 digital inputs (24 V DC)
– 16 digital outputs (24 V DC, 500 mA)
SM 334:
– 4 analogue inputs, 8 bit (0 – 10 V, 0 – 20 mA)
– 2 analogue outputs (0 – 10 V, 0 – 20 mA)

The holder system
– EduTrainer® A4 rack, desktop variant, size 1 or size 2, W x H 305/458 mm x 300 mm
– 19” module simulation plate with 2 x SysLink plug connector for MPS® station and control panel, each with 8 digital inputs and 8 digital outputs and 1 x Sub-D 15-pin plug connection with 4 analogue inputs and 2 analogue outputs; emergency stop jumper to connect a safety circuit for disconnecting 8 digital outputs.
– Integrated power supply unit 110/230 V/24 V, 4.5 A
– Stable, powder-coated, sheet-steel holder system
– 19” simulation modules: 16 DIN, 16 DOUT, 4 AIN/2 AOUT, SysLink

EduTrainer® Universal Preferred versions Laboratory

A4 rack with SIMATIC S7-1200 and 19” simulation modules

The modular mini control system from Siemens

For solutions in discrete and stand-alone automation applications in the lower performance range.

The SIMATIC S7-1200 controller family has a, integrated engineering system: SIMATIC STEP 7 Basic for controllers and HMI

EduTrainer® Universal with:

CPU S7-1214C
– 75 kByte main memory, 4 MByte program memory
– Interface: RJ45
I/Os:
– 14 digital inputs (24 V DC)
– 10 digital outputs (24 V DC, 500 mA)
– 2 analogue inputs, 10 bit (0 – 10 V)

CPU module:

Analogue output SB 1232 AQ
– AO 1 x 12 Bit (± 10 V DC/0 – 20 mA)

The holder system
– EduTrainer® Universal, size 1, W x H 305 mm x 300 mm
– 19” module simulation plate with 2 x SysLink plug connector for MPS® station and control panel, each with 8 digital inputs and 8 digital outputs and 1 x Sub-D 15-pin plug connection with 4 analogue inputs and 2 analogue outputs; emergency stop jumper to connect a safety circuit for disconnecting 8 digital outputs.
– Integrated 110/230 V/24 V, 4.5 A power supply unit (only with order no. 567240, 567242)
– Can be placed on a desk or in an MPS® station
– Stable, powder-coated, sheet-steel holder system
– Can be expanded with 19” simulation modules (only order no. 567242 and 567243)

Order no. 567240 and 567241 include all the required equipment with simulation modules:
– 19” module 16IN (12 HP), 16 digital inputs on 4 mm safety sockets and 16 switches/pushbuttons for signal simulation
– 19” module 16OUT (12 HP), 16 digital outputs on 4 mm safety sockets
– 19” module 4AIN/2AOUT (12 HP), analogue processing 4 analogue inputs on 4 mm safety sockets can be switched to simulation via potentiometer and 2 analogue outputs on 4 mm safety sockets
– 19” module 24 V/0 V (9 TE), 8 x 4 mm safety sockets, red for 24 V distribution, 8 x 4 mm safety sockets, blue for 0 V distribution

Sixpack

1

1	6x S7-1200-TP (ON, SL)	**567243**
2	6x S7-1200-TP (SL)	**567242**
3	6x S7-1200-TP (ON)	**567241**
4	6x S7-1200-TP	**567240**

Notes
The EduTrainer® Universal S7-1200-TP is equipped with or without (ON) a power supply unit and also with either 19” simulation modules or with SysLink (SL) only. Includes programming cable and programming software.
The EduTrainer® is available in a six pack. It is based on the SCE trainer package S7-1200
➔ Page 224

Recommended accessories:

I/O data cable with SysLink connectors (IEEE 488), 2.5 m	34031
Analogue cable, parallel, 2 m	529141
Safety laboratory cable, 3 m	571817
IEC power cable 90° ➔ Page 239	

Other accessories:

Trainer Packages SIMATIC Panels ➔ Pages 226 – 227	
Analogue cable, crossover, 2 m	533039

Sixpack

2

Sixpack

4

Sixpack

3

EduTrainer® Universal Preferred versions for MPS®/MPS® PA
➔ Pages 338 – 341

Special licence rules apply for schools and educational institutes in the commercial sector.

EduTrainer® Universal Preferred versions Laboratory

A4/A4 rack with SIMATIC S7-1500 and 19” simulation modules

New

S7-1516F-3PN/DP	**8034574**

Note

These EduTrainer® system is based on Siemens SCE Trainer Package S7-1516F-3PN/DP. When Siemens updates these Trainer Package, the controllers are replaced by the successor models. Subject to technical implementation.

Recommended accessories:

I/O data cable with SysLink connectors (IEEE 488), 2.5 m	34031
Analogue cable, parallel, 2 m	529141
Safety laboratory cable, 3 m	571817
IEC power cable 90° ➔ Page 239	
Programming software STEP 7 ➔ Page 46	

Other accessories:

Trainer Packages SIMATIC Panels ➔ Pages 226 – 227	
Analogue cable, crossover, 2 m	533039

The ultimate in power and efficiency

The SIMATIC S7-1500 controller family represents the new controller generation in the TIA portal and a milestone in automation. It delivers maximum performance and user-friendliness for medium and high-end applications in machine and plant automation.

EduTrainer® Universal with:

CPU S7-1516F-3PN/DP
- Main memory: 1.5 MB for program and 5 MB for data
- Memory card included
- Interface 1: PROFINET IRT with 2 port switch
- Interface 2: Ethernet
- Interface 3: PROFIBUS, 10 ns bit performance

Inputs/outputs:
- 32 digital inputs (24 V DC)
- 32 digital outputs (24 V DC/0.5 A)
- 8 x analogue inputs, 8 x U/I/RTD/TC, 16-bit resolution
- 4 x analogue outputs, 4 x U/I, 16-bit resolution

The mounting system
- EduTrainer® Universal, size 1 (W x H) 305 mm x 300 mm
- Can be placed on a desk or in an MPS® station
- Stable, powder-coated, sheet-steel mounting system
- Integrated power supply unit, AC 110/230 V/DC 24 V, 4.5 A
- 19” module 16IN (12 HP), 16 digital inputs on 4 mm safety sockets and 16 switches/pushbuttons for signal simulation
- 19” module 16OUT (12 HP), 16 digital outputs on 4 mm safety sockets
- 19” module 4AIN/2AOUT (12 HP), analogue processing 4 analogue inputs on 4 mm safety sockets can be switched to simulation via potentiometer and 2 analogue outputs on 4 mm safety sockets
- 19” module 24 V/0 V (9 HP), 8 x 4 mm safety sockets, red for 24 V distribution, 8 x 4 mm safety sockets, blue for 0 V distribution
- 19” module simulation plate with 2 x SysLink plug connector for MPS® station and control panel, each with 8 digital inputs and 8 digital outputs and 1 x Sub-D 15-pin plug connector with 4 analogue inputs and 2 analogue outputs; emergency stop jumper to connect a safety circuit for disconnecting 8 digital outputs.

Special licence rules apply for schools and educational institutes in the commercial sector.

EduTrainer® Universal Preferred versions Laboratory

A4/A4 rack with Allen-Bradley CompactLogix and 19” simulation modules

New

The standard in North America

Allen-Bradley CompactLogix controllers of the series 1769 are ideal for small to compact control applications that do not require axis control or safety functions. These controllers offer integrated serial, EtherNet/IP™ or ControlNet™ channels and modular DeviceNet™ communications.

EduTrainer® Universal with:

AB CompactLogix
1769-L24ER-QB1B
– Main memory: 0.75 MB
– 1 GB SD memory card included
– Interfaces: 2 x EtherNet/IP, 1 x USB
Inputs/outputs:
– 16 digital inputs (24 V DC)
– 16 digital outputs (24 V DC/0.5 A)

AB CompactLogix
1769-L24ER-QBFC1B
– Main memory: 0.75 MB
– 1 GB SD memory card included
– Interfaces: 2 x EtherNet/IP, 1 x USB
Inputs/outputs:
– 16 digital inputs (24 V DC)
– 16 digital outputs (24 V DC)
– 4 universal analogue inputs
– 2 universal analogue outputs
– 4 high-speed counters

The mounting system
– EduTrainer® Universal, size 1 (W x H) 305 mm x 300 mm
– Can be placed on a desk or in an MPS® station
– Stable, powder-coated, sheet-steel mounting system
– Integrated power supply unit 110/230 V/24 V, 4.5 A

All EduTrainer® systems include all the required equipment with simulation modules:
– 19” module 16IN (12 HP), 16 digital inputs on 4 mm safety sockets and 16 switches/pushbuttons for signal simulation
– 19” module 16OUT (12 HP), 16 digital outputs on 4 mm safety sockets
– 19” module 4AIN/2AOUT (12 HP), analogue processing 4 analogue inputs on 4 mm safety sockets can be switched to simulation via potentiometer and 2 analogue outputs on 4 mm safety sockets (not with order no. 8022737)
– 19” module 24 V/0 V (9 HP), 8 x 4 mm safety sockets, red for 24 V distribution, 8 x 4 mm safety sockets, blue for 0 V distribution
– 19” module simulation plate with 2 x SysLink plug connector for MPS® station and control panel, each with 8 digital inputs and 8 digital outputs and 1 x Sub-D 15-pin plug connector with 4 analogue inputs and 2 analogue outputs; emergency stop jumper to connect a safety circuit for disconnecting 8 digital outputs.

1

1 AB CompactLogix 1769-L24ER-QB1B (digital)	**8022737**
2 AB CompactLogix 1769-L24ER-QBFC1B (digital/analogue)	**8022848**

Recommended accessories:

I/O data cable with SysLink connectors (IEEE 488), 2.5 m	34031
Analogue cable, parallel, 2 m	529141
Safety laboratory cable, 3 m	571817
IEC power cable 90° ➔ Page 239	
Programming software RSLogix ➔ Page 47	

Other accessories:

Analogue cable, crossover, 2 m	533039

2

EduTrainer® Compact

Integration into the workstation systems Learnline and Learntop

Cooperates with Education

Automation

SIEMENS

The **EduTrainer® Compact** fits in the ER mounting frame of many laboratory systems, but can also be used as a tabletop device or be mounted on a slotted profile plate. The sensors and actuators are connected to the inputs/outputs of the PLC via 4 mm safety sockets. The inputs can be simulated with switches and potentiometers. With the universal I/O interface socket SysLink – the connection to all equipment sets from Festo Didactic.

