**Data sheet** 6ES7517-3TP00-0AB0



SIMATIC S7-1500T, CPU 1517T-3 PN/DP, Central processing unit with work memory 3 MB for program and 8 MB for data, 1st interface: PROFINET IRT with 2-port switch, 2nd interface, Ethernet, 3rd interface, PROFIBUS, 2 ns bit performance, SIMATIC Memory Card required

General information	
Product type designation	CPU 1517T-3 PN/DP
HW functional status	FS11
Firmware version	V3.0
Product function	
I&M data	Yes; I&M0 to I&M3
• Isochronous mode	Yes; Distributed and central; with minimum OB $6x$ cycle of $250~\mu s$ (distributed) and 1 ms (central)
Engineering with	
<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	V18 (FW V3.0) / V14 (FW V2.0) or higher
Configuration control	
via dataset	Yes
Display	
Screen diagonal [cm]	6.1 cm
Control elements	
Number of keys	6
Mode selector switch	1
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Mains buffering	
<ul> <li>Mains/voltage failure stored energy time</li> </ul>	5 ms
<ul> <li>Repeat rate, min.</li> </ul>	1/s
Input current	
Current consumption (rated value)	1.55 A
Current consumption, max.	1.9 A
Inrush current, max.	1.9 A; Rated value
I <sup>2</sup> t	0.4 A <sup>2</sup> ·s
Power	
Infeed power to the backplane bus	12 W
Power consumption from the backplane bus (balanced)	30 W
Power loss	
Power loss, typ.	24 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	

<ul><li>integrated (for program)</li></ul>	3 Mbyte
• integrated (for data)	8 Mbyte
Load memory	· moyte
Plug-in (SIMATIC Memory Card), max.	32 Gbyte
Backup	,
maintenance-free	Yes
CPU processing times	
for bit operations, typ.	2 ns
for word operations, typ.	3 ns
for fixed point arithmetic, typ.	3 ns
for floating point arithmetic, typ.	12 ns
CPU-blocks	
Number of elements (total)	12 000; 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.	8 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	
Number range	0 65 535
• Size, max.	1 Mbyte
FC	0.05.505
Number range	0 65 535
• Size, max.	1 Mbyte
OB	ANI
• Size, max.	1 Mbyte
Number of free cycle OBs	100
<ul> <li>Number of time alarm OBs</li> </ul>	20
<ul> <li>Number of delay alarm OBs</li> </ul>	20
<ul> <li>Number of cyclic interrupt OBs</li> </ul>	20; with minimum OB 3x cycle of 100 μs
<ul> <li>Number of process alarm OBs</li> </ul>	50
<ul> <li>Number of DPV1 alarm OBs</li> </ul>	3
<ul> <li>Number of isochronous mode OBs</li> </ul>	3
<ul> <li>Number of technology synchronous alarm OBs</li> </ul>	2
<ul> <li>Number of startup OBs</li> </ul>	100
<ul> <li>Number of asynchronous error OBs</li> </ul>	4
<ul> <li>Number of synchronous error OBs</li> </ul>	2
Number of diagnostic alarm OBs	1
Nesting depth	
<ul> <li>per priority class</li> </ul>	24
Counters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	
— adjustable	Yes
IEC counter	
Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
S7 times	
Number	2 048
Retentivity	
— adjustable	Yes
IEC timer	
Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	768 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 700 KB
Extended retentive data area (incl. timers, counters, flags), max.	8 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	o, o clock memory bit, grouped into one clock memory byte
Retentivity adjustable	Yes
Retentivity preset	No
Local data	
• per priority class, max.	64 kbyte; max. 16 KB per block
Address area	
Number of IO modules	16 384; max. number of modules / submodules
I/O address area	
<ul><li>Inputs</li></ul>	32 kbyte; All inputs are in the process image
Outputs	32 kbyte; All outputs are in the process image
per integrated IO subsystem	0011 ( M 001/D : V/4 01/D : V/0 V/0
— Inputs (volume)	32 kbyte; Max. 32 KB via X1; max. 8 KB via X2 or X3
— Outputs (volume)  per CM/CP	32 kbyte; Max. 32 KB via X1; max. 8 KB via X2 or X3
— 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	(0.3)
• 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><li>Via CM</li></ul>	2 8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can
• VIA CIVI	be inserted in total
Rack	
<ul> <li>Modules per rack, max.</li> </ul>	32; CPU + 31 modules
Number of lines, max.	1
PtP CM	" L C L L DD OM : L I' '' L L I'
Number of PtP CMs	the number of connectable PtP CMs is only limited by the number of available slots
Time of day	available slote
Clock	
• Type	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     to DR master.	Yes
<ul><li>to DP, master</li><li>in AS, master</li></ul>	Yes Yes
<ul><li>in AS, master</li><li>in AS, slave</li></ul>	Yes
on Ethernet via NTP	Yes
Interfaces	
Number of PROFINET interfaces	2
Number of PROFIBUS interfaces	1
1. Interface	
Interface types	
• RJ 45 (Ethernet)	Yes; X1
Number of ports	2
integrated switch	Yes
Protocols	
• IP protocol	Yes; IPv4
PROFINET IO Controller	Yes
PROFINET IO Device     NATIO company in a time.	Yes
SIMATIC communication	Yes

• Motil a returnancy PROFINET IO Controller Services  - PGOP communication - lacotronous mode - lacotronous	Open IE communication	Yes; Optionally also encrypted
Needia retundancy   Yes		
PROFINET IO Controller Sorvices  - PGO/P communication - Instruction of the provided and exchange - Instruction of the provided startup - PROFIlenergy - PROFIlenergy - Prioritized startup - Number of connectable IO Devices, max Number of connectable IO Devices, max Number of IO Devices that can be simultaneously activated descrivated, max Instruction of IO Devices per tool, max Number of IO Devices per tool, max Number of IO Devices per tool, max Number of IO Devices per tool, max Updating times - For send cycle of 250 µs - For send cycle of 500 µs - For send cycle of 250 µs - For send c		
PGOP communication Isochronous made Isochronous made Direct data exchange PROFlenergy Profitzed startup Number of connectable IO Devices, max. Of which IO devices with IRT, max. Number of connectable IO Devices for RT, max. Of which in line, max. Number of IO Devices that can be simultaneously settivated/deactivated, max. Number of IO Devices per tool, max. Updating times  Update time for IRT  For send cycle of 250 µs Ior send cycle of 500 µs	PROFINET IO Controller	
- Isochronous mode - Direct data exchange - Direct data exchange - IRT - PROFInergy - Prioritized startup - Number of connectable IO Devices, max Of which In line, max Number of connectable IO Devices for RT. max Of which In line, max Number of connectable IO Devices for RT. max Number of IO Devices per tool, max Number of IO Devices per tool, max Updating times - Update fire for IRT - for send cycle of 250 µs - for send cycle of 250 µs - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 2 ms - with IRT and a parameterization of "odd" send cycles - for send cycle of 500 µs - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 3 ms - for send cycle of 500 µs - for send cycle of 5	Services	
- Direct data exchange - IRT - PROFlenergy - Prioritized startup - Number of connectable (D Devices, max, - Of which ID devices with IRT, max, - Number of connectable (D Devices for RT, max, - Number of IO Devices that can be simultaneously activated/deactivated, max, - Number of IO Devices per tool, max, - Updating times - For send cycle of 250 µs - for send cycle of 2	<ul><li>— PG/OP communication</li></ul>	Yes
PROFlenergy Prioritized startup Number of connectable IO Devices, max Of which In Idevices with IRT, max Number of connectable IO Devices, max Of which In Ime, max Number of Devices hat can be simultaneously activated deactivated, max. Number of Devices per tool, max. Updating times Update time for IRT  for send cycle of 250 µs for send cycle of 250 µs for send cycle of 4 ms With IRT and parameterization of "odd" send cycles Update time for RT  for send cycle of 250 µs for send cycle of 250 µs for send cycle of 250 µs for send cycle of 4 ms With IRT and parameterization of "odd" send cycles Update time for RT  for send cycle of 250 µs for send cycle of 250 µs for send cycle of 250 µs for send cycle of 4 ms With IRT and parameterization of "odd" send cycles Update time for RT  for send cycle of 250 µs for send cycle of 250 µs for send cycle of 4 ms With IRT and parameterization of "odd" send cycles Update time for RT  for send cycle of 4 ms With IRT and parameterization of "odd" send cycles Update time for RT  for send cycle of 250 µs for send cycle of 4 ms For sen	<ul><li>— Isochronous mode</li></ul>	Yes
