

Ordering data	Article No.	Article No.
<b>CPU 412-1</b> Work memory 512 KB, power supply 24 V DC, MPI/PROFIBUS DP master interface, slot for memory card, incl. slot number labels	6ES7412-1XJ07-0AB0	
<b>CPU 412-2</b> Work memory 1 MB, power supply 24 V DC, MPI/PROFIBUS DP master interface, slot for memory card, incl. slot number labels	6ES7412-2XK07-0AB0	
<b>CPU 412-2 PN</b> Work memory 1 MB, power supply 24 V DC, MPI/PROFIBUS DP master interface, PROFINET interface, slot for memory card, incl. slot number labels	6ES7412-2EK07-0AB0	
<b>RAM memory card</b> • 64 KB • 256 KB • 1 MB • 2 MB • 4 MB • 8 MB • 16 MB • 64 MB	6ES7952-0AF00-0AA0 6ES7952-1AH00-0AA0 6ES7952-1AK00-0AA0 6ES7952-1AL00-0AA0 6ES7952-1AM00-0AA0 6ES7952-1AP00-0AA0 6ES7952-1AS00-0AA0 6ES7952-1AY00-0AA0	
<b>FEPRAM memory card</b> • 64 KB • 256 KB • 1 MB • 2 MB • 4 MB • 8 MB • 16 MB • 32 MB • 64 MB	6ES7952-0KF00-0AA0 6ES7952-0KH00-0AA0 6ES7952-1KK00-0AA0 6ES7952-1KL00-0AA0 6ES7952-1KM00-0AA0 6ES7952-1KP00-0AA0 6ES7952-1KS00-0AA0 6ES7952-1KT00-0AA0 6ES7952-1KY00-0AA0	
<b>MPI cable</b> For connection of SIMATIC S7 and PG via MPI; length: 5 m	6ES7901-0BF00-0AA0	
<b>Slot number labels</b> 1 set (spare part)	6ES7912-0AA00-0AA0	
<b>SIMATIC Manual Collection</b> Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	6ES7998-8XC01-8YE0	
<b>SIMATIC Manual Collection update service for 1 year</b> Current "Manual Collection" DVD and the three subsequent updates	6ES7998-8XC01-8YE2	
		<b>RS 485 bus connector with 90° cable outlet</b> Max. transfer rate 12 Mbps • Without PG interface • With PG interface
		6ES7972-0BA12-0XA0 6ES7972-0BB12-0XA0
		<b>RS 485 bus connector with angled cable outlet</b> Max. transfer rate 12 Mbps • Without PG interface • With PG interface
		6ES7972-0BA42-0XA0 6ES7972-0BB42-0XA0
		<b>RS 485 bus connector with 90° cable outlet for FastConnect system</b> Max. transfer rate 12 Mbps • Without PG interface - 1 unit - 100 units • With PG interface - 1 unit - 100 units
		6ES7972-0BA52-0XA0 6ES7972-0BA52-0XB0 6ES7972-0BB52-0XA0 6ES7972-0BB52-0XB0
		<b>RS 485 bus connector with axial cable outlet</b> For SIMATIC OP, for connection to PPI, MPI, PROFIBUS
		6GK1500-0EA02
		<b>PROFIBUS FastConnect bus cable</b> Standard type with special design for fast mounting, 2-core, shielded, sold by the meter; max. delivery unit 1 000 m, minimum ordering quantity 20 m
		6XV1830-0EH10