In order to simplify selection, we have put together some preferred variants for your convenience, which are equipped with the most common components (see table). If you require individualised solutions which go beyond the preferred variants, you can put them together with the help of our online configurator.

First-choice partner: Siemens – Festo

Benefit from the cooperation of two market leaders.

Siemens control systems and software are standard in all equipment sets of Festo Didactic. As a first-choice partner of "Siemens Automation Cooperates with Education" (SCE), Festo Didactic offers customised solutions for research, development and training facilities worldwide.

The SIMATIC S7-300 is a modular PLC system from Siemens for industrial use. The PLC has been integrated in the didactic environment of the Festo Didactic ER format and thus suits perfectly for the use in education and training.

Preferred variants

Equipment	without analogue processing	with analogue processing
with AS-Interface and Profibus-DP	EduTrainer® Compact S7-313C-2DP (Order no. 573888)	
with Profibus-DP	EduTrainer® Compact S7-313C-2DP (Order no. 573881) EduTrainer® Compact CECC-LK (Order no. 577602) EduTrainer® Compact CECC-D (Order no. 8024002)	EduTrainer® Compact S7-313C-2DP (Order no. 573882) EduTrainer® Compact S7-314C-2DP (Order no. 573883) EduTrainer® Compact S7-314C-2PN/DP (Order no. 576626)
without bus	EduTrainer® Compact S7-312C (Order no. 573885) EduTrainer® Compact S7-313C (Order no. 573880) EduTrainer® Compact LOGO! 8 (Order no. 8041132)	EduTrainer® S7-313C (Order no. 573887) EduTrainer® S7-313C-A (Order no. 573886) EduTrainer® S7-1214C (Order no. 573891, sixpack) EduTrainer® S7-1214C SysLink (Order no. 573892, sixpack) EduTrainer® S7-1214C (Order no. 573901) EduTrainer® S7-1214C SysLink (Order no. 573902)

EduTrainer® Compact Preferred version
with LOGO! 8

New

LOGO! EduTrainer® Compact

Compact trainer devices that provide users with an introduction to logical signal processing within a mini control system.

Features of LOGO! modules:

LOGO! 12/24 RCE (V8)
With LOGO! 8 the successful Siemens logic module enters the next generation.
– New logic module generation
– Display with new look and feel
– Ethernet communication
– Integrated web server
– New software in new design

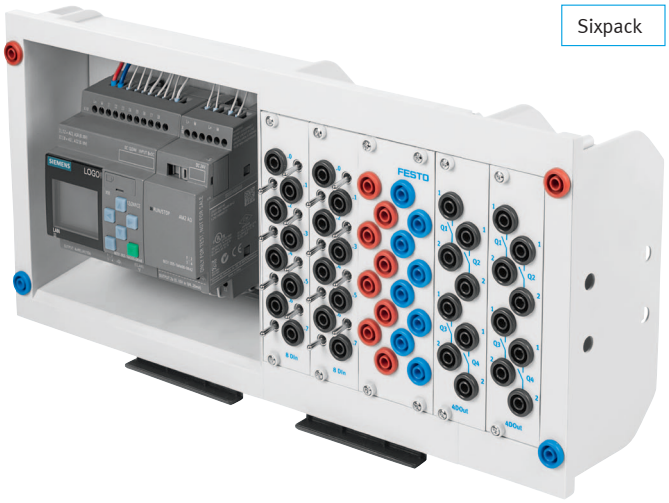
EduTrainer® Compact with:

LOGO! 8 TP
Basic module 12/24 RCE (V8) 8 DI/4 DO with:
– 19” module, 8 DI with switch/pushbutton
– 19” module, 24 V/0 V
– 19” module, 4 DOR
Extension module, 4 DI/4 DO with:
– 19” module, 4 DOR

The programming software LOGO! Soft Comfort V8 is included.

The mounting system
– EduTrainer® Compact for ER mounting frame, size 2 (W x H x D) approx. 364 mm x approx. 170 mm x approx. 80 mm
– 19” modules with 4 mm safety plug, SysLink system connector ➔ Pages 219 – 220
– Suitable for ER mounting frame or freestanding on the table
– Lightweight injection moulded housing
– Expandable to some extent with 19” simulation modules
– The units are supplied fully assembled
– Other combinations are possible via the online configurator

Sixpack



6x EduTrainer Compact Preferred version with LOGO! 8	**8041132**

Recommended accessories:

Ethernet cable, 2 m	567280
Tabletop power supply unit ➔ Page 239	
Power supply unit for mounting frame ➔ Page 239	
4 mm Safety laboratory cables ➔ Page 247	

Special licence rules apply for schools and educational institutes in the commercial sector.

EduTrainer® Compact preferred variants
with SIMATIC S7-1200

1

1 S7-1214C (ER2/19"DIO-A-SL)	**573902**
2 6x S7-1214C-TP (ER2/19"DIO-A-SL)*	**573892**
3 S7-1214C (ER2/19"DIO-A-24V/0V)	**573901**
4 6x S7-1214C-TP (ER2/19"DIO-A-24V/0V)*	**573891**

*** Notes**

The EduTrainer® Compact S7-1214C-TP is shipped with programming cable and STEP 7 Basic programming software.

The EduTrainer® is available as a sixpack under order numbers 573891 and 573892.

It is based on the SCE-trainer package S7-1200 ➔ Page 224

Recommended accessories:

I/O data cable with SysLink connectors (IEEE 488), 2.5 m	34031
Analogue cable, parallel, 2 m	529141
Tabletop power supply unit ➔ Page 239	
Power supply unit for mounting frame ➔ Page 239	
4 mm Safety laboratory cables ➔ Page 247	
Ethernet cable, 2 m	567280
Programming software STEP 7 ➔ Page 46	

Sixpack

2

Sixpack

4

3

The modular mini control system from Siemens

For solutions in discrete and standalone automation applications in the lower performance range. The family of SIMATIC S7-1200 controllers is equipped with an integrated engineering system: SIMATIC STEP 7 Basic for controller and HMI.

EduTrainer® Compact with:

CPU S7-1214C
- 50 kB RAM, 2 MB loading buffer
- Interface: RJ45

Inputs/outputs:
- 14 digital inputs (24 V DC)
- 10 digital outputs (24 V DC, 500 mA)
- 2 analogue inputs, 10 bit (0 – 10 V)

CPU module:

SB 1232 AQ analogue output
- AO 1 x 12 Bit (± 10 V DC, 0 – 20 mA)

The mounting system
- EduTrainer® Compact for ER mounting frame in three different sizes with height and depth of approx. 170 x 80 mm:
  Width for size 1 (ER1): 242 mm
  Width for size 2 (ER2): 364 mm
  Width for size 3 (ER3): 486 mm
- 19" modules with 4 mm safety plug, SysLink system connector or 24 V/0 V ➔ Pages 219 – 220
- Suitable for ER mounting frame or unfastened on the table
- Lightweight injection moulded housing
- The units are shipped fully assembled.
- S7-1200 individual components upon request
- Other combinations are possible via the online configurator.

Recommended training media

WBT PLC programming in accordance with IEC 61131 ➔ Page 24

Special licence rules apply for schools and educational institutes in the commercial sector.

EduTrainer® Compact preferred variants
with SIMATIC S7-300

SIMATIC S7 EduTrainer® Compact

The S7 EduTrainer® Compact is well equipped with the compact version of the S7-300 series. Integrated digital and analogue inputs and outputs, as well as controllers with Profibus-DP, are available. A wide variety of PLC programming languages such as AWL, KOP, FUP, STEP 7-SCL and STEP 7-GRAPH can be used thanks to the STEP 7 programming environment.

EduTrainer® Compact with:

CPU 312C
– 64 kB RAM for programme and data
– Includes MMC
– Interface: MPI
Inputs/outputs:
– 10 digital inputs (24 V DC)
– 6 digital outputs (24 V DC, 400 mA)

CPU 313C
– 128 kB RAM for programme and data
– Includes MMC
– Interface: MPI
Inputs/outputs:
– 24 digital inputs (24 V DC)
– 16 digital outputs (24 V DC, 400 mA)

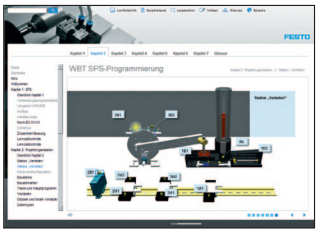
CPU 313C-2DP
– 128 kB RAM for programme and data
– Includes MMC
– Interface: MPI, Profibus-DP
Inputs/outputs:
– 16 digital inputs (24 V DC)
– 16 digital outputs (24 V DC, 400 mA)
SM 334 (analogue add-on):
– 4 analogue inputs, 8 bit (0 to 10 V, 0 to 20 mA)
– 2 analogue outputs (0 to 10 V, 0 to 20 mA)

CPU 314C-2DP
– 192 kB RAM for programme and data
– Includes MMC
– Interfaces: MPI, Profibus-DP
Inputs/outputs:
– 24 digital inputs (24 V DC)
– 16 digital outputs (24 V DC, 400 mA)
– 4 analogue inputs, 11 bit, 20 ms (±10 V, 0 to 10 V, ±20 mA, 0/4 to 20 mA), 1 Pt100 input
– 2 analogue outputs (±10 V, 0 to 10 V, ±20 mA, 0/4 to 20 mA)

CPU 314C-2PN/DP
– 192 kB RAM for programme and data
– Includes MMC
– Interfaces: MPI, Profibus-DP, ProfiNet
Inputs/outputs:
– 24 digital inputs (24 V DC)
– 16 digital outputs (24 V DC, 500 mA)
– 4 analogue inputs, 12 bit, 20 ms, (±10 V, 0 to 10 V, ±20 mA, 0/4 to 20 mA), 1 Pt100 input
– 2 analogue outputs (±10 V, 0 to 10 V, ±20 mA, 0/4 to 20 mA)

The mounting system
– EduTrainer® Compact for ER mounting frame in three different sizes with height and depth of approx. 170 x 80 mm:
Width for size 1 (ER1): 242 mm
Width for size 2 (ER2): 364 mm
Width for size 3 (ER3): 486 mm
– 19" modules with 4 mm safety plug, SysLink or AS-Interface system connector
➔ Pages 219 – 220
– Suitable for ER mounting frame or unfastened on the table
– Lightweight injection moulded housing
– Expandable to some extent with 19" simulation modules
– Data buffering for S7-300 with micro memory card (included in scope of delivery)
– The units are shipped fully assembled.
– S7-300 individual components upon request
– Other combinations are possible via the online configurator.

