SIEMENS

Data sheet

6ES7511-1FL03-0AB0



SIMATIC S7-1500F, CPU 1511F-1 PN, central processing unit with work memory 450 KB for program and 1.5 MB for data, 1st interface: PROFINET IRT with 2-port switch, 25 ns bit performance, SIMATIC Memory Card required **** approvals and certificate according to entry 109815653 at support.industry.siemens.com to be observed! ****

Figure similar

General information	
Product type designation	CPU 1511F-1 PN
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 500 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 6ES7 511- 1FK02-0AB0
Configuration control	
via dataset	Yes
Display	
Screen diagonal [cm]	3.45 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)	0.73 A
Current consumption, max.	0.9 A
Inrush current, max.	1.15 A; Rated value
l²t	0.5 A ² ·s
Power	
Infeed power to the backplane bus	10 W
Power consumption from the backplane bus (balanced)	5.5 W
Power loss	
Power loss, typ.	3.4 W
Memory	
Number of slots for SIMATIC memory card	1



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• Number of asynchronous error OBs 4 • Number of synchronous error OBs 2 • Number of diagnostic alarm OBs 1 Nesting depth 24; Up to 8 possible for F-blocks Counters, timers and their retentivity 24; Up to 8 possible for F-blocks S7 counter 2048 Retentivity 2048	 Number of technology synchronous alarm OBs 	2
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• Number of diagnostic alarm OBs 1 Nesting depth 24; Up to 8 possible for F-blocks • per priority class 24; Up to 8 possible for F-blocks Counters, timers and their retentivity 57 counter • Number 2 048 Retentivity - adjustable • Number Yes IEC counter Any (only limited by the main memory) Retentivity - adjustable • Number 2 048 Retentivity - adjustable - adjustable Yes S7 times - adjustable • Number 2 048 Retentivity - adjustable - adjustable Yes S7 times - adjustable • Number 2 048 Retentivity - adjustable - adjustable Yes IEC timer - adjustable • Number Any (only limited by the main memory) Retentivity - adjustable - adjustable Yes Data areas and their retentivity Yes Pata areas and their retentivity 256 kbyte; in total; available retentive memory for bit memori	 Number of asynchronous error OBs 	4
Nesting depth • per priority class 24; Up to 8 possible for F-blocks Counters, timers and their retentivity \$7 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 S7 times • Number 2 048 Retentivity - adjustable Yes IEC timer 2 048 Number 2 048 Retentivity - adjustable Yes IEC timer • Number Any (only limited by the main memory) Retentivity - adjustable Yes IEC timer • Number Any (only limited by the main memory) Retentivity - adjustable Yes IEC timer • Any conserver Any (only limited by the main memory) Retentivity - adjustable	 Number of synchronous error OBs 	2
• per priority class 24; Up to 8 possible for F-blocks 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	 Number of diagnostic alarm OBs 	1
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S7 counter 2 048 Retentivity - adjustable Yes IEC counter • Number Any (only limited by the main memory) Retentivity - adjustable - adjustable Yes S7 times 2 048 Retentivity - adjustable - adjustable Yes S7 times 2 048 Retentivity - adjustable - adjustable Yes IEC timer Any (only limited by the main memory) Retentivity - adjustable - adjustable Yes IEC timer Any (only limited by the main memory) Retentivity - adjustable - adjustable Yes Data areas and their retentivity Yes Retentive data area (incl. timers, counters, flags), max. 256 kbyte; in total; available retentive memory for bit memories, timers,		
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• Number 2 048 Retentivity	· · · · · · · · · · · · · · · · · · ·	
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— adjustable Yes IEC timer		2 048
IEC timer Any (only limited by the main memory) • Number Any (only limited by the main memory) Retentivity Yes Data areas and their retentivity Yes Retentive data area (incl. timers, counters, flags), max. 256 kbyte; in total; available retentive memory for bit memories, timers,	-	
Number Any (only limited by the main memory) Retentivity — adjustable Yes Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. 256 kbyte; in total; available retentive memory for bit memories, timers,		Yes
Retentivity Yes — adjustable Yes Data areas and their retentivity Z56 kbyte; in total; available retentive memory for bit memories, timers,		
— adjustable Yes Data areas and their retentivity Pata areas (incl. timers, counters, flags), max. 256 kbyte; in total; available retentive memory for bit memories, timers,	Number	Any (only limited by the main memory)
Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. 256 kbyte; in total; available retentive memory for bit memories, timers,	Retentivity	
Retentive data area (incl. timers, counters, flags), max. 256 kbyte; in total; available retentive memory for bit memories, timers,	— adjustable	Yes
	Data areas and their retentivity	
	Retentive data area (incl. timers, counters, flags), max.	
		counters, DBs, and technology data (axes): 216 KB



Extended retentive data area (incl. timers, counters, flags), max.	1.5 Mbyte; When using PS 6 0W 24/48/60 V DC HF
Flag	
• Size, max.	16 kbyte
Number of clock memories	8; 8 clock memory bit, grouped into one clock memory byte
Data blocks	
Retentivity adjustable	Yes
Retentivity preset	No
Local data	
 per priority class, max. 	64 kbyte; max. 16 KB per block
Address area	
Number of IO modules	2 048; max. number of modules / submodules
I/O address area	
Inputs	32 kbyte; All inputs are in the process image
Outputs	32 kbyte; All outputs are in the process image
per integrated IO subsystem	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
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	32; A distributed I/O system is characterized not only by the integration of
	distributed I/O via PROFINET or PROFIBUS communication modules, but also by the connection of I/O via AS-i master modules or links (e.g. IE/PB-Link)
Number of DP masters	
• Via CM	4; A maximum of 4 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be
	inserted in total
Number of IO Controllers	
 integrated 	1
• Via CM	4; A maximum of 4 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be
	inserted in total
Rack	
 Modules per rack, max. 	32; CPU + 31 modules
Number of lines, max.	1
PtP CM	
Number of PtP CMs	the number of connectable PtP CMs is only limited by the number of available slots
Time of day	
Clock	
• Туре	Hardware clock
Backup time	6 wk; At 40 °C ambient temperature, typically
• Deviation per day, max.	10 s; Typ.: 2 s
Operating hours counter	
• Number	16
Clock synchronization	
• supported	Yes
• in AS, master	Yes
• in AS, slave	Yes
on Ethernet via NTP	Yes
Interfaces	
Number of PROFINET 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	Yes



• Per ColomanizationYes• Needs are duration yYes• Needs are duration yYes• PROFINE I/O ControllerYes• Profixe from some deYes- Sochrons modeYes- Sochrons mode	- CIMATIC communication	Vaa
• Web answir Yes • Web and windowny Yes • ROBURT UD Controller Ves • Controller Yes • Controller Yes • Order communication Yes • Order character Yes • O	SIMATIC communication	Yes
• Notice reductations Yes PROFINE I/O Continuition - - PROFINE I/O Continuition Yes - Insert data exchange Yes - Insert data exchange Yes, Requirement: IRT and storborous mode (MRPD optional) - Insert data exchange Yes, per user program - PROFILE Yes, per user program - Or which in line, naz. 18 - Number of Connectable IO Devices for RT. 8 - Number of IO Devices per troit, max. 8 - Number of IO Devices per troit, max. 8 - Number of IO Devices per troit, max. 8 - Number of IO Devices per troit, max. 8 - Or which of IRT No - Number of IO Devices per troit, max. 9 - Proof or or or opt opt of 50 µs 50 µs he ser N		
BROENDER I to Controller Services PGOPD communication Proses Proses Prosesses Services Prosesses Prosessessessessessessessessessessessesses		
Services		Yes
- PGOP communication Yes - Direct data exchange Yes, Requirement: IRT and lockmonous mode (MRPD optiona) - IRT Yes, Requirement: IRT and lockmonous mode (MRPD optiona) - PROFIsersy Yes, Yes, Yes, Yes, Yes, Yes, Yes, Yes,		
- Isochroous mode Yes - Isochroous mode Yes; Requirement: IRT and isochronous mode (MRPD optiona) - PROFIGE Yes; Per user program - Priorities daruby Yes; per user program - Priorities daruby Yes; per user program - Priorities daruby Yes; per user program - Number of connectable ID Devices, max. F64 - Number of connectable ID Devices from TR, max. F64 - Number of connectable ID Devices from TR, max. F64 - Number of ID Devices from TR, max. F64 - Number of ID Devices per tor, max. F8 - Number of ID Devices per tor, max. F8 - Number of ID Devices per tor, max. F8 - Number of ID Devices per tor, max. B - Number of ID Devices per tor, max. B - For send cycle of 250 µs Do Is to A ms. Number of Devices per tor, max. - For send cycle of 250 µs S20 µs 6 A ms. Number of Devices per tor, max. - For send cycle of 250 µs S20 µs 6 A ms. Number of Devices per tor, max. - For send cycle of 250 µs S20 µs to 128 ms. - For send cycle of 250 µs S20 µs to 128 ms. - For		Vac
- Drect data exchange Yes; Requirement: IRT and isochronous mode (MRPD optiona) - IRT Yes - PROFInergry Yes; por user program - Protificed stantup Yes; forks: 32 PROFINET devices - Number of connectable IO Devices, max. 128 Intelluig to 512 distributed IO devices can be connected via AS-i, PROFINET - Of which ID devices with IRT, max. 64 - Of which ID Devices for RT, max. 128 Intelluig to 512 distributed IO devices, and on the quantup of the update firm allow options can be connected via AS-i, PROFINET - Of which ID ne, max. 64 - Orwhoch or ID Devices for RT, max. 128 Intella cross all interfaces - Winder of ID Devices here tare to estimutaneously act for update firm allow option on communication share of the protocol optices, and on the quantity of content of IRT - Or send cycle of 20 µs 200 ys to 4 ms. Note: In the case of IRT with isochronous mode, the minimum update time of BS in acchinous ID B is decisive - for send cycle of 20 µs 200 ys to 4 ms. Note: In the case of IRT with sochronous mode, the minimum update time of BS in acchinous ID B is disclesive - for send cycle of 20 µs 200 ys to 128 ms - for send cycle of 20 µs 200 ys to 128 ms - for send cycle of 20 µs 200 ys to 128 ms - for send cycle of 20 µs 200 ys to 128 ms - for send cycle of 1 ms 1 ms to 512 ms - for send cycle of 1 ms 200 ys to 24 ms		
- IRT Yes - PROFIDENTLY Yes - PROFIDENTLY Yes - PROFIDENTLY Yes - Number of connectable IO Devices, max. PROFIDENT devices can be connected via AS-4, PROFIDENC or PROFIDENC or PROFIDENT devices can be connected via AS-4, PROFIDENC or PROFIDENC or PROFIDENT devices can be connected via AS-4, PROFIDENC or PROFIDENC or PROFIDENT devices can be connected via AS-4, PROFIDENC or PROFIDENC or PROFIDENT devices can be connected via AS-4, PROFIDENC OF Devices per tool, max. 64 - Number of IO Devices per tool, max. 128 in total across all interfaces - Number of IO Devices per tool, max. 8 1 - Number of IO Devices per tool, max. 8 1 - Number of IO Devices per tool, max. 8 1 - Updating times 250 µs to 4 ms. Note: In the case of IRT with isochronous mode, the minimum update time of S00 µs is devices. 100 µs do 3ms. Note: In the case of IRT with isochronous mode, the minimum update time of S00 µs is devices. - for send cycle of 250 µs - for send cycle of 250 µs 250 µs to 25 ms. - for send cycle of 250 µs 250 µs to 25 ms. 1 ms to 6 ms - for send cycle of 250 µs 250 µs to 25 ms. 1 ms to 4 ms - for send cycle of 250 µs 250 µs to 25 ms. 1 ms to 42 ms - for send cycle of 250 µs 250 µs to 25 ms. 2 ms to 52 ms. - for send cycle of 1 ms 1 ms to 54 ms.		