PROFIlenergy Prioritized startup Prioritized startup Number of connectable IO Devices, max.  Of which IO devices with IRT, max. Number of connectable IO Devices for RT, max. Number of to Devices that can be simultaneously activated/deactivated, max. Number of IO Devices per tool, max. Updating times  Update time for IRT  - for send cycle of 250 µs - for send cycle of 250 µs - for send cycle of 4 ms - With IRT and parameterization of "odd" send cycles  Update time for RT  - for send cycle of 250 µs - for send cycle of 450 µs - for send cycle of 550 µs - for send cycle of 450 µs - for send cycle of 550 µs - for send cycle of 450 µs - for send cycle of 550 µs - for send cycle of 550 µs - for send cycle of 450 µs - for send cycle of 550 µs - for send cycle of 450 µs - for send cycle of 450 µs - for send cycle of 550 µs - for send cycle of 550 µs - for send cycle of 450 µs - for send cycle of 550 µs - fo	<ul> <li>Direct data exchange</li> </ul>	Yes; Requirement: IRT and isochronous mode (MRPD optional)
Prioritized startup  Number of connectable IO Devices, max.  Of which IO devices with IRT, max.  Number of connectable IO Devices for RT, max.  Number of connectable IO Devices for RT, max.  of which in line, max.  Number of IO Devices that can be simultaneously activate/deactivated, max.  Number of IO Devices per tool, max.  Updating times  Update time for IRT  for send cycle of 250 µs  for send cycle of 250 µs  for send cycle of 250 µs  for send cycle of 260 µs  for send cycle of 4 ms  with IRT and parameterization of "odd" send cycles  Update time for RT  for send cycle of 250 µs  for send cycle of 4 ms  with IRT and parameterization of "odd" send cycles  Update time for RT  for send cycle of 250 µs  for sen	— IRT	Yes
- Number of connectable IO Devices, max Of which IO devices with IRT, max Number of connectable IO Devices for RT, max of which in line, max In which in line, max Number of IO Devices that can be simultaneously activated/deactivated, max Number of IO Devices per tool, max Updating times - Updating times - To reand cycle of 250 µs - For send cycle of 260 µs - For send cycle of 27 ms - For send cycle of 28 ms - With IRT and parameterization of "odd" send cycles - For send cycle of 500 µs - For send cycle of 500 µs - For send cycle of 28 ms - For send cycle of 38 ms - With IRT and parameterization of "odd" send cycles - For send cycle of 18 ms - For send cycle of 500 µs	— PROFlenergy	Yes; per user program
ASI, PROFIBUS or PROFINET  512  512  513  514  515  515  515  515  516  517  518  518  519  519  519  510  510  510  511  511	<ul> <li>Prioritized startup</li> </ul>	
	<ul> <li>Number of connectable IO Devices, max.</li> </ul>	
max. — of which in line, max. — Number of IO Devices that can be simultaneously activated/deactivated, max. — Number of IO Devices per tool, max. — Updating times  - For send cycle of 250 us — for send cycle of 500 us — for send cycle of 1 ms — lor send cycle of 2 ms — or send cycle of 4 ms — With IRT and parameterization of "odd" send cycles  - Update time for RT  - For send cycle of 500 us — for send cycle of 500 us — or send cycle of 500 us — or send cycle of 500 us — or send cycle of 500 us — for send cycle of 1 ms — for se	<ul> <li>Of which IO devices with IRT, max.</li> </ul>	64
- Number of IO Devices that can be simultaneously activated/deactivated, max Number of IO Devices per tool, max Updating times  - Vigorian  - Vigorian times  - Vigorian times  - Vigorian times  - Vigoria	•	512
simultaneously activate/deactivated, max.  — Number of IO Devices per tool, max.  — Updating times  Update time for IRT  — for send cycle of 250 µs — for send cycle of 500 µs — for send cycle of 1 ms — for send cycle of 2 ms — for send cycle of 2 ms — for send cycle of 4 ms — with IRT and parameterization of "odd" send cycles  Update time for RT  — for send cycle of 4 ms — with IRT and parameterization of "odd" send cycles  Update time for RT  — for send cycle of 500 µs — for send cycle of 4 ms — for send cycle of 4 ms — for send cycle of 4 ms — for send cycle of 500 µs — for send cycle of 500 µs — for send cycle of 4 ms — the send cycle of 500 µs — for send cycle of 4 ms — the send cycle of 500 µs — for send cycl		512
- Updating times  - Update time for IRT  - for send cycle of 250 μs - for send cycle of 500 μs - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - With IRT and parameterization of "odd" send cycles - which IRT and parameterization of "odd" send cycles - for send cycle of 2 ms - for send cycle of 500 μs - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 500 μs - for send cycle of 4 ms - for send cycle of 4 ms - for send cycle of 6 ms - for send cycle of 6 ms - for send cycle of 4 ms - for send cycle of 6 ms - for send cycle of		8; in total across all interfaces
share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data  Update time for IRT  - for send cycle of 250 µs - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 4 ms - for send cycle of 4 ms - with IRT and parameterization of "odd" send cycles  Update time for RT - for send cycle of 250 µs - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 4 ms - for send cycle of 4 ms - FOOFINET IO Device  Services  - PG/OP communication - Isochronous mode - IRT - PROFIENETY - PROFIENETY - PROFIENETY - Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record  2. Interface  interface types - RJ 45 (Ethernet) - integrated switch - PROFINET IO Device - SERVICES - PROFINET IO Controller - PROFINET IO Controller - PROFINET IO Device - PROFINET IO Controller - Media redundancy - Media redundancy - PROFINET IO Controller - Media redundancy - Media redundancy - PROFINET IO Controller - Media redundancy - Media redundancy - PROFINET IO Controller		
- for send cycle of 250 μs - for send cycle of 500 μs - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 4 ms - with IRT and parameterization of "odd" send cycles  Update time for RT - for send cycle of 250 μs - for send cycle of 1500 μs - for send cycle of 1 ms - for send cycle of 4 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 500 μs - for send cycle of 1 ms -	— Updating times	
- for send cycle of 500 μs - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 4 ms - with IRT and parameterization of "odd" send cycles - With IRT and parameterization of "odd" send cycles - With IRT and parameterization of "odd" send cycles - With IRT and parameterization of "odd" send cycles - For send cycle of 500 μs - for send cycle of 500 μs - for send cycle of 500 μs - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 4 ms - for send cycle of 500 μs - for send cycle of	Update time for IRT	
- for send cycle of 1 ms	·	
- for send cycle of 2 ms - for send cycle of 4 ms - With IRT and parameterization of "odd" send cycles  Update time for RT - 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 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 8 ms - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 4 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 1 ms - for send cycle		·
— for send cycle of 4 ms — With IRT and parameterization of "odd" send cycles  Update time for RT — for send cycle of 250 μs — for send cycle of 500 μs — for send cycle of 1 ms — for send cycle of 2 ms — for send cycle of 4 ms — for send cycle of 500 μs to 256 ms — for send cycle of 4 ms — for send cycle of 4 ms  PROFINET IO Device  Services — PG/OP communication — Isochronous mode — IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device, max. — activation/deactivation of I-devices — Asset management record  2. Interface  Interface types  • RJ 45 (Ethernet) • Integrated switch PROFINET IO Device  • PROFINET IO Device  • PROFINET IO Controller • PROFINET IO Device  • SIMATIC communication • Ves • SIMATIC communication • Ves • Media redundancy • No  PROFINET IO Controller • Media redundancy • No  PROFINET IO Controller		1 ms to 16 ms
