

SIMATIC S7-300 CPU317F-2 PN/DP, CENTRAL PROCESSING UNIT WITH 1.5 MBYTE WORKING MEMORY, 1. INTERFACE MPI/DP 12MBIT/S, 2. INTERFACE ETHERNET PROFINET, WITH 2 PORT SWITCH, MICRO MEMORY CARD NECESSARY

| General information                                         |                                                    |
|-------------------------------------------------------------|----------------------------------------------------|
| Hardware product version                                    | 01                                                 |
| Firmware version                                            | V3.2                                               |
| Engineering with                                            |                                                    |
| • Programming package                                       | STEP 7 V5.5 or higher, Distributed Safety V5.4 SP4 |
| Supply voltage                                              |                                                    |
| Rated value (DC)                                            |                                                    |
| • 24 V DC                                                   | Yes                                                |
| permissible range, lower limit (DC)                         | 20.4 V                                             |
| permissible range, upper limit (DC)                         | 28.8 V                                             |
| external protection for power supply lines (recommendation) | 2 A min.                                           |
| Mains buffering                                             |                                                    |
| • Mains/voltage failure stored energy time                  | 5 ms                                               |
| • Repeat rate, min.                                         | 1 s                                                |
| Input current                                               |                                                    |
| Current consumption (rated value)                           | 750 mA                                             |
| Current consumption (in no-load operation), typ.            | 150 mA                                             |
| Inrush current, typ.                                        | 4 A                                                |
| $I^2t$                                                      | 1 A <sup>2</sup> ·s                                |
| Power loss                                                  |                                                    |
| Power loss, typ.                                            | 4.65 W                                             |
| Memory                                                      |                                                    |
| Work memory                                                 |                                                    |
| • integrated                                                | 1 536 kbyte                                        |
| • expandable                                                | No                                                 |
| • Size of retentive memory for retentive data blocks        | 256 kbyte                                          |
| Load memory                                                 |                                                    |
| • Plug-in (MMC)                                             | Yes                                                |
| • Plug-in (MMC), max.                                       | 8 Mbyte                                            |
| • Data management on MMC (after last programming), min.     | 10 y                                               |

|                                        |                                                                                               |
|----------------------------------------|-----------------------------------------------------------------------------------------------|
| Backup                                 |                                                                                               |
| • present                              | Yes; Guaranteed by MMC (maintenance-free)                                                     |
| • without battery                      | Yes; Program and data                                                                         |
| CPU processing times                   |                                                                                               |
| for bit operations, typ.               | 0.025 µs                                                                                      |
| for word operations, typ.              | 0.03 µs                                                                                       |
| for fixed point arithmetic, typ.       | 0.04 µs                                                                                       |
| for floating point arithmetic, typ.    | 0.16 µs                                                                                       |
| CPU-blocks                             |                                                                                               |
| Number of blocks (total)               | 2 048; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used. |
| DB                                     |                                                                                               |
| • Number, max.                         | 2 048; Number range: 1 to 16000                                                               |
| • Size, max.                           | 64 kbyte                                                                                      |
| FB                                     |                                                                                               |
| • Number, max.                         | 2 048; Number range: 0 to 7999                                                                |
| • Size, max.                           | 64 kbyte                                                                                      |
| FC                                     |                                                                                               |
| • Number, max.                         | 2 048; Number range: 0 to 7999                                                                |
| • Size, max.                           | 64 kbyte                                                                                      |
| OB                                     |                                                                                               |
| • Size, max.                           | 64 kbyte                                                                                      |
| • Number of free cycle OBs             | 1; OB 1                                                                                       |
| • Number of time alarm OBs             | 1; OB 10                                                                                      |
| • Number of delay alarm OBs            | 2; OB 20, 21                                                                                  |
| • Number of cyclic interrupt OBs       | 4; OB 32, 33, 34, 35                                                                          |
| • Number of process alarm OBs          | 1; OB 40                                                                                      |
| • Number of DPV1 alarm OBs             | 3; OB 55, 56, 57                                                                              |
| • Number of isochronous mode OBs       | 1; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously)      |
| • Number of startup OBs                | 1; OB 100                                                                                     |
| • Number of asynchronous error OBs     | 6; OB 80, 82, 83, 85, 86, 87 (OB83 only for PROFINET IO)                                      |
| • Number of synchronous error OBs      | 2; OB 121, 122                                                                                |
| Nesting depth                          |                                                                                               |
| • per priority class                   | 16                                                                                            |
| • additional within an error OB        | 4                                                                                             |
| Counters, timers and their retentivity |                                                                                               |
| S7 counter                             |                                                                                               |
| • Number                               | 512                                                                                           |
| Retentivity                            |                                                                                               |
| — adjustable                           | Yes                                                                                           |

