

## Training Cases



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## Training Cases

### Important information

#### Preliminary information

##### Purpose of the training equipment

The training equipment is a switchgear assembly in accordance with EN 61439-1 in maintenance and start-up mode. It is designed for electrically qualified personnel from the following target groups:

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

#### General safety information

##### Qualified personnel

The product/system described in this documentation may only be operated by personnel qualified for the specific task in accordance with the relevant documentation for the specific task, in particular, the safety and warning notices contained in the documentation.

Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems. They are, for example: electrically skilled persons and electrically instructed persons.

##### Proper use

The training equipment corresponds to a switchgear assembly according to EN 61439-1 in maintenance and commissioning mode. To ensure greatest possible security, proper use of the product is essential.

The training equipment fulfills degree of protection IP20 and may only be used in dry rooms meeting contamination class 2 and under the supervision of an electrically skilled person. This device is intended for use in training. It can cause radio interference. In this case, the operator may be required to put adequate measures in place.

##### Auxiliary materials and components used

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

##### Electrical voltages

###### **Operation with low voltage ( $\leq$ AC 50 V; $\leq$ DC 120 V)**

During operation with low voltage, the generally applicable safety measures for handling electrical equipment must be complied with.

###### **Operation with 230/400 V**

Qualified personnel must ensure that the equipment is only operated from a power connection point with a line-side residual current protective device (RCD) (rated current  $I_{\Delta n} < 30$  mA).

If a frequency converter is installed in the system, the following conditions must be observed, depending on the connection voltage:

###### • **Operation at 230 V 1 AC**

RCD type A required (RCD type B recommended)

If this cannot be ensured without a doubt, a RCD or PRCD/PRCD-S must be used.

Example:

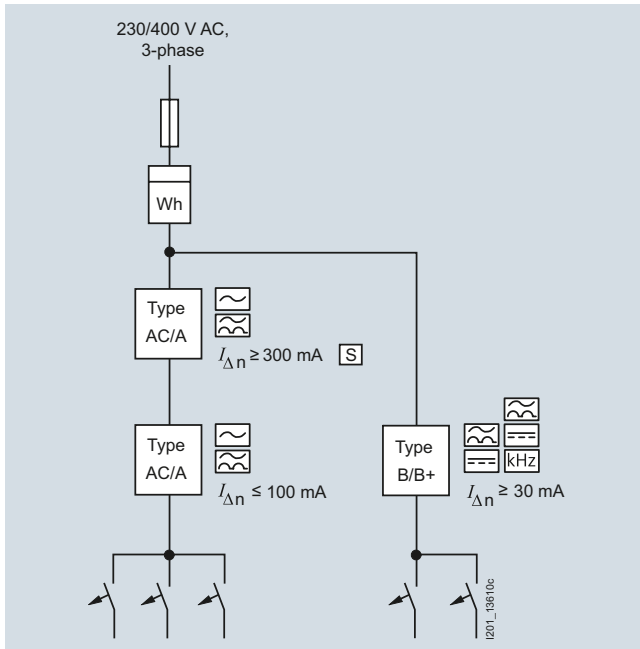
- Kopp Company, Rubber safety extension, IP 44, 16 A, 230 V AC, with personal protective plug D|perfekt, rubber coated with approx. 1,6 m of rubber cable H 05 RN-F 3G1 mm<sup>2</sup> and protective rubber coupling with cover
- Kopp Company; PRCD-S, 230 V, 16 A, 30 mA, IP44, 1-way coupling; Item No.: 141816016; EAN: 4008224372299 Robust case, angled rubber plug with dual grounding contacts, solid rubber coupling with cover, cord lengths: plug - PRCD-S = 15 cm, coupling - PRCD-S = 300 cm, H 07 RN-F 3G1.5 mm<sup>2</sup>

