## **SIEMENS**

## Data sheet

## 6ES7317-2FK14-0AB0

SIMATIC S7-300 CPU317F-2 PN/DP, Central processing unit with 1.5 MB work memory, 1st interface MPI/DP 12 Mbit/s, 2nd interface Ethernet PROFINET, with 2-port switch, Micro Memory Card required



| General information  |  |
|--|--|
| HW functional status   | 01   |
| Firmware version   | V3.2   |
| Engineering with   |  |
| <ul> <li>Programming package</li> </ul>                      | 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  |  |
| <ul> <li>Mains/voltage failure stored energy time</li> </ul> | 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   |
|--|---|
| <sup>2</sup> t   | 1 A²·s  |
|  |   |
| Power loss<br>Power loss, typ.   | 4.65 W  |
| r ower loss, typ.  | 4.05 W  |
| Memory   |   |
| Work memory  |   |
| <ul> <li>integrated</li> </ul>   | 1 536 kbyte   |
| • expandable   | No  |
| <ul> <li>Size of retentive memory for retentive data<br/>blocks</li> </ul> | 256 kbyte   |
| Load memory  |   |
| <ul> <li>Plug-in (MMC)</li> </ul>  | Yes   |
| <ul> <li>Plug-in (MMC), max.</li> </ul>                                    | 8 Mbyte   |
| <ul> <li>Data management on MMC (after last programming), min.</li> </ul>  | 10 у  |
| 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  |
| <ul> <li>Number of free cycle OBs</li> </ul>                               | 1; OB 1   |
| Number of time alarm OBs   | 1; OB 10  |
| <ul> <li>Number of delay alarm OBs</li> </ul>                              | 2; OB 20, 21  |
| Number of cyclic interrupt OBs   | 4; OB 32, 33, 34, 35  |
| - '  |   |

| <ul> <li>Number of process alarm OBs</li> </ul>      | 1; OB 40  |
|--|---|
| <ul> <li>Number of DPV1 alarm OBs</li> </ul>         | 3; OB 55, 56, 57  |
| <ul> <li>Number of isochronous mode OBs</li> </ul>   | 1; OB 61 - isochronous mode is possible either on DP or<br>PROFINET IO (not simultaneously) |
| <ul> <li>Number of startup OBs</li> </ul>            | 1; OB 100   |
| <ul> <li>Number of asynchronous error OBs</li> </ul> | 6; OB 80, 82, 83, 85, 86, 87 (OB83 only for PROFINET IO)                                    |
| <ul> <li>Number of synchronous error OBs</li> </ul>  | 2; OB 121, 122  |
| Nesting depth  |   |
| <ul> <li>per priority class</li> </ul>               | 16  |
| <ul> <li>additional within an error OB</li> </ul>    | 4   |
| Counters, timers and their retentivity               |   |
| S7 counter   | 540   |
| • Number   | 512   |
| Retentivity  | Ver   |
| — adjustable   | Yes   |
| — lower limit  | 0   |
| — upper limit  | 511   |
| — preset   | Z 0 to Z 7  |
| Counting range                                       |   |
| — adjustable   | Yes   |
| — lower limit  | 0   |
| — upper limit  | 999   |
| IEC counter  | Ver   |
| • present  | Yes   |
| • Type   | SFB   |
| • Number   | Unlimited (limited only by RAM capacity)  |
| S7 times   | 512   |
| • Number   | 512   |
| Retentivity  | Ver   |
| — adjustable   | Yes   |
| — lower limit  | 0   |
| — upper limit  | 511   |
| — preset   | No retentivity  |
| Time range   |   |
| — lower limit  | 10 ms   |
| — upper limit  | 9 990 s   |
| IEC timer  | Ves   |
| • present  | Yes<br>SFB  |
| • Type   |   |
| Number   | Unlimited (limited only by RAM capacity)  |
| Data areas and their retentivity                     |   |

| retentive data area in total                          | All, max. 256 KB  |
|---|---|
| Flag  |   |
| <ul> <li>Number, max.</li> </ul>                      | 4 096 byte  |
| <ul> <li>Retentivity preset</li> </ul>                | MB 0 to MB 15   |
| <ul> <li>Number of clock memories</li> </ul>          | 8; 1 memory byte  |
| Data blocks   |   |
| <ul> <li>Retentivity adjustable</li> </ul>            | Yes; via non-retain property on DB  |
| Retentivity preset                                    | Yes   |
| Address area  |   |
| I/O address area                                      |   |
| Inputs  | 8 192 byte  |
| Outputs   | 8 192 byte  |
| Process image   |   |
| Inputs  | 8 192 byte  |
| Outputs   | 8 192 byte  |
| <ul> <li>Inputs, adjustable</li> </ul>                | 8 192 byte  |
| Outputs, adjustable                                   | 8 192 byte  |
| Inputs, default                                       | 256 byte  |
| Outputs, default                                      | 256 byte  |
| Subprocess images                                     |   |
| <ul> <li>Number of subprocess images, max.</li> </ul> | 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  |
|   |   |

| • Racks, max.     4       • Modules per rack, max.     8 <b>Time of day</b> 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       • Bahavior of the clock following POWER-ON     Clock continues running after POWER OFF       • Bahavior of the clock following expiry of backup period     Clock continues to run with the time at which the power failure occurred       Operating hours counter     4       • Number     4       • Number     4       • Number of values     0 to 3       • Range of values     0 to 2/31 hours (when using SFC 101)       • Granularity     1h       • retentive     Yes       • Look synchronization     Yes       • Look synchronization     Yes       • Look MPI, slave     Yes       • In MP, naster     Yes       • In AS, slave     Yes       Digital inputs     0       Oligital outputs     0       Analog inputs     0       Analog outputs     0       Number of analog outputs     0       Number of industrial Ethernet interfaces     1       Number of industrial Ethernet interfaces     1   | Rack   |  |
|---|--|--|
| Time of day           Clock              • Hardware clock (real-time)             • retentive and synchronizable             • Gives, and the synchronizable             • Backup time                            | <ul> <li>Racks, max.</li> </ul>                | 4                                      |
| Clock          • Hardware clock (real-time)       • Yes       • retentive and synchronizable       • Backup time       • Deviation per day, max.       • 10 s; Typ.: 2 s       • Behavior of the clock following POWER-ON       • Behavior of the clock following expiry of backup       period       • Clock continuess running after POWER OFF       • Number of the clock following expiry of backup       period       • Clock continuess running after POWER OFF       • Number of nalog outputs       • Number of digital outputs       • Number of nalog inputs       • Yes       • In AS, slave       • Yes       • In AS, master       • Quiptial outputs       • Quiptial Ethermet interfaces       • Quiptial Ethermet interfaces       • Quiptial E | <ul> <li>Modules per rack, max.</li> </ul>     | 8                                      |
| Clock          • Hardware clock (real-time)       • Yes       • retentive and synchronizable       • Backup time       • Deviation per day, max.       • 10 s; Typ.: 2 s       • Behavior of the clock following POWER-ON       • Behavior of the clock following expiry of backup       period       • Clock continuess running after POWER OFF       • Number of the clock following expiry of backup       period       • Clock continuess running after POWER OFF       • Number of nalog outputs       • Number of digital outputs       • Number of nalog inputs       • Yes       • In AS, slave       • Yes       • In AS, master       • Quiptial outputs       • Quiptial Ethermet interfaces       • Quiptial Ethermet interfaces       • Quiptial E | Time of day                                    |  |
