## SIEMENS

## Data sheet

## 6ES7516-3FP03-0AB0



SIMATIC S7-1500F, CPU 1516F-3 PN/DP, central processing unit with work memory 3 MB for program and 7.5 MB for data 1st interface: PROFINET IRT with 2-port switch, 2nd interface: PROFINET RT, 3rd interface: PROFIBUS, 6 ns bit performance, SIMATIC Memory Card required \*\*\*\*approvals and certificates according to entry 109817466 at support.industry.siemens.com to be considered! -

General information	
Product type designation	CPU 1516F-3 PN/DP
HW functional status	FS01
Firmware version	V3.0
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 375 $\mu s$ (distributed) and 1 ms (central)
Engineering with	
• STEP 7 TIA Portal configurable/integrated from version	V18 (FW V3.0); with older TIA Portal versions configurable as 6ES7516- 3FN02-0AB0
Configuration control	
via dataset	Yes
Display	
Screen diagonal [cm]	6.1 cm
Control elements	
Number of keys	8
Mode buttons	2
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)	0.87 A
Current consumption, max.	1.08 A
Inrush current, max.	1.15 A; Rated value
l²t	0.6 A <sup>2</sup> ·s
Power	
Infeed power to the backplane bus	12 W
Power consumption from the backplane bus (balanced)	6.7 W
Power loss	
Power loss, typ.	4 W

Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	
<ul> <li>integrated (for program)</li> </ul>	3 Mbyte
<ul> <li>integrated (for data)</li> </ul>	7.5 Mbyte
Load memory	
Plug-in (SIMATIC Memory Card), max.	32 Gbyte
Backup	
maintenance-free	Yes
CPU processing times	
for bit operations, typ.	6 ns
for word operations, typ.	7 ns
for fixed point arithmetic, typ.	9 ns
for floating point arithmetic, typ.	37 ns
CPU-blocks	57 115
Number of elements (total)	8 000; 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.	7.5 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	
Number range	0 65 535
Size, max.	1 Mbyte
FC	1 mbyto
Number range	0 65 535
• Size, max.	1 Mbyte
OB	1 mbyto
• Size, max.	1 Mbyte
Number of free cycle OBs	100
Number of time alarm OBs	20
Number of delay alarm OBs	20
Number of cyclic interrupt OBs	20; With minimum OB 3x cycle of 250 µs
Number of process alarm OBs	50
Number of DPV1 alarm OBs	3
Number of isochronous mode OBs	3
Number of technology synchronous alarm OBs	2
Number of technology synchronous alarm OBS     Number of startup OBs	100
Number of asynchronous error OBs	4
Number of asynchronous error OBs	2
	1
Number of diagnostic alarm OBs	
Nesting depth	24: Up to 8 possible for E blocks
per priority class	24; Up to 8 possible for F-blocks
Counters, timers and their retentivity	
S7 counter	2.040
Number	2 048
Retentivity	N
— 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.	512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB
Extended retentive data area (incl. timers, counters, flags), max.	7.5 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	10
per priority class, max.	64 kbyte; max. 16 KB per block
Address area	of Royce, max. To the per block
Number of IO modules	8 192; max. number of modules / submodules
I/O address area	o 192, max. humber of modules / submodules
	32 kbyte; All inputs are in the process image
Inputs	
Outputs	32 kbyte; All outputs are in the process image
per integrated IO subsystem	0 kb da
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
per CM/CP	9 libuto
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images	
Number of subprocess images, max.	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	
integrated	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
• in AS, master	Yes
• in AS, device	Yes
• on Ethernet via NTP	Yes
Interfaces	
Number of PROFINET interfaces	2
Number of PROFIBUS interfaces	1
I. Interface	
RJ 45 (Ethernet)	Yes; X1
Number of ports	2
	-

• integrated switch       Yes         Protocols       • IP protocol         • 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       Yes         PROFINET IO Controller       Yes         Services       -         - Direct data exchange       Yes; Requirement: IRT and isochronous mode (MRPD optional)         - IRT       Yes; Requirement: IRT and isochronous mode (MRPD optional)         - RT       Yes; ProoFile regy         - PROFINET of connectable IO Devices, max.       ProOFINET devices         - Number of connectable IO Devices, max.       64         - Of which IO devices with IRT, max.       64         - Number of IO Devices for RT, max.       256         - Wumber of IO Devices for RT, max.       8         - Updating times       8         - Updating times       8         - Updating times       8         - for send cycle of 250 µs       250 µs 04 ms; Note: In the case of IRT with isochronous mode, the minipudate time of 375 µs of the isochronous OB is decisive	share
• IP protocol       Yes; IPv4         • 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       Yes         PROFINET IO Controller       Yes         Services       -         - Isochronous mode       Yes         - Direct data exchange       Yes; Requirement: IRT and isochronous mode (MRPD optional)         - IRT       Yes         - PROFIenergy       Yes; per user program         - PROFIenergy       Yes; Max. 32 PROFINET devices         - Number of connectable IO Devices, max.       256; In total, up to 1000 distributed I/O devices can be connected via At PROFIDENT         - Of which IO devices with IRT, max.       64         - Number of IO Devices for RT, max.       256         - Number of IO Devices per tool, max.       8; In total across all interfaces         - Wide time for IRT       250 us to 4 ms; Note: In the case of IRT with isochronous mode, the mir update time of 375 us of the isochronous OB is decisive         - for send cycle of 500 µs       500 µs to 4 ms; Note: In the case of IRT with isochronous oB is decisive         - for send cycle of 500 µs       500 µs	share
• PROFINET IO ControllerYes• PROFINET IO DeviceYes• SIMATIC communicationYes• Open IE communicationYes; Optionally also encrypted• Web serverYes• Media redundancyYes• PROFINET IO ControllerYesServices• PG/OP communication• PG/OP communicationYes• Direct data exchangeYes; Requirement: IRT and isochronous mode (MRPD optional)• IRTYes• PROFInergyYes; Instantion• PROFInergyYes; Max. 32 PROFINET devices• Number of connectable IO Devices, max.256• Number of connectable IO Devices, max.256• Number of IO Devices that can be simultaneously activated/decativated, max.8• Number of IO Devices per tool, max.8• Number of IO Devices per tool, max.8• Updating times250 us to 4 ms; Note: In the case of IRT with isochronous mode, the mir update time of 375 us of the isochronous OB is decisive update time of 375 us of the isochronous OB is decisive in update time of 375 us of the isochronous OB is decisive in update time of 375 us of the isochronous OB is decisive in the case of IRT with isochronous of the mir update time of 375 us of the isochronous OB is decisive in the case of IRT with isochronous OB is decisive in update time of 375 us of the isochronous OB is decisive in update time of 375 us of the isochronous OB is decisive in update time of 375 us of the isochronous OB is decisive	share
• PROFINET IO Device         Yes           • SIMATIC communication         Yes           • Open IE communication         Yes           • Web server         Yes           • Media redundancy         Yes           • Media redundancy         Yes           • Rote         Yes           • Rote         Yes           • PROFINET IO Controller         Yes           • PROFINET IO Controller         Yes           • PROFINET do Communication         Yes           • Isochronous mode         Yes           • Direct data exchange         Yes           • PROFINET do Communication         Yes           • IRT         Yes           • PROFINET gover         Yes           • PROFINET do tate exchange         Yes           • PROFINET do to connectable IO Devices, max.         256           • Of which IO devices with IRT, max.         64           • Number of Connectable IO Devices for RT, max.         55           • Of which In line, max.         56           • Of which In line, max.         64           • Number of IO Devices that can be simultaneously as for PROFINET dovices           • Of which In line, max.         8           • Of which In line, max.         64	share
• SIMATIC communicationYes• Open IE communicationYes; Optionally also encrypted• Web serverYes; Optionally also encrypted• Web serverYes• Media redundancyYes <b>PROFINET IO controller</b> Services- PG/OP communicationYes- Isochronous modeYes- Direct data exchangeYes; Requirement: IRT and isochronous mode (MRPD optional)- IRTYes- PROFIenergyYes; per user program- Prioritized startupYes; In total, up to 1000 distributed I/O devices can be connected via At PROFIBUS or PROFINET- Of which IO devices with IRT, max.64- Number of connectable IO Devices for RT, max.256- of which IIn line, max.256- of which IIn line, max.256- Number of IO Devices that can be simultaneously activated/deactivated, max.8- Updating timesThe minimum value of the update time also depends on communication set for PROFINET IO Devices, and on the quantity configured user dataUpdate time for IRT250 µs to 4 m; Note: In the case of IRT with isochronous mode, the minimum value of also prise of IO Devices, and on the quantity update time of 375 µs to the isochronous OB is decisive update time of 375 µs to the isochronous OB is decisive update time of 375 µs to the isochronous OB is decisive	share
• Open IE communicationYes; Optionally also encrypted• Web serverYes• Media redundancyYesPROFINET IO ControllerServicesImage: ServicesImage: ServicesIma	share
Web server     Yes       • Media redundancy     Yes       PROFINET IO Controller     Services       - PG/OP communication     Yes       - Isochronous mode     Yes       - Direct data exchange     Yes; Requirement: IRT and isochronous mode (MRPD optional)       - IRT     Yes       - PROFInergy     Yes; per user program       - PROFinergy     Yes; for user program       - Prioritized startup     Yes; Max. 32 PROFINET devices       - Number of connectable IO Devices, max.     256 (In total, up to 1 000 distributed I/O devices can be connected via At PROFIBUS or PROFIBUS or PROFINET       - Of which IO devices with IRT, max.     64       - Number of connectable IO Devices for RT, max.     256       - 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     Stor FORFINET IO, on the number of IO devices, and on the quantity configured user data       Update time for IRT     250 us to 4 ms; Note: In the case of IRT with isochronous mode, the min rupdate time of 375 us of the isochronous OB is decisive       - for send cycle of 500 µs     500 µs to 8 ms       - for send cycle of 1 ms     1 ms to 16 ms	share
