# Training Cases

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</table>
Training Cases
Important information

Preliminary information

Purpose of the documentation
This product information/documentation gives you an overview of all important points with regard to training equipment. The accompanying documentation must be read before commissioning and operation.

Purpose of the training equipment
The training equipment is a switchgear assembly which complies with EN 61439-1 in the maintenance and commissioning mode. It is aimed at electrically qualified personnel in the target groups:

- Planners
- Assemblers
- Start-up engineers
- Maintenance and service personnel
- Operators

Operating the training equipment
The equipment may only be operated in contamination class 2 facilities. The degree of contamination is described in the IEC 61010 standard:

- Only non-conductive contamination.
- Temporary conductivity due to condensation must occasionally be expected.

Furthermore, the training equipment and/or exhibits may only be connected and operated by qualified or specially trained personnel. The devices are not to be used for unattended continuous operation.

EMC / Radio Frequency Interference
Caution

This system is intended for use in the industrial sector. When operated in a residential area, it can cause radio frequency interferences. In this case, the operator may be required to take suitable measures.

Qualified personnel
The product/system related to this documentation may only be handled by qualified personnel for the respective task in compliance with the associated documentation for the respective task, in particular, the safety and warning instructions contained in it.

Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding possible dangers when dealing with these products/systems.

Proper use
The system is a switchgear assembly which complies with EN 61439-1 in the maintenance and commissioning mode. In order to ensure maximum safety, the intended use of the product is indispensable.

The system has an IP20 degree of protection value and may only be operated in dry rooms with contamination class 2 and under supervision of a certified electrician. This device is intended for use in the field of training. It can cause radio frequency interferences. In this case, the operator may be required to take suitable measures.

Auxiliary materials and components used
The auxiliary materials and components used are listed in a parts list and are appended to the documentation.

Product modifications
No modifications may be made to the product. Any modifications to the product would cancel the CE-conformity as well as the warranty.

Electrical voltages

Operation using low voltage
(PELV or SELV; \( \leq AC \) 50 V; \( \leq DC \) 120 V)

When operating using low voltage, the generally known safety measures for dealing with electrical equipment must be observed.

Operation using 230/400 V

Qualified personnel must ensure that the device is only operated using a connection point with a series-connected residual current device (RCD Type B or B+; Rated current \( I_{\Delta n} \leq 30 \) mA) or using an isolating transformer.

Universal current-sensitive, residual current device (RCD)
Type B or B+

When using a frequency inverter (single and multi-phase) in the overall system, these are to be operated after a universal current-sensitive, residual current device (RCD) of the Type B or B+.

Equipment with frequency inverters can generate high frequency AC fault currents or smooth DC fault currents which are not detected by Type A and therefore do not initiate a trigger. Furthermore, these smooth DC fault currents lead to the premagnetization of the residual current device thus making it ineffective.

The connection must be made directly after the power connection point - for example, in the main distribution board. None of the protective devices (RCD Type A) can be series-connected!
When configuring and installing electrical installations, electrical loads that can generate smooth DC residual currents in the event of a fault must be assigned a separate electrical circuit with a universal current-sensitive residual current protective device (type B) (see configuration example).

Frequency converter with filter

When using a frequency converter with (integrated or external) filter, the ELCB - earth leakage circuit-breaker (RCD) is triggered when it is directly connected to the power supply system.

For this reason, the device may only be operated with an isolating transformer (separator transformer).

In this case, the device must **not be connected to a shielded Ethernet-/ Profibus-/ USB-cable** when the cable shield is connected to PE (e.g., via the computer or PG housing).

Short-circuit withstandability

The training equipment may only be operated on electric circuits whose rated short-time withstand current or rated short-circuit current does not exceed 10 kA and the maximum prospective short-circuit current does not exceed 17 kA.

This is generally ensured through a standards-compliant building installation with circuit-breakers.

Danger to life due to electric shock when using unsuitable overcurrent protective devices

Residual current devices (RCD) are not permitted as the sole protective measure against electric shock. Always install residual current devices in addition to suitable overcurrent protective devices (circuit-breakers).

Danger to life due to contact with voltage-carrying parts when using damaged devices

Improper handling of devices can lead to their damage. Hazardous voltages on the housing or on exposed components can be present with damaged devices.

- For transport, storage and operation, adhere to the limits specified in the technical data.
- Do not use any damaged devices

Proof test

Because this training equipment is a mobile device, the tests required according to DGUV Regulation 3 (of the German Social Accident Insurance) must be performed. The assessment criteria to be used are defined in DIN VDE 0701-0702.