|                                  |                                          |
|----------------------------------|------------------------------------------|
| — lower limit                    | 0                                        |
| — upper limit                    | 511                                      |
| — preset                         | Z 0 to Z 7                               |
| Counting range                   |                                          |
| — can be set                     | Yes                                      |
| — lower limit                    | 0                                        |
| — upper limit                    | 999                                      |
| IEC counter                      |                                          |
| • Number                         | Unlimited (limited only by RAM capacity) |
| S7 times                         |                                          |
| • Number                         | 512                                      |
| Retentivity                      |                                          |
| — adjustable                     | Yes                                      |
| — lower limit                    | 0                                        |
| — upper limit                    | 511                                      |
| — preset                         | No retentivity                           |
| Time range                       |                                          |
| — lower limit                    | 10 ms                                    |
| — upper limit                    | 9 990 s                                  |
| IEC timer                        |                                          |
| • present                        | Yes                                      |
| • Type                           | SFB                                      |
| • Number                         | Unlimited (limited only by RAM capacity) |
| Data areas and their retentivity |                                          |
| retentive data area in total     | All, max. 256 KB                         |
| Flag                             |                                          |
| • Number, max.                   | 4 096 byte                               |
| • Retentivity available          | Yes; From MB 0 to MB 4095                |
| • Retentivity preset             | MB 0 to MB 15                            |
| • Number of clock memories       | 8; 1 memory byte                         |
| Data blocks                      |                                          |
| • Number, max.                   | 2 048; Number range: 1 to 16000          |
| • Size, max.                     | 64 kbyte                                 |
| • Retentivity adjustable         | Yes; via non-retain property on DB       |
| • Retentivity preset             | Yes                                      |
| Local data                       |                                          |
| • per priority class, max.       | 32 768 byte; Max. 2048 bytes per block   |
| Address area                     |                                          |
| I/O address area                 |                                          |
| • Inputs                         | 8 192 byte                               |
| • Outputs                        | 8 192 byte                               |

|                                              |                                                                           |
|----------------------------------------------|---------------------------------------------------------------------------|
| of which distributed                         |                                                                           |
| — Inputs                                     | 8 192 byte                                                                |
| — Outputs                                    | 8 192 byte                                                                |
| Process image                                |                                                                           |
| • Inputs                                     | 8 192 byte                                                                |
| • Outputs                                    | 8 192 byte                                                                |
| • Inputs, adjustable                         | 8 192 byte                                                                |
| • Outputs, adjustable                        | 8 192 byte                                                                |
| • Inputs, default                            | 256 byte                                                                  |
| • Outputs, default                           | 256 byte                                                                  |
| Subprocess images                            |                                                                           |
| • Number of subprocess images, max.          | 1; With PROFINET IO, the length of the user data is limited to 1600 bytes |
| Digital channels                             |                                                                           |
| • Inputs                                     | 65 536                                                                    |
| — of which central                           | 1 024                                                                     |
| • Outputs                                    | 65 536                                                                    |
| — of which central                           | 1 024                                                                     |
| Analog channels                              |                                                                           |
| • Inputs                                     | 4 096                                                                     |
| — of which central                           | 256                                                                       |
| • Outputs                                    | 4 096                                                                     |
| — of which central                           | 256                                                                       |
| Hardware configuration                       |                                                                           |
| Number of expansion units, max.              | 3                                                                         |
| Number of DP masters                         |                                                                           |
| • integrated                                 | 1                                                                         |
| • via CP                                     | 4                                                                         |
| Number of operable FMs and CPs (recommended) |                                                                           |
| • FM                                         | 8                                                                         |
| • CP, PtP                                    | 8                                                                         |
| • CP, LAN                                    | 10                                                                        |
| Rack                                         |                                                                           |
| • Racks, max.                                | 4                                                                         |
| • Modules per rack, max.                     | 8                                                                         |
| Time of day                                  |                                                                           |
| Clock                                        |                                                                           |
| • Hardware clock (real-time)                 | Yes                                                                       |
| • retentive and synchronizable               | Yes                                                                       |
| • Backup time                                | 6 wk; At 40 °C ambient temperature                                        |
| • Deviation per day, max.                    | 10 s; Typ.: 2 s                                                           |

