## 6ES7517-3AP00-0AB0





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

General information	
Product type designation	CPU 1517-3 PN/DP
HW functional status	FS11
Firmware version	V3.1
FW update possible	Yes
Product function	
● I&M data	Yes; I&M0 to I&M3
• Isochronous mode	Yes; Distributed and central; with minimum OB 6x cycle of 250 $\mu s$ (distributed) and 1 ms (central)
SysLog	Yes
Engineering with	
STEP 7 TIA Portal configurable/integrated from version	V19 (FW V3.1); V13 Update 3 (FW V1.6) or higher
Configuration control	
via dataset	Yes
Display	
Screen diagonal [cm]	6.1 cm
Control elements	
Number of keys	6
Mode selector switch	1
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Mains buffering	
<ul> <li>Mains/voltage failure stored energy time</li> </ul>	5 ms
Input current	
Current consumption (rated value)	1.55 A
Current consumption, max.	1.9 A
Inrush current, max.	1.9 A; Rated value
l²t	0.4 A <sup>2</sup> ·s
Power	
Infeed power to the backplane bus	12 W
Power consumption from the backplane bus (balanced)	30 W
Power loss	
Power loss, typ.	24 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	

• integrated (for program)	2 Mbyte
<ul><li>integrated (for program)</li><li>integrated (for data)</li></ul>	8 Mbyte
Load memory	o mbyto
Plug-in (SIMATIC Memory Card), max.	32 Gbyte
Backup	02 02,0
maintenance-free	Yes
CPU processing times	
for bit operations, typ.	2 ns
for word operations, typ.	3 ns
for fixed point arithmetic, typ.	3 ns
for floating point arithmetic, typ.	12 ns
CPU-blocks	
Number of elements (total)	12 000; Blocks (OB, FB, FC, DB) and UDTs
DB	, , , , ,
Number range	1 60 999; subdivided into: number range that can be used by the user: 1
	59 999, and number range of DBs created via SFC 86: 60 000 60 999
• Size, max.	8 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	
Number range	0 65 535
• Size, max.	1 Mbyte
FC	0. 05 505
Number range	0 65 535
• Size, max.	1 Mbyte
OB	4.80
Size, max.      Number of free cycle ODe.	1 Mbyte
Number of free cycle OBs	100
<ul> <li>Number of time alarm OBs</li> </ul>	20
<ul> <li>Number of delay alarm OBs</li> </ul>	20
<ul> <li>Number of cyclic interrupt OBs</li> </ul>	20; with minimum OB 3x cycle of 100 μs
<ul> <li>Number of process alarm OBs</li> </ul>	50
<ul> <li>Number of DPV1 alarm OBs</li> </ul>	3
Number of isochronous mode OBs	3
<ul> <li>Number of technology synchronous alarm OBs</li> </ul>	2
Number of startup OBs	100
Number of asynchronous error OBs	4
•	2
Number of synchronous error OBs     Number of diagnostic plans OBs	
Number of diagnostic alarm OBs	1
Nesting depth	0.4
per priority class	24
Counters, timers and their retentivity	
S7 counter	0.040
Number	2 048
Retentivity	
— adjustable	Yes
IEC counter	
Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
S7 times	
Number	2 048
Retentivity	
— adjustable	Yes
IEC timer	
Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	768 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 700 KB
Extended retentive data area (incl. timers, counters, flags), max.	8 Mbyte; When using PS 6 0W 24/48/60 V DC HF
Flag	