###### • **Operation at 400 V 3 AC**

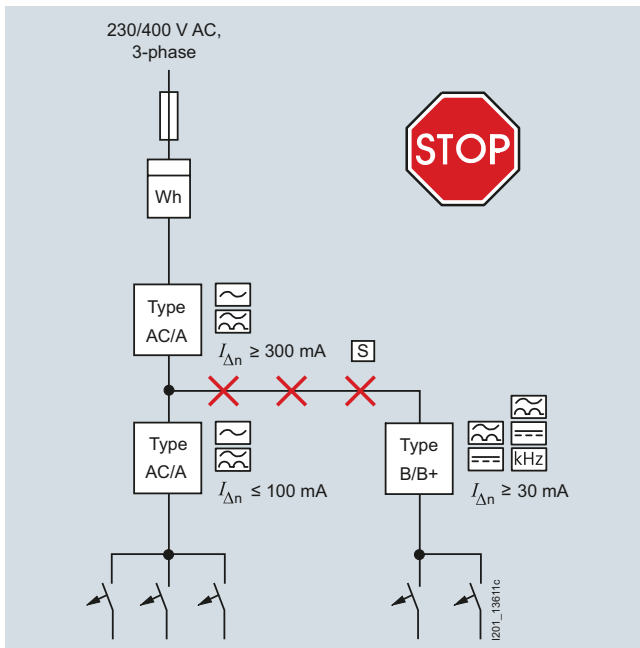
RCD type B required (with direct connection after the line connection point - e.g. in main distribution switchboard.

No pulse-current-sensitive protection devices - RCD type A - must be connected on the line side!)

#### Electrical voltages (continued)



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).



It is not permitted to branch electrical circuits with these types of electrical loads after pulse-current-sensitive residual current protective devices (type A).

#### Frequency converter with filter

If a frequency converter (with integrated or external) filter is used, the residual-current device (RCD) is triggered on connection to the supply network.

For that reason, the equipment may only be operated with an isolating transformer with a through PE conductor (e.g. transformer box A5E03473868).

#### Danger to life due to electric shock with unsuitable overcurrent protection equipment

Residual current protective devices are not permissible as the only protective measure against direct and indirect contact. Always install residual current protection equipment in addition to overcurrent protection equipment.

#### Alterations to the product

No alterations must be made to the product: This will invalidate CE conformity.

#### Danger to life due to contact with live parts on damaged equipment

Improper handling of equipment can result in damage. Hazardous voltages can be present on the enclosures of damaged devices or on exposed components.

- Observe the limit values specified in the technical specifications during transportation, storage, and operation.
- Do not use damaged devices.

#### Repairs

Repairs to the equipment may only be performed by skilled personnel authorized by Siemens.

#### Proof test

Because this training equipment is a mobile device, the tests required according to BGV A3 (of the German statutory industrial accident insurance institution) must be performed. The assessment criteria to be used are defined in DIN VDE 0701-0702.

## Training Cases

### SIMATIC

#### SIMATIC S7 Training Case S7-1500

##### 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

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

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

##### Selection and ordering data

**Training Case S7-1500**  
with CPU 1513F, ET 200SP,  
TP700, complete with simulator

Article No.

**6ZB2310-0CW00**

#### SIMATIC S7 Safety Training Case S7-1500F

##### Application



The training case is used to realistically practice the programming, operating and commissioning of failsafe SIMATIC S7-1500F 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
- PROFINET connecting cable
- F-Simulator

##### Technical specifications

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

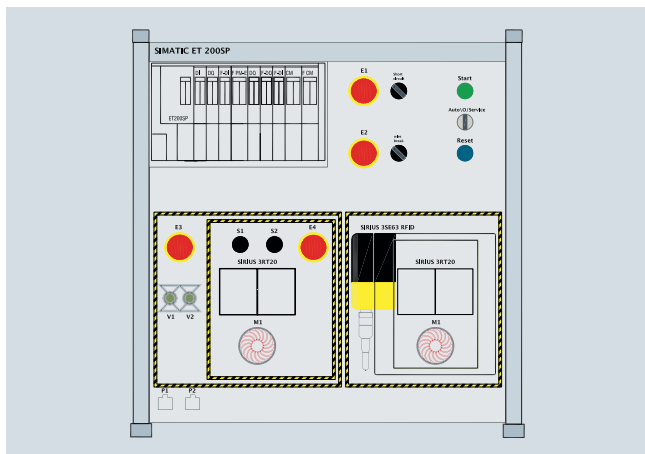
<sup>1)</sup> Please observe the connecting conditions of the local energy supplier.

##### Selection and ordering data

**Safety Training Case S7-1500F**  
with CPU 1515F, ET 200SP,  
TP700, complete with F-Simulator

Article No.

