



SIMATIC S7-400H, CPU 417-5H, central processing unit for S7-400H and S7-400F/FH, 5 interfaces: 1x MPI/DP, 1x DP, 1x PN and 2 for sync modules, 32 MB memory (16 MB data/16 MB program)

| General information                         |                                      |
|---------------------------------------------|--------------------------------------|
| Product type designation                    | CPU 417-5H PN/DP                     |
| HW functional status                        | 1                                    |
| Firmware version                            | V6.0                                 |
| Product function                            |                                      |
| • Isochronous mode                          | No                                   |
| Engineering with                            |                                      |
| • Programming package                       | As of STEP 7 V5.5 SP2 with HF1       |
| CiR - Configuration in RUN                  |                                      |
| CiR synchronization time, basic load        | 60 ms                                |
| CiR synchronization time, time per I/O byte | 0 µs                                 |
| Supply voltage                              |                                      |
| Rated value (DC)                            | Power supply via system power supply |
| Input current                               |                                      |
| from backplane bus 5 V DC, typ.             | 1.6 A                                |
| from backplane bus 5 V DC, max.             | 1.9 A                                |
| from backplane bus 24 V DC, max.            | 150 mA; 150 mA per DP interface      |
| from interface 5 V DC, max.                 | 90 mA; At each DP interface          |
| Power loss                                  |                                      |
| Power loss, typ.                            | 7.5 W                                |
| Storage                                     |                                      |
| Type of memory                              | RAM                                  |
| Work memory                                 |                                      |
| • Integrated                                | 32 Mbyte                             |
| • integrated (for program)                  | 16 Mbyte                             |
| • integrated (for data)                     | 16 Mbyte                             |
| • expandable                                | No                                   |
| Load memory                                 |                                      |
| • expandable FEPRAM                         | Yes; with Memory Card (FLASH)        |
| • expandable FEPRAM, max.                   | 64 Mbyte                             |
| • integrated RAM, max.                      | 1 Mbyte                              |
| • expandable RAM                            | Yes                                  |
| • expandable RAM, max.                      | 64 Mbyte                             |
| Backup                                      |                                      |
| • present                                   | Yes                                  |
| • with battery                              | Yes; all data                        |
| • without battery                           | No                                   |
| Battery                                     |                                      |
| Backup battery                              |                                      |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Backup current, typ.</li> <li>• Backup current, max.</li> <li>• Backup time, max.</li> </ul>                                                                                                                                                                                                                                                                                                            | 180 µA; Valid up to 40°C<br>1 000 µA<br>Dealt with in the module data manual with the secondary conditions and the factors of influence                                   |
| • Feeding of external backup voltage to CPU                                                                                                                                                                                                                                                                                                                                                                                                      | 5 V DC to 15 V DC                                                                                                                                                         |
| <b>CPU processing times</b>                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                           |
| for bit operations, typ.                                                                                                                                                                                                                                                                                                                                                                                                                         | 7.5 ns                                                                                                                                                                    |
| for word operations, typ.                                                                                                                                                                                                                                                                                                                                                                                                                        | 7.5 ns                                                                                                                                                                    |
| for fixed point arithmetic, typ.                                                                                                                                                                                                                                                                                                                                                                                                                 | 7.5 ns                                                                                                                                                                    |
| for floating point arithmetic, typ.                                                                                                                                                                                                                                                                                                                                                                                                              | 15 ns                                                                                                                                                                     |
| <b>CPU-blocks</b>                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                           |
| <b>DB</b>                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>• Number, max.</li> <li>• Size, max.</li> </ul>                                                                                                                                                                                                                                                                                                                                                           | 16 000; Number range: 1 to 16000<br>64 kbyte                                                                                                                              |
| <b>FB</b>                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>• Number, max.</li> <li>• Size, max.</li> </ul>                                                                                                                                                                                                                                                                                                                                                           | 8 000; Number range: 0 to 7999<br>64 kbyte                                                                                                                                |
| <b>FC</b>                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>• Number, max.</li> <li>• Size, max.</li> </ul>                                                                                                                                                                                                                                                                                                                                                           | 8 000; Number range: 0 to 7999<br>64 kbyte                                                                                                                                |
| <b>OB</b>                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>• Number, max.</li> <li>• Size, max.</li> <li>• Number of free cycle OBs</li> <li>• Number of time alarm OBs</li> <li>• Number of delay alarm OBs</li> <li>• Number of cyclic interrupt OBs</li> <li>• Number of process alarm OBs</li> <li>• Number of DPV1 alarm OBs</li> <li>• Number of startup OBs</li> <li>• Number of asynchronous error OBs</li> <li>• Number of synchronous error OBs</li> </ul> | see instruction list<br>64 kbyte<br>1; OB 1<br>8; OB 10-17<br>4; OB 20-23<br>9; OB 30-38<br>8; OB 40-47<br>3; OB 55-57<br>2; OB 100, 102<br>9; OB 80-88<br>2; OB 121, 122 |
| <b>Nesting depth</b>                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>• per priority class</li> <li>• additional within an error OB</li> </ul>                                                                                                                                                                                                                                                                                                                                  | 24<br>2                                                                                                                                                                   |
| <b>Counters, timers and their retentivity</b>                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                           |
| <b>S7 counter</b>                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                           |
| • Number                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2 048                                                                                                                                                                     |
| <b>Retentivity</b>                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                           |
| — can be set                                                                                                                                                                                                                                                                                                                                                                                                                                     | Yes                                                                                                                                                                       |
| — preset                                                                                                                                                                                                                                                                                                                                                                                                                                         | Z 0 to Z 7                                                                                                                                                                |
| <b>Counting range</b>                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                           |
| — lower limit                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0                                                                                                                                                                         |
| — upper limit                                                                                                                                                                                                                                                                                                                                                                                                                                    | 999                                                                                                                                                                       |
| <b>IEC counter</b>                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>• present</li> <li>• Type</li> <li>• Number</li> </ul>                                                                                                                                                                                                                                                                                                                                                    | Yes<br>SFB<br>Unlimited (limited only by RAM capacity)                                                                                                                    |
| <b>S7 timer</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                           |
| • Number                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2 048                                                                                                                                                                     |
| <b>Retentivity</b>                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                           |
| — can be set                                                                                                                                                                                                                                                                                                                                                                                                                                     | Yes                                                                                                                                                                       |
| — preset                                                                                                                                                                                                                                                                                                                                                                                                                                         | No times retentive                                                                                                                                                        |
| <b>Time range</b>                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                           |
| — lower limit                                                                                                                                                                                                                                                                                                                                                                                                                                    | 10 ms                                                                                                                                                                     |
| — upper limit                                                                                                                                                                                                                                                                                                                                                                                                                                    | 9 990 s                                                                                                                                                                   |
| <b>IEC timer</b>                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>• present</li> <li>• Type</li> </ul>                                                                                                                                                                                                                                                                                                                                                                      | Yes<br>SFB                                                                                                                                                                |