• Size, max.	16 kbyte
<ul> <li>Number of clock memories</li> </ul>	8; 8 clock memory bit, grouped into one clock memory byte
Data blocks	
Retentivity adjustable	Yes
Retentivity preset	No
Local data	110
	64 khyto: may 16 KD par blook
per priority class, max.	64 kbyte; max. 16 KB per block
Address area	
Number of IO modules	16 384; max. number of modules / submodules
I/O address area	
• Inputs	32 kbyte; All inputs are in the process image
Outputs	32 kbyte; All outputs are in the process image
per integrated IO subsystem	
— Inputs (volume)	32 kbyte; Max. 32 KB via X1; max. 8 KB via X2 or X3
— Outputs (volume)	32 kbyte; Max. 32 KB via X1; max. 8 KB via X2 or X3
per CM/CP	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images	·,
	32
Number of subprocess images, max.  Hardways configuration.	UZ
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
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	10 s; Typ.: 2 s
Operating hours counter  • Number	10 s; Typ.: 2 s 16
-	
Number Clock synchronization	
Number Clock synchronization     supported	16 Yes
<ul> <li>Number</li> <li>Clock synchronization</li> <li>supported</li> <li>to DP, master</li> </ul>	16 Yes Yes
Number  Clock synchronization     supported     to DP, master     to DP, slave	Yes Yes Yes
<ul> <li>Number</li> <li>Clock synchronization</li> <li>supported</li> <li>to DP, master</li> <li>to DP, slave</li> <li>in AS, master</li> </ul>	Yes Yes Yes Yes Yes
<ul> <li>Number</li> <li>Clock synchronization</li> <li>supported</li> <li>to DP, master</li> <li>to DP, slave</li> <li>in AS, master</li> <li>in AS, slave</li> </ul>	Yes Yes Yes Yes Yes Yes
Number  Clock synchronization  supported  to DP, master  to DP, slave  in AS, master  in AS, slave  on Ethernet via NTP	Yes Yes Yes Yes Yes
Number  Clock synchronization  supported  to DP, master  to DP, slave  in AS, master  in AS, slave  on Ethernet via NTP  Interfaces	Yes Yes Yes Yes Yes Yes Yes Yes
Number  Clock synchronization  supported  to DP, master  to DP, slave  in AS, master  in AS, slave  on Ethernet via NTP	Yes Yes Yes Yes Yes Yes Yes Yes
Number  Clock synchronization  supported  to DP, master  to DP, slave  in AS, master  in AS, slave  on Ethernet via NTP  Interfaces	Yes Yes Yes Yes Yes Yes Yes Yes
Number  Clock synchronization  supported  to DP, master  to DP, slave  in AS, master  in AS, slave  on Ethernet via NTP  Interfaces  Number of PROFINET interfaces	Yes Yes Yes Yes Yes Yes Yes Yes
Number  Clock synchronization  supported  to DP, master  to DP, slave  in AS, master  in AS, slave  on Ethernet via NTP  Interfaces  Number of PROFINET interfaces  Number of PROFIBUS interfaces	Yes Yes Yes Yes Yes Yes Yes Yes
Number  Clock synchronization  supported  to DP, master  to DP, slave  in AS, master  in AS, slave  on Ethernet via NTP  Interfaces  Number of PROFINET interfaces  Number of PROFIBUS interfaces  Interface  Interface types	Yes Yes Yes Yes Yes Yes Yes Yas Yes Yes
Number  Clock synchronization  supported  to DP, master  to DP, slave  in AS, master  in AS, slave  on Ethernet via NTP  Interfaces  Number of PROFINET interfaces  Number of PROFIBUS interfaces  1. Interface  Interface types  RJ 45 (Ethernet)	16  Yes Yes Yes Yes Yes Yes Yes Yes Yes
Number  Clock synchronization  supported  to DP, master  to DP, slave  in AS, master  in AS, slave  on Ethernet via NTP  Interfaces  Number of PROFINET interfaces  Number of PROFIBUS interfaces  1. Interface  Interface types  RJ 45 (Ethernet)  Number of ports	16  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Number  Clock synchronization  supported  to DP, master  to DP, slave  in AS, master  in AS, slave  on Ethernet via NTP  Interfaces  Number of PROFINET interfaces  Number of PROFIBUS interfaces  1. Interface  Interface types  RJ 45 (Ethernet)  Number of ports  integrated switch	16  Yes Yes Yes Yes Yes Yes Yes Yes Yes
Number  Clock synchronization  supported  to DP, master  to DP, slave  in AS, master  in AS, slave  on Ethernet via NTP  Interfaces  Number of PROFINET interfaces  Number of PROFIBUS interfaces  1. Interface  Interface types  RJ 45 (Ethernet)  Number of ports  integrated switch  Protocols	16  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Number  Clock synchronization  supported  to DP, master  to DP, slave  in AS, master  in AS, slave  on Ethernet via NTP  Interfaces  Number of PROFINET interfaces  Number of PROFIBUS interfaces  1. Interface  Interface types  RJ 45 (Ethernet)  Number of ports  integrated switch	16  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye

PROFINITIO P	
PROFINET IO Device	Yes
SIMATIC communication	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
Media redundancy      DECEMENT OCCUPATION	Yