## SIEMENS

## Data sheet

## 6ES7518-4TP00-0AB0



SIMATIC S7-1500T, CPU 1518T-4 PN/DP, central processing unit with 9 MB work memory for program and 60 MB for data, 1st interface: PROFINET IRT with 2-port switch, 2nd interface: PROFINET RT, 3rd interface: PROFINET basic services, 4th interface: PROFIBUS, 1 ns bit performance, SIMATIC memory card required

General information	
Product type designation	CPU 1518T-4 PN/DP
HW functional status	FS11
Firmware version	V3.1
• FW update possible	Yes
Product function	
I&M data	Yes; I&M0 to I&M3
Isochronous mode	Yes; Distributed and central; with minimum OB 6x cycle of 125 $\mu s$ (distributed) and 1 ms (central)
• SysLog	Yes
Engineering with	
<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	V19 (FW V3.1) / V17 (FW V2.9) or higher
Configuration control	
via dataset	Yes
Display	
Screen diagonal [cm]	6.1 cm
Control elements	
Number of keys	6
Mode selector switch	1
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 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
Repeat rate, min.	1/s
Input current	
Current consumption (rated value)	1.55 A
Current consumption, max.	1.9 A
Inrush current, max.	1.9 A; Rated value
l²t	0.4 A <sup>2</sup> ·s
Power	
Infeed power to the backplane bus	12 W
Power consumption from the backplane bus (balanced)	30 W
Power loss	
Power loss, typ.	24 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes

Work memory	
Work memory <ul> <li>integrated (for program)</li> </ul>	9 Mbyte
integrated (for data)	60 Mbyte
	oo mbyte
Load memory	32 Gbyte
Plug-in (SIMATIC Memory Card), max.	SZ GDyte
Backup	Vee
maintenance-free	Yes
CPU processing times	4
for bit operations, typ.	1 ns
for word operations, typ.	2 ns
for fixed point arithmetic, typ.	2 ns
for floating point arithmetic, typ.	6 ns
CPU-blocks	
Number of elements (total)	20 000; 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.	16 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	
Number range	0 65 535
• Size, max.	1 Mbyte
FC	
Number range	0 65 535
• Size, max.	1 Mbyte
OB	
• Size, max.	1 Mbyte
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 100 µs
<ul> <li>Number of process alarm OBs</li> </ul>	50
Number of DPV1 alarm OBs	3
<ul> <li>Number of isochronous mode OBs</li> </ul>	3
<ul> <li>Number of technology synchronous alarm OBs</li> </ul>	2
Number of startup OBs	100
<ul> <li>Number of asynchronous error OBs</li> </ul>	4
<ul> <li>Number of synchronous error OBs</li> </ul>	2
Number of diagnostic alarm OBs	1
Nesting depth	
<ul> <li>per priority class</li> </ul>	24
Counters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	
— adjustable	Yes
IEC counter	
Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
S7 times	
Number	2 048
Retentivity	
— adjustable	Yes
IEC timer	
Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	768 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 700 KB
Extended retentive data area (incl. timers, counters, flags), max.	20 Mbyte; When using PS 6 0W 24/48/60 V DC HF

Flag	
• Size, max.	16 kbyte
Number of clock memories	8; 8 clock memory bit, grouped into one clock memory byte
Data blocks	
Retentivity adjustable	Yes
Retentivity preset	No
Local data	INU
	64 kbyte; max. 16 KB per block
per priority class, max.	64 круце, пах. то кв рег рюск
Address area	
Number of IO modules	16 384; max. number of modules / submodules
I/O address area	00 like tas All insulta and in the manager insure
• 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)	32 kbyte; max. 32 KB via X1; max. 8 KB via X2 or X4
— Outputs (volume)	32 kbyte; max. 32 KB via X1; max. 8 KB via X2 or X4
per CM/CP	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images	
<ul> <li>Number of subprocess images, max.</li> </ul>	32
Hardware configuration	
Number of distributed IO systems	64; 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 DP masters	
<ul> <li>integrated</li> </ul>	1
• Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be
	inserted in total
Number of IO Controllers	
<ul> <li>integrated</li> </ul>	2
• Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total
Rack	
Modules per rack, max.	32; CPU + 31 modules
Number of lines, max.	1
PtP CM	
Number of PtP CMs	the number of connectable PtP CMs is only limited by the number of available
	slots
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
• to DP, master	Yes
• on DP, device	Yes
• in AS, master	Yes
• in AS, device	Yes
on Ethernet via NTP	Yes
Interfaces	
Number of PROFINET interfaces	3
Number of PROFIBUS interfaces	1
1. Interface	
Interface types	
• RJ 45 (Ethernet)	Yes; X1
Number of ports	2
integrated switch	Yes
Protocols	

Process P		Voo: IDud
• PROFINET IC Device     Yes       • Sibility Communication     Yes       • Open IE communication     Yes       • Media redundony     Yes       • Media redundony     Yes       • Profinet IT IC Communication     Yes       • Profinet IT of Communication     Yes       • Of which ID devices with IRT max.     61       • Of which ID devices with IRT max.     61       • Of which ID devices with IRT max.     61       • Of which ID devices with IRT max.     61       • Of which ID devices with IRT max.     71       • Of which ID devices with IRT max.     71       • Of which ID devices with IRT max.     71       • Of which ID devices with IRT max.     71       • Of which ID devices with IRT max.     71 <tr< td=""><td>IP protocol     DROFINET IO Constanting</td><td>Yes; IPv4</td></tr<>	IP protocol     DROFINET IO Constanting	Yes; IPv4