|                                                                                                                                                                                                                                                   |                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Behavior of the clock following POWER-ON</li> <li>• Behavior of the clock following expiry of backup period</li> </ul>                                                                                   | Clock continues running after POWER OFF<br>Clock continues to run with the time at which the power failure occurred |
| <b>Operating hours counter</b>                                                                                                                                                                                                                    |                                                                                                                     |
| <ul style="list-style-type: none"> <li>• Number</li> <li>• Number/Number range</li> <li>• Range of values</li> <li>• Granularity</li> <li>• retentive</li> </ul>                                                                                  | 4<br>0 to 3<br>0 to 2 <sup>31</sup> hours (when using SFC 101)<br>1 hour<br>Yes; Must be restarted at each restart  |
| <b>Clock synchronization</b>                                                                                                                                                                                                                      |                                                                                                                     |
| <ul style="list-style-type: none"> <li>• supported</li> <li>• to MPI, master</li> <li>• to MPI, slave</li> <li>• to DP, master</li> <li>• to DP, slave</li> <li>• in AS, master</li> <li>• in AS, slave</li> <li>• on Ethernet via NTP</li> </ul> | Yes<br>Yes<br>Yes<br>Yes; With DP slave only slave clock<br>Yes<br>Yes<br>Yes<br>Yes; As client                     |
| <b>Digital inputs</b>                                                                                                                                                                                                                             |                                                                                                                     |
| Number of digital inputs                                                                                                                                                                                                                          | 0                                                                                                                   |
| <b>Digital outputs</b>                                                                                                                                                                                                                            |                                                                                                                     |
| Number of digital outputs                                                                                                                                                                                                                         | 0                                                                                                                   |
| <b>Analog inputs</b>                                                                                                                                                                                                                              |                                                                                                                     |
| Number of analog inputs                                                                                                                                                                                                                           | 0                                                                                                                   |
| <b>Analog outputs</b>                                                                                                                                                                                                                             |                                                                                                                     |
| Number of analog outputs                                                                                                                                                                                                                          | 0                                                                                                                   |
| <b>Interfaces</b>                                                                                                                                                                                                                                 |                                                                                                                     |
| Number of industrial Ethernet interfaces                                                                                                                                                                                                          | 1                                                                                                                   |
| Number of RS 485 interfaces                                                                                                                                                                                                                       | 1                                                                                                                   |
| Number of RS 422 interfaces                                                                                                                                                                                                                       | 0                                                                                                                   |
| <b>1. Interface</b>                                                                                                                                                                                                                               |                                                                                                                     |
| Interface type                                                                                                                                                                                                                                    | Integrated RS 485 interface                                                                                         |
| Physics                                                                                                                                                                                                                                           | RS 485                                                                                                              |
| Isolated                                                                                                                                                                                                                                          | Yes                                                                                                                 |
| Power supply to interface (15 to 30 V DC), max.                                                                                                                                                                                                   | 200 mA                                                                                                              |
| <b>Functionality</b>                                                                                                                                                                                                                              |                                                                                                                     |
| <ul style="list-style-type: none"> <li>• MPI</li> <li>• PROFIBUS DP master</li> <li>• PROFIBUS DP slave</li> <li>• Point-to-point connection</li> </ul>                                                                                           | Yes<br>Yes<br>Yes<br>No                                                                                             |