|                                                           |                                                                                                                   |
|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| • Number                                                  | Unlimited (limited only by RAM capacity)                                                                          |
| <b>Data areas and their retentivity</b>                   |                                                                                                                   |
| Retentive data area (incl. timers, counters, flags), max. | Total working and load memory (with backup battery)                                                               |
| <b>Flag</b>                                               |                                                                                                                   |
| • Size, max.                                              | 16 384 byte                                                                                                       |
| • Retentivity available                                   | Yes                                                                                                               |
| • Retentivity preset                                      | MB 0 to MB 15                                                                                                     |
| • Number of clock memories                                | 8; in 1 memory byte                                                                                               |
| <b>Local data</b>                                         |                                                                                                                   |
| • adjustable, max.                                        | 64 kbyte                                                                                                          |
| • preset                                                  | 32 kbyte                                                                                                          |
| <b>Address area</b>                                       |                                                                                                                   |
| <b>I/O address area</b>                                   |                                                                                                                   |
| • Inputs                                                  | 16 kbyte                                                                                                          |
| • Outputs                                                 | 16 kbyte                                                                                                          |
| <b>Process image</b>                                      |                                                                                                                   |
| • Inputs, adjustable                                      | 16 kbyte                                                                                                          |
| • Outputs, adjustable                                     | 16 kbyte                                                                                                          |
| • Inputs, default                                         | 1 024 byte                                                                                                        |
| • Outputs, default                                        | 1 024 byte                                                                                                        |
| • consistent data, max.                                   | 244 byte                                                                                                          |
| • Access to consistent data in process image              | Yes                                                                                                               |
| <b>Subprocess images</b>                                  |                                                                                                                   |
| • Number of subprocess images, max.                       | 15                                                                                                                |
| <b>Digital channels</b>                                   |                                                                                                                   |
| • Inputs                                                  | 131 072                                                                                                           |
| — of which central                                        | 131 072                                                                                                           |
| • Outputs                                                 | 131 072                                                                                                           |
| — of which central                                        | 131 072                                                                                                           |
| <b>Analog channels</b>                                    |                                                                                                                   |
| • Inputs                                                  | 8 192                                                                                                             |
| — of which central                                        | 8 192                                                                                                             |
| • Outputs                                                 | 8 192                                                                                                             |
| — of which central                                        | 8 192                                                                                                             |
| <b>Hardware configuration</b>                             |                                                                                                                   |
| Number of expansion units, max.                           | 21                                                                                                                |
| connectable OPs                                           | 119                                                                                                               |
| Multicomputing                                            | No                                                                                                                |
| <b>Interface modules</b>                                  |                                                                                                                   |
| • Number of connectable IMs (total), max.                 | 6                                                                                                                 |
| • Number of connectable IM 460s, max.                     | 6                                                                                                                 |
| • Number of connectable IM 463s, max.                     | 4; Single mode only                                                                                               |
| <b>Number of DP masters</b>                               |                                                                                                                   |
| • Integrated                                              | 2                                                                                                                 |
| • via CP                                                  | 10; CP 443-5 Extended                                                                                             |
| • Mixed mode IM + CP permitted                            | No                                                                                                                |
| • via interface module                                    | 0                                                                                                                 |
| <b>Number of IO Controllers</b>                           |                                                                                                                   |
| • Integrated                                              | 1                                                                                                                 |
| • Via CP                                                  | 0                                                                                                                 |
| <b>Number of operable FMs and CPs (recommended)</b>       |                                                                                                                   |
| • FM                                                      | See manual Automation System S7-400H fault-tolerant systems. Limited by number of slots and number of connections |
| • CP, PtP                                                 | See manual Automation System S7-400H fault-tolerant systems. Limited by number of slots and number of connections |
| • PROFIBUS and Ethernet CPs                               | 14; Of which max. 10 CP as DP master                                                                              |
| <b>Slots</b>                                              |                                                                                                                   |
| • required slots                                          | 2                                                                                                                 |
| <b>Time of day</b>                                        |                                                                                                                   |