• SMATIC communication     Yes       • Wob seture     Yes       • Wob seture     Yes       • Mode redundancy     Yes       PERSINE TO Constrained     Yes       • Order data exchange     Yes       • Provide data exchange     Yes       • Or which IO devices with IRT, max.     Bit       • Or which IO devices with IRT, max.     Bit       • Or which IO devices with IRT, max.     Bit       • Or which IO devices with IRT, max.     Bit       • Or which IO devices with IRT max     Bit       • Or which IO devices with IRT max     Bit       • Or which IO devices with IRT max     Bit       • Or which IO devices with IRT max     Bit       • Or which IO devices with IRT max     Bit       • Or which IO devices     Constrate exchange       • Or were		
• Open E communication     Yes: Optionally also encrypted       • Web server     Yes       • Media redunfancy     Yes       • Profine TU Communication     Yes       • Service     Yes       • Option E data exchange     Yes       • Option E data exchange     Yes       • PROFINET TO Communication     Yes       • PROFINET adults     Yes       • Profine and yes     Yes       • Profine adults     Yes       • Or which 10 devices with IRT, max.     64       • Or which 10 devices with IRT, max.     64       • Or which 10 devices with IRT, max.     61       • Or which 10 devices with IRT, max.     61       • Or which 10 devices with IRT, max.     61       • Or which 10 devices with IRT, max.     61       • Or which 10 devices with IRT, max.     61       • Or which 10 devices met communication 10 or devices.     61       • Or which 10 devices met communication 11 or devices.     61       • Or which 10 devices met communication 11 or devices.     61       • Or which 10 devices met communication 11 or devices.     61       • Or which 10 devices met communication 11 or devices.     61       • Or which 10 devices met communication 11 or devices.     61       • Or which 10 devices met communication 11 or devices.     71       • Or or end cycle of 250		
• Web server         Yes           • Model revealsday         Yes           PROFINETIO Controller         Services           - Direct data exchange         Yes, Requirement, IRT and isochronous mode (MEPD optional)           - RT         Yes           - PROFINETIO Controller         Yes, Requirement, IRT and isochronous mode (MEPD optional)           - RT         Yes           - PROFINETIO         Yes, Services           - Workher of connectable IO Devices, max.         64           - Workher of connectable IO Devices for RT, max.         64           - Workher of IO Devices that can be simultaneously         8; In total up to 100 devices, and on the quantity of activate of IO Devices for RT, max.           - Workher of IO Devices per tool, max.         512           - Workher of IO Devices per tool, max.         6           - Workher of IO Devices per tool, max.         6           - Updating times         1           - Updating times         1           - Devices per tool, max.         512           - FOOFINET IO controls         1           Update time for IRT         2           - For send cycle of 187.5 µs         187.5 µs           - For send cycle of 187.5 µs         250 µs to 4 ms           - For send cycle of 200 µs         200 µs to 4 ms </td <td></td> <td></td>		
Modia redundancy         Yes           PROFINET IO Control         Service           - Isochtronous mode         Yes           - Service         Yes, Requirement: IRT and isochronous mode (MRPD options)           - RT         Yes, Provide Status           - Profileed Status         Yes, Yes, per user program           - Provided Status         Profileed Status           - Provided Status         Profileed Status           - Of which O alvices man.         Profileed Status           - Of which O alvices with IRT, max.         Profileed Status           - Number of connectable IO Devices for RT, max.         Profileed Status           - Whither of IO Devices for tor, max.         Status           - Whither of IO Devices per tor, max.         Status           - Whither of IO Devices per tor, max.         Status           - Updating times         125 µs           - Or send cycle of 152 µs         125 µs           - or send cycle of 152 µs         125 µs           - or send cycle of 152 µs         125 µs           - or send cycle of 152 µs         125 µs           - or send cycle of 152 µs         125 µs           - or send cycle of 25 µs         25 µs 1475 µs           - or send cycle of 162 µs         25 µs 1478 µs           - or send c	Open IE communication	Yes; Optionally also encrypted
PROFINET ID Controls           Services           - Direct date exchange         Yes, Requirement: IRT and isochronous mode (MRPD optional)           - IRT         Yes           - PROFINET ID Controls         Yes, Per user program           - PROFINET ID Overses         512 (In bita), up to 1 000 distributed VD devices can be connected via AS4, PROFINET           - Of which ID devices with IRT, max.         54           - Of which ID devices that can be simultaneously activated for devices per tool, max.         512           - of which ID devices per tool, max.         512           - of which ID devices per tool, max.         512           - Of which ID devices per tool, max.         512           - Updating times         61           - Updating times         8           - Updating times         1           - FROFINET Security Class         1           Update time for IRT         -           - for send cycle of 187.5 µs         1.95 µs           - for send cycle of 187.5 µs         1.95 µs           - for send cycle of 187.5 µs         1.000000000000000000000000000000000000	Web server	Yes
Services           - Incontranues model         Yes           - Direct data exchange         Yes, Requirement: IRT and isochronous mode (MRPD optional)           - IRT         Yes           - PROFIlenergy         Yes; per user program           - Number of connectable ID Devices, max.         FROFILENT devices           - Of which ID devices for RT, max.         61           - Of which ID devices for RT, max.         512           - Of which ID Devices for RT, max.         512           - Of which ID Devices for RT, max.         512           - Of which ID Devices for RT, max.         512           - Wumber of ID Devices for RT max.         512           - Wumber of ID Devices per tool, max.         8           - Updating times         107           - To reard cycle of 125 µs         125 µs           - FROFINET Security Class         1           - For send cycle of 125 µs         125 µs           - For send cycle of 125 µs         125 µs           - For send cycle of 126 µs         250 µs to 4 ms           - For send cycle of 126 µs         250 µs to 4 ms           - For send cycle of 126 µs         250 µs to 58 ms           - For send cycle of 20 µs         250 µs to 128 ms           - For send cycle of 20 µs         250 µs to 128 m	Media redundancy	Yes
	PROFINET IO Controller	
- Diect data exchange     Yes: Requirement: IRT and isochronous mode (MRPD optional)       - IRT     Yes: per user program       - PROFIenergy     Yes: per user program       - Number of connectable IO Devices, max:     PROFIENT devices       - Or which IO devices with IRT, max     64       - Number of connectable IO Devices for RT, max.     512       - Number of Connectable IO Devices for RT, max.     512       - Number of IO Devices that can be simultaneously     8, in total across all interfaces       - Updating times     8       - Updating times     1       - PROFINET Security Class     1       - Frager Interfaces     1       - Frager Interfaces     1       - Frager Interfaces     1       - Orisend cycle of 135 µs     1 25 µs       - For send cycle of 135 µs     1 25 µs       - For send cycle of 135 µs     1 25 µs       - For send cycle of 135 µs     1 25 µs       - For send cycle of 135 µs     1 25 µs       - For send cycle of 135 µs     1 25 µs       - For send cycle of 135 µs     1 25 µs       - For send cycle of 250 µs     250 µs to 4 ms       - For send cycle of 250 µs     250 µs to 4 ms       - For send cycle of 250 µs     250 µs to 3 ms       - For send cycle of 135 µs     1 ms to 16 ms       - For send cycle of 250 µs	Services	
	— Isochronous mode	Yes
<ul> <li>PROFlenergy Ves. per user program</li> <li>Prioritized stratup</li> <li>Prioritized stratup</li> <li>Prioritized stratup</li> <li>Ves. Max. 32 PROFINET devices</li> <li>Number of connectable IO Devices, max.</li> <li>Of which IO devices with IRT, max.</li> <li>Of which IO devices with IRT, max.</li> <li>Of which In the max.</li> <li>S12</li> <li>of which In the max.</li> <li>S12</li> <li>Number of Connectable IO Devices for RT, max.</li> <li>In total across all interfaces</li> <li>Number of IO Devices per tool, max.</li> <li>Number of IO Devices per tool, max.</li> <li>Number of IO Devices per tool, max.</li> <li>In total across all interfaces</li> <li>In total across all interfaces</li> <li>In total across all interfaces</li> <li>PROFINET Security Class</li> <li>PROFINET Security Class</li> <li>PROFINET Security Class</li> <li>PROFINET Security Class</li> <li>In total across all interfaces</li> <li>In so of 8 ms</li> <li>For send cycle of 125 µs</li> <li>For send cycle of 125 µs</li> <li>For send cycle of 125 µs</li> <li>For send cycle of 126 µs</li> <li>S00 µs to 8 ms</li> <li>For send cycle of 126 µs</li> <li>S00 µs to 8 ms</li> <li>For send cycle of 20 µs</li> <li>S00 µs to 8 ms</li> <li>For send cycle of 250 µs</li> <li>S00 µs to 12 ms</li> <li>For send cycle of 250 µs</li> <li>S00 µs to 12 ms</li> <li>For send cycle of 250 µs</li> <li>S00 µs to 12 ms</li> <li>For send cycle of 250 µs</li> <li>S00 µs to 250 ms</li> <li>S00 µs to 250 ms</li> <li>S00 µs to 250 µs</li> <li>For send cycle of 250 µs</li> <li>S00 µs to 250 ms</li> <li>For send cycle of 250 µs</li> <li>S00 µs to 250 ms</li> <li>For send cycle of 250 µs</li> <li>S00 µs to 250 ms</li> <li>For send cycle of 250 µs</li> <li>S00 µs to 250 ms</li> <li>For send cycle of 250 µs</li> <li>Sond divice</li> <li>PROFINET IO Device</li></ul>	— Direct data exchange	Yes; Requirement: IRT and isochronous mode (MRPD optional)
<ul> <li>Prioritized shrup</li> <li>Yes: Mar. 22 PPOFINET fedeoas</li> <li>Number of connectable IO Devices, max.</li> <li>POFINES &amp; PPOFINET</li> <li>Of which IO devices with IRT, max.</li> <li>Of which IIO devices with IRT, max.</li> <li>Number of connectable IO Devices for RT, max.</li> <li>Site In total autors all interfaces</li> <li>of which III me, max.</li> <li>In total autors all interfaces</li> <li>activated/deactivated, max.</li> <li>Number of IO Devices per tool, max.</li> <li>PROFINET Security Class</li> <li>The minimum walke of the update ferm also depends on communication share est for PROFINET Security Class</li> <li>PROFINET Security Class</li> <li>The send cycle of 175 µs.</li> <li>for send cycle of 178 µs.</li> <li< td=""><td>— IRT</td><td>Yes</td></li<></ul>	— IRT	Yes