- With IRT and parameterization of "odd" send cycles  Update time for RT  - for send cycle of 250 μs - for send cycle of 500 μs - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 500 μs - for send cycle of 60 cycle of 4 ms - for send cycle of 60 cycle of 4 ms - for send cycle of 60 cycle of 4 ms - For Send cycle of 60 cycl		
Update time for RT		
Update time for RT  — for send cycle of 250 μs — for send cycle of 500 μs — for send cycle of 1 ms — for send cycle of 1 ms — for send cycle of 2 ms — for send cycle of 2 ms — for send cycle of 4 ms — FROFINET IO Device  Services — PC/C/D communication — lsochronous mode — No — IRT — PROFIenergy — Yes; per user program — Yes; per user program — Shared device — Number of IO Controllers with shared device, max. — activation/deactivation of I-devices — Asset management record  2. Interface  Interface types  ■ RJ 45 (Ethernet) ■ Integrated switch ■ No  Protocols ■ IP protocol ■ PROFINET IO Controller ■ PROFINET IO Controller ■ PROFINET IO Device ■ SIMATIC communication ■ Yes ■ SIMATIC communication ■ Yes ■ Media redundancy ■ No  PROFINET IO Controller		
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 2 ms for send cycle of 2 ms for send cycle of 4 ms for send cycle of 2 ms for send cycle of 5 ms for send cycle of 5 ms for send cycle of 5 ms		μs ο δ/ο μs)
for send cycle of 500 μs for send cycle of 1 ms for send cycle of 1 ms for send cycle of 2 ms for send cycle of 4 ms for send cycle of 2 ms For send cycle of 4 ms For send cycle of 4 ms For send cycle of 4 ms For send cycle of 2 ms For send cycle of 4 ms For send cycle of 2 ms For send cycle of 2 ms For send cycle of 2 ms For send cycle of 3 ms For send cycle of 4 ms For send cycle -	·	250 us to 128 ms
- for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 5 ms - for send cycle of 4 ms - for send cycle of 5 ms - for send cycle of 4 ms - for send cycle of 5		
for send cycle of 2 ms for send cycle of 4 ms 4 ms to 512 ms for send cycle of 4 ms 4 ms to 512 ms  PROFINET IO Device  Services  PG/OP communication Yes No Isochronous mode No IRT Yes PROFINET IO Controller Yes; per user program Yes; per user pr		·
PROFINET IO Device Services  - PG/OP communication Yes   - Isochronous mode	•	
Services  - PG/OP communication	·	This is one in
- 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 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 1 - integrated switch No  Protocols - IP protocol - PROFINET IO Controller - PROFINET IO Device Yes - SIMATIC communication Yes - Open IE communication - Web server - Media redundancy - Mo - PROFINET IO Controller - Yes - Media redundancy - No - PROFINET IO Controller - Yes - Media redundancy - No - PROFINET IO Controller - Yes - Media redundancy - No - PROFINET IO Controller - No - No - PROFINET IO Controller - Yes - Media redundancy - No		
- IRT - PROFlenergy - Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record  2. Interface Interface types - RJ 45 (Ethernet) - Number of ports - integrated switch Protocols - IP protocol - PROFINET IO Controller - PROFINET IO Device - SIMATIC communication - Open IE communication - Web server - Media redundancy - Media redundancy - Yes; per user program - Yes		Yes
- IRT - PROFlenergy - Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record  2. Interface Interface types - RJ 45 (Ethernet) - Number of ports - integrated switch Protocols - IP protocol - PROFINET IO Controller - PROFINET IO Device - SIMATIC communication - Open IE communication - Web server - Media redundancy - Media redundancy - Yes; per user program - Yes		
PROFIenergy Shared device Number of IO Controllers with shared device, max activation/deactivation of I-devices Asset management record  2. Interface  Interface types RJ 45 (Ethernet) Number of ports		
- Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record  2. Interface  Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • IP protocol • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Web server • Media redundancy • Media redundancy  PROFINET IO Controller • Wes • Media redundancy  PROFINET IO Controller		
- Number of IO Controllers with shared device, max 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 1  • integrated switch No  Protocols  • IP protocol Yes; IPv4  • PROFINET IO Controller Yes  • SIMATIC communication Yes  • Open IE communication Yes; Optionally also encrypted  • Web server  • Media redundancy No  PROFINET IO Controller		
activation/deactivation of I-devices Asset management record  2. Interface Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • IP protocol • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy  PROFINET IO Controller  • Media redundancy  PROFINET IO Controller  • Web server • Media redundancy  PROFINET IO Controller	<ul> <li>Number of IO Controllers with shared device,</li> </ul>	4
- Asset management record  2. Interface Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • IP protocol • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy  PROFINET IO Controller  • Web server • Media redundancy  PROFINET IO Controller  • Web Server • Media redundancy  PROFINET IO Controller		
2. Interface Interface types  PRJ 45 (Ethernet) Integrated switch Integrated switch Protocols  IP protocol PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy PROFINET IO Controller Yes PROFINET IO Controller Yes SIMATIC communication Yes; Optionally also encrypted Yes Media redundancy No		Yes; per user program
Interface types  • RJ 45 (Ethernet) • NJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • IP protocol • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy  PROFINET IO Controller  • Web PROFINET IO Controller • Web server • Media redundancy  PROFINET IO Controller	Asset management record	Yes; per user program
<ul> <li>RJ 45 (Ethernet)</li> <li>Number of ports</li> <li>integrated switch</li> <li>No</li> </ul> Protocols <ul> <li>IP protocol</li> <li>PROFINET IO Controller</li> <li>PROFINET IO Device</li> <li>SIMATIC communication</li> <li>Open IE communication</li> <li>Web server</li> <li>Media redundancy</li> <li>PROFINET IO Controller</li> </ul> Yes; X2 <ul> <li>Yes</li> <li>SIPv4</li> <li>Yes</li> <li>Yes</li> <li>SIMATIC communication</li> <li>Yes</li> <li>Optionally also encrypted</li> <li>Yes</li> <li>Media redundancy</li> </ul> No PROFINET IO Controller	2. Interface	
<ul> <li>Number of ports</li> <li>integrated switch</li> <li>No</li> </ul> Protocols <ul> <li>IP protocol</li> <li>PROFINET IO Controller</li> <li>PROFINET IO Device</li> <li>SIMATIC communication</li> <li>Open IE communication</li> <li>Web server</li> <li>Media redundancy</li> </ul> PROFINET IO Controller <ul> <li>Yes</li> <li>Optionally also encrypted</li> <li>Yes</li> <li>Mo</li> </ul> PROFINET IO Controller <ul> <li>No</li> </ul> PROFINET IO Controller	Interface types	
<ul> <li>integrated switch</li> <li>Protocols</li> <li>IP protocol</li> <li>PROFINET IO Controller</li> <li>PROFINET IO Device</li> <li>SIMATIC communication</li> <li>Open IE communication</li> <li>Web server</li> <li>Media redundancy</li> <li>PROFINET IO Controller</li> </ul> No PROFINET IO Controller No	RJ 45 (Ethernet)	Yes; X2
Protocols  IP protocol PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy PROFINET IO Controller	<ul> <li>Number of ports</li> </ul>	1
IP protocol     PROFINET IO Controller     PROFINET IO Device     PROFINET IO Device     SIMATIC communication     Open IE communication     Web server     Media redundancy  PROFINET IO Controller  Yes; IPv4  Yes  Yes  Yes  Yes  No  PROFINET IO Controller	integrated switch	No
