

OFFICIAL MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

6ES7414-2XL07-0AB0

Siemens official documentation for the exact article number.

Source: 6ES7414-2XL07-0AB0.pdf

Selected official Siemens pages follow this cover.

SIMATIC S7-400 advanced controller

Central processing units
Standard CPUs

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CPU 414**Overview**

CPU 414-2, CPU 414-3 and CPU 414-3 PN/DP

- CPUs for high demands in the mid-level performance range
- Applicable for plants with additional demands on programming scope and processing speed
- Integrated PROFINET functions in CPU 414-3 PN/DP

Technical specifications

Article number	6ES7414-2XL07-0AB0 CPU414-2, MPI/DP, 2 MB	6ES7414-3XM07-0AB0 CPU414-3, 4 MB, 3 INTERFACES	6ES7414-3EM07-0AB0 CPU414-3 PN/DP, 4 MB, 3 INTERFACES
General information			
Product type designation	CPU 414-2	CPU 414-3	CPU414-3 PN/DP
Engineering with			
• Programming package	STEP 7 V5.4 or higher with HSP 261	STEP 7 V5.4 or higher with HSP 261	STEP 7 V5.5 or higher with HSP 262
Supply voltage			
Rated value (DC)			
• 24 V DC	No; Power supply via system power supply	No; Power supply via system power supply	No; Power supply via system power supply
Power loss			
Power loss, typ.	4.5 W	5.5 W	6.5 W
Memory			
Work memory			
• integrated	2 Mbyte	4 Mbyte	4 Mbyte
• integrated (for program)	1 Mbyte	2 Mbyte	2 Mbyte
• integrated (for data)	1 Mbyte	2 Mbyte	2 Mbyte
Load memory			
• expandable FEPRAM, max.	64 Mbyte	64 Mbyte	64 Mbyte
• integrated RAM, max.	512 kbyte	512 kbyte	512 kbyte
• expandable RAM, max.	64 Mbyte	64 Mbyte	64 Mbyte
CPU processing times			
for bit operations, typ.	18.75 ns	18.75 ns	18.75 ns
for word operations, typ.	18.75 ns	18.75 ns	18.75 ns
for fixed point arithmetic, typ.	18.75 ns	18.75 ns	18.75 ns
for floating point arithmetic, typ.	37.5 ns	37.5 ns	37.5 ns
Counters, timers and their retentivity			
S7 counter			
• Number	2 048	2 048	2 048
IEC counter			
• present	Yes	Yes	Yes
S7 times			
• Number	2 048	2 048	2 048
IEC timer			
• present	Yes	Yes	Yes
Data areas and their retentivity			
Flag			
• Number, max.	8 kbyte; Size of bit memory address area	8 kbyte; Size of bit memory address area	8 kbyte; Size of bit memory address area

Technical specifications (continued)

Article number	6ES7414-2XL07-0AB0 CPU414-2, MPI/DP, 2 MB	6ES7414-3XM07-0AB0 CPU414-3, 4 MB, 3 INTERFACES	6ES7414-3EM07-0AB0 CPU414-3 PN/DP, 4 MB, 3 INTERFACES
Address area			
I/O address area			
• Inputs	8 kbyte	8 kbyte	8 kbyte
• Outputs	8 kbyte	8 kbyte	8 kbyte
Process image			
• Inputs, adjustable	8 kbyte	8 kbyte	8 kbyte
• Outputs, adjustable	8 kbyte	8 kbyte	8 kbyte
Time of day			
Clock			
• Hardware clock (real-time clock)	Yes	Yes	Yes
Operating hours counter			
• Number	16	16	16
Interfaces			
Interfaces/bus type	1 x MPI/PROFIBUS DP, 1 x PROFIBUS DP	1 x MPI/PROFIBUS DP, 1 x PROFIBUS DP, 1 x PROFIBUS DP (optionally pluggable)	1 x MPI/PROFIBUS DP, 1 x PROFINET (2 ports), 1 x PROFIBUS DP (optionally pluggable)
Number of RS 485 interfaces	2; Combined MPI / PROFIBUS DP and PROFIBUS DP	2; Combined MPI / PROFIBUS DP and PROFIBUS DP	1; Combined MPI / PROFIBUS DP
Number of other interfaces		1; PROFIBUS DP with IF 964-DP (plug-in option; MLFB: 6ES7964-2AA04-0AB0)	1; PROFIBUS DP with IF 964-DP (plug-in option; MLFB: 6ES7964-2AA04-0AB0)
1. Interface			
Interface type	Integrated	Integrated	Integrated
Physics	RS 485 / PROFIBUS + MPI	RS 485 / PROFIBUS + MPI	RS 485 / PROFIBUS + MPI
Functionality			
• MPI	Yes	Yes	Yes
• DP master	Yes	Yes	Yes
• DP slave	Yes	Yes	Yes
DP master			
• Number of DP slaves, max.	32	32	32
2. Interface			
Interface type	Integrated	Integrated	PROFINET
Physics	RS 485 / PROFIBUS	RS 485 / PROFIBUS	Ethernet RJ45
Interface types			
• Number of ports			2
Functionality			
• DP master	Yes	Yes	No
• DP slave	Yes	Yes	No
• PROFINET IO Controller			Yes
• PROFINET IO Device			Yes
• PROFINET CBA			Yes
DP master			
• Number of DP slaves, max.	96	96	
3. Interface			
Interface type		Pluggable interface module (IF), technical data as for 2nd interface	Pluggable interface module (IF)
Plug-in interface modules		IF 964-DP (MLFB: 6ES7964-2AA04-0AB0)	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0)
Physics		RS 485 / PROFIBUS	RS 485 / PROFIBUS
Functionality			
• MPI		No	No
• DP master		Yes	Yes
• DP slave		Yes	Yes
DP master			
• Number of DP slaves, max.		96	96

