MANUFACTURER DOCUMENT PACKAGE

# Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS

## 6ES7414-5HM06-0AB0

**SIMATIC S7 400 CPU MODULE**

Used with the applicable PLC System configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Siemens official manufacturer documentation

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| Ordering data | Article No. |
|---|---|
| **PROFIBUS FastConnect bus cable**<br>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** |
| **RS 485 repeater for PROFIBUS**<br>Transmission rate up to 12 Mbps; 24 V DC; IP20 enclosure | **6ES7972-0AA02-0XA0** |
| **PROFINET bus components** | |
| **IE FC TP standard cable GP 2x2**<br>4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug; PROFINET-compatible; with UL approval<br>Sold by the meter | **6XV1840-2AH10** |
| **FO standard cable GP (50/125)**<br>Standard cable, splittable, UL approval, sold by the meter | **6XV1873-2A** |
| **SCALANCE X204-2 Industrial Ethernet Switch**<br>Industrial Ethernet Switches with integral SNMP access, Web diagnostics, copper cable diagnostics and PROFINET diagnostics for configuring line, star and ring topologies; four 10/100 Mbps RJ45 ports and two FO ports | **6GK5204-2BB10-2AA3** |
| **IE FC RJ45 plugs**<br>RJ45 plug connector for Industrial Ethernet with a rugged metal enclosure and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables | |
| **IE FC RJ45 Plug 180**<br>180° cable outlet | |
| • 1 unit | **6GK1901-1BB10-2AA0** |
| • 10 units | **6GK1901-1BB10-2AB0** |
| • 50 units | **6GK1901-1BB10-2AE0** |
| **PROFIBUS/PROFINET bus components**<br>For establishing MPI/PROFIBUS/ PROFINET communication | See catalog IK PI |

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## Overview



- CPU for SIMATIC S7-400H and S7-400F/FH
- Can be used in S7-400H high-availability systems
- Can be used with F runtime license as F-capable CPU in S7-400F/FH safety-related systems
- With integrated PROFIBUS DP master and combined MPI/PROFIBUS DP master interface
- With integrated PROFINET interface (2-port switch)
- Features 2 slots for sync modules

## Technical specifications

| Article number | **6ES7412-5HK06-0AB0**<br>CPU412-5H PN/DP, 1MB F.<br>S7-400H/F/FH | **6ES7414-5HM06-0AB0**<br>CPU414-5H PN/DP, 4MB F.<br>S7-400H/F/FH | **6ES7416-5HS06-0AB0**<br>CPU416-5H PN/DP, 16MB F.<br>S7-400H/F/FH | **6ES7417-5HT06-0AB0**<br>CPU417-5H PN/DP, 32MB F.<br>S7-400H/F/FH |
|---|---|---|---|---|
| **Product type designation** | | | | |
| **General information** | | | | |
| **Engineering with** | | | | |
| • Programming package | As of STEP 7 V5.5 SP2 with HF1 | As of STEP 7 V5.5 SP2 with HF1 | As of STEP 7 V5.5 SP2 with HF1 | As of STEP 7 V5.5 SP2 with HF1 |
| **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 | No; Power supply via system power supply |
| **Power losses** | | | | |
| Power loss, typ. | 7.5 W | 7.5 W | 7.5 W | 7.5 W |
| **Memory** | | | | |
| **Work memory** | | | | |
| • Integrated | 1 Mbyte | 4 Mbyte | 16 Mbyte | 32 Mbyte |
| • integrated (for program) | 512 kbyte | 2 Mbyte | 6 Mbyte | 16 Mbyte |
| • integrated (for data) | 512 kbyte | 2 Mbyte | 10 Mbyte | 16 Mbyte |
| **Load memory** | | | | |
| • expandable FEPROM, max. | 64 Mbyte | 64 Mbyte | 64 Mbyte | 64 Mbyte |
| • integrated RAM, max. | 512 kbyte | 512 kbyte | 1 Mbyte | 1 Mbyte |
| • expandable RAM, max. | 64 Mbyte | 64 Mbyte | 64 Mbyte | 64 Mbyte |
| **CPU processing times** | | | | |
| for bit operations, typ. | 31.25 ns | 18.75 ns | 12.5 ns | 7.5 ns |
| for word operations, typ. | 31.25 ns | 18.75 ns | 12.5 ns | 7.5 ns |
| for fixed point arithmetic, typ. | 31.25 ns | 18.75 ns | 12.5 ns | 7.5 ns |
| for floating point arithmetic, typ. | 62.5 ns | 37.5 ns | 25 ns | 15 ns |
| **Counters, timers and their retentivity** | | | | |
| **S7 counter** | | | | |
| • Number | 2 048 | 2 048 | 2 048 | 2 048 |
| **IEC counter** | | | | |
| • present | Yes | Yes | Yes | Yes |
| **S7 times** | | | | |
| • Number | 2 048 | 2 048 | 2 048 | 2 048 |
| **IEC timer** | | | | |
| • present | Yes | Yes | Yes | Yes |
| **Data areas and their retentivity** | | | | |
| **Flag** | | | | |
| • Number, max. | 8 192 byte | 8 192 byte | 16 384 byte | 16 384 byte |