- Number of connectable IO Devices, max.     F12. In total, up 1o 100 distributed I/O devices can be connected via AS-I, PCOFIBUS or PROFINET       - Of which ID devices with IRT, max.     E4       - Number of Connectable IO Devices for RT, max.     512       - Number of IO Devices that can be simultaneously activited/deactivated, max.     8       - Number of IO Devices per tool, max.     8       - Updating times     8       - Updating times     10       - PROFINET Security Class     1       - for send cycle of 125 µs     125 µs       - for send cycle of 125 µs     125 µs       - for send cycle of 125 µs     1275 µs       - for send cycle of 125 µs     1275 µs       - for send cycle of 125 µs     1275 µs       - for send cycle of 125 µs     1275 µs       - for send cycle of 125 µs     1275 µs       - for send cycle of 125 µs     250 µs to 4 ms       - for send cycle of 175 µs     250 µs to 4 ms       - for send cycle of 178     4ms to 45 ms       - for send cycle of 178     4ms to 45 ms       - for send cycle of 178     2ms to 32 ms       - for send cycle of 178     2ms to 32 ms       - for send cycle of 178     2ms to 32 ms       - for send cycle of 178     2ms to 32 ms       - for send cycle of 178     2ms to 32 ms       - for send cycle of 178     2ms t	- PROFlenergy	Yes; per user program
PROFINET     64       - Number of connectable IO Devices for RT, max.     512       - of which in line, max.     512       - Number of IO Devices that can be simultaneously activate/deactivated, max.     8       - Number of IO Devices per tool, max.     8       - Updating times     8       - PROFINET Security Class     1       - For send cycle of 125 µs     125 µs       - for send cycle of 125 µs     125 µs       - for send cycle of 125 µs     125 µs       - for send cycle of 125 µs     250 µs to 4 ms       - for send cycle of 125 µs     250 µs to 4 ms       - for send cycle of 125 µs     200 µs to 8 ms       - for send cycle of 125 µs     200 µs to 8 ms       - for send cycle of 125 µs     200 µs to 8 ms       - for send cycle of 125 µs     200 µs to 8 ms       - for send cycle of 125 µs     200 µs to 8 ms       - for send cycle of 125 µs     200 µs to 8 ms       - for send cycle of 178     4 ms to 64 ms       - for send cycle of 178     2 ms to 32 ms       - for send cycle of 125 µs     500 µs to 128 ms       - for send cycle of 500 µs     500 µs to 128 ms       - for send cycle of 500 µs     500 µs to 128 ms       - for send cycle of 500 µs     500 µs to 128 ms       - for send cycle of 500 µs     500 µs to 128 ms       - for send	— Prioritized startup	Yes; Max. 32 PROFINET devices
	- Number of connectable IO Devices, max.	
- of which in line, max.     512       - Number of 10 Devices that can be simultaneously activate/dedeat/water, max.     8       - Number of 10 Devices per tool, max.     8       - Updating times     8       - Update time also depends on communication share set for PROFINET 10, on the number of 10 devices, and on the quantity of configured user data       - PROFINET Security Class     1       - for send cycle of 125 µs     125 µs       - for send cycle of 126 µs     250 µs to 4 ms       - for send cycle of 126 µs     520 µs to 4 ms       - for send cycle of 126 µs     500 µs to 8 ms       - for send cycle of 2ms     250 µs to 4 ms       - for send cycle of 2ms     250 µs to 4 ms       - for send cycle of 2ms     250 µs to 4 ms       - for send cycle of 2ms     250 µs to 128 ms       - for send cycle of 2ms     250 µs to 128 ms       - for send cycle of 20 µs     250 µs to 128 ms       - for send cycle of 20 µs     250 µs to 128 ms       - for send cycle of 20 µs     250 µs to 128 ms       - for send cycle of 20 µs     250 µs to 128 ms       - for send cycle of 20 µs     250 µs to 128 ms       - for send cycle of 20 µs     250 µs to 128 ms       - for send cycle of 280 µs     250 µs to 128 ms       - for send cycle of 280 µs     2ms to 512 ms       - for send cycle of 27ms     2ms to 512 ms	— Of which IO devices with IRT, max.	64
- of which in line, max.     512       - Number of 10 Devices that can be simultaneously activate/dedeat/water, max.     8       - Number of 10 Devices per tool, max.     8       - Updating times     8       - Update time also depends on communication share set for PROFINET 10, on the number of 10 devices, and on the quantity of configured user data       - PROFINET Security Class     1       - for send cycle of 125 µs     125 µs       - for send cycle of 126 µs     250 µs to 4 ms       - for send cycle of 126 µs     520 µs to 4 ms       - for send cycle of 126 µs     500 µs to 8 ms       - for send cycle of 2ms     250 µs to 4 ms       - for send cycle of 2ms     250 µs to 4 ms       - for send cycle of 2ms     250 µs to 4 ms       - for send cycle of 2ms     250 µs to 128 ms       - for send cycle of 2ms     250 µs to 128 ms       - for send cycle of 20 µs     250 µs to 128 ms       - for send cycle of 20 µs     250 µs to 128 ms       - for send cycle of 20 µs     250 µs to 128 ms       - for send cycle of 20 µs     250 µs to 128 ms       - for send cycle of 20 µs     250 µs to 128 ms       - for send cycle of 20 µs     250 µs to 128 ms       - for send cycle of 280 µs     250 µs to 128 ms       - for send cycle of 280 µs     2ms to 512 ms       - for send cycle of 27ms     2ms to 512 ms		512
activate/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       - PROFINET Security Class     1       - for send cycle of 125 µs     125 µs       - for send cycle of 250 µs     250 µs to 4 ms       - for send cycle of 260 µs     500 µs to 8 ms       - for send cycle of 28 µs     250 µs to 18 ms       - for send cycle of 28 µs     250 µs to 18 ms       - for send cycle of 28 µs     250 µs to 18 ms       - for send cycle of 28 µs     250 µs to 128 ms       - for send cycle of 28 µs     250 µs to 128 ms       - for send cycle of 28 µs     250 µs to 128 ms       - for send cycle of 500 µs     500 µs to 28 ms       - for send cycle of 500 µs     500 µs to 28 ms       - for send cycle of 4 ms     4 ms to 512 ms       - for send cycle of 500 µs     500 µs to 28 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       - RoPOFINET IO Device     Yes; per user program       - Shared device <td></td> <td></td>		
Image: Section of Section o	- Number of IO Devices per tool, max.	8