| referitive and synchronizable Yes<br>Backup time 6 wit, At 40 °C ambient temperature<br>Deviation per day, max. 10 s; Typ.: 2 s<br>Clock continues running after POWER OFF<br>Dehavior of the clock following POWER-ON Clock continues to run with the time at which the power failure<br>period Clock continues to run with the time at which the power failure<br>occurred Clock continues to run with the time at which the power failure<br>occurred Clock continues to run with the time at which the power failure<br>occurred Clock continues to run with the time at which the power failure<br>occurred Clock continues to run with the time at which the power failure<br>occurred Clock continues to run with the time at which the power failure<br>occurred Clock synchronization<br>Farage of values 0 to 23 hours (when using SFC 101)<br>Faranularity 1 h<br>Fretentive Yes: Must be restarted at each restart<br>Clock synchronization<br>Fusported Yes<br>in AS, master Yes<br>in AS, master<br>in AS, slave Yes<br>Number of digital inputs 0<br>Digital inputs 0<br>Digital outputs<br>Number of analog inputs 0<br>Analog inputs 0<br>Analog inputs 0<br>Analog outputs 0<br>Analog outputs 0<br>Number of analog outputs 0<br>Number of analog outputs 0<br>Number of analog outputs 1<br>Number of analog outputs 0<br>Interfaces 1<br>Number of RS 485 interfaces 1<br>Number of RS 485 interfaces 1<br>Number of RS 485 interfaces 0<br>1. Interface   |  |  |
| • retentive and synchronizable       Yes         • Backup time       6 wk; At 40 °C ambient temperature         • Deviation per day, max.       10 \$; Typ. 2 \$         • Behavior of the clock following POWER-ON       Clock continues running after POWER OFF         • Behavior of the clock following expiry of backup period       Clock continues to run with the time at which the power failure occurred         • Number       4         • Number       4         • Number       10 3         • Range of values       0 to 3         • Granularity       1 h         • retentive       Yes; Must be restarted at each restart         Clock synchronization       Yes         • to MPI, master       Yes         • to MPI, slave       Yes         • in AS, master       Yes         • in AS, naster       Yes         • in AS, slave       0         Digital inputs       0         Analog inputs       0         Analog inputs       0         Analog inputs       0         Analog outputs       0         Number of analog inputs       0         Analog inputs       0         Analog inputs       0         Number of analog outputs       0   | <ul> <li>Hardware clock (real-time)</li> </ul> | Yes                                    |
| Backup time6 wk: At 40 °C ambient temperatureDeviation per day, max.10 s; Typ. 2 sDehavior of the clock following POWER-ONClock continues running after POWER OFFDehavior of the clock following expiry of backupClock continues to run with the time at which the power failure<br>occurredOperating hours counter4Number4Number range0 to 3Range of values0 to 2^31 hours (when using SFC 101)Granularity1 h• retentiveYes; Must be restarted at each restartClock synchronizationYes• supportedYes• in AS, masterYes• in AS, slaveYesDigital inputs0Digital inputs0Digital outputs0Analog outputs0Analog outputs0Analog outputs0Analog outputs0Number of analog outputs0Analog outputs0Number of PolYINET Interface   |  | Yes                                    |
| • Deviation per day, max.10 s; Typ. 2 s• Behavior of the clock following POWER-ON<br>Behavior of the clock following expiry of backup<br>periodClock continues running after POWER OFF<br>Clock continues to run with the time at which the power failure<br>accurred• Number4• Number4• Number (Number range0 to 3• Range of values0 to 2^31 hours (when using SFC 101)• Granularity1 h• retentiveYes• supportedYes• to MPI, nasterYes• to MPI, slaveYes• in AS, masterYes• in AS, slaveYesDigital inputs0Digital inputs0Analog inputs0Analog inputs0Number of analog inputs0Number of analog outputs0Number of PROFINET interfaces1Number of PROFINET interfaces0Number of PROFINET interfaces1Number of PROFINET interfaces1Number of PROFINET interfaces1Number of PROFINET interfaces1Number of PROFINET interfaces0Number of PROFINET interfaces1Number of PROFINET   |  | 6 wk; At 40 °C ambient temperature     |
| • Behavior of the clock following POWER-ON       Clock continues running after POWER OFF         • Behavior of the clock following expiry of backup pride       Clock continues to run with the time at which the power failure occurred         Operating hours counter       4         • Number       1         • Number/Number range       0 to 3         • Range of values       0 to 2^31 hours (when using SFC 101)         • Granularity       1 h         • retentive       Yes; Must be restarted at each restart         Clock synchronization       Yes         • to MPI, slave       Yes         • in AS, master       Yes         • in AS, slave       Yes         Digital inputs       0         Number of digital inputs       0         Digital outputs       0         Analog inputs       0         Number of analog inputs       0         Number of analog outputs       0         Number of PROFINET interfaces       1         Number of PROFINET interfaces       1         Number of PROFINET interfaces       0         Interface       1         Interfaces       1         Number of PROFINET interfaces       1         Number of PROFINET interfaces       1      <  |  |  |
| • Behavior of the clock following expiry of backup period       Clock continues to run with the time at which the power failure occurred         • Number       • Number         • Number       4         • Number/Number range       0 to 3         • Range of values       0 to 2         • Granularity       1 h         • retentive       Yes; Must be restarted at each restart         Clock synchronization       Ves         • to MPI, master       Yes         • to MPI, slave       Yes         • in AS, master       Yes         • in AS, slave       Yes         Digital inputs       0         Number of digital outputs       0         Number of analog inputs       0         Number of nalog inputs       0         Number of industrial Ethernet interfaces       1         Number of industrial Ethernet interfaces       1         Number of IPCPINET interfaces       1         Number of PRS 425 interfaces       1         Number of PRS 425 interfaces       1         Number of PRS 425 interfaces       1   |  |  |