Grid connection check

Before commissioning the system, check the mains connection (earthing contact socket) and the (cold device) supply line.

**In this case, priority must be paid to a functioning protective conductor connection (PE)!**

The test may e.g. done by suitable socket testers! For the testing of the (cold device) supply line, an adapter from protective contact socket to IEC plug is necessary.

**WARNING!**

**Danger to life due to fire or electric shock when using unsuitable residual current devices**

The frequency inverter can cause a current in the protective conductor. This current can cause a fault tripping of the residual current devices (RCD). In case of failure (ground fault) the fault current can contain a DC component which prevents the desired triggering of the RCD/RCM with the result of a fire or electric shock.

Use an RCD of the Type B or B+.
Training Cases
Important information

General safety information

Recycling and Disposal

Purchasing our product gives you the opportunity to return the instrument to collection points for waste electrical equipment at the end of its lifespan. Dispose of the device according to the respective regulations in your country.

The EU Directive 2012/19/EU (WEEE) regulates the return and recycling of waste electrical and electronics equipment. Manufacturers of electrical and electronics equipment are obliged to take back and recycle any electrical devices sold for no charge. Electrical devices must not be disposed of through the "normal" waste disposal channels. Electrical devices must be disposed of and recycled separately. All devices that fall under this directive must feature this logo.

Service, Repairs

Repairs/Returns

Repairs to the device may only be carried out by Siemens authorized qualified personnel. In case of a defect, please contact us in order to clarify the necessary measures.

Siemens AG
Retouren Center
c/o Geis Industrie-Service GmbH
Tor 1-4
Kraftwerkstr. 25a
91056 Erlangen
Germany
Application

The training case is used to realistically practice the programming, operating and commissioning of SIMATIC S7-1500 controllers within TIA Portal.

Design

The training case consists of:
- SIMATIC CPU 1513F-1 PN with PM1507, digital and analog I/Os
- ET 200SP with IM 155-6 PN, digital and analog I/Os
- TP700 Comfort Panel
- PROFINET connecting cable
- Simulator

Technical specifications

<table>
<thead>
<tr>
<th>Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529</th>
<th>IP20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage</td>
<td>1 230 V AC / 50 Hz</td>
</tr>
<tr>
<td>Approved ambient temperature</td>
<td>0 ... 60 °C</td>
</tr>
<tr>
<td>Dimensions in mm (W × H × D)</td>
<td>600 × 420 × 340</td>
</tr>
<tr>
<td>Weight</td>
<td>18 kg</td>
</tr>
</tbody>
</table>

1) Please observe the connecting conditions of the local energy supplier.

Selection and ordering data

<table>
<thead>
<tr>
<th>Training Case S7-1500 with CPU 1513F, ET 200SP, TP700, complete with simulator</th>
<th>Article No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6ZB2310-0CW00</td>
</tr>
</tbody>
</table>

Application

The training case is used to realistically practice the programming, operating and commissioning of fail-safe SIMATIC S7-1500 controllers within Totally Integrated Automation.

Design

The training case consists of:
- SIMATIC CPU 1513F-1 PN
- ET 200SP with IM 155-6 PN with digital F-I/Os
- TP700 Comfort Panel
- Non-Contact Safety Switch SIRIUS 3SE6

Technical specifications

<table>
<thead>
<tr>
<th>Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529</th>
<th>IP20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage</td>
<td>1 230 V AC / 50 Hz</td>
</tr>
<tr>
<td>Approved ambient temperature</td>
<td>5 ... 40 °C</td>
</tr>
<tr>
<td>Dimensions in mm (W × H × D)</td>
<td>700 × 640 × 330</td>
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<td>Weight</td>
<td>30 kg</td>
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</table>

1) Please observe the connecting conditions of the local energy supplier.

Selection and ordering data

<table>
<thead>
<tr>
<th>Safety Training Case S7-1500F with CPU 1515F, ET 200SP, TP700</th>
<th>Article No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6ZB2310-0CV00</td>
</tr>
</tbody>
</table>
# SIMATIC S7 Safety Periphery Case S7-1500F

## Application

The training case is used to simulate realistically periphery to practice the programming, operating and commissioning of failsafe SIMATIC S7-1500 controllers within Totally Integrated Automation.

## Design

The training case consists of:
- ET 200SP with IM 155-6PN with digital and analog F-I/Os
- Non-Contact Safety Switch SIRIUS 3SE6
A SIMATIC S7-1500 F-CPU is required. It is not included in the case.

