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Data sheet

6ES7513-2PL00-0AB0



SIMATIC DP, CPU 1513pro-2 PN for ET 200pro, central processing unit with 300 KB work memory for program and 1.5 MB for data, 1st interface: PROFINET IRT with 3-port switch, 2nd interface: PROFINET RT, 40 ns bit performance, Degree of protection: IP65/67, SIMATIC Memory Card required connection module required

| General information | |
|--|---|
| Product type designation | CPU 1513pro-2 PN |
| HW functional status | FS01 |
| Firmware version | V2.9 |
| Product function | |
| • I&M data | Yes; I&M0 to I&M3 |
| Isochronous mode | Yes; Via X1, with minimum OB 6x cycle of 500 µs |
| Engineering with | |
| STEP 7 TIA Portal configurable/integrated from version | V17 (FW V2.9) / V16 (FW V2.8) or higher |
| Configuration control | |
| via dataset | No |
| Control elements | |
| Mode selector switch | 1 |
| Supply voltage | |
| Rated value (DC) | 24 V |
| permissible range, lower limit (DC) | 20.4 V |
| permissible range, upper limit (DC) | 28.8 V |
| Reverse polarity protection | Yes |
| Mains buffering | |
| Mains/voltage failure stored energy time | 5 ms |
| Input current | |
| Current consumption (rated value) | 0.31 A |
| Current consumption, max. | 0.4 A |
| Inrush current, max. | 0.4 A; Rated value |
| ² t | 0.001 A ² ·s |
| Power | |
| Infeed power to the backplane bus | 2.275 W |
| Power loss | |
| Power loss, typ. | 5.3 W |
| Memory | |
| Number of slots for SIMATIC memory card | 1 |
| SIMATIC memory card required | Yes |
| Work memory | |
| • integrated (for program) | 300 kbyte |
| • integrated (for data) | 1.5 Mbyte |
| Load memory | |
| Plug-in (SIMATIC Memory Card), max. | 32 Gbyte |
| Backup | |
| maintenance-free | Yes |
| CPU processing times | |



| for bit operations, typ. | 40 ns |
|--|---|
| for word operations, typ. | 48 ns |
| for fixed point arithmetic, typ. | 64 ns |
| for floating point arithmetic, typ. | 256 ns |
| CPU-blocks | |
| Number of elements (total) | 4 000; Blocks (OB, FB, FC, DB) and UDTs |
| DB | |
| Number range | 1 60 999; subdivided into: number range that can be used by the user: 1 59 999, and number range of DBs created via SFC 86: 60 000 60 999 |
| • Size, max. | 1.5 Mbyte; For DBs with absolute addressing, the max. size is 64 KB |
| FB | |
| Number range | 0 65 535 |
| • Size, max. | 300 kbyte |
| FC | |
| Number range | 0 65 535 |
| • Size, max. | 300 kbyte |
| OB | |
| • Size, max. | 300 kbyte |
| Number of free cycle OBs | 100 |
| Number of time alarm OBs | 20 |
| Number of delay alarm OBs | 20 |
| Number of cyclic interrupt OBs | 20; With minimum OB 3x cycle of 500 µs |
| Number of process alarm OBs | 50 |
| Number of DPV1 alarm OBs | 3 |
| Number of isochronous mode OBs | 1 |
| Number of technology synchronous alarm OBs | 2 |
| Number of startup OBs | 100 |
| Number of asynchronous error OBs | 4 |
| Number of synchronous error OBs | 2 |
| - | |
| Number of diagnostic alarm OBs | 1 |
| Nesting depth | 24 |
| per priority class Counters, timers and their retentivity | 24 |
| S7 counter | |
| Number | 2 048 |
| | 2 040 |
| Retentivity | Mar. |
| — adjustable | Yes |
| IEC counter | |
| Number | Any (only limited by the main memory) |
| Retentivity | Mar. |
| — adjustable | Yes |
| S7 times | 0.040 |
| Number | 2 048 |
| Retentivity | No. |
| — adjustable | Yes |
| IEC timer | |
| • Number | Any (only limited by the main memory) |
| Retentivity | |
| - | |
| — adjustable | Yes |
| - | |
| — adjustable | 128 kbyte; In total; available retentive memory for bit memories, timers, |
| — adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. | |
| — adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag | 128 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB |
| adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag Size, max. | 128 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB 16 kbyte |
| adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag Size, max. Number of clock memories | 128 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB |
| | 128 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB 16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte |
| adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag Size, max. Number of clock memories Data blocks Retentivity adjustable | 128 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB 16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte Yes |
| adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag Size, max. Number of clock memories Data blocks Retentivity adjustable Retentivity preset | 128 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB 16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte |
| adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag Size, max. Number of clock memories Data blocks Retentivity adjustable | 128 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB 16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte Yes |



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| Number of IO modules | |
|--|---|
| | 2 048; max. number of modules / submodules |
| I/O address area | |
| Inputs | 32 kbyte; All inputs are in the process image |
| Outputs | 32 kbyte; All outputs are in the process image |
| per integrated IO subsystem | |
| — Inputs (volume) | 8 kbyte |
| — Outputs (volume) | 8 kbyte |
| Hardware configuration | |
| Number of distributed IO systems | 32; A distributed I/O system is characterized not only by the integration of distributed I/O via PROFINET or PROFIBUS communication modules, but also by the connection of I/O via AS-i master modules or links (e.g. IE/PB-Link) |
| Number of IO Controllers | |
| integrated | 2 |
| • Via CM | 0 |
| Rack | |
| Modules per rack, max. | 16; Expansion width max. 1.2 m |
| Number of lines, max. | 1 |
| Time of day | |
| Clock | |
| • Туре | Hardware clock |
| Backup time | 6 wk; At 40 °C ambient temperature, typically |
| Deviation per day, max. | 10 s; Typ.: 2 s |
| Operating hours counter | |
| • Number | 16 |
| Clock synchronization | |