| period         occurred           Operating hours counter         4           • Number         4           • Number/Number range         0 to 3           • Range of values         0 to 2*31 hours (when using SFC 101)           • Granularity         1 h           • retentive         Yes           • to MPI, naster         Yes           • to MPI, slave         Yes           • in AS, master         Yes           • in AS, slave         Yes           Digital inputs         0           Number of digital inputs         0           Digital outputs         0           Analog inputs         0           Number of analog inputs         0           Interfaces         1           Number of RS 485 interfaces         1           Number of RS 485 interfaces         0   |  | -                                      |
| • Number       4         • Number/Number range       0 to 3         • Range of values       0 to 2^31 hours (when using SFC 101)         • Granularity       1 h         • retentive       Yes; Must be restarted at each restart         Clock synchronization       *         • to MPI, master       Yes         • to MPI, slave       Yes         • to MPI, slave       Yes         • in AS, master       Yes         • in AS, slave       Yes         Digital inputs       0         Number of digital inputs       0         Number of analog inputs       0         Analog inputs       0         Number of analog outputs       0         Number of analog outputs       0         Number of Ra 485 interfaces       1         Number of RS 482 interfaces       0         Number of RS 482 interfaces       0         Number of RS 482 interfaces       1         Number of RS 482 interfaces       1         Number of RS 482 interfaces       0   |  |  |
| Number Number range0 to 3• Range of values0 to 2^31 hours (when using SFC 101)• Granularity1 h• retentiveYes; Must be restarted at each restartClock synchronizationYes• supportedYes• to MPI, masterYes• to MPI, slaveYes• in AS, masterYes• in AS, slaveYesDigital inputs0Analog inputsNumber of digital outputsNumber of digital outputs0Analog inputs0Analog outputs0Number of industrial Ethernet interfaces1Number of RS 485 interfaces1Number of RS 485 interfaces1Number of RS 485 interfaces01. Interface0   | Operating hours counter                        |  |
| • Range of values0 to 2^31 hours (when using SFC 101)• Granularity1 h• retentiveYes; Must be restarted at each restartClock synchronizationYes• supportedYes• to MPI, masterYes• to MPI, slaveYes• in AS, masterYes• in AS, slaveYesDigital inputs0Number of digital outputs0Analog inputs0Analog outputs0Number of analog inputs0Interfaces1Number of RS 485 interfaces1Number of RS 485 interfaces1Number of RS 422 interfaces01. Interface0  | Number   | 4                                      |
| • Granularity1 h• retentiveYes; Must be restarted at each restartClock synchronization• supportedYes• to MPI, masterYes• to MPI, slaveYes• in AS, masterYes• in AS, slaveYesDigital inputs0Digital outputs0Number of digital outputs0Number of analog inputs0Analog outputs0Number of analog outputs0Number of R S 485 interfaces1Number of R S 422 interfaces1Number of R S 422 interfaces011. Interface11. Interface   | Number/Number range                            | 0 to 3                                 |
| • retentive       Yes; Must be restarted at each restart         • retentive       Yes; Must be restarted at each restart         • Supported       Yes         • to MPI, master       Yes         • to MPI, slave       Yes         • in AS, master       Yes         • in AS, slave       Yes         Digital inputs       0         Number of digital inputs       0         Digital outputs       0         Number of analog inputs       0         Analog outputs       0         Number of analog outputs       0         Number of analog outputs       1         Number of Rades       1         Number of RS 485 interfaces       1         Number of RS 422 interfaces       0         1. Interface       1         Number of RS 422 interfaces       0         1. Interface       1  | Range of values                                | 0 to 2^31 hours (when using SFC 101)   |
| Clock synchronization         • supported       Yes         • to MPI, master       Yes         • to MPI, slave       Yes         • in AS, master       Yes         • in AS, slave       Yes         Digital inputs       0         Number of digital outputs       0         Analog inputs       0         Number of analog inputs       0         Analog outputs       0         Number of analog outputs       0         Number of industrial Ethernet interfaces       1         Number of RS 485 interfaces       1         Number of RS 422 interfaces       0         1. Interface       1  | • Granularity                                  | 1 h                                    |
| • supported       Yes         • to MPI, master       Yes         • to MPI, slave       Yes         • in AS, master       Yes         • in AS, slave       Yes         Digital inputs       0         Digital outputs       0         Number of digital outputs       0         Analog inputs       0         Number of analog inputs       0         Analog outputs       0         Number of industrial Ethernet interfaces       1         Number of industrial Ethernet interfaces       1         Number of RS 485 interfaces       1         Number of RS 422 interfaces       0         1. Interface       1  | • retentive                                    | Yes; Must be restarted at each restart |
| CorportYes• to MPI, masterYes• to MPI, slaveYes• in AS, masterYes• in AS, slaveYesDigital inputsNumber of digital inputs0Digital outputsNumber of digital outputs0Analog inputs0Analog inputs0Number of analog inputs0Analog outputs0Number of analog outputs0Number of analog outputs0Number of analog outputs0Number of R S 485 interfaces1Number of RS 422 interfaces1Number of RS 422 interfaces01. Interface1  | Clock synchronization                          |  |
| • to MPI, slave       Yes         • in AS, master       Yes         • in AS, slave       Yes         Digital inputs       0         Number of digital inputs       0         Digital outputs       0         Number of digital outputs       0         Analog inputs       0         Number of analog inputs       0         Analog outputs       0         Number of analog outputs       0         Number of industrial Ethernet interfaces       1         Number of RS 485 interfaces       1         Number of RS 485 interfaces       0         1. Interface       0  | • supported                                    | Yes                                    |
| • in AS, master     Yes       • in AS, master     Yes       • in AS, slave     Yes       Digital inputs     0       Number of digital inputs     0       Digital outputs     0       Number of digital outputs     0       Analog inputs     0       Number of analog inputs     0       Number of analog outputs     0       Number of analog outputs     0       Number of analog outputs     1       Number of industrial Ethernet interfaces     1       Number of RS 485 interfaces     1       Number of RS 485 interfaces     0       1. Interface     0   | • to MPI, master                               | Yes                                    |
| • in AS, slaveYesDigital inputs0Number of digital inputs0Digital outputs0Number of digital outputs0Analog inputs0Analog outputs0Number of analog outputs0Number of analog outputs0Interfaces1Number of RS 485 interfaces1Number of RS 422 interfaces01. Interface   | • to MPI, slave                                | Yes                                    |