<ul> <li>PROFINET IO Controller</li> <li>PROFINET IO Device</li> <li>SIMATIC communication</li> <li>Open IE communication</li> <li>Web server</li> <li>Media redundancy</li> <li>PROFINET IO Controller</li> </ul> Yes <ul> <li>Yes</li> <li>Optionally also encrypted</li> <li>Yes</li> </ul> Yes <ul> <li>No</li> </ul>	Protocols	
<ul> <li>PROFINET IO Device</li> <li>SIMATIC communication</li> <li>Open IE communication</li> <li>Web server</li> <li>Media redundancy</li> <li>PROFINET IO Controller</li> </ul> Yes <ul> <li>Yes</li> <li>No</li> </ul>	• IP protocol	Yes; IPv4
<ul> <li>SIMATIC communication</li> <li>Open IE communication</li> <li>Web server</li> <li>Media redundancy</li> <li>PROFINET IO Controller</li> </ul> Yes <ul> <li>No</li> </ul>	<ul> <li>PROFINET IO Controller</li> </ul>	Yes
<ul> <li>Open IE communication</li> <li>Web server</li> <li>Media redundancy</li> <li>PROFINET IO Controller</li> <li>Yes; Optionally also encrypted</li> <li>Yes</li> <li>No</li> </ul>	<ul> <li>PROFINET IO Device</li> </ul>	Yes
	<ul> <li>SIMATIC communication</li> </ul>	Yes
Media redundancy     No PROFINET IO Controller	•	Yes; Optionally also encrypted
PROFINET IO Controller	Web server	Yes
	Media redundancy	No
Services	PROFINET IO Controller	
	Services	
— PG/OP communication Yes		Yes
— Isochronous mode No	— Isochronous mode	No

<ul> <li>Direct data exchange</li> </ul>	No
— IRT	No
— PROFlenergy	Yes; per user program
<ul> <li>Prioritized startup</li> </ul>	No
<ul> <li>Number of connectable IO Devices, max.</li> </ul>	128; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
<ul> <li>Number of connectable IO Devices for RT, max.</li> </ul>	128
— of which in line, max.	128
Number of IO Devices that can be	8; in total across all interfaces
simultaneously activated/deactivated, max.	o, in total across an 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	
<ul><li>— PG/OP communication</li></ul>	Yes
<ul> <li>Isochronous mode</li> </ul>	No
— IRT	No
— PROFlenergy	Yes; per user program
<ul> <li>Prioritized startup</li> </ul>	No
— Shared device	Yes
<ul> <li>Number of IO Controllers with shared device, max.</li> </ul>	4
<ul> <li>activation/deactivation of I-devices</li> </ul>	Yes; per user program
Asset management record	Yes; per user program
3. Interface	end has been him of a
Interface types	Vac. V2
• RS 485	Yes; X3
Number of ports	1
Protocols	
PROFIBUS DP master	Yes
PROFIBUS DP slave	No
<ul> <li>SIMATIC communication</li> </ul>	Yes
Web server	Yes
PROFIBUS DP master	
<ul> <li>Number of connections, max.</li> </ul>	48; for the integrated PROFIBUS DP interface
- Number of DD device may	
Number of DP slaves, max.	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
Number of DP slaves, max.  Services	· · · · · · · · ·
	· · · · · · · · ·
Services	AS-i, PROFIBUS or PROFINET
Services — PG/OP communication	AS-i, PROFIBUS or PROFINET  Yes
Services  — PG/OP communication — Equidistance	AS-i, PROFIBUS or PROFINET  Yes  Yes
Services  — PG/OP communication  — Equidistance  — Isochronous mode  — Activation/deactivation of DP slaves	AS-i, PROFIBUS or PROFINET  Yes  Yes  Yes
Services  — PG/OP communication  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types	AS-i, PROFIBUS or PROFINET  Yes  Yes  Yes
Services  — PG/OP communication  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)	AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes Yes
Services  — PG/OP communication  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  • 100 Mbps	AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes Yes
Services  — PG/OP communication  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  • 100 Mbps • Autonegotiation	AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes Yes Yes
Services  — PG/OP communication  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  • 100 Mbps • Autonegotiation • Autocrossing	AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes Yes Yes Yes
Services  — PG/OP communication  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  • 100 Mbps • Autonegotiation • Autocrossing • Industrial Ethernet status LED	AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes Yes Yes
Services  — PG/OP communication — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  • 100 Mbps • Autonegotiation • Autocrossing • Industrial Ethernet status LED  RS 485	Yes
Services  — PG/OP communication — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  • 100 Mbps • Autonegotiation • Autocrossing • Industrial Ethernet status LED  RS 485 • Transmission rate, max.	AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes Yes Yes Yes
Services  — PG/OP communication — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  • 100 Mbps • Autonegotiation • Autocrossing • Industrial Ethernet status LED  RS 485	Yes
Services  — PG/OP communication — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  • 100 Mbps • Autonegotiation • Autocrossing • Industrial Ethernet status LED  RS 485 • Transmission rate, max.	Yes
Services  — PG/OP communication  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  • 100 Mbps • Autonegotiation • Autocrossing • Industrial Ethernet status LED  RS 485 • Transmission rate, max.  Protocols	Yes
Services  — PG/OP communication  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  • 100 Mbps • Autonegotiation • Autocrossing • Industrial Ethernet status LED  RS 485 • Transmission rate, max.  Protocols  PROFIsafe	Yes
Services  — PG/OP communication  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  • 100 Mbps • Autonegotiation • Autocrossing • Industrial Ethernet status LED  RS 485 • Transmission rate, max.  Protocols  PROFIsafe Number of connections • Number of connections, max.	AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Services  — PG/OP communication — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  • 100 Mbps • Autonegotiation • Autocrossing • Industrial Ethernet status LED  RS 485 • Transmission rate, max.  Protocols  PROFIsafe  Number of connections • Number of connections reserved for ES/HMI/web	Yes
Services  — PG/OP communication  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  • 100 Mbps • Autonegotiation • Autocrossing • Industrial Ethernet status LED  RS 485 • Transmission rate, max.  Protocols  PROFIsafe Number of connections • Number of connections, max.	Yes
Services  — PG/OP communication — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  • 100 Mbps • Autonegotiation • Autocrossing • Industrial Ethernet status LED  RS 485 • Transmission rate, max.  Protocols  PROFIsafe Number of connections • Number of connections, max. • Number of connections reserved for ES/HMI/web • Number of connections via integrated interfaces • Number of S7 routing paths	Yes
Services  — PG/OP communication — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  • 100 Mbps • Autonegotiation • Autocrossing • Industrial Ethernet status LED  RS 485 • Transmission rate, max.  Protocols  PROFIsafe Number of connections • Number of connections, max. • Number of connections reserved for ES/HMI/web • Number of connections via integrated interfaces	Yes

Media redundancy	
— Media redundancy	only via 1st interface (X1)
— MRP	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP
	Manager; MRP Client
<ul> <li>MRP interconnection, supported</li> </ul>	Yes; as MRP ring node according to IEC 62439-2 Edition 3.0
— MRPD	Yes; Requirement: IRT
<ul> <li>Switchover time on line break, typ.</li> </ul>	200 ms; For MRP, bumpless for MRPD
Number of stations in the ring, max.	50
SIMATIC communication	
<ul> <li>PG/OP communication</li> </ul>	Yes; encryption with TLS V1.3 pre-selected
• S7 routing	Yes
<ul> <li>Data record routing</li> </ul>	Yes
<ul> <li>S7 communication, as server</li> </ul>	Yes
<ul> <li>S7 communication, as client</li> </ul>	Yes
User data per job, max.	See online help (S7 communication, user data size)
Open IE communication	
• TCP/IP	Yes
<ul><li>— Data length, max.</li></ul>	64 kbyte
<ul> <li>several passive connections per port,</li> </ul>	Yes
supported	W.