## Technical specifications

<table>
<thead>
<tr>
<th>Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529</th>
<th>IP20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage</td>
<td>1 230 V AC / 50 Hz</td>
</tr>
<tr>
<td>Approved ambient temperature</td>
<td>5 … 40 °C</td>
</tr>
<tr>
<td>Dimensions in mm (W × H × D)</td>
<td>400 × 700 × 330</td>
</tr>
<tr>
<td>Weight</td>
<td>25 kg</td>
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1) Please observe the connecting conditions of the local energy supplier.

## Selection and ordering data

<table>
<thead>
<tr>
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<th>Article No.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>6ZB2310-0CT00</td>
</tr>
</tbody>
</table>

# SIMATIC S7 Training Case S7-1200

## Application

The training case is used to realistically practice the programming, operating and commissioning of SIMATIC S7-1200 controllers.

## Design

The training case comprises a SIMATIC S7-1200 automation system. The automation system is mounted in a carrying case for transportation purposes. It consists of:
- S7-1200 Power Supply
- CPU1214
- Analog output SB1234
- Analog input / output module SM 1234
- Digital input / output module SM 1223
- Switch CSM 1277
- Basic Panel KTP600
- Interface for conveyor belt model

## Technical specifications

<table>
<thead>
<tr>
<th>Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529</th>
<th>IP20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage</td>
<td>1 230 V AC / 50 Hz</td>
</tr>
<tr>
<td>Approved ambient temperature</td>
<td>0 … 60 °C</td>
</tr>
<tr>
<td>Dimensions in mm (W × H × D)</td>
<td>390 × 310 × 290</td>
</tr>
<tr>
<td>Weight</td>
<td>6 kg</td>
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1) Please observe the connecting conditions of the local energy supplier.

## Selection and ordering data

<table>
<thead>
<tr>
<th>SIMATIC S7 Training Case S7-1200 with CPU 1214</th>
<th>Article No.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>6ZB2310-0CG00</td>
</tr>
</tbody>
</table>
### SIMATIC S7 Training Module ET 200S PNIO

**Application**

The training case is used to realistically practice the programming, operating and commissioning of distributed I/Os. It serves as an extension of the SIMATIC S7-1200 training devices.

**Design**

The training module comprises a modular ET 200S and a 37-pin clamp-type terminal block for connecting a simulation model. It consists of:

- Interface module IM 151-3 PN
- Power module PM-E 24 V DC
- 2 Digital input modules 4 DI × 24 V DC
- 2 Digital input modules 4 DO × 24 V DC / 0.5 A
- Power module PM-E 24 V DC
- 1 Digital input modules 4/8 F-DI × 24 V DC
- 1 Digital input modules 4 F-DO × 24 V DC / 2 A
- DI/DA clamp-type terminal block, 37-pin

**Technical specifications**

- Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529: IP20
- Input voltage: 24 V DC
- Approved ambient temperature:
  - Storage and transportation: -20 ... +60 °C
  - Operation: 5 ... 40 °C
- Dimensions in mm (W × H × D): 280 × 200 × 355
- Weight: 4 kg

1) Please observe the connecting conditions of the local energy supplier.

**Selection and ordering data**

| Training Module ET 200S PNIO | Article No. | 6ZB2310-0CJ00 |

### Motion Control Module for S7-1200 TG

**Application**

The training module is used to work with the Technology Functions (Motion Control Axis and PID Loop Control) of the SIMATIC S7-1200 in realistically practice exercises. It serves as an extension of the S7-1200 training devices.

**Design**

It consists of:

- SIMATIC CPU 1211C DC/DC/DC
- Stepper motor with 360° disc and pulse encoder
- Sensor for the neutral position
- RC element with printed circuit
- 230 V AC power supply

**Technical specifications**

- Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529: IP20
- Input voltage: 1 230 V AC / 50 Hz
- Approved ambient temperature: 0 ... 60 °C
- Dimensions in mm (W × H × D): 390 × 210 × 310
- Weight: 6 kg

1) Please observe the connecting conditions of the local energy supplier.

**Selection and ordering data**

| Motion Control Module for S7-1200 training device | Article No. | 6ZB2310-0CP00 |
### SIMATIC S7 Training Case S7-300F

**Application**

The training case is used to realistically practice the programming, operating and commissioning of fault-tolerant S7-300 controllers.