| Digital inputs     0       Digital outputs     0       Number of digital outputs     0       Analog inputs     0       Number of analog inputs     0       Analog outputs     0       Number of analog outputs     0       Interfaces     1       Number of RS 485 interfaces     1       Number of RS 422 interfaces     0   | • in AS, master                                | Yes                                    |
| Number of digital inputs       0         Digital outputs       0         Number of digital outputs       0         Analog inputs       0         Number of analog inputs       0         Analog outputs       0         Number of analog outputs       0         Interfaces       1         Number of PROFINET interfaces       1         Number of RS 485 interfaces       1         Number of RS 422 interfaces       0         1. Interface       0  | ● in AS, slave                                 | Yes                                    |
| Number of digital inputs       0         Digital outputs       0         Number of digital outputs       0         Analog inputs       0         Number of analog inputs       0         Analog outputs       0         Number of analog outputs       0         Interfaces       1         Number of PROFINET interfaces       1         Number of RS 485 interfaces       1         Number of RS 422 interfaces       0         1. Interface       0  | Digital inputs                                 |  |
| Number of digital outputs       0         Analog inputs       0         Number of analog inputs       0         Analog outputs       0         Number of analog outputs       0         Interfaces       1         Number of PROFINET interfaces       1         Number of RS 485 interfaces       1         Number of RS 422 interfaces       0         1. Interface       1   |  | 0                                      |
| Number of digital outputs       0         Analog inputs       0         Number of analog inputs       0         Analog outputs       0         Number of analog outputs       0         Interfaces       1         Number of PROFINET interfaces       1         Number of RS 485 interfaces       1         Number of RS 422 interfaces       0         1. Interface       1   |  |  |
| Analog inputs       0         Number of analog inputs       0         Analog outputs       0         Number of analog outputs       0         Interfaces       1         Number of industrial Ethernet interfaces       1         Number of PROFINET interfaces       1         Number of RS 485 interfaces       1         Number of RS 422 interfaces       0         1. Interface       0  |  | 0                                      |
| Number of analog inputs       0         Analog outputs       0         Number of analog outputs       0         Interfaces       1         Number of industrial Ethernet interfaces       1         Number of PROFINET interfaces       1         Number of RS 485 interfaces       1         Number of RS 422 interfaces       0         1. Interface       1  |  |  |
| Analog outputs     0       Number of analog outputs     0       Interfaces     1       Number of industrial Ethernet interfaces     1       Number of PROFINET interfaces     1       Number of RS 485 interfaces     1       Number of RS 422 interfaces     0       1. Interface     0  |  | 0                                      |
| Number of analog outputs       0         Interfaces       1         Number of industrial Ethernet interfaces       1         Number of PROFINET interfaces       1         Number of RS 485 interfaces       1         Number of RS 422 interfaces       0         1. Interface       1   |  | 0                                      |
| Interfaces       Number of industrial Ethernet interfaces     1       Number of PROFINET interfaces     1       Number of RS 485 interfaces     1       Number of RS 422 interfaces     0       1. Interface     1  | Analog outputs                                 |  |
| Number of industrial Ethernet interfaces       1         Number of PROFINET interfaces       1         Number of RS 485 interfaces       1         Number of RS 422 interfaces       0         1. Interface       1   | Number of analog outputs                       | 0                                      |
| Number of industrial Ethernet interfaces       1         Number of PROFINET interfaces       1         Number of RS 485 interfaces       1         Number of RS 422 interfaces       0         1. Interface       1   | Interfaces                                     |  |
| Number of RS 485 interfaces     1       Number of RS 422 interfaces     0       1. Interface     1  |  | 1                                      |
| Number of RS 422 interfaces     0       1. Interface     0  | Number of PROFINET interfaces                  | 1                                      |
| 1. Interface  | Number of RS 485 interfaces                    | 1                                      |
|   | Number of RS 422 interfaces                    | 0                                      |
|   | 1. Interface                                   |  |
|   |  | Integrated RS 485 interface            |

| Physics   | RS 485  |
|---|---|
| Isolated  | Yes   |
| Power supply to interface (15 to 30 V DC), max.                           | 200 mA  |
| Protocols   |   |
| ● MPI   | Yes   |
| <ul> <li>PROFIBUS DP master</li> </ul>                                    | Yes   |
| <ul> <li>PROFIBUS DP slave</li> </ul>                                     | Yes   |
| <ul> <li>Point-to-point connection</li> </ul>                             | No  |
| MPI   |   |
| <ul> <li>Transmission rate, max.</li> </ul>                               | 12 Mbit/s   |
| Services  |   |
| — 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   |
| PROFIBUS DP master  |   |
| <ul> <li>Transmission rate, max.</li> </ul>                               | 12 Mbit/s   |
| <ul> <li>Number of DP slaves, max.</li> </ul>                             | 124   |
| Services  |   |
| — 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 |
|   | Yes   |
| — Activation/deactivation of DP slaves                                    | Yes   |
| — Number of DP slaves that can be   | 8   |
| simultaneously activated/deactivated, max.                                |   |
| <ul> <li>— Direct data exchange (slave-to-slave communication)</li> </ul> | Yes; As subscriber  |
| — DPV1  | Yes   |
| Address area  |   |
| — Inputs, max.  | 8 kbyte   |
| — Outputs, max.   | 8 kbyte   |

| User data per DP slave   |  |
|--|--|
| — Inputs, max.   | 244 byte   |
|  | 244 byte   |
| — Outputs, max.<br>PROFIBUS DP slave   | 244 0916   |
| Transmission rate, max.  | 12 Mbit/s  |
| automatic baud rate search   | Yes; only with passive interface   |
|  | 32   |
| Address area, max.   | 32 byte  |
| <ul> <li>User data per address area, max.</li> <li>Services</li> </ul>   | 52 byte  |
|  | Yes  |
| - PG/OP communication  |  |
| - 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  |