Recommended training media
WBT PLC programming in accordance with IEC 61131 ➔ Page 24



7 (2/3/5/8)

1 S7-312C (ER2/19"DIO-SL)	**573885**
2 S7-313C (ER1/19"SL)	**573880**
3 S7-313C-2DP (ER1/19"SL)	**573881**
4 S7-313C (ER2/19"DIO-SL)	**573887**
5 S7-314C-2PN/DP (ER1/19"SL)	**576626**
6 S7-313C-A (ER2/19"DIO-SL)	**573886**
7 S7-313C-2DP-A (ER1/19"SL)	**573882**
8 S7-314C-2DP (ER1/19"SL)	**573883**
9 S7-313C-2DP (ER2/19"ASI-SL)	**573888**

Recommended accessories:

I/O data cable with SysLink connectors (IEEE 488), 2.5 m	34031
Analogue cable, parallel, 2 m	529141
Tabletop power supply unit ➔ Page 239	
Power supply unit for mounting frame ➔ Page 239	
4 mm Safety laboratory cables ➔ Page 247	
PC adapter, USB	539006
Programming software STEP 7 ➔ Page 46	


1


6


4


9

EduTrainer® Compact Preferred versions
with Festo CECC

New

1

1 CECC-LK	**577602**
2 CECC-D	**8024002**

Note
The free Codesys® programming software is available for download on the Festo homepage.

Recommended accessories:

Tabletop power supply unit ➔ Page 239
Power supply unit for mounting frame ➔ Page 239
4 mm Safety laboratory cables ➔ Page 247

2

The compact controller from Festo:
The CECC controllers are the latest generation of compact controllers from Festo. A CECC controller can be programmed for IL, LDR, FCH, ST, SFC and CFC with Codesys® provided by Festo in accordance with IEC 61131-3.

EduTrainer® Compact with:

Festo CECC-LK
Festo CECC-LK is a compact and powerful PLC. The industrial design controller has 12 digital inputs, 8 digital outputs, and 2 fast digital inputs. In addition, a wide variety of interfaces are available as standard features on board:
– 4 x IO-Link Master
– 1 x IO-Link Device
– Ethernet connection
– USB connection
– CANopen

Festo CECC-D
Festo CECC-D EduTrainer® Compact, like CECC-LK, but without IO-Link.

Codesys® is a development environment for programmable logic controllers (PLC) in accordance with the IEC 61131-3 standard for application development in industrial automation.

The point-to-point communication of the IO-Link interface enables a simple and safe three-conductor wiring between the controller, sensors or actuators, and also makes remote parameterisation possible. A wide variety of IO-Link devices are available on the market. They are mostly sensors, actuators or a combination of these as well as special IO-Link nodes to increase the number of inputs/outputs or to use standard sensors and actuators.

The mounting system:
– EduTrainer® Compact for ER mounting frame, size 2 (W x H x D) approx. 364 mm x approx. 170 mm x approx. 80 mm
– 19” modules with 4 mm safety plug
– Suitable for ER mounting frame or freestanding on the table
– Lightweight injection moulded housing
– The unit is supplied fully assembled
– Other combinations are possible via the online configurator

Recommended training media
WBT PLC programming in accordance with IEC 61131 ➔ Page 24

19” simulation modules

1 **19” module 16IN (12 HP)**
16 digital inputs on 4 mm safety sockets and 16 switches/push-buttons for signal simulation.
Order no. **567111**

2 **19” module 8IN (6 HP), without switch**
8 digital inputs on 4 mm safety sockets.
Order no. **576620**

3 **19” module 16OUT (12 HP)**
16 digital outputs on 4 mm safety sockets.
Order no. **567112**

4 **19” module 8IN (6 HP)**
8 digital inputs on 4 mm safety sockets and 8 switches/push-buttons for signal simulation.
Order no. **567113**

5 **19” module 8OUT (6 HP)**
8 digital outputs on 4 mm safety sockets.
Order no. **567114**

6 **19” module 4OUTR (6 HP)**
– 4 relay outputs at eight 4 mm safety sockets
– Maximum load: 24 V, 4.5 A
Order no. **573278**

7 **19” module 4AIN/2AOUT (12 HP)**
– Analogue value processing 4 analogue inputs on 4 mm safety socket switchable to simulation via potentiometer and 2 analogue outputs on 4 mm safety sockets
– Display for measured value indicator with selector switch for channel selection
– Voltage range: 0 – 10 V; -10 – +10 V
Order no. **567119**

8 **19” module 4AIN/2AOUT (6 HP)**
– 4 analogue inputs at 4 mm safety sockets
– 2 analogue outputs at 4 mm safety sockets
Order no. **574197**

9 **19” module word processing (12 HP)**
Two-line display for showing the input word and output word in HEX, DEZ and BCD. Changing of the input word via keypad.
Order no. **567118**

10 **19” module system connector 37-pin (9 HP)**
– 1x 37-pin Sub-D connector for 16 digital inputs
– 1x 37-pin Sub-D socket for 16 digital outputs
– Emergency stop jumper for 8 digital outputs
Order no. **567116**

11 **19” module ASI (6 HP)**
– Two 2-pin M12 sockets for pre-assembled AS-interface cables
– Integrated AS-interface filter for 24 V DC
Order no. **567115**

12 **19” module system connector SysLink (9 HP)**
– 2x SysLink with 8 digital inputs and 8 digital outputs each
– 1x 15-pin Sub-D socket for 4 analogue outputs and 2 analogue inputs
– Emergency stop jumper for 8 digital outputs
Order no. **567122**

1


2


3


4


5


6


7


8


9

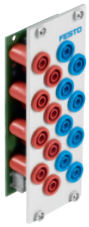

10


11


12


19” simulation modules

1



2

3

4

5

6

1 **19” module 24V/0V (9 HP)**
– 8x 24 V on 4 mm safety sockets, red
– 8x 0 V on 4 mm safety sockets, blue

Order no.	**567195**

2 **19” module 24V (6 HP)**
8x 24 V on 4 mm safety sockets, red.

Order no.	**567120**

3 **19” module 0V (6 HP)**
8x 0 V on 4 mm safety sockets, blue.

Order no.	**567121**

4 **19” blanking plate**

42 HP	**8022733**
32 HP	**195765**
18 HP	**8022732**
16 HP	**534630**
12 HP	**567123**
9 HP	**567124**
6 HP	**567125**
3 HP	**567126**

5 **16-pin flat cable**
16-pin flat cable, open at one end to connect 19” modules with analogue connection to any PLC with screw or CageClamp contacts, 500 mm long.

Order no.	**567196**

6 **10-pin flat cable**
10-pin flat cable, open at one end to connect 19” modules with digital connection to any PLC with screw or CageClamp contacts, 500 mm long.

Order no.	**567197**

EduTrainer® for mini control systems

New

Basic trainer for mini control systems

Mini control systems are becoming increasingly common in industry and trade. They are used for numerous small control and monitoring tasks for which a PLC would be oversized. Mini control systems or programmable control relays control and operate conveyors, monitor doors and gates, control heating, and so on.

For training purposes, they represent the link between classic safety circuits and programmable logic controllers. Functions can be implemented quickly and easily based on the learned ladder diagram or function chart methodology using simple programming software.

Now also with the new LOGO! 8.
Ask your contact at Festo Didactic for your configuration.

Mini control systems are characterised by the large number of features that they provide. They are easy to program and to connect, are flexible and low-cost, and are therefore indispensable in basic training.

Another advantage of these small and compact devices, which are suitable for mounting in 35 mm H-rails, is that they implement many functions in a single device.

Mini control systems include:
– Controllers
– Indicators
– Diagnostic tools
– Text displays with operating buttons
– Interfaces to fieldbus systems
– Web servers
– and many more.

The function range can be extended with numerous extension modules.

The **EduTrainer® for mini control systems** provides a broad basic platform for your project work. The board is designed to hold mini control systems and expansion modules, for example the Siemens LOGO! or the EATON Easy family.

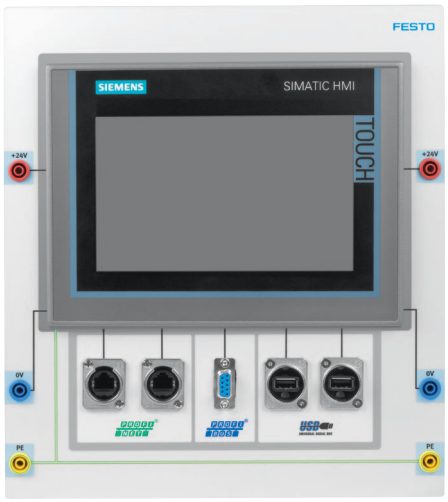
Up to 12 inputs can be picked off on 4 mm safety sockets. Four of these inputs can also be connected directly on the device using a latch/pushbutton. 8 of the up to 12 relay outputs can be changed to digital outputs using a toggle switch.

The device also includes two controllable analogue encoders, which can be used to bridge voltages from 0 to 10 V at two inputs. An RJ45 Ethernet socket can connect the controller to the programming unit or network switch.

The board can be with or without a power supply unit, with KNX interfaces or AS-Interface.

Please request a quotation for your individual requirements.

