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 μs (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	
 Mains/voltage failure stored energy time 	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 A²-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	
• integrated (for program)	3 Mbyte
• integrated (for data)	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	
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
• Sizo may	-
• Size, max.	7.5 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB . Number range	0 05 505
Number range Size may	0 65 535
• Size, max.	1 Mbyte
FC Number and a	0 05 505
Number range	0 65 535
• Size, max.	1 Mbyte
OB O:	4.00
Size, max. Number of free such ORs.	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 startup OBs 	100
 Number of asynchronous error OBs 	4
 Number of synchronous error OBs 	2
Number of diagnostic alarm OBs	1
Nesting depth	
per priority class	24; Up to 8 possible for F-blocks
	24; Up to 8 possible for F-blocks
per priority class	24; Up to 8 possible for F-blocks
per priority class Counters, timers and their retentivity	24; Up to 8 possible for F-blocks 2 048
per priority class Counters, timers and their retentivity S7 counter	
per priority class Counters, timers and their retentivity S7 counter Number	
 per priority class Counters, timers and their retentivity S7 counter Number Retentivity 	2 048
per priority class Counters, timers and their retentivity S7 counter Number Retentivity — adjustable	2 048
per priority class Counters, timers and their retentivity S7 counter Number Retentivity — adjustable IEC counter	2 048 Yes
per priority class Counters, timers and their retentivity S7 counter Number Retentivity adjustable IEC counter Number	2 048 Yes
per priority class Counters, timers and their retentivity S7 counter Number Retentivity adjustable IEC counter Number Retentivity Retentivity	2 048 Yes Any (only limited by the main memory)
per priority class Counters, timers and their retentivity S7 counter Number Retentivity — adjustable IEC counter Number Retentivity — adjustable Retentivity — adjustable	2 048 Yes Any (only limited by the main memory)
per priority class Counters, timers and their retentivity S7 counter Number Retentivity — adjustable IEC counter Number Retentivity — adjustable S7 times	2 048 Yes Any (only limited by the main memory) Yes
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per priority class Counters, timers and their retentivity S7 counter Number Retentivity — adjustable IEC counter Number Retentivity — adjustable S7 times Number Retentivity — adjustable S7 times Number Retentivity — adjustable	2 048 Yes Any (only limited by the main memory) Yes 2 048
per priority class Counters, timers and their retentivity S7 counter Number Retentivity — adjustable IEC counter Number Retentivity — adjustable S7 times Number Retentivity — adjustable IEC timer Number	2 048 Yes Any (only limited by the main memory) Yes 2 048 Yes
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per priority class Counters, timers and their retentivity S7 counter Number Retentivity — adjustable IEC counter Number Retentivity — adjustable S7 times Number Retentivity — adjustable IEC timer Number Retentivity — adjustable	2 048 Yes Any (only limited by the main memory) Yes 2 048 Yes Any (only limited by the main memory)
per priority class Counters, timers and their retentivity S7 counter Number Retentivity — adjustable IEC counter Number Retentivity — adjustable S7 times Number Retentivity — adjustable IEC timer Number Retentivity — adjustable IEC timer Number Retentivity — adjustable IEC timer Number Retentivity — adjustable Data areas and their retentivity	2 048 Yes Any (only limited by the main memory) Yes 2 048 Yes Any (only limited by the main memory) Yes
per priority class Counters, timers and their retentivity S7 counter Number Retentivity — adjustable IEC counter Number Retentivity — adjustable S7 times Number Retentivity — adjustable IEC timer Number Retentivity — adjustable	2 048 Yes Any (only limited by the main memory) Yes 2 048 Yes Any (only limited by the main memory)
per priority class Counters, timers and their retentivity S7 counter Number Retentivity — adjustable IEC counter Number Retentivity — adjustable S7 times Number Retentivity — adjustable IEC timer Number Retentivity — adjustable IEC timer Number Retentivity — adjustable IEC timer Number Retentivity — adjustable Data areas and their retentivity	2 048 Yes Any (only limited by the main memory) Yes 2 048 Yes Any (only limited by the main memory) Yes 512 kbyte; In total; available retentive memory for bit memories, timers,
per priority class Counters, timers and their retentivity S7 counter	2 048 Yes Any (only limited by the main memory) Yes 2 048 Yes Any (only limited by the main memory) Yes 512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB
per priority class Counters, timers and their retentivity S7 counter Number Retentivity — adjustable IEC counter Number Retentivity — adjustable S7 times Number Retentivity — adjustable IEC timer Number Retentivity — adjustable IEC timer Number Retentivity — adjustable IEC timer Number Retentivity — adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Extended retentive data area (incl. timers, counters, flags), max.	2 048 Yes Any (only limited by the main memory) Yes 2 048 Yes Any (only limited by the main memory) Yes 512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB
per priority class Counters, timers and their retentivity S7 counter Number Retentivity — adjustable IEC counter Number Retentivity — adjustable S7 times Number Retentivity — adjustable IEC timer Number Retentivity — adjustable IEC timer Number Retentivity — adjustable IEC timer Number Retentivity — adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Extended retentive data area (incl. timers, counters, flags), max.	Yes Any (only limited by the main memory) Yes 2 048 Yes Any (only limited by the main memory) Yes 512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB 7.5 Mbyte; When using PS 6 0W 24/48/60 V DC HF 16 kbyte