| supported | Yes |
| • in AS, master | Yes |
| • in AS, slave | Yes |
| on Ethernet via NTP | Yes |
| Interfaces | |
| Number of PROFINET interfaces | 2 |
| Number of PROFIBUS interfaces | 0 |
| 1. Interface | |
| Interface types | |
| • RJ 45 (Ethernet) | Yes; X1 P3 |
| Number of ports | 3; 2x M12 + 1x RJ45 |
| integrated switch | Yes |
| | |
| | |
| Protocols | |
| Protocols IP protocol | Yes; IPv4 |
| Protocols • IP protocol • PROFINET IO Controller | Yes; IPv4 Yes |
| Protocols • IP protocol • PROFINET IO Controller • PROFINET IO Device | Yes; IPv4 Yes Yes |
| Protocols • IP protocol • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication | Yes; IPv4 Yes Yes Yes |
| Protocols • IP protocol • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication | Yes; IPv4 Yes Yes Yes; Optionally also encrypted |
| Protocols • IP protocol • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server | Yes; IPv4 Yes Yes Yes; Optionally also encrypted Yes |
| Protocols • IP protocol • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy | Yes; IPv4 Yes Yes Yes; Optionally also encrypted |
| Protocols • IP protocol • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller | Yes; IPv4 Yes Yes Yes; Optionally also encrypted Yes |
| Protocols • IP protocol • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller Services | Yes; IPv4 Yes Yes Yes; Optionally also encrypted Yes Yes; MRP Automanager according to IEC 62439-2 Edition 2.0 |
| Protocols • IP protocol • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller Services — PG/OP communication | Yes; IPv4 Yes Yes Yes Yes; Optionally also encrypted Yes Yes; MRP Automanager according to IEC 62439-2 Edition 2.0 |
| Protocols • IP protocol • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller Services PG/OP communication Isochronous mode | Yes; IPv4 Yes Yes Yes Yes; Optionally also encrypted Yes Yes; MRP Automanager according to IEC 62439-2 Edition 2.0 |
| Protocols IP protocol PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy PROFINET IO Controller Services — PG/OP communication — Isochronous mode — Direct data exchange | Yes; IPv4 Yes Yes Yes Yes; Optionally also encrypted Yes Yes; MRP Automanager according to IEC 62439-2 Edition 2.0 Yes Yes Yes Yes |
| Protocols IP protocol PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy PROFINET IO Controller Services — PG/OP communication — Isochronous mode — Direct data exchange — IRT | Yes; IPv4 Yes Yes Yes Yes; Optionally also encrypted Yes; Optionally also encrypted Yes Yes; MRP Automanager according to IEC 62439-2 Edition 2.0 |
| Protocols IP protocol PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy PROFINET IO Controller Services PRO/OP communication Isochronous mode Direct data exchange IRT PROFIenergy | Yes; IPv4 Yes Yes Yes Yes; Optionally also encrypted Yes Yes; MRP Automanager according to IEC 62439-2 Edition 2.0 Yes Yes Yes Yes Yes; Requirement: IRT and isochronous mode (MRPD optional) Yes Yes; per user program |
| Protocols IP protocol PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy PROFINET IO Controller Services - PG/OP communication - Isochronous mode - Direct data exchange - IRT - PROFIenergy - Prioritized startup | Yes; IPv4 Yes Yes Yes Yes; Optionally also encrypted Yes Yes; MRP Automanager according to IEC 62439-2 Edition 2.0 Yes Yes Yes Yes; Requirement: IRT and isochronous mode (MRPD optional) Yes Yes; per user program Yes; Max. 32 PROFINET devices |
| Protocols IP protocol PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy PROFINET IO Controller Services PROFINET IO Controller Isochronous mode Direct data exchange IRT PROFlenergy Prioritized startup Number of connectable IO Devices, max. | Yes; IPv4 Yes Yes Yes Yes; Optionally also encrypted Yes Yes; MRP Automanager according to IEC 62439-2 Edition 2.0 Yes Yes Yes Yes Yes; Requirement: IRT and isochronous mode (MRPD optional) Yes Yes; per user program Yes; Max. 32 PROFINET devices 128; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET |
| Protocols IP protocol PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy PROFINET IO Controller Services PG/OP communication PG/OP communication PG/OP communication PROFINET data exchange RT PROFIenergy Prioritized startup Number of connectable IO Devices, max. Of which IO devices with IRT, max. | Yes; IPv4 Yes Yes Yes Yes; Optionally also encrypted Yes Yes; MRP Automanager according to IEC 62439-2 Edition 2.0 Yes Yes Yes Yes; Requirement: IRT and isochronous mode (MRPD optional) Yes Yes; per user program Yes; per user program Yes; Max. 32 PROFINET devices 128; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET 64 |
| Protocols IP protocol PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy PROFINET IO Controller Services PG/OP communication Isochronous mode Direct data exchange IRT PROFIenergy Prioritized startup Number of connectable IO Devices, max. Of which IO devices with IRT, max. Number of connectable IO Devices for RT, max. | Yes; IPv4 Yes Yes Yes Yes; Optionally also encrypted Yes Yes; MRP Automanager according to IEC 62439-2 Edition 2.0 Yes Yes; Requirement: IRT and isochronous mode (MRPD optional) Yes Yes; Requirement: IRT and isochronous mode (MRPD optional) Yes Yes; per user program Yes; Max. 32 PROFINET devices 128; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET 64 128 |
| Protocols IP protocol PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy PROFINET IO Controller Services PG/OP communication Isochronous mode Direct data exchange IRT PROFIenergy Prioritized startup Number of connectable IO Devices, max. Of which IO devices with IRT, max. Of which in line, max. | Yes; IPv4 Yes Yes Yes Yes; Optionally also encrypted Yes Yes; MRP Automanager according to IEC 62439-2 Edition 2.0 Yes Yes; Requirement: IRT and isochronous mode (MRPD optional) Yes Yes; Requirement: IRT and isochronous mode (MRPD optional) Yes Yes; per user program Yes; Max. 32 PROFINET devices 128; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET 64 128 128 |