Ordering data	Article No.	Ordering data	Article No.
<b>CPU 414-2</b> Work memory 2 MB, power supply 24 V DC, MPI/PROFIBUS DP master interface, slot for memory card, incl. slot number labels	6ES7414-2XL07-0AB0	<b>Slot number labels</b> 1 set (spare part)	6ES7912-0AA00-0AA0
<b>CPU 414-3</b> Work memory 4 MB, power supply 24 V DC, MPI/PROFIBUS DP master interface, PROFIBUS DP master interface, slot for memory card, module slots for 1 IF module, incl. slot number labels	6ES7414-3XM07-0AB0	<b>SIMATIC Manual Collection</b> Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	6ES7998-8XC01-8YE0
<b>CPU 414-3 PN/DP</b> Work memory 4 MB, power supply 24 V DC, MPI/PROFIBUS DP master interface, PROFINET interface, slot for memory card, module slot for 1 IF module, incl. slot number labels	6ES7414-3EM07-0AB0	<b>SIMATIC Manual Collection update service for 1 year</b> Current "Manual Collection" DVD and the three subsequent updates	6ES7998-8XC01-8YE2
<b>RAM memory card</b> • 64 KB • 256 KB • 1 MB • 2 MB • 4 MB • 8 MB • 16 MB • 64 MB	6ES7952-0AF00-0AA0 6ES7952-1AH00-0AA0 6ES7952-1AK00-0AA0 6ES7952-1AL00-0AA0 6ES7952-1AM00-0AA0 6ES7952-1AP00-0AA0 6ES7952-1AS00-0AA0 6ES7952-1AY00-0AA0	<b>PROFIBUS bus components</b>	
<b>FEPRM memory card</b> • 64 KB • 256 KB • 1 MB • 2 MB • 4 MB • 8 MB • 16 MB • 32 MB • 64 MB	6ES7952-0KF00-0AA0 6ES7952-0KH00-0AA0 6ES7952-1KK00-0AA0 6ES7952-1KL00-0AA0 6ES7952-1KM00-0AA0 6ES7952-1KP00-0AA0 6ES7952-1KS00-0AA0 6ES7952-1KT00-0AA0 6ES7952-1KY00-0AA0	<b>RS 485 bus connector with 90° cable outlet</b> Max. transfer rate 12 Mbps • Without PG interface • With PG interface	6ES7972-0BA12-0XA0 6ES7972-0BB12-0XA0
<b>MPI cable</b> for connection of SIMATIC S7 and PG via MPI; length: 5 m	6ES7901-0BF00-0AA0	<b>RS 485 bus connector with angled cable outlet</b> Max. transfer rate 12 Mbps • Without PG interface • With PG interface	6ES7972-0BA42-0XA0 6ES7972-0BB42-0XA0
<b>IF 964-DP interface module</b> For connecting an additional DP line; for CPU 414-3, CPU 414-3 PN/DP, CPU 416-3, CPU 416-3 PN/DP, CPU 417-4	6ES7964-2AA04-0AB0	<b>RS 485 bus connector with 90° cable outlet for FastConnect connection system</b> Max. transfer rate 12 Mbps • Without PG interface - 1 unit - 100 units • With PG interface - 1 unit - 100 units	6ES7972-0BA52-0XA0 6ES7972-0BA52-0XB0 6ES7972-0BB52-0XA0 6ES7972-0BB52-0XB0
		<b>RS 485 bus connector with axial cable outlet</b> For SIMATIC OP, for connection to PPI, MPI, PROFIBUS	6GK1500-0EA02
		<b>PROFIBUS FastConnect bus cable</b> Standard type with special design for fast mounting, 2-core, shielded, sold by the meter; max. delivery unit 1 000 m, minimum ordering quantity 20 m	6XV1830-0EH10

**SIMATIC S7-400 advanced controller**Central processing units  
Standard CPUs**CPU 416**

1

**Ordering data****Article No.****CPU 416-2**

Work memory 8 MB, power supply 24 V DC, MPI/PROFIBUS DP master interface, PROFIBUS DP master interface, slot for memory card, incl. slot number labels

**6ES7416-2XP07-0AB0****CPU 416-3**

Work memory 16 MB, power supply 24 V DC, MPI/PROFIBUS DP master interface, PROFIBUS DP master interface, module slot for 1 IF module, slot for memory card, incl. slot number labels

**6ES7416-3XS07-0AB0****CPU 416-3 PN/DP**

Work memory 16 MB, power supply 24 V DC, MPI/PROFIBUS DP master interface, PROFINET interface, PROFIBUS DP master interface, module slot for 1 IF module, slot for memory card, incl. slot number labels