- PROFIenergy Yes; per user program - Prioritzed startup Yes; Max: 32 PROFINET devices - Number of connectable IO Devices, max. 128 - Of which IO devices with IRT, max. 64 - Of which IO Devices the RT, max. 128 - Of which IO Devices the RT, max. 128 - Of which IO Devices per tool, max. 8 - Of which IO Devices per tool, max. 8 - Number of IO Devices per tool, max. 8 - Number of IO Devices per tool, max. 8 - Number of IO Devices per tool, max. 8 - Or send cycle of 250 µS 20µ bs 0 4 ms, Note: In the case of IRT with isochronous mode; the minimum value of the update time also decends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of ucces per tool, per tool yee of 250 µS - for send cycle of 250 µS 20µ bs 0 4 ms, Note: In the case of IRT with isochronous mode; the minimum value of the isochronous OB is decisive update time of 600 devices and on the quantity of ucces per tool yee of 250 µS - for send cycle of 250 µS 10µ bs 0 ms, Note: In the case of IRT with isochronous mode; the minimum value time of 600 per tool yee of 250 µS - for send cycle of 250 µS 10µ bs 0 ms, Note: In the case of IRT with isochronous mode; the minimum value time of 600 µS - for send cycle of 20µ S 20µ bs 128 ms - for send cycle of 20µ S 20µ bs 128 ms - for send cycle of 20µ S 20µ bs 1	C C	
- Prioritzed simup Yes, Wax, 32 PROFINET I devices - Number of connectable ID Devices, max. 64 - Number of connectable ID Devices for RT, max. 128 - Of which ID devices that can be simultaneously adviced/devices for ID Devices for RT, max. 128 - Number of Connectable ID Devices for RT, max. 128 - Number of ID Devices for CIN 8 - For send cycle of 250 µs 250 µs to 4m; Note: In the case of INT with isochronous mode, the minimum quarter of the isochronous CIN is decisive - For send cycle of 1ms 1 ms to 16 ms - For send cycle of 20 µs 1 ms to 16 ms - For send cycle of 20 µs 250 µs to 128 ms - For send cycle of 20 µs 250 µs to 128 ms - For send cycle of 20 µs 250 µs to 128 ms - For send cycle of 20 µs 250 µs to 128 ms - For send cycle of 20 µs 250 µs to 128 ms - For send cycle of 4ms		
PROFISUS of PROFINET - Of which ID devices with IRT, max. 44 - Number of connectable IO Devices for RT, max. 128 - of which In line, max. 128 - Number of IO Devices that can be simultaneously 8 - Number of IO Devices per tool, max. 6 - Updating times 6 - Updating times 120 Just of the update time also depends on communication share also depends on communication share also depends on the update time of 20 Low ces, and on the quantity of configured teser data - Updating times 250 Jus 0 A ms. Note: In the case of IRT with isochnonous mode, the minimum update time of 20 Jus of the isochnonous mode, the minimum update time of 20 Jus of the isochnonous mode, the minimum update time of 20 Jus of the isochnonous mode, the minimum update time of 20 Jus of the isochnonous mode, the minimum update time of 20 Jus of the isochnonous mode, the minimum update time of 20 Jus of the isochnonous mode, the minimum update time of 20 Jus of the isochnonous mode, the minimum update time of 20 Jus of the isochnonous mode, the minimum update time of 20 Jus of the isochnonous MD is decisive - for send cycle of 1 ms 1 ms to 16 ms - for send cycle of 20 Jus 250 Jus to 128 ms - for send cycle of 500 Jus 250 Jus to 128 ms - for send cycle of 20 Jus 250 Jus to 128 ms - for send cycle of 20 Jus 250 Jus to 128 ms		
- Number of connectable I/O Devices for RT, max.128- of which in line, max.100- Number of I/O Devices that can be simultaneously activate/deschwated, max.8- Number of I/O Devices pertool, max.8- Updating times8- Updating times20 us to 4 me. Note. In the cases of IRT with sochronous mode, the minimum update time of 20 gevices, and on the quantity of configured user data- for send cycle of 500 µs250 µs to 4 me. Note. In the case of IRT with isochronous mode, the minimum update time of 20 gevices of the isochronous OB is declaive- for send cycle of 1 ms1 ms to 16 ms- for send cycle of 2 ms2 ms to 2 ms- for send cycle of 2 ms2 ms to 2 ms- for send cycle of 2 ms2 ms to 2 ms- for send cycle of 2 ms250 µs to 128 ms- for send cycle of 2 ms250 µs to 128 ms- for send cycle of 2 ms250 µs to 128 ms- for send cycle of 250 µs250 µs to 128 ms- for send cycle of 250 µs250 µs to 128 ms- for send cycle of 1 ms1 ms to 51 ms- for send cycle of 1 ms1 ms to 51 ms- for send cycle of 1 ms1 ms to 51 ms- for send cycle of 1 ms1 ms to 51 ms- for send cycle of 1 ms1 ms to 51 ms- for send cycle of 1 ms1 ms to 51 ms- for send cycle of 4 ms4- for send cycle of 4 ms1 ms to 51 ms- for send cycle of 1 ms1 ms to 51 ms- for send cycle of 4 ms1 ms to 51 ms- for send cycle of 4 ms1 ms to 51 ms- for sen		PROFIBUS or PROFINET
- of which in line, max. 128 - Number of ID Devices that can be simultaneously advated/decentrade, max. 6 - Number of ID Devices per tool, max. 7 - Updating times 8 - Updating times 250 µs to 4 ms; Note: in the case of IRT with isochronous mode, the minimum value of the update time also depends on communication share set for PROFINET IO, on the number of ID devices, and on the quantity of according update time of 500 µs - 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 252 µs of the isochronous OB is decisive - for send cycle of 250 µs 250 µs to 5 ms; Note: in the case of IRT with isochronous mode, the minimum update time of 625 µs of the isochronous OB is decisive - for send cycle of 270 µs 250 µs to 52 ms; 022 ms; 025 ms; 025 µs;		
activated/deactivated, max. - Wurdeal for PACIP International Activity of the activity of activity activity of activity activity of activity activ		
		8; in total across all interfaces