| <ul> <li>— Direct data exchange (slave-to-slave<br/>communication)</li> </ul>  | Yes  |
| — DPV1   | No   |
| Transfer memory  |  |
| — Inputs   | 244 byte   |
|  |  |
| — Outputs  | 244 byte   |
|  | 244 byte   |
| — Outputs  | 244 byte PROFINET  |
| - Outputs<br>2. Interface  |  |
| Outputs 2. Interface Interface type  | PROFINET<br>Ethernet RJ45<br>Yes   |
| Outputs  2. Interface Interface type Physics Isolated automatic detection of transmission rate   | PROFINET<br>Ethernet RJ45  |
| Outputs  2. Interface Interface type Physics Isolated automatic detection of transmission rate Autonegotiation   | PROFINET<br>Ethernet RJ45<br>Yes<br>Yes; 10/100 Mbit/s<br>Yes  |
| — Outputs  2. Interface Interface type Physics Isolated automatic detection of transmission rate Autonegotiation Autocrossing  | PROFINET<br>Ethernet RJ45<br>Yes<br>Yes; 10/100 Mbit/s<br>Yes<br>Yes   |
| Outputs  2. Interface Interface type Physics Isolated automatic detection of transmission rate Autonegotiation Autocrossing Change of IP address at runtime, supported   | PROFINET<br>Ethernet RJ45<br>Yes<br>Yes; 10/100 Mbit/s<br>Yes  |
| Outputs  2. Interface Interface type Physics Isolated automatic detection of transmission rate Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types   | PROFINET<br>Ethernet RJ45<br>Yes<br>Yes; 10/100 Mbit/s<br>Yes<br>Yes<br>Yes<br>Yes   |
| Outputs<br>2. Interface<br>Interface type<br>Physics<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Change of IP address at runtime, supported<br>Interface types<br>• Number of ports  | PROFINET<br>Ethernet RJ45<br>Yes<br>Yes; 10/100 Mbit/s<br>Yes<br>Yes<br>Yes<br>Yes   |
| <ul> <li>— Outputs</li> <li>2. Interface</li> <li>Interface type</li> <li>Physics</li> <li>Isolated</li> <li>automatic detection of transmission rate</li> <li>Autonegotiation</li> <li>Autocrossing</li> <li>Change of IP address at runtime, supported</li> <li>Interface types</li> <li>Number of ports</li> <li>integrated switch</li> </ul> | PROFINET<br>Ethernet RJ45<br>Yes<br>Yes; 10/100 Mbit/s<br>Yes<br>Yes<br>Yes<br>Yes   |
| Outputs<br>2. Interface<br>Interface type<br>Physics<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Change of IP address at runtime, supported<br>Interface types<br>• Number of ports<br>• integrated switch<br>Protocols  | PROFINET<br>Ethernet RJ45<br>Yes<br>Yes; 10/100 Mbit/s<br>Yes<br>Yes<br>Yes<br>Z<br>Yes  |
| Outputs<br>2. Interface<br>Interface type<br>Physics<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Change of IP address at runtime, supported<br>Interface types<br>• Number of ports<br>• integrated switch<br>Protocols<br>• MPI   | PROFINET<br>Ethernet RJ45<br>Yes<br>Yes; 10/100 Mbit/s<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>No  |
| Outputs<br>2. Interface<br>Interface type<br>Physics<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Change of IP address at runtime, supported<br>Interface types<br>• Number of ports<br>• integrated switch<br>Protocols<br>• MPI<br>• PROFINET IO Controller                                   | PROFINET<br>Ethernet RJ45<br>Yes<br>Yes; 10/100 Mbit/s<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>No<br>No<br>Yes; Also simultaneously with IO-Device functionality   |
| Outputs<br>2. Interface<br>Interface type<br>Physics<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Change of IP address at runtime, supported<br>Interface types<br>• Number of ports<br>• integrated switch<br>Protocols<br>• MPI   | PROFINET<br>Ethernet RJ45<br>Yes<br>Yes; 10/100 Mbit/s<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>No<br>No<br>Yes; Also simultaneously with IO-Device functionality<br>Yes; Also simultaneously with IO Controller functionality  |
| Outputs<br>2. Interface<br>Interface type<br>Physics<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Change of IP address at runtime, supported<br>Interface types<br>• Number of ports<br>• integrated switch<br>Protocols<br>• MPI<br>• PROFINET IO Controller                                   | PROFINET<br>Ethernet RJ45<br>Yes<br>Yes; 10/100 Mbit/s<br>Yes<br>Yes<br>Yes<br>Yes<br>No<br>Yes; Also simultaneously with IO-Device functionality<br>Yes; Also simultaneously with IO Controller functionality<br>Yes; Also simultaneously with IO Controller functionality<br>Yes |
| Outputs<br>2. Interface<br>Interface type<br>Physics<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Change of IP address at runtime, supported<br>Interface types<br>• Number of ports<br>• integrated switch<br>Protocols<br>• MPI<br>• PROFINET IO Controller<br>• PROFINET IO Device           | PROFINET<br>Ethernet RJ45<br>Yes<br>Yes; 10/100 Mbit/s<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>No<br>No<br>Yes; Also simultaneously with IO-Device functionality<br>Yes; Also simultaneously with IO Controller functionality  |
| Outputs 2. Interface Interface type Physics Isolated automatic detection of transmission rate Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • Number of ports • integrated switch Protocols • MPI • PROFINET IO Controller • PROFINET IO Device • PROFINET CBA   | PROFINET<br>Ethernet RJ45<br>Yes<br>Yes; 10/100 Mbit/s<br>Yes<br>Yes<br>Yes<br>Yes<br>No<br>Yes; Also simultaneously with IO-Device functionality<br>Yes; Also simultaneously with IO Controller functionality<br>Yes; Also simultaneously with IO Controller functionality<br>Yes |

| • Web server  | Yes   |
|---|---|
| PROFINET IO Controller  |   |
| <ul> <li>Transmission rate, max.</li> </ul>   | 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<br>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   |
| <ul> <li>— Number of IO devices with prioritized startup, max.</li> </ul>                           | 32  |
| — Number of connectable IO Devices, max.  | 128   |
| — Of which IO devices with IRT, max.  | 64  |
| — of which in line, max.  | 64  |
| <ul> <li>— Number of IO Devices with IRT and the<br/>option "high flexibility"</li> </ul>           | 128   |
| — of which in line, max.  | 61  |
| <ul> <li>— Number of connectable IO Devices for RT,<br/>max.</li> </ul>                             | 128   |
| — of which in line, max.  | 128   |
| - Activation/deactivation of IO Devices   | Yes   |
| <ul> <li>Number of IO Devices that can be<br/>simultaneously activated/deactivated, max.</li> </ul> | 8   |
| <ul> <li>IO Devices changing during operation<br/>(partner ports), supported</li> </ul>             | Yes   |
| — Number of IO Devices per tool, max.   | 8   |
| — Device replacement without swap medium  | Yes   |
| — Send cycles   | 250 $\mu s,$ 500 $\mu s,$ 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<br>"S7-300 CPU 31xC and CPU 31x, Technical Data" for more<br>details) |
| Address area  |   |
| — Inputs, max.  | 8 kbyte   |
| — Outputs, max.   | 8 kbyte   |
| — User data consistency, max.   | 1 024 byte  |
| PROFINET IO Device  |   |
| Services  |   |

|   | N/  |
|---|---|
| — PG/OP communication   | Yes   |
| — Routing   | Yes   |
| — 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<br>standard FB for I-Device   |
| — Shared device   | Yes   |