**Design**

The training case comprises a SIMATIC S7-300F automation system, emergency cutoff buttons, contactors, door switches and signal displays. The automation system is mounted in a carrying case for transportation purposes. It consists of:

- Mounting rail SIMATIC S7
- Operational power supply PS 307
- Main module CPU 315F-2 PN/DP
- Bus slot
- Top assembly IM 151, PROFINET IO
- Power module, incl. terminal module
- F-DI modules, incl. terminal modules
- F-DO modules, incl. terminal module
- F power module
- DI module, incl. terminal modules
- DO module, incl. terminal modules
- Emergency cutoff switch
- Reset
- Contacts
- Mechanical systems

**Technical specifications**

- Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529: IP20
- Input voltage: 1 230 V AC / 50 Hz
- Approved ambient temperature: 0 ... 60 °C
- Dimensions in mm (W × H × D): 520 × 410 × 350
- Weight: approx. 15 kg

**Selection and ordering data**

- Training Case S7-300F with CPU 315F (96 KB) complete, incl. emergency cutoff switch, contacts, door switches and signal displays: 6ZB2310-0CQ00

### PROFINET Case S7-300

**Application**

The training case is used to demonstrate and to practice PROFINET within Totally Integrated Automation.

**Design**

The training case consists of:

- SIMATIC CPU 315-2PN/DP
- ET 200S with IM 151-3PN with digital I/Os
- PROFINET connecting cable
- Simulator

**Technical specifications**

- Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529: IP20
- Input voltage: 1 230 V AC / 50 Hz
- Approved ambient temperature: 0 ... 60 °C
- Dimensions in mm (W × H × D): 250 × 350 × 300
- Weight: approx. 7 kg

**Selection and ordering data**

- PROFINET Case S7-300: 6ZB2520-0AH00
Application

The training case is used to practice the engineering and programming of several SIMATIC products as OPC UA server or client.

Design

The training case consists of:
- SIMATIC S7-1500 CPU 1513F-1 PN
- SIMATIC S7-1200 CPU 1214C
- SIMATIC RF600 reader RF615R incl. antenna
- Leuze 2D codereader
- SCALANCE XB008 Switch

Technical specifications

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<td>Protection class</td>
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<td>DIN VDE 0470 Part 1/EN 60529/ IEC 529</td>
<td></td>
</tr>
<tr>
<td>Input voltage</td>
<td>1 230 V AC / 50 Hz</td>
</tr>
<tr>
<td>Approved ambient temperature</td>
<td>0 … 55 °C</td>
</tr>
<tr>
<td>Dimensions in mm (W × H × D)</td>
<td>460 × 670 × 340</td>
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<td>Weight</td>
<td>approx. 23 kg</td>
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1) Please observe the connecting conditions of the local energy supplier.

Selection and ordering data

<table>
<thead>
<tr>
<th>Article No.</th>
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</thead>
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<tr>
<td>Training Case OPC UA</td>
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<tr>
<td>6ZB2520-0AK00</td>
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</table>
The SIMATIC PCS 7 Training Case Level 2 CPU410 is used to provide practical training in the configuration of a PCS 7 process control system using a real CPU 410-5H PLC. The Training Case offers support for all PCS 7 standard courses, although it does not include a PCS 7 installation.

**Design**

It comprises the following main components:

- Industrial PC 647D as ES/OS with a CP1623 and a standard network card for connection to a terminal bus
- PC accessories including mouse, international keyboard and 24” monitor
- AS rack with CPU 410-5H (with System Expansion Card for 100 PO) and an Industrial Ethernet CP 443-1 for connection to a system bus
- ET 200M distributed I/O for PROFIBUS with 4 signal modules (DI/DO/AI/AO), with diagnostics capability and high-precision time stamping
- ET 200M distributed I/O for PROFINET with 2 signal modules (DI/DO)
- PCS 7 signal box for connection to distributed I/O via a connecting cable and 4 front end plugs

**Technical specifications**

<table>
<thead>
<tr>
<th>Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529</th>
<th>IP20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage</td>
<td>1 230 V AC / 50 Hz</td>
</tr>
<tr>
<td>Approved ambient temperature</td>
<td>5 … 40 °C</td>
</tr>
<tr>
<td>Dimensions in mm (W × H × D)</td>
<td>620 × 845 × 598</td>
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<tr>
<td>Weight</td>
<td>approx. 68 kg</td>
</tr>
</tbody>
</table>

**Selection and ordering data**

| SIMATIC PCS 7 Training Case Level 2 CPU410 incl. PCS 7 training I/O box | 6ZB2320-0AN00 |

The SIMATIC PCS 7 Training I/O Box is used for practical training to learn how to access a SIMATIC PCS 7 process control system’s sensors and actuators connected via a distributed I/O. The Training I/O Box can be used to extend existing training devices. The Training I/O Box is connected to the front of the signal modules using a cable with 4 front-end plugs. The cable can be adapted to the existing signal modules according to customer requirements.

**Design**

The SIMATIC PCS 7 Training I/O Box comprises:

- 4 buttons, 4 knob switches, 1 emergency stop switch
- 1 relay for simulation of response of an open/close valve with feedback and LED display of the feedback
- 4 lamps
- 2 voltmeters with LCDs and 2 potentiometers for manual setting of a voltage between 0 and 10 V DC
- 2 switches for selecting the voltage to be measured (from signal module or potentiometer)
- 1 switch for simulating an open-circuit on a DI channel
- 1 switch for simulating a short-circuit to ground on a AO channel
- 1 switch for simulating a power failure for a DI module

**Requirements**

An ET 200M distributed I/O with the following components is a minimum requirement for successful deployment:

- DI module DI 16 × DC 24 V (6ES7321-7BH01-0AB0) or at least 16 input channels, with diagnostic capability
- DO module DO 16 × DC 24 V/0.5 A (6ES7322-8BH10-0AB0) or at least 8 output channels, with diagnostic capability
- AI module AI 8 × 12 Bit (6ES7331-7KF02-0AB0) with at least 4 input channels, with diagnostic capability
- AO module AO 4 × 12 Bit (6ES7332-5HD01-0AB0) with at least 4 output channels, with diagnostic capability

**Technical specifications**

<table>
<thead>
<tr>
<th>Degree of protection according to DIN VDE 0470 Part 1/EN 60529/IEC 529</th>
<th>IP20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permitted ambient temperature</td>
<td>5 … 40 °C</td>
</tr>
<tr>
<td>Dimensions in mm (W × H × D)</td>
<td>280 × 130 × 190</td>
</tr>
<tr>
<td>Weight</td>
<td>4 kg</td>
</tr>
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</table>

**Selection and ordering data**

| SIMATIC PCS 7 Training I/O Box (including connecting cable) | 6ZB2320-0A00 |

| Customized connecting cables | On request |
**Training Cases**

**DCS Digital Field Unit**

**Application**

Standard training equipment for the SIMATIC PCS 7 course portfolio. The transportable case can be combined with any automation system with a PROFIBUS DP interface.

The DCS Digital Field Unit is used for practical training of field level configuration of a process control system and connection to a real CPU 410-5H controller. For this purpose, it can be combined with the SIMATIC PCS7 Case Level 2 CPU410 or another training device which contains a CPU 410-5H automation system.

The training case offers support for all SIMATIC PCS 7 standard courses. SIMATIC PCS 7 service courses are the preferred field of application.

**Design**

The training case comprises the following main components:

- 1 ET 200SP HA PROFINET IO Device
- 1 digital input module
- 1 configurable I/O-module
- 1 SIMATIC Compact Field Unit
- 1 ET 200M PROFIBUS Slave with
  - 1 HART analogue input module
- 2 DP/PA couplers
- 1 active field distributor AFD4
- 1 PT100 temperature sensor
- 1 transmitter Th300 for HART
- 1 transmitter Th400 for PROFIBUS PA

**Technical specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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<tbody>
<tr>
<td>Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529</td>
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<tr>
<td>Input voltage</td>
<td>1 230 V AC / 50 Hz</td>
</tr>
<tr>
<td>Approved ambient temperature</td>
<td>5 ... 40 °C</td>
</tr>
<tr>
<td>Dimensions in mm (W × H × D)</td>
<td>620 × 675 × 640</td>
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<tr>
<td>Weight</td>
<td>24 kg</td>
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</tbody>
</table>

1) Please observe the connecting conditions of the local energy supplier.

**Selection and ordering data**

<table>
<thead>
<tr>
<th>DCS Digital Field Unit</th>
<th>Article No.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>6ZB2320-0AQ00</td>
</tr>
</tbody>
</table>
Training Cases
SINAMICS

Training Case SINAMICS G120 TIA with PM240-2

**Application**

This training case is used for training of the SINAMICS G120 (The picture shows the training case SINAMICS G120 TIA with upgrade set servo). The upgrade set servo can be integrated in the existing case SINAMICS G120 TIA.