Touch Panel
TP700 EduTrainer®



Training device for the A4 mounting frame. The communication connections for
– 1 x PROFIBUS
– 2 x PROFINET
– 2 x USB
are accessible on the front side through sturdy plug connectors.

The touch panel TP700 Comfort is a 7" touch panel and comes from the Siemens HMI series for advanced applications. The features of the Comfort Panel include:
– Widescreen displays with 16 million colours and LED backlighting
– Comprehensive high-end functionality: archive, VB scripts and various viewers for displaying system documentation (e.g. as PDF) or in the form of Internet pages
– Data security in the event of a power failure
– Multiple interfaces for process communication
– Integrated PROFINET switch from 7"
– Programming from WinCC Comfort V11 (TIA portal)

Comprising:
– Siemens touch panel TP700 Comfort informatively arranged in an A4 board
– Ethernet cable (CAT 6, crossed, 6 m)
– Engineering, options and runtime software and licence for WinCC Advanced (TIA portal)

For schools and training centres in the commercial sector.

System requirements
– 64 Bit: Windows 7 Professional, Enterprise, Ultimate SP1, Windows 8.1 Professional, Enterprise
– 32 Bit: Windows 7 Professional, Enterprise, Ultimate SP1

Technical data
– Front panel: 266 x 297 mm
– Device depth: 90 mm
– Supply voltage: 24 V DC

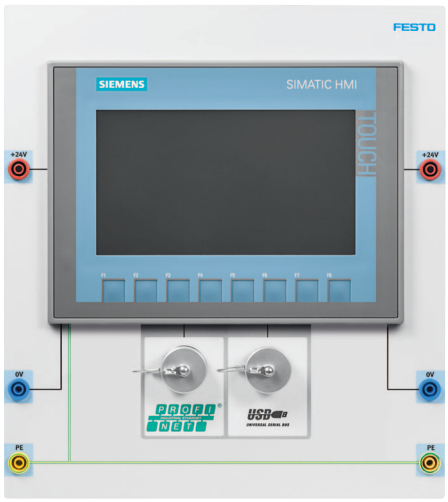
Touch Panel TP700	**8022729**

Recommended accessories:

4 mm Safety laboratory cables ➔ Page 247	
Tabletop power supply unit ➔ Page 239	

Touch Panel
KTP700 EduTrainer®

New



Training device for the A4 mounting frame. The communication connections for
– 1x PROFINET
– 1x USB
are accessible on the front side through sturdy plug connectors.

The Touch Panel KTP700 Basic PN is a 7" touch panel with 8 additional programmable function buttons which is part of the new basic Siemens HMI series for simple applications.

The characteristics of the basic panels are as follows:
– High-resolution dimmable widescreen displays with 64,000 colours
– Touch and button function
– Interface for connecting to various PLCs
– Archival via USB stick
– Programming from WinCC Basic V13 (TIA-Portal)

Comprising:
– Siemens KTP700 Basic PN Touch Panel with class preparation on an A4 board
– Siemens Ethernet Switch Scalance XB005
– 2x Ethernet cable (CAT 6, crossed, 6 m)

For schools and educational institutes in the commercial sector.

System requirements
– 64 bit: Windows 7, Windows 8 SP1
– 32 bit: Windows 7

Technical data
– Front panel: 266 x 297 mm
– Device depth: 90 mm
– Supply voltage: 24 V DC

Touch Panel 1x KTP700 EduTrainer	**8022731**
Touch Panel 6x KTP700 EduTrainer	**8041505**

Note

This package does not include any programming software. The programming software is included in Trainer Package SIMATIC S7-1200 DC/DC/DC or the EduTrainers with SIMATIC S7-1200, which are mentioned in the recommended accessories, or can be ordered separately.

Recommended accessories:

Trainer Package SIMATIC S7-1200 DC/DC/DC	567238
6x S7-1214C-TP (ER2/19"DIO-A-SL)	573892
6x S7-1214C-TP (ER2/19"DIO-A-24V/0V)	573891
4 mm Safety laboratory cables ➔ Page 247	
Tabletop power supply unit ➔ Page 239	

CODESYS® starter kit with CECC-LK and EasyPort USB

An ideal tool for newcomers to PLC technology.

With the compact and powerful PLC CECC-LK, a 24 volt PC interface (EasyPort USB) and the necessary software and hardware.

The PLC is programmed from your PC using Codesys® provided by Festo, in accordance with IEC 61131, and information is exchanged with the visualisation program via the PC interface. The visualisation software provides various process models from the world of technology and everyday situations, such as level crossings, multi-storey car parks, sorting systems, washing machines, garage doors, wind generators, lifting luggage and more. A Getting Started kit is provided to explain how to use the hardware and software.

All the necessary accessories such as cables, 100 – 240 V/24 V power supply unit and screwdriver are included. All that is needed is a PC and a country-specific IEC power cable for the power supply unit (e.g. order no. 247661 for DE, FR, ES, etc) – then you're off!

System requirements
- PC with Win 2000 SP4/XP SP2/ Vista
- At least Pentium200 MHz
- 32 MB RAM
- 10 MB free space on hard disk
- CD-ROM drive
- Internet Explorer 5.0 or Netscape 4.0 or higher
- 1 free Ethernet and USB port

Order no.	**8024001**

Recommended accessories:

IEC power cable ➔ Page 239	

FED-CEC touch panel CODESYS®

Touch screen for flexibly displaying processes and data with integrated Codesys® PLC for open and closed-loop control of processes in accordance with IEC 61131. 8 digital inputs and 8 digital outputs can be used via SysLink. The Sub-D 15-pin connection is designed for 4 analogue inputs and 2 analogue outputs. 4 mm safety sockets are available for emergency stop and external power supply.

Scope of delivery
- Festo 5.6" 256 colour FED-550 display, 32 MB internal RAM
- Programming software FED 2Designer (multilingual)
- RS232 programming cable for loading projects
- Angled plate for mounting onto a slotted profile plate
- Codesys® programming software provided by Festo

Technical data
- FED-CEC with FED-UIM
- 32 bit MIPS RISC processor, 1 MB data memory, 350 us/K scan time
- Ethernet 10 Base-T, CANopen, Codesys®
- Integrated diagnostics for hardware detection
- Dimensions (W x H x D): 187 x 147 x 90 mm
- 20 inputs, digital 24 V DC
- 12 outputs, digital 24 V DC/0.5 A
- 8/4 analogue inputs, 12 bit, voltage/current/Pt100
- 4 analogue outputs, 12 bit, voltage or current (software selectable)

Order no.	**567276**

Recommended accessories:

I/O data cable with SysLink connectors (IEEE 488) at both ends, 2.5 m	34031
Analogue cable, parallel, 2 m	529141
Analogue cable, crossover, 2 m	533039
4 mm Safety laboratory cables ➔ Page 247	
Tabletop power supply unit ➔ Page 239	

Festo CECC CODESYS® V3 compact controller

Codesys® is a development environment for programmable logic controllers (PLC) in accordance with the IEC 61131-3 standard for application development in industrial automation. The free Codesys® programming software is available for download on the Festo homepage.

The point-to-point communication of the **IO-Link interface** enables a simple and safe 3-conductor wiring between the controller, sensors or actuators, and also makes remote parameterisation possible. There is a variety of IO-Link devices on the market. They are mostly sensors, actuators or a combination of these as well as special IO-Link nodes to increase the number of inputs/outputs or to use standard sensors and actuators.

For industrial use, quick and easy to install:

Festo CECC-LK is a compact and powerful PLC. The industrial design controller has 12 digital inputs, 8 digital outputs, and 2 fast digital inputs.

In addition, there is a wide variety of interfaces available as standard features on board:
– 4× IO-Link master
– 1× IO-Link device
– Ethernet connection
– USB connection
– CANopen

A comprehensive Codesys® function library enables stand-alone open and closed-loop control and efficient automation of, for example, manual workstations to IEC 61131.

– Individual device or integratable via Codesys® V3.
– Simple programming and navigation to IEC 61131-3.
– Hybrid: use CANopen Master and integrated IO-Link to directly activate electric and pneumatic drives and connect valve terminals.
– Communication: ProfiNet, Ethernet IP and Modbus TCP are easy to integrate in higher-order systems.

Festo CECC-D, like CECC-LK, but without IO link.

Festo CECC-LK ➔ see figure!	**8023951**
Festo CECC-D	**8023952**

Recommended accessories:

I/O data cable with one SysLink connector as per IEEE 488 ...	
... and bare cable-end sleeves, 2.5 m	167122
Tabletop power supply unit ➔ Page 239	

Siemens Trainer Packages

Sixpack

New

Trainer Package
LOGO! 8
With LOGO! 8, the successful Siemens logic module enters the next generation.
– Display with new look and feel
– Ethernet communication
– Integrated web server
– New software in new design

Comprising:
– 6x LOGO! 12/24 RCE (V8) with 8 digital inputs and 4 digital outputs
– 6x extension modules with 4 additional digital inputs and 4 digital outputs
– 6 copies of programming software LOGO! Soft Comfort V8

Order no.	**8040049**

Sixpack

Trainer Package
SIMATIC S7-1200 DC/DC/DC
Comprising:
– 6x SIMATIC S7-1200, CPU 1214C, COMPACT CPU, DC/DC/DC, ON-BOARD I/O: 14 DI 24 V DC; 10 DO 24 V DC; 2 AI 0 – 10 V DC. Power supply: 20.4 – 28.8 V DC, program/data memory: 75 KB
– 6x SIMATIC S7, STEP 7 Basic (TIA-Portal), single licence, SW and documentation on DVD, licence key on USB stick, 2 languages (de/en)
– 6x SIMATIC NET, Ind. Ethernet TP XP CORD RJ45/RJ45, CAT 6, crossed TP cable 4x2, with 2 RJ45 plugs, length 6 m
– 6x SIMATIC S7-1200, simulator module
– 6x SIMATIC S7-1200, analogue output, SB 1232, 1 AO, ±10 V DC or 0 – 20 mA