| Protocols • IP protocol • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller Services - PG/OP communication - Isochronous mode - Direct data exchange - IRT - PROFlenergy - Prioritized startup - Number of connectable IO Devices, max. - Of which IO devices with IRT, max. - Number of connectable IO Devices for RT, max. - of which IN Devices that can be simultaneously activated/deactivated, max. | Yes; IPv4 Yes Yes Yes Yes; Optionally also encrypted Yes Yes; MRP Automanager according to IEC 62439-2 Edition 2.0 Yes; MRP Automanager according to IEC 62439-2 Edition 2.0 Yes Yes; Requirement: IRT and isochronous mode (MRPD optional) Yes Yes; per user program Yes; Max. 32 PROFINET devices 128; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET 64 128 128 8; in total across all interfaces |
| Protocols IP protocol PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy PROFINET IO Controller Services PG/OP communication Isochronous mode Direct data exchange IRT PROFIenergy Prioritized startup Number of connectable IO Devices, max. Of which IO devices with IRT, max. Of which in line, max. Number of IO Devices that can be simultaneously | Yes; IPv4 Yes Yes Yes Yes; Optionally also encrypted Yes Yes; MRP Automanager according to IEC 62439-2 Edition 2.0 Yes; Requirement: IRT and isochronous mode (MRPD optional) Yes Yes; Requirement: IRT and isochronous mode (MRPD optional) Yes Yes; per user program Yes; Max. 32 PROFINET devices 128; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET 64 128 128 |



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| Update tree for RFT 260 us for 4 mc. Note its the case of RFT with isochronous mode, the minimum update tree of 600 us 4 mc. Note its the case of RFT with isochronous mode, the minimum update tree of 600 us 4 mc. Note its the case of RFT with isochronous OB is decaive - For send cycle of 70 ms 1 ms to 16 ms - For send cycle of 71 ms 1 ms to 16 ms - For send cycle of 71 ms 2 ms to 32 ms - For send cycle of 70 ms 2 ms to 32 ms - For send cycle of 70 ms 2 ms to 52 ms - For send cycle of 70 ms 2 ms to 52 ms - For send cycle of 70 ms 2 ms to 52 ms - For send cycle of 70 ms 2 ms to 52 ms - For send cycle of 70 ms 2 ms to 52 ms - For send cycle of 71 ms 1 ms to 52 ms - For send cycle of 71 ms 1 ms to 52 ms - For send cycle of 71 ms 1 ms to 512 ms - For send cycle of 71 ms 1 ms to 512 ms - For send cycle of 71 ms 1 ms to 512 ms - For send cycle of 71 ms 1 ms to 512 ms - For send cycle of 71 ms 1 ms to 512 ms | | set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data |
|--|---|---|
| - for send cycle of 250 µs 250 µs A ms, Note. In the case of IET wile isochronous mode, the mammum isoch of more 500 µs of B ms - for send cycle of 1m a 1 ms to 16 ms - for send cycle of 2m a 2 ms to 16 ms - for send cycle of 2m a 2 ms to 16 ms - for send cycle of 2m a 2 ms to 4 ms - for send cycle of 2m a 2 ms to 4 ms - for send cycle of 2m a 2 ms to 4 ms - for send cycle of 2m a 2 ms to 4 ms - for send cycle of 2m a 2 ms to 5 ms - for send cycle of 20 µs 20 µs to 12m ms - for send cycle of 20 µs 20 µs to 12m ms - for send cycle of 20 µs 20 µs to 12m ms - for send cycle of 20 µs 20 µs to 12m ms - for send cycle of 1m a 1 ms to 512 ms - for send cycle of 1m a 1 ms to 512 ms - for send cycle of 1m a 1 ms to 512 ms - For CPO communication Yes - Sectomous mode Yes - | Update time for IRT | |
| - for send cycle of 1 ms 1 ms to 16 ms - for send cycle of 4 ms 4 ms to 64 ms - Wh IRT and parametrization of "odd" send cycle Variation 1 and 1 a | · | |
| - for send cycle of 2 ms - for send cycle of 2 ms - With IRT and parameterization of 'odd' send cycle With IRT and parameterization of 'odd' send cycle - for send cycle of 250 µs - for send cycle of 270 µs - for send cycle of 4 ms - for send cycle of 1 ms - for send cycle | — for send cycle of 500 μ s | 500 µs to 8 ms |
| - for send cycle of 4 ms 4 ms to 4 ms - for send cycle of 280 µs 250 µs to 128 ms - for send cycle of 280 µs 250 µs to 128 ms - for send cycle of 280 µs 250 µs to 128 ms - for send cycle of 280 µs 250 µs to 128 ms - for send cycle of 280 µs 250 µs to 128 ms - for send cycle of 2 ms 2 ms to 512 ms - for send cycle of 2 ms 2 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - For Send cycle of 1 ms Yes - PROFIEring Yes - PROFIEring Yes - Number of 10 Controllers with shared divice, max 4 - activation/disavitation in the shared divice, max 1 ms to 512 ms - For Send management record Yes - Fuer Send Yes - Fuer Send Yes - Fuer Send Cycle of protsend Yes <td>— for send cycle of 1 ms</td> <td>1 ms to 16 ms</td> | — for send cycle of 1 ms | 1 ms to 16 ms |
| With IRT and parameterization of "cod" send cycle Update time sent" cod" sent chock (any multiple of 126 µs: 376 µs, 626 µs | — for send cycle of 2 ms | 2 ms to 32 ms |
| Update line for RT B75 (b) - for send cycle of 250 µa 250 µs to 128 ms - for send cycle of 20 µa 250 µs to 128 ms - for send cycle of 1 ms 1 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - FOGOP communication Yes - PAGOP and divice Yes - Number of OC Controllers with shared divice, max. 4 - activation/deactivation of 1 divices Yes Pado for ports 1, 1's M12 - Interface Yes (Pada 4) also encrypted - PAGOP communication Yes (Pada 4) also encrypted <t< td=""><td>- for send cycle of 4 ms</td><td>4 ms to 64 ms</td></t<> | - for send cycle of 4 ms | 4 ms to 64 ms |
| for send cycle of 250 µs 250 µs to 25 ms for send cycle of 1 ms 1 ms to 512 ms for send cycle of 1 ms 1 ms to 512 ms for send cycle of 1 ms 2 ms to 512 ms for send cycle of 1 ms 4 ms to 512 ms for send cycle of 1 ms 4 ms to 512 ms for send cycle of 1 ms 4 ms to 512 ms for send cycle of 1 ms 4 ms to 512 ms for send cycle of 1 ms 4 ms to 512 ms for send cycle of 1 ms 4 ms to 512 ms for send cycle of 1 ms 1 ms for send cycle of 1 ms 4 ms to 512 ms for send cycle of 1 ms Yes Asset management record Yes Asset management record Yes For Send cycle of 1 ms Yes For Send cycle of 1 ms Yes For Send cycle of 1 ms Yes For Send c | — With IRT and parameterization of "odd" send cycles | |
| | Update time for RT | |