set for PROFINET IC, on the number of IO devices, and on the quantity of configured user data Update time for IRT - for send cycle of 250 µs Update time of 500 µs S00 µs to 128 ms S00 µs to 128 ms S00 µs to 228 µs S0	 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
update time of 500 µs of the isochronous OB is decisive - for send cycle of 500 µs 500 µs for mis to 6 fin mis coses of IRT with isochronous OB is decisive - for send cycle of 1 ms 1 ms to 16 ms - for send cycle of 4 ms 4 ms to 64 ms - for send cycle of 20 µs 250 µs to 28 ms - for send cycle of 20 µs 250 µs to 28 ms - for send cycle of 20 µs 250 µs to 28 ms - for send cycle of 500 µs 500 µs to 256 ms - for send cycle of 500 µs 500 µs to 256 ms - for send cycle of 500 µs 500 µs to 256 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for Send cycle of 4 ms 4 ms to 512 ms - for Send cycle of 4 ms 4 ms to 512 ms - for Send cycle of 4 ms Yes - sectrose Yes - for Send cycle of 100 controllers with s	Update time for IRT	
update time of 625 µs of the isochronous OB is decisive- for send cycle of 1 ms1 ms to 16 ms2 ms to 32 ms2 ms to 32 ms- for send cycle of 4 ms4 ms to 64 msUpdate time for RT250 µs to 128 ms- for send cycle of 250 µs250 µs to 128 ms- for send cycle of 250 µs500 µs to 256 ms- for send cycle of 250 µs2 ms to 512 ms- for send cycle of 250 µs2 ms to 512 ms- for send cycle of 2 ms2 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- PG/OP communicationYes- IRTYes- Shared deviceYes- Number of IO Controllers with shared device, max.4- Autonovication of I-devicesYes; per user program- Asset management recordYes; per user program- AutonogoliationYes- AutonogoliationYes- AutonogoliationYes- AutonogoliationYes- Number of connections, max.128; via integrated interfaces of the CPU and connected CPs / CMs- Number of connections, max.128; via integrated interfaces of the CPU and connected CPs / CMs- Number of connections reserved for ES/HMI/web10- Number of connections reserved for ES/HMI/web18- Number of connections via integrated interfa	— for send cycle of 250 μs	
− for send cycle of 2 ms2 ms to 32 ms− for send cycle of 4 ms4 ms to 64 ms− With IRT and parameterization of "odd" send cyclesUpdate time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs 3 875 µs)Update time for RT− for send cycle of 500 µs2500 µs to 226 ms− for send cycle of 500 µs500 µs to 226 ms− for send cycle of 20 ms2 ms to 512 ms− for send cycle of 4 ms4 ms to 512 ms− for send cycle of 4 ms4 ms to 512 ms− for send cycle of 4 ms4 ms to 512 ms− for send cycle of 4 ms4 ms to 512 ms− for send cycle of 4 ms4 ms to 512 ms− for send cycle of 4 ms4 ms to 512 ms− for send cycle of 4 ms4 ms to 512 ms− for send cycle of 4 ms4 ms to 512 ms− for send cycle of 4 ms4 ms to 512 ms− for send cycle of 4 ms4 ms to 512 ms− for send cycle of 4 ms4 ms to 512 ms− for send cycle of 4 ms4 ms to 512 ms− for send cycle of 4 ms4 ms to 512 ms− for send cycle of 4 msNo− lRTYes− schronous modeNo− schronous modeNo− schronous modeNo− schronous modeNo− schronous modeYes; per user program− activation/deactivation of I-devicesYes; per user program− activation/deactivation of I-devicesYes; per user program• AutorecosingYes; Vez 4 / Vz.6Number of connectionsYes; Vez 4 / Vz.6Numbe	— for send cycle of 500 μs	
	— for send cycle of 1 ms	1 ms to 16 ms
	— for send cycle of 2 ms	2 ms to 32 ms
B75 µs) Update time for RT - for send cycle of 250 µs 250 µs to 128 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 - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms Ves - FO/OP communication Yes - IRT Yes - Shared device Yes - Number of IO Controllers with shared device, max. 4 - activation/deactivation of 1-devices Yes; per user program - Asset management record Yes; per user program - Asset management record Yes; per user program - Atotation/deactivation of 1-devices Yes; per user program - Asset management record Yes; per user program - Asset management record Yes; per user program - Atotation/deactivation of 1-devices Yes; per user program - Number of IO Controllers with shared device, max. 4 - Asset management record Yes; per user program - Asset management record Yes; per user program - Number of connections, max. Yes - Number of connections, max. Yes - Number of connections, max.	— for send cycle of 4 ms	4 ms to 64 ms
- for send cycle of 250 µs250 µs to 286 ms- for send cycle of 500 µs500 µs to 266 ms- for send cycle of 1 ms1 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 msPROFINET IO Device-Services PG/OP communicationYes- Ischtronous modeNo- IRTYes- PROFIenergyYes; per user program- Shared deviceYes- Number of IO Controllers with shared device, max.4- activation/deactivation of 1-devicesYes; per user program- Asset management recordYes; per user program- Asset management recordYesIntoface types-RJ 45 (Ethernet)-• 100 MpsYes• 100 MpsYes• AutonegolitationYes• AutonegolitationYes• Number of connections, max.128; via integrated interfaces of the CPU and connected CPs / CMs• Number of connections, max.128; via integrated interfaces of the CPU and connected CPs / CMs• Number of connections, max.128; via integrated interfaces of the CPU and connected CPs / CMs• Number of connections reserved for ES/HMI/web10• Number of S7 routing paths16	— With IRT and parameterization of "odd" send cycles	