<ul> <li>Media redundancy</li> <li>Yes</li> <li>PROFINET IO Controller</li> <li>Services</li> <li>PG/OP communication</li> <li>Services</li> <li>Seconous mode</li> <li>Seconous mode</li> <li>Seconous mode</li> <li>Yes</li> <li>Direct data exchange</li> <li>Yes; Requirement: IRT and isochronous mode (MRPD optional)</li> <li>IRT</li> <li>Yes per user program</li> <li>PROFIenergy</li> <li>Yes; 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 IO devices that can be simultaneously activated/deactivated, max.</li> <li>Secons that can be simultaneously activated/deactivated, max.</li> <li>Update time for IRT</li> <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>Son µs to 8 ms</li> </ul>	share
PROFINET IO Controller         Services       -       PG/OP communication       Yes         -       Isochronous mode       Yes         -       Direct data exchange       Yes; Requirement: IRT and isochronous mode (MRPD optional)         -       IRT       Yes         -       PROFIenergy       Yes; per user program         -       PROFILET devices       256; In total, up to 1 000 distributed I/O devices can be connected via AS PROFIBUS or PROFIBUS or PROFINET         -       Of which IO devices with IRT, max.       64         -       Number of connectable IO Devices for RT, max.       256         -       of which in line, max.       256         -       of which in line, max.       256         -       Number of IO Devices that can be simultaneously activated/deactivated, max.       256         -       Number of IO Devices per tool, max.       8         -       Updating times       8         Update time for IRT       -       250 µs to 4 ms; Note: In the case of IRT with isochronous mode, the mir update time of 375 µs of the isochronous OB is decisive         -       for send cycle of 550 µs       500 µs to 8 ms         -       for send cycle of 1 ms       1 ms to 16 ms	share
Services         - PG/OP communication       Yes         - Isochronous mode       Yes         - Direct data exchange       Yes; Requirement: IRT and isochronous mode (MRPD optional)         - IRT       Yes         - PROFlenergy       Yes; per user program         - Prioritized startup       Yes; Max. 32 PROFINET devices         - Number of connectable IO Devices, max.       256; In total, up to 1 000 distributed I/O devices can be connected via At PROFIBUS or PROFINET         - Of which IO devices with IRT, max.       64         - Number of connectable IO Devices for RT, max.       256         - of which in line, max.       256         - Number of IO Devices that can be simultaneously activated/deactivated, max.       8; in total across all interfaces         - Updating times       8         Update time for IRT       250 us to 4 ms; Note: In the case of IRT with isochronous mode, the mir update time of 375 us of the isochronous OB is decisive         - for send cycle of 500 µs       500 µs to 8 ms         - for send cycle of 1 ms       1 ms to 16 ms	share
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<ul> <li>Prioritized startup</li> <li>Yes; 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>Number of connectable IO Devices for RT, max.</li> <li>of which in line, max.</li> <li>of which in line, max.</li> <li>Number of IO Devices that can be simultaneously activated/deactivated, max.</li> <li>Number of IO Devices per tool, max.</li> <li>Updating times</li> <li>Update time for IRT</li> <li>for send cycle of 250 µs</li> <li>for send cycle of 500 µs</li> <li>for send cycle of 500 µs</li> <li>for send cycle of 1 ms</li> <li>1 ms to 16 ms</li> </ul>	share
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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 set for PROFINET IO, on the number of IO devices, and on the quantity configured user data         Update time for IRT       - for send cycle of 250 µs         — for send cycle of 500 µs       250 µs to 4 ms; Note: In the case of IRT with isochronous mode, the mir update time of 375 µs of the isochronous OB is decisive         — for send cycle of 500 µs       500 µs to 8 ms         — for send cycle of 1 ms       1 ms to 16 ms	
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Update time for IRT — for send cycle of 250 µs — for send cycle of 500 µs — for send cycle of 500 µs — for send cycle of 1 ms — for send cycle of	
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update time of 375 μs of the isochronous OB is decisive— for send cycle of 500 μs500 μs to 8 ms— for send cycle of 1 ms1 ms to 16 ms	imum
- for send cycle of 1 ms 1 ms to 16 ms	inturn
- for send cycle of 2 ms 2 ms to 32 ms	
<ul> <li>for send cycle of 4 ms</li> <li>With IRT and parameterization of "odd" send cycles</li> <li>With IRT and parameterization of "odd" send cycles</li> <li>Update time = set "odd" send clock (any multiple of 125 μs: 375 μs, 625 μs)</li> </ul>	µs 3
875 μs) 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 1 ms 1 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	
PROFINET IO Device	
Services	
- PG/OP communication Yes	
- Isochronous mode No	
— IRT Yes	
— 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	
2. Interface	
Interface types	
RJ 45 (Ethernet) Yes; X2	
Number of ports	
integrated switch     No	
Protocols	
IP protocol     Yes; IPv4	
PROFINET IO Controller     Yes	

<ul> <li>SIMATIC communication</li> </ul>	Vec
	Yes
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
— PROFlenergy	Yes; per user program
— Prioritized startup	No
<ul> <li>— Number of connectable IO Devices, max.</li> </ul>	32; 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>	32
— of which in line, max.	32
<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
Update time for RT	
— for send cycle of 1 ms	1 ms to 512 ms
PROFINET IO Device	
Services	
— PG/OP communication	Yes
— Isochronous mode	No
— IRT	No
— PROFlenergy	Yes; per user program
- Prioritized startup	No
— Shared device	Yes
— Number of IO Controllers with shared device, max.	4
- activation/deactivation of I-devices	Yes; per user program
Asset management record	
	Yes' her liser brodram
-	Yes; per user program
3. Interface	Yes; per user program
3. Interface Interface types	
3. Interface Interface types • RS 485	Yes; X3
3. Interface Interface types • RS 485 • Number of ports	
3. Interface Interface types • RS 485 • Number of ports Protocols	Yes; X3 1
3. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master	Yes; X3 1 Yes
3. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP device	Yes; X3 1 Yes No
3. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP device • SIMATIC communication	Yes; X3 1 Yes
3. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP device • SIMATIC communication PROFIBUS DP master	Yes; X3 1 Yes No Yes
3. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP device • SIMATIC communication PROFIBUS DP master • Number of connections, max.	Yes; X3 1 Yes No Yes 48; for the integrated PROFIBUS DP interface
3. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP device • SIMATIC communication PROFIBUS DP master	Yes; X3 1 Yes No Yes
3. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP device • SIMATIC communication PROFIBUS DP master • Number of connections, max.	Yes; X3 1 Yes No Yes 48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i,
3. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP device • SIMATIC communication PROFIBUS DP master • Number of connections, max. • max. number of DP devices	Yes; X3 1 Yes No Yes 48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i,
3. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP device • SIMATIC communication PROFIBUS DP master • Number of connections, max. • max. number of DP devices Services	Yes; X3 1 Yes No Yes 48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
3. Interface Interface types • RS 485 • Number of ports Protocols • PROFIBUS DP master • PROFIBUS DP device • SIMATIC communication PROFIBUS DP master • Number of connections, max. • max. number of DP devices Services — PG/OP communication	Yes; X3 1 Yes No Yes 48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes
3. Interface         Interface types         • RS 485         • Number of ports         Protocols         • PROFIBUS DP master         • PROFIBUS DP device         • SIMATIC communication         PROFIBUS DP master         • Number of connections, max.         • max. number of DP devices         Services         — PG/OP communication         — Equidistance	Yes; X3 1 Yes No Yes 48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes Yes
3. Interface         Interface types         • RS 485         • Number of ports         Protocols         • PROFIBUS DP master         • PROFIBUS DP device         • SIMATIC communication         PROFIBUS DP master         • Number of connections, max.         • max. number of DP devices         Services         - PG/OP communication         - Equidistance         - Isochronous mode         - activation/deactivation of DP devices	Yes; X3 1 Yes No Yes 48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes Yes Yes
3. Interface         Interface types         • RS 485         • Number of ports         Protocols         • PROFIBUS DP master         • PROFIBUS DP device         • SIMATIC communication         PROFIBUS DP master         • Number of connections, max.         • max. number of DP devices         Services         — PG/OP communication         — Equidistance         — Isochronous mode         — activation/deactivation of DP devices	Yes; X3 1 Yes No Yes 48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes Yes Yes
3. Interface         Interface types         • RS 485         • Number of ports         Protocols         • PROFIBUS DP master         • PROFIBUS DP device         • SIMATIC communication         PROFIBUS DP master         • Number of connections, max.         • max. number of DP devices         Services         - PG/OP communication         - Equidistance         - Isochronous mode         - activation/deactivation of DP devices         Interface types         RJ 45 (Ethernet)	Yes; X3 1 Yes No Yes 48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes Yes Yes Yes