**6ZB2310-0CV00**

**SIMATIC S7 Safety Periphery Case S7-1500F**
**SIMATIC S7 Training Case S7-1200**
**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
- F-Simulator

A SIMATIC S7-1500F CPU is necessary, it is not included!

**Technical specifications**

Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529	IP20
Input voltage <sup>1)</sup>	1 230 V AC
Approved ambient temperature	5 ... 40 °C
Dimensions in mm (W × H × D)	400 × 700 × 330
Weight	25 kg

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

**Selection and ordering data**
**SIMATIC S7 Safety Periphery Case**

with ET 200SP, complete with F-Simulator

Article No.

**6ZB2310-0CT00**
**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
- CPU 1214
- 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**

Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529	IP20
Input voltage <sup>1)</sup>	1 230 V AC / 50 Hz
Approved ambient temperature	0 ... 60 °C
Dimensions in mm (W × H × D)	390 × 310 × 290
Weight	6 kg

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

**Selection and ordering data**
**Training Case S7-700 with CPU 1214**

Article No.

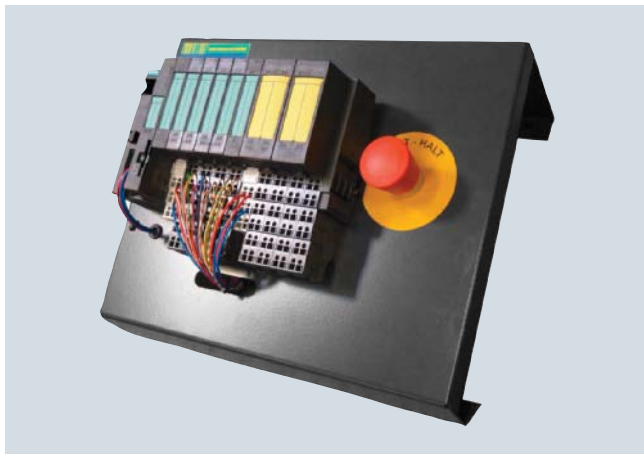
**6ZB2310-0CG00**

## Training Cases

### SIMATIC

#### 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 24V 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 <sup>1)</sup>	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

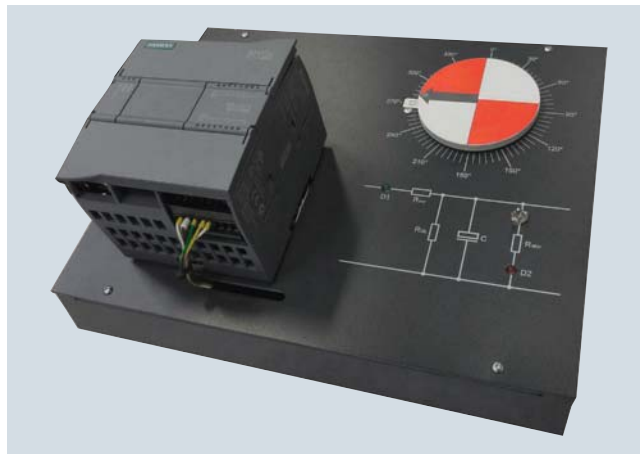
<sup>1)</sup> Please observe the connecting conditions of the local energy supplier.

##### 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

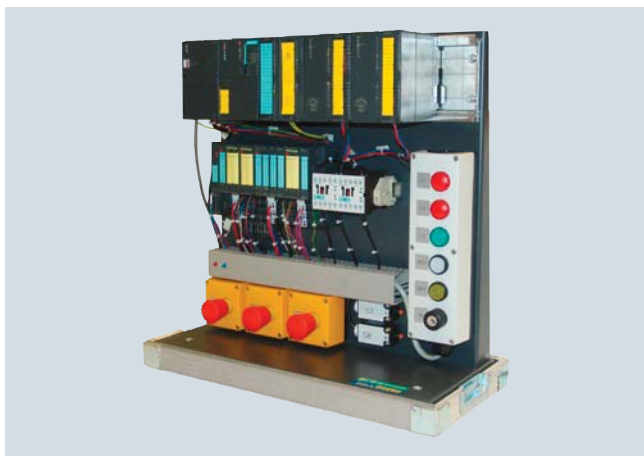
Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529	IP20
Input voltage <sup>1)</sup>	1 230 V AC / 50 Hz
Approved ambient temperature	0 ... 60 °C
Dimensions in mm (W × H × D)	390 × 210 × 310
Weight	6 kg

<sup>1)</sup> 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 <sup>1)</sup>	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

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

**Selection and ordering data**

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

Article No.

**6ZB2310-0CQ00**
**SIMATIC PCS 7 Training Case Level 1 CPU410**
**Application**


Training Case similar to illustration

The SIMATIC PCS 7 Training Case Level 1 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:

- 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 training I/O box for connection to distributed I/O via a connecting cable and 4 front end plugs

**Technical specifications**

Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529	IP20
Input voltage <sup>1)</sup>	1 230 V AC
Approved ambient temperature	5... 40 °C
Dimensions in mm (W × H × D)	620 × 597 × 845
Weight	50 kg

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

**Selection and ordering data**

**SIMATIC PCS 7 Training Case Level 1 CPU410**  
incl. PCS 7 training I/O box

Article No.

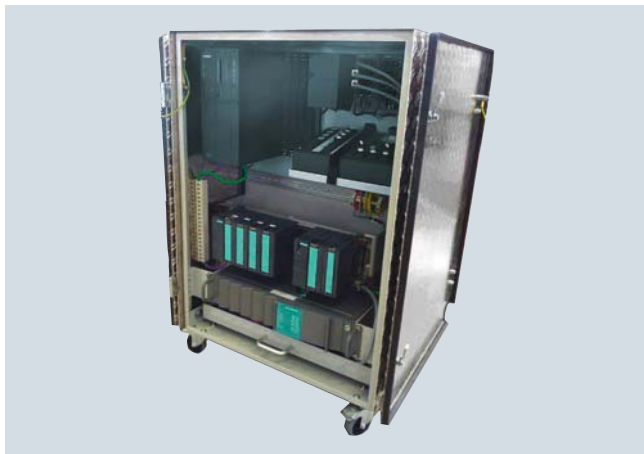
**6ZB2320-0AM00**

## Training Cases

### SIMATIC

#### SIMATIC PCS 7 Training Case Level 2

##### Application



The SIMATIC PCS 7 Training Case Level 2 is used to provide practical training in the configuration of a PCS 7 process control system using a real S7-400 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 647C 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 S7-414-3 DP/PN (PROFINET enabled) 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

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

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

##### Selection and ordering data

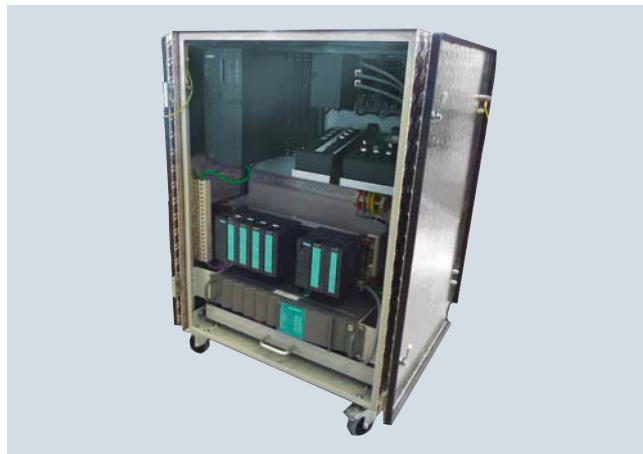
Article No.

**SIMATIC PCS 7 Case Level 2**  
incl. PCS 7 training I/O box

**6ZB2320-0AK00**

#### SIMATIC PCS 7 Training Case Level 2 CPU410

##### Application



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

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

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

##### Selection and ordering data

Article No.

**SIMATIC PCS 7 Training Case Level 2 CPU410**  
incl. PCS 7 training I/O box

**6ZB2320-0AN00**



**SIMATIC PCS 7 Training I/O Box**
**Application**


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**

Degree of protection according to DIN VDE 0470 Part 1/EN 60529/IEC 529	IP20
Permitted ambient temperature	5 ... 40 °C
Dimensions in mm (W × H × D)	280 × 130 × 190
Weight	4 kg

**Selection and ordering data**

Article No.