per priority class Counters, timers and their retentivity S7 counter Number Retentivity — adjustable IEC counter Number Retentivity — adjustable S7 times Number Retentivity — adjustable IEC timer Number Retentivity — adjustable IEC timer Number Retentivity — adjustable IEC timer Number Retentivity — adjustable IEC timer Number Retentivity — adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Extended retentive data area (incl. timers, counters, flags), max. Flag Size, max. Number of clock memories	2 048 Yes Any (only limited by the main memory) Yes 2 048 Yes Any (only limited by the main memory) Yes 512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB 7.5 Mbyte; When using PS 6 0W 24/48/60 V DC HF
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per priority class Counters, timers and their retentivity S7 counter Number Retentivity — adjustable IEC counter Number Retentivity — adjustable S7 times Number Retentivity — adjustable IEC timer Number Retentivity — adjustable IEC timer Number Retentivity — adjustable IEC timer Number Retentivity — adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Extended retentive data area (incl. timers, counters, flags), max. Flag Size, max. Number of clock memories Data blocks Retentivity adjustable	Yes Any (only limited by the main memory) Yes 2 048 Yes Any (only limited by the main memory) Yes Any (only limited by the main memory) Yes 512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB 7.5 Mbyte; When using PS 6 0W 24/48/60 V DC HF 16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte
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per priority class Counters, timers and their retentivity S7 counter Number Retentivity — adjustable IEC counter Number Retentivity — adjustable S7 times Number Retentivity — adjustable IEC timer Number Retentivity — adjustable IEC timer Number Retentivity — adjustable IEC timer Number Retentivity — adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Extended retentive data area (incl. timers, counters, flags), max. Flag Size, max. Number of clock memories Data blocks Retentivity adjustable	Yes Any (only limited by the main memory) Yes 2 048 Yes Any (only limited by the main memory) Yes Any (only limited by the main memory) Yes 512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB 7.5 Mbyte; When using PS 6 0W 24/48/60 V DC HF 16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte

Address area	
Number of IO modules	8 192; max. number of modules / submodules
I/O address area	
• Inputs	32 kbyte; All inputs are in the process image
Outputs	32 kbyte; All outputs are in the process image
per integrated IO subsystem	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
per CM/CP	
— 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	
• integrated	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	
• 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	Yes
• to DP, master	Yes
• in AS, master	Yes
• in AS, slave	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	Voc. IDv4
IP protocol DROFINET IO Controller	Yes; IPv4
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
 SIMATIC communication 	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
Media redundancy	Yes
PROFINET IO Controller	
Services	

BO/OB : //	V
— 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 AS-i, 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
 Number of IO Devices per tool, max. 	8
— Updating times	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data
Update time for IRT	
— for send cycle of 250 μs	250 μs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum 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
— for send cycle of 2 ms	2 ms to 32 ms
— for send cycle of 4 ms	4 ms to 64 ms
— With IRT and parameterization of "odd" send cycles	Update time = set "odd" send clock (any multiple of 125 μ s: 375 μ s, 625 μ s 3 875 μ s)
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
looohronous mada	No
 Isochronous mode 	INO
— Isochronous mode — IRT	Yes
— IRT	Yes
— IRT — PROFlenergy	Yes; per user program
— IRT— PROFlenergy— Shared device	Yes Yes; per user program Yes
 — IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device, max. 	Yes; per user program Yes 4
 — IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device, max. — activation/deactivation of I-devices 	Yes; per user program Yes 4 Yes; per user program
— IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device, max. — activation/deactivation of I-devices — Asset management record	Yes; per user program Yes 4
— IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device, max. — activation/deactivation of I-devices — Asset management record 2. Interface	Yes; per user program Yes 4 Yes; per user program
— IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device, max. — activation/deactivation of I-devices — Asset management record 2. Interface Interface types	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; per user program
 — 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) 	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; per user program
— 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	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; per user program
— 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	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; per user program
— 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	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; per user program Yes; X2 1 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	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; X2 1 No Yes; IPv4
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	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; X2 1 No Yes; IPv4 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	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; X2 1 No Yes; IPv4 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	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; X2 1 No Yes; IPv4 Yes 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	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; X2 1 No Yes; IPv4 Yes Yes Yes Yes Yes Yes; Optionally also encrypted
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	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; per user program Yes; X2 1 No Yes; IPv4 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	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; X2 1 No Yes; IPv4 Yes Yes Yes Yes Yes Yes; Optionally also encrypted
IRT PROFlenergy Shared device Number of IO Controllers with shared device, max activation/deactivation of I-devices Asset management record 2. Interface 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	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; per user program Yes; X2 1 No Yes; IPv4 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	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; per user program Yes; X2 1 No Yes; IPv4 Yes
IRT PROFlenergy Shared device Number of IO Controllers with shared device, max activation/deactivation of I-devices Asset management record 2. Interface 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	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; per user program Yes; X2 1 No Yes; IPv4 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 PROFINET IO Controller Services	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; X2 1 No Yes; IPv4 Yes Yes Yes Yes Yes Yes Yes Yes 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 PROFINET IO Controller Services PG/OP communication	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; X2 1 No Yes; IPv4 Yes Yes Yes Yes Yes Yes Yes You so the same of the sa
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 PROFINET IO Controller Services PG/OP communication Isochronous mode	Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; X2 1 No Yes; IPv4 Yes Yes Yes Yes Yes Yes Your open and the service of the se
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 Web server Media redundancy PROFINET IO Controller Services PG/OP communication Isochronous mode Direct data exchange	Yes Yes; per user program Yes 4 Yes; per user program Yes; per user program Yes; X2 1 No Yes; IPv4 Yes Yes Yes Yes Yes Yes Yes No No Yes

- Prioritized startup - Number of connectable IO Devices, max - Number of connectable IO Devices for RT, max - Of which in line, max Number of IO Devices start an be simultaneously edivated described, max Number of IO Devices start and be simultaneously edivated described, max Number of IO Devices start and be simultaneously edivated described, max Updating times -		
PROFIGUS or PROFINET - Number of connectable IO Devices for RT, 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 - Updating times - The send cycle of 1 ms - FOR Devices Services - POOP communication - Iso story of Insection of Insec	 Prioritized startup 	No
- Number of connectable IO Devices for RT, max. - of which in line, max. - Number of IO Devices that can be simultaneously selected. - Number of IO Devices per tool, max. - Updating times. - PGIOP communication - Irr. - For send cycle of 1 ms - PROFIDER IO Device. - Sentices. - PGIOP communication - Irr. - RT - PROFIDER IO Device. - PROFIDER SID Device. - PROFIDER SID Device. - Shared device. - Number of IO Controllers with shared device, max. - Asset management record - Shared device. - Asset management record - Shared device. - Asset management record - Shared for posts. - RS 485 - Number of ports. - PROFIDER SID P master - PROFIDER SID P master - PROFIDER SID P master - Number of port selections, max. - Shared connections, max. - Shared connections, max. - Shared connections, max. - Number of Pollews, max. - Shared connections, max. - Number of connections, max. - Number of connections, max. - PGIOP communication - PGIOP communication - PGIOP communication - PGIOP slaves, max. - Number of ports. - PGIOP communication - PGIOP slaves, max. - Number of connections, max. - Number of connec	 Number of connectable IO Devices, max. 	
of which in line, max Number of IO Devices that can be simultaneously activated-divideactived, max Number of IO Devices per fool, max Updating times Updating times Updating times for send cycle of 1 ms For Send device Number of 1 Controllers with ahard device, max extendrol/deactivation of 1-Sendes Asset management record For Send management record	 Number of connectable IO Devices for RT may 	
- Number of ID Devices that can be simultaneously activated/dustivated may be a considered activated activated with a construction of the pudate time also depends on communication share set for PROFINET ID. on the number of IO devices, and on the quantity of configured user data. Update time for RT - for some dycell of time PROFINET IO Device Services - PG/OP communication - IRT - No - PROFINET IO Device Services - PG/OP communication - IRT - No - PROFINET IO Services - IRT - No - PROFINED Startup - Profinized startup - Asset management record - Number of IO Controllers with shared device, max Activation/disadvivation of I-devices - Asset management record - Profinized Services - PROFINISED Dis startup - Number of ports - Number of ports - PROFINISED Dis startup - Number of connections, max Number of Devisiones, max PROFINISED Dis startup - Number of connections, max PROFINISED Dis startup - Profice Possives, max PROFINISED Dis startup - PROFINISED Dis startup - PROFINISED Dis startup - Number of connections, max PROFINISED Dis startup -		
activated diseatorwands, max. - Number of IO Devices per tool, max. - 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 - PROFIDE To Device Services - PROFIDE To Device Services - PROFIDE To Device - PROFIDE To Device	•	
Update time for RT - for send cycle of 1 ms - for send cycle - for s		o, in total asi oso all internaces
Update time for RT	 Number of IO Devices per tool, max. 	8
	— Updating times	set for PROFINET IO, on the number of IO devices, and on the quantity of
PROFINET IO Device Services	Update time for RT	
Services - PG/OP communication - Isochronous mode - IRT - No - IRT - PROFilenergy - Prioritized startup - No - Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record - Asset management record - Asset management record - RT	— for send cycle of 1 ms	1 ms to 512 ms
PG/OP communication Yes No Isochronous mode No No No Isochronous mode No No No Isochronous mode No	PROFINET IO Device	
Isochronous mode	Services	
- IRT - PROFIlenergy - Prioritized startup - Prioritized startup - Shared device - Number of IO Controllers with shared device, max activation/decativation of I-devices - Asset management record -	— PG/OP communication	Yes
- PROFlenergy Yes; per user program No Yes Asset device - Prointized startup No Yes - Number of IO Controllers with shared device, max. 4 - activation/deactivation of I-devices Yes; per user program Yes; per user program - Asset management record Yes; per user program Yes; per user pro	— Isochronous mode	No
- Prioritized startup - Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record - PROFIGUS DP stare - Number of ports - PROFIGUS DP master - PROFIGUS DP master - PROFIGUS DP stave - Number of connections, max Number of connections, max Number of connections, max Number of DP staves, max PROFIGUS DP master - PROFIGUS DP master - Number of DP staves, max PROFIGUS DP master - Number of DP staves, max PROFIGUS OF PROFINET - PROFIGUS DP master - PROFIGUS DP master - PROFIGUS OF PROFINET - PROFIGUS OF PROF	— IRT	No
- Shared device - Number of IO Controllers with shared device, max activation/deactivation of I devices - Asset management record - Asset management record - Asset management record - S. Interface Interface types - RS 485 - Number of ports - PROFIBUS DP master - PROFIBUS DP master - PROFIBUS DP shave - SIMATIC communication - PROFIBUS DP shave - SIMATIC communication - PROFIBUS DP shave - Number of connections, max Number of DP slaves, max Number of DP slaves, max PCIOP communication - Equidistance - Equidistance - Activation/deactivation of DP slaves - Activation/deactivation of DP slaves - Activation/deactivation of DP slaves - Autocrossing - Industrial Ethernet status LED - RS 485 - Transmission rate, max Number of connections, max L2 Mbit/s - PCOP Safe - Number of connections wax Autocrossing - Industrial Ethernet status LED - PCOP Safe - Number of connections wax Number of connections - Number of connections wax Number of connections reserved for ES-HMI/web - Number of connections via integrated interfaces - Number of connections - Number of conne		Yes; per user program
- Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record 3. Interface Interface types - RS 485 - Number of ports - PROFIBUS DP master - Number of connections, max Number of DP slaves, max Number of DP slaves, max PROFIBUS OP Prosections - PROFIBUS DP master - Number of DP slaves, max PROFIBUS DP master - Number of DP slaves, max PROFIBUS OP Prosections, max PROFIBUS OP Prosections, max Number of DP slaves, max PROFIBUS OP PROFINET Services - PCI/OP communication - Equidistance - Pci/OP communication - Equidistance - Activation/deactivation of DP slaves - Autocrossing - Autocrossing - Industrial Ethernet status LED - Yes - Industrial Ethernet status LED - Yes - Transmission rate, max Protocots - PROFISate - Number of connections, max Number of connections, max Number of connections, max Number of connections meserved for ESHHMI/web - Number of connections was in lengrated interfaces - Number of Sr routing paths - Redundancy - Media redundancy	— Prioritized startup	No
- activation/deactivation of I-devices	— Shared device	Yes
- Asset management record Interface		
S. Interface types RS 485 RS 485 RS 485 RS 485 RS 485 RNumber of ports PROFIBUS DP master PROFIBUS DP master PROFIBUS DP slave SIMATIC communication PROFIBUS DP slave No SIMATIC communication PROFIBUS DP slave Number of connections, max. Number of DP slaves, max. Respectively RS 485 RS 485 RJ 45 (Ethemet) Industrial Ethernet status LED RA 4 Lonegolation Autocrossing Industrial Ethernet status LED ROFIBUS DP slaves RS 485 Transmission rate, max. Respectively RS 485 ROFIBUS OP ROFIBUS DP interface Yes RS 485 Transmission rate, max. Respectively RS 485 ROFIBUS OP ROFIBUS DP interface Yes RS 485 Transmission rate, max. Respectively RS 485 ROFIBUS OP ROFIBUS OP ROFIBUS DP interface Yes RS 485 ROFIBUS OF ROFIBUS OP ROFIBUS DP interface Yes RS 485 ROFIBUS OF ROFIBUS OF ROFIBUS DP interface Yes RS 485 ROFIBUS OF ROFIBUS OF ROFIBUS DP interface Yes RS 485 ROFIBUS OF ROFIBUS OF ROFIBUS DP interface Yes RS 485 ROFIBUS OF ROFIBUS OF ROFIBUS DP interface Yes RS 485 ROFIBUS OF	 activation/deactivation of I-devices 	Yes; per user program
Interface types RS 485 Number of ports Protocols PROFIBUS DP master PROFIBUS DP slave No SIMATIC communication Yes PROFIBUS DP master Number of connections, max. Number of DP slaves, max. PROFIBUS OP master Number of connections, max. Als, 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 PROFIBUS or PROFINET Services PROFIBUS or PROFINET Residuation PROFIBUS OP PROFINET PROFIBUS OF PROFIBUS O	— Asset management record	Yes; per user program