| | — for send cycle of 250 µs | 250 µs to 128 ms |
| | — for send cycle of 500 μs | 500 µs to 256 ms |
| — for send cycle of 4 ms 4 ms to 512 ms PROFINET 10 Devices — — PCOP communication Yes — PCOP fenergy Yes per user program — PROFINEEd startup No — Profice trentsy Yes per user program — Profice trentsy Yes per user program — Profice trentsy Yes per user program — Asset management record Yes: per user program — Profice types — — Finderso types — — Finderso types — — Profice types — — Profice types — — Profice trent Yes — Profice trentsion Yes — Profice trentsion Yes — Profice trentsion Yes — Asset management record Yes — Profice types — — Profice types — — Profice types Yes | — for send cycle of 1 ms | 1 ms to 512 ms |
| PROFINET IO Device Ves | — for send cycle of 2 ms | 2 ms to 512 ms |
| Services PGOP communication Yes — PGOP communication Yes — HT Yes — PROFinency Yes, per user program — PROFinency No — Shared device Yes — Number of IO Controllers with shared device, max. 4 — activation(deactivation of I-devices Yes; per user program — Asset management record Yes; per user program • RJ 45 (Ethernet) No • Number of ports 1; 1x M12 • Integrated switch No • Protocols Yes • PROFINET IO Controller Yes • PROFINET IO Controller Yes • PROFINET IO Controller Yes • Open IE communication Yes • Web server Yes • Media redundancy No • PROFINET IO Controller Yes • PROFINET IO Controller Yes • Open IE communication Yes • Open IE connunication Yes • PROFINET IO Controller Yes • PROFINET IO Controller Yes • PROFINET IO Controller Yes • Open IE connunication Yes • Open IE connunication Yes • PROFINET IO Controller Yes <td>— for send cycle of 4 ms</td> <td>4 ms to 512 ms</td> | — for send cycle of 4 ms | 4 ms to 512 ms |
| | PROFINET IO Device | |
| | Services | |
| - IRT Yes - PROFlenergy Yes per user program - Proinized starupp No - Shared device Yes - Number of D Controllers with shared device, max. 4 - assit management record Yes; per user program - Asset management record Yes; per user program - Asset management record Yes; per user program - Ruter/acc - Interface type - - Ruter/acc - - Proofool - - Proofool Yes; Optionally also encrypted - Stard-Edundancy Yes; Optionally also encrypted - Media rechange No - Decornounication Yes; Optionally also encrypted - Boconounication Yes; Optional | — PG/OP communication | Yes |
| - PROFlenergy Yes; per user program - Prioritized startup No - Shared device Yes - Number of IO Controllers with shared device, max. 4 - activation/deactivation of I-devices Yes; per user program - Asset management record Yes; per user program - Asset management record Yes; per user program - Asset management record Yes; per user program - Rife (Ethemet) No - Number of ports 1; 1x M12 - integrated switch No Protocol Yes; IPV4 PROFINET IO Controller Yes - PROFINET IO Controller Yes - PROFINET IO Controller Yes - Open Lic communication Yes - Media redundancy Yes - PGIOP Communication Yes - Open Controller Yes - Services - - PGIOP communication Yes - OfCO communication Yes - Dischronous mode No - Dischronous mode No - Dischronous mode No - PROFINET IO Devices, max. 32 - Number of connectable IO Devices, max. 32 - Number of connectable IO Devices, max. 32 - Number of conne | — Isochronous mode | No |
| - Prioritized startup No - Shared device Yes - Number of IO Controllers with shared device, max. 4 - activation/deadivation of I-devices Yes; per user program - Asset management record Yes; per user program - Asset management record Yes; per user program - Asset management record Yes; per user program - Rade to prost - Number of DC Totollers - Rud 45 (Ethernet) No - Number of ports 1: 1x M12 - Interface types - No - Protocol Yes; IPV4 - Protocol Yes; Protocol - PROFINET 10 Device Yes; Optionally also encrypted - PROFINET 10 Device Yes; Optionally also encrypted - Web server Yes - PGIOP communication Yes; Optionally also encrypted - Web server Yes - PGIOP communication Yes - PGIOP communication Yes - PGIOP communication Yes - PROFINET IO Controller No - Dired data exchange No - Dired data exchange No - PROFINET NO No - PROFINET NO Saturatup - Number of IO Devices fart on the simultaneously activated/deactivated, max. 32 <t< td=""><td></td><td>Yes</td></t<> | | Yes |
| | - PROFlenergy | Yes; per user program |
| | - Prioritized startup | No |
| | — Shared device | Yes |
| Asset management record Yes; per user program 2. Interface types | — Number of IO Controllers with shared device, max. | 4 |
| 2. Interface Interface types • RJ 45 (Ethernet) • Number of ports • Integrated switch • IP protocol • IP protocol • IP protocol • PROFINET IO Controller • PROFINET IO Device • PROFINET IO Device • Open IE communication • Open IE communication • Ves • Media redundancy No PROFINET IO Controller • Ves • Open IE communication • Ves • Open IE communication • Ves • PGIOP Communication • Provices - PG/OP communication - Direct data exchange - IRT - IRT - PROFinergy - Number of connectable IO Devices, max. - Number of connectable IO Devices for RT, max. - Of which in line, max. - Of which in line, max. - Of which in line, max. - Number of IO Devices per tool, max. - Number of IO Devices per tool, max. - Of which in line, max. - Update times | - activation/deactivation of I-devices | Yes; per user program |
| Interface types No • RJ 45 (Efternet) No • Number of ports 1; 1x M12 • integrated switch No Protocols 'est, IPv4 • IP protocol Yes; IPv4 • PROFINET IO Device Yes • SIMATIC communication Yes • Open IE communication Yes • Open IE communication Yes • Open IE communication Yes • Media redundancy No PROFINET IO Controller Yes • Media redundancy No PROFINET IO Controller Yes • Media redundancy No PROFINET IO Controller Yes Services - - PG/OP communication Yes - Isochronous mode No - IRT No - PROFIenergy Yes - Profitized starup No - Number of IO Devices for RT, max. 32 - Number of IO Devices for RT, max. 32 - Number of IO Devices per tool, max. 8 - Widate time of RT 4 - Update time for RT - - for send cycle of 1 ms 1 ms to 512 ms | - Asset management record | Yes; per user program |