Update time for IRT       125 µs         — for send cycle of 125 µs       125 µs         — for send cycle of 250 µs       250 µs to 4 ms         — for send cycle of 500 µs       500 µs to 8 ms         — for send cycle of 2 ms       1 ms to 16 ms         — for send cycle of 4 ms       4 ms to 84 ms         — for send cycle of 4 ms       4 ms to 84 ms         — for send cycle of 500 µs       200 µs to 8 ms         — for send cycle of 4 ms       4 ms to 84 ms         — With IRT and parameterization of "odd" send cycles       205 µs to 128 ms         — for send cycle of 500 µs       250 µs to 128 ms         — for send cycle of 500 µs       500 µs to 256 ms         — for send cycle of 100 µs       250 µs to 128 ms         — for send cycle of 100 µs       250 µs 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 100 µs       Yes; per user program         — schortonous mode       No         — IRT       Yes; per user program         — Staret device       Yes; per user prog	— Updating times	set for PROFINET IO, on the number of IO devices, and on the quantity of
- for send cycle of 125 μs     125 μs       - for send cycle of 187.5 μs     187.5 μs       - for send cycle of 500 μs     500 μs to 4 ms       - for send cycle of 500 μs     00 μs to 8 ms       - for send cycle of 1 ms     1 ms to 16 ms       - for send cycle of 2 ms     2 ms to 32 ms       - for send cycle of 4 ms     4 ms to 16 ms       - for send cycle of 4 ms     4 ms to 64 ms       - for send cycle of 2 ms     2 ms to 32 ms       - for send cycle of 4 ms     4 ms to 64 ms       - for send cycle of 500 μs     500 μs to 128 ms       - for send cycle of 500 μs     500 μs to 526 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 10 idevice     Yes; Yes       Services     -       - lochronous mode     No       - sativation/deactivation of 1-devices     Yes; per user program       - Asset management record     Yes; per user program       - Asset management recor	- PROFINET Security Class	1
- for send cycle of 187.5 µs         187.5 µs           - for send cycle of 250 µs         250 µs to 4 ms           - for send cycle of 1 ms         500 µs to 8 ms           - for send cycle of 1 ms         1 ms to 16 ms           - for send cycle of 2 ms         2 ms to 22 ms           - for send cycle of 4 ms         4 ms to 64 ms           - for send cycle of 500 µs         250 µs to 128 ms           - for send cycle of 550 µs         250 µs to 128 ms           - for send cycle of 500 µs         500 µs to 256 ms           - for send cycle of 2 ms         2 ms to 512 ms           - for send cycle of 1 ms         1 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 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           - services         Yes; per user program           - extration/deactivation of I-devices         Yes; per user program           - Asset management record         Yes; per user program           - Asset management record         Yes; Xes (Xes (Xes (Xes (Xes (Xes (Xes (Xes	Update time for IRT	
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for send cycle of 500 µs500 µs to 8 ms for send cycle of 1 ms1 ms to 16 ms for send cycle of 2 ms2 ms to 32 ms for send cycle of 4 ms4 ms to 64 ms With IRT and parameterization of "odd" send cyclesUpdate time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs 3 a 75 µs)Update time for RT for send cycle of 500 µs250 µs to 128 ms for send cycle of 500 µs500 µs to 256 ms for send cycle of 1 ms1 ms to 512 ms for send cycle of 2 ms2 ms to 512 ms for send cycle of 2 ms2 ms to 512 ms for send cycle of 4 ms4 ms to 512 ms for send cycle of 4 msYes; per user program for send cycle of 4 msYes; per user program for send cycle of 4 msYes; per user program for send cycle of 4 msYes; per user program for send cycle of 4 msYes; per user program for send cycle of 4 msYes; per user program for send cycle of 4 msYes; per user program for send cycle of 4 msYes; per user program activation/deactivation of 1-devicesYes; per user program Shared deviceYes; per user program Asset management recordYes; per user program Asset management recordYes; per user program Asset management recordYes; X2- Number of ports1- Number of ports1- Number of ports1- Number of ports1- Number of ports </td <td>— for send cycle of 187.5 μs</td> <td>187.5 µs</td>	— for send cycle of 187.5 μs	187.5 µs
for send cycle of 1 ms1 ms to 16 ms for send cycle of 2 ms2 ms to 32 ms for send cycle of 4 ms4 ms to 64 ms for send cycle of 4 ms4 ms to 64 ms for send cycle of 250 µs250 µs to 128 ms for send cycle of 250 µs250 µs to 128 ms for send cycle of 1 ms250 µs to 256 ms for send cycle of 1 ms1 ms to 512 ms for send cycle of 2 ms2 ms to 512 ms for send cycle of 2 ms2 ms to 512 ms for send cycle of 4 ms4 ms to 512 ms for send cycle of 4 ms2 ms to 512 ms for send cycle of 4 ms2 ms to 512 ms for send cycle of 4 ms4 ms to 512 ms for send cycle of 4 ms4 ms to 512 ms for send cycle of 4 ms4 ms to 512 ms for send cycle of 4 ms4 ms to 512 ms elsochronous modeNo IRTYes; Minimum send cycle of 250 µs PROFINET IO DeviceYes; per user program Shared deviceYes; per user program Shared deviceYes; per user program Asset management recordYes; per user program PROFINET Security ClassSNMP Configuration and DCP Read Only2- Interface types	— for send cycle of 250 µs	250 µs to 4 ms