3. Interface         Interface types         • RS 485         • Number of ports         Protocols         • PROFIBUS DP master         • PROFIBUS DP device         • SIMATIC communication         PROFIBUS DP master         • Number of connections, max.         • max. number of DP devices         Services         - PG/OP communication         - Equidistance         - Isochronous mode         - activation/deactivation of DP devices         Interface types         RJ 45 (Ethernet)         • 100 Mbps	Yes; X3 1 Yes No Yes 48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes Yes Yes Yes
3. Interface         Interface types         • RS 485         • Number of ports         Protocols         • PROFIBUS DP master         • PROFIBUS DP device         • SIMATIC communication         PROFIBUS DP master         • Number of connections, max.         • max. number of DP devices         Services         - PG/OP communication         - Equidistance         - Isochronous mode         - activation/deactivation of DP devices         Interface types         RJ 45 (Ethernet)         • 100 Mbps         • Autonegotiation	Yes; X3 1 Yes No Yes 48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes Yes Yes Yes Yes
3. Interface         Interface types         • RS 485         • Number of ports         Protocols         • PROFIBUS DP master         • PROFIBUS DP device         • SIMATIC communication         PROFIBUS DP master         • Number of connections, max.         • max. number of DP devices         Services         - PG/OP communication         - Equidistance         - Isochronous mode         - activation/deactivation of DP devices         Interface types         RJ 45 (Ethernet)         • 100 Mbps         • Autonegotiation         • Autorcossing	Yes; X3 1 Yes No Yes 48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes Yes Yes Yes Yes Yes
3. Interface         Interface types         • RS 485         • Number of ports         Protocols         • PROFIBUS DP master         • PROFIBUS DP device         • SIMATIC communication         PROFIBUS DP master         • Number of connections, max.         • max. number of DP devices         Services         - PG/OP communication         - Equidistance         - Isochronous mode         - activation/deactivation of DP devices         Interface types         RJ 45 (Ethernet)         • 100 Mbps         • Autonegotiation         • Autorossing         • Industrial Ethernet status LED	Yes; X3 1 Yes No Yes 48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes Yes Yes Yes Yes
3. Interface         Interface types         • RS 485         • Number of ports         Protocols         • PROFIBUS DP master         • PROFIBUS DP device         • SIMATIC communication         PROFIBUS DP master         • Number of connections, max.         • max. number of DP devices         Services         - PG/OP communication         - Equidistance         - Isochronous mode         - activation/deactivation of DP devices         Interface types         RJ 45 (Ethernet)         • 100 Mbps         • Autonegotiation         • Autorossing         • Industrial Ethernet status LED         RS 485	Yes; X3 1 Yes No Yes 48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes Yes Yes Yes Yes Yes Yes Yes
3. Interface         Interface types         • RS 485         • Number of ports         Protocols         • PROFIBUS DP master         • PROFIBUS DP device         • SIMATIC communication         PROFIBUS DP master         • Number of connections, max.         • max. number of DP devices         Services         - PG/OP communication         - Equidistance         - Isochronous mode         - activation/deactivation of DP devices         Interface types         RJ 45 (Ethernet)         • 100 Mbps         • Autonegotiation         • Autorossing         • Industrial Ethernet status LED         RS 485         • Transmission rate, max.	Yes; X3 1 Yes No Yes 48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes Yes Yes Yes Yes Yes
3. Interface         Interface types         • RS 485         • Number of ports         Protocols         • PROFIBUS DP master         • PROFIBUS DP device         • SIMATIC communication         PROFIBUS DP master         • Number of connections, max.         • max. number of DP devices         Services         - PG/OP communication         - Equidistance         - Isochronous mode         - activation/deactivation of DP devices         Interface types         RJ 45 (Ethernet)         • 100 Mbps         • Autonegotiation         • Autorossing         • Industrial Ethernet status LED         RS 485	Yes; X3 1 Yes No Yes 48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Yes Yes Yes Yes Yes Yes Yes Yes

Number of connections	
Number of connections, max.	256; via integrated interfaces of the CPU and connected CPs / CMs
Number of connections, max.	
Number of connections via integrated interfaces	128
Number of S7 routing paths	16
Redundancy mode	
H-Sync forwarding	Yes
Media redundancy	100
— Media redundancy	only via 1st interface (V1)
— MRP	only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager;
	MRP Client
- MRP interconnection, supported	Yes; as MRP ring node according to IEC 62439-2 Edition 3.0
— MRPD	Yes; Requirement: IRT
— Switchover time on line break, typ.	200 ms; For MRP, bumpless for MRPD
— Number of stations in the ring, max.	50
SIMATIC communication	
PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
S7 routing	Yes
Data record routing	Yes
S7 communication, as server	Yes
S7 communication, as client	Yes
User data per job, max.	See online help (S7 communication, user data size)
Open IE communication	
• TCP/IP	Yes
— Data length, max.	64 kbyte
— several passive connections per port, supported	Yes
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	64 kbyte
• UDP	Yes
— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast
— UDP multicast	Yes; max. 118 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; "Medium" license required
OPC UA Client	Yes; Data Access (registered Read/Write), Method Call
Application authentication	Yes
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
- Number of connections, max.	10
<ul> <li>Number of connections, max.</li> <li>Number of nodes of the client interfaces,</li> </ul>	2 000
<ul> <li>Number of houses of the clent interfaces,</li> <li>recommended max.</li> <li>Number of elements for one call of</li> </ul>	300
OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_U max.	
<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</li> </ul>	100

- Number of Inplosition procession     20       - OPE UA Server     Yee, Data Access (Read, Wile, Subacribe), Method Call, Alarms & Constition (M&C), Constructions, None, Basic 728/Nat 15, Basic 206 Nat 25 (Nat 25 Nat		
OPC_LIA_Methodozial max.     Yes_Data Access (Read, Write, Subscribe), Method Call, Alarma & Condition (AdC), Custom Address Space <ul> <li>Application authentication</li> <li>Security policies</li> <li>Security policies None, Basic 128(Read 5, Basic 206(Read 0, Fact 28-206)(Basic 16, Basic 206(Read 0, Fact 28-206)(Basic 26, Basic 206(Read 0, Fact 28-10)</li> <li>Security policies None, Basic 128(Read 0, Fact 28-10)</li> <li>Number of pascessition per server method, max.</li> <li>So 0</li> <li>Number of provide preserve method, max.</li> <li>Number of framotized basic preserver method, max.</li> <li>Number of framotized basic preserver interfuces.</li> <li>Number of framotized basic preserver interfuces.</li> <li>Number of rations for system diagnostics.</li> <li>Security policies names performation.</li> <li>Security policies names performation.</li> <li>Number of atames for system diagnostics.</li> <li>Number of</li></ul>	OPC_UA_MethodCall, max.	20
<ul> <li>Application authentication</li> <li>Security policies</li> <li>Application authentication</li> <li>Security policies</li> <li>Provide authentication</li> <li>Provide authentinoproversitin thetenoprovesition</li></ul>		20
- Security policies     maintails security policies. None. Basis:128Real 6, Basis:226Real 6, Basis:	OPC UA Server	
Here and here interfaces in an angement)         Yes           - ODS support (collificate management)         Yes           - Number of accessible variables, max.         100 000           - Number of accessible variables, max.         20 000           - Number of accessible variables, max.         20 000           - Number of aduation; from a per session, max.         50           Sampling interval, min.         100 ms           Number of models per server methods, max.         50           Number of models per server method, max.         50           Number of models per server method, max.         50           Number of founders/outper server method, max.         50           Number of models for user-defined server interfaces; "Companion specification" type and 20 of the type and accession.           - Number of program alarms         200           - Number of program alarms         200           - Number of program alarms         200           - Number of output solutions for messages functions.         84           Program alarms         200           - Number of adams for rost excert interfaces?         90 of 0000.           Number of output solutions for messages in RUM, max.         50 of 0000.	<ul> <li>Application authentication</li> </ul>	Yes
- GDS support (certificate management)     - GDS aupport (certificate management)     - Number of subscriptions, max.     - Number of accessible variables, max.     20 000     - Number of subscriptions per existen, max.     20 000     - Number of subscriptions per existen, max.     - Sampling interval, min.     - Cubitating interval, min.     - Number of monitored litems, recommended max.     - Number of alores for user-defined server interfaces,     - Number of al	— Security policies	
	— User authentication	"anonymous" or by user name & password
- Number of accessible variables, max.     100.000       - Number of accessible variables, max.     20.000       - Number of accessible variables, max.     50       - Sampling interval, min.     100 ms       - Publishing interval, min.     100 ms       - Number of inpubliculpub per server method, max.     50       - Number of inpubliculpub per server method, max.     20       - Number of monitore titems, recommended max.     100 deach "Server interfaces."       - Number of accessible variables, max.     50       - Number of accessible variables.     30.000       - Number of accessible variables.     30.000       - Number of program alarms     200       - Number of program alarms     200       - Number of program messages functions, max.     Program functions       - Number of accessible variables, max.     Yes       Number of accessible variables, max.     Yes       - Number of accessible variables, max.     Yes       Number of accessible variables, max.     Yes <tr< td=""><td><ul> <li>— GDS support (certificate management)</li> </ul></td><td>Yes</td></tr<>	<ul> <li>— GDS support (certificate management)</li> </ul>	Yes