|                                                                              |                                                                                           |
|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| <b>MPI</b>                                                                   |                                                                                           |
| • Transmission rate, max.                                                    | 12 Mbit/s                                                                                 |
| <b>Services</b>                                                              |                                                                                           |
| — PG/OP communication                                                        | Yes                                                                                       |
| — Routing                                                                    | Yes                                                                                       |
| — Global data communication                                                  | Yes                                                                                       |
| — S7 basic communication                                                     | Yes                                                                                       |
| — S7 communication                                                           | Yes                                                                                       |
| — S7 communication, as client                                                | No; but via CP and loadable FB                                                            |
| — S7 communication, as server                                                | Yes                                                                                       |
| <b>DP master</b>                                                             |                                                                                           |
| • Transmission rate, max.                                                    | 12 Mbit/s                                                                                 |
| • Number of DP slaves, max.                                                  | 124                                                                                       |
| <b>Services</b>                                                              |                                                                                           |
| — PG/OP communication                                                        | Yes                                                                                       |
| — Routing                                                                    | Yes                                                                                       |
| — Global data communication                                                  | No                                                                                        |
| — S7 basic communication                                                     | Yes; I blocks only                                                                        |
| — S7 communication                                                           | Yes                                                                                       |
| — S7 communication, as client                                                | No                                                                                        |
| — S7 communication, as server                                                | Yes                                                                                       |
| — Equidistance                                                               | Yes                                                                                       |
| — Isochronous mode                                                           | Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO |
| — SYNC/FREEZE                                                                | Yes                                                                                       |
| — Activation/deactivation of DP slaves                                       | Yes                                                                                       |
| — Number of DP slaves that can be simultaneously activated/deactivated, max. | 8                                                                                         |
| — Direct data exchange (slave-to-slave communication)                        | Yes; As subscriber                                                                        |
| — DPV1                                                                       | Yes                                                                                       |
| <b>Address area</b>                                                          |                                                                                           |
| — Inputs, max.                                                               | 8 kbyte                                                                                   |
| — Outputs, max.                                                              | 8 kbyte                                                                                   |
| <b>User data per DP slave</b>                                                |                                                                                           |
| — Inputs, max.                                                               | 244 byte                                                                                  |
| — Outputs, max.                                                              | 244 byte                                                                                  |
| <b>DP slave</b>                                                              |                                                                                           |
| • Transmission rate, max.                                                    | 12 Mbit/s                                                                                 |
| • automatic baud rate search                                                 | Yes; only with passive interface                                                          |
| • Address area, max.                                                         | 32                                                                                        |
| • User data per address area, max.                                           | 32 byte                                                                                   |

|                                                       |                                                           |
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| <b>Services</b>                                       |                                                           |
| — PG/OP communication                                 | Yes                                                       |
| — Routing                                             | Yes; Only with active interface                           |
| — Global data communication                           | No                                                        |
| — S7 basic communication                              | No                                                        |
| — S7 communication                                    | Yes                                                       |
| — S7 communication, as client                         | No                                                        |
| — S7 communication, as server                         | Yes; Connection configured on one side only               |
| — Direct data exchange (slave-to-slave communication) | Yes                                                       |
| — DPV1                                                | No                                                        |
| <b>Transfer memory</b>                                |                                                           |
| — Inputs                                              | 244 byte                                                  |
| — Outputs                                             | 244 byte                                                  |
| <b>2. Interface</b>                                   |                                                           |
| Interface type                                        | PROFINET                                                  |
| Physics                                               | Ethernet RJ45                                             |
| Isolated                                              | Yes                                                       |
| automatic detection of transmission rate              | Yes; 10/100 Mbit/s                                        |
| Autonegotiation                                       | Yes                                                       |
| Autocrossing                                          | Yes                                                       |
| Change of IP address at runtime, supported            | Yes                                                       |
| <b>Interface types</b>                                |                                                           |
| • Number of ports                                     | 2                                                         |
| • integrated switch                                   | Yes                                                       |
| <b>Media redundancy</b>                               |                                                           |
| • supported                                           | Yes                                                       |
| • Switchover time on line break, typ.                 | 200 ms; PROFINET MRP                                      |
| • Number of stations in the ring, max.                | 50                                                        |
| <b>Functionality</b>                                  |                                                           |
| • MPI                                                 | No                                                        |
| • PROFINET IO Controller                              | Yes; Also simultaneously with IO-Device functionality     |
| • PROFINET IO Device                                  | Yes; Also simultaneously with IO Controller functionality |
| • PROFINET CBA                                        | Yes                                                       |
| • PROFIBUS DP master                                  | No                                                        |
| • PROFIBUS DP slave                                   | No                                                        |
| • Open IE communication                               | Yes; Via TCP/IP, ISO on TCP, and UDP                      |
| • Web server                                          | Yes                                                       |
| — Number of HTTP clients                              | 5                                                         |
| <b>PROFINET IO Controller</b>                         |                                                           |
| • Transmission rate, max.                             | 100 Mbit/s                                                |