**6ES7416-3ES07-0AB0****RAM memory card**

- 64 KB
- 256 KB
- 1 MB
- 2 MB
- 4 MB
- 8 MB
- 16 MB
- 64 MB

**6ES7952-0AF00-0AA0**  
**6ES7952-1AH00-0AA0**  
**6ES7952-1AK00-0AA0**  
**6ES7952-1AL00-0AA0**  
**6ES7952-1AM00-0AA0**  
**6ES7952-1AP00-0AA0**  
**6ES7952-1AS00-0AA0**  
**6ES7952-1AY00-0AA0**

**FEPRM memory card**

- 64 KB
- 256 KB
- 1 MB
- 2 MB
- 4 MB
- 8 MB
- 16 MB
- 32 MB
- 64 MB

**6ES7952-0KF00-0AA0**  
**6ES7952-0KH00-0AA0**  
**6ES7952-1KK00-0AA0**  
**6ES7952-1KL00-0AA0**  
**6ES7952-1KM00-0AA0**  
**6ES7952-1KP00-0AA0**  
**6ES7952-1KS00-0AA0**  
**6ES7952-1KT00-0AA0**  
**6ES7952-1KY00-0AA0**

**MPI cable**

For connection of SIMATIC S7 and PG via MPI; length: 5 m

**6ES7901-0BF00-0AA0****Article No.****IF 964-DP interface module**

For connecting an additional DP line; for CPU 414-3, CPU 414-3 PN/DP, CPU 416-3, CPU 416-3 PN/DP, CPU 417-4

**6ES7964-2AA04-0AB0****Slot number labels**

1 set (spare part)

**6ES7912-0AA00-0AA0****SIMATIC Manual Collection**

Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC

**6ES7998-8XC01-8YE0****SIMATIC Manual Collection update service for 1 year**

Current "Manual Collection" DVD and the three subsequent updates

**6ES7998-8XC01-8YE2****PROFIBUS bus components****RS 485 bus connector with 90° cable outlet**

Max. transfer rate 12 Mbps

- Without PG interface
- With PG interface

**6ES7972-0BA12-0XA0**  
**6ES7972-0BB12-0XA0**

**RS 485 bus connector with angled cable outlet**

Max. transfer rate 12 Mbps

- Without PG interface
- With PG interface

**6ES7972-0BA42-0XA0**  
**6ES7972-0BB42-0XA0**

**RS 485 bus connector with 90° cable outlet for FastConnect connection system**

Max. transfer rate 12 Mbps

- Without PG interface
  - 1 unit
  - 100 units
- With PG interface
  - 1 unit
  - 100 units

**6ES7972-0BA52-0XA0**  
**6ES7972-0BA52-0XB0**

**6ES7972-0BB52-0XA0**  
**6ES7972-0BB52-0XB0**

**SIMATIC S7-400 advanced controller**

Central processing units

Standard CPUs

**CPU 417**

1

**Ordering data****Article No.****IF 964-DP interface module**

For connecting an additional DP line; for CPU 414-3, CPU 414-3 PN/DP, CPU 416-3, CPU 416-3 PN/DP, CPU 417-4

**6ES7964-2AA04-0AB0****Slot number labels**

1 set (spare part)

**6ES7912-0AA00-0AA0****SIMATIC Manual Collection**

Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC

**6ES7998-8XC01-8YE0****SIMATIC Manual Collection update service for 1 year**

Current "Manual Collection" DVD and the three subsequent updates

**6ES7998-8XC01-8YE2****RS 485 bus connector with 90° cable outlet**

Max. transfer rate 12 Mbps

- Without PG interface
- With PG interface

**6ES7972-0BA12-0XA0**  
**6ES7972-0BB12-0XA0****RS 485 bus connector with angled cable outlet**

Max. transfer rate 12 Mbps

- Without PG interface
- With PG interface

**6ES7972-0BA42-0XA0**  
**6ES7972-0BB42-0XA0****RS 485 bus connector with 90° cable outlet for FastConnect connection system**

Max. transfer rate 12 Mbps

- Without PG interface
  - 1 unit
  - 100 units
- With PG interface
  - 1 unit
  - 100 units