- Number of subscriptions par session, max.     20 000       - Number of subscriptions par session, max.     50       - Standing in terval, min.     100 ms       - Number of server motion, max.     20       - Number of server interfaces, max.     10 of each "Server interfaces" "Companion specification" type and 20 of the hyperbalance of server interfaces, max.       - Number of alonge for user defined server interfaces, max.     30 0000       - Number of alonge for user defined server interfaces, max.     30 0000       - Number of alonge for user defined server interfaces, max.     30 0000       - Number of alonge for user defined server interfaces, max.     30 0000       - Number of alonge for user defined server interfaces, max.     30 0000       - Number of alonge for gragm alarme     200       - Number of alonge for gragm alarme     200       - Number of alonge for message functions, max.     64       Number of forging alarnes for gragm alarmes     10 000, Program messages are generated by the "Program_Alarm" block, Program forging or GRAPH       Number of forging alarmes     10000, Program messages are generated by the "Program_Alarm" block, Program forging or GRAPH       Number of forging alarmes     1000       Number of forging materia     1000	<ul> <li>— Number of sessions, max.</li> </ul>	48
	<ul> <li>— Number of accessible variables, max.</li> </ul>	100 000
- Sampling interval, min.     100 ms       - Publishing interval, min.     100 ms       - Number of puplisolupuis per server method, max.     20       - Number of nonitode iftems, recommended max.     4000; for 1 s sampling interval and 1 s send interval       - Number of nonitode iftems, recommended max.     100 doi: for 1 s sampling interval and 1 s send interval       - Number of across functional items, recommended max.     3000; for 1 s sampling interval and 1 s send interval       - Number of originan alarms     20       - Number of program naisms     200       - Number of program naisms     200       - Number of program naisms     200       - Number of originarial alarms     200       - Number of configurable program messages, max.     Yes; MODBUS TCP       Equidistance     Yes       - Number of configurable program messages, max.     Yes       Program alarms     10000; Program messages are generated by the "Program_Alarm" block, Problag or GRAPH       Number of configurable program messages in RUN, max.     5000       Number of alarms for noystem diagnostics     200       Stota bloch     Yes; Vip to 8 simultaneously in tota	<ul> <li>— Number of registerable nodes, max.</li> </ul>	20 000
Publishing interval.min.     100 ms      Number of neprisorupuits per server method, max.     20      Number of neprisorupuits per server method, max.     4000; for 1 sampling interval and 1 s send interval      Number of neprisorupuits per server interfaces.max.     4000; for 1 sampling interval and 1 s send interval      Number of nonoitoed items, recommended max.     4000; for 1 sampling interval and 1 s send interval      Number of nonoitoed items, recommended max.     4000; for 1 sampling interval and 1 s send interval      Number of nonoitoed items, recommended max.     4000; for 1 sampling interval and 1 s send interval      Number of nonoitoed items, recommended max.     4000; for 1 sampling interval and 1 s send interval      Number of nogram atams     200      Number of rolgans atams     Yes      Number of dognatations for system diagnostics     100       Further protocols	<ul> <li>— Number of subscriptions per session, max.</li> </ul>	50
	— Sampling interval, min.	100 ms
- Number of inputs/outputs per server method, max.     20       - Number of monitorical laters, recommended max.     4 000, for 1 s sampling interval and 1 s send interval       - Number of monitorical laters, recommended max.     30 000       - Number of nodes for user-defined server interfaces, max.     200       - Number of nodes for user-defined server interfaces.     30 000       - Number of program alarms     200       - Number of alarms for system diagnostics     100       - Number of alarms for system diagnostics     100       - Number of program alarms     200       - Number of alarms for system diagnostics     100       Future prodocods     -       Equidatance     Yes.       Somesage functions, max.     64       Program alarms     10 000; Program messages are generated by the "Program_Alarm" block.       Number of alarms for notice trading to program messages, max.     Problag or GRAPH       Number of alarms for notice technology objects     200       • Number of alarms for notice technology objects     100       • Number of alarms for notice technology objects     100       • Number of alarms for notice technology objects     100       • Number of alarms for notice technology objects     100       • Number of alarms for notice technology objects     100       • Number of alarms for notice technology objects     100	— Publishing interval, min.	100 ms
- Number of monitored items, recommended max.     4 000; for 1 s sampling interval and 1 s send interval       - Number of noides for user-defined server interfaces, max.     10 of each "Server interfaces, I"Companion specification" type and 20 of the type "Reference annespace"       - Number of noides for user-defined server interfaces, max.     30 000       - Number of noides for user-defined server interfaces, max.     30 000       - Number of noides for user-defined server interfaces, max.     30 000       - Number of noigen alarms     200       - Number of noigen for yespending for the server interfaces, max.     100       - Number of login stations for message functions, max.     64       - Program alarms     Yes       Number of login stations for message functions, max.     64       - Program alarms     Yes       - Number of noignable program messages, max.     1000       - Nother of configurable program messages in RUM, max.     5000       Number of noidna functions     1000       - Number of alarms for xystem diagnostics     200       - Number of alarms for xystem diagnostics     200       - Number of program alarms     1000       - Number of alarms for xystem diagnostics     200       - Number of program alarms     1000       - Number of program alarms     1000       - Number of variables, max.     200; per job       - Status/control <td< td=""><td>- Number of server methods, max.</td><td>50</td></td<>	- Number of server methods, max.	50
- Number of server interfaces, max.     10 of each "Server interfaces" /"Companion specification" type and 20 of the type "Reference namespace".       - Number of nodes for user-defined server interfaces, max.     30 000       - Namber of program alarms     200       - Number of login stations for message functions, max.     70 es; MODBUS TCP       Equidatance     Yes; MODBUS TCP       Equidatance     Yes; MoDBUS TCP       Number of login stations for message functions, max.     64       Program alarms     Yes; MoDBUS TCP       Number of login stations for messages in RUN, max.     5000       Number of login stations for messages in RUN, max.     5000       Number of login stations for motion technology objects     160       Ver of alarms for yestem diagnostics     200       Number of alarms for motion technology objects     160       Status block     Yes; Parallel online access possible for up to 8 engineering systems       Status block     Yes; Whot fail-safe       Number of breakpoints     8       Status block     Yes; without fail-safe       Number of variables, max.     200       - of which status variables, max.     200; per job	<ul> <li>— Number of inputs/outputs per server method, max.</li> </ul>	20
type "Reference namespace"     type "Reference namespace"       max.     30 000       • Alarms and Conditions     Yes       • Alarms and Conditions     Yes       • MonDer of program atarms     200       • MonDer of program atarms     200       • MODBUS     Yes; MODBUS TCP       Statuscontrol     Yes       Statuscontrol     Yes       Statuscontrol     Yes       Statuscontrol     Yes       Statuscontrol variables, max.     64       Program atarms     Yes       Number of login stations for message functions, max.     64       Program atarms     Yes       Number of atarms for mostages, max.     Program messages are generated by the "Program_Alarm" block, Program messages are generated by the "Program_Alarm" block, Program atarms       • Number of atarms for system diagnostics     200       • Statuscontrol variables, max.     Yes, Paralel online access possible for up to 8 engineering systems       Statuscontrol variables, max.     200, Program diams       • Oth which notrol variables, max.     200, Program diams       • Other of variables, max.     200, Program diams       • Origin variables, max.	<ul> <li>— Number of monitored items, recommended max.</li> </ul>	4 000; for 1 s sampling interval and 1 s send interval
max.     max.       • Alarms and Conditions     Yes       • Number of program alarms     200       • Number of alarms for system diagnostics     100       Further protocols     100       • MODBUS     Yes; MODBUS TCP       isochnorus mode     Equidistance       S7 message functions     64       Program alarms     Yes       Number of login stations for messages, max.     Problag or GRAPH       Prologina alarms     Yes       Number of login stations for messages, max.     Problag or GRAPH       Number of loginal alarms     5000       Number of larms for system diagnostics     200       • Number of program alarms     1000       • Number of alarms for system diagnostics     200       • Statustioning functions     1000       • Statustioning functions     200       • Statustioning functions     200       • Statustioning functions     200       • Statustoontrol variables, max.     200, per job       • Othich control variables, max.     200, per job       • Othich ontrol variables, max.	- Number of server interfaces, max.	
• Alarms and Conditions     Yes       - Number of program alarms     200       - Number of alarms for system diagnostics     100       Further protocols     Yes, MODBUS TCP       • MODBUS     Yes, MODBUS TCP       Schronouss modo     Equidistance       Forgram alarms     Yes       Number of longin stations for message functions, max.     64       Program alarms     Yes       Number of longin stations for messages, max.     10 000, Program messages are generated by the "Program_Alarm" block, Probago or GRAPH       Number of longin stations for system diagnostics     200       • Number of longina messages in RUN, max.     5 000       Number of program alarms     1 000       • Number of alarms for system diagnostics     200       • Number of alarms for moton technology objects     160       Test commission (Pam Engineering)     Yes; Parallel online access possible for up to 8 engineering systems       Status block     Yes; Variable access possible for up to 8 engineering systems       Status block     Yes; Without fail-safe       Input soutputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters       • Status/control variables, max.     200; per job       For	,	30 000
Number of program alarms     200       Number of alarms for system diagnostics     100       Further protocols     *       • MODBUS     Yes; MODBUS TCP       Equidistance     Yes       57 message functions     64       Program alarms     Yes       Number of configurable program messages, max.     P4       Program alarms     Yes       Number of configurable program messages, max.     P10000, Program messages are generated by the "Program_Alarm" block, Problag or GRAPH       Number of configurable program messages in RUN, max.     5 000       Number of alarms for system diagnostics     200       • Status block     Yes; Variallel online access possible for up to 8 engineering systems       Status block     Yes; Without fail-safe       • Status block     Yes; without fail-safe       • Variables     200; per job       • Variables, max.     200; per job       • of which status variables, max.     200; per job       • of which status variables, max.     200; per job       • of which status variables, max.     200; per job       • Procing     Yes; without fail-safe       • Forcing, variables, max.		Vez
Further protocols       Yes; MODBUS         • MODBUS       Yes; MODBUS TCP         Sochronous mode       Equidistance         Equidistance       Yes         Somessage functions       64         Program alarms       Yes         Number of login stations for message in RUN, max.       5000 gor GRAPH         Number of loadable program messages in RUN, max.       5000         Number of fimultaneously active program alarms       1000         • Number of alarms for motion technology objects       100         • Number of alarms for motion technology objects       160         Test commission (Team Engineering)       Yes; without fail-safe         Joint commission (Team Engineering)       Yes; without fail-safe         • Number of breakpoints       8         Status/control       8         • Number of variables, max.       200; per job         • Of which status variables, max.       200; per job         • of which control variables, max.       200; per job         • Origing       Yes; without fail-safe         • Proving, variables, max.       200; per job         • of which control variables, max.       200; per job         • of which outrol variables, max.       200         • of which status variables, max.       200		
• MODBUS       Yes; MODBUS TCP         Isochronous mode       Fequidistance         Equidistance       Yes         57 message functions       64         Program alarms       Yes         Number of login stations for messages functions, max.       64         Program alarms       Yes         Number of configurable program messages, max.       10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH         Number of loadable program messages in RUN, max.       5 000         Number of program alarms       10 000         • Number of program alarms       10 000         • Number of program alarms       1000         • Number of program alarms       10 000         • Number of program alarms       10 000         • Number of program alarms       1000         • Number of program alarms       1000         • Number of program alarms       1000         • Number of alarms for motion technology objects       160 <b>Fest commission (Team Engineering)</b> Yes; 'Parallel online access possible for up to 8 engineering systems         Status/control       Yes; 'up to 8 simultaneously (in total across all ES clients)         Status/control       8         Status/control       Yes; without fail-safe         • St		100
Isochronous mode         Yes           S7 message functions         54           Program alarms         Yes           Number of login stations for message functions, max.         64           Program alarms         Yes           Number of configurable program messages, max.         10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH           Number of loadable program messages in RUN, max.         5 000           Number of program alarms         1000           • Number of program alarms         1000           • Number of alarms for system diagnostics         200           • Number of alarms for motion technology objects         160           Test commissioning functions         Yes; Vars, Va	•	
Equidistance     Yes       57 message functions     64       Program alarms     Yes       Number of configurable program messages, max.     10 000, Program messages are generated by the "Program_Alarm" block, ProDag or GRAPH       Number of loadable program messages in RUN, max.     5 000       Number of loadable program messages in RUN, max.     5 000       Number of simultaneously active program alarms     1 000, Program alarms       • Number of alarms for system diagnostics     200       • Number of alarms for motion technology objects     160       Test commission(fream Engineering)     Yes; Parallel online access possible for up to 8 engineering systems       Status block     Yes; Up to 8 simultaneously (in total across all ES clients)       Single step     No       Number of variables, max.     200; per job       • Variables     200; per job       • Or which control variables, max.     200; per job       • Forcing     Yes; without fail-safe       • Forcing     Yes; Wes       • Number of variables, max.     200; per job       • Forcing, variables     200       • Number of entries, max.     200		Yes; MODBUS TCP
SY mossage functions       64         Program alarms       Yes         Number of login stations for messages, max.       10 000, Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH         Number of loadable program messages in RUN, max.       5 000         Number of loadable program alarms       1 000         • Number of alarms for system diagnostics       200         • Number of alarms for motion technology objects       160         Fest commission (Team Engineering)       Yes; Verailel online access possible for up to 8 engineering systems         Status block       Yes; Up to 8 simultaneously in total across all ES clients)         Single step       No         Number of breakpoints       8         Status/control       Yes; without fail-safe         • Variables       200; per job         • Variables, max.       200; per job         • Of which status variables, max.       200; per job         • Of which control variables, max.       200; per job         • Forcing       Yes; without fail-safe         • Forcing, variables       per job         • Number of anables, max.       200; per job         • Or which control variables, max.       200; per job         • Forcing       Yes; without fail-safe         • Forcing, variables		
Number of login stations for message functions, max.       64         Program alarms       Yes         Number of configurable program messages, max.       ProDiag or GRAPH         Number of loadable program messages in RUN, max.       5 000         Number of loadable program dessages in RUN, max.       5 000         Number of alarms for system diagnostics       200         Number of alarms for motion technology objects       10 000         Post commission (Team Engineering)       Yes; Parallel online access possible for up to 8 engineering systems         Status block       Yes; Up to 8 simultaneously (in total across all ES clients)         Single step       No         Number of variables, max.       200; per job         • Variables       Inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, courser job         • Variables       200; per job         • Or which control variables, max.       200; per job         • Forcing       Yes; without fail-safe         • Forcing, variables, max.       200; per job         • Forcing       Yes; without fail-safe         • Forcing       Yes; without fail-safe         • Profing variables, max.       200; per job         • Forcing       Yes; without fail-safe         • Forcing variables, max.       200		Yes
Program alarms       Yes         Number of configurable program messages, max.       10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH         Number of loadable program messages in RUN, max.       5 000         Number of simultaneously active program alarms       6 000         Number of simultaneously active program alarms       1 000         Number of alarms for system diagnostics       200         Number of alarms for motion technology objects       160         Test commission (Team Engineering)       Yes; Parallel online access possible for up to 8 engineering systems         Status block       Yes; Up to 8 simultaneously (in total across all ES clients)         Single step       No         Number of variables, max.       - of which status variables, max.         - of which status variables, max.       200; per job         - of which status variables, max.       200; per job         - of which status variables, max.       200; per job         - of which status variables, max.       200; per job         - of which status variables, max.       200; per job         - of which status variables, max.       200; per job         - of which status variables, max.       200; per job         - of which status variables, max.       200         - of which status variables, max.       200		
Number of configurable program messages, max.       10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH         Number of loadable program messages in RUN, max.       5 000         Number of simultaneously active program alarms       1 000         • Number of program alarms       1 000         • Number of alarms for system diagnostics       200         • Number of alarms for motion technology objects       160         Test commission (Team Engineering)       Yes; Parallel online access possible for up to 8 engineering systems         Status block       Yes; Up to 8 simultaneously (in total across all ES clients)         Single step       No         Number of variables, max.       200; per job         • Status/control       Yes; without fail-safe         • Variables, max.       200; per job         • of which status variables, max.       200; per job         - of which control variables, max.       200; per job         Porcing       Yes; without fail-safe         • Forcing       Yes; without fail-safe         • Forcing       Yes; without fail-safe         • Forcing       Yes; without fail-safe         • Porcing       Yes; without fail-safe         • Forcing       Yes; without fail-safe         • Number of variables, max.       200 <tr< td=""><td></td><td></td></tr<>		
ProDiag or GRAPH           Number of loadable program messages in RUN, max.         5 000           Number of simultaneously active program alarms         1 000           Number of alarms for system diagnostics         200           Number of alarms for motion technology objects         160           Test commission (Team Engineering)         Yes; Parallel online access possible for up to 8 engineering systems           Joint commission (Team Engineering)         Yes; Parallel online access possible for up to 8 engineering systems           Status block         Yes; Up to 8 simultaneously (in total across all ES clients)           Single step         No           Number of variables, max.         8           • Variables         Yes; without fail-safe           • Variables         inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters           • Variables, max.         200; per job           • of which status variables, max.         200; per job           Forcing         Yes; without fail-safe           • Forcing         Yes; without fail-safe           • Forcing         Yes; without fail-safe           • Proting variables, max.         200; per job           Forcing         Yes; without fail-safe           • Forcing, variables, max.         200           • Number of entries, ma		
Number of simultaneously active program alarms       1 000         • Number of alarms for system diagnostics       200         • Number of alarms for motion technology objects       160         Test commissioning functions         Joint commission (Team Engineering)       Yes; Parallel online access possible for up to 8 engineering systems         Status block       Yes; Up to 8 simultaneously (in total across all ES clients)         Single step       No         Number of breakpoints       8         Status/control variable       Yes; without fail-safe         • Variables       inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters         • Number of variables, max.       200; per job         — of which control variables, max.       200; per job         — of which control variables, max.       200; per job         • Forcing       Yes; without fail-safe         • Forcing       Yes; without fail-safe         • Forcing, variables, max.       200         • Forcing, variables, max.       200         • Inputs/outputs (without fail-safe)       200 <td< td=""><td>Number of configurable program messages, max.</td><td></td></td<>	Number of configurable program messages, max.	