- for send cycle of 500 µs500 µs to 256 ms- for send cycle of 1 ms1 ms to 512 ms- for send cycle of 2 ms2 ms to 512 ms- for send cycle of 4 ms3 ms to 512 msPROFINET ID Device-Services PGOP communicationYes- Isachronous modeNo- IRTYes- PROFINETYes- Shared deviceYes- Shared deviceYes- Activation/deactivation of I-devicesYes; per user program- Asset management recordYes; per user program- Asset management recordYes100 MbpsYes+ 100 MbpsYes- AutocrossingYes- AutocrossingYes- Number of connections, max.YesPROFIsafeYesPROFisafeYesNumber of connections, max.128, via integrated interfaces of the CPU and connected CPs / CMsNumber of connections, max.128, via integrated interfaces of the CPU and connected CPs / CMsNumber of connections, max.128, via integrated interfaces of the CPU and connected CPs / CMsNumber of connections, max.128, via integrated interfaces of the CPU and connected CPs / CMsNumber of connections, max.128, via integrated interfaces of the CPU and connected CPs / CMsNumber of connections, max.128, via integrated interfaces of the CPU and connected CPs / CMsNumber of connections, max.128, via integrated interfaces of the CPU and connected CPs / CMsNumber of connections, via integrated interfaces88 <tr< td=""><td>Update time for RT</td><td></td></tr<>	Update time for RT	
- for send cycle of 1 ms1 ms to 512 ms- for send cycle of 2 ms2 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 msPROFINET IO DeviceServices- PG/OP communicationYes- Iscchronous modeNo- IRTYes- PROFIenergyYes; per user program- Shared deviceYes;- Number of IO Controllers with shared device, max.4- activation/deactivation of I-devicesYes; per user program- Asset management recordYes; per user program- Asset management recordYes; per user program- Asset functionYes100 MbpsYes+ 100 MbpsYes- AutoregoliationYes- AutoregoliationYes- Number of connections, max.128, via integrated interfaces of the CPU and connected CPs / CMsNumber of connections via integrated interfaces88- Number of S7 routing paths16	— for send cycle of 250 μs	250 µs to 128 ms
for send cycle of 2 ms2 ms to 512 ms- for send cycle of 4 ms4 ms to 512 msPROFINET IO DeviceServices PG/OP communicationYes- Iscchronous modeNo- IRTYes per user program- PROFIenergyYes; per user program- Shared deviceYes; per user program- activation/deactivation of I-devicesYes; per user program- activation/deactivation of I-devicesYes; per user program- Asset management recordYes; per user programInterface typesYes; per user programNumber of IO Controllers with shared device, max.Yes; per user program- Asset management recordYes; per user programInterface typesYes; per user programFNOFLesfeYes; per user program- AutonegotiationYes; Ves; Yes; per user program- AutonegotiationYes- AutonegotiationYes- AutonegotiationYes- AutonegotiationYes- Number of connections, max.Yes; V2.4 / V2.6Number of connections reserved for ES/HMI/web10- Number of connections reserved for ES/HMI/web10- Number of connections via integrated interfaces88- Number of S7 routing paths16	— for send cycle of 500 μs	500 µs to 256 ms
- for send cycle of 4 ms 4 ms to 512 ms PROFINET IO Device 4 Services - - PG/OP communication Yes - Isochronous mode No - IRT Yes - PROFIenergy Yes; per user program - Shared device Yes - Number of 10 Controllers with shared device, max. 4 - activation/deactivation of I-devices Yes; per user program - Asset management record Yes; per user program Interface types RJ 45 (Ethernet) Yes • 100 Mbps Yes • Autonegotiation Yes • Autonegotiation Yes • Autonegotiation Yes • Industrial Ethernet status LED Yes PROFIsafe Yes; V2.4 / V2.6 Number of connections max. 128; via integrated interfaces of the CPU and connected CPs / CMs • Number of connections reserved for ES/HMI/web 10 • Number of connections via integrated interfaces 88 • Number of S7 routing paths 16	— for send cycle of 1 ms	1 ms to 512 ms
PROFINET IO Device Services	— for send cycle of 2 ms	2 ms to 512 ms
Services - PG/OP communication Yes - Isochronous mode No - IRT Yes - PROFlenergy Yes; per user program - Shared device Yes - Number of IO Controllers with shared device, max. 4 - activation/deactivation of I-devices Yes; per user program - Asset management record Yes; per user program - Asset management record Yes; per user program Interface types Yes RJ 45 (Ethernet) Yes • 100 Mbps Yes • Autonegotiation Yes • Autorcrossing Yes • Industrial Ethernet status LED Yes PROFlsafe Yes; V2.4 / V2.6 Number of connections, max. 128; via integrated interfaces of the CPU and connected CPs / CMs • Number of connections, max. 128; via integrated interfaces of the CPU and connected CPs / CMs • Number of connections, max. 128; via integrated interfaces of the CPU and connected CPs / CMs • Number of connections reserved for ES/HMI/web 10 • Number of S7 routing paths 16	— for send cycle of 4 ms	4 ms to 512 ms
PG/OP communicationYes- Isochronous modeNo- IRTYes- PROFlenergyYes; per user program- Shared deviceYes- Number of IO Controllers with shared device, max.4- activation/deactivation of I-devicesYes; per user program- Asset management recordYes; per user program- Asset management recordYes; per user programInterface typesYesRJ 45 (Ethernet)Yes• 100 MbpsYes• AutonegotiationYes• AutocrossingYes• Industrial Ethernet status LEDYesPROFIsafeYesPROFIsafeYes; V2.4 / V2.6Number of connections, max.128; via integrated interfaces of the CPU and connected CPs / CMs• Number of connections reserved for ES/HMI/web10• Number of connections via integrated interfaces88• Number of S7 routing paths16	PROFINET IO Device	
InstructionNoIRTYesPROFlenergyYes; per user program- Shared deviceYes; per user program- Number of IO Controllers with shared device, max.4- activation/deactivation of I-devicesYes; per user program- activation/deactivation of I-devicesYes; per user program- Asset management recordYes; per user programInterface typesR145 (Ethernet)* 100 MbpsYes• AutonegolationYes• AutonegolationYes• AutonegolationYes• Industrial Ethemet status LEDYesPROFIsafeYes; V2.4 / V2.6Number of connections, max.128; via integrated interfaces of the CPU and connected CPs / CMs• Number of connections, max.128; via integrated interfaces of the CPU and connected CPs / CMs• Number of connections via integrated interfaces88• Number of S7 routing paths16		