|                                                         |                                                                                                                   |
|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>Clock</b>                                            |                                                                                                                   |
| • Hardware clock (real-time)                            | Yes                                                                                                               |
| • retentive and synchronizable                          | Yes                                                                                                               |
| • Resolution                                            | 1 ms                                                                                                              |
| • Deviation per day (buffered), max.                    | 1.7 s; Power off                                                                                                  |
| • Deviation per day (unbuffered), max.                  | 8.6 s; Power on                                                                                                   |
| <b>Operating hours counter</b>                          |                                                                                                                   |
| • Number                                                | 16                                                                                                                |
| • Number/Number range                                   | 0 to 15                                                                                                           |
| • Range of values                                       | SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2 <sup>31</sup> - 1 hours                                         |
| • Granularity                                           | 1 h                                                                                                               |
| • retentive                                             | Yes                                                                                                               |
| <b>Clock synchronization</b>                            |                                                                                                                   |
| • supported                                             | Yes                                                                                                               |
| • to MPI, master                                        | Yes                                                                                                               |
| • on MPI, device                                        | Yes                                                                                                               |
| • to DP, master                                         | Yes                                                                                                               |
| • on DP, device                                         | Yes                                                                                                               |
| • in AS, master                                         | Yes                                                                                                               |
| • in AS, device                                         | Yes                                                                                                               |
| • on Ethernet via NTP                                   | Yes; As client                                                                                                    |
| <b>Time difference in system when synchronizing via</b> |                                                                                                                   |
| • Ethernet, max.                                        | 10 ms; Via NTP                                                                                                    |
| • MPI, max.                                             | 200 ms                                                                                                            |
| <b>Interfaces</b>                                       |                                                                                                                   |
| Number of RS 485 interfaces                             | 2                                                                                                                 |
| Number of other interfaces                              | 2; Fiber-optic interface                                                                                          |
| Optical interface                                       | No                                                                                                                |
| <b>1. Interface</b>                                     |                                                                                                                   |
| Interface type                                          | MPI/PROFIBUS DP                                                                                                   |
| Isolated                                                | Yes                                                                                                               |
| <b>Interface types</b>                                  |                                                                                                                   |
| • RS 485                                                | Yes                                                                                                               |
| • Output current of the interface, max.                 | 150 mA                                                                                                            |
| <b>Protocols</b>                                        |                                                                                                                   |
| • MPI                                                   | Yes                                                                                                               |
| • PROFIBUS DP master                                    | Yes                                                                                                               |
| • PROFIBUS DP device                                    | No                                                                                                                |
| <b>MPI</b>                                              |                                                                                                                   |
| • Number of connections                                 | 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 |
| • Transmission rate, max.                               | 12 Mbit/s                                                                                                         |
| <b>Services</b>                                         |                                                                                                                   |
| — PG/OP communication                                   | Yes                                                                                                               |
| — Routing                                               | Yes                                                                                                               |
| — Global data communication                             | No                                                                                                                |
| — S7 basic communication                                | No                                                                                                                |
| — S7 communication                                      | Yes                                                                                                               |
| — S7 communication, as client                           | Yes                                                                                                               |
| — S7 communication, as server                           | Yes                                                                                                               |
| <b>PROFIBUS DP master</b>                               |                                                                                                                   |
| • Number of connections, max.                           | 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 |
| • Transmission rate, max.                               | 12 Mbit/s                                                                                                         |
| • max. number of DP devices                             | 32                                                                                                                |
| <b>Services</b>                                         |                                                                                                                   |
| — PG/OP communication                                   | Yes                                                                                                               |
| — Routing                                               | Yes                                                                                                               |
| — Global data communication                             | No                                                                                                                |

|                                                                   |                                            |
|-------------------------------------------------------------------|--------------------------------------------|
| — S7 basic communication                                          | No                                         |
| — S7 communication                                                | Yes                                        |
| — S7 communication, as client                                     | Yes                                        |
| — S7 communication, as server                                     | Yes                                        |
| — Equidistance                                                    | No                                         |
| — Isochronous mode                                                | No                                         |
| — SYNC/FREEZE                                                     | No                                         |
| — activation/deactivation of DP devices                           | No                                         |
| — Direct data exchange (slave-to-slave communication)             | No                                         |
| — DPV1                                                            | Yes                                        |
| <b>Address area</b>                                               |                                            |
| — Inputs, max.                                                    | 2 kbyte                                    |
| — Outputs, max.                                                   | 2 kbyte                                    |
| <b>User data per DP device</b>                                    |                                            |
| — user data per DP device, max.                                   | 244 byte                                   |
| — Inputs, max.                                                    | 244 byte                                   |
| — Outputs, max.                                                   | 244 byte                                   |
| — Slots, max.                                                     | 244                                        |
| — per slot, max.                                                  | 128 byte                                   |
| <b>PROFIBUS DP device</b>                                         |                                            |
| • Number of connections                                           | No configuration of CPU as DP slave        |
| <b>2. Interface</b>                                               |                                            |
| Interface type                                                    | PROFINET                                   |
| Isolated                                                          | Yes                                        |
| automatic detection of transmission rate                          | Yes; Autosensing                           |
| Autonegotiation                                                   | Yes                                        |
| Autocrossing                                                      | Yes                                        |
| Change of IP address at runtime, supported                        | No                                         |
| <b>Interface types</b>                                            |                                            |
| • RJ 45 (Ethernet)                                                | Yes                                        |
| • Number of ports                                                 | 2                                          |
| • integrated switch                                               | Yes                                        |
| <b>Protocols</b>                                                  |                                            |
| • PROFINET IO Controller                                          | Yes                                        |
| • PROFINET IO device                                              | No                                         |
| • PROFINET CBA                                                    | No                                         |
| • PROFIBUS DP master                                              | No                                         |
| • PROFIBUS DP device                                              | No                                         |
| • Open IE communication                                           | Yes                                        |
| • Web server                                                      | No                                         |
| • Point-to-point connection                                       | No                                         |
| • Media redundancy                                                | Yes                                        |
| <b>PROFINET IO Controller</b>                                     |                                            |
| • Transmission rate, max.                                         | 100 Mbit/s                                 |
| <b>Services</b>                                                   |                                            |
| — PG/OP communication                                             | Yes                                        |
| — S7 communication                                                | Yes                                        |
| — Isochronous mode                                                | No                                         |
| — Shared device                                                   | Yes; Single mode only                      |
| — Prioritized startup                                             | No                                         |
| — Number of connectable IO Devices, max.                          | 256; In redundant mode via both interfaces |
| — Number of connectable IO Devices for RT, max.                   | 256                                        |
| — of which in line, max.                                          | 256                                        |
| — Activation/deactivation of IO Devices                           | No                                         |
| — IO Devices changing during operation (partner ports), supported | No                                         |
| — Device replacement without swap medium                          | Yes                                        |
| — Send cycles                                                     | 250 µs, 500 µs, 1 ms, 2 ms, 4 ms           |