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	64 kbyte
• UDP	Yes
— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast
— UDP multicast	Yes; 128 multicast circuits (of which max. 5 via X1)
• DHCP	Yes
• DNS	Yes
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Encryption	Yes; Optional
Web server  ● HTTP	Vaca Observational and construction
	Yes; Standard and user pages
• HTTPS	Yes; Standard and user pages
HTTPS OPC UA	Yes; Standard and user pages
HTTPS OPC UA     Runtime license required	Yes; Standard and user pages Yes; "Large" license required
HTTPS OPC UA     Runtime license required     OPC UA Client	Yes; Standard and user pages  Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call
HTTPS OPC UA     Runtime license required     OPC UA Client     Application authentication	Yes; Standard and user pages  Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes
HTTPS OPC UA     Runtime license required     OPC UA Client	Yes; Standard and user pages  Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15,
HTTPS OPC UA      Runtime license required     OPC UA Client     — Application authentication     — Security policies	Yes; Standard and user pages  Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
HTTPS OPC UA      Runtime license required     OPC UA Client     — Application authentication	Yes; Standard and user pages  Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15,
<ul> <li>HTTPS</li> <li>OPC UA</li> <li>Runtime license required</li> <li>OPC UA Client         <ul> <li>Application authentication</li> <li>Security policies</li> </ul> </li> <li>User authentication</li> <li>Number of connections, max.</li> </ul>	Yes; Standard and user pages  Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password
<ul> <li>HTTPS</li> <li>OPC UA</li> <li>Runtime license required</li> <li>OPC UA Client         <ul> <li>Application authentication</li> <li>Security policies</li> </ul> </li> <li>User authentication</li> </ul>	Yes; Standard and user pages  Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40
HTTPS  OPC UA      Runtime license required     OPC UA Client     — Application authentication     — Security policies      — User authentication     — Number of connections, max.     — Number of nodes of the client interfaces, recommended max.     — Number of elements for one call of	Yes; Standard and user pages  Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000
<ul> <li>HTTPS</li> <li>OPC UA</li> <li>Runtime license required</li> <li>OPC UA Client         <ul> <li>Application authentication</li> <li>Security policies</li> </ul> </li> <li>User authentication         <ul> <li>Number of connections, max.</li> <li>Number of nodes of the client interfaces, recommended max.</li> <li>Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/O</li> </ul> </li> </ul>	Yes; Standard and user pages  Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000
HTTPS  OPC UA      Runtime license required     OPC UA Client     — Application authentication     — Security policies      — User authentication     — Number of connections, max.     — Number of nodes of the client interfaces, recommended max.     — Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax.	Yes; Standard and user pages  Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000
HTTPS  OPC UA      Runtime license required     OPC UA Client     — Application authentication     — Security policies      — User authentication     — Number of connections, max.     — Number of nodes of the client interfaces, recommended max.     — Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax.     — Number of elements for one call of	Yes; Standard and user pages  Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000
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HTTPS  OPC UA      Runtime license required     OPC UA Client     — Application authentication     — Security policies      — User authentication     — Number of connections, max.     — Number of nodes of the client interfaces, recommended max.     — Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax.     — Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.     — Number of elements for one call of	Yes; Standard and user pages  Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000
HTTPS  OPC UA      Runtime license required     OPC UA Client     — Application authentication     — Security policies      — User authentication     — Number of connections, max.     — Number of nodes of the client interfaces, recommended max.     — Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax.     — Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.     — Number of elements for one call of OPC_UA_MethodGetHandleList, max.	Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000 300
HTTPS  OPC UA      Runtime license required     OPC UA Client     — Application authentication     — Security policies      — User authentication     — Number of connections, max.     — Number of nodes of the client interfaces, recommended max.     — Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax.     — Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.     — Number of elements for one call of	Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000 300
HTTPS  OPC UA      Runtime license required     OPC UA Client     — Application authentication     — Security policies      — User authentication     — Number of connections, max.     — Number of nodes of the client interfaces, recommended max.     — Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax.     — Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.     — Number of elements for one call of OPC_UA_MethodGetHandleList, max.     — Number of simultaneous calls of the client instructions for session management, per connection, max.	Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000 300 20 100
Runtime license required     OPC UA Client     — Application authentication     — Security policies      — User authentication     — Number of connections, max.     — Number of nodes of the client interfaces, recommended max.     — Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax.     — Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.     — Number of elements for one call of OPC_UA_MethodGetHandleList, max.     — Number of simultaneous calls of the client instructions for session management, per connection, max.     — Number of simultaneous calls of the client	Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000 300
Runtime license required     OPC UA Client     — Application authentication     — Security policies      — User authentication     — Number of connections, max.     — Number of nodes of the client interfaces, recommended max.     — Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax.     — Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.     — Number of elements for one call of OPC_UA_MethodGetHandleList, max.     — Number of simultaneous calls of the client instructions for session management, per connection, max.     — Number of simultaneous calls of the client instructions for data access, per connection, max.	Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000 300 20 100 1
Runtime license required     OPC UA Client     — Application authentication     — Security policies      — User authentication     — Number of connections, max.     — Number of nodes of the client interfaces, recommended max.     — Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax.     — Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.     — Number of elements for one call of OPC_UA_MethodGetHandleList, max.     — Number of simultaneous calls of the client instructions for session management, per connection, max.     — Number of simultaneous calls of the client instructions for data access, per connection, max.     — Number of registerable nodes, max.	Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000 300 20 100 1
<ul> <li>HTTPS</li> <li>OPC UA</li> <li>Runtime license required</li> <li>OPC UA Client         <ul> <li>Application authentication</li> <li>Security policies</li> </ul> </li> <li>User authentication         <ul> <li>Number of connections, max.</li> <li>Number of nodes of the client interfaces, recommended max.</li> <li>Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax.</li> <li>Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.</li> <li>Number of elements for one call of OPC_UA_MethodGetHandleList, max.</li> <li>Number of simultaneous calls of the client instructions for session management, per connection, max.</li> <li>Number of simultaneous calls of the client instructions for data access, per connection, max.</li> <li>Number of registerable nodes, max.</li> <li>Number of registerable method calls of</li> </ul> </li> </ul>	Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000 300 20 100 1