| • RJ 45 (Ethernet) No • Number of ports 1; 1x M12 • integrated switch No • Protocol Yes; IPv4 • IP protocol Yes; IPv4 • PROFINET IO Controller Yes • ROFINET IO Device Yes • SIMATIC communication Yes • Open IE communication Yes • Media redundancy No • Media redundancy No • DROFINET IO Controller Yes Services - • PGOP communication Yes • Media redundancy No • Direct data exchange No - Isochronous mode No - Direct data exchange No - IRT No - PROFINET of connectable IO Devices, max. 32; In total: up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET - Number of IO Devices for RT, max. 32 - Number of IO Devices per tool, max. 8 - Update time for RT 48 - Update time for RT The minimum value of the update time atso depends on communication share set for PROFINET IO Controller ata Update time for RT | 2. Interface | |
| • Number of ports 1, 1 x M12 • integrated switch No Protocols Ves; IPv4 • IP protocol Yes; IPv4 • PROFINET IO Controller Yes; • PROFINET IO Controller Yes; • PROFINET IO Controller Yes; • SIMATIC communication Yes; • Open IE communication Yes; • Web server Yes • Media redundancy No PROFINET IO Controller Services - PG/OP communication Yes - Isochronous mode No - Direct data exchange No - IRT No - PROFInergy Yes - Prioritized startup No - Number of connectable IO Devices, max. 32, In total, up to 512 distributed I/O devices can be connected via AS-i, PPCFIBUS or PROFINET - Number of IO Devices for RT, max. 32 - Number of IO Devices for RT, max. 32 - Number of IO Devices per tool, max. 8 - Number of IO Devices per tool, max. 8 - Updatin times Xe of the update time also depends on communication share strivated/deactivated | Interface types | |
| • integrated switch No Protecols Yes; IPv4 • IP protocol Controller Yes • PROFINET IO Controller Yes • PROFINET IO Device Yes • SIMATIC communication Yes • Open IE communication Yes; Optionally also encrypted • Web server Yes • Media redundancy No PROFINET IO Controller Yes • Media redundancy No PROFINET IO Controller Yes • PROFINET IO Controller No • Other data exchange No • PROFINET O Connectable IO Devices, max. 32 (In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET • Number of IO Devices for RT, max. 32 • O which in line, max. 32 • O which or IIO Devices for RT, max. 8 (I | RJ 45 (Ethernet) | No |
| Protocol Yes; IPv4 • PROFINET IO Controller Yes • PROFINET IO Controller Yes • PROFINET IO Device Yes • SIMATIC communication Yes; Optionally also encrypted • Open IE communication Yes; Optionally also encrypted • Web server Yes • Media redundancy No PROFINET IO Controller Services - PG/OP communication Yes - Isochronous mode No - Direct data exchange No - IRT No - PROFIENTY Yes - Profitized startup No - Number of connectable IO Devices, max. 32; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET - Number of connectable IO Devices for RT, max. 32 - of which In line, max. 32 - of which In line, max. 32 - Number of IO Devices per tool, max. 8; in total across all interfaces - Updating times St in total across all interfaces - Updating times 8; in total across all interfaces - Updating times St if total across all interfaces | Number of ports | 1; 1x M12 |
| • IP protocol Yes; IPv4 • PROFINET IO Controller Yes • PROFINET IO Device Yes • SIMATIC communication Yes; Optionally also encrypted • Open E communication Yes; Optionally also encrypted • Web server Yes • Media redundancy No PROFINET IO Controller Services - PG/OP communication Yes - PG/OP communication Yes - Isochronous mode No - Direct data exchange No - IRT No - PROFIenergy Yes - Proof connectable IO Devices, max. 32; In total, up to 512 distributed I/O devices can be connected via AS-I, PPCOFEIUS or PROFINET - Number of connectable IO Devices for RT, max. 32 - of which in line, max. 32 - of which in line, max. 32 - Number of IO Devices that can be simultaneously activated/deactivated, max. 8; in total across all interfaces - Updating times The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for RT - for send cyole of 1 ms - of which in line, | integrated switch | No |
| • PROFINET IO Controller Yes • PROFINET IO Device Yes • SIMATIC communication Yes • Open IE communication Yes • Web server Yes • Media redundancy No PROFINET IO Controller Services - PGOP communication Yes - PGOP communication Yes - Direct data exchange No - Direct data exchange No - IRT No - PROFINET of connectable IO Devices, max. 32 in total, up to 512 distributed I/O devices can be connected via AS-1, PROFIBUS or PROFINET - Number of connectable IO Devices for RT, max. 32 - of which in line, max. 32 - of which in line, max. 32 - Number of IO Devices for RT, max. 32 - Number of IO Devices for RT, max. 32 - Number of IO Devices for IT, max. 32 - Number of IO Devices for IT, max. 32 - Updating times % in total across all interfaces - Updating times % in total across all interfaces - Updating times The minimum value of the update time also depends on communication sh | Protocols | |
| • PROFINET IO Device Yes • SIMATIC communication Yes • Open IE communication Yes; Optionally also encrypted • Web server Yes • Media redundancy No • Media redundancy Yes • PROFINET IO Controller PROFINET IO Controller • PROFINET IO Controller Yes • PG/OP communication Yes • Isochronous mode No • Direct data exchange No • IRT No • PROFINET of connectable IO Devices, max. Yes • PROFIBergy Yes • Number of connectable IO Devices for RT, max. 32 • Of which in line, max. 32 • Of which in line, max. 32 • Number of IO Devices that can be simultaneously activated/deactivated, max. 8; in total across all interfaces • Number of IO Devices per tool, max. 8 • Updating times 8 • Update time for RT Immunu value of the update time also depends on communication share scrifter PROFINET IO, on the number of IO devices, and on the quantity of configured user data • Update time for RT 1 ms to 512 ms PROFINET IO Device 1 ms to 512 | IP protocol | Yes; IPv4 |