**6ES7972-0BA52-0XA0**  
**6ES7972-0BA52-0XB0****6ES7972-0BB52-0XA0**  
**6ES7972-0BB52-0XB0****RS 485 bus connector with axial cable outlet**

For SIMATIC OP, for connection to PPI, MPI, PROFIBUS

**6GK1500-0EA02****PROFIBUS FastConnect bus cable**

Standard type with special design for fast mounting, 2-core, shielded, cut-to-length; max. delivery unit 1 000 m, minimum ordering quantity 20 m

**6XV1830-0EH10**

Ordering data	Article No.	Ordering data	Article No.
<b>CPU 416F-2</b> For configuring safety-related automation systems; 8 MB work memory, 24 V DC power supply, MPI/PROFIBUS DP master interface, PROFIBUS DP master interface, slot for memory card, incl. slot number labels	6ES7416-2FP07-0AB0	<b>FEPROM memory card</b> • 64 KB • 256 KB • 1 MB • 2 MB • 4 MB • 8 MB • 16 MB • 32 MB • 64 MB	6ES7952-0KF00-0AA0 6ES7952-0KH00-0AA0 6ES7952-1KK00-0AA0 6ES7952-1KL00-0AA0 6ES7952-1KM00-0AA0 6ES7952-1KP00-0AA0 6ES7952-1KS00-0AA0 6ES7952-1KT00-0AA0 6ES7952-1KY00-0AA0
<b>CPU 416F-3 PN/DP</b> For configuring safety-related automation systems; work memory 16 MB, 24 V DC power supply, MPI/PROFIBUS DP master interface, PROFINET interface, PROFIBUS DP master interface, receptacle for 1 IF module, slot for memory card, incl. slot number labels	6ES7416-3FS07-0AB0	<b>MPI cable</b> For connection of SIMATIC S7 and PG via MPI; length: 5 m	6ES7901-0BF00-0AA0
<b>S7 Distributed Safety programming tool V5.4</b> Task: Engineering tool for configuring failsafe user programs for SIMATIC S7-300F, S7-400F, WinAC RTX F, ET 200SP, ET 200S, ET 200M, ET 200iSP, ET 200pro, ET 200eco Requirement: STEP 7 V5.3 SP3 or higher • Floating License • Floating License for 1 user, license key download without software or documentation <sup>1)</sup> ; e-mail address required for delivery	6ES7833-1FC02-0YA5 6ES7833-1FC02-0YH5	<b>IF 964-DP interface module</b> For connecting an additional DP line	6ES7964-2AA04-0AB0
<b>S7 Distributed Safety upgrade</b> From V5.x to V5.4; Floating License for 1 user	6ES7833-1FC02-0YE5	<b>Slot number labels</b> 1 set (spare part)	6ES7912-0AA00-0AA0
<b>RAM memory card</b> • 64 KB • 256 KB • 1 MB • 2 MB • 4 MB • 8 MB • 16 MB • 64 MB	6ES7952-0AF00-0AA0 6ES7952-1AH00-0AA0 6ES7952-1AK00-0AA0 6ES7952-1AL00-0AA0 6ES7952-1AM00-0AA0 6ES7952-1AP00-0AA0 6ES7952-1AS00-0AA0 6ES7952-1AY00-0AA0	<b>SIMATIC Manual Collection</b> Electronic manuals on DVD, multi-language: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	6ES7998-8XC01-8YE0
		<b>SIMATIC Manual Collection update service for 1 year</b> Current "Manual Collection" DVD and the three subsequent updates	6ES7998-8XC01-8YE2
		<b>PROFIBUS bus components</b>	
		<b>RS 485 bus connector with 90° cable outlet</b> Max. transfer rate 12 Mbps • Without PG interface • With PG interface	6ES7972-0BA12-0XA0 6ES7972-0BB12-0XA0
		<b>RS 485 bus connector with angled cable outlet</b> Max. transfer rate 12 Mbps • Without PG interface • With PG interface	6ES7972-0BA42-0XA0 6ES7972-0BB42-0XA0
		<b>RS 485 bus connector with 90° cable outlet for FastConnect system</b> Max. transfer rate 12 Mbps • Without PG interface - 1 unit - 100 units • With PG interface - 1 unit - 100 units	6ES7972-0BA52-0XA0 6ES7972-0BA52-0XB0 6ES7972-0BB52-0XA0 6ES7972-0BB52-0XB0
		<b>RS 485 bus connector with axial cable outlet</b> For SIMATIC OP, for connection to PPI, MPI, PROFIBUS	6GK1500-0EA02