<ul> <li>HTTPS</li> <li>OPC UA</li> <li>Runtime license required</li> <li>OPC UA Client         <ul> <li>Application authentication</li> <li>Security policies</li> </ul> </li> <li>User authentication         <ul> <li>Number of connections, max.</li> <li>Number of nodes of the client interfaces, recommended max.</li> <li>Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax.</li> <li>Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.</li> <li>Number of elements for one call of OPC_UA_MethodGetHandleList, max.</li> <li>Number of simultaneous calls of the client instructions for session management, per connection, max.</li> <li>Number of simultaneous calls of the client instructions for data access, per connection, max.</li> <li>Number of registerable nodes, max.</li> <li>Number of registerable method calls of OPC_UA_MethodCall, max.</li> </ul> </li> </ul>	Yes; Standard and user pages  Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000 300  20 100 1 5 5 000 100
<ul> <li>HTTPS</li> <li>OPC UA</li> <li>Runtime license required</li> <li>OPC UA Client         <ul> <li>Application authentication</li> <li>Security policies</li> </ul> </li> <li>User authentication         <ul> <li>Number of connections, max.</li> <li>Number of nodes of the client interfaces, recommended max.</li> <li>Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax.</li> <li>Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.</li> <li>Number of elements for one call of OPC_UA_MethodGetHandleList, max.</li> <li>Number of simultaneous calls of the client instructions for session management, per connection, max.</li> <li>Number of simultaneous calls of the client instructions for data access, per connection, max.</li> <li>Number of registerable nodes, max.</li> <li>Number of registerable method calls of OPC_UA_MethodCall, max.</li> <li>Number of inputs/outputs when calling</li> </ul> </li> </ul>	Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000 300 20 100 1
Runtime license required     OPC UA Client     — Application authentication     — Security policies      — User authentication     — Number of connections, max.     — Number of nodes of the client interfaces, recommended max.     — Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax.     — Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.     — Number of elements for one call of OPC_UA_MethodGetHandleList, max.     — Number of simultaneous calls of the client instructions for session management, per connection, max.     — Number of simultaneous calls of the client instructions for data access, per connection, max.     — Number of registerable nodes, max.     — Number of registerable method calls of OPC_UA_MethodCall, max.     — Number of inputs/outputs when calling OPC_UA_MethodCall, max.	Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000 300 20 100 1 5 5 000 100 20
<ul> <li>HTTPS</li> <li>OPC UA</li> <li>Runtime license required</li> <li>OPC UA Client         <ul> <li>Application authentication</li> <li>Security policies</li> </ul> </li> <li>User authentication         <ul> <li>Number of connections, max.</li> <li>Number of nodes of the client interfaces, recommended max.</li> <li>Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax.</li> <li>Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.</li> <li>Number of elements for one call of OPC_UA_MethodGetHandleList, max.</li> <li>Number of simultaneous calls of the client instructions for session management, per connection, max.</li> <li>Number of simultaneous calls of the client instructions for data access, per connection, max.</li> <li>Number of registerable nodes, max.</li> <li>Number of registerable method calls of OPC_UA_MethodCall, max.</li> <li>Number of inputs/outputs when calling</li> </ul> </li> </ul>	Yes; Standard and user pages  Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000 300  20 100 1 5 5 000 100
Runtime license required     OPC UA Client     — Application authentication     — Security policies      — User authentication     — Number of connections, max.     — Number of nodes of the client interfaces, recommended max.     — Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax.     — Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.     — Number of elements for one call of OPC_UA_MethodGetHandleList, max.     — Number of simultaneous calls of the client instructions for session management, per connection, max.     — Number of simultaneous calls of the client instructions for data access, per connection, max.     — Number of registerable nodes, max.     — Number of registerable method calls of OPC_UA_MethodCall, max.     — Number of inputs/outputs when calling OPC_UA_MethodCall, max.	Yes; Standard and user pages  Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000 300  20 100 1  5 5 000 100 20 Yes; Data Access (Read, Write, Subscribe), Method Call, Alarms &
<ul> <li>HTTPS</li> <li>OPC UA</li> <li>Runtime license required</li> <li>OPC UA Client         <ul> <li>Application authentication</li> <li>Security policies</li> </ul> </li> <li>User authentication         <ul> <li>Number of connections, max.</li> <li>Number of nodes of the client interfaces, recommended max.</li> <li>Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax.</li> <li>Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.</li> <li>Number of elements for one call of OPC_UA_MethodGetHandleList, max.</li> <li>Number of simultaneous calls of the client instructions for session management, per connection, max.</li> <li>Number of simultaneous calls of the client instructions for data access, per connection, max.</li> <li>Number of registerable nodes, max.</li> <li>Number of registerable method calls of OPC_UA_MethodCall, max.</li> <li>Number of inputs/outputs when calling OPC_UA_MethodCall, max.</li> </ul> </li> <li>OPC UA Server</li> </ul>	Yes; Standard and user pages  Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000 300  20 100 1  5 5 5 000 100 20 Yes; Data Access (Read, Write, Subscribe), Method Call, Alarms & Condition (A&C), Custom Address Space
<ul> <li>HTTPS</li> <li>OPC UA</li> <li>Runtime license required</li> <li>OPC UA Client         <ul> <li>Application authentication</li> <li>Security policies</li> </ul> </li> <li>User authentication         <ul> <li>Number of connections, max.</li> <li>Number of nodes of the client interfaces, recommended max.</li> <li>Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/Omax.</li> <li>Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.</li> <li>Number of elements for one call of OPC_UA_MethodGetHandleList, max.</li> <li>Number of simultaneous calls of the client instructions for session management, per connection, max.</li> <li>Number of simultaneous calls of the client instructions for data access, per connection, max.</li> <li>Number of registerable nodes, max.</li> <li>Number of registerable method calls of OPC_UA_MethodCall, max.</li> <li>Number of inputs/outputs when calling OPC_UA_MethodCall, max.</li> <li>OPC UA Server</li> <li>Application authentication</li> </ul> </li> </ul>	Yes; "Large" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 40 5 000 300  20 100 1  5 5 5 000 100 20 Yes; Data Access (Read, Write, Subscribe), Method Call, Alarms & Condition (A&C), Custom Address Space Yes

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<ul> <li>— GDS support (certificate management)</li> </ul>	Yes
<ul><li>Number of sessions, max.</li></ul>	64
<ul> <li>Number of accessible variables, max.</li> </ul>	200 000
<ul> <li>Number of registerable nodes, max.</li> </ul>	50 000
<ul> <li>Number of subscriptions per session, max.</li> </ul>	50
— Sampling interval, min.	10 ms
— Publishing interval, min.	10 ms
<ul> <li>Number of server methods, max.</li> </ul>	100
<ul> <li>Number of inputs/outputs per server method,</li> </ul>	20
Max.	40 000) for 4 a compiler interval and 4 a condinterval
<ul> <li>Number of monitored items, recommended max.</li> </ul>	10 000; for 1 s sampling interval and 1 s send interval
Number of server interfaces, max.	10 of each "Server interfaces" / "Companion specification" type and 20
ramber of server interfaces, max.	of the type "Reference namespace"
<ul> <li>Number of nodes for user-defined server</li> </ul>	30 000
interfaces, max.	