- for send cycle of 2 ms2 ms to 32 ms- for send cycle of 4 ms4 ms to 64 ms- With IRT and parameterization of "odd" send cyclesUpdate time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs3 375 µs)Update time for RT for send cycle of 250 µs250 µs to 128 ms- for send cycle of 500 µs500 µs to 256 ms- for send cycle of 1 ms1 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 1 ms512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 10 Controllers with shared device, max.1- activation/deactivation of 1-devicesYes; per user program- Shared deviceYes; per user program- Asset management recordYes; per user program- Asset management recordYes; X2• Number of ports1- Number of ports1- integrated switchNo• NoNoProtocolsYes; IPv4• PROFINET IO ControllerYes; Pry4	— for send cycle of 500 μs	500 µs to 8 ms
- for send cycle of 4 ms4 ms to 64 ms- With IRT and parameterization of "odd" send cyclesUpdate time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs 3 875 µs)Update time for RT for send cycle of 250 µs250 µs to 128 ms- for send cycle of 1 ms500 µs to 256 ms- for send cycle of 1 ms1 ms to 512 ms- for send cycle of 2 ns2 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- FROFINET IO Device	— for send cycle of 1 ms	1 ms to 16 ms
	— for send cycle of 2 ms	2 ms to 32 ms
With the second seco	— for send cycle of 4 ms	4 ms to 64 ms
<ul> <li>— for send cycle of 250 µs</li> <li>— for send cycle of 500 µs</li> <li>— for send cycle of 1 ms</li> <li>— for send cycle of 2 ms</li> <li>— for send cycle of 2 ms</li> <li>— for send cycle of 4 ms</li> <li>— for send cycle of 250 µs</li> <li>— for send cycle of 250 µs</li> <li>— FROFIenergy</li> <li>— Shared device</li> <li>— PROFIenergy</li> <li>— Shared device</li> <li>— PROFIenergy</li> <li>— Shared device, max.</li> <li>— activation/deactivation of 1-devices</li> <li>Yes; per user program</li> <li>— Asset management record</li> <li>— PROFINET Security Class</li> <li>SNMP Configuration and DCP Read Only</li> <li>2. Interface</li> <li>Interface types</li> <li>— RJ 45 (Ethernet)</li> <li>Yes; X2</li> <li>Number of ports</li> <li>integrated switch</li> <li>No</li> <li>Interface types</li> <li>— IP protocol</li> <li>— IP protocol</li> <li>— IP protocol</li> <li>— PROFINET IO Controller</li> <li>Yes; IPv4</li> <li>— PROFINET IO Controller</li> <li>Yes</li> </ul>	-	
for send cycle of 500 µs500 µs to 256 ms for send cycle of 1 ms1 ms to 512 ms for send cycle of 2 ms2 ms to 512 ms for send cycle of 4 ms4 ms to 512 ms for send cycle of 4 ms4 ms to 512 ms for send cycle of 4 ms4 ms to 512 ms for send cycle of 4 ms4 ms to 512 ms for send cycle of 4 ms4 ms to 512 ms for send cycle of 4 ms4 ms to 512 ms for send cycle of 4 ms4 ms to 512 ms for send cycle of 250 µs	Update time for RT	
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for send cycle of 4 ms       4 ms to 512 ms         PROFINET IO Device         Services         Isochronous mode       No         IRT       Yes; Minimum send cycle of 250 µs         PROFIenergy       Yes; per user program         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         PROFINET Security Class       SNMP Configuration and DCP Read Only         2. Interface       Interface types         RJ 45 (Ethernet)       Yes; X2         - Number of ports       1         - integrated switch       No         Protocols       Yes; IPv4         - IPROFINET IO Controller       Yes; Yes	-	
PROFINET IO Device         Services       No         – Isochronous mode       No         – IRT       Yes; Minimum send cycle of 250 µs         – PROFlenergy       Yes; per user program         – 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         – PROFINET Security Class       SNMP Configuration and DCP Read Only         PROFINET Security Class         • RJ 45 (Ethernet)       Yes; X2         • Number of ports       1         • integrated switch       No         Protocols       Yes; IPv4         • IP protocol       Yes; IPv4         • PROFINET IO Controller       Yes	-	
Services         - Isochronous mode       No         - IRT       Yes; Minimum send cycle of 250 µs         - PROFlenergy       Yes; per user program         - 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         - PROFINET Security Class       SNMP Configuration and DCP Read Only         Interface         Interface types         • RJ 45 (Ethernet)       Yes; X2         • Number of ports       1         • integrated switch       No         Protocols       Yes; IPv4         • IP protocol       Yes; IPv4         • PROFINET IO Controller       Yes		
- IRTYes; Minimum send cycle of 250 µs- PROFlenergyYes; per user program- Shared deviceYes- Number of IO Controllers with shared device, max.4- activation/deactivation of I-devicesYes; per user program- Asset management recordYes; per user program- Asset management recordYes; per user program- PROFINET Security ClassSNMP Configuration and DCP Read OnlyPINErfaceInterface types- RJ 45 (Ethernet)Yes; X2Number of ports1- integrated switchNoProtocols- IP protocolYes; IPv4- PROFINET IO ControllerYes		No
- PROFlenergyYes; per user program- Shared deviceYes- Number of IO Controllers with shared device, max.4- activation/deactivation of I-devicesYes; per user program- Asset management recordYes; per user program- PROFINET Security ClassSNMP Configuration and DCP Read Only2. InterfaceInterface types• RJ 45 (Ethernet)Yes; X2• RJ 45 (Ethernet)1• integrated switchNoProtocols• IP protocolYes; IPv4• PROFINET IO ControllerYes		
<ul> <li>Shared device</li> <li>Shared device</li> <li>Number of IO Controllers with shared device, max.</li> <li>activation/deactivation of I-devices</li> <li>activation/deactivation of I-devices</li> <li>Yes; per user program</li> <li>Asset management record</li> <li>Yes; per user program</li> <li>PROFINET Security Class</li> <li>SNMP Configuration and DCP Read Only</li> </ul> 2. Interface Interface types <ul> <li>RJ 45 (Ethernet)</li> <li>Number of ports</li> <li>integrated switch</li> <li>No</li> </ul> Protocols <ul> <li>IP protocol</li> <li>IP protocol</li> <li>Yes; IPv4</li> <li>Yes</li> </ul>		