| <ul> <li>— Number of IO Controllers with shared</li> </ul>  | 2   |
| device, max.  |   |
| Transfer memory   |   |
| — Inputs, max.  | 1 440 byte; Per IO Controller with shared device  |
| — Outputs, max.   | 1 440 byte; Per IO Controller with shared device  |
| Submodules  |   |
| — Number, max.  | 64  |
| — User data per submodule, max.   | 1 024 byte  |
| PROFINET CBA  |   |
| <ul> <li>acyclic transmission</li> </ul>  | Yes   |
| • cyclic transmission   | Yes   |
| Open IE communication   |   |
| <ul> <li>Number of connections, max.</li> </ul>   | 16  |
| <ul> <li>Local port numbers used at the system end</li> </ul>   | 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535  |
| <ul> <li>Keep-alive function, supported</li> </ul>  | Yes   |
| Protocols   |   |
| Open IE communication   |   |
| • TCP/IP  | Yes; via integrated PROFINET interface and loadable FBs   |
| — Number of connections, max.   | 16  |
| <ul> <li>— Data length for connection type 01H, max.</li> </ul>   | 1 460 byte  |
| <ul> <li>— Data length for connection type 11H, max.</li> </ul>   | 32 768 byte   |
| <ul> <li>— several passive connections per port,</li> </ul>   | Yes   |
| supported   | 165   |
|   | Yes; via integrated PROFINET interface and loadable FBs   |
| supported   |   |
| supported<br>• ISO-on-TCP (RFC1006)   | Yes; via integrated PROFINET interface and loadable FBs   |
| <ul> <li>supported</li> <li>ISO-on-TCP (RFC1006)</li> <li>— Number of connections, max.</li> </ul>  | Yes; via integrated PROFINET interface and loadable FBs   |
| supported<br>• ISO-on-TCP (RFC1006)<br>— Number of connections, max.<br>— Data length, max.   | Yes; via integrated PROFINET interface and loadable FBs<br>16<br>32 768 byte  |
| <ul> <li>supported</li> <li>ISO-on-TCP (RFC1006) <ul> <li>Number of connections, max.</li> <li>Data length, max.</li> </ul> </li> <li>UDP</li> </ul>  | Yes; via integrated PROFINET interface and loadable FBs<br>16<br>32 768 byte<br>Yes; via integrated PROFINET interface and loadable FBs       |
| <ul> <li>supported</li> <li>ISO-on-TCP (RFC1006) <ul> <li>Number of connections, max.</li> <li>Data length, max.</li> </ul> </li> <li>UDP <ul> <li>Number of connections, max.</li> </ul> </li> </ul> | Yes; via integrated PROFINET interface and loadable FBs<br>16<br>32 768 byte<br>Yes; via integrated PROFINET interface and loadable FBs<br>16 |

| • User-defined websites       Yes         • Number of HTTP clients       5         Media redundancy       200 ms; PROFINET MRP         • Number of stations in the ring, max.       50         Isochronous mode       1         Isochronous operation (application synchronized up to terminal)       Yes; Via PROFIBUS DP or PROFINET interface         Communication functions       Yes         PG/OP communication       Yes         Global data communication       Yes         • supported       Yes         • Number of GD loops, max.       8         • Number of GD packets, max.       8         • Number of GD packets, receiver, max.       8         • Size of GD packets, receiver, max.       8         • Size of GD packet (of which consistent), max.       22 byte         • Size of GD packet (of which consistent), max.       22 byte         • Supported       Yes         • User data per job, max.       76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (w         • User data per job (of which consistent), max.       76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (w   |              |
|--|--------------|
| Media redundancy         • Switchover time on line break, typ.       200 ms; PROFINET MRP         • Number of stations in the ring, max.       50         Isochronous mode       Isochronous operation (application synchronized up to terminal)         PG/OP communication       Yes; Via PROFIBUS DP or PROFINET interface         PG/OP communication       Yes         Obtat record routing       Yes         Global data communication       Yes         • Number of GD loops, max.       8         • Number of GD packets, max.       8         • Number of GD packets, max.       8         • Number of GD packets, max.       8         • Size of GD packets, max.       22 byte         Size of GD packet, max.       22 byte         Size of GD packet (of which consistent), max.       22 byte         S7 basic communication       Yes         • User data per job, max.       76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (w         • User data per job (of which consistent), max.       76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (w   |              |
| <ul> <li>Switchover time on line break, typ.</li> <li>Number of stations in the ring, max.</li> <li>Sochronous mode</li> <li>Isochronous operation (application synchronized up to terminal)</li> <li>Yes; Via PROFIBUS DP or PROFINET interface</li> <li>Communication functions</li> <li>PG/OP communication</li> <li>Yes</li> <li>Global data communication</li> <li>supported</li> <li>Number of GD loops, max.</li> <li>Number of GD packets, max.</li> <li>Number of GD packets, receiver, max.</li> <li>Size of GD packets, receiver, max.</li> <li>Size of GD packets, max.</li> <li>Siz</li></ul>   |              |
| <ul> <li>Number of stations in the ring, max.</li> <li>50</li> <li>Isochronous mode         <ul> <li>Isochronous operation (application synchronized up to terminal)</li> <li>Yes; Via PROFIBUS DP or PROFINET interface</li> </ul> </li> <li>Communication functions         <ul> <li>PG/OP communication</li> <li>Yes</li> <li>Data record routing</li> <li>Yes</li> <li>Global data communication</li> <li>supported</li> <li>Number of GD loops, max.</li> <li>Number of GD packets, max.</li> <li>Number of GD packets, transmitter, max.</li> <li>Number of GD packets, receiver, max.</li> <li>Size of GD packets, max.</li> <li>Size of GD packets, max.</li> <li>Size of GD packet (of which consistent), max.</li> <li>Size of GD packet (of which consistent), max.</li> </ul> </li> <li>S7 basic communication</li> <li>Yes</li> <li>User data per job, max.</li> <li>User data per job (of which consistent), max.</li> <li>Yes (byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)</li> </ul>   |              |
| Isochronous mode         Isochronous operation (application synchronized up<br>to terminal)       Yes; Via PROFIBUS DP or PROFINET interface         Communication functions       Yes         PG/OP communication       Yes         Global data communication       Yes         • supported       Yes         • Number of GD loops, max.       8         • Number of GD packets, max.       8         • Number of GD packets, receiver, max.       8         • Size of GD packets, receiver, max.       8         • Size of GD packet (of which consistent), max.       22 byte         S7 basic communication       Yes         • User data per job, max.       76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (w<br>X_PUT or X_GET as server)   |              |
| Isochronous operation (application synchronized up to terminal)       Yes; Via PROFIBUS DP or PROFINET interface         Communication functions       Yes         Data record routing       Yes         Global data communication       Yes         • 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         S7 basic communication       Yes         • User data per job, max.       76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (w  |              |