| SIMATIC communicationYes• Open IE communicationYes; Optionally also encrypted• Web serverYes• Media redundancyNoPROFINET IO ControllerServices- PG/OP communicationYes- Isochronous modeNo- Direct data exchangeNo- IRTNo- PROFIenergyYes- Prioritized startupNo- Number of connectable IO Devices, max.32; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET- Number of connectable IO Devices for RT, max.32- of which in line, max.32- Number of IO Devices that can be simultaneously activated/deactivated, max.8; in total across all interfaces- Updating timesThe minimum value of the update time also depends on communication share scriftor PROFINET IO devices, and on the quantity of configured user dataUpdate time for RT1 ms to 512 ms- FROFINET IO Device1 ms to 512 ms | PROFINET IO Controller | Yes |
| • Open IE communicationYes; Optionally also encrypted• Web serverYes• Media redundancyNoPROFINET IO ControllerServices- PG/OP communicationYes- PG/OP communicationYes- Isochronous modeNo- Direct data exchangeNo- IRTNo- PROFINET of ControllerYes- PROFInergyYes- Prioritized startupNo- Number of connectable IO Devices, max.32 (1 total, up to 512 distributed I/O devices can be connected via AS-i, PROFINET- Number of connectable IO Devices for RT, max.32- Number of IO Devices for RT, max.32- Number of IO Devices per tool, max.8 (in total across all interfaces activated/deactivated, max Number of IO Devices per tool, max.8- Updating timesThe minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user dataPROFINET IO DeviceImage: Nonfigured user dataPROFINET IO Device1 ms to 512 ms | PROFINET IO Device | Yes |
| Web server Yes • Media redundancy No PROFINET IO Controller | SIMATIC communication | Yes |
| • Media redundancy No PROFINET IO Controller Services - PG/OP communication Yes - Isochronous mode No - Direct data exchange No - IRT No - PROFlenergy Yes - Prioritized startup No - Number of connectable IO Devices, max. 32; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET - Number of connectable IO Devices for RT, max. 32 - of which in line, max. 32 - Number of IO Devices that can be simultaneously activated/deactivated, max. 8; in total across all interfaces - Number of IO Devices per tool, max. 8 - Updating times The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for RT | Open IE communication | Yes; Optionally also encrypted |
| PROFINET IO Controller Services - PG/OP communication Yes - Isochronous mode No - Direct data exchange No - IRT No - PROFIenergy Yes - PROF lenergy Yes - Prioritized startup No - Number of connectable IO Devices, max. 32; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFIBUS or PROFINET - Number of connectable IO Devices for RT, max. 32 - Number of IO Devices that can be simultaneously activated/deactivated, max. 8; in total across all interfaces - Number of IO Devices per tool, max. 8 - Updating times 8 Update time for RT The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for RT 1 ms to 512 ms - for send cycle of 1 ms 1 ms to 512 ms | Web server | Yes |
| Services - PG/OP communication Yes - Isochronous mode No - Direct data exchange No - IRT No - PROFlenergy Yes - Prioritized startup No - Number of connectable IO Devices, max. 32; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET - Number of connectable IO Devices for RT, max. 32 - of which in line, max. 32 - Number of IO Devices that can be simultaneously activated/deactivated, max. 8; in total across all interfaces - Number of IO Devices per tool, max. 8 - Updating times 8 Update time for RT - for send cycle of 1 ms - for send cycle of 1 ms 1 ms to 512 ms | Media redundancy | No |
| - PG/OP communication Yes - Isochronous mode No - Direct data exchange No - IRT No - PROFIenergy Yes - Prioritized startup No - Number of connectable IO Devices, max. 32; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET - Number of connectable IO Devices for RT, max. 32 - of which in line, max. 32 - of which in line, max. 32 - Number of IO Devices that can be simultaneously activated/deactivated, max. 8; in total across all interfaces - Number of IO Devices per tool, max. 8 - Updating times The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for RT - for send cycle of 1 ms - for send cycle of 1 ms 1 ms to 512 ms | PROFINET IO Controller | |
| — Isochronous mode No — Direct data exchange No — IRT No — PROFIenergy Yes — Prioritized startup No — Number of connectable IO Devices, max. 32; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET — Number of connectable IO Devices for RT, max. 32 — of which in line, max. 32 — of which in line, max. 32 — Number of IO Devices that can be simultaneously activated/deactivated, max. 8; in total across all interfaces — Number of IO Devices per tool, max. 8 — Updating times The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for RT 1 ms to 512 ms — FROFINET IO Device 1 ms to 512 ms | Services | |
| Direct data exchangeNo- IRTNo- PROFlenergyYes- Prioritized startupNo- Number of connectable IO Devices, max.32 (1 total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET- Number of connectable IO Devices for RT, max.32- of which in line, max.32- Number of IO Devices that can be simultaneously activated/deactivated, max.8- Number of IO Devices per tool, max.8- Updating timesThe minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user dataUpdate time for RT1 ms to 512 ms- For send cycle of 1 ms1 ms to 512 ms | - PG/OP communication | Yes |
| - IRTNo- PROFlenergyYes- Prioritized startupNo- Number of connectable IO Devices, max.32; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET- Number of connectable IO Devices for RT, max.32- of which in line, max.32- of which in line, max.32- Number of IO Devices that can be simultaneously activated/deactivated, max.8; in total across all interfaces- Number of IO Devices per tool, max.8- Updating timesThe minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user dataUpdate time for RT1 ms to 512 ms- PROFINET IO Device1 ms to 512 ms | — Isochronous mode | No |