**SIMATIC PCS 7 Training I/O Box (including connecting cable)**
**6ZB2320-0AJ00**
**Customized connecting cables**

On request

**SIMATIC PCS 7 additional module**
**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 SIMATIC PCS 7 additional module field devices HART and PROFIBUS PA is used to provide practical training of setting up, configuring and trouble shooting of SIMATIC PCS 7 field bus systems on base of PROFIBUS DP with HART communication and on base of PROFIBUS PA. The case has a modular structure and is prepared for hardware changes to be performed by the participants themselves.

The case does not allow the setup of all possible configurations at the same time.

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

**Design**

The training case comprises the following main components:

- ET 200M PROFIBUS slave
- 1 HART analog input module
- 2 DP/PA Coupler
- 1 Active Field Distributor AFD4
- 1 Pt100 temperature sensor
- 1 TH300 transmitter for HART communication
- 1 TH400 transmitter for PROFIBUS PA
- Toolbox with mounting tools

**Technical specifications**

Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529	IP20
Input voltage <sup>1)</sup>	1 230 V AC
Approved ambient temperature	5 ... 40 °C
Dimensions in mm (W × H × D)	620 × 675 × 640
Weight	24 kg

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

**Selection and ordering data**

Article No.

**SIMATIC PCS 7 additional module field devices HART and PROFIBUS PA**
**6ZB2320-0AP00**

## Training Cases

### SIMATIC

#### 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 <sup>1)</sup>	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

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

#### Selection and ordering data

<b>PROFINET case S7-300</b>	Article No. <b>6ZB2520-0AH00</b>
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### Training Case MICROMASTER 4

#### Application



The MICROMASTER 440 6AG1062-1AA07-0AA0 training case with pulse generator and brake

The training case can be used for customer presentations and in order to convey technical knowledge on configuring, commissioning and service.

#### Design

The handy training case comprises a 1LA asynchronous motor and MICROMASTER 4 converter. The digital inputs and outputs are accessible by switches and LEDs. The analog input is controlled by a potentiometer. There are different devices with MICROMASTER 410, 420 or 440.

The MICROMASTER 440 motor can also be equipped with a brake and/or impulse generator. The load apparatus is a precise and efficient block brake.

#### Technical specifications

Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529	IP20
Input voltage <sup>1)</sup>	1 230 V AC / 50 Hz
Approved ambient temperature	0 ... 40 °C
Dimensions in mm (W × H × D)	355 × 260 × 180
Weight	
• without brake	approx. 10 kg
• with brake	approx. 12 kg

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

#### Selection and ordering data

Article No.

<b>Training Case MICROMASTER 420 with BOP operator control panel</b>	<b>6AG1062-1AA02-0AA0</b>
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<b>Training Case MICROMASTER 440 with BOP operator control panel</b> Short identifier: TG-MM4	
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- with pulse generator module and transmitter with load apparatus

	<b>6AG1062-1AA07-0AA0</b>
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<b>PROFIBUS extension set for MICROMASTER 420, 430, 440</b>	<b>6ZB2490-0AA00</b>
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## Training Cases

### SINAMICS

#### Training Case SINAMICS G120 TIA with PM240-2

#### Training Case SINAMICS S120

##### 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.

##### Application



The training case is used for training and acquisition of the SINAMICS S120 drive system. It is also suitable for use in laboratory testing and as a drive for the SIMOTION Motion Control system. With the SIMOTION D425-2 DP/PN upgrade kit the SINAMICS S120 training case becomes a SIMOTION D training unit.

##### 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. Therefore 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

##### Design

- Carrying case optimized for volume and weight
- Completely assembled and connection-ready, with wheels for transport
- Power source voltage either 1 230 V AC or, with a transformer, 1 115 V AC (USA)
- Feed of power back into power grid not possible
- The drive system consists of:
  - CU320-2 control unit and TB30 terminal board
  - Smart Line module 5 kW, double motor module 3 A
  - 1 synchronous motor 1FK7022-5AK71-1DG3 with incremental transmitter sin/cos 1V<sub>pp</sub> 2048 S/R and DRIVE-CliQ interface
  - 1 synchronous motor 1FK7022-5AK71-1LG3 with absolute value transmitter 2048 S/R and DRIVE-CliQ interface; absolute value transmitter EnDat 512 S/R
  - Referencing discs for situation monitoring
- Operating box for setpoint/actual value coupling by means of clamps
- Connection-ready for an external motor, for example an asynchronous motor

The training case is delivered ready for presenting, with a demo project on a CompactFlash card and with documentation.