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## Technical specifications (continued)

| Article number | 6ES7412-5HK06-0AB0<br>CPU412-5H PN/DP, 1MB F. S7-400H/F/FH | 6ES7414-5HM06-0AB0<br>CPU414-5H PN/DP, 4MB F. S7-400H/F/FH | 6ES7416-5HS06-0AB0<br>CPU416-5H PN/DP, 16MB F. S7-400H/F/FH | 6ES7417-5HT06-0AB0<br>CPU417-5H PN/DP, 32MB F. S7-400H/F/FH |
|---|---|---|---|---|
| **Address area** | | | | |
| **I/O address area** | | | | |
| • Inputs | 8 kbyte | 8 kbyte | 16 kbyte | 16 kbyte |
| • Outputs | 8 kbyte | 8 kbyte | 16 kbyte | 16 kbyte |
| **Process image** | | | | |
| • Inputs, adjustable | 8 kbyte | 8 kbyte | 16 kbyte | 16 kbyte |
| • Outputs, adjustable | 8 kbyte | 8 kbyte | 16 kbyte | 16 kbyte |
| **Hardware configuration** | | | | |
| **Slots** | | | | |
| • Required slots | 2 | 2 | 2 | 2 |
| **Time of day** | | | | |
| **Clock** | | | | |
| • Hardware clock (real-time clock) | Yes | Yes | Yes | Yes |
| **Operating hours counter** | | | | |
| • Number | 16 | 16 | 16 | 16 |
| **Interfaces** | | | | |
| Number of RS 485 interfaces | 2 | 2 | 2 | 2 |
| Number of other interfaces | 2; Fiber-optic interface | 2; Fiber-optic interface | 2; Fiber-optic interface | 2; Fiber-optic interface |
| **1st interface** | | | | |
| Interface type | Integrated | Integrated | Integrated | Integrated |
| Physics | RS 485 / PROFIBUS + MPI | RS 485 / PROFIBUS + MPI | RS 485 / PROFIBUS + MPI | RS 485 / PROFIBUS + MPI |
| **Functionality** | | | | |
| • MPI | Yes | Yes | Yes | Yes |
| • DP master | Yes | Yes | Yes | Yes |
| • DP slave | No | No | No | No |
| **DP master** | | | | |
| • Number of DP slaves, max. | 32 | 32 | 32 | 32 |
| **2nd interface** | | | | |
| Interface type | PROFINET | PROFINET | PROFINET | PROFINET |
| Physics | Ethernet RJ45 | Ethernet RJ45 | Ethernet RJ45 | Ethernet RJ45 |
| Number of ports | 2 | 2 | 2 | 2 |
| **Functionality** | | | | |
| • DP master | No | No | No | No |
| • DP slave | No | No | No | No |
| • PROFINET IO Controller | Yes | Yes | Yes | Yes |
| • PROFINET IO Device | No | No | No | No |
| • PROFINET CBA | No | No | No | No |
| **PROFINET IO Controller** | | | | |
| • Max. number of connectable IO devices for RT | 256 | 256 | 256 | 256 |
| **3rd interface** | | | | |
| Interface type | Integrated | Integrated | Integrated | Integrated |
| Physics | RS 485 / PROFIBUS | RS 485 / PROFIBUS | RS 485 / PROFIBUS | RS 485 / PROFIBUS |
| **Functionality** | | | | |
| • DP master | Yes | Yes | Yes | Yes |
| • DP slave | No | No | No | No |
| **DP master** | | | | |
| • Number of DP slaves, max. | 64 | 96 | 125 | 125 |
| **4th interface** | | | | |
| Interface type | Pluggable synchronization submodule (FO) | Pluggable synchronization submodule (FO) | Pluggable synchronization submodule (FO) | Pluggable synchronization submodule (FO) |
| Plug-in interface modules | Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0 | Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0 | Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0 | Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0 |

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## Technical specifications (continued)

| Article number | **6ES7412-5HK06-0AB0** | **6ES7414-5HM06-0AB0** | **6ES7416-5HS06-0AB0** | **6ES7417-5HT06-0AB0** |
|---|---|---|---|---|
| | CPU412-5H PN/DP, 1MB F. S7-400H/F/FH | CPU414-5H PN/DP, 4MB F. S7-400H/F/FH | CPU416-5H PN/DP, 16MB F. S7-400H/F/FH | CPU417-5H PN/DP, 32MB F. S7-400H/F/FH |
| **5. Interface** | | | | |
| Interface type | Pluggable synchronization submodule (FO) | Pluggable synchronization submodule (FO) | Pluggable synchronization submodule (FO) | Pluggable synchronization submodule (FO) |
| Plug-in interface modules | Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0 | Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0 | Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0 | Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0 |
| **Isochronous mode** | | | | |
| Isochronous operation (application synchronized up to terminal) | No | No | No | No |
| **Communication functions** | | | | |
| PG/OP communication | Yes | Yes | Yes | Yes |
| Data record routing | Yes | Yes | Yes | Yes |
| S7 routing | Yes | Yes | Yes | Yes |
| **Global data communication** | | | | |
| • supported | No | No | No | No |
| **S7 basic communication** | | | | |
| • supported | No | No | No | No |
| **S7 communication** | | | | |
| • supported | Yes | Yes | Yes | Yes |
| **S5-compatible communication** | | | | |
| • supported | Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV) | Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV) | Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV) | Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV) |
| **Standard communication (FMS)** | | | | |
| • supported | Yes; Via CP and loadable FB | 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 | Yes; via integrated PROFINET interface and loadable FBs | Yes; via integrated PROFINET interface and loadable FBs | Yes; via integrated PROFINET interface and loadable FBs |
| - Number of connections, max. | 46 | 62 | 94 | 118 |
| • ISO-on-TCP (RFC1006) | Yes; Via integrated PROFINET interface or CP 443-1 and loadable FBs | Yes; Via integrated PROFINET interface or CP 443-1 and loadable FBs | Yes; Via integrated PROFINET interface or CP 443-1 and loadable FBs | Yes; Via integrated PROFINET interface or CP 443-1 and loadable FBs |
| - Number of connections, max. | 46 | 62 | 94 | 118 |
| • UDP | Yes; via integrated PROFINET interface and loadable FBs | Yes; via integrated PROFINET interface and loadable FBs | Yes; via integrated PROFINET interface and loadable FBs | Yes; via integrated PROFINET interface and loadable FBs |
| - Number of connections, max. | 46 | 62 | 94 | 118 |
| **Web server** | | | | |
| • supported | No | No | No | No |
| **Number of connections** | | | | |
| • overall | 48 | 64 | 96 | 120 |
| **Configuration** | | | | |
| **Programming** | | | | |
| **Programming language** | | | | |
| - LAD | Yes | Yes | Yes | Yes |
| - FBD | Yes | Yes | Yes | Yes |
| - STL | Yes | Yes | Yes | Yes |
| - SCL | Yes | Yes | Yes | Yes |
| - CFC | Yes | Yes | Yes | Yes |
| - GRAPH | Yes | Yes | Yes | Yes |
| - HiGraph® | Yes | Yes | Yes | Yes |
| **Know-how protection** | | | | |
| • User program protection/password protection | Yes | Yes | Yes | Yes |
| • Block encryption | Yes; With S7 block Privacy | Yes; With S7 block Privacy | Yes; With S7 block Privacy | Yes; With S7 block Privacy |
| **Dimensions** | | | | |
| Width | 50 mm | 50 mm | 50 mm | 50 mm |
| Height | 290 mm | 290 mm | 290 mm | 290 mm |
| Depth | 219 mm | 219 mm | 219 mm | 219 mm |
| **Weights** | | | | |
| Weight, approx. | 995 g | 995 g | 995 g | 995 g |