| PROFlenergyYes Prioritized startupNo Number of connectable IO Devices, max.32; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Number of connectable IO Devices for RT, max.32 of which in line, max.32 of which in line, max.32 Number of IO Devices that can be simultaneously activated/deactivated, max.8; in total across all interfaces Number of IO Devices per tool, max.8 Number of IO Devices per tool, max.8 Updating timesThe minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user dataUpdate time for RT1 ms to 512 ms for send cycle of 1 ms1 ms to 512 ms | — Direct data exchange | No |
| Prioritized startupNo- Number of connectable IO Devices, max.32; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET- Number of connectable IO Devices for RT, max.32- of which in line, max.32- of which in line, max.32- Number of IO Devices that can be simultaneously activated/deactivated, max.8; in total across all interfaces- Number of IO Devices per tool, max.8- Updating timesThe minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user dataUpdate time for RT1 ms to 512 ms- for send cycle of 1 ms1 ms to 512 ms | — IRT | No |
| - Number of connectable IO Devices, max.32; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET- Number of connectable IO Devices for RT, max.32- of which in line, max.32- Number of IO Devices that can be simultaneously activated/deactivated, max.8; in total across all interfaces- Number of IO Devices per tool, max.8- Updating timesThe minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user dataUpdate time for RT1 ms to 512 ms- FROFINET IO Device1 ms to 512 ms | — PROFlenergy | Yes |
| PROFIBUS or PROFINET - Number of connectable IO Devices for RT, max. 32 - of which in line, max. 32 - Number of IO Devices that can be simultaneously activated/deactivated, max. 8; in total across all interfaces - Number of IO Devices per tool, max. 8 - Number of IO Devices per tool, max. 8 - Updating times The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for RT 1 ms to 512 ms PROFINET IO Device 1 ms to 512 ms | — Prioritized startup | No |
| of which in line, max.32 Number of IO Devices that can be simultaneously activated/deactivated, max.8; in total across all interfaces Number of IO Devices per tool, max.8 Updating timesThe minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user dataUpdate time for RT1 ms to 512 ms for send cycle of 1 ms1 ms to 512 ms | — Number of connectable IO Devices, max. | |
| - Number of IO Devices that can be simultaneously activated/deactivated, max. 8; in total across all interfaces - Number of IO Devices per tool, max. 8 - Updating times The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for RT 1 ms to 512 ms PROFINET IO Device 1 | Number of connectable IO Devices for RT, max. | 32 |
| activated/deactivated, max. 8 — Number of IO Devices per tool, max. 8 — Updating times The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for RT 1 ms to 512 ms PROFINET IO Device 1 ms to 512 ms | — of which in line, max. | 32 |
| — Updating times The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for RT — for send cycle of 1 ms PROFINET IO Device 1 ms to 512 ms | | 8; in total across all interfaces |
| set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for RT — for send cycle of 1 ms 1 ms to 512 ms PROFINET IO Device | Number of IO Devices per tool, max. | 8 |
| Update time for RT | — Updating times | set for PROFINET IO, on the number of IO devices, and on the quantity of |
| — for send cycle of 1 ms 1 ms to 512 ms PROFINET IO Device 1 | Update time for RT | |
| PROFINET IO Device | | 1 ms to 512 ms |
| | | |
| | Services | |



| — PG/OP communication | Yes |
|---|--|
| — Isochronous mode | |
| | No |
| — IRT | No |
| - PROFlenergy | Yes; per user program |
| — Prioritized startup | No |
| — Shared device | Yes |
| Number of IO Controllers with shared device, max. | 4 |
| activation/deactivation of I-devices | Yes; per user program |
| Asset management record | Yes; per user program |
| Interface types | |
| RJ 45 (Ethernet) | Vec |
| • 100 Mbps | Yes |
| Autonegotiation | Yes |
| Autocrossing | Yes |
| Industrial Ethernet status LED | Yes |
| Protocols | |
| PROFIsafe | No |
| Number of connections | |
| Number of connections, max. | 128; Via integrated interfaces of the CPU |
| Number of connections reserved for ES/HMI/web | 10 |
| Number of connections via integrated interfaces | 128 |
| Number of S7 routing paths | 16 |
| Redundancy mode | |
| H-Sync forwarding | Yes |
| Media redundancy | |
| — Media redundancy | Yes; only via 1st interface (X1) |
| — MRP | Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client |
| MRP interconnection, supported | Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 |
| — MRPD | Yes; Requirement: IRT |
| Switchover time on line break, typ. | 200 ms; For MRP, bumpless for MRPD |
| — Number of stations in the ring, max. | 50 |
| SIMATIC communication | |
| PG/OP communication | Yes; encryption with TLS V1.3 pre-selected |
| S7 routing | Yes |
| S7 communication, as server | Yes |
| S7 communication, as client | Yes |
| • User data per job, max. | See online help (S7 communication, user data size) |
| Open IE communication | |
| • TCP/IP | Yes |
| — Data length, max. | 64 kbyte |
| - several passive connections per port, supported | Yes |
| ISO-on-TCP (RFC1006) | Yes |
| — Data length, max. | 64 kbyte |
| • UDP | Yes |
| — Data length, max. | 2 kbyte; 1 472 bytes for UDP broadcast |
| — UDP multicast | Yes; Max. 5 multicast circuits |
| • DHCP | Yes |
| • DNS | Yes |
| • SNMP | Yes |
| • DCP | Yes |
| • LLDP | Yes |
| Encryption | Yes; Optional |
| Web server | |
| • HTTP | Yes; Standard and user pages |
| • HTTPS | Yes; Standard and user pages |
| OPC UA | |
| Runtime license required | Yes; "Small" license required |
| OPC UA Client | Yes |
| Application authentication | Yes |
| — Application authentication — Security policies | Available security policies: None, Basic128Rsa15, Basic256Rsa15, |
| | |



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| | Basic256Sha256 |
|--|--|
| — User authentication | "anonymous" or by user name & password |