##### Technical specifications

Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529	IP20
Input voltage <sup>1)</sup>	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

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

##### Technical specifications

Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529	IP20
Input voltage <sup>1)</sup>	<ul style="list-style-type: none"> <li>• 1 230 V AC / 50 Hz</li> <li>• about transformer 1 115 V AC (USA) (not included)</li> </ul>
Dimensions in mm (W × H × D)	320 × 650 × 330
Weight	approx. 30 kg

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

##### Selection and ordering data

Article No.

<b>SINAMICS G120 TIA</b>	<b>6ZB2480-0CP01</b>
<b>Training Case with PM240-2</b>	
<b>Upgrade set servo</b>	<b>6ZB2480-0CR00</b>

##### Selection and ordering data

Article No.

<b>Training Case</b>	
<b>SINAMICS S120 TK-SIN-CU320-2</b>	
2 shaft version with 1FK7 motors	
• with CU320-2 DP and demo project	<b>6ZB2480-0CM00</b>
• with CU320-2 PN and demo project	<b>6ZB2480-0CN00</b>
<b>Transformer</b>	
1 115 V AC/1 230 V AC	<b>6AG1064-1AA02-0AA0</b>
<b>Operating box SINAMICS</b>	
(when ordered separately)	<b>6AG1064-1AA01-0AA0</b>

**Training Case Asynchronous Motor ASM**
**Training Case SINAMICS Safety Integrated**
**Application**


The training case serves as a supplement to the SIMATIC S 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 SIMATIC S 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

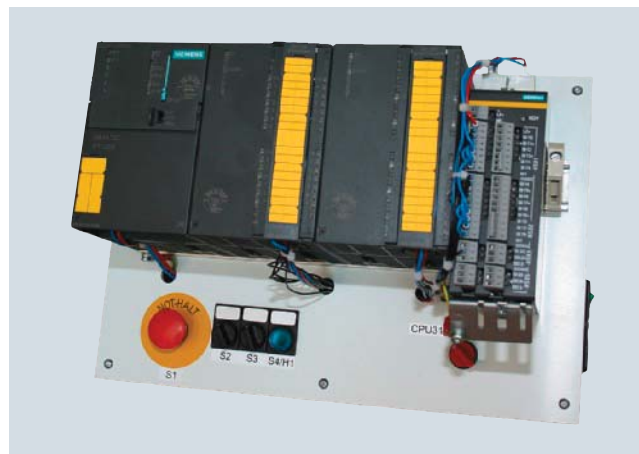
**Technical specifications**

Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529	IP20
Input voltage <sup>1)</sup>	24 V DC
Dimensions in mm (W × H × D)	377 × 210 × 277
Weight	approx. 12 kg

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

**Selection and ordering data**

Training Case ASM	Article No.
	<b>6ZB2480-0CB00</b>

**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**

Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529	IP20
Input voltage <sup>1)</sup>	1 230 V AC / 50 Hz
Approved ambient temperature	
• Storage and transport	-20 ... +60 °C
• Operation	5 ... 40 °C
Dimensions in mm (W × H × D)	340 × 320 × 300
Weight	approx. 8 kg

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

**Selection and ordering data**

Training Case SINAMICS Safety Drives	Article No.
	<b>6ZB2480-0CK00</b>

## Training Cases

### SINAMICS

#### Training Case SINAMICS DCM

##### Application



The training case can be used for customer presentations and for passing on technical know-how regarding configuration, commissioning, and service.

The case contains all components required for operation. Alternatively, an external motor can be connected. Motor cables and tachometer are connected by means of connectors.

If necessary, the integrated line filter can be deactivated using jumper plugs.

##### Design

- Control units: one Advanced CUD and one Standard CUD
- CBE20 Communication Board
- BOP20 Basic Operator Panel
- AOP30 Advanced Operator Panel
- TM15 and TM31 terminal modules
- Operator box, with connected terminal strips
- 30 A power unit, 4-quadrant operation
- Separately excited DC motor 3.9 A with analog tachometer and incremental encoder
- Gauges for armature voltage, armature current, speed and field current
- Line filter, line reactors, semiconductor fuses
- PROFIBUS cable
- Storage and transport case with transport rollers

##### Technical specifications

Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529	IP20
Input voltage <sup>1)</sup>	3 400 V AC
Approved ambient temperature	
• Storage and transport	-20 ... +60 °C
• Operation	5 ... 40 °C
Dimensions in mm (W × H × D)	680 × 700 × 430
Weight	approx. 72 kg

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

##### Selection and ordering data

Article No.