RS 485 Number of ports Number of ports PROFIBUS DP master PROFIBUS DP slave SIMATIC communication PROFIBUS DP master Number of connections, max. Number of DP slaves, max. PROFIBUS or PROFIBUS or PROFINET Services PROFIBUS or PROFIBUS DP interface Yes Prosport PROFIBUS DP interface Yes Interface types RJ 45 (Ethernet) Services Profices Profices Profices Profices PROFIBUS Or PROFIBUS DP interface Profices Profices Profices Profices Profices Profices PROFIBUS DP master Number of connections, max. Services PROFIBUS Or PROFIBUS DP interface Profices PROFIBUS DP master PROFIBUS DP interface PROF	3. Interface	
Protocols Protocols PROFIBUS DP master PROFIBUS DP slave SIMATIC communication PROFIBUS DP master Number of connections, max. Number of DP slaves, max. PROFIBUS DP slaves, max. 48; for the integrated PROFIBUS DP interface Number of DP slaves, max. 48; for the integrated PROFIBUS DP interface PROFIBUS OP PROFINET Services PGOP communication Pequidistance PGOP communication Pequidistance Pequidistanc	Interface types	
Protocols PROFIBUS DP master PROFIBUS DP slave SIMATIC communication Yes PROFIBUS DP master Number of connections, max. Number of DP slaves, max. PROFIBUS DP slaves, max. PROFIBUS DP master Number of DP slaves, max. PROFIBUS or PROFINET Services PROFIBUS or PROFINET Yes Interface types RJ 45 (Ethernet) Services PROFIBUS or PROFINET Yes Interface types RJ 45 (Ethernet) Services PROFIBUS or PROFINET Yes Interface types RJ 45 (Ethernet) Services Profice types RJ 45 (Ethernet) Services RJ 45 (Ethernet) Services Services RJ 45 (Ethernet) Services Services RJ 45 (Ethernet) Services Servi		Yes; X3
PROFIBUS DP master PROFIBUS DP slave SIMATIC communication PROFIBUS DP master Number of connections, max. Number of connections, max. Number of DP slaves, max. A8; for the integrated PROFIBUS DP interface Number of DP slaves, max. A8; for the integrated PROFIBUS DP interface Number of DP slaves, max. A8; for the integrated PROFIBUS DP interface PROFIBUS or PROFINET Services PROFIBUS or PROFINET Yes Activation/deactivation of DP slaves Yes Interface types RJ 45 (Ethernet) 100 Mbps Yes Autocrossing Yes Autocrossing Yes Autocrossing Yes Interface types PROFISafe Protocols PROFISafe Yes; V2.4 / V2.6 Number of connections Number of connections, max. Number of connections wax. Number of connections wax. Number of connections via integrated interfaces Number of c		1
PROFIBUS DP slave SIMATIC communication PROFIBUS DP master Number of connections, max. No Humber of connections, max. No Number of DP slaves, max. PROFIBUS or PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFIBUS or PROFINET Services PROFIBUS or PROFINET Yes PROFIBUS or PROFIBUS or Double or Dou		
SIMATIC communication PROFIBUS DP master Number of connections, max. Number of DP slaves, max. Number of DP slaves, max. PROFIBUS or PROFIBUS PROFIBUS or PROFINET Services - PC/OP communication - Equidistance - Isochronous mode - Activation/deactivation of DP slaves Interface types RJ 45 (Ethernet) 100 Mbps Yes Autoroposing Yes Autorossing - Autorosing - Industrial Ethernet status LED RS 486 - Transmission rate, max. PROFISafe Number of connections Number of connections Number of connections was integrated interfaces Number of son connections via integrated interfaces Number of S7 routing paths Redundancy - Media redundancy - MRP Media redundancy - MRP Yes; WRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; - MRP Manager; - MRP Massers - Ito Mode distributed I/O devices can be connected via AS-i, profit to 100 distributed I/O devices can be connected Via AS-i, profit p		
PROFIBUS DP master Number of connections, max. Number of DP slaves, max. PG/OP communication Pes depict of DP slaves and the connected via AS-i, PROFIBUS or PROFIBUS or PROFINET Services Proficial State of DP slaves Pes Services Proficial State of DP slaves Pes Services Proficial State of DP slaves PROFISATE PROFISATE Number of connections Number of connections Number of connections max. Number of connections was integrated interfaces Number of Strouting paths Proficial State of DP slaves Pr		
Number of connections, max. Number of DP slaves, max. 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROF		Yes
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 Services - PG/OP communication		
Services - PG/OP communication Yes - Equidistance Yes - Isochronous mode Yes - Activation/deactivation of DP slaves Yes Interface types RJ 45 (Ethernet) • 100 Mbps Yes • Autonegotiation Yes • Autonegotiation Yes • Industrial Ethernet status LED Yes RS 485 • Transmission rate, max. 12 Mbit/s Protocols PROFISafe Yes; V2.4 / V2.6 Number of connections, max. 256; via integrated interfaces of the CPU and connected CPs / CMs • Number of connections via integrated interfaces 128 • Number of S 7 routing paths 16 Redundancy mode • H-Sync forwarding Yes Media redundancy - Media redundancy - Media redundancy - Media redundancy - MRP Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager;	,	•
Services - PG/OP communication - Equidistance - Isochronous mode - Activation/deactivation of DP slaves Interface types RJ 45 (Ethernet) • 100 Mbps • Autonegotiation • Yes • Autorossing • Industrial Ethernet status LED RS 485 • Transmission rate, max. Protocols PROFIsafe Number of connections, max. • Number of connections, max. • Number of connections reserved for ES/HMI/web • Number of connections via integrated interfaces • Number of S7 routing paths Redundancy mode • H-Sync forwarding - Media redundancy - Media redundancy - Media redundancy - Media redundancy - MRP - MRP Yes MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager;	 Number of DP slaves, max. 	