**Design**

- Compact training case SINAMICS G120 TIA with PM240-2
  - Power Module PM240-2 1 AC 230 V
  - Control Unit CU240E-2 PN F
  - Induction motor 1LA7 with encoder and brake
  - Switches and LEDs for control via terminal strip
  - SIMATIC S7 CPU 1211C
  - The Control Unit is connected via a Sub-D connector to the case. Therefor easy interchange to other CUs with adapter cable.

- Upgrade set servo

  Upgrade with servo motor 1FK7 is possible. Mating plug is already in the case. The upgrade set includes:
  - Adapter cable for Control Unit CU305 to Sub-D
  - Servo motor SIMOTICS S 1FK7
  - Motor and encoder cable
  - Mounting and cover
  - Screws and mounting parts

**Technical specifications**

- Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529: IP20
- Input voltage: 1 230 V AC / 50 Hz
- Approved ambient temperature: 0 ... 60 °C
- Dimensions in mm (W × H × D): 390 × 310 × 290
- Weight: approx. 12 kg

**Selection and ordering data**

<table>
<thead>
<tr>
<th>SINAMICS G120 TIA</th>
<th>Article No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training Case with PM240-2</td>
<td>6ZB2480-0CS00</td>
</tr>
<tr>
<td>Upgrade set servo</td>
<td>6ZB2480-0CR00</td>
</tr>
</tbody>
</table>


Training Case SINAMICS S120

**Application**

The training case is used to realistically practice the parametrizing, operating and diagnostics of SINAMICS S120. The drive SINAMICS S120 can also be operated without SIMATIC S7-1500. Alternatively, other SIMATIC S7-1500 up to 70 mm width can be mounted. For details refer to operation manual. The device is delivered in a trolley transport case.

**Design**

- The training case consists of:
  - SINAMICS control unit CU320-2 PN
  - Smart Line module (modified for 1 AC / 230 V)
  - Double motor module D-Type, 2 x 3A
  - SIMOTICS S - 1FK7022 with DRIVE-CLiQ incremental
  - SIMOTICS S - 1FK7022 with DRIVE-CLiQ absolute
  - SIMATIC S7-1513F CPU
  - SIMATIC ET 200SP with IM 155-6PN HF and 4 modules DI, DQ, TM, AI
  - Operating box detachable
  - Output 24 V for e.g. sensor module
  - PROFINET connecting cable

**Technical specifications**

- Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529: IP20
- Input voltage: 1 230 V AC / 50 Hz
- Approved ambient temperature: 0 ... 40 °C
- Dimensions in mm (W × H × D): 340 × 500 × 310
- Weight: 28 kg

**Selection and ordering data**

<table>
<thead>
<tr>
<th>Training Case SINAMICS S120</th>
<th>Article No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>with SIMATIC S7-1500</td>
<td>6ZB2480-0CN01</td>
</tr>
<tr>
<td>without SIMATIC S7-1500</td>
<td>6ZB2480-0CT00</td>
</tr>
</tbody>
</table>
**Training Case Asynchronous Motor ASM**

**Application**
The training case serves as a supplement to the SIMATICS 120 training case for applications and asynchronous motors. Together, both training cases are used for training and acquisition of the SINAMICS S120 Vector Control drive system and, in conjunction with the AOP30, for simulating SIMATICS cabinet devices. They are also suitable for use in laboratory testing.

**Design**
- Normed asynchronous motor 1LA7060-2AA10-Z with KTY temperature sensor and HTL incremental transmitter
- Cabinet mounted SMC30 sensor module for transmitter connection via DriveCLIQ
- DC 24 V connector cable for SMC30
- External momentum can be regulated by mechanical brake

**Technical specifications**
1. The 24-supply can be supplied e.g. by the training kit SINAMCIS S120, that has suitable sockets integrated.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection class</td>
<td>IP20</td>
</tr>
<tr>
<td>Input voltage</td>
<td>24 V DC</td>
</tr>
<tr>
<td>Dimensions (W × H × D)</td>
<td>377 × 210 × 277</td>
</tr>
<tr>
<td>Weight</td>
<td>approx. 12 kg</td>
</tr>
</tbody>
</table>

**Selection and ordering data**

<table>
<thead>
<tr>
<th>Training Case ASM</th>
<th>Article No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training Case ASM</td>
<td>6ZB2480-0CB00</td>
</tr>
</tbody>
</table>

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**Training Case SINAMICS Safety Integrated**

**Application**
The training case can be used for customer presentations and for passing on technical know-how regarding configuration, commissioning, and service. The operation with CPU or TM can be selected over switches. In general the training case is used in combination with the Training Case SINAMICS S120, 2-axis system.

**Design**
- SIMATIC S7-300 CPU 315F-2 PN/DP
- 2 signal modules SM 326 with inputs and outputs
- Terminal module TM54F
- 1 emergency stop button, 2 switches, 1 LED display
- DRIVE-CliQ cable
- Integrated 24 V power supply for the modules
- Storage and transport case

**Technical specifications**
1. Please observe the connecting conditions of the local energy supplier.

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection class</td>
<td>IP20</td>
</tr>
<tr>
<td>Input voltage</td>
<td>1 230 V AC / 50 Hz</td>
</tr>
<tr>
<td>Dimensions (W × H × D)</td>
<td>340 × 320 × 300</td>
</tr>
<tr>
<td>Weight</td>
<td>approx. 8 kg</td>
</tr>
</tbody>
</table>

**Selection and ordering data**

<table>
<thead>
<tr>
<th>Training Case SINAMICS Safety Drives</th>
<th>Article No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training Case SINAMICS Safety Drives</td>
<td>6ZB2480-0CK00</td>
</tr>
</tbody>
</table>
Training Case SIMOTION D425-2 DP/PN

**Application**

For SIMOTION D applications, the SINAMICS S120 case is supplied with a D425-2 DP/PN control unit. The training case can be used for training with and acquisition of the SIMOTION D motion control system. It is also suitable for test applications in laboratories.

**Design**

- Case with optimized weight and size
- Completely assembled with transport rollers and ready to plug in
- Not regenerative
- Drive system comprising
  - SIMOTION D425-2 DP/PN control with TB30 Terminal Board
  - Smart Line Module 5 kW
  - Double Motor Module 3/3 D-type
  - 1 synchronous servo motor 1FK7022-5AK71-1AG3 with incremental encoder sin/cos 1 Vpp via SMC20
  - 1 synchronous servo motor 1FK7022-5AK71-1LG3 with absolute encoder 2048 and DRIVE-CLiQ interface
  - Reference disks for position monitoring
- Operator box for setpoint/actual value linkage via terminals
- Prepared connection option for an external motor, e.g. asynchronous motor

The training case is supplied ready for presentation, including demonstration project and license for technology package on CompactFlash Card and documentation. The SCOUT and SCOUT TIA engineering software is included in the scope of supply.

**Technical specifications**

- Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529: IP20
- Input voltage: 1 230 V AC / 50 Hz
- about transformer 1 115 V AC (USA) (not included)
- Dimensions in mm (W × H × D): 320 × 650 × 330
- Weight: approx. 34 kg

**Selection and ordering data**

- Training Case SIMOTION D425-2 DP/PN
  - TK-SIM-D425-2
  - CompactFlash Card with demo project, MultiAxes package license for D425-2
  - SIMOTION SCOUT/SCOUT TIA with motor module D-type
  - Article No.: 6ZB2470-0AL01

Upgrade Module SIMOTION D425-2 DP/PN

**Application**

The SIMOTION D425-2 DP/PN upgrade module makes possible problem-free upgrading of the SINAMICS S120 Training Case for purposes of training and acquisition with the SIMOTION D Motion Control system. It is also suitable for use in laboratory testing.

**Design**

The upgrade module consists of:

- SIMOTION D425-2 DP/PN control unit with Terminal Board TB30
- Construction angle
- CompactFlash card with MultiAxes package license D425-2
- The engineering software SCOUT and SCOUT TIA is included in the scope of supply.

**Selection and ordering data**

- Upgrade module SIMOTION D425-2 DP/PN
  - for Training Case 6ZB2480-0CM00 or 6ZB2480-0CN00 (page 10/11) with CompactFlash Card and MultiAxes package license for D425-2 and SIMOTION SCOUT/SCOUT TIA
  - Article No.: 6ZB2470-0AM00
Training Rack SINUMERIK 840D sl Touch

**Application**

The training rack SINUMERIK 840D sl Touch is suited for practical exercises for setup, operating, programming and maintenance.

**Design**

- Rack
- SINUMERIK NCU 720.3B
- Active line module 16 kW, active interface module, single motor module 3A, double motor module 5A/5A, regenerative feedback is possible
- 1 SIMOTICS S synchronous servo motor 1FK7044-7AF71-1DG0 with incremental encoder sin/cos 1 Vpp and DRIVE-CLiQ interface
- 1 SIMOTICS S synchronous servo motor 1FK7060-5AF71-1FH0 with absolute encoder 2048 and DRIVE-CLiQ interface
- SIMOTICS induction motor 1LE1002-0CB22-2AK4-Z encoder connected with SINAMICS sensor module SMC30
- Simulator connected to NCU and PLC periphery SIMATIC ET 200SP
- TFT display with touch operation SIMATIC ITC 2200 V3, microbox PC SIMATIC IPC427E and machine control panel SINUMERIK MCP 398C

The training rack is delivered build on caster, configured and ready to operate.