<sup>1)</sup> For up-to-date information and download availability, see:  
[www.siemens.com/tia-online-software-delivery](http://www.siemens.com/tia-online-software-delivery)

**SIMATIC S7-400 advanced controller**

Central processing units

High-availability CPUs

CPU 412-5H, CPU 414-5H, CPU 416-5H, CPU 417-5H

1

Ordering data	Article No.	Ordering data	Article No.
<b>S7 F systems upgrade from V5.x/V6.0 to V6.1</b> 2 languages (English, German), floating license for 1 user Type of delivery: Certificate of License as well as software and electronic documentation on CD	6ES7833-1CC02-0YE5	<b>RS 485 bus connector with 90° cable outlet</b> Max. transfer rate 12 Mbit/s • Without PG interface • With PG interface	6ES7972-0BA12-0XA0 6ES7972-0BB12-0XA0
<b>SIMATIC Manual Collection</b> Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC-based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	6ES7998-8XC01-8YE0	<b>RS 485 bus connector with angled cable outlet</b> • Max. transfer rate 12 Mbit/s - Without PG interface - With PG interface • Max. transfer rate 1.5 Mbit/s - Without PG interface	6ES7972-0BA42-0XA0 6ES7972-0BB42-0XA0 6ES7972-0BA30-0XA0
<b>SIMATIC Manual Collection update service for 1 year</b> Current "Manual Collection" DVD and the three subsequent updates	6ES7998-8XC01-8YE2	<b>Bus connector RS 485 with 90° cable outlet for FastConnect connection technology</b> Max. transfer rate 12 Mbit/s • Without PG interface - 1 unit - 100 units • With PG interface - 1 unit - 100 units	6ES7972-0BA52-0XA0 6ES7972-0BA52-0XB0 6ES7972-0BB52-0XA0 6ES7972-0BB52-0XB0
		<b>RS 485 bus connector with axial cable outlet</b> For SIMATIC OP, for connection to PPI, MPI, PROFIBUS	6GK1500-0EA02
		<b>PROFIBUS FastConnect bus cable</b> Standard type with special design for quick mounting, 2-core, shielded, sold by the meter, max. delivery unit 1000 m, minimum ordering quantity 20 m	6XV1830-0EH10

**SIMATIC S7-400 advanced controller**

## Digital modules

**SM 421 digital input module**

1

**Ordering data****Article No.****Article No.****SM 421 digital input modules**16 inputs, 24 V DC,  
with process/diagnostics interrupt**6ES7421-7BH01-0AB0**

32 inputs, 24 V DC

**6ES7421-1BL01-0AA0**

32 inputs, 120 V AC/DC

**6ES7421-1EL00-0AA0**16 inputs, 120/230 V AC/DC, inputs  
according to IEC 1131-2 Type 2**6ES7421-1FH20-0AA0**16 inputs, 24 to 60 V AC/DC,  
with process/diagnostics interrupt**6ES7421-7DH00-0AB0****Front connector**

48-pin

- with screw contacts, 1 unit
- with screw contacts, 84 units
- with spring-loaded terminals,  
1 unit
- with crimp contacts, 1 unit
- with crimp contacts, 84 units

**6ES7492-1AL00-0AA0****6ES7492-1AL00-1AB0****6ES7492-1BL00-0AA0****6ES7492-1CL00-0AA0****6ES7492-1CL00-1AB0****Cover film for labeling strips****6ES7492-2XX00-0AA0**