• Number of program alarms       1 000         • Number of alarms for system diagnostics       200         • Number of alarms for motion technology objects       160         Test commission (Team Engineering)         Joint commission (Team Engineering)       Yes; Parallel online access possible for up to 8 engineering systems         Status block       Yes; Up to 8 simultaneously (in total across all ES clients)         Single step       No         Number of breakpoints       8         Status/control       Yes; without fail-safe         • Status/control variable       Yes; without fail-safe         • Variables       inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters         • Number of variables, max.       200; per job         - of which status variables, max.       200; per job         - of which control variables, max.       200; per job         Forcing       Yes; without fail-safe         • Forcing, variables, max.       200         Diagnostic buffer       200         • Number of entries, max.       200         • Number of entries, max.       3 200 <t< td=""><td>Number of loadable program messages in RUN, max.</td><td>5 000</td></t<>	Number of loadable program messages in RUN, max.	5 000
• Number of alarms for system diagnostics       200         • Number of alarms for motion technology objects       160         Test commissioning functions         Joint commission (Team Engineering)       Yes; Parallel online access possible for up to 8 engineering systems         Status block       Yes; Up to 8 simultaneously (in total across all ES clients)         Single step       No         Number of breakpoints       8         Status/control       *Yes; without fail-safe         • Variables       inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters         • Number of variables, max.       200; per job         - of which control variables, max.       200; per job         - of which control variables, max.       200; per job         Forcing       Yes; without fail-safe         • Forcing       Yes         • Number of entries, max.       200         Diagnostic b	, , , ,	
• Number of alarms for motion technology objects       160         Test commissioning functions         Joint commission (Team Engineering)       Yes; Parallel online access possible for up to 8 engineering systems         Status block       Yes; Up to 8 simultaneously (in total across all ES clients)         Single step       No         Number of breakpoints       8         Status/control       8         • Status/control variable       Yes; without fail-safe         • Variables       inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters         • Number of variables, max.       200; per job         — of which control variables, max.       200; per job         Forcing       Yes; without fail-safe         • Forcing, variables       peripheral inputs/outputs (without fail-safe)         • Forcing       Yes; without fail-safe         • Forcing       Yes; without fail-safe         • Forcing       Yes; without fail-safe         • Forcing, variables, max.       200         Diagnostic buffer       Yes         • Number of entries, max.       3 200         - of which powerfail-proof       500		
Test commissioning functions         Joint commission (Team Engineering)       Yes; Parallel online access possible for up to 8 engineering systems         Status block       Yes; Up to 8 simultaneously (in total across all ES clients)         Single step       No         Number of breakpoints       8         Status/control       Yes; without fail-safe         • Status/control variable       inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters         • Number of variables, max.       200; per job         — of which status variables, max.       200; per job         Forcing       Yes; without fail-safe         • Forcing use for variables, max.       200; per job         • Forcing       Yes; without fail-safe         • Forcing user of variables, max.       200; per job         • Forcing       Yes; without fail-safe         • Forcing user of variables, max.       200; per job         • Diagnostic buffer       200         • Iblagnostic buffer       200         • of which powerfail-proof       3 200         — of which powerfail-proof       500	<ul> <li>Number of program alarms</li> </ul>	1 000
Joint commission (Team Engineering)       Yes; Parallel online access possible for up to 8 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; without fail-safe         • Variables       inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters         • Number of variables, max.       200; per job         — of which control variables, max.       200; per job         Forcing       Yes; without fail-safe         • Persent       200         • Number of variables, max.       200         • Biagnostic buffer       200         • Present       Yes         • Number of entries, max.       3 200         — of which powerfail-proof       500	Number of alarms for system diagnostics	
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; without fail-safe         • Variables       inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters         • Number of variables, max.       200; per job         - of which status variables, max.       200; per job         - of which control variables, max.       200; per job         Forcing       Yes; without fail-safe         • Forcing, variables, max.       200         Diagnostic buffer       200         • present       Yes         • Number of entries, max.       3 200         - of which powerfail-proof       500	<ul> <li>Number of alarms for system diagnostics</li> <li>Number of alarms for motion technology objects</li> </ul>	200
Single step       No         Number of breakpoints       8         Status/control       ************************************	<ul> <li>Number of alarms for system diagnostics</li> <li>Number of alarms for motion technology objects</li> </ul>	200
Number of breakpoints       8         Status/control       •         • Status/control variable       Yes; without fail-safe         • Variables       inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters         • Number of variables, max.       -         - of which status variables, max.       200; per job         - of which control variables, max.       200; per job         Forcing       Yes; without fail-safe         • Forcing, variables, max.       200         • Diagnostic buffer       200         • present       Yes         • Number of entries, max.       3 200         - of which powerfail-proof       500	Number of alarms for system diagnostics     Number of alarms for motion technology objects Test commissioning functions	200 160
Status/control         • Status/control variable         • Variables         • Variables         • Number of variables, max.         - of which status variables, max.         - of which control variables, max.         200; per job         - of which control variables, max.         200; per job         Forcing         • Forcing         • Forcing         • Forcing         • Forcing         • Persent         • present         • Number of entries, max.         200         Diagnostic buffer         • present         • Number of entries, max.         3 200         - of which powerfail-proof         500	Number of alarms for system diagnostics     Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering)	200 160 Yes; Parallel online access possible for up to 8 engineering systems
• Status/control variable       Yes; without fail-safe         • Variables       inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters         • Number of variables, max.       200; per job         - of which status variables, max.       200; per job         - of which control variables, max.       200; per job         Forcing       Yes; without fail-safe         • Forcing       Yes; without fail-safe         • Forcing, variables, max.       200         Diagnostic buffer       200         • present       Yes         • Number of entries, max.       3 200         - of which powerfail-proof       500	Number of alarms for system diagnostics     Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering) Status block	200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients)
• Variablesinputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters• Number of variables, max.200; per job- of which status variables, max.200; per job- of which control variables, max.200; per jobForcingYes; without fail-safe• Forcing, variablesperipheral inputs/outputs (without fail-safe)• Number of variables, max.200Diagnostic buffer200• presentYes• Number of entries, max.3 200- of which powerfail-proof500	Number of alarms for system diagnostics     Number of alarms for motion technology objects     Test commissioning functions     Joint commission (Team Engineering)     Status block     Single step     Number of breakpoints	200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No
Number of variables, max.counters- of which status variables, max.200; per job- of which control variables, max.200; per jobForcingYes; without fail-safe• Forcing, variablesperipheral inputs/outputs (without fail-safe)• Number of variables, max.200Diagnostic bufferYes• presentYes• Number of entries, max.3 200- of which powerfail-proof500	Number of alarms for system diagnostics     Number of alarms for motion technology objects     Test commissioning functions     Joint commission (Team Engineering)     Status block     Single step     Number of breakpoints	200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No
of which status variables, max.200; per job of which control variables, max.200; per jobForcing200; per job• ForcingYes; without fail-safe• Forcing, variablesperipheral inputs/outputs (without fail-safe)• Number of variables, max.200Diagnostic buffer200• presentYes• Number of entries, max.3 200- of which powerfail-proof500TracesImage: State	Number of alarms for system diagnostics     Number of alarms for motion technology objects     Test commissioning functions     Joint commission (Team Engineering)     Status block     Single step     Number of breakpoints     Status/control	200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8
of which control variables, max.200; per jobForcingVes; without fail-safe• Forcing, variablesperipheral inputs/outputs (without fail-safe)• Number of variables, max.200Diagnostic bufferYes• presentYes• Number of entries, max.3 200- of which powerfail-proof500	Number of alarms for system diagnostics     Number of alarms for motion technology objects     Test commissioning functions     Joint commission (Team Engineering)     Status block     Single step     Number of breakpoints     Status/control     • Status/control variable	200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times,