- IRTYes- PROFlenergyYes; per user program- Shared deviceYes; per user program- Number of IO Controllers with shared device, max.4- activation/deactivation of 1-devicesYes; per user program- Asset management recordYes; per user programInterface typesTest per user programRL45 (Ethernett)Yes• 100 MbpsYes• AutonegotationYes• AutonegotationYes• AutonegotationYes• Industrial Ethernet status LEDYesPROFIsafeYes; V2.4 / V2.6Number of connections, max.128; via integrated interfaces of the CPU and connected CPs / CMs• Number of connections reserved for ES/HMI/web10• Number of connections via integrated interfaces88• Number of S7 routing paths16		
PROF lenergyYes; per user program Shared deviceYes Number of IO Controllers with shared device, max.4 activation/deactivation of I-devicesYes; per user program Asset management recordYes; per user programInterface typesRI 45 (Ethernet)- 100 MbpsYes- AutonegotiationYes- AutorossingYes- Industrial Ethernet status LEDYesProtocolsPROFIsafe- Number of connections, max.128; via integrated interfaces of the CPU and connected CPs / CMs- Number of connections via integrated interfaces88- Number of S7 routing paths16		
 Shared device Shared device Number of IO Controllers with shared device, max. activation/deactivation of I-devices Asset management record Yes; per user program Interface types RJ 45 (Ethernet) • 100 Mbps • Autonegotiation • Autonegotiation • Autorossing • Industrial Ethernet status LED PROFIsafe PROFIsafe • Number of connections, max. • Number of connections reserved for ES/HMI/web • Number of S7 routing paths		
Number of IO Controllers with shared device, max.4 activation/deactivation of I-devicesYes; per user program Asset management recordYes; per user programInterface typesRJ 45 (Ethernet)* 100 MbpsYes• 100 MbpsYes• AutonegotiationYes• AutonegotiationYes• Industrial Ethernet status LEDYesProtocolsPROFIsafe• Number of connections, max.128; via integrated interfaces of the CPU and connected CPs / CMs• Number of connections reserved for ES/HMI/web10• Number of S7 routing paths16		
activation/deactivation of I-devices Asset management recordYes; per user programInterface typesRJ 45 (Ethernet)RJ 45 (Ethernet)• 100 MbpsYes• AutonegotiationYes• AutonegotiationYes• AutocrossingYes• Industrial Ethernet status LEDYesProtocolsPROFIsafeYes; V2.4 / V2.6Number of connections, max.128; via integrated interfaces of the CPU and connected CPs / CMs• Number of connections reserved for ES/HMI/web10• Number of connections via integrated interfaces88• Number of S7 routing paths16		
— Asset management record Yes; per user program Interface types RJ 45 (Ethernet) • 100 Mbps Yes • Autonegotiation Yes • Autorossing Yes • Industrial Ethernet status LED Yes Protocols Yes; V2.4 / V2.6 Number of connections, max. 128; via integrated interfaces of the CPU and connected CPs / CMs • Number of connections via integrated interfaces 88 • Number of S7 routing paths 16		
Interface types RJ 45 (Ethernet) • 100 Mbps Yes • Autonegotiation Yes • Autocrossing Yes • Industrial Ethernet status LED Yes Protocols Yes; V2.4 / V2.6 Number of connections, max. 128; via integrated interfaces of the CPU and connected CPs / CMs • Number of connections reserved for ES/HMI/web 10 • Number of connections via integrated interfaces 88 • Number of S7 routing paths 16		
RJ 45 (Ethernet) • 100 Mbps Yes • Autonegotiation Yes • Autocrossing Yes • Industrial Ethernet status LED Yes Protocols Yes; V2.4 / V2.6 Number of connections, max. 128; via integrated interfaces of the CPU and connected CPs / CMs • Number of connections reserved for ES/HMI/web 10 • Number of connections via integrated interfaces 88 • Number of S7 routing paths 16	-	Yes; per user program
• 100 MbpsYes• AutonegotiationYes• AutocrossingYes• Industrial Ethernet status LEDYesProtocolsPROFIsafeYes; V2.4 / V2.6Number of connections, max.128; via integrated interfaces of the CPU and connected CPs / CMs• Number of connections reserved for ES/HMI/web10• Number of connections via integrated interfaces88• Number of S7 routing paths16		
AutonegotiationYesAutocrossingYesIndustrial Ethernet status LEDYesProtocolsPROFIsafeYes; V2.4 / V2.6Number of connections, max.128; via integrated interfaces of the CPU and connected CPs / CMsNumber of connections reserved for ES/HMI/web10Number of connections via integrated interfaces88Number of S7 routing paths16		Vac
• Autocrossing • Industrial Ethernet status LEDYesProtocolsProtocolsPROFIsafeYes; V2.4 / V2.6Number of connections• Number of connections, max.128; via integrated interfaces of the CPU and connected CPs / CMs• Number of connections reserved for ES/HMI/web10• Number of connections via integrated interfaces88• Number of S7 routing paths16		
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Number of connections 128; via integrated interfaces of the CPU and connected CPs / CMs • Number of connections reserved for ES/HMI/web 10 • Number of connections via integrated interfaces 88 • Number of S7 routing paths 16		Voc: \/2.4 / \/2.6
 Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths 128; via integrated interfaces of the CPU and connected CPs / CMs 10 10		100, V2.97 V2.0
Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths 16		128: via integrated interfaces of the CPLL and connected CPs / CMs
Number of connections via integrated interfaces Number of S7 routing paths		-
Number of S7 routing paths 16		
	Redundancy mode	



H-Sync forwarding	Yes
	165
Media redundancy — Media redundancy	only via 1st interface (X1)
— MRP	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client
- MRP interconnection, supported	Yes; as MRP ring node according to IEC 62439-2 Edition 3.0
— MRPD	Yes; Requirement: IRT