<ul> <li>Alarms and Conditions</li> </ul>	Yes
<ul> <li>Number of program alarms</li> </ul>	400
<ul> <li>Number of alarms for system diagnostics</li> </ul>	200
Further protocols	
• MODBUS	Yes; MODBUS TCP
Isochronous mode	
Equidistance	Yes
S7 message functions	
Number of login stations for message functions, max.	64
Program alarms	Yes
Number of configurable program messages, max.	10 000; Program messages are generated by the "Program_Alarm"
. vanis or or comigarasto program mossagos, mara	block, ProDiag or GRAPH
Number of loadable program messages in RUN, max.	5 000
Number of simultaneously active program alarms	
<ul> <li>Number of program alarms</li> </ul>	2 000
<ul> <li>Number of alarms for system diagnostics</li> </ul>	1 000
<ul> <li>Number of alarms for motion technology objects</li> </ul>	480
Test commissioning functions	
Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 10 engineering systems
Status block	Yes; Up to 16 simultaneously (in total across all ES clients)
Single step	No
Number of breakpoints	20
Status/control	
	Yes
Status/control variable	163
<ul><li>Status/control variable</li><li>Variables</li></ul>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
• Variables	
<ul><li> Variables</li><li> Number of variables, max.</li></ul>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
<ul><li>Variables</li><li>Number of variables, max.</li><li>— of which status variables, max.</li></ul>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job
<ul> <li>Variables</li> <li>Number of variables, max.</li> <li>— of which status variables, max.</li> <li>— of which control variables, max.</li> </ul>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job
<ul> <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	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job 200; per job
<ul> <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>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  200; per job  Yes
<ul> <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, variables</li> </ul> </li> </ul>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  200; per job  Yes Peripheral inputs/outputs
<ul> <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, variables</li> <li>Number of variables, max.</li> </ul> </li> </ul>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  200; per job  Yes Peripheral inputs/outputs
<ul> <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, variables</li> <li>Number of variables, max.</li> </ul> </li> <li>Diagnostic buffer</li> </ul>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  200; per job  Yes Peripheral inputs/outputs 200
<ul> <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> </ul>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  200; per job  Yes  Peripheral inputs/outputs 200  Yes
<ul> <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> </ul>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  200; per job  Yes Peripheral inputs/outputs 200  Yes 3 200
<ul> <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, variables</li> <li>Number of variables, max.</li> </ul> </li> <li>Diagnostic buffer         <ul> <li>present</li> <li>Number of entries, max.</li> <li>of which powerfail-proof</li> </ul> </li> </ul>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  200; per job  Yes Peripheral inputs/outputs 200  Yes 3 200
<ul> <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, variables</li> <li>Number of variables, max.</li> </ul> </li> <li>Diagnostic buffer         <ul> <li>present</li> <li>Number of entries, max.</li> <li>of which powerfail-proof</li> </ul> </li> </ul>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  200; per job  Yes Peripheral inputs/outputs 200  Yes 3 200 1 000
<ul> <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, variables</li> <li>Number of variables, max.</li> </ul> </li> <li>Diagnostic buffer         <ul> <li>present</li> <li>Number of entries, max.</li> <li>of which powerfail-proof</li> </ul> </li> <li>Traces         <ul> <li>Number of configurable Traces</li> </ul> </li> </ul>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  200; per job  Yes Peripheral inputs/outputs 200  Yes 3 200 1 000
<ul> <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, variables</li> <li>Number of variables, max.</li> </ul> </li> <li>Diagnostic buffer         <ul> <li>present</li> <li>Number of entries, max.</li> <li>of which powerfail-proof</li> </ul> </li> <li>Traces         <ul> <li>Number of configurable Traces</li> </ul> </li> <li>Interrupts/diagnostics/status information</li> </ul>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  200; per job  Yes Peripheral inputs/outputs 200  Yes 3 200 1 000
Variables  Number of variables, max.  of which status variables, max.  of which control variables, max.  Forcing  Forcing  Forcing, variables  Number of variables, max.  Diagnostic buffer  present  Number of entries, max.  of which powerfail-proof  Traces  Number of configurable Traces  Interrupts/diagnostics/status information  Diagnostics indication LED	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  Yes Peripheral inputs/outputs 200  Yes 3 200 1 000  8; Up to 512 KB of data per trace are possible
Variables  Number of variables, max.  of which status variables, max.  of which control variables, max.  Forcing  Forcing  Forcing, variables  Number of variables, max.  Diagnostic buffer  present  Number of entries, max.  of which powerfail-proof  Traces  Number of configurable Traces  Interrupts/diagnostics/status information  Diagnostics indication LED  RUN/STOP LED	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  Yes Peripheral inputs/outputs 200  Yes 3 200 1 000  8; Up to 512 KB of data per trace are possible  Yes
<ul> <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, variables</li> <li>Number of variables, max.</li> </ul> </li> <li>Diagnostic buffer         <ul> <li>present</li> <li>Number of entries, max.</li> <li>of which powerfail-proof</li> </ul> </li> <li>Traces         <ul> <li>Number of configurable Traces</li> </ul> </li> <li>Interrupts/diagnostics/status information</li> <li>Diagnostics indication LED         <ul> <li>RUN/STOP LED</li> <li>ERROR LED</li> <li>MAINT LED</li> </ul> </li> </ul>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  Yes Peripheral inputs/outputs 200  Yes 3 200 1 000  8; Up to 512 KB of data per trace are possible  Yes Yes
Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing  Forcing  Forcing, variables  Number of variables, max.  Diagnostic buffer  present  Number of entries, max.  — of which powerfail-proof  Traces  Number of configurable Traces  Interrupts/diagnostics/status information  Diagnostics indication LED  RUN/STOP LED  ERROR LED  MAINT LED  Connection display LINK TX/RX	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  200; per job  Yes Peripheral inputs/outputs 200  Yes 3 200 1 000  8; Up to 512 KB of data per trace are possible  Yes Yes Yes Yes
Variables Number of variables, max. — of which status variables, max. — of which control variables, max.  Forcing  Forcing Forcing, variables Number of variables, max.  Diagnostic buffer  present Number of entries, max. — of which powerfail-proof  Traces  Number of configurable Traces  Interrupts/diagnostics/status information  Diagnostics indication LED  RUN/STOP LED ERROR LED MAINT LED Connection display LINK TX/RX  Supported technology objects	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  Yes Peripheral inputs/outputs 200  Yes 3 200 1 000  8; Up to 512 KB of data per trace are possible  Yes Yes Yes Yes Yes Yes
Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing  Forcing  Forcing, variables  Number of variables, max.  Diagnostic buffer  present  Number of entries, max.  — of which powerfail-proof  Traces  Number of configurable Traces  Interrupts/diagnostics/status information  Diagnostics indication LED  RUN/STOP LED  ERROR LED  MAINT LED  Connection display LINK TX/RX	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job 200; per job  Yes Peripheral inputs/outputs 200  Yes 3 200 1 000  8; Up to 512 KB of data per trace are possible  Yes Yes Yes Yes Yes Yes Yes Yes
Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing  Forcing  Forcing, variables  Number of variables, max.  Diagnostic buffer  present  Number of entries, max.  — of which powerfail-proof  Traces  Number of configurable Traces  Interrupts/diagnostics/status information  Diagnostics indication LED  RUN/STOP LED  ERROR LED  MAINT LED  Connection display LINK TX/RX  Supported technology objects	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  200; per job  Yes Peripheral inputs/outputs 200  Yes 3 200 1 000  8; Up to 512 KB of data per trace are possible  Yes Yes Yes Yes Yes Yes

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technology objects	
<ul> <li>Required Motion Control resources</li> </ul>	
<ul> <li>per speed-controlled axis</li> </ul>	40
<ul><li>per positioning axis</li></ul>	80
<ul><li>per synchronous axis</li></ul>	160
<ul> <li>per external encoder</li> </ul>	80
— per output cam	20
— per cam track	160
— per probe	40
<ul> <li>Number of available Extended Motion Control</li> </ul>	256
resources for technology objects	