Number of IO Controllers with shared device, max.4 activation/deactivation of I-devicesYes; per user program Asset management recordYes; per user program PROFINET Security ClassSNMP Configuration and DCP Read Only2. InterfaceInterface types• RJ 45 (Ethernet)Yes; X2• Number of ports1• integrated switchNoProtocols• IP protocolYes; IPv4• PROFINET IO ControllerYes		
- activation/deactivation of I-devicesYes; per user program- Asset management recordYes; per user program- PROFINET Security ClassSNMP Configuration and DCP Read Only2. InterfaceInterface types• RJ 45 (Ethernet)Yes; X2• Number of ports1• integrated switchNoProtocols• IP protocolYes; IPv4• PROFINET IO ControllerYes		
- Asset management recordYes; per user program- PROFINET Security ClassSNMP Configuration and DCP Read Only2. InterfaceInterface types• RJ 45 (Ethernet)Yes; X2• Number of ports1• integrated switchNoProtocols• IP protocolYes; IPv4• PROFINET IO ControllerYes		
PROFINET Security Class     SNMP Configuration and DCP Read Only       2. Interface       Interface types     Interface types       • RJ 45 (Ethernet)     Yes; X2       • Number of ports     1       • integrated switch     No       Protocols     Yes; IPv4       • PROFINET IO Controller     Yes		
2. Interface         Interface types         • RJ 45 (Ethernet)       Yes; X2         • Number of ports       1         • integrated switch       No         Protocols       IP protocol         • IP protocol       Yes; IPv4         • PROFINET IO Controller       Yes	-	
Interface types         • RJ 45 (Ethernet)       Yes; X2         • Number of ports       1         • integrated switch       No         Protocols       IP protocol         • IP protocol       Yes; IPv4         • PROFINET IO Controller       Yes		
• RJ 45 (Ethernet)     Yes; X2       • Number of ports     1       • integrated switch     No       Protocols     Yes; IPv4       • PROFINET IO Controller     Yes		
• Number of ports     1       • integrated switch     No       • Protocols     Yes; IPv4       • PROFINET IO Controller     Yes	••	Voc: V2
• integrated switch     No       Protocols        • IP protocol     Yes; IPv4       • PROFINET IO Controller     Yes		
Protocols       • IP protocol       • PROFINET IO Controller       Yes		
IP protocol Yes; IPv4     PROFINET IO Controller Yes		N0
PROFINET IO Controller     Yes		
PROFINET IO Device Yes		
SIMATIC communication Yes	SIMATIC communication	Yes

Open IE communication	Yes; Optionally also encrypted
Web server	Yes
Media redundancy	No
PROFINET IO Controller	
Services	
— Isochronous mode	No
— Direct data exchange	No
— IRT	No
— PROFlenergy	Yes; per user program
— Prioritized startup	No
<ul> <li>— Number of connectable IO Devices, max.</li> </ul>	128; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
<ul> <li>Number of connectable IO Devices for RT, max.</li> </ul>	128
— of which in line, max.	128
<ul> <li>Number of IO Devices that can be simultaneously activated/deactivated, max.</li> </ul>	8; in total across all interfaces
<ul> <li>Number of IO Devices per tool, max.</li> </ul>	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
— PROFINET Security Class	1
Update time for RT	
— for send cycle of 1 ms	1 ms to 512 ms
PROFINET IO Device	
Services	
— 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
- activation/deactivation of I-devices	Yes; per user program
<ul> <li>Asset management record</li> </ul>	Yes; per user program
- PROFINET Security Class	SNMP Configuration and DCP Read Only
3. Interface	
Interface types	
RJ 45 (Ethernet)	Yes; X3
Number of ports	1
<ul> <li>integrated switch</li> </ul>	No
Protocols	
IP protocol	Yes; IPv4
PROFINET IO Controller	No
PROFINET IO Device	No
SIMATIC communication	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
4. Interface	
Interface types	
• RS 485	Yes; X4
Number of ports	1
Protocols	
PROFIBUS DP master	Yes
PROFIBUS DP device	No
SIMATIC communication	Yes
PROFIBUS DP master	
Number of connections, max.	48; for the integrated PROFIBUS DP interface
max. number of DP devices	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i,
	PROFIBUS or PROFINET
Services	
— Equidistance	Yes
— Isochronous mode	Yes
<ul> <li>activation/deactivation of DP devices</li> </ul>	Yes

Interface types	
RJ 45 (Ethernet)	
• 100 Mbps	Yes
• 1000 Mbps	Yes; Only possible at the X3 interface of the CPU 1518
Autonegotiation	Yes
Autorregoliation     Autocrossing	Yes
Industrial Ethernet status LED	Yes
RS 485	165
Transmission rate, max.	12 Mbit/s
Protocols	
PROFIsafe	No
	NO
Number of connections	204. via integrated interfaces of the CDU and connected CDs / CMa
Number of connections, max.	384; via integrated interfaces of the CPU and connected CPs / CMs
Number of connections reserved for ES/HMI/web	10
Number of connections via integrated interfaces	320
Number of S7 routing paths	64; in total, only 16 S7-Routing connections are supported via PROFIBUS
Redundancy mode	
H-Sync forwarding	Yes
Media redundancy	
— Media redundancy	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	50
PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
	Yes
S7 routing	Yes
Data record routing	Yes
S7 communication, as server	Yes
S7 communication, as client	
User data per job, max.     Open IE communication	See online help (S7 communication, user data size)
•	Vee
• 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; 128 multicast circuits (of which max. 5 via X1)
• 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
• web API	
— Number of sessions, max.	200
— number of simultaneous HTTP calls, max.	4
— HTTP request body, max.	131 072 byte
OPC UA	
Runtime license required	Yes; "Large" license required
OPC UA Client	Yes; Data Access (registered Read/Write), Method Call
<ul> <li>Application authentication</li> </ul>	Yes
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15,
	Basic256Sha256

Lear authentication	"appaymous" or by user pame & password
<ul> <li>User authentication</li> <li>Number of connections, max.</li> </ul>	"anonymous" or by user name & password 40
<ul> <li>Number of connections, max.</li> <li>Number of nodes of the client interfaces, recommended max.</li> </ul>	5 000
— Number of elements for one call of     OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_L     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
<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, Alarms & Condition
	(A&C), Custom Address Space
— Application authentication	Yes
— Security policies	available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256, Aes128Sha256RsaOaep, Aes256Sha256RsaPss
User authentication	"anonymous" or by user name & password
— GDS support (certificate management)	Yes
— Number of sessions, max.	64 200 000
<ul> <li>— Number of accessible variables, max.</li> <li>— Number of registerable nodes, max.</li> </ul>	50 000
<ul> <li>– Number of registerable houses, max.</li> <li>– Number of subscriptions per session, max.</li> </ul>	50 000
— Sampling interval, min.	10 ms
— Publishing interval, min.	10 ms
- Number of server methods, max.	100
- Number of inputs/outputs per server method, max.	20
- Number of monitored items, recommended max.	24 000; 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>	50 000
Alarms and Conditions	Yes
<ul> <li>— Number of program alarms</li> </ul>	400
<ul> <li>— Number of alarms for system diagnostics</li> </ul>	200
Further protocols	
MODBUS	Yes; MODBUS TCP
Isochronous mode	
Equidistance	Yes
S7 message functions	
Number of login stations for message functions, max.	64
number of subscriptions, max.	750
number of tags/attributes for subscriptions, max. Program alarms	50 000 Yes
Number of configurable program messages, max.	10 000; Program messages are generated by the "Program_Alarm" block,
Number of leadable program manages in DUNL may	ProDiag or GRAPH
Number of loadable program messages in RUN, max. Number of simultaneously active program alarms	10 000
Number of program alarms	4 000
Number of alarms for system diagnostics	1 000
Number of alarms for system diagnostics     Number of alarms for motion technology objects	480
Test commissioning functions	
Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 10 engineering systems
Status block	Yes; Up to 16 simultaneously (in total across all ES clients)
Single step	No
Number of breakpoints	20

Deafiling	Na
Profiling	No
Status/control	Y.
Status/control variable	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Number of variables, max.	
— of which status variables, max.	200; per job
— of which control variables, max.	200; per job
Forcing	
Forcing	Yes
<ul> <li>Forcing, variables</li> </ul>	Peripheral inputs/outputs
<ul> <li>Number of variables, max.</li> </ul>	200
Diagnostic buffer	
• present	Yes
<ul> <li>Number of entries, max.</li> </ul>	3 200
— of which powerfail-proof	1 000
Traces	
<ul> <li>Number of configurable Traces</li> </ul>	8
Memory size per trace, max.	512 kbyte
Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
<ul> <li>Connection display LINK TX/RX</li> </ul>	Yes
Supported technology objects	
Motion Control	Yes; Note: The number of technology objects affects the cycle time of the PLC
	program; selection guide via the TIA Selection Tool
<ul> <li>Number of available Motion Control resources for</li> </ul>	15 360
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
<ul> <li>Number of available Extended Motion Control resources for technology objects</li> </ul>	512
<ul> <li>Required Extended Motion Control resources</li> </ul>	
— per cam (1 000 points and 50 segments)	2
— per cam (10 000 points and 50 segments)	20
<ul> <li>for each set of kinematics</li> </ul>	30
— per Interpreter	60
— Per leading axis proxy	3
Positioning axis	
<ul> <li>— Number of positioning axes at motion control cycle of 4 ms (typical value)</li> </ul>	140
<ul> <li>— Number of positioning axes at motion control cycle of 8 ms (typical value)</li> </ul>	192
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
Standards, approvals, certificates	
Ecological footprint	
environmental product declaration	Yes
Global warming potential	
— global warming potential, (total) [CO2 eq]	570 kg
— global warming potential, (during production) [CO2	96.9 kg
	·

eq]	
eq] — global warming potential, (during operation) [CO2	483 kg
eq]	-00 kg
— global warming potential, (after end of life cycle) [CO2 eq]	-9.97 kg
Ambient conditions	
Ambient temperature during operation	
<ul> <li>horizontal installation, min.</li> </ul>	0 °C
<ul> <li>horizontal installation, max.</li> </ul>	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
<ul> <li>vertical installation, min.</li> </ul>	0° 0
• vertical installation, max.	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
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
— CFC	Yes
— GRAPH	Yes
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>Password for display</li> </ul>	Yes
<ul> <li>Protection level: Write protection</li> </ul>	Yes
Protection level: Read/write protection	Yes
<ul> <li>Protection level: Write protection for Failsafe</li> </ul>	No
Protection level: Complete protection	Yes
User administration	Yes; device-wide
programming / cycle time monitoring / header	
lower limit	adjustable minimum cycle time
• upper limit	adjustable maximum cycle time
Dimensions	
Width	175 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	2 079 g
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