- 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, max. • Number of connections, max. • Number of connections reserved for ES/HMI/web • Number of connections via integrated interfaces • Number of S7 routing paths Redundancy mode • H-Sync forwarding Media redundancy - Media redundancy - Media redundancy - Media redundancy - MRP Mes Yes Yes Yes Yes Yes Yes Yes Ye	Services	THO I BOO OF THE INC.
Equidistance Isochronous mode Activation/deactivation of DP slaves Interface types RJ 45 (Ethernet) 100 Mbps Autonegotiation Autocrossing Autocrossing Industrial Ethernet status LED Yes RS 485 Transmission rate, max Transmission rate, max Transmission rate, max Yes; V2.4 / V2.6 Number of connections Number of connections, max Number of connections reserved for ES/HMI/web Number of connections reserved for ES/HMI/web Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy Media redundancy Media redundancy MRP Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager;		Yes
Isochronous mode Activation/deactivation of DP slaves Interface types RJ 45 (Ethernet) 100 Mbps Autorossing Autocrossing Autocrossing Industrial Ethernet status LED Yes RS 485 Transmission rate, max. Protocols PROFIsafe Number of connections Number of connections Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy Media redundancy Media redundancy MRP Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager;		
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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 Redundancy mode • H-Sync forwarding Media redundancy — Media redundancy — Media redundancy — Media redundancy — MRP Yes: MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager;		
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 Redundancy mode • H-Sync forwarding Media redundancy — Media redundancy — Media redundancy — Media redundancy — MRP Yes Yes Yes Yes Yes Yes Yes Ye		
• 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 Redundancy mode • H-Sync forwarding Media redundancy — Media redundancy — Media redundancy — MRP Yes Yes Yes Yes Yes Yes Yes Ye		
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Autocrossing Industrial Ethernet status LED Yes RS 485 Transmission rate, max. 12 Mbit/s Protocols PROFIsafe Yes; V2.4 / V2.6 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 Redundancy mode H-Sync forwarding Media redundancy — Media redundancy — Media redundancy — Media redundancy — MRP Yes; V2.4 / V2.6 Yes; V2.4 / V2.6 Yes; Via integrated interfaces of the CPU and connected CPs / CMs 10 10 10 10 10 10 10 10 10 1	•	
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 Redundancy mode H-Sync forwarding Media redundancy Media redundancy Media redundancy MRP Yes MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager;	-	
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 Redundancy mode • H-Sync forwarding Media redundancy — Media redundancy — Media redundancy — MRP 12 Mbit/s Yes; V2.4 / V2.6 Yes; V2.4 / V2.6 Yes; V2.4 / V2.6 Yes; V2.4 / V2.6 Yes 10 10 16 Redundancy only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager;	-	
 Transmission rate, max. Protocols PROFIsafe Yes; V2.4 / V2.6 Number of connections Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections via integrated interfaces Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy Only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; 		
PROFIsafe 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 Redundancy mode H-Sync forwarding Media redundancy Media redundancy Media redundancy MRP Yes; V2.4 / V2.6 Yes; via integrated interfaces of the CPU and connected CPs / CMs 10 10 128 16 Redundancy mode Only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager;		12 Mbit/s
PROFIsafe Number of connections Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of connections via integrated interfaces Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy Media redundancy Media redundancy MRP Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager;	·	
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 Redundancy mode H-Sync forwarding Yes Media redundancy — Media redundancy — MRP MRP Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager;		Yes; V2.4 / V2.6
 Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy Media redundancy MRP Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; 	Number of connections	
 Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy Media redundancy MRP Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; 	Number of connections, max.	256; via integrated interfaces of the CPU and connected CPs / CMs
 Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy Media redundancy MRP Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; 		-
 Number of S7 routing paths Redundancy mode H-Sync forwarding Media redundancy Media redundancy Media redundancy MRP Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; 	 Number of connections via integrated interfaces 	128
Redundancy mode • H-Sync forwarding Media redundancy — Media redundancy — MRP Only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager;	-	16
 ◆ H-Sync forwarding Media redundancy — Media redundancy — MRP Yes Only via 1st interface (X1) Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; 		
Media redundancy — Media redundancy only via 1st interface (X1) — MRP Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager;	-	Yes
 Media redundancy MRP MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; 		
— MRP Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager;	·	only via 1st interface (X1)
MRP Client	·	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	Voc
• 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,
occurry policies	Basic256Sha256
 User authentication 	"anonymous" or by user name & password
 Number of connections, max. 	10
 Number of nodes of the client interfaces, 	2 000
recommended max.	
