## SIEMENS

## 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	
<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	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	
<ul> <li>Mains/voltage failure stored energy time</li> </ul>	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
<sup>2</sup> t	0.001 A <sup>2</sup> ·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
<ul> <li>Number of time alarm OBs</li> </ul>	20
<ul> <li>Number of delay alarm OBs</li> </ul>	20
<ul> <li>Number of cyclic interrupt OBs</li> </ul>	20; With minimum OB 3x cycle of 500 µs
Number of process alarm OBs	50
<ul> <li>Number of DPV1 alarm OBs</li> </ul>	3
<ul> <li>Number of isochronous mode OBs</li> </ul>	1
<ul> <li>Number of technology synchronous alarm OBs</li> </ul>	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
<ul> <li>adjustable</li> <li>Data areas and their retentivity</li> <li>Retentive data area (incl. timers, counters, flags), max.</li> <li>Flag         <ul> <li>Size, max.</li> </ul> </li> </ul>	128 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB 16 kbyte
<ul> <li>adjustable</li> <li>Data areas and their retentivity</li> <li>Retentive data area (incl. timers, counters, flags), max.</li> <li>Flag         <ul> <li>Size, max.</li> <li>Number of clock memories</li> </ul> </li> </ul>	128 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB
	<ul> <li>128 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB</li> <li>16 kbyte</li> <li>8; 8 clock memory bit, grouped into one clock memory byte</li> </ul>
<ul> <li>adjustable</li> <li>Data areas and their retentivity</li> <li>Retentive data area (incl. timers, counters, flags), max.</li> <li>Flag         <ul> <li>Size, max.</li> <li>Number of clock memories</li> </ul> </li> <li>Data blocks         <ul> <li>Retentivity adjustable</li> </ul> </li> </ul>	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
<ul> <li>adjustable</li> <li>Data areas and their retentivity</li> <li>Retentive data area (incl. timers, counters, flags), max.</li> <li>Flag         <ul> <li>Size, max.</li> <li>Number of clock memories</li> </ul> </li> <li>Data blocks         <ul> <li>Retentivity adjustable</li> <li>Retentivity preset</li> </ul> </li> </ul>	<ul> <li>128 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB</li> <li>16 kbyte</li> <li>8; 8 clock memory bit, grouped into one clock memory byte</li> </ul>
<ul> <li>adjustable</li> <li>Data areas and their retentivity</li> <li>Retentive data area (incl. timers, counters, flags), max.</li> <li>Flag         <ul> <li>Size, max.</li> <li>Number of clock memories</li> </ul> </li> <li>Data blocks         <ul> <li>Retentivity adjustable</li> </ul> </li> </ul>	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	
<ul> <li>Modules per rack, max.</li> </ul>	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 $\mu$ 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	<ul> <li>— Number of IO Controllers with shared device, max.</li> </ul>	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,	<ul> <li>integrated switch</li> </ul>	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	<ul> <li>SIMATIC communication</li> </ul>	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	<ul> <li>Number of connectable IO Devices for RT, max.</li> </ul>	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	<ul> <li>Number of IO Devices per tool, max.</li> </ul>	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
<ul> <li>Number of IO Controllers with shared device, max.</li> </ul>	4
<ul> <li>activation/deactivation of I-devices</li> </ul>	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	
<ul> <li>Number of connections, max.</li> </ul>	128; Via integrated interfaces of the CPU
<ul> <li>Number of connections reserved for ES/HMI/web</li> </ul>	10
<ul> <li>Number of connections via integrated interfaces</li> </ul>	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
<ul> <li>MRP interconnection, supported</li> </ul>	Yes; as MRP ring node according to IEC 62439-2 Edition 3.0
— MRPD	Yes; Requirement: IRT
<ul> <li>Switchover time on line break, typ.</li> </ul>	200 ms; For MRP, bumpless for MRPD
<ul> <li>— Number of stations in the ring, max.</li> </ul>	50
SIMATIC communication	
<ul> <li>PG/OP communication</li> </ul>	Yes; encryption with TLS V1.3 pre-selected
S7 routing	Yes
<ul> <li>S7 communication, as server</li> </ul>	Yes
<ul> <li>S7 communication, as client</li> </ul>	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
<ul> <li>Number of nodes of the client interfaces, recommended max.</li> </ul>	1 000
— Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_I max.	300
<ul> <li>— Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.</li> </ul>	20
<ul> <li>— Number of elements for one call of OPC_UA_MethodGetHandleList, max.</li> </ul>	100
<ul> <li>Number of simultaneous calls of the client instructions for session management, per connection, max.</li> </ul>	1
<ul> <li>Number of simultaneous calls of the client instructions for data access, per connection, max.</li> </ul>	5
<ul> <li>Number of registerable nodes, max.</li> </ul>	5 000
<ul> <li>— Number of registerable method calls of OPC_UA_MethodCall, max.</li> </ul>	100
<ul> <li>— Number of inputs/outputs when calling OPC_UA_MethodCall, max.</li> </ul>	20
OPC UA Server	Yes; Data access (read, write, subscribe), method call, custom address space
<ul> <li>Application authentication</li> </ul>	Yes
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
<ul> <li>— GDS support (certificate management)</li> </ul>	Yes
<ul> <li>Number of sessions, max.</li> </ul>	32
<ul> <li>Number of accessible variables, max.</li> </ul>	50 000
<ul> <li>— Number of registerable nodes, max.</li> </ul>	10 000
<ul> <li>Number of subscriptions per session, max.</li> </ul>	20
— Sampling interval, min.	100 ms
— Publishing interval, min.	500 ms
<ul> <li>Number of server methods, max.</li> </ul>	20
<ul> <li>Number of inputs/outputs per server method, max.</li> </ul>	20
<ul> <li>Number of monitored items, recommended max.</li> </ul>	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"
<ul> <li>— Number of nodes for user-defined server interfaces, max.</li> </ul>	1 000
<ul> <li>Alarms and Conditions</li> </ul>	Yes
<ul> <li>— Number of program alarms</li> </ul>	100
<ul> <li>— Number of alarms for system diagnostics</li> </ul>	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
<ul> <li>Number of variables, max.</li> </ul>	



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
<ul> <li>Number of available Motion Control resources for</li> </ul>	800
technology objects	
<ul> <li>Required Motion Control resources</li> </ul>	
— 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	
<ul> <li>— Number of positioning axes at motion control cycle of 4 ms (typical value)</li> </ul>	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	
<ul> <li>High-speed counter</li> </ul>	Yes
Ambient conditions	
Ambient temperature during operation	
<ul> <li>horizontal installation, min.</li> </ul>	-25 °C
<ul> <li>horizontal installation, max.</li> </ul>	55 °C
<ul> <li>vertical installation, min.</li> </ul>	-25 °C
<ul> <li>vertical installation, max.</li> </ul>	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	
<ul> <li>User program protection/password protection</li> </ul>	Yes
Copy protection	Yes
Block protection	Yes
Access protection	
<ul> <li>protection of confidential configuration data</li> </ul>	Yes
<ul> <li>Protection level: Write protection</li> </ul>	Yes
<ul> <li>Protection level: Read/write protection</li> </ul>	Yes
<ul> <li>Protection level: Complete protection</li> </ul>	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
	<b>c</b> ]

last modified:

10/3/2023 🖸