|                                                       |                                                                                                                           |
|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| — Updating time                                       | 250 µs to 512 ms, minimum value depends on the number of configured user data and the configured single or redundant mode |
| <b>Address area</b>                                   |                                                                                                                           |
| — Inputs, max.                                        | 8 kbyte                                                                                                                   |
| — Outputs, max.                                       | 8 kbyte                                                                                                                   |
| — User data consistency, max.                         | 1 024 byte                                                                                                                |
| <b>Open IE communication</b>                          |                                                                                                                           |
| • Number of connections, max.                         | 118                                                                                                                       |
| • Local port numbers used at the system end           | 0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535                                             |
| • Keep-alive function, supported                      | Yes                                                                                                                       |
| <b>3. Interface</b>                                   |                                                                                                                           |
| Interface type                                        | PROFIBUS DP                                                                                                               |
| <b>Interface types</b>                                |                                                                                                                           |
| • RS 485                                              | Yes                                                                                                                       |
| • Output current of the interface, max.               | 150 mA                                                                                                                    |
| <b>Protocols</b>                                      |                                                                                                                           |
| • PROFIBUS DP master                                  | Yes                                                                                                                       |
| • PROFIBUS DP device                                  | No                                                                                                                        |
| <b>PROFIBUS DP master</b>                             |                                                                                                                           |
| • Number of connections, max.                         | 32                                                                                                                        |
| • Transmission rate, max.                             | 12 Mbit/s                                                                                                                 |
| • max. number of DP devices                           | 125                                                                                                                       |
| <b>Services</b>                                       |                                                                                                                           |
| — PG/OP communication                                 | Yes                                                                                                                       |
| — Routing                                             | Yes                                                                                                                       |
| — Global data communication                           | No                                                                                                                        |
| — S7 basic communication                              | No                                                                                                                        |
| — S7 communication                                    | Yes                                                                                                                       |
| — S7 communication, as client                         | Yes                                                                                                                       |
| — S7 communication, as server                         | Yes                                                                                                                       |
| — Equidistance                                        | No                                                                                                                        |
| — Isochronous mode                                    | No                                                                                                                        |
| — SYNC/FREEZE                                         | No                                                                                                                        |
| — activation/deactivation of DP devices               | No                                                                                                                        |
| — Direct data exchange (slave-to-slave communication) | No                                                                                                                        |
| — DPV0                                                | Yes                                                                                                                       |
| — DPV1                                                | Yes                                                                                                                       |
| <b>Address area</b>                                   |                                                                                                                           |
| — Inputs, max.                                        | 8 kbyte                                                                                                                   |
| — Outputs, max.                                       | 8 kbyte                                                                                                                   |
| <b>User data per DP device</b>                        |                                                                                                                           |
| — user data per DP device, max.                       | 244 byte                                                                                                                  |
| — Inputs, max.                                        | 244 byte                                                                                                                  |
| — Outputs, max.                                       | 244 byte                                                                                                                  |
| — Slots, max.                                         | 244                                                                                                                       |
| — per slot, max.                                      | 128 byte                                                                                                                  |
| <b>4. Interface</b>                                   |                                                                                                                           |
| Interface type                                        | Pluggable synchronization submodule (FO)                                                                                  |
| Plug-in interface modules                             | Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0                                                          |
| <b>5. Interface</b>                                   |                                                                                                                           |
| Interface type                                        | Pluggable synchronization submodule (FO)                                                                                  |
| Plug-in interface modules                             | Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0                                                          |
| <b>Protocols</b>                                      |                                                                                                                           |
| <b>Redundancy mode</b>                                |                                                                                                                           |
| <b>Media redundancy</b>                               |                                                                                                                           |
| — Switchover time on line break, typ.                 | 200 ms                                                                                                                    |
| — Number of stations in the ring, max.                | 50                                                                                                                        |
| <b>SIMATIC communication</b>                          |                                                                                                                           |