Spare part

**Labeling sheets for machine  
inscription**DIN A4, for printing using laser  
printer; pack of 10

petrol

**6ES7492-2AX00-0AA0**

light-beige

**6ES7492-2BX00-0AA0**

yellow

**6ES7492-2CX00-0AA0**

red

**6ES7492-2DX00-0AA0****SIMATIC Manual Collection****6ES7998-8XC01-8YE0**Electronic manuals on DVD,  
multilingual: LOGO!, SIMADYN,  
SIMATIC bus components,  
SIMATIC C7,  
SIMATIC distributed I/O,  
SIMATIC HMI, SIMATIC Sensors,  
SIMATIC NET, SIMATIC PC Based  
Automation, SIMATIC PCS 7,  
SIMATIC PG/PC, SIMATIC S7,  
SIMATIC Software, SIMATIC TDC**SIMATIC Manual Collection  
update service for 1 year****6ES7998-8XC01-8YE2**Current "Manual Collection" DVD  
and the three subsequent updates

Ordering data	Article No.		Article No.
<b>SM 422 digital output modules</b>		<b>Labeling sheets for machine inscription</b>	
16 outputs, 24 V DC; 2 A	<b>6ES7422-1BH11-0AA0</b>	DIN A4, for printing using laser printer; pack of 10	
32 outputs, 24 V DC; 0.5 A	<b>6ES7422-1BL00-0AA0</b>	petrol	<b>6ES7492-2AX00-0AA0</b>
32 outputs, 24 V DC, 0.5 A; with diagnostics	<b>6ES7422-7BL00-0AB0</b>	light-beige	<b>6ES7492-2BX00-0AA0</b>
16 outputs, 120/230 V AC; 2 A	<b>6ES7422-1FH00-0AA0</b>	yellow	<b>6ES7492-2CX00-0AA0</b>
16 outputs, relay contacts	<b>6ES7422-1HH00-0AA0</b>	red	<b>6ES7492-2DX00-0AA0</b>
<b>Front connector</b>		<b>SIMATIC Manual Collection</b>	<b>6ES7998-8XC01-8YE0</b>
48-pin		Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
• with screw contacts, 1 unit	<b>6ES7492-1AL00-0AA0</b>		
• with screw contacts, 84 units	<b>6ES7492-1AL00-1AB0</b>		
• with spring-loaded terminals, 1 unit	<b>6ES7492-1BL00-0AA0</b>		
• with crimp contacts, 1 unit	<b>6ES7492-1CL00-0AA0</b>		
• with crimp contacts, 84 units	<b>6ES7492-1CL00-1AB0</b>		
<b>Cover film for labeling strips</b>	<b>6ES7492-2XX00-0AA0</b>	<b>SIMATIC Manual Collection update service for 1 year</b>	<b>6ES7998-8XC01-8YE2</b>
Spare part		Current "Manual Collection" DVD and the three subsequent updates	

## Technical specifications (continued)

Article number	6ES7431-7QH00-0AB0	6ES7431-7KF00-0AB0	6ES7431-7KF10-0AB0
	SM 431, 16AE, U/I/R/PT100, 16BIT	SM 431, 8AI, U/I/THERMO, 16BIT	SM 431, 8AI, RESIST/PT100, 16BIT
<b>Isolation</b>			
Isolation checked with	2120 V DC between bus and L+/M; 2120 V DC between bus and analog part; 500 V DC between bus and local ground; 707 V DC between analog part and L+/M; 2120 V DC between analog part and local ground; 2120 V DC between L+/M and local ground	1500 V DC	1500 V DC
<b>Dimensions</b>			
Width	25 mm	25 mm	25 mm
Height	290 mm	290 mm	290 mm
Depth	210 mm	210 mm	210 mm
<b>Weights</b>			
Weight, approx.	500 g	650 g	650 g