| - Number of connections, max. | 4 |
| Number of nodes of the client interfaces, recommended max. | 1 000 |
| — Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_I max. | 300 |
| — Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. | 20 |
| — Number of elements for one call of OPC_UA_MethodGetHandleList, max. | 100 |
| Number of simultaneous calls of the client instructions for session management, per connection, max. | 1 |
| Number of simultaneous calls of the client instructions for data access, per connection, max. | 5 |
| Number of registerable nodes, max. | 5 000 |
| — Number of registerable method calls of OPC_UA_MethodCall, max. | 100 |
| — Number of inputs/outputs when calling OPC_UA_MethodCall, max. | 20 |
| OPC UA Server | Yes; Data access (read, write, subscribe), method call, custom address space |
| Application authentication | Yes |
| — Security policies | Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 |
| — User authentication | "anonymous" or by user name & password |
| — GDS support (certificate management) | Yes |
| Number of sessions, max. | 32 |
| Number of accessible variables, max. | 50 000 |
| — Number of registerable nodes, max. | 10 000 |
| Number of subscriptions per session, max. | 20 |
| — Sampling interval, min. | 100 ms |
| — Publishing interval, min. | 500 ms |
| Number of server methods, max. | 20 |
| Number of inputs/outputs per server method, max. | 20 |
| Number of monitored items, recommended max. | 1 000; for 1 s sampling interval and 1 s send interval |
| - Number of server interfaces, max. | 10 of each "Server interfaces" / "Companion specification" type and 20 of the type "Reference namespace" |
| — Number of nodes for user-defined server interfaces, max. | 1 000 |
| Alarms and Conditions | Yes |
| — Number of program alarms | 100 |
| — Number of alarms for system diagnostics | 50 |
| Further protocols | |
| MODBUS | Yes; MODBUS TCP |
| S7 message functions | |
| Number of login stations for message functions, max. | 32 |
| Program alarms | Yes |
| Number of configurable program messages, max. | 5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH |
| Number of loadable program messages in RUN, max. | 2 500 |
| Number of simultaneously active program alarms | |
| Number of program alarms | 600 |
| Number of alarms for system diagnostics | 100 |
| Number of alarms for motion technology objects | 80 |
| Test commissioning functions | |
| Joint commission (Team Engineering) | Yes; Parallel online access possible for up to 5 engineering systems |
| Status block | Yes; Up to 8 simultaneously (in total across all ES clients) |
| Single step | No |
| Number of breakpoints | 8 |
| Status/control | |
| Status/control variable | Yes |
| Variables | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters |
| Number of variables, max. | |



| of which status variables, may | 200: per job |
|--|---|
| — of which status variables, max. | 200; per job |
| — of which control variables, max. Forcing | 200; per job |
| Forcing | Yes |
| Forcing Forcing, variables | |
| Number of variables, max. | Peripheral inputs/outputs 200 |
| Number of variables, max. Diagnostic buffer | 200 |
| • present | Yes |
| Number of entries, max. | 1 000 |
| - of which powerfail-proof | 500 |
| Traces | 500 |
| Number of configurable Traces | 4; Up to 512 KB of data per trace are possible |
| Interrupts/diagnostics/status information | |
| Diagnostics indication LED | |
| RUN/STOP LED | Yes |
| • ERROR LED | Yes |
| MAINT LED | Yes |
| Monitoring of the supply voltage (PWR-LED) | Yes; green "24 V DC" LED |
| Connection display LINK TX/RX | Yes |
| Supported technology objects | |
| Motion Control | Yes; Note: The number of technology objects affects the cycle time of the PLC |
| Motori Control | program; selection guide via the TIA Selection Tool |
| Number of available Motion Control resources for | 800 |
| technology objects | |
| Required Motion Control resources | |
| — per speed-controlled axis | 40 |
| — per positioning axis | 80 |
| — per synchronous axis | 160 |
| — per external encoder | 80 |
| — per output cam | 20 |
| — per cam track | 160 |
| — per probe | 40 |
| Positioning axis | |
| — Number of positioning axes at motion control cycle of 4 ms (typical value) | 5 |
| — Number of positioning axes at motion control cycle | 10 |
| of 8 ms (typical value) | 10 |
| Controller | |
| PID_Compact | Yes; Universal PID controller with integrated optimization |
| PID_3Step | Yes; PID controller with integrated optimization for valves |
| PID-Temp | Yes; PID controller with integrated optimization for temperature |
| Counting and measuring | |
| High-speed counter | Yes |
| Ambient conditions | |
| Ambient temperature during operation | |
| horizontal installation, min. | -25 °C |
| horizontal installation, max. | 55 °C |
| vertical installation, min. | -25 °C |
| vertical installation, max. | 55 °C |
| Ambient temperature during storage/transportation | |
| • min. | -40 °C |
| • max. | 70 °C |
| Altitude during operation relating to sea level | |
| Installation altitude above sea level, max. | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual |
| configuration / header | |
| configuration / programming / header | |
| Programming language | |
| — LAD | Yes |
| — FBD | Yes |
| — STL | Yes |
| — SCL | Yes |
| — GRAPH | Yes |



11/22/2023

| Know-how protection | |
|---|-------------------------------|
| User program protection/password protection | Yes |
| Copy protection | Yes |
| Block protection | Yes |
| Access protection | |
| protection of confidential configuration data | Yes |
| Protection level: Write protection | Yes |
| Protection level: Read/write protection | Yes |
| Protection level: Complete protection | Yes |
| programming / cycle time monitoring / header | |
| lower limit | adjustable minimum cycle time |
| • upper limit | adjustable maximum cycle time |
| Dimensions | |
| Width | 135 mm |
| Height | 130 mm |
| Depth | 65 mm |
| Weights | |
| Weight, approx. | 614 g |
| | c] |

last modified:

10/3/2023 🖸