Order no.	**567238**

Siemens Trainer Packages

Trainer Package
SIMATIC S7-314C-2PN/DP
Comprising:
– CPU 314C-2PN/DP: compact CPU with MPI, 24 DI / 16 DO, 4 AI, 2 AO, 1 PT100, 4 fast counters (60 kHz)
– Integrated PN/DP interface
– RAM: 192 kB
– PS 307 power supply: 120/230 V AC or 24 V DC, 5 A
– 2x 40-pin front plug
– SM 374 simulator module, 16 inputs/outputs or 8 inputs/outputs, 16 switches, 16 LEDs
– Mounting rail, L = 480 mm
– Micro memory card: 512 kB
– PC adapter for USB connection to S7-200/300/400, C7; with USB cable (5 m)

Order no. **576299**

New
Trainer package
SIMATIC S7-1513-1PN
Comprising:
– CPU 1513-1PN, core assembly with 300 KB main memory for the program and 1.5 MB for data, ProfiNet IRT interface with 2 port switch, 40 ns bit performance
– SIMATIC PM 1507 24 V/8 A, regulated power supply for SIMATIC S7-1500, input: AC 120/230 V, output: DC 24 V/8 A
– Digital input module DI 32 x DC 24 V, 32 channels in groups of 16, input delay 0.05 – 20 ms, input type 3 (ICE 61131), diagnostics, process alarms
– Digital output module DQ 32 x DC 24 V/0.5 A; 32 channels in groups of 8, 4 A per group, diagnostics, replacement value
– SIMATIC S7-1500 profile rail 482 mm, including earthing screw, integrated DIN rail
– 2 x front panel connectors, screw terminal technology, 40-pin, for 35 mm wide assemblies, including 4 jumper links and cable ties
– Memory card 24 MB
– CAT 6 Ethernet cable, length 6 m

Order no. **8034570**

New
Trainer package
SIMATIC S7-1516F-3PN/DP
Comprising:
– CPU 1516F-3PN/DP, core assembly with 1.5 MB main memory for the program and 5 MB for data, 1st interface: ProfiNet IRT with 2 port switch, 2nd interface: Ethernet, 3rd interface: Profibus, 10 ns bit performance
– SIMATIC PM 1507 24 V/8 A, regulated power supply for SIMATIC S7-1500, input: AC 120/230 V, output: DC 24 V/8 A
– Digital input module DI 32 x DC 24 V, 32 channels in groups of 16, input delay 0.05 – 20 ms, input type 3 (ICE 61131), diagnostics, process alarms
– Digital output module DQ 32 x DC 24 V/0.5 A; 32 channels in groups of 8, 4 A per group, diagnostics, replacement value
– Analogue input module AI 8 x U/I/RTD/TC, 16 bit resolution, 8 channels in groups of 8
– Analogue output module AQ 4 x U/I/ST, 16 bit resolution, 4 channels in groups of 4
– SIMATIC S7-1500 profile rail 482 mm, including earthing screw, integrated DIN rail
– 4 x front panel connectors, screw terminal technology, 40-pin, for 35 mm wide assemblies, including 4 jumper links and cable ties
– Memory card 24 MB
– CAT 6 Ethernet cable, length 6 m

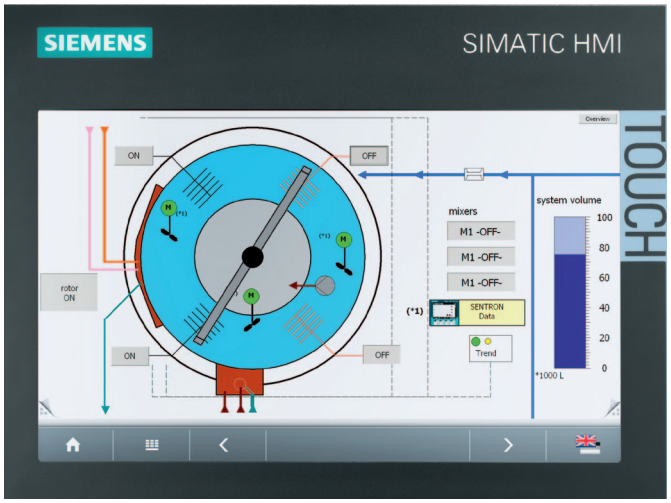
Order no. **8034571**

As a result of continuous development and research work technical specifications and illustrations are subject to change. They are not binding. The specified data serves purely as a product description and is no guarantee in a legal sense.

Special licence rules apply for schools and educational institutes in the commercial sector.

Siemens Trainer Packages

Special licence rules apply for schools and educational institutes in the commercial sector.



Trainer package
SIMATIC Comfort Panel TP700
The TP700 Comfort Touch Panel is a 7" touch panel and comes from the Siemens HMI series for advanced applications.

The characteristics of the comfort panels are as follows:
– Widescreen displays with 16 million colours and LED backlighting
– Comprehensive high-end functionality: archive, VB scripts and various viewers for displaying system documentation (e.g. as PDF) or in the form of websites
– Data security in the event of a power failure
– Multiple interfaces for process communication
– Integrated PROFINET switch from 7"
– Programming from WinCC Comfort V11 (TIA portal)

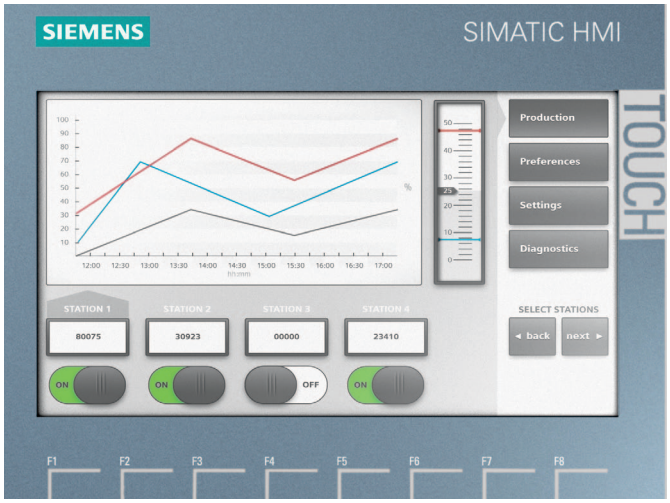
Process interfacing:
– S7-1200, S7-1500
– S7-200, S7-300/400
– LOGO!
– WinAC
– Allen Bradley (EtherNet/IP), (DF1)
– Mitsubishi (MC TCP/IP), (FX)
– OMRON (Host Link)
– Modicon (Modbus TCP/IP), (Modbus RTU)
– OPC UA client

Comprising:
– Siemens TP700 Comfort Touch Panel
– Ethernet cable (CAT 6, crossed, 6 m)
– Engineering, options and runtime software and licence for WinCC Advanced (TIA portal)

System requirements
– 64 bit: Windows 7, Windows 8
– 32 bit: Windows 7

Technical data
– 7.0" widescreen TFT display (resolution: 800 x 480, 16 million colours)
– Touch screen
– 2 Ethernet interfaces
– 1 Profibus interface
– 2 USB interfaces with integrated switch
– Dimensions (W x H x D): 214 x 158 x 70 mm
– Supply voltage: 24 V DC

Order no.	**8024273**



New

Trainer package
SIMATIC Basic Panel KTP700
The KTP700 Basic PN Touch Panel is a 7" touch panel with additional buttons which is part of the new basic Siemens HMI series for simple applications. The basic panels are ideal HMI components for small to mid-sized S7 control systems.

The characteristics of the basic panels are as follows:
– High-resolution dimmable widescreen displays with 64,000 colours
– Touch and button function
– Interface for connecting to various PLCs
– Archival via USB stick
– Programming from WinCC Basic V13 (TIA-Portal)

Process coupling:
– S7-1200, S7-1500
– S7-200, S7-300/400
– LOGO!
– WinAC
– Allen Bradley (EtherNet/IP)
– Mitsubishi (MC TCP/IP)
– Modicon (Modbus TCP/IP)

Comprising:
– Siemens KTP700 Basic PN Touch Panel
– Siemens Ethernet Switch Scalance XB005
– 2x Ethernet cable (CAT 6, crossed, 6 m)

System requirements
– 64 bit: Windows 7, Windows 8 SP1
– 32 bit: Windows 7

Technical data
KTP700 Basic PN Touch Panel:
– 7" TFT display (resolution: 800 x 480, 64,000 colours)
– Touch screen with 8 programmable tactile function keys
– 1 Ethernet interface
– 1 USB interface
– Dimensions (W x H x D): 214 x 158 x 45 mm
– Supply voltage: 24 V DC
Ethernet Switch Scalance XB005:
– For S7 and/or LOGO! and up to four other participants in industrial Ethernet
– 10/100 Mbit/s unmanaged switch
– 5 RJ45 ports
– LED diagnostics
– Supply voltage: 24 V DC

Trainer Package 1x SIMATIC KTP700	**8040055**
Trainer Package 6x SIMATIC KTP700	**8040056**

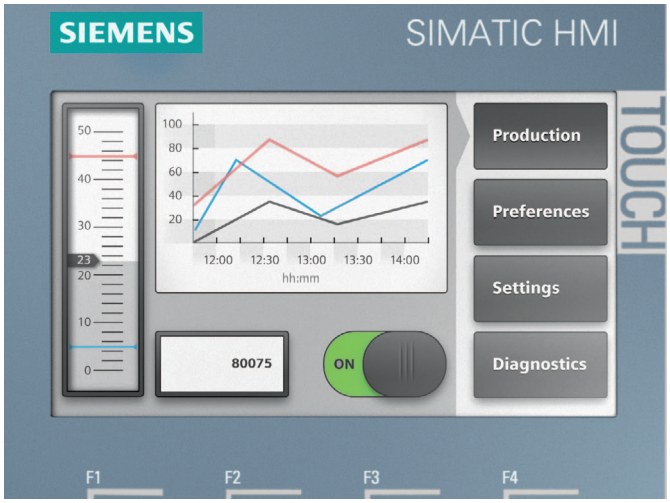
Note:
This package does not include any programming software. The programming software is included in Trainer Package SIMATIC S7-1200 DC/DC/DC (order no. 567238) or can be ordered separately.