| to terminal) Communication functions PG/OP communication Data record routing Global data communication  • supported • Number of GD loops, max. • Number of GD packets, max. • Number of GD packets, transmitter, max. • Number of GD packets, receiver, max. • Size of GD packets, receiver, max. • Size of GD packets, max. • Size of GD packets, max. • Size of GD packet, (of which consistent), max. • State communication • supported • User data per job, max. • User data per job (of which consistent), max. • User data per job (of which consistent), max. • User data per job (of which consistent), max. • State communication • Supported • User data per job (of which consistent), max. • User data per job (of which consistent), max. • User data per job (of which consistent), max. • User data per job (of which consistent), max. • Communication • Supported • User data per job (of which consistent), max. • Communication • Supported • User data per job (of which consistent), max. • Communication • Supported • User data per job (of which consistent), max. • Communication • Supported • User data per job (of which consistent), max. • Communication • Supported • User data per job (of which consistent), max. • Communication • Supported • User data per job (of which consistent), max. • Communication • Supported • User data per job (of which consistent), max. • Communication • Supported • User data per job (of which consistent), max. • Communication • Supported • User data per job (of which consistent), max. • Communication • Supported • User data per job (of which consistent), max. • Communication • Supported • User data per job (of which consistent), max. • Communication • Supported • User data per job (of which consistent), max. • Communication • Supported • User data per job (of which consistent), max. • Communication • Supported • User data per job (of which consistent), max. • Communication • Supported • User data per job (of which consistent), max. • Communication • Supported • User data per job (of which consistent), max. • Commu |              |
| Communication functions         PG/OP communication       Yes         Data record routing       Yes         Global data communication       Yes         • 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, receiver, max.       8         • Size of GD packet (of which consistent), max.       22 byte         S7 basic communication       22 byte         • User data per job, max.       76 byte         • User data per job (of which consistent), max.       76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)   |              |
| PG/OP communication       Yes         Data record routing       Yes         Global data communication       Yes         • 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         • Number of GD packets, receiver, max.       8         • Size of GD packets, max.       22 byte         S7 basic communication       22 byte         S7 basic communication       Yes         • User data per job, max.       76 byte         • User data per job (of which consistent), max.       76 bytes (with X_SEND or X_RCV); 64 bytes (w  | _            |
| Data record routingYesGlobal data communicationYes• supportedYes• 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• Start of GD packet (of which consistent), max.22 byte• SupportedYes• User data per job, max.76 byte• User data per job (of which consistent), max.76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)  |              |
| Global data communication       Yes         • 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, 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         S7 basic communication       22 byte         • User data per job, max.       76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)  |              |
| • supportedYes• 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, receiver, max.22 byte• Size of GD packet, max.22 byte• Size of GD packet (of which consistent), max.22 byte• SupportedYes• SupportedYes• User data per job, max.76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)  |              |
| <ul> <li>Number of GD loops, max.</li> <li>Number of GD packets, max.</li> <li>Number of GD packets, max.</li> <li>Number of GD packets, transmitter, max.</li> <li>Number of GD packets, receiver, max.</li> <li>Size of GD packets, max.</li> <li>Size of GD packets, max.</li> <li>Size of GD packet (of which consistent), max.</li> <li>S7 basic communication</li> <li>Stable data per job, max.</li> <li>User data per job (of which consistent), max.</li> <li>Yes</li> <li>T6 byte:</li> <li>T76 byte:</li> <li>T76 byte:</li> <li>T6 byte:</li> <li>T76 byte:</li></ul>   |              |
| <ul> <li>Number of GD packets, max.</li> <li>Number of GD packets, transmitter, max.</li> <li>Number of GD packets, transmitter, max.</li> <li>Number of GD packets, receiver, max.</li> <li>Size of GD packets, max.</li> <li>Size of GD packet (of which consistent), max.</li> <li>S7 basic communication</li> <li>S7 basic communication</li> <li>Ves</li> <li>User data per job, max.</li> <li>User data per job (of which consistent), max.</li> <li>T6 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)</li> </ul>   |              |
| <ul> <li>Number of GD packets, transmitter, max.</li> <li>Number of GD packets, receiver, max.</li> <li>Size of GD packets, max.</li> <li>Size of GD packet (of which consistent), max.</li> <li>S7 basic communication</li> <li>Supported</li> <li>User data per job, max.</li> <li>User data per job (of which consistent), max.</li> <li>Yes</li> <li>Yes</li> <li>User data per job (of which consistent), max.</li> <li>Step of byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)</li> </ul>  |              |
| <ul> <li>Number of GD packets, receiver, max.</li> <li>Size of GD packets, max.</li> <li>Size of GD packet (of which consistent), max.</li> <li>Size of GD packet (of which consistent), max.</li> <li>S7 basic communication</li> <li>Supported</li> <li>User data per job, max.</li> <li>User data per job (of which consistent), max.</li> <li>Yes</li> <li>User data per job (of which consistent), max.</li> <li>Yes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)</li> </ul>  |              |
| <ul> <li>Size of GD packets, max.</li> <li>Size of GD packet (of which consistent), max.</li> <li>Size of GD packet (of which consistent), max.</li> <li>S7 basic communication</li> <li>Supported</li> <li>User data per job, max.</li> <li>User data per job (of which consistent), max.</li> <li>Yes</li> <li>Yes</li> <li>Yes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)</li> </ul>  |              |
| <ul> <li>Size of GD packet (of which consistent), max.</li> <li>S7 basic communication</li> <li>supported</li> <li>User data per job, max.</li> <li>User data per job (of which consistent), max.</li> <li>Yes</li> <li>76 byte</li> <li>76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)</li> </ul>   |              |
| S7 basic communication       Yes         • 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)  |              |
| <ul> <li>supported</li> <li>User data per job, max.</li> <li>User data per job (of which consistent), max.</li> <li>Yes</li> <li>76 byte</li> <li>76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)</li> </ul>  |              |
| <ul> <li>User data per job, max.</li> <li>User data per job (of which consistent), max.</li> <li>T6 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (w X_PUT or X_GET as server)</li> </ul>  |              |
| • User data per job (of which consistent), max. 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (w X_PUT or X_GET as server)  |              |
| X_PUT or X_GET as server)  |              |
| S7 communication   | <i>v</i> ith |
| or contraction   |              |
| • supported Yes  |              |
| • as server Yes  |              |
| as client     Yes; via integrated PROFINET interface and loadable FI CP and loadable FB  | B or via     |
| • User data per job, max. See online help of STEP 7 (shared parameters of the SF and of the SFCs/FCs of S7 Communication)  | -Bs/FBs      |
| S5 compatible communication  |              |
| • supported Yes; via CP and loadable FC  |              |
| PROFINET CBA (at set setpoint communication load)  |              |
| • 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 4 000 byte master/slave, max.  |              |
| Data length of all outgoing connections     asser/slave, max.  |              |

| Number of device-internal and PROFIBUS  | 500                       |
|---|---------------------------|
| <ul> <li>Interconnections</li> <li>Data length of device-internal und PROFIBUS</li> </ul> | 4 000 byte                |
| interconnections, max.  | 1 400 byte                |
| Data length per connection, max.  | 1 400 byte                |
| Remote interconnections with acyclic transmission   | F00                       |
| — Sampling frequency: Sampling time, min.   | 500 ms                    |
| <ul> <li>Number of incoming interconnections</li> </ul>                                   | 100                       |
| <ul> <li>Number of outgoing interconnections</li> </ul>                                   | 100                       |
| <ul> <li>— Data length of all incoming<br/>interconnections, max.</li> </ul>              | 2 000 byte                |
| <ul> <li>— Data length of all outgoing<br/>interconnections, max.</li> </ul>              | 2 000 byte                |
| — Data length per connection, max.  | 1 400 byte                |
| Remote interconnections with cyclic transmission  |                           |
| <ul> <li>Transmission frequency: Transmission<br/>interval, min.</li> </ul>               | 10 ms                     |
| <ul> <li>Number of incoming interconnections</li> </ul>                                   | 200                       |
| <ul> <li>Number of outgoing interconnections</li> </ul>                                   | 200                       |
| <ul> <li>— Data length of all incoming<br/>interconnections, max.</li> </ul>              | 2 000 byte                |
| <ul> <li>— Data length of all outgoing<br/>interconnections, max.</li> </ul>              | 2 000 byte                |
| — Data length per connection, max.  | 450 byte                  |
| HMI variables via PROFINET (acyclic)  |                           |
| <ul> <li>— Number of stations that can log on for HMI variables (PN OPC/iMap)</li> </ul>  | 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                        |
| <ul> <li>usable for PG communication</li> </ul>   | 31                        |
| — reserved for PG communication   | 1                         |
| — adjustable for PG communication, min.   | 1                         |
| — adjustable for PG communication, max.   | 31                        |
| <ul> <li>usable for OP communication</li> </ul>   | 31                        |
| — reserved for OP communication   | 1                         |
| — adjustable for OP communication, min.   | 1                         |

| <ul> <li>adjustable for OP communication, max.</li> </ul>             | 31  |
|---|---|
| <ul> <li>usable for S7 basic communication</li> </ul>                 | 30  |
| <ul> <li>reserved for S7 basic communication</li> </ul>               | 0   |
| <ul> <li>— adjustable for S7 basic communication,<br/>min.</li> </ul> | 0   |
| <ul> <li>— adjustable for S7 basic communication,<br/>max.</li> </ul> | 30  |
| <ul> <li>usable for S7 communication</li> </ul>                       | 16  |
| — reserved for S7 communication                                       | 0   |
| — adjustable for S7 communication, min.                               | 0   |
| — adjustable for S7 communication, max.                               | 16  |
| <ul> <li>total number of instances, max.</li> </ul>                   | 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  |   |
| <ul> <li>Status/control variable</li> </ul>                           | Yes   |
| Variables   | Inputs, outputs, memory bits, DB, times, counters   |
| <ul> <li>Number of variables, max.</li> </ul>                         | 30  |
| — of which status variables, max.                                     | 30  |
| — of which control variables, max.                                    | 14  |
| Forcing   |   |
| Forcing   | Yes   |
| <ul> <li>Forcing, variables</li> </ul>                                | Inputs, outputs   |
| <ul> <li>Number of variables, max.</li> </ul>                         | 10  |
| Diagnostic buffer   |   |
| ● present   | Yes   |
| <ul> <li>Number of entries, max.</li> </ul>                           | 500   |
| — adjustable  | No  |
| — of which powerfail-proof  | 100; Only the last 100 entries are retained   |
| <ul> <li>Number of entries readable in RUN, max.</li> </ul>           | 499   |
| — adjustable  | 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                          |
| <ul> <li>System functions (SFC)</li> </ul>                      | see instruction list       |
| <ul> <li>System function blocks (SFB)</li> </ul>                | see instruction list       |
| Programming language  |                            |
| — LAD   | Yes                        |
| — FBD   | Yes                        |
| — STL   | Yes                        |
| — SCL   | Yes                        |
| — CFC   | Yes                        |
| — GRAPH   | Yes                        |
| — HiGraph®  | Yes                        |
| Know-how protection   |                            |
| <ul> <li>User program protection/password protection</li> </ul> | Yes                        |
| <ul> <li>Block encryption</li> </ul>                            | Yes; With S7 block Privacy |
| Dimensions  |                            |
| Width   | 40 mm                      |
| Height  | 125 mm                     |
| Depth   | 130 mm                     |
| Weights   |                            |
| Weight, approx.   | 340 g                      |
| last modified:  | 09/25/2019                 |