 Number of elements for one call of 	300
OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_I	
max.	20
 — Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. 	20
Number of elements for one call of	100
OPC_UA_MethodGetHandleList, max.	
 Number of simultaneous calls of the client 	1
instructions for session management, per connection,	
Max.	5
 Number of simultaneous calls of the client instructions for data access, per connection, max. 	5
Number of registerable nodes, max.	5 000
Number of registerable method calls of	100
OPC_UA_MethodCall, max.	
— Number of inputs/outputs when calling OPC LIA MethodCall may	20
OPC_UA_MethodCall, max.	Voc. Data Access (Pond Write Cubariba) Mathed Call Alarma 9 Candillan
OPC UA Server	Yes; Data Access (Read, Write, Subscribe), Method Call, Alarms & Condition (A&C), Custom Address Space
 Application authentication 	Yes
Security policies	available security policies: None, Basic128Rsa15, Basic256Rsa15,
— Gecurity policies	Basic256Sha256, Aes128Sha256RsaOaep, Aes256Sha256RsaPss
— User authentication	"anonymous" or by user name & password
GDS support (certificate management)	Yes
Number of sessions, max.	48
Number of accessible variables, max.	100 000
— INUITIDEL OF ACCESSIDE VARIABLES, ITAX.	100 000

Number of registerable nades	20,000
— Number of registerable nodes, max.— Number of subscriptions per session, max.	20 000
·	100 ms
— Sampling interval, min.	
— Publishing interval, min.	100 ms
Number of server methods, max.	50
Number of inputs/outputs per server method, max.	20
Number of monitored items, recommended max.	4 000; for 1 s sampling interval and 1 s send interval
Number of server interfaces, max.	10 of each "Server interfaces" / "Companion specification" type and 20 of the type "Reference namespace"
 Number of nodes for user-defined server interfaces, max. 	30 000
 Alarms and Conditions 	Yes
 Number of program alarms 	200
Number of alarms for system diagnostics	100
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" block, ProDiag or GRAPH
Number of loadable program messages in RUN, max.	5 000
Number of simultaneously active program alarms	
Number of 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)
	No
Single step Number of breakpoints	8
Status/control	
Status/control • Status/control variable	Yes; without fail-safe
Status/control	
Status/control • Status/control variable	Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times,
Status/control Status/control variable Variables Number of variables, max.	Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters
Status/control Status/control variable Variables Number of variables, max. — of which status variables, max.	Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job
Status/control Status/control variable Variables Number of variables, max.	Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters
Status/control Status/control variable Variables Number of variables, max. of which status variables, max. of which control variables, max. Forcing	Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job
Status/control Status/control variable Variables Number of variables, max. of which status variables, max. of which control variables, max. Forcing Forcing	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
Status/control Status/control variable Variables Number of variables, max. of which status variables, max. of which control variables, max. Forcing Forcing Forcing, variables	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)
Status/control Status/control variable Variables Number of variables, max. — of which status variables, max. — of which control variables, max. Forcing Forcing Forcing, variables Number of variables, max.	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
Status/control Status/control variable 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	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
Status/control Status/control variable 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	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
Status/control Status/control variable Variables Number of variables, max. of which status variables, max. of which control variables, max. Forcing Forcing Forcing Forcing, variables Number of variables, max. Diagnostic buffer present Number of entries, max.	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
Status/control Status/control variable Variables Number of variables, max. — of which status variables, max. — of which control variables, max. Forcing Forcing Forcing Forcing, variables Number of variables, max. Diagnostic buffer present Number of entries, max. — of which powerfail-proof	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
Status/control Status/control variable 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	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 3 200 500
Status/control Status/control variable 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	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
Status/control Status/control variable 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	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 3 200 500
Status/control Status/control variable 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	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 3 200 500 4; Up to 512 KB of data per trace are possible
Status/control Status/control variable 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	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 3 200 500 4; Up to 512 KB of data per trace are possible
Status/control Status/control variable 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	Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200 Yes 3 200 500 4; Up to 512 KB of data per trace are possible Yes Yes
Status/control Status/control variable 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	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 3 200 500 4; Up to 512 KB of data per trace are possible Yes Yes Yes
Status/control Status/control variable 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 STOP ACTIVE LED	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 3 200 500 4; Up to 512 KB of data per trace are possible Yes Yes Yes Yes
Status/control Status/control variable 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 STOP ACTIVE LED Connection display LINK TX/RX	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 3 200 500 4; Up to 512 KB of data per trace are possible Yes Yes Yes
Status/control Status/control variable 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 STOP ACTIVE LED	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 3 200 500 4; Up to 512 KB of data per trace are possible Yes Yes Yes Yes Yes