| Services                                                                      |                                                                                                                               |
|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| — PG/OP communication                                                         | Yes                                                                                                                           |
| — Routing                                                                     | Yes                                                                                                                           |
| — S7 communication                                                            | Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32                                       |
| — Isochronous mode                                                            | Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO                                     |
| — Open IE communication                                                       | Yes; Via TCP/IP, ISO on TCP, and UDP                                                                                          |
| — IRT                                                                         | Yes                                                                                                                           |
| — Shared device                                                               | Yes                                                                                                                           |
| — Prioritized startup                                                         | Yes                                                                                                                           |
| — Number of IO devices with prioritized startup, max.                         | 32                                                                                                                            |
| — Number of connectable IO Devices, max.                                      | 128                                                                                                                           |
| — Of which IO devices with IRT, max.                                          | 64                                                                                                                            |
| — of which in line, max.                                                      | 64                                                                                                                            |
| — Number of IO Devices with IRT and the option "high flexibility"             | 128                                                                                                                           |
| — of which in line, max.                                                      | 61                                                                                                                            |
| — Number of connectable IO Devices for RT, max.                               | 128                                                                                                                           |
| — of which in line, max.                                                      | 128                                                                                                                           |
| — Activation/deactivation of IO Devices                                       | Yes                                                                                                                           |
| — Number of IO Devices that can be simultaneously activated/deactivated, max. | 8                                                                                                                             |
| — IO Devices changing during operation (partner ports), supported             | Yes                                                                                                                           |
| — Number of IO Devices per tool, max.                                         | 8                                                                                                                             |
| — Device replacement without swap medium                                      | Yes                                                                                                                           |
| — Send cycles                                                                 | 250 µs, 500 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option)                                      |
| — Updating time                                                               | 250 µs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, Technical Data" for more details) |
| Address area                                                                  |                                                                                                                               |
| — Inputs, max.                                                                | 8 kbyte                                                                                                                       |
| — Outputs, max.                                                               | 8 kbyte                                                                                                                       |
| — User data consistency, max.                                                 | 1 024 byte                                                                                                                    |
| PROFINET IO Device                                                            |                                                                                                                               |
| Services                                                                      |                                                                                                                               |
| — PG/OP communication                                                         | Yes                                                                                                                           |
| — Routing                                                                     | Yes                                                                                                                           |

|                                                                 |                                                                                                  |
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| — S7 communication                                              | Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32          |
| — Isochronous mode                                              | No                                                                                               |
| — Open IE communication                                         | Yes; Via TCP/IP, ISO on TCP, and UDP                                                             |
| — IRT                                                           | Yes                                                                                              |
| — PROFlenergy                                                   | Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device                 |
| — Shared device                                                 | Yes                                                                                              |
| — Number of IO Controllers with shared device, max.             | 2                                                                                                |
| <b>Transfer memory</b>                                          |                                                                                                  |
| — Inputs, max.                                                  | 1 440 byte; Per IO Controller with shared device                                                 |
| — Outputs, max.                                                 | 1 440 byte; Per IO Controller with shared device                                                 |
| <b>Submodules</b>                                               |                                                                                                  |
| — Number, max.                                                  | 64                                                                                               |
| — User data per submodule, max.                                 | 1 024 byte                                                                                       |
| <b>PROFINET CBA</b>                                             |                                                                                                  |
| • acyclic transmission                                          | Yes                                                                                              |
| • cyclic transmission                                           | Yes                                                                                              |
| <b>Open IE communication</b>                                    |                                                                                                  |
| • Number of connections, max.                                   | 16                                                                                               |
| • Local port numbers used at the system end                     | 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 |
| • Keep-alive function, supported                                | Yes                                                                                              |
| <b>Protocols</b>                                                |                                                                                                  |
| <b>Open IE communication</b>                                    |                                                                                                  |
| • TCP/IP                                                        |                                                                                                  |
| — Number of connections, max.                                   | 16                                                                                               |
| — Data length for connection type 01H, max.                     | 1 460 byte                                                                                       |
| — Data length for connection type 11H, max.                     | 32 768 byte                                                                                      |
| — several passive connections per port, supported               | Yes                                                                                              |
| • ISO-on-TCP (RFC1006)                                          | Yes; via integrated PROFINET interface and loadable FBs                                          |
| — Number of connections, max.                                   | 16                                                                                               |
| — Data length, max.                                             | 32 768 byte                                                                                      |
| • UDP                                                           |                                                                                                  |
| — Number of connections, max.                                   | 16                                                                                               |
| — Data length, max.                                             | 1 472 byte                                                                                       |
| <b>Isochronous mode</b>                                         |                                                                                                  |
| Isochronous operation (application synchronized up to terminal) | Yes; Via PROFIBUS DP or PROFINET interface                                                       |