Forcing         • Forcing       Yes; without fail-safe         • Forcing, variables       peripheral inputs/outputs (without fail-safe)         • Number of variables, max.       200         Diagnostic buffer         • present       Yes         • Number of entries, max.       3 200         - of which powerfail-proof       500	Number of alarms for system diagnostics     Number of alarms for motion technology objects     Test commissioning functions     Joint commission (Team Engineering)     Status block     Single step     Number of breakpoints     Status/control     Status/control variable     Variables	200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times,
• Forcing     Yes; without fail-safe       • Forcing, variables     peripheral inputs/outputs (without fail-safe)       • Number of variables, max.     200       Diagnostic buffer     200       • present     Yes       • Number of entries, max.     3 200       - of which powerfail-proof     500	<ul> <li>Number of alarms for system diagnostics</li> <li>Number of alarms for motion technology objects</li> </ul> Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control <ul> <li>Status/control variable</li> <li>Variables</li> <li>Number of variables, max.</li> </ul>	200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters
• Forcing, variables     peripheral inputs/outputs (without fail-safe)       • Number of variables, max.     200       Diagnostic buffer     Ves       • Present     Yes       • Number of entries, max.     3 200       - of which powerfail-proof     500	<ul> <li>Number of alarms for system diagnostics</li> <li>Number of alarms for motion technology objects</li> </ul> Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control <ul> <li>Status/control variable</li> <li>Variables</li> <li>Number of variables, max.</li> <li>– of which status variables, max.</li> </ul>	200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job
Number of variables, max. 200 Diagnostic buffer      present     Number of entries, max.     of which powerfail-proof Traces	<ul> <li>Number of alarms for system diagnostics</li> <li>Number of alarms for motion technology objects</li> </ul> Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control <ul> <li>Status/control variable</li> <li>Variables</li> <li>Number of variables, max.</li> <li>– of which status variables, max.</li> </ul>	200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job
Diagnostic buffer         • present       Yes         • Number of entries, max.       3 200         — of which powerfail-proof       500         Traces       Traces	<ul> <li>Number of alarms for system diagnostics</li> <li>Number of alarms for motion technology objects</li> </ul> Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control <ul> <li>Status/control variable</li> <li>Variables</li> <li>Number of variables, max.</li> <li>– of which status variables, max.</li> <li>– of which control variables, max.</li> </ul> Forcing	200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job
Present Yes     Number of entries, max. 3 200     Of which powerfail-proof 500 Traces	<ul> <li>Number of alarms for system diagnostics</li> <li>Number of alarms for motion technology objects</li> </ul> Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control <ul> <li>Status/control variable</li> <li>Variables</li> <li>Number of variables, max.</li> <li>– of which status variables, max.</li> <li>– of which control variables, max.</li> </ul> Forcing <ul> <li>Forcing</li> </ul>	200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job 200; per job
• Number of entries, max. 3 200 — of which powerfail-proof 500 Traces	<ul> <li>Number of alarms for system diagnostics</li> <li>Number of alarms for motion technology objects</li> </ul> Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control <ul> <li>Status/control variable</li> <li>Variables</li> <li>Number of variables, max.</li> <li>of which status variables, max.</li> <li>of which control variables, max.</li> </ul> Forcing <ul> <li>Forcing</li> <li>Forcing, variables</li> </ul>	200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe)
- of which powerfail-proof 500 Traces	<ul> <li>Number of alarms for system diagnostics</li> <li>Number of alarms for motion technology objects</li> </ul> Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control <ul> <li>Status/control variable</li> <li>Variables</li> <li>Number of variables, max.</li> <li>– of which status variables, max.</li> <li>– of which control variables, max.</li> </ul> Forcing <ul> <li>Forcing</li> <li>Forcing, variables, max.</li> </ul>	200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe)
Traces	<ul> <li>Number of alarms for system diagnostics</li> <li>Number of alarms for motion technology objects</li> </ul> Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control <ul> <li>Status/control variable</li> <li>Variables</li> <li>Number of variables, max.</li> <li>– of which status variables, max.</li> <li>– of which control variables, max.</li> </ul> Forcing <ul> <li>Forcing</li> <li>Forcing, variables</li> <li>Number of variables, max.</li> </ul> Diagnostic buffer	200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job 200; per job 200; per job
	<ul> <li>Number of alarms for system diagnostics</li> <li>Number of alarms for motion technology objects</li> </ul> Test commissioning functions <ul> <li>Joint commission (Team Engineering)</li> <li>Status block</li> <li>Single step</li> <li>Number of breakpoints</li> <li>Status/control</li> <li>Status/control variable</li> <li>Variables</li> <li>Number of variables, max. <ul> <li>of which status variables, max.</li> <li>of which control variables, max.</li> </ul> </li> <li>Forcing <ul> <li>Forcing</li> <li>Forcing, variables</li> <li>Number of variables, max.</li> </ul> </li> </ul>	200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200
Number of configurable Traces     4; Up to 512 KB of data per trace are possible	<ul> <li>Number of alarms for system diagnostics</li> <li>Number of alarms for motion technology objects</li> </ul> Test commissioning functions <ul> <li>Joint commission (Team Engineering)</li> <li>Status block</li> <li>Single step</li> <li>Number of breakpoints</li> <li>Status/control</li> <li>Status/control variable</li> <li>Variables</li> <li>Number of variables, max. <ul> <li>of which status variables, max.</li> <li>of which control variables, max.</li> </ul> </li> <li>Forcing <ul> <li>Forcing</li> <li>Forcing, variables</li> <li>Number of variables, max.</li> </ul> </li> </ul> <li>Diagnostic buffer <ul> <li>present</li> <li>Number of entries, max.</li> </ul> </li>	200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200 Yes 3 200
	<ul> <li>Number of alarms for system diagnostics</li> <li>Number of alarms for motion technology objects</li> </ul> Test commissioning functions Joint commission (Team Engineering) Status block Single step Number of breakpoints Status/control <ul> <li>Status/control variable</li> <li>Variables</li> <li>Number of variables, max.</li> <li>– of which status variables, max.</li> <li>– of which control variables, max.</li> </ul> Forcing <ul> <li>Forcing</li> <li>Forcing, variables</li> <li>Number of variables, max.</li> </ul> Diagnostic buffer <ul> <li>present</li> <li>Number of entries, max.</li> <li>– of which powerfail-proof</li> </ul>	200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200 Yes 3 200

Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
STOP ACTIVE LED	Yes
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
	program; selection guide via the TIA Selection Tool
<ul> <li>Number of available Motion Control resources for technology objects</li> </ul>	2 400
<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>	11
<ul> <li>Number of positioning axes at motion control cycle of 8 ms (typical value)</li> </ul>	20
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	Yes
Ecological footprint <ul> <li>environmental product declaration</li> </ul>	Yes
Ecological footprint <ul> <li>environmental product declaration</li> <li>Global warming potential</li> </ul>	
Ecological footprint <ul> <li>environmental product declaration</li> <li>Global warming potential</li> <li>global warming potential, (total) [CO2 eq]</li> </ul>	102 kg
Ecological footprint <ul> <li>environmental product declaration</li> <li>Global warming potential</li> </ul>	
Ecological footprint <ul> <li>environmental product declaration</li> <li>Global warming potential</li> <li>global warming potential, (total) [CO2 eq]</li> <li>global warming potential, (during production) [CO2</li> </ul>	102 kg
Ecological footprint  • environmental product declaration Global warming potential  — global warming potential, (total) [CO2 eq]  — global warming potential, (during production) [CO2 eq]  — global warming potential, (during operation) [CO2	102 kg 26.5 kg
Ecological footprint  • environmental product declaration  Global warming potential  — global warming potential, (total) [CO2 eq]  — global warming potential, (during production) [CO2 eq]  — global warming potential, (during operation) [CO2 eq]  — global warming potential, (after end of life cycle)	102 kg 26.5 kg 76.7 kg
Ecological footprint • environmental product declaration Global warming potential — global warming potential, (total) [CO2 eq] — global warming potential, (during production) [CO2 eq] — global warming potential, (during operation) [CO2 eq] — global warming potential, (after end of life cycle) [CO2 eq]	102 kg 26.5 kg 76.7 kg
Ecological footprint <ul> <li>environmental product declaration</li> </ul> <li>Global warming potential <ul> <li>global warming potential, (total) [CO2 eq]</li> <li>global warming potential, (during production) [CO2 eq]</li> <li>global warming potential, (during operation) [CO2 eq]</li> <li>global warming potential, (after end of life cycle) [CO2 eq]</li> </ul> </li> <li>Highest safety class achievable in safety mode</li>	102 kg 26.5 kg 76.7 kg -0.898 kg
Ecological footprint <ul> <li>environmental product declaration</li> <li>Global warming potential <ul> <li>global warming potential, (total) [CO2 eq]</li> <li>global warming potential, (during production) [CO2 eq]</li> <li>global warming potential, (during operation) [CO2 eq]</li> <li>global warming potential, (after end of life cycle) [CO2 eq]</li> </ul> </li> <li>Highest safety class achievable in safety mode <ul> <li>Performance level according to ISO 13849-1</li> </ul> </li> </ul>	102 kg 26.5 kg 76.7 kg -0.898 kg PLe SIL 3
Ecological footprint  • environmental product declaration  Global warming potential  — global warming potential, (total) [CO2 eq]  — global warming potential, (during production) [CO2 eq]  — global warming potential, (during operation) [CO2 eq]  — global warming potential, (after end of life cycle) [CO2 eq]  Highest safety class achievable in safety mode  • Performance level according to ISO 13849-1  • SIL acc. to IEC 61508	102 kg 26.5 kg 76.7 kg -0.898 kg PLe SIL 3
<ul> <li>Ecological footprint <ul> <li>environmental product declaration</li> </ul> </li> <li>Global warming potential <ul> <li>global warming potential, (total) [CO2 eq]</li> <li>global warming potential, (during production) [CO2 eq]</li> <li>global warming potential, (during operation) [CO2 eq]</li> <li>global warming potential, (after end of life cycle) [CO2 eq]</li> </ul> </li> <li>Highest safety class achievable in safety mode <ul> <li>Performance level according to ISO 13849-1</li> <li>SIL acc. to IEC 61508</li> </ul> </li> <li>Probability of failure (for service life of 20 years and repair time – Low demand mode: PFDavg in accordance with</li> </ul>	102 kg 26.5 kg 76.7 kg -0.898 kg PLe SIL 3 e of 100 hours)