Status/control Status/control variable 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 RROR LED MAINT LED STOP ACTIVE LED Connection display LINK TX/RX	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 3 200 500 4; Up to 512 KB of data per trace are possible Yes Yes Yes Yes Yes Yes Yes Yes Yes Y
Status/control Status/control variable 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 STOP ACTIVE LED Connection display LINK TX/RX Supported technology objects Motion Control	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 3 200 500 4; Up to 512 KB of data per trace are possible Yes Yes Yes Yes Yes Yes Yes Yes Yes Y
Status/control Status/control variable 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 STOP ACTIVE LED Connection display LINK TX/RX Supported technology objects	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 3 200 500 4; Up to 512 KB of data per trace are possible Yes Yes Yes Yes Yes Yes Yes Yes Yes Y

Required Motion Control resources	
— per speed-controlled axis	40
per positioning axis	80
— per synchronous axis	160
— per external encoder	80
— per output cam	20
— per cam track	160
— per probe	40
 Positioning axis 	
 Number of positioning axes at motion control cycle of 4 ms (typical value) 	11
 Number of positioning axes at motion control cycle of 8 ms (typical value) 	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	
Highest safety class achievable in safety mode	
 Performance level according to ISO 13849-1 	PLe
SIL acc. to IEC 61508	SIL 3
Probability of failure (for service life of 20 years and repair time	e of 100 hours)
 Low demand mode: PFDavg in accordance with SIL3 	< 2.00E-05
 High demand/continuous mode: PFH in accordance with SIL3 	< 1.00E-09
Ambient conditions	
Ambient temperature during operation	
horizontal installation, min.	-30 °C; No condensation
• horizontal installation, max.	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
and the second of the second o	-30 °C; No condensation
 vertical installation, min. 	
vertical installation, min.vertical installation, max.	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the
vertical installation, max.	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the
vertical installation, max. Ambient temperature during storage/transportation	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
 vertical installation, max. Ambient temperature during storage/transportation min. max. 	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
 vertical installation, max. Ambient temperature during storage/transportation min. 	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C
 vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. 	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C
 vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header 	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C
vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C
vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
 vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD 	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe
 vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. configuration / header configuration / programming / header Programming language LAD FBD 	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe
 vertical installation, max. Ambient temperature during storage/transportation 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 	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes
vertical installation, max. Ambient temperature during storage/transportation 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	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes
vertical installation, max. Ambient temperature during storage/transportation 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	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes
vertical installation, max. Ambient temperature during storage/transportation 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	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes Yes Yes
 vertical installation, max. Ambient temperature during storage/transportation 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 	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes Yes Yes
vertical installation, max. Ambient temperature during storage/transportation 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	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes Yes Yes
 vertical installation, max. Ambient temperature during storage/transportation 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 	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes Yes Yes
vertical installation, max. Ambient temperature during storage/transportation 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	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes Yes Yes Yes Yes
vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level lnstallation 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	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes
 vertical installation, max. Ambient temperature during storage/transportation 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 	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes
 vertical installation, max. Ambient temperature during storage/transportation 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 Protection level: Write protection 	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
 vertical installation, max. Ambient temperature during storage/transportation 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 Protection level: Write protection Protection level: Read/write protection 	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
vertical installation, max. Ambient temperature during storage/transportation 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 Protection level: Write protection Protection level: Read/write protection Protection level: Write protection for Failsafe	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level lnstallation 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 Protection level: Write protection Protection level: Write protection Protection level: Write protection Protection level: Write protection Protection level: Complete protection	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
vertical installation, max. Ambient temperature during storage/transportation 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 Protection level: Write protection Protection level: Read/write protection Protection level: Write protection for Failsafe	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye

• upper limit	adjustable maximum cycle time
Dimensions	
Width	70 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	469 g

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