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| Ordering data | Article No. |
|---|---|
| **CPU 412-5H**<br>For S7-400H and S7-400F/FH; 1 MB RAM, 1 combined MPI/ PROFIBUS DP master interface, 1 PROFIBUS DP interface, 2 PROFINET interfaces (switches), 2 slots for sync modules, slot for memory card, incl. slot number labels | **6ES7412-5HK06-0AB0** |
| **CPU 412-5H system bundle**<br>Not assembled, consisting of: UR2-H rack, 2 x PS 405/407 power supply units, 2 x CPU 412-5H, 4 x sync modules (for max. 10 m), 2 x fiber optic cables for sync modules (1 m), 4 x backup batteries; two additional memory cards required (to be ordered separately) | |
| • CPU 412-5H system bundle, 120/230 V AC, 10 A | **6ES7400-0HR01-4AB0** |
| • CPU 412-5H system bundle, 24/48/60 V DC, 10 A | **6ES7400-0HR51-4AB0** |
| **CPU 414-5H**<br>For S7-400H and S7-400F/FH; 4 MB RAM, 1 combined MPI/ PROFIBUS DP master interface, 1 PROFIBUS DP interface, 2 PROFINET interfaces (switches), 2 slots for sync modules, slot for memory card, incl. slot number labels | **6ES7414-5HM06-0AB0** |
| **CPU 414-5H system bundle**<br>Not assembled, consisting of: UR2-H rack, 2 x PS 405/407 power supply units, 2 x CPU 414-5H, 4 x sync modules (for max. 10 m), 2 x fiber optic cables for sync modules (1 m), 4 x backup batteries; additional two memory cards required (to be ordered separately) | |
| • CPU 414-5H system bundle, 120/230 V AC, 10 A | **6ES7400-0HR02-4AB0** |
| • CPU 414-5H system bundle, 24/48/60 V DC, 10 A | **6ES7400-0HR52-4AB0** |
| **CPU 416-5H**<br>For S7-400H and S7-400F/FH; 16 MB RAM, 1 combined MPI/ PROFIBUS DP master interface, 1 PROFIBUS DP interface, 2 PROFINET interfaces (switches), 2 slots for sync modules, slot for memory card, incl. slot number labels | **6ES7416-5HS06-0AB0** |
| **CPU 416-5H system bundle**<br>Not assembled, consisting of: UR2-H rack, 2 x PS 405/407 power supply units, 2 x CPU 416-5H, 4 x sync modules (for max. 10 m), 2 x fiber optic cables for sync modules (1 m), 4 x backup batteries; two additional memory cards required (to be ordered separately) | |
| • CPU 416-5H system bundle, 120/230 V AC, 10 A | **6ES7400-0HR03-4AB0** |
| • CPU 416-5H system bundle, 24/48/60 V DC, 10 A | **6ES7400-0HR53-4AB0** |
| **CPU 417-5H**<br>For S7-400H and S7-400F/FH; 32 MB RAM, 1 combined MPI/ PROFIBUS DP master interface, 1 PROFIBUS DP interface, 2 PROFINET interfaces (switches), 2 slots for sync modules, slot for memory card, incl. slot number labels | **6ES7417-5HT06-0AB0** |
| **CPU 417-5H system bundle**<br>Not assembled, consisting of: UR2-H rack, 2 x PS 405/407 power supply units, 2 x CPU 417-5H, 4 x sync modules (for max. 10 m), 2 x fiber optic cables for sync modules (1 m), 4 x backup batteries; two additional memory cards required (to be ordered separately) | |
| • CPU 417-5H system bundle, 120/230 V AC, 10 A | **6ES7400-0HR04-4AB0** |
| • CPU 417-5H system bundle, 24/48/60 V DC, 10 A | **6ES7400-0HR54-4AB0** |
| **Memory card RAM** | |
| 1 MB | **6ES7952-1AK00-0AA0** |
| 2 MB | **6ES7952-1AL00-0AA0** |
| 4 MB | **6ES7952-1AM00-0AA0** |
| 8 MB | **6ES7952-1AP00-0AA0** |
| 16 MB | **6ES7952-1AS00-0AA0** |
| 64 MB | **6ES7952-1AY00-0AA0** |
| **FEPROM memory card** | |
| 1 MB | **6ES7952-1KK00-0AA0** |
| 2 MB | **6ES7952-1KL00-0AA0** |
| 4 MB | **6ES7952-1KM00-0AA0** |
| 8 MB | **6ES7952-1KP00-0AA0** |
| 16 MB | **6ES7952-1KS00-0AA0** |
| 32 MB | **6ES7952-1KT00-0AA0** |
| 64 MB | **6ES7952-1KY00-0AA0** |
| **MPI cable**<br>For connection of SIMATIC S7 and PG via MPI; 5 m in length | **6ES7901-0BF00-0AA0** |
| **Slot number plates**<br>1 set (spare part) | **6ES7912-0AA00-0AA0** |
| **S7 F Systems RT License**<br>For processing safety-related user programs, for one S7-400H-based system each with CPU 412-5H, CPU 414-5H, CPU 416-5H or CPU 417-5H | **6ES7833-1CC00-6YX0** |
| **S7 F Systems V6.1**<br>Programming and configuring environment for creating and operating safety-related STEP 7 programs for an S7-400H-based target system, floating license for 1 user, runs with Windows XP Prof SP2, Windows XP Prof SP2/SP3, Windows Server 2003 SP2<br>2 languages (English, German)<br>Type of delivery:<br>Certificate of License as well as software and electronic documentation on CD | **6ES7833-1CC02-0YA5** |