|                                                               |                                                                                                                      |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| • S7 routing                                                  | Yes                                                                                                                  |
| <b>Open IE communication</b>                                  |                                                                                                                      |
| • TCP/IP                                                      | Yes; via integrated PROFINET interface and loadable FBs                                                              |
| — Number of connections, max.                                 | 118                                                                                                                  |
| — Data length, max.                                           | 32 kbyte                                                                                                             |
| — several passive connections per port, supported             | Yes                                                                                                                  |
| • ISO-on-TCP (RFC1006)                                        | Yes; Via integrated PROFINET interface or CP 443-1 and loadable FBs                                                  |
| — Number of connections, max.                                 | 118                                                                                                                  |
| — Data length, max.                                           | 32 kbyte; 1 452 bytes via CP 443-1 Adv.                                                                              |
| • UDP                                                         | Yes; via integrated PROFINET interface and loadable FBs                                                              |
| — Number of connections, max.                                 | 118                                                                                                                  |
| — Data length, max.                                           | 1 472 byte                                                                                                           |
| <b>Web server</b>                                             |                                                                                                                      |
| • supported                                                   | No                                                                                                                   |
| <b>Isochronous mode</b>                                       |                                                                                                                      |
| Equidistance                                                  | No                                                                                                                   |
| <b>Communication functions</b>                                |                                                                                                                      |
| PG/OP communication                                           | Yes                                                                                                                  |
| • Number of connectable OPs with message processing           | 119; When using Alarm_S/SQ and Alarm_D/DQ                                                                            |
| • Number of connectable OPs without message processing        | 119                                                                                                                  |
| Data record routing                                           | Yes                                                                                                                  |
| <b>Global data communication</b>                              |                                                                                                                      |
| • supported                                                   | No                                                                                                                   |
| <b>S7 basic communication</b>                                 |                                                                                                                      |
| • supported                                                   | No                                                                                                                   |
| <b>S7 communication</b>                                       |                                                                                                                      |
| • supported                                                   | Yes                                                                                                                  |
| • as server                                                   | Yes                                                                                                                  |
| • As client                                                   | Yes                                                                                                                  |
| • User data per job, max.                                     | 64 kbyte                                                                                                             |
| • User data per job (of which consistent), max.               | 462 byte; 1 variable                                                                                                 |
| <b>S5 compatible communication</b>                            |                                                                                                                      |
| • supported                                                   | Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV)                                                                  |
| • User data per job, max.                                     | 8 kbyte                                                                                                              |
| • User data per job (of which consistent), max.               | 240 byte                                                                                                             |
| • Number of simultaneous AG-SEND/AG-RECV orders per CPU, max. | 64/64                                                                                                                |
| <b>Standard communication (FMS)</b>                           |                                                                                                                      |
| • supported                                                   | Yes; Via CP and loadable FB                                                                                          |
| <b>Number of connections</b>                                  |                                                                                                                      |
| • overall                                                     | 120                                                                                                                  |
| • usable for PG communication                                 |                                                                                                                      |
| — reserved for PG communication                               | 1                                                                                                                    |
| — adjustable for PG communication, max.                       | 0                                                                                                                    |
| • usable for OP communication                                 |                                                                                                                      |
| — reserved for OP communication                               | 1                                                                                                                    |
| — adjustable for OP communication, max.                       | 0                                                                                                                    |
| • usable for S7 basic communication                           |                                                                                                                      |
| — reserved for S7 basic communication                         | 0                                                                                                                    |
| — adjustable for S7 basic communication, max.                 | 0                                                                                                                    |
| • usable for S7 communication                                 |                                                                                                                      |
| — reserved for S7 communication                               | 0                                                                                                                    |
| — adjustable for S7 communication, max.                       | 0                                                                                                                    |
| • usable for routing                                          |                                                                                                                      |
| — reserved for routing                                        | 0                                                                                                                    |
| — adjustable for routing, max.                                | 0                                                                                                                    |
| <b>S7 message functions</b>                                   |                                                                                                                      |
| Number of login stations for message functions, max.          | 119; max. 119 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 16 with Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) |

|                                                                     |                                                                      |
|---------------------------------------------------------------------|----------------------------------------------------------------------|
| Symbol-related messages                                             | No                                                                   |
| SCAN procedure                                                      | No                                                                   |
| Program alarms                                                      | Yes                                                                  |
| Process diagnostic messages                                         | Yes                                                                  |
| simultaneously active Alarm_S blocks, max.                          | 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks  |
| Alarm 8-blocks                                                      | Yes                                                                  |
| • Number of instances for alarm 8 and S7 communication blocks, max. | 10 000                                                               |
| • preset, max.                                                      | 1 200                                                                |
| Process control messages                                            | Yes                                                                  |
| Number of archives that can log on simultaneously (SFB 37 AR_SEND)  | 64                                                                   |
| <b>Test commissioning functions</b>                                 |                                                                      |
| Status block                                                        | Yes                                                                  |
| Single step                                                         | Yes                                                                  |
| Number of breakpoints                                               | 16                                                                   |
| Status/control                                                      |                                                                      |
| • Status/control variable                                           | Yes; Up to 16 variable tables                                        |
| • Variables                                                         | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters |
| • Number of variables, max.                                         | 70                                                                   |
| Forcing                                                             |                                                                      |
| • Forcing                                                           | Yes                                                                  |
| • Forcing, variables                                                | Inputs/outputs, bit memories, distributed I/Os                       |
| • Number of variables, max.                                         | 512                                                                  |
| Diagnostic buffer                                                   |                                                                      |
| • present                                                           | Yes                                                                  |
| • Number of entries, max.                                           | 3 200                                                                |
| — can be set                                                        | Yes                                                                  |
| — preset                                                            | 120                                                                  |
| Service data                                                        |                                                                      |
| • can be read out                                                   | Yes                                                                  |
| <b>EMC</b>                                                          |                                                                      |
| Emission of radio interference acc. to EN 55 011                    |                                                                      |
| • Limit class A, for use in industrial areas                        | Yes                                                                  |
| • Limit class B, for use in residential areas                       | No                                                                   |
| <b>Configuration</b>                                                |                                                                      |
| Configuration software                                              |                                                                      |
| • STEP 7                                                            | Yes                                                                  |
| Programming                                                         |                                                                      |
| • Command set                                                       | see instruction list                                                 |
| • Nesting levels                                                    | 7                                                                    |
| • Access to consistent data in process image                        | Yes                                                                  |
| • System functions (SFC)                                            | see instruction list                                                 |
| • System function blocks (SFB)                                      | see instruction list                                                 |
| Programming language                                                |                                                                      |
| — LAD                                                               | Yes                                                                  |
| — FBD                                                               | Yes                                                                  |
| — STL                                                               | Yes                                                                  |
| — SCL                                                               | Yes                                                                  |
| — CFC                                                               | Yes                                                                  |
| — GRAPH                                                             | Yes                                                                  |
| — HiGraph®                                                          | Yes                                                                  |
| Number of simultaneously active SFCs                                |                                                                      |
| — RD_REC                                                            | 8                                                                    |
| — WR_REC                                                            | 8                                                                    |
| — WR_PARM                                                           | 8                                                                    |
| — PARM_MOD                                                          | 1                                                                    |
| — WR_DPARM                                                          | 2                                                                    |
| — DPNRM_DG                                                          | 8                                                                    |