**Technical specifications**

<table>
<thead>
<tr>
<th>Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/ IEC 529</th>
<th>IP20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage&lt;sup&gt;1)&lt;/sup&gt;</td>
<td>3 400 V AC / 50 Hz</td>
</tr>
<tr>
<td>Approved ambient temperature</td>
<td>5 ... 40 °C</td>
</tr>
<tr>
<td>Dimensions in mm (W × H × D)</td>
<td>660 × 1 720 × 600</td>
</tr>
<tr>
<td>Weight</td>
<td>155 kg</td>
</tr>
</tbody>
</table>

<sup>1)</sup> Please observe the connecting conditions of the local energy supplier.

**Selection and ordering data**

<table>
<thead>
<tr>
<th>Training Rack SINUMERIK 840D sl Touch</th>
<th>Article No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6ZB2410-0BM00</td>
</tr>
</tbody>
</table>

Training Case SINUMERIK 840D sl

**Application**

This training case is used for practical training in the commissioning and servicing of the SINUMERIK 840D sl. The training case can also be used for demonstrations.

Training case SINUMERIK 840D sl OP is required as the operator panel.

**Design**

- Case with transport wheels
- SINUMERIK 840D sl (NCU 720.3B PN with CF-Card SW 4.8 basic version)
- SINAMICS drive for 2 axes
- 2 × 1FK7022-5AK71 servo motors with DRIVE-CLiQ interface
- 1 incremental and 1 absolute measuring system

The Training case SINUMERIK 840D sl is delivered complete with PLC program ready for demonstration. Training case SINUMERIK 840D sl OP is used as the operator panel.

**Technical specifications**

<table>
<thead>
<tr>
<th>Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/ IEC 529</th>
<th>IP00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input voltage&lt;sup&gt;1)&lt;/sup&gt;</td>
<td>1 230 V AC / 50 Hz</td>
</tr>
<tr>
<td>Approved ambient temperature</td>
<td>-5 ... +60 °C</td>
</tr>
<tr>
<td>Dimensions in mm (W × H × D)</td>
<td>320 × 650 × 330</td>
</tr>
<tr>
<td>Weight</td>
<td>approx. 30 kg</td>
</tr>
</tbody>
</table>

<sup>1)</sup> Please observe the connecting conditions of the local energy supplier.

**Selection and ordering data**

<table>
<thead>
<tr>
<th>Training Case SINUMERIK 840D solution line</th>
<th>Article No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6ZB2410-0BG01</td>
</tr>
</tbody>
</table>
This training case SINUMERIK OP Touch is used as the operator panel together with the SINUMERIK 840D sl training case (Article No. 6ZB2410-0BG01) for practical training in the commissioning and servicing of the SINUMERIK 840D sl. These two training cases can also be used for demonstrations.

### Design
- Weight- and volume-optimized case
- Build on casters, ready to operate
- Regenerative feedback is not possible
- TFT display with touch operation SIMATIC ITC 2200 (neutral version)
- Microbox PC SIMATIC IPC427E with latest SINUMERIK operate software
- Machine control panel SINUMERIK MCP 398C with extension module SINUMERIK EM 131

The training case is delivered ready for demonstration.

### Technical specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection class</td>
<td>IP20</td>
</tr>
<tr>
<td>DIN VDE 0470 Part 1/EN 60529/</td>
<td></td>
</tr>
<tr>
<td>IEC 529</td>
<td></td>
</tr>
<tr>
<td>Input voltage 1)</td>
<td>1 230 V AC / 50 Hz</td>
</tr>
<tr>
<td>Approved ambient temperature</td>
<td>5 ... 40 °C</td>
</tr>
<tr>
<td>Dimensions in mm (W x H x D)</td>
<td>680 x 400 x 760</td>
</tr>
<tr>
<td>Weight</td>
<td>36 kg</td>
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</table>

1) Please observe the connecting conditions of the local energy supplier.

### Selection and ordering data

<table>
<thead>
<tr>
<th>Training Case</th>
<th>Article No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINUMERIK OP Touch</td>
<td>6ZB2410-0BL00</td>
</tr>
</tbody>
</table>
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Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens’ products and solutions constitute one element of such a concept.

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