<ul> <li>Required Extended Motion Control resources</li> </ul>	
— per cam (1 000 points and 50 segments)	2
— per cam (10 000 points and 50 segments)	20
— for each set of kinematics	30
— Per leading axis proxy	3
Positioning axis	
Number of positioning axes at motion control	70
cycle of 4 ms (typical value)	
Number of positioning axes at motion control	128
cycle of 8 ms (typical value)	
Controller	
PID_Compact	Yes; Universal PID controller with integrated optimization
PID_3Step	Yes; PID controller with integrated optimization for valves
• PID-Temp	Yes; PID controller with integrated optimization for temperature
Counting and measuring	,
High-speed counter	Yes
Ambient conditions	
Ambient temperature during operation	
horizontal installation, min.	0 °C
<ul> <li>horizontal installation, max.</li> </ul>	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the
constitution to the Heating contra	display is switched off
vertical installation, min.	0 °C
<ul> <li>vertical installation, max.</li> </ul>	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
Ambient temperature during storage/transportation	display is switched on
	40 °C
• min.	-40 °C
min.     max.	-40 °C 70 °C
	70 °C
<ul> <li>min.</li> <li>max.</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> </ul>	
	70 °C
<ul> <li>min.</li> <li>max.</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> </ul>	70 °C
<ul> <li>min.</li> <li>max.</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> <li>configuration / header</li> </ul>	70 °C
min.     max.  Altitude during operation relating to sea level     Installation altitude above sea level, max.  configuration / header  configuration / programming / header	70 °C
<ul> <li>min.</li> <li>max.</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> <li>configuration / header</li> <li>configuration / programming / header</li> <li>Programming language</li> </ul>	70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
<ul> <li>min.</li> <li>max.</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> <li>configuration / header</li> <li>configuration / programming / header</li> <li>Programming language</li> <li>LAD</li> </ul>	70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  Yes
<ul> <li>min.</li> <li>max.</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> <li>configuration / header</li> <li>configuration / programming / header</li> <li>Programming language</li> <li>LAD</li> <li>FBD</li> </ul>	70 °C  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  Yes Yes
<ul> <li>min.</li> <li>max.</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> <li>configuration / header</li> <li>configuration / programming / header</li> <li>Programming language</li> <li>LAD</li> <li>FBD</li> <li>STL</li> </ul>	70 °C  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  Yes Yes Yes Yes
<ul> <li>min.</li> <li>max.</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> <li>configuration / header</li> <li>configuration / programming / header</li> <li>Programming language</li> <li>LAD</li> <li>FBD</li> <li>STL</li> <li>SCL</li> <li>GRAPH</li> </ul>	70 °C  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  Yes Yes Yes Yes Yes
min.     max.  Altitude during operation relating to sea level     Installation altitude above sea level, max.  configuration / header  configuration / programming / header  Programming language  — LAD  — FBD — STL — SCL — GRAPH  Know-how protection	70 °C  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  Yes Yes Yes Yes Yes
<ul> <li>min.</li> <li>max.</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> <li>configuration / header</li> <li>configuration / programming / header</li> <li>Programming language</li> <li>LAD</li> <li>FBD</li> <li>STL</li> <li>SCL</li> <li>GRAPH</li> <li>Know-how protection</li> <li>User program protection/password protection</li> </ul>	70 °C  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  Yes Yes Yes Yes Yes Yes Yes
<ul> <li>min.</li> <li>max.</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> <li>configuration / header</li> <li>configuration / programming / header</li> <li>Programming language</li> <li>LAD</li> <li>FBD</li> <li>STL</li> <li>SCL</li> <li>GRAPH</li> <li>Know-how protection</li> <li>User program protection/password protection</li> <li>Copy protection</li> </ul>	70 °C  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  Yes Yes Yes Yes Yes Yes Yes Yes
min. max.  Altitude during operation relating to sea level Installation altitude above sea level, max.  configuration / header  configuration / programming / header  Programming language  LAD  FBD  STL  SCL  GRAPH  Know-how protection  User program protection/password protection Copy protection  Block protection	70 °C  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  Yes Yes Yes Yes Yes Yes Yes
min. max.  Altitude during operation relating to sea level Installation altitude above sea level, max.  configuration / header  configuration / programming / header  Programming language  — LAD — FBD — STL — SCL — GRAPH  Know-how protection  User program protection/password protection Copy protection Block protection  Access protection	70 °C  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
min. max.  Altitude during operation relating to sea level  Installation altitude above sea level, max.  configuration / header  configuration / programming / header  Programming language  — LAD  — FBD  — STL  — SCL  — GRAPH  Know-how protection  User program protection/password protection  Copy protection  Block protection  Access protection  protection of confidential configuration data	70 °C  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
min. max.  Altitude during operation relating to sea level Installation altitude above sea level, max.  configuration / header  configuration / programming / header  Programming language  LAD FBD STL SCL GRAPH  Know-how protection  User program protection/password protection Copy protection Block protection  Access protection protection of confidential configuration data Password for display	70 °C  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
<ul> <li>min.</li> <li>max.</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> <li>configuration / header</li> <li>configuration / programming / header</li> <li>Programming language</li> <li>LAD</li> <li>FBD</li> <li>STL</li> <li>SCL</li> <li>GRAPH</li> <li>Know-how protection</li> <li>User program protection/password protection</li> <li>Copy protection</li> <li>Block protection</li> <li>Access protection</li> <li>protection of confidential configuration data</li> <li>Password for display</li> <li>Protection level: Write protection</li> </ul>	70 °C  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
<ul> <li>min.</li> <li>max.</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> <li>configuration / header</li> <li>configuration / programming / header</li> <li>Programming language</li> <li>LAD</li> <li>FBD</li> <li>STL</li> <li>SCL</li> <li>GRAPH</li> <li>Know-how protection</li> <li>User program protection/password protection</li> <li>Copy protection</li> <li>Block protection</li> <li>Access protection</li> <li>protection of confidential configuration data</li> <li>Password for display</li> <li>Protection level: Write protection</li> <li>Protection level: Read/write protection</li> </ul>	70 °C  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
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<ul> <li>min.</li> <li>max.</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> <li>configuration / header</li> <li>configuration / programming / header</li> <li>Programming language</li> <li>LAD</li> <li>FBD</li> <li>STL</li> <li>SCL</li> <li>GRAPH</li> <li>Know-how protection</li> <li>User program protection/password protection</li> <li>Copy protection</li> <li>Block protection</li> <li>Access protection</li> <li>protection of confidential configuration data</li> <li>Password for display</li> <li>Protection level: Write protection</li> <li>Protection level: Read/write protection</li> <li>Protection level: Complete protection</li> <li>programming / cycle time monitoring / header</li> </ul>	70 °C  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
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<ul> <li>min.</li> <li>max.</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> <li>configuration / header</li> <li>configuration / programming / header</li> <li>Programming language</li> <li>LAD</li> <li>FBD</li> <li>STL</li> <li>SCL</li> <li>GRAPH</li> <li>Know-how protection</li> <li>User program protection/password protection</li> <li>Copy protection</li> <li>Block protection</li> <li>Access protection</li> <li>protection of confidential configuration data</li> <li>Password for display</li> <li>Protection level: Write protection</li> <li>Protection level: Read/write protection</li> <li>Protection level: Complete protection</li> <li>programming / cycle time monitoring / header</li> <li>lower limit</li> <li>upper limit</li> </ul>	70 °C  5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
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Depth 129 mm

Weights

Weight, approx. 1 929 g

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