|                                               |                            |
|-----------------------------------------------|----------------------------|
| — RDSYSST                                     | 8                          |
| — DP_TOPOL                                    | 1                          |
| Number of simultaneously active SFBs          |                            |
| — RDREC                                       | 8                          |
| — WRREC                                       | 8                          |
| Know-how protection                           |                            |
| • User program protection/password protection | Yes                        |
| • Block encryption                            | Yes; With S7 block Privacy |
| Dimensions                                    |                            |
| Width                                         | 50 mm                      |
| Height                                        | 290 mm                     |
| Depth                                         | 219 mm                     |
| Weights                                       |                            |
| Weight, approx.                               | 995 g                      |
| Classifications                               |                            |

|        | Version | Classification |
|--------|---------|----------------|
| eClass | 16      | 27-24-22-07    |
| eClass | 14      | 27-24-22-07    |
| eClass | 12      | 27-24-22-07    |
| eClass | 9.1     | 27-24-22-07    |
| eClass | 9       | 27-24-22-07    |
| eClass | 8       | 27-24-22-07    |
| eClass | 7.1     | 27-24-22-07    |
| eClass | 6       | 27-24-22-07    |
| ETIM   | 10      | EC000236       |
| ETIM   | 9       | EC000236       |
| ETIM   | 8       | EC000236       |
| ETIM   | 7       | EC000236       |
| IDEA   | 4       | 3565           |
| UNSPSC | 15      | 32-15-17-05    |

#### Approvals / Certificates

#### General Product Approval



[Miscellaneous](#)



[Miscellaneous](#)

#### General Product Approval

#### For use in hazardous locations



[China RoHS](#)

[Miscellaneous](#)

[Manufacturer Declaration](#)



#### For use in hazardous locations

#### Functional Safety

[FM](#)



[Type Examination Certificate](#)



[TUEV](#)

#### Functional Safety

#### Maritime application

[Type Examination Certificate](#)



[NK / Nippon Kaiji Kyokai](#)

| Maritime application | Environment | Industrial Communication |
|----------------------|-------------|--------------------------|
|----------------------|-------------|--------------------------|



[CCS \(China Classification Society\)](#)



[PROFIsafe](#)

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