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## Ordering data

| | Article No. |
|---|---|
| **S7 F systems upgrade from V5.x/V6.0 to V6.1**<br>2 languages (English, German), floating license for 1 user<br>Type of delivery:<br>Certificate of License as well as software and electronic documentation on CD | **6ES7833-1CC02-0YE5** |
| **SIMATIC Manual Collection**<br>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** |
| **SIMATIC Manual Collection update service for 1 year**<br>Current "Manual Collection" DVD and the three subsequent updates | **6ES7998-8XC01-8YE2** |

| | Article No. |
|---|---|
| **RS 485 bus connector with 90° cable outlet** | |
| Max. transfer rate 12 Mbit/s | |
| • Without PG interface | **6ES7972-0BA12-0XA0** |
| • With PG interface | **6ES7972-0BB12-0XA0** |
| **RS 485 bus connector with angled cable outlet** | |
| • Max. transfer rate 12 Mbit/s | |
| - Without PG interface | **6ES7972-0BA42-0XA0** |
| - With PG interface | **6ES7972-0BB42-0XA0** |
| • Max. transfer rate 1.5 Mbit/s | |
| - Without PG interface | **6ES7972-0BA30-0XA0** |
| **Bus connector RS 485 with 90° cable outlet for FastConnect connection technology** | |
| Max. transfer rate 12 Mbit/s | |
| • Without PG interface | |
| - 1 unit | **6ES7972-0BA52-0XA0** |
| - 100 units | **6ES7972-0BA52-0XB0** |
| • With PG interface | |
| - 1 unit | **6ES7972-0BB52-0XA0** |
| - 100 units | **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 quick mounting, 2-core, shielded, sold by the meter, max. delivery unit 1000 m, minimum ordering quantity 20 m | **6XV1830-0EH10** |