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CPU 414**Technical specifications (continued)**

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Isochronous mode			
Isochronous operation (application synchronized up to terminal)	Yes; For PROFIBUS only	Yes; For PROFIBUS only	Yes; Via PROFIBUS DP or PROFINET interface
Communication functions			
PG/OP communication	Yes	Yes	Yes
Data record routing	Yes	Yes	Yes
Global data communication			
• supported	Yes	Yes	Yes
S7 basic communication			
• supported	Yes	Yes	Yes
S7 communication			
• supported	Yes	Yes	Yes
S5 compatible communication			
• supported	Yes; Via FC AG_SEND and AG_RECV, max. via 10 CP 443-1 or 443-5	Yes; Via FC AG_SEND and AG_RECV, max. via 10 CP 443-1 or 443-5	Yes; Via FC AG_SEND and AG_RECV, max. via 10 CP 443-1 or 443-5
Standard communication (FMS)			
• supported	Yes; Via CP and loadable FB	Yes; Via CP and loadable FB	Yes; Via CP and loadable FB
Open IE communication			
• TCP/IP			Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.			62
• ISO-on-TCP (RFC1006)	Via CP 443-1 and loadable FB	Via CP 443-1 and loadable FB	Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs
- Number of connections, max.			62
• UDP			Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.			62
Web server			
• supported	No	No	Yes
Number of connections			
• overall	64	64	64
Standards, approvals, certificates			
Use in hazardous areas			
• ATEX	ATEX II 3 G Ex nA IIC T4 Gc	ATEX II 3 G Ex nA IIC T4 Gc	ATEX II 3 G Ex nA IIC T4 Gc
Ambient conditions			
Ambient temperature during operation			
• min.	0 °C	0 °C	0 °C
• max.	60 °C	60 °C	60 °C
Configuration			
Know-how protection			
• User program protection/password protection	Yes	Yes	Yes
• Block encryption	Yes; With S7 block Privacy	Yes; With S7 block Privacy	Yes; With S7 block Privacy
Dimensions			
Width	25 mm	50 mm	50 mm
Height	290 mm	290 mm	290 mm
Depth	219 mm	219 mm	219 mm
Weights			
Weight, approx.	700 g	900 g	900 g

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Ordering data	Article No.		Article No.
CPU 414-2 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	Slot number labels 1 set (spare part)	6ES7912-0AA00-0AA0
CPU 414-3 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	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
CPU 414-3 PN/DP 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	SIMATIC Manual Collection update service for 1 year Current "Manual Collection" DVD and the three subsequent updates	6ES7998-8XC01-8YE2
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	PROFIBUS bus components	
FEPROM 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	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
MPI cable for connection of SIMATIC S7 and PG via MPI; length: 5 m	6ES7901-0BF00-0AA0	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
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	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, sold by the meter; max. delivery unit 1 000 m, minimum ordering quantity 20 m	6XV1830-0EH10