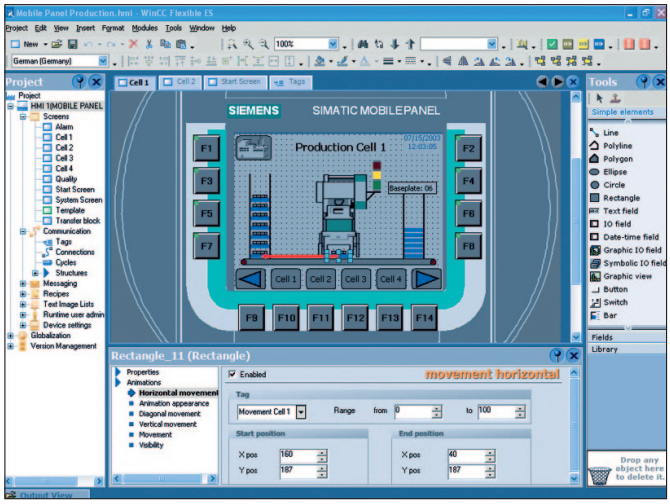
Recommended accessories:

Trainer Package SIMATIC S7-1200 DC/DC/DC	567238

Siemens Trainer Packages

Special licence rules apply for schools and educational institutes in the commercial sector.





New

Trainer package
SIMATIC Basic Panel KTP400

The KTP400 Basic PN Touch Panel is a 4.3" touch panel with additional buttons which is part of the new basic Siemens HMI series for simple applications. The basic panels are ideal HMI components for small to mid-sized S7 control systems.

The characteristics of the basic panels are as follows:
– High-resolution dimmable widescreen displays with 64,000 colours
– Touch and button function
– Interface for connecting to various PLCs
– Archival via USB stick
– Programming from WinCC Basic V13 (TIA-Portal)

Process coupling:
– S7-1200, S7-1500
– S7-200, S7-300/400
– LOGO!
– WinAC
– Allen Bradley (EtherNet/IP)
– Mitsubishi (MC TCP/IP)
– Modicon (Modbus TCP/IP)

Comprising:
– Siemens KTP400 Basic PN Touch Panel
– Siemens Ethernet Switch Scalance XB005
– 2x Ethernet cable (CAT 6, crossed, 6 m)
– WinCC Basic programming software (TIA Portal)

System requirements
– 64 bit: Windows 7, Windows 8 SP1
– 32 bit: Windows 7

Technical data
KTP400 Basic PN Touch Panel:
– 4.3" TFT display (resolution: 480 x 272, 64,000 colours)
– Touch screen with 4 programmable tactile function keys
– 1 Ethernet interface
– 1 USB interface
– Dimensions (H x W x D): 141 x 116 x 41 mm
– Supply voltage: 24 V DC
Ethernet Switch Scalance XB005:
– For S7 and/or LOGO! and up to four other participants in industrial Ethernet
– 10/100 Mbit/s unmanaged switch
– 5 RJ45 ports
– LED diagnostics
– Supply voltage: 24 V DC

Trainer Package 1x SIMATIC KTP400	**8040053**
Trainer Package 6x SIMATIC KTP400	**8040054**

Trainer Package
WinCC flexible/WinCC Advanced

Consistent family of engineering tools for project planning of SIMATIC HMI operator units and the PC-based visualisation systems WinCC Runtime Advanced and WinCC Runtime Professional.

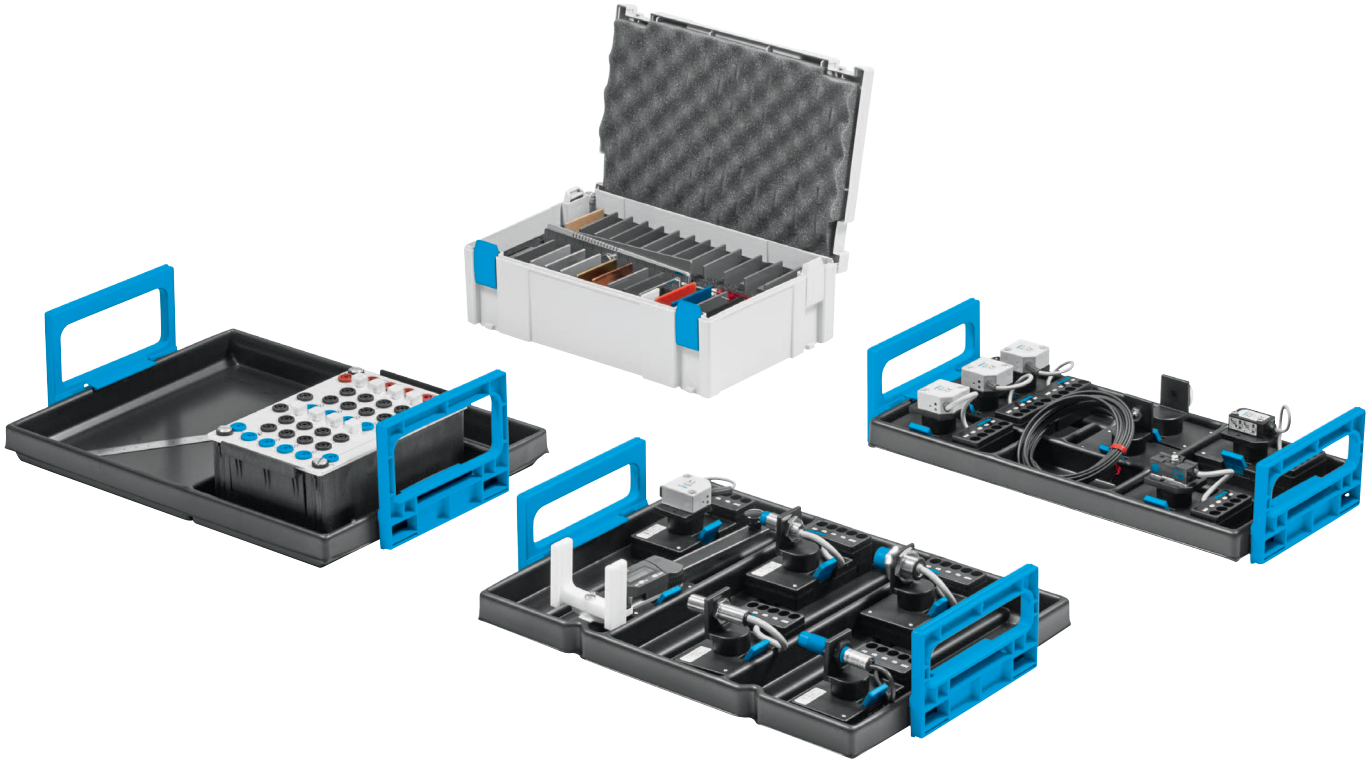
Comprising:
– 6x combined licence for switchable use of SIMATIC WinCC flexible 2008 (Classic) and SIMATIC WinCC Advanced (TIA Portal)
– 6x option and run-time software
– 2x 20 SIMATIC WinCC Advanced/WinCC flexible 2008 SP3 for students (temporary with authorisation for 365 days)

System requirements
– SIMATIC WinCC flexible 2008: Windows 7 Professional, Enterprise (not N), Ultimate SP1
– SIMATIC WinCC advanced: Windows 7 Professional, Enterprise (not N), Ultimate SP1/Windows 8.1 Professional, Enterprise

Authorisation on USB stick

Order no.	**556239**

Equipment set TP 1311
Sensors for object detection



The purpose of automation technology

The subject of sensors for object detection is covered extensively in the TP 1311 equipment set. The topics include configuration, function, areas of application and the selection of sensors based on the requirements of an application.

The equipment set contains sensors with analogue and binary output signals, although the focus is on binary output signals. These sensors are called proximity switches.

The following types are contained in the equipment set:
– Magnetic proximity sensors
– Inductive proximity sensors
– Optical proximity sensors
– Capacitive proximity sensors
– Inductive sensors (analogue)

The special feature

Hands-on experience plays a central role in teaching the fundamentals of sensors for object detection. Examples are used to demonstrate the general operational principles of different sensors. Special attention is paid to the selection of the right sensor, its connection, the correct setting and functional checking.

With the TP 1311 students can acquire a thorough, basic knowledge about sensors for object detection.

Course topics
– Configuration, function and coefficients of the sensors used
– Basic principles of connection and circuit technology
– Influence of shape, material, surface and colour of the object on the switching characteristics of sensors
– Terms which describe coefficients and functional behaviour
– Configuration of logic circuits
– Selecting appropriate sensors by taking into account certain parameters

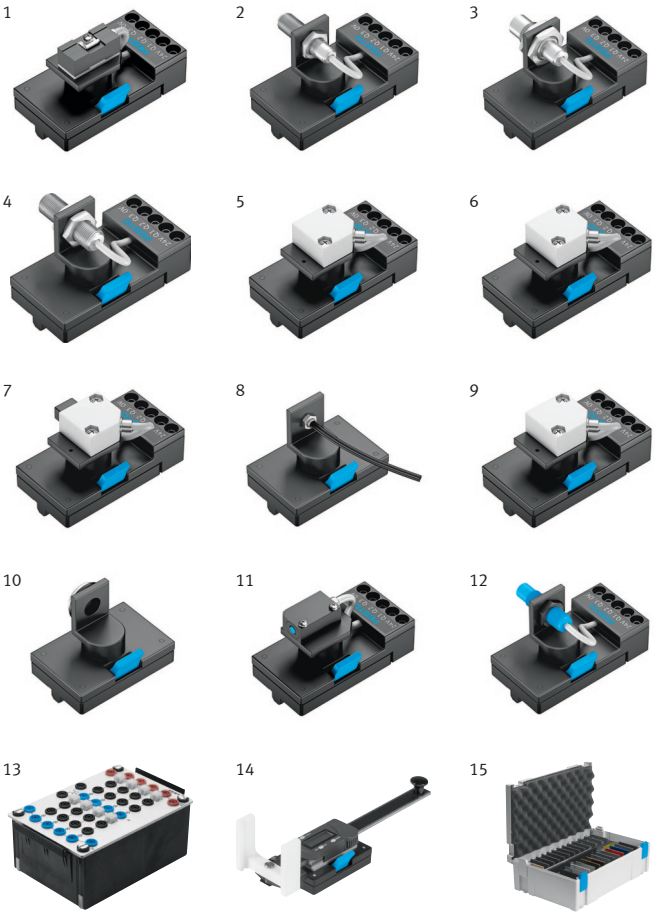
Complete equipment set TP 1311	**566918**