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## Overview



- CPU for SIMATIC S7-400H and S7-400F/FH
- Usable in high-availability systems such as the S7-400H
- Usable with F runtime license as F-capable CPU in S7-400F/FH safety-related systems
- Features a combined MPI/PROFIBUS DP master interface
- Features 2 slots for sync modules

***Note:***

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

## Technical specifications

| | |
|---|---|
| Article number | **6AG1412-5HK06-7AB0** |
| Based on | **6ES7412-5HK06-0AB0** |
| | SIPLUS S7-400 CPU 412-5H |
| **Ambient conditions** | |
| **Ambient temperature in operation** | |
| • Min. | -25 °C; = Tmin |
| • max. | 70 °C |
| **Extended ambient conditions** | |
| • Relative to ambient temperature-atmospheric pressure-installation altitude | Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m) // Tmin ... (Tmax - 10K) at 795 hPa ... 658 hPa (+2000 m ... +3500 m) // Tmin ... (Tmax - 20K) at 658 hPa ... 540 hPa (+3500 m ... +5000 m). For "F-Systems" applications max. +2000 m above sea level permissible |
| **Relative humidity** | |
| - With condensation, tested in accordance with IEC 60068-2-38, max. | 100 %; RH incl. condensation/frost (no commissioning under condensation conditions) |
| **Resistance** | |
| - against biologically active substances / conformity with EN 60721-3-3 | Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation! |
| - against chemically active substances / conformity with EN 60721-3-3 | Yes; Class 3C4 (RH < 75 %) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation! |
| - against mechanically active substances / conformity with EN 60721-3-3 | Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation! |

## Ordering data

| | Article No. |
|---|---|
| **SIPLUS S7-400 CPU 412-5H** | |
| CPU for S7-400H with 1 MB RAM (0.5 MB code and 0.5 MB data); 5 interfaces: 1x MPI/DP, DP, PN each and 2 slots for sync modules | |
| Extended temperature range and exposure to media | **6AG1412-5HK06-7AB0** |
| **Accessories** | |
| **Memory card RAM** | |
| (medial exposure) | |
| • 2 MB | **6AG1952-1AL00-4AA0** |
| Extended temperature range and exposure to media | |
| • 4 MB | **6AG1952-1AM00-7AA0** |
| • 8 MB | **6AG1952-1AP00-7AA0** |
| • 16 MB | **6AG1952-1AS00-7AA0** |
| • 64 MB | **6AG1952-1AY00-7AA0** |
| **FEPROM memory card** | |
| Exposure to media | |
| 32 MB | **6AG1952-1KT00-4AA0** |
| **RS 485 bus connector with 90° cable outlet** | |
| Max. transfer rate 12 Mbit/s | |
| Extended temperature range and exposure to media | |
| • Without PG interface | **6AG1972-0BA12-2XA0** |
| • With PG interface | **6AG1972-0BB12-2XA0** |

| | Article No. |
|---|---|
| **RS 485 bus connector with angled cable outlet** | |
| Max. transmission rate 12 Mbit/s | |
| Extended temperature range and exposure to media | |
| • Without PG interface | **6AG1972-0BA42-7XA0** |
| • With PG interface | **6AG1972-0BB42-7XA0** |
| **RS 485 bus connector with axial cable outlet** | |
| For SIPLUS OP, for connection to PPI, MPI, PROFIBUS | |
| Extended temperature range and exposure to media | **6AG1500-0EA02-2AA0** |
| **RS 485 repeater for PROFIBUS** | |
| Transfer rate up to 12 Mbit/s; 24 V DC; IP20 enclosure | |
| Extended temperature range and exposure to media | **6AG1972-0AA02-7XA0** |
| **Additional accessories** | See SIMATIC CPU 412-5H, page 1/37 |