## Ordering data

Ordering data	Article No.	Article No.
<b>SM 431 analog output modules</b>		
16 inputs, non-isolated, 13 bit	6ES7431-0HH00-0AB0	
8 inputs, isolated, 13 bit	6ES7431-1KF00-0AB0	
8 inputs, isolated, 14 bit, with linearization	6ES7431-1KF10-0AB0	
8 inputs, isolated, 14 bit	6ES7431-1KF20-0AB0	
16 inputs, isolated, 16 bit, process interrupt capability	6ES7431-7QH00-0AB0	
8 inputs, isolated, 16 bit, process interrupt capability, for thermocouples (I, U)	6ES7431-7KF00-0AB0	
8 inputs, isolated, 16 bit, process interrupt capability, for thermal resistors	6ES7431-7KF10-0AB0	
<b>Front connector</b>		
48-pin		
• with screw contacts, 1 unit	6ES7492-1AL00-0AA0	
• with screw contacts, 84 units	6ES7492-1AL00-1AB0	
• with spring-loaded terminals, 1 unit	6ES7492-1BL00-0AA0	
• with crimp contacts, 1 unit	6ES7492-1CL00-0AA0	
• with crimp contacts, 84 units	6ES7492-1CL00-1AB0	
1 unit; for 6ES7431-7KF00-0AB0; spare part, included in scope of delivery	6ES7431-7KF00-6AA0	
<b>Measuring range module for analog inputs</b>	6ES7974-0AA00-0AA0	
1 module for 2 inputs (spare part)		
		<b>Cover film for labeling strips</b>
		Spare part
		<b>Labeling sheets for machine inscription</b>
		DIN A4, for printing using laser printer; pack of 10
		petrol
		light-beige
		yellow
		red
		<b>SIMATIC Manual Collection</b>
		Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC
		<b>SIMATIC Manual Collection update service for 1 year</b>
		Current "Manual Collection" DVD and the three subsequent updates
		6ES7492-2XX00-0AA0
		6ES7492-2AX00-0AA0
		6ES7492-2BX00-0AA0
		6ES7492-2CX00-0AA0
		6ES7492-2DX00-0AA0
		6ES7998-8XC01-8YE0
		6ES7998-8XC01-8YE2

# SIMATIC S7-400 advanced controller

## Analog modules

### SM 432 analog output module

1

Ordering data	Article No.		Article No.
<b>SM 432 analog output module</b> 8 outputs, isolated, 13 bit	<b>6ES7432-1HF00-0AB0</b>	<b>SIMATIC Manual Collection</b>	<b>6ES7998-8XC01-8YE0</b>
<b>Front connector</b> 48-pin <ul style="list-style-type: none"> <li>with screw contacts, 1 unit</li> <li>with screw contacts, 84 units</li> <li>with spring-loaded terminals, 1 unit</li> <li>with crimp contacts, 1 unit</li> <li>with crimp contacts, 84 units</li> </ul>	<b>6ES7492-1AL00-0AA0</b> <b>6ES7492-1AL00-1AB0</b> <b>6ES7492-1BL00-0AA0</b>  <b>6ES7492-1CL00-0AA0</b> <b>6ES7492-1CL00-1AB0</b>	Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC	
<b>Cover film for labeling strips</b> Spare part	<b>6ES7492-2XX00-0AA0</b>	<b>SIMATIC Manual Collection update service for 1 year</b> Current "Manual Collection" DVD and the three subsequent updates	<b>6ES7998-8XC01-8YE2</b>
<b>Labeling sheets for machine inscription</b> DIN A4, for printing using laser printer; pack of 10  petrol light-beige yellow red	<b>6ES7492-2AX00-0AA0</b> <b>6ES7492-2BX00-0AA0</b> <b>6ES7492-2CX00-0AA0</b> <b>6ES7492-2DX00-0AA0</b>		



### Overview

- Drivers for Modbus protocol with RTU message format; communication as master or slave
- Downloadable onto CP 341 and CP 441-2 (6ES7441-2AA05-0AE0)

### Technical specifications

Parameterization software	Loadable drivers for CP 441-2 and CP 341
Type of license	Simple license, copy license
Target system	SIMATIC CP 341, SIMATIC CP 441-2