— Switchover time on line break, typ.	200 ms; For MRP, bumpless for MRPD
- Number of stations in the ring, max.	50
SIMATIC communication	
PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
S7 routing	Yes
Data record routing	Yes
S7 communication, as server	Yes
S7 communication, as client	Yes
• User data per job, max.	See online help (S7 communication, user data size)
Open IE communication	
• TCP/IP	Yes
— Data length, max.	64 kbyte
- several passive connections per port, supported	Yes
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	64 kbyte
• UDP	Yes
— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast
— UDP multicast	Yes; max. 78 multicast circuits
• DHCP	Yes
• DNS	Yes
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Encryption	Yes; Optional
Web server	
• HTTP	Yes; Standard and user pages
• HTTP • HTTPS	Yes; Standard and user pages Yes; Standard and user pages
• HTTPS	
• HTTPS OPC UA	Yes; Standard and user pages Yes; "Small" license required
HTTPS OPC UA Runtime license required	Yes; Standard and user pages
HTTPS OPC UA Runtime license required OPC UA Client	Yes; Standard and user pages Yes; "Small" 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; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes
HTTPS OPC UA Runtime license required OPC UA Client Application authentication	Yes; Standard and user pages Yes; "Small" 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; "Small" 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 Security policies User authentication Number of connections, max. Number of nodes of the client interfaces, recommended max. 	Yes; Standard and user pages Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000
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,	Yes; Standard and user pages Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4
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/OPC_L	Yes; Standard and user pages Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000
 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/OPC_I max. Number of elements for one call of 	Yes; Standard and user pages Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300
 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/OPC_L max. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. Number of elements for one call of 	Yes; Standard and user pages Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300
 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/OPC_L max. 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, 	Yes; Standard and user pages Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20
 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/OPC_L max. 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; Standard and user pages Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 20 100
 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/OPC_U max. 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; Standard and user pages Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 100 30
 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/OPC_L max. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, 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 method calls of OPC_UA_MethodCall, max. Number of inputs/outputs when calling OPC_UA_MethodCall, max. 	Yes; Standard and user pages Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 100 1 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/OPC_L max. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, 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 method calls of OPC_UA_MethodCall, max. Number of inputs/outputs when calling OPC_UA_MethodCall, max. OPC UA Server 	Yes; Standard and user pages Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 5 5 000 100 20 Yes; Data Access (Read, Write, Subscribe), Method Call, Alarms & Condition (A&C), Custom Address Space
 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/OPC_U max. 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 registerable nodes, 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. OPC UA Server Application authentication 	Yes; Standard and user pages Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 100 5 5 000 100 20 Yes; Data Access (Read, Write, Subscribe), Method Call, Alarms & Condition (A&C), Custom Address Space Yes
 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/OPC_L max. Number of elements for one call of OPC_UA_NameSpaceGetIndexList, 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 method calls of OPC_UA_MethodCall, max. Number of inputs/outputs when calling OPC_UA_MethodCall, max. OPC UA Server 	Yes; Standard and user pages Yes; "Small" license required Yes; Data Access (registered Read/Write), Method Call Yes Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 4 1 000 300 20 1 5 5 000 100 20 Yes; Data Access (Read, Write, Subscribe), Method Call, Alarms & Condition (A&C), Custom Address Space



	Basic256Sha256, Aes128Sha256RsaOaep, Aes256Sha256RsaPss
— User authentication	"anonymous" or by user name & password
 — GDS support (certificate management) 	Yes
- Number of sessions, max.	32
 Number of accessible variables, max. 	50 000
 — Number of registerable nodes, max. 	10 000
 — Number of subscriptions per session, max. 	50
— Sampling interval, min.	100 ms
— Publishing interval, min.	200 ms
 — Number of server methods, max. 	20
 — 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. 	15 000
Alarms and Conditions	Yes
— Number of program alarms	100
— Number of alarms for system diagnostics	50
Further protocols	
MODBUS	Yes; MODBUS TCP
S7 message functions	
Number of login stations for message functions, max.	32
	Yes
Program alarms Number of configurable program messages, max.	