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## SIPLUS S7-400 CPU 414H

### Overview



CPU for SIMATIC S7-400H and S7-400F/FH

- Usable in high-availability systems such as the S7-400H
- Usable with F runtime license as F-capable CPU in S7-400F/FH safety-related systems
- With integral PROFIBUS DP master interface
- Features 2 slots for sync modules

***Note:***

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

### Technical specifications

| | |
|---|---|
| Article number | **6AG1414-5HM06-7AB0** |
| Based on | **6ES7414-5HM06-0AB0** |
| | SIPLUS S7-400 CPU 414-5H |
| **Ambient conditions** | |
| **Ambient temperature in operation** | |
| • Min. | -25 °C |
| • max. | 70 °C; For "F-Systems" applications max. +60 °C permissible |
| **Extended ambient conditions** | |
| • Relative to ambient temperature-atmospheric pressure-installation altitude | Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m) // Tmin ... (Tmax - 10K) at 795 hPa ... 658 hPa (+2000 m ... +3500 m) // Tmin ... (Tmax - 20K) at 658 hPa ... 540 hPa (+3500 m ... +5000 m). For "F-Systems" applications max. +2000 m above sea level permissible |
| **Relative humidity** | |
| - With condensation, max. | 100 %; RH incl. condensation/frost (no commissioning under condensation conditions) |
| **Resistance** | |
| - against biologically active substances / conformity with EN 60721-3-3 | Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation! |
| - against chemically active substances / conformity with EN 60721-3-3 | Yes; Class 3C4 (RH < 75 %) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation! |
| - against mechanically active substances / conformity with EN 60721-3-3 | Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation! |

### Ordering data

| | Article No. |
|---|---|
| **SIPLUS S7-400 CPU 414-5H** | |
| CPU for S7-400H with 4 MB RAM (2 MB code and 2 MB data); 5 interfaces: 1x MPI/DP, DP, PN each and 2 slots for sync modules | |
| Extended temperature range and exposure to media | **6AG1414-5HM06-7AB0** |
| **Accessories** | |
| **Memory Card RAM** | |
| Exposure to media | |
| • 2 MB | **6AG1952-1AL00-4AA0** |
| Extended temperature range and exposure to media | |
| • 4 MB | **6AG1952-1AM00-7AA0** |
| • 8 MB | **6AG1952-1AP00-7AA0** |
| • 16 MB | **6AG1952-1AS00-7AA0** |
| • 64 MB | **6AG1952-1AY00-7AA0** |
| **FEPROM memory card** | |
| Exposure to media | |
| • 32 MB | **6AG1952-1KT00-4AA0** |
| **RS 485 bus connector with 90° cable outlet** | |
| Max. transfer rate 12 Mbit/s | |
| Extended temperature range and exposure to media | |
| • Without PG interface | **6AG1972-0BA12-2XA0** |
| • With PG interface | **6AG1972-0BB12-2XA0** |

| | Article No. |
|---|---|
| **RS 485 bus connector with angled cable outlet** | |
| Max. transmission rate 12 Mbit/s | |
| Extended temperature range and exposure to media | |
| • Without PG interface | **6AG1972-0BA42-7XA0** |
| • With PG interface | **6AG1972-0BB42-7XA0** |
| **RS 485 bus connector with axial cable outlet** | |
| For SIPLUS OP, for connection to PPI, MPI, PROFIBUS | |
| Extended temperature range and exposure to media | **6AG1500-0EA02-2AA0** |
| **RS 485 repeater for PROFIBUS** | |
| Transfer rate up to 12 Mbit/s; 24 V DC; IP20 enclosure | |
| Extended temperature range and exposure to media | **6AG1972-0AA02-7XA0** |
| **Additional accessories** | see SIMATIC S7-400 CPU 414-5H, page 1/37 |