Ecological footprint         • environmental product declaration         Global warming potential         — global warming potential, (total) [CO2 eq]         — global warming potential, (during production) [CO2 eq]         — global warming potential, (during operation) [CO2 eq]         — global warming potential, (during operation) [CO2 eq]         — global warming potential, (during operation) [CO2 eq]         — global warming potential, (after end of life cycle) [CO2 eq]         Highest safety class achievable in safety mode         • Performance level according to ISO 13849-1         • SIL acc. to IEC 61508         Probability of failure (for service life of 20 years and repair time         — Low demand mode: PFDavg in accordance with SIL3         — High demand/continuous mode: PFH in accordance	102 kg 26.5 kg 76.7 kg -0.898 kg PLe SIL 3 e of 100 hours) < 2.00E-05
Ecological footprint         • environmental product declaration         Global warming potential         — global warming potential, (total) [CO2 eq]         — global warming potential, (during production) [CO2 eq]         — global warming potential, (during operation) [CO2 eq]         — global warming potential, (during operation) [CO2 eq]         — global warming potential, (after end of life cycle) [CO2 eq]         — global warming potential, (after end of life cycle) [CO2 eq]         Highest safety class achievable in safety mode         • Performance level according to ISO 13849-1         • SIL acc. to IEC 61508         Probability of failure (for service life of 20 years and repair time         — Low demand mode: PFDavg in accordance with SIL3         — High demand/continuous mode: PFH in accordance with SIL3	102 kg 26.5 kg 76.7 kg -0.898 kg PLe SIL 3 e of 100 hours) < 2.00E-05
Ecological footprint         • environmental product declaration         Global warming potential         — global warming potential, (total) [CO2 eq]         — global warming potential, (during production) [CO2 eq]         — global warming potential, (during operation) [CO2 eq]         — global warming potential, (during operation) [CO2 eq]         — global warming potential, (after end of life cycle) [CO2 eq]         Highest safety class achievable in safety mode         • Performance level according to ISO 13849-1         • SIL acc. to IEC 61508         Probability of failure (for service life of 20 years and repair time         — Low demand mode: PFDavg in accordance with SIL3         — High demand/continuous mode: PFH in accordance with SIL3         Ambient conditions	102 kg 26.5 kg 76.7 kg -0.898 kg PLe SIL 3 e of 100 hours) < 2.00E-05
Ecological footprint         • environmental product declaration         Global warming potential	102 kg 26.5 kg 76.7 kg -0.898 kg PLe SIL 3 e of 100 hours) < 2.00E-05 < 1.00E-09
Ecological footprint         • environmental product declaration         Global warming potential	102 kg 26.5 kg 76.7 kg -0.898 kg PLe SIL 3 e of 100 hours) < 2.00E-05 < 1.00E-09 -30 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the
<ul> <li>Ecological footprint <ul> <li>environmental product declaration</li> </ul> </li> <li>Global warming potential <ul> <li>global warming potential, (total) [CO2 eq]</li> <li>global warming potential, (during production) [CO2 eq]</li> <li>global warming potential, (during operation) [CO2 eq]</li> <li>global warming potential, (during operation) [CO2 eq]</li> <li>global warming potential, (after end of life cycle) [CO2 eq]</li> </ul> </li> <li>Highest safety class achievable in safety mode <ul> <li>Performance level according to ISO 13849-1</li> <li>SIL acc. to IEC 61508</li> </ul> </li> <li>Probability of failure (for service life of 20 years and repair time <ul> <li>Low demand mode: PFDavg in accordance with SIL3</li> <li>High demand/continuous mode: PFH in accordance with SIL3</li> </ul> </li> <li>Ambient conditions</li> <li>Ambient temperature during operation <ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> </ul> </li> </ul>	102 kg 26.5 kg 76.7 kg -0.898 kg PLe SIL 3 e of 100 hours) < 2.00E-05 < 1.00E-09 -30 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
<ul> <li>Ecological footprint <ul> <li>environmental product declaration</li> </ul> </li> <li>Global warming potential <ul> <li>global warming potential, (total) [CO2 eq]</li> <li>global warming potential, (during production) [CO2 eq]</li> <li>global warming potential, (during operation) [CO2 eq]</li> <li>global warming potential, (during operation) [CO2 eq]</li> <li>global warming potential, (after end of life cycle) [CO2 eq]</li> <li>global warming potential, (after end of life cycle) [CO2 eq]</li> </ul> </li> <li>Highest safety class achievable in safety mode <ul> <li>Performance level according to ISO 13849-1</li> <li>SIL acc. to IEC 61508</li> </ul> </li> <li>Probability of failure (for service life of 20 years and repair time — Low demand mode: PFDavg in accordance with SIL3 <ul> <li>High demand/continuous mode: PFH in accordance with SIL3</li> </ul> </li> <li>Ambient conditions</li> </ul> <li>Ambient temperature during operation <ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> </ul> </li>	102 kg 26.5 kg 76.7 kg -0.898 kg PLe SIL 3 e of 100 hours) < 2.00E-05 < 1.00E-09 -30 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the
<ul> <li>Ecological footprint <ul> <li>environmental product declaration</li> </ul> </li> <li>Global warming potential <ul> <li>global warming potential, (total) [CO2 eq]</li> <li>global warming potential, (during production) [CO2 eq]</li> <li>global warming potential, (during operation) [CO2 eq]</li> <li>global warming potential, (during operation) [CO2 eq]</li> <li>global warming potential, (after end of life cycle) [CO2 eq]</li> </ul> </li> <li>Highest safety class achievable in safety mode <ul> <li>Performance level according to ISO 13849-1</li> <li>SIL acc. to IEC 61508</li> </ul> </li> <li>Probability of failure (for service life of 20 years and repair time <ul> <li>Low demand mode: PFDavg in accordance with SIL3</li> <li>High demand/continuous mode: PFH in accordance with SIL3</li> </ul> </li> <li>Ambient conditions <ul> <li>Ambient temperature during operation</li> <li>horizontal installation, min.</li> <li>vertical installation, max.</li> </ul> </li> </ul>	102 kg 26.5 kg 76.7 kg -0.898 kg PLe SIL 3 e of 100 hours) < 2.00E-05 < 1.00E-09 -30 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the
<ul> <li>Ecological footprint <ul> <li>environmental product declaration</li> </ul> </li> <li>Global warming potential <ul> <li>global warming potential, (total) [CO2 eq]</li> <li>global warming potential, (during production) [CO2 eq]</li> <li>global warming potential, (during operation) [CO2 eq]</li> <li>global warming potential, (during operation) [CO2 eq]</li> <li>global warming potential, (after end of life cycle) [CO2 eq]</li> </ul> </li> <li>Highest safety class achievable in safety mode <ul> <li>Performance level according to ISO 13849-1</li> <li>SIL acc. to IEC 61508</li> </ul> </li> <li>Probability of failure (for service life of 20 years and repair time <ul> <li>Low demand mode: PFDavg in accordance with SIL3</li> <li>High demand/continuous mode: PFH in accordance with SIL3</li> </ul> </li> <li>Ambient conditions <ul> <li>Ambient temperature during operation</li> <li>horizontal installation, min.</li> <li>vertical installation, max.</li> </ul> </li> <li>Ambient temperature during storage/transportation</li> </ul>	102 kg 26.5 kg 76.7 kg -0.898 kg PLe SIL 3 e of 100 hours) < 2.00E-05 < 1.00E-09 -30 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
<ul> <li>Ecological footprint <ul> <li>environmental product declaration</li> </ul> </li> <li>Global warming potential <ul> <li>global warming potential, (total) [CO2 eq]</li> <li>global warming potential, (during production) [CO2 eq]</li> <li>global warming potential, (during operation) [CO2 eq]</li> <li>global warming potential, (during operation) [CO2 eq]</li> <li>global warming potential, (after end of life cycle) [CO2 eq]</li> </ul> </li> <li>Highest safety class achievable in safety mode</li> <li>Performance level according to ISO 13849-1</li> <li>SIL acc. to IEC 61508</li> <li>Probability of failure (for service life of 20 years and repair time <ul> <li>Low demand mode: PFDavg in accordance with SIL3</li> <li>High demand/continuous mode: PFH in accordance with SIL3</li> </ul> </li> <li>Ambient conditions</li> <li>Ambient temperature during operation <ul> <li>horizontal installation, min.</li> <li>vertical installation, max.</li> </ul> </li> <li>vertical installation, max.</li> </ul> <li>Ambient temperature during storage/transportation <ul> <li>min.</li> <li>max.</li> </ul> </li>	102 kg 26.5 kg 76.7 kg -0.898 kg PLe SIL 3 e of 100 hours) < 2.00E-05 < 1.00E-09 -30 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C
Ecological footprint         • environmental product declaration         Global warming potential	102 kg 26.5 kg 76.7 kg -0.898 kg PLe SIL 3 e of 100 hours) < 2.00E-05 < 1.00E-09 -30 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C
<ul> <li>Ecological footprint <ul> <li>environmental product declaration</li> </ul> </li> <li>Global warming potential <ul> <li>global warming potential, (total) [CO2 eq]</li> <li>global warming potential, (during production) [CO2 eq]</li> <li>global warming potential, (during operation) [CO2 eq]</li> <li>global warming potential, (during operation) [CO2 eq]</li> <li>global warming potential, (after end of life cycle) [CO2 eq]</li> </ul> </li> <li>Highest safety class achievable in safety mode</li> <li>Performance level according to ISO 13849-1</li> <li>SIL acc. to IEC 61508</li> <li>Probability of failure (for service life of 20 years and repair time <ul> <li>Low demand mode: PFDavg in accordance with SIL3</li> <li>High demand/continuous mode: PFH in accordance with SIL3</li> </ul> </li> <li>Ambient conditions</li> <li>Ambient temperature during operation <ul> <li>horizontal installation, min.</li> <li>vertical installation, max.</li> </ul> </li> <li>vertical installation, max.</li> </ul> <li>Ambient temperature during storage/transportation <ul> <li>min.</li> <li>max.</li> </ul> </li>	102 kg 26.5 kg 76.7 kg -0.898 kg PLe SIL 3 e of 100 hours) < 2.00E-05 < 1.00E-09 -30 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C

configuration / programming / header	
Programming language	
— LAD	Yes; incl. failsafe
— FBD	Yes; incl. failsafe
— STL	Yes
— SCL	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
<ul> <li>Protection level: Read/write protection</li> </ul>	Yes
<ul> <li>Protection level: Write protection for Failsafe</li> </ul>	Yes
Protection level: Complete protection	Yes
programming / cycle time monitoring / header	
lower limit	adjustable minimum cycle time
• upper limit	adjustable maximum cycle time
Dimensions	
Width	70 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	469 g
last modified.	10/0/0001

last modified:

10/9/2024 🖸