|                                                              |                                                                                                       |
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| <b>Communication functions</b>                               |                                                                                                       |
| PG/OP communication                                          | Yes                                                                                                   |
| Data record routing                                          | Yes                                                                                                   |
| <b>Global data communication</b>                             |                                                                                                       |
| • supported                                                  | Yes                                                                                                   |
| • Number of GD loops, max.                                   | 8                                                                                                     |
| • Number of GD packets, max.                                 | 8                                                                                                     |
| • Number of GD packets, transmitter, max.                    | 8                                                                                                     |
| • Number of GD packets, receiver, max.                       | 8                                                                                                     |
| • Size of GD packets, max.                                   | 22 byte                                                                                               |
| • Size of GD packet (of which consistent), max.              | 22 byte                                                                                               |
| <b>S7 basic communication</b>                                |                                                                                                       |
| • supported                                                  | Yes                                                                                                   |
| • User data per job, max.                                    | 76 byte                                                                                               |
| • User data per job (of which consistent), max.              | 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)                    |
| <b>S7 communication</b>                                      |                                                                                                       |
| • supported                                                  | Yes                                                                                                   |
| • as server                                                  | Yes                                                                                                   |
| • as client                                                  | Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB                      |
| • User data per job, max.                                    | See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication) |
| <b>S5 compatible communication</b>                           |                                                                                                       |
| • supported                                                  | Yes; via CP and loadable FC                                                                           |
| <b>Open IE communication</b>                                 |                                                                                                       |
| • TCP/IP                                                     | Yes; via integrated PROFINET interface and loadable FBs                                               |
| • UDP                                                        | Yes; via integrated PROFINET interface and loadable FBs                                               |
| <b>Web server</b>                                            |                                                                                                       |
| • supported                                                  | Yes                                                                                                   |
| • Number of HTTP clients                                     | 5                                                                                                     |
| • User-defined websites                                      | Yes                                                                                                   |
| <b>PROFINET CBA (at set setpoint communication load)</b>     |                                                                                                       |
| • Setpoint for the CPU communication load                    | 50 %                                                                                                  |
| • Number of remote interconnection partners                  | 32                                                                                                    |
| • Number of functions, master/slave                          | 30                                                                                                    |
| • Total of all master/slave connections                      | 1 000                                                                                                 |
| • Data length of all incoming connections master/slave, max. | 4 000 byte                                                                                            |
| • Data length of all outgoing connections master/slave, max. | 4 000 byte                                                                                            |
| • Number of device-internal and PROFIBUS interconnections    | 500                                                                                                   |

|                                                                      |                           |
|----------------------------------------------------------------------|---------------------------|
| • Data length of device-internal und PROFIBUS interconnections, max. | 4 000 byte                |
| • Data length per connection, max.                                   | 1 400 byte                |
| Remote interconnections with acyclic transmission                    |                           |
| — Sampling frequency: Sampling time, min.                            | 500 ms                    |
| — Number of incoming interconnections                                | 100                       |
| — Number of outgoing interconnections                                | 100                       |
| — Data length of all incoming interconnections, max.                 | 2 000 byte                |
| — Data length of all outgoing interconnections, max.                 | 2 000 byte                |
| — Data length per connection, max.                                   | 1 400 byte                |
| Remote interconnections with cyclic transmission                     |                           |
| — Transmission frequency: Transmission interval, min.                | 10 ms                     |
| — Number of incoming interconnections                                | 200                       |
| — Number of outgoing interconnections                                | 200                       |
| — Data length of all incoming interconnections, max.                 | 2 000 byte                |
| — Data length of all outgoing interconnections, max.                 | 2 000 byte                |
| — Data length per connection, max.                                   | 450 byte                  |
| HMI variables via PROFINET (acyclic)                                 |                           |
| — Number of stations that can log on for HMI variables (PN OPC/iMap) | 3; 2x PN OPC/1x iMap      |
| — HMI variable updating                                              | 500 ms                    |
| — Number of HMI variables                                            | 200                       |
| — Data length of all HMI variables, max.                             | 2 000 byte                |
| PROFIBUS proxy functionality                                         |                           |
| — supported                                                          | Yes                       |
| — Number of linked PROFIBUS devices                                  | 16                        |
| — Data length per connection, max.                                   | 240 byte; Slave-dependent |
| Number of connections                                                |                           |
| • overall                                                            | 32                        |
| • usable for PG communication                                        | 31                        |
| — reserved for PG communication                                      | 1                         |
| — adjustable for PG communication, min.                              | 1                         |
| — adjustable for PG communication, max.                              | 31                        |
| • usable for OP communication                                        | 31                        |
| — reserved for OP communication                                      | 1                         |
| — adjustable for OP communication, min.                              | 1                         |
| — adjustable for OP communication, max.                              | 31                        |