#### Technical specifications

##### Modbus Master

- Modbus protocol with RTU format
- Master/slave coupling: SIMATIC S7 is master
- Function codes implemented: 01, 02, 03, 04, 05, 06, 07, 08, 11, 12, 15, 16
- No V.24 control and signal lines
- CRC polynomial:  $x^{16} + x^{15} + x^2 + 1$
- Interfaces: TTY (20 mA); V.24 (RS 232 C); X.27 (RS 422/485) 2-wire or 4-wire
- Receive mailbox specified on BRCV
- Character delay time 3.5 characters or multiple thereof
- Broadcast message possible
- Transmission rate 300 bit/s up to 76800 bit/s (TTY up to 19200 bit/s)
- Character frame
- With/without RS 485 operation for 2-wire connections
- With/without modem operation (ignore smudge characters)
- Response monitoring time 100 ms to 25.5 s in steps of 100 ms
- Factor for the character delay time 1-10
- Default setting of receive line when using the X.27 interface module

Adjustable parameters

##### Modbus slave

- Modbus protocol with RTU format
- Master/slave coupling: SIMATIC S7 is slave
- Function codes implemented: 01, 02, 03, 04, 05, 06, 08, 15, 16
- No V.24 control and signal line
- CRC polynomial:  $x^{16} + x^{15} + x^2 + 1$
- Interfaces: TTY (20 mA), V.24 (RS 232C), X.27 (RS 422/485) 2-wire or 4-wire
- Communications FB 180, instance DB 180 (use of a multi-instance)
- Conversion of the Modbus data address to S7 data areas. Data areas which can be processed: DB, bit memories, outputs, inputs, timers, counters
- Character delay time 3.5 characters or multiple thereof

Adjustable parameters

- Transmission rate 300 bit/s up to 76800 bit/s (TTY up to 19200 bit/s)
- Character frame
- Slave address of CP (1 to 255)
- With/without RS 485 operation for 2-wire connection
- With/without modem operation (ignore smudge characters)
- Factor for the character delay time 1-10
- Number of work DB (for FB processing)
- Enabling of memory areas for writing by the master
- Default setting of receive line when using the X.27 interface module
- Conversion of Modbus addresses to S7 data areas

### Ordering data

### Article No.

#### Modbus Master V3.1

Task:

Communication via Modbus protocol with RTU format, SIMATIC S7 as master

Requirement:

CP 341 or CP 441-2; STEP 7 V4.02 and higher

Delivery package:

Driver program/documentation, English, German, French

Single license

6ES7870-1AA01-0YA0

Single license, without software and documentation

6ES7870-1AA01-0YA1

#### Modbus Slave V3.1

Task:

Communication via Modbus protocol with RTU format, SIMATIC S7 as slave

Requirement:

CP 341 or CP 441-2; STEP 7 V4.02 and higher

Delivery package:

Driver program/documentation, English, German, French

Single license

6ES7870-1AB01-0YA0

Single license, without software and documentation

6ES7870-1AB01-0YA1

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#### SIMATIC Manual Collection update service for 1 year

6ES7998-8XC01-8YE2

Current "Manual Collection" DVD and the three subsequent updates

### Overview



- For simple and user-friendly connection of sensors and actuators
- For retaining the wiring when replacing modules
- With coding to avoid mistakes when replacing modules

### Ordering data

### Article No.

#### Front connectors

48-pin for signal modules, function modules; 1 unit

- With screw contacts
- With spring-loaded terminals
- With crimp contacts

**6ES7492-1AL00-0AA0**

**6ES7492-1BL00-0AA0**

**6ES7492-1CL00-0AA0**

48-pin for signal modules, function modules; 84 units per pack

- With screw contacts
- With crimp contacts

**6ES7492-1AL00-1AB0**

**6ES7492-1CL00-1AB0**

for 6ES7 431-7KF00-0AB0; spare part, included in scope of delivery; 1 piece

**6ES7431-7KF00-6AA0**

#### Crimp contacts

**6XX3070**

250 units

#### Crimping tool

**6XX3071**

for crimping the contacts

#### Front cover for front connector

**6ES7492-2XL00-0AA0**

6 units

#### Connection terminal for modules

**6ES7490-1BA00-0AA0**

6 units

#### SIMATIC Manual Collection

**6ES7998-8XC01-8YE0**

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