The most important components at a glance:

1	1x	Proximity sensor, magneto-resistive	566199
2	1x	Proximity sensor, inductive, M12	548643
3	1x	Proximity sensor, inductive, M18	548645
4	1x	Analog sensor, inductive, M12	548644
5	1x	One-way light barrier, receiver	548647
6	1x	One-way light barrier, transmitter	548648
7	1x	Fibre-optic unit	548655
8	1x	Fibre-optic cable	548659
9	1x	Retro-reflective sensor	548649
10	1x	Reflector (triple mirror), 20 mm	548650
11	1x	Diffuse sensor with background suppression	548656
12	1x	Proximity sensor, capacitive, M12	548651
13	1x	Indicator unit and distributor, electrical	162244
14	1x	Slide unit	572740
15	1x	Set of test objects	549830

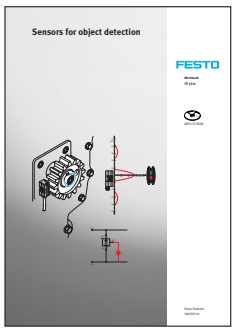
Accessories, also order:

Aluminium profile plate ➔ Page 238
Slotted mounting plate ➔ Page 238
Tabletop power supply unit ➔ Page 239
Power supply unit for mounting frame ➔ Page 239
4 mm Safety laboratory cables ➔ Page 247



Also order:

Workbook



Fifteen projects based on industrial examples, suitable for equipment set TP 1311, each including problem descriptions, parameters and project tasks, deal in detail with the specific subject of sensors for object detection. The main topics are configuration, function and the influence of material properties on behaviour, possible applications and how to select a sensor based on the application conditions. The content topics are covered by exercises using magnetic, inductive, optical and capacitive proximity sensors.

The workbook includes:
– Sample solutions
– Training notes
– Multimedia CD-ROM with graphics, photos of industrial applications
– Exercise sheets for trainees

Campus licence (➔ Page 53):

de	**566919**
en	**566920**
es	**566921**
fr	**566922**

Supplementary media
– WBT Sensor technology 2: Sensors for object detection
– Textbook: Proximity switches

Equipment set TP 301

Programmable logic controllers


1

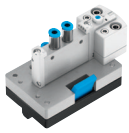

2


3


4

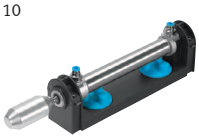

5


6


7


8


9


10


11


12


13

Complete equipment set TP 301			**167101**

The most important components at a glance:

1	1x	Signal input, electrical	162242
2	1x	Indicator unit and distributor, electrical	162244
3	1x	Proximity sensor, inductive, M12	548643
4	1x	Proximity sensor, capacitive, M12	548651
5	1x	Proximity sensor, optical, M12	572744
6	4x	Proximity sensor, electronic, with cylinder mounting	2344752
7	1x	5/2-way solenoid valve with LED	567199
8	1x	5/2-way double solenoid valve with LED	567200
9	1x	Single-acting cylinder	152887
10	2x	Double-acting cylinder	152888
11	1x	Start-up valve with filter control valve	540691
12	1x	Manifold	152896
13	2x	Plastic tubing, 4 x 0.75 silver 10 m	151496

Recommended accessories:

Aluminium profile plate ➔ Page 238	
Universal connection unit, digital (SysLink)	162231
Tabletop power supply unit ➔ Page 239	
Power supply unit for mounting frame ➔ Page 239	
4 mm Safety laboratory cables ➔ Page 247	
EduTrainer ➔ Pages 208 – 218	

Supplementary equipment set from TP 201 to TP 301

Supplements the Electropneumatics basic level equipment set, TP 201, to form a complete Programmable Logic Controllers equipment set, TP 301.

Complete supplementary equipment set TP 201 – TP 301			**167102**

The most important components at a glance:

3	1x	Proximity sensor, inductive, M12	548643
4	1x	Proximity sensor, capacitive, M12	548651
6	2x	Proximity sensor, electronic, with cylinder mounting	2344752

Training aims
- Benefits of the PLC compared to conventional solutions such as electrical, electropneumatic or electrohydraulic solutions
- Functions of system components of a PLC
- Commissioning a PLC
- Application criteria for mechanical, optical, capacitive and inductive proximity sensors
- Sequence control and parallel logic
- Systematic programming of a PLC in accordance with international standard IEC 1131-3
- IEC 1131-3 programming languages: Function Block Diagram, Ladder Diagram, Statement List, Structured Text and Sequence Language

A PLC (Festo FC34, SIMATIC S7-300 or Allen Bradley) is required to carry out the tasks. Connection with universal connection unit and I/O data cable (SysLink) or with 4 mm safety connectors. I/O modules can be connected via 4 mm safety connectors.

Also order:

Workbook Programmable Logic Controllers, Basic level

Campus licence (➔ Page 53):

de	**93313**
en	**93314**
es	**94427**

Recommended training media

Textbook Programmable Logic Controllers, Basic level

EduTrainer® Universal Preferred versions MPS®/MPS® PA

A4 rack with SIMATIC S7-300

S7-313C (ON, A)	**567098**
S7-313C-2DP	**567103**
S7-315F-2PN/DP ➔ see figure	**567104**
S7-315F-2PN/DP (ON, A)	**567099**

Note

The EduTrainer® Universal as preferred version for MPS® is equipped with a power supply unit; the preferred version for MPS® PA has no power supply unit (ON) but has analogue inputs and outputs (A).

Recommended accessories:

I/O data cable with SysLink connectors (IEEE 488) at both ends, 2.5 m	34031
Analogue cable, parallel, 2 m	529141
Safety laboratory cable, 3 m	571817
PC adapter, USB	539006
Programming software STEP 7 ➔ Page 46	
IEC power cable 90° ➔ Page 239	

Other accessories:

Digital I/O module SM323 8I/8O	184550
Digital I/O module SM323 16I/16O	529142
Front-panel connector, Screwed contacts, 20-pin	184554
Front-panel connector, Screwed contacts, 40-pin	660560
Analogue I/O module S7-SM334-4E/2A	184804
AS-interface master upgrade S7-300 CP 343-2 AS-i Master	533028
Trainer Package, Internet link S7-300, CP343-1 Advanced	533027
Analogue cable, crossover, 2 m	533039

The industrial standard

The modular concept of the SIMATIC S7-300 offers professional PLC technology from the market leader, Siemens. With various CPUs, CPs and I/O modules, the S7-300 meets all automation requirements. This controller facilitates the use of a wide range of fieldbuses such as AS-interface, Profibus DP and Profinet.

The STEP 7 programming environment makes all industrially used PLC programming languages available, such as AWL, KOP, FUP, STEP 7-SCL, STEP 7-GRAPH and STEP 7-HiGraph.

EduTrainer® Universal with:

CPU 313C
– 64 KB RAM for program and data
– Includes MMC
– Interfaces: MPI
Inputs/outputs:
– 24 digital inputs (24 V DC)
– 16 digital outputs (24 V DC, 400 mA)
– 4 analogue inputs, 11 bit, 20 ms, (±10 V, 0 – 10 V, ±20 mA, 0/4 – 20 mA), 1 Pt100 input
– 2 analogue outputs, (±10 V, 0 – 10 V, ±20 mA, 0/4 – 20 mA)

CPU 313C-2DP
– 64 KB RAM for program and data
– Includes MMC
– Interfaces: MPI, Profibus DP
Inputs/outputs:
– 16 digital inputs (24 V DC)
– 16 digital outputs (24 V DC, 400 mA)

CPU 315F-2PN/DP
– 256 KB RAM for program and data
– Includes MMC
– Interfaces: MPI, DP, PN
SM 323:
– 16 digital inputs (24 V DC)
– 16 digital outputs (24 V DC, 500 mA)
SM 334 (only in order no. 567099):
– 4 analogue inputs, 8 bit (0–10 V, 0 – 20 mA)
– 2 analogue outputs, (0 – 10 V, 0 – 20 mA)

The holder system:
– EduTrainer® A4 rack, desktop variant size 1, W x H 305 mm x 300 mm
– 19” module simulation plate with 2x SysLink plug connector for MPS® station and control panel each with 8 digital inputs and 8 digital outputs and 1 x D-sub 15-pin plug connection with 4 analogue inputs and 2 analogue outputs; emergency stop jumper to connect a safety circuit for disconnecting 8 digital outputs.
– Integrated 110/230 V/24 V, 4.5 A power supply unit (only in order no. 567103 and 567104)
– Can be placed on the desk or in an MPS® station.
– Stable, powder-coated, sheet-steel holder system
– Can be extended with 19” simulation modules ➔ Pages 219 – 220

EduTrainer® Universal Preferred versions MPS®/MPS® PA

A4 rack with Festo CPX-CEC

World language IEC 61131-3

Benefit from automation programming in a world language, based on IEC 61131-3.

For standardised preprocessing: CPX-CEC as an intelligent remote I/O terminal.

Better performance

CPX-CEC means improved cycle times and more connectable actuators. The modular I/O system with up to 512 I/Os and CAN master functionality offers complete flexibility. Intelligent pneumatic and electric axes can be activated via fieldbus. The extensive Codesys® function library provides diagnostics and condition monitoring options. Open and closed-loop control – the solution for efficient automation of workstations or via remote control.