|                                               |                                                                                                         |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------|
| • usable for S7 basic communication           | 30                                                                                                      |
| — reserved for S7 basic communication         | 0                                                                                                       |
| — adjustable for S7 basic communication, min. | 0                                                                                                       |
| — adjustable for S7 basic communication, max. | 30                                                                                                      |
| • usable for S7 communication                 | 16                                                                                                      |
| — reserved for S7 communication               | 0                                                                                                       |
| — adjustable for S7 communication, min.       | 0                                                                                                       |
| — adjustable for S7 communication, max.       | 16                                                                                                      |
| • total number of instances, max.             | 32                                                                                                      |
| • usable for routing                          | X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max. |

### S7 message functions

|                                                      |                                                                                  |
|------------------------------------------------------|----------------------------------------------------------------------------------|
| Number of login stations for message functions, max. | 32; Depending on the configured connections for PG/OP and S7 basic communication |
| Process diagnostic messages                          | Yes                                                                              |
| simultaneously active Alarm-S blocks, max.           | 300                                                                              |

### Test commissioning functions

|                       |                             |
|-----------------------|-----------------------------|
| Status block          | Yes; Up to 2 simultaneously |
| Single step           | Yes                         |
| Number of breakpoints | 4                           |

### Status/control

|                                    |                                                   |
|------------------------------------|---------------------------------------------------|
| • Status/control variable          | Yes                                               |
| • Variables                        | Inputs, outputs, memory bits, DB, times, counters |
| • Number of variables, max.        | 30                                                |
| — of which status variables, max.  | 30                                                |
| — of which control variables, max. | 14                                                |

### Forcing

|                             |                 |
|-----------------------------|-----------------|
| • Forcing                   | Yes             |
| • Forcing, variables        | Inputs, outputs |
| • Number of variables, max. | 10              |

### Diagnostic buffer

|                                           |                                             |
|-------------------------------------------|---------------------------------------------|
| • present                                 | Yes                                         |
| • Number of entries, max.                 | 500                                         |
| — adjustable                              | No                                          |
| — of which powerfail-proof                | 100; Only the last 100 entries are retained |
| • Number of entries readable in RUN, max. | 499                                         |
| — can be set                              | Yes; From 10 to 499                         |
| — preset                                  | 10                                          |

### Service data

|                   |     |
|-------------------|-----|
| • can be read out | Yes |
|-------------------|-----|

|                                               |                            |
|-----------------------------------------------|----------------------------|
| Ambient conditions                            |                            |
| Ambient temperature during operation          |                            |
| • min.                                        | 0 °C                       |
| • max.                                        | 60 °C                      |
| Configuration                                 |                            |
| Configuration software                        |                            |
| • STEP 7                                      | Yes; V5.5 or higher        |
| Programming                                   |                            |
| • Command set                                 | see instruction list       |
| • Nesting levels                              | 8                          |
| • 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                        |
| Know-how protection                           |                            |
| • User program protection/password protection | Yes                        |
| • Block encryption                            | Yes; With S7 block Privacy |
| Dimensions                                    |                            |
| Width                                         | 40 mm                      |
| Height                                        | 125 mm                     |
| Depth                                         | 130 mm                     |
| Weights                                       |                            |
| Weight, approx.                               | 340 g                      |
| <b>last modified:</b>                         | 08/12/2017                 |