**Training Case SINAMICS DCM**

**6RX1800-0SM00**



**Training Case SIMOTION D425-2 DP/PN**
**Upgrade Module 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 A
  - 1 synchronous servo motor 1FK7022-5AK71-1AG3 with incremental encoder sin/cos 1 V<sub>pp</sub> 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 <sup>1)</sup>	<ul style="list-style-type: none"> <li>• 1 230 V AC / 50 Hz</li> <li>• about transformer 1 115 V AC (USA) (not included)</li> </ul>
Dimensions in mm (W × H × D)	320 × 650 × 330
Weight	approx. 34 kg

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

**Selection and ordering data**

Article No.

**Training Case  
SIMOTION D425-2 DP/PN**
**6ZB2470-0AL00**

TK-SIM-D425-2

CompactFlash Card with demo project, MultiAxes package license for D425-2, SIMOTION SCOUT/SCOUT TIA

**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**

Article No.

**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

**6ZB2470-0AM00**

## Training Cases

### SINUMERIK

#### Training Rack SINUMERIK 840D sl

##### Application



The SINUMERIK 840D solution line training rack is used for practical exercises on operator control, programming, commissioning, and service tasks.

##### Design

- Simulation field incl. SIMATIC ET 200S input, output and IM modules
- OP 012 with PCU 50.5
- MCP483 IE machine control panel
- SINUMERIK 840D sl (NCU 720.3 with SW 4.x)
- NX10
- SINAMICS S120
  - ALM 16 KW
  - 1-axis module 3 A
  - 2-axis module 2 x 5 A
- 1 x synchronous motor 1FK7044-7AF71 with incremental encoder
- 1 x synchronous motor 1FK7060-5AF71 with absolute encoder
- 1 x standard asynchronous motor 1LA7070-4AB10 with HTL encoder
- Prepared for wiring for Safety Integrated functionality

The SINUMERIK 840D solution line training rack completely assembled with CE marking, the adaptation programs are installed.

##### Technical specifications

Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529	IP20
Input voltage <sup>1)</sup>	3 400 V AC
Approved ambient temperature	
• Storage and transport	-20 ... +60 °C
• Operation	+5 ... +40 °C
Dimensions in mm (W x H x D)	660 x 1 696 x 600
Weight	approx. 150 kg

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

##### Selection and ordering data

Training rack SINUMERIK 840D solution line	Article No. <b>6ZB2410-0BJ00</b>
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#### 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 (NCU720.3 for SW 4.x)
- SINAMICS drive for 2 axes
- 2 x 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

Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529	IP00
Input voltage <sup>1)</sup>	1 230 V AC / 50 Hz
Approved ambient temperature	
• Storage and transport	-5 ... +60 °C
• Operation	+5 ... +40 °C
Dimensions in mm (W x H x D)	320 x 650 x 330
Weight	approx. 30 kg

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

##### Selection and ordering data

Training Case SINUMERIK 840D solution line	Article No. <b>6ZB2410-0BG00</b>
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**Training Case SINUMERIK 840D sl OP**
**Application**


This training case is used as the operator panel together with the SINUMERIK 840D sl training case for practical training in the commissioning and servicing of the SINUMERIK 840D sl. These two training cases can also be used for demonstrations.

**Design**

- Hart shell case
- Operator panel OP010C with PCU50.5
- Software SINUMERIK Operate 4.x
- Machine control panel MCP 483C IE

The SINUMERIK 840D sl OP training case can only be used together with the SINUMERIK 840D sl training case.

**Technical specifications**

Protection class in accordance with DIN VDE 0470 Part 1/EN 60529/IEC 529	IP00
Input voltage <sup>1)</sup>	1 230 V AC / 50 Hz
Approved ambient temperature	
• Storage and transport	-5 ... +60 °C
• Operation	+5 ... +40 °C
Dimensions in mm (W x H x D)	770 x 630 x 320
Weight	approx. 32 kg

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

**Selection and ordering data**

Article No.

**Training Case  
 SINUMERIK 840D sl OP**
**6ZB2410-0BH00**