EduTrainer® Universal with CODESYS® embedded controller CPX-CEC:

CPX-CEC

– 32 bit MIPS processor, 400 MHz
– Data memory 32 MB flash/ 32 MB RAM
– 20 MB flash/8 MB RAM user memory
– 32 KB non-volatile memory
– Communication network Ethernet 10/100 Base-T
– Integrated web server
– Master CANopen fieldbus
– PLC operating system Codesys® 2.3 Full RTS
– Diagnostic handheld for CPX terminal can be connected
– All FEDs can be connected via Ethernet
– Visualisation OPC server for connection to any SCADA packages

EduTrainer® Universal digital (MPS®)

– Codesys® V2.3 provided by Festo programming software
– Ethernet cable for programming the CPX-CEC
– 16 digital inputs (24 V DC)
– 16 digital outputs (24 V DC, maximum 500 mA)
– SysLink interfaces
– Power supply: 24 V DC power supply unit integrated

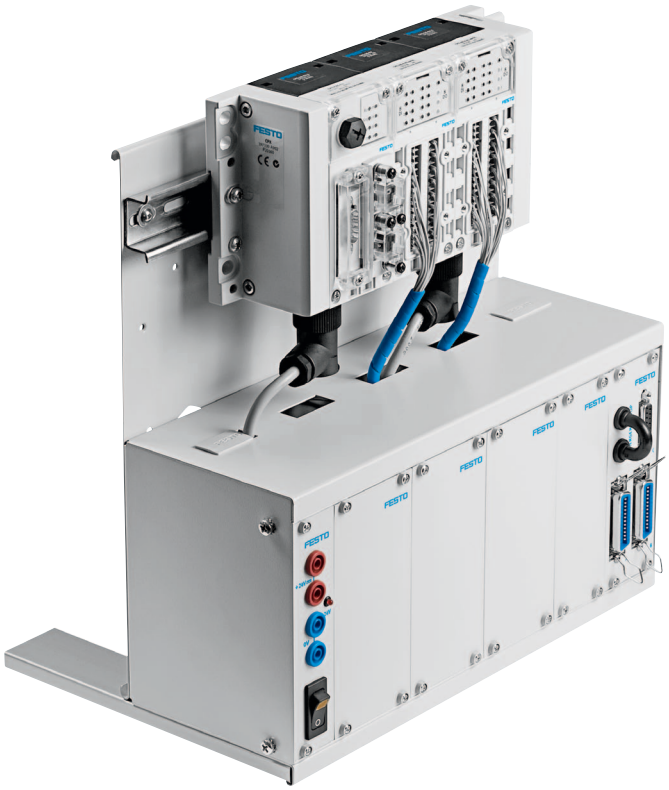
EduTrainer® Universal analogue (MPS® PA)

Same as EduTrainer® Universal digital with additional analogue expansion

– Analogue inputs: 4 (12 Bit, 0 – 10 V, 0/4 – 20 mA)
– Analogue outputs: 2 (12 Bit, 0 – 10 V, 0/4 – 20 mA)
– Without power supply unit

The holder system:

– EduTrainer® A4 rack, desktop variant, size 1 (order no. 567274) or size 2 (order no. 567275), W x H 305/458 mm x 300 mm
– 19” module simulation plate with 2x SysLink plug connector for MPS® station and control panel each with 8 digital inputs and 8 digital outputs and 1 x Sub-D 15-pin plug connection with 4 analogue inputs and 2 analogue outputs; emergency stop jumper to connect a safety circuit for disconnecting 8 digital outputs.
– Integrated 110/230 V/24 V, 4.5 A power supply unit (only in order no. 567274)
– The size 1 rack can be placed on a table or in an MPS® station.
– Stable, powder-coated, sheet-steel holder system
– Can be extended with 19” simulation modules ➔ Pages 219 – 220



CPX-CEC digital ➔ see figure	**567274**
CPX-CEC analogue (ON, A)	**567275**

Notes

The EduTrainer® Universal as preferred version for MPS® is equipped with a power supply unit; the preferred version for MPS® PA has no power supply unit (ON) but has analogue inputs and outputs (A).

Includes Ethernet cable for programming the CPX-CEC and Codesys® V2.3 programming software provided by Festo (➔ Page 47).

Recommended accessories:

I/O data cable with SysLink connectors (IEEE 488) at both ends, 2.5 m	34031
Analogue cable, parallel, 2 m	529141
Safety laboratory cable, 3 m	571817
IEC power cable 90° ➔ Page 239	

Other accessories:

Analogue terminal	526213
Analogue cable, crossover, 2 m	533039

EduTrainer® Universal Preferred versions MPS®/MPS® PA

A4 rack with Allen Bradley ML 1500

ML 1500 digital ➔ see figure	**567107**
ML 1500 analogue (ON, A)	**567102**

Note

The EduTrainer® Universal as preferred version for MPS® is equipped with a power supply unit; the preferred version for MPS® PA has no power supply unit (ON) but has analogue inputs and outputs (A).

Recommended accessories:

I/O data cable with SysLink connectors (IEEE 488) at both ends, 2.5 m	34031
Analogue cable, parallel, 2 m	529141
Safety laboratory cable, 3 m	571817
Programming cable ML 1500	535827
RSLogix 500 Starter, en	535829
IEC power cable 90° ➔ Page 239	

Other accessories:

Digital extension ML 1500	535822
Analogue extension ML 1500	541126
Ethernet extension ML 1500	541127
Analogue cable, crossover, 2 m	533039

The standard in North America

The Micro Logix modular concept from Allen Bradley offers professional PLC technology. With various CPUs and modules, the ML series meets all automation requirements.

The ML 1500 facilitates the use of a wide range of fieldbuses such as DeviceNet and Ethernet. The RSLogix 500 programming software makes the PLC programming language LD available.

EduTrainer® Universal with Allan-Bradley ML 1500:

ML 1500 + compact IN/OUT module
– Program memory: 7K + 8k
– Interfaces: RS-232-C
– Programmable PID controller
I/Os:
– 22 digital inputs (24 V DC), of which 8 high speed counter via config
– 16 digital outputs (24 V DC, 1 A), of which 2 high speed outputs via config, 2 integrated analogue potentiometers

EduTrainer® Universal digital (MPS®)
– Power supply: 24 V DC power supply unit integrated
SysLink interfaces:
– 1 x cable for connection to station
– 1 x cable for connection to console
– 1 x bridge for connection to emergency stop

EduTrainer® Universal analogue (MPS® PA)
Same as EduTrainer® Universal digital with additional analogue expansion
– Without power supply unit

CPU modules:

Digital extension ML 1500
– Digital I/O module 1769-IQ6X0W4-4I/O (6 IN/4 OUT)

Analogue extension ML 1500
– Analogue I/O module 1769-IF4XOF2 (4 IN/2 OUT)

Ethernet extension ML 1500
– ENI Ethernet interface 1761-NET-ENI

The holder system:
– EduTrainer® A4 rack, desktop variant size 1, W x H 305 mm x 300 mm
– 19” module simulation plate with 2x SysLink plug connector for MPS® station and control panel, each with 8 digital inputs and 8 digital outputs and 1 x Sub-D 15-pin plug connection with 4 analogue inputs and 2 analogue outputs; emergency stop jumper to connect a safety circuit for disconnecting 8 digital outputs.
– Integrated 110/230 V/24 V, 4.5 A power supply unit (only with order no. 567107)
– Can be placed on a desk or in an MPS® station
– Stable, powder-coated, sheet-steel holder system
– Can be extended with 19” simulation modules ➔ Pages 219 – 220

EduTrainer® Universal Preferred versions MPS®/MPS® PA

A4 rack with Mitsubishi MELSEC FX1N

High functionality

The modular concept of the MELSEC FX1N from Mitsubishi offers professional PLC technology from a high-tech company.

The FX1N with its various upgrades provides all the functions required of a mini control system for automation technology. The FX1N facilitates the use of a wide range of fieldbuses such as AS-interface, Profibus DP and Ethernet. The MELSOFT GX IEC Developer programming environment makes industry-related and IEC 61131-3-compliant PLC programming languages such as IL, LD, FBD, SFC and ST available.

EduTrainer® Universal with MELSEC FX1N-40MT-DSS
PLC with integrated I/Os:

FX1N
– 8 k program memory
– Interfaces: RS 232
I/Os:
– 24 digital inputs (24 V DC)
– 16 digital outputs (24 V DC, 500 mA)

EduTrainer® Universal digital (MPS®)
– Power supply: Integrated 24 V DC power supply unit
SysLink interfaces:
– 1 x cable for connection to station
– 1 x cable for connection to console
– 1 x bridge for connection to emergency stop

EduTrainer® Universal analogue (MPS® PA)
Same as EduTrainer® Universal digital with additional analogue expansion
– Without power supply unit

CPU modules:

Analogue extension FX1N
– Analogue I/O module FX0N-3A (2 IN/1 OUT)

AS-interface extension FX1N
– AS-i master FX2N-32ASI-M

Ethernet extension FX1N
– Ethernet FX2NC-ENET-ADP + FX1NCNV-BD

The holder system:
– EduTrainer® A4 rack, desktop variant size 1, W x H 305 mm x 300 mm
– 19” module simulation plate with 2x SysLink plug connector for MPS® station and control panel, each with 8 digital inputs and 8 digital outputs and 1 x Sub-D 15-pin plug connection with 4 analogue inputs and 2 analogue outputs; emergency stop jumper to connect a safety circuit for disconnecting 8 digital outputs.
– Integrated 110/230 V/24 V, 4.5 A power supply unit (only with order no. 567106)
– Can be placed on a desk or in an MPS® station
– Stable, powder-coated, sheet-steel holder system
– Can be extended with 19” simulation modules ➔ Pages 219 – 220

MELSEC FX1N analogue (ON, A) ➔ see figure	**567101**
MELSEC FX1N digital	**567106**

Note
The EduTrainer® Universal as preferred version for MPS® is equipped with a power supply unit; the preferred version for MPS® PA has no power supply unit (ON) but has analogue inputs and outputs (A).

Recommended accessories:

I/O data cable with SysLink connectors (IEEE 488) at both ends, 2.5 m	34031
Analogue cable, parallel, 2 m	529141
Safety laboratory cable, 3 m	571817
Programming cable FX1N	540683
Mitsubishi GX Trainer Package, de/en	541149
IEC power cable 90° ➔ Page 239	

Other accessories:

Analogue extension FX1N	541128
AS-interface extension FX1N	541129
Ethernet extension FX1N	541131