number of configurable program filessages, filds.	5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
Number of loadable program messages in RUN, max.	2 500
Number of simultaneously active program alarms	
Number of program alarms	600
Number of alarms for system diagnostics	100
Number of alarms for motion technology objects	160
Test commissioning functions	
	Yes; Parallel online access possible for up to 5 engineering systems
Joint commission (Team Engineering)	
Status block	Yes; Up to 8 simultaneously (in total across all ES clients)
Status block Single step	Yes; Up to 8 simultaneously (in total across all ES clients) No
Status block Single step Number of breakpoints	Yes; Up to 8 simultaneously (in total across all ES clients)
Status block Single step Number of breakpoints Status/control	Yes; Up to 8 simultaneously (in total across all ES clients) No 8
Status block Single step Number of breakpoints Status/control • Status/control variable	Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe
Status block Single step Number of breakpoints Status/control	Yes; Up to 8 simultaneously (in total across all ES clients) No 8
Status block Single step Number of breakpoints Status/control • Status/control variable	Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times,
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max.	Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max.	Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max.	Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. Forcing	Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. Forcing • Forcing	Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. Forcing • Forcing, variables	Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe)
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. Forcing • Forcing, variables • Number of variables, max.	Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. Forcing • Forcing • Forcing, variables • Number of variables, max.	Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present	Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. Forcing • Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max.	Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200 Yes 1 000
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. Porcing • Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. — of which powerfail-proof	Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. Porcing • Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. — of which powerfail-proof Traces	Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200 Yes 1 000 500
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. — of which powerfail-proof Traces • Number of configurable Traces	Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200 Yes 1 000
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. Forcing • 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; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200 Yes 1 000 500
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. — of which control variables, max. Porcing • 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; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200 Yes 1 000 500 4; Up to 512 KB of data per trace are possible
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. Forcing • 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; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200 Yes 1 000 500
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. — of which control variables, max. Porcing • 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; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200 Yes 1 000 500 4; Up to 512 KB of data per trace are possible
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. - of which status variables, max. - of which control variables, max. - of which control variables, max. - of which control variables, max. 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; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200 Yes 1 000 500 4; Up to 512 KB of data per trace are possible
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. Porcing • 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; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200 Yes 1 000 500 4; Up to 512 KB of data per trace are possible
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. - of which status variables, max. - of which control variables, max. - of which control variables, max. - of which control variables, max. Forcing • Number of variables, max. - of which powerfail-proof Traces • Number of configurable Traces Interrupts/diagnostics/status information Diagnostics indication LED • RUN/STOP LED • MAINT LED <td>Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200 Yes 1 000 500 4; Up to 512 KB of data per trace are possible Yes Yes Yes</td>	Yes; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200 Yes 1 000 500 4; Up to 512 KB of data per trace are possible Yes Yes Yes
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. - of which status variables, max. - of which control variables, max. - of which control variables, max. - of which control variables, max. 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; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200 Yes 1 000 500 4; Up to 512 KB of data per trace are possible Yes Yes Yes Yes Yes
Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. - of which status variables, max. - of which control variables, max. - of which control 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; Up to 8 simultaneously (in total across all ES clients) No 8 Yes; without fail-safe inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters 200; per job 200; per job Yes; without fail-safe peripheral inputs/outputs (without fail-safe) 200 Yes 1 000 500 4; Up to 512 KB of data per trace are possible Yes Yes Yes Yes Yes



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	program; selection guide via the TIA Selection Tool
 Number of available Motion Control resources for technology objects 	1 120
e Required Motion Control resources	
Required Motion Control resources	40
— per speed-controlled axis	
— 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) 	14
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 tim	
— 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	
Ambient temperature during operation	-30 °C: No condensation
Ambient temperature during operation horizontal installation, min. horizontal installation, max. 	-30 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
horizontal installation, min.horizontal installation, max.	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
 horizontal installation, min. horizontal installation, max. vertical installation, min. 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation
horizontal installation, min.horizontal installation, max.	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
 horizontal installation, min. horizontal installation, max. vertical installation, min. 	 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. 	 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C
 horizontal installation, min. horizontal installation, max. vertical installation, min. 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	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C
 horizontal installation, min. horizontal installation, max. vertical installation, min. 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 Programming / header Programming language	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
 horizontal installation, min. horizontal installation, max. vertical installation, min. 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 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level Installation / header configuration / programming / header Programming language LAD FBD 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level Installation / header configuration / programming / header Programming language LAD FBD STL 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level Installation / header configuration / programming / header Programming language LAD FBD STL SCL 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. onfiguration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
 horizontal installation, min. horizontal installation, max. vertical installation, min. 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	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Attitude 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 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. onfiguration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection User program protection/password protection Copy protection 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. onfiguration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection User program protection/password protection Copy protection Block protection 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. onfiguration / header configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection User program protection/password protection Copy protection 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
 horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. Onfiguration / header Configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection User program protection/password protection Copy protection Block protection 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
 horizontal installation, min. horizontal installation, max. vertical installation, min. 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 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes Yes Yes
 horizontal installation, min. horizontal installation, max. vertical installation, min. 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 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual 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
 horizontal installation, min. horizontal installation, max. vertical installation, min. 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 rogramming 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 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes Yes Yes Yes Yes
 horizontal installation, min. horizontal installation, max. vertical installation, min. 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 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 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -30 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual



programming / cycle time monitoring / header	
lower limit	adjustable minimum cycle time
upper limit	adjustable maximum cycle time
Dimensions	
Width	35 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	336 g

last modified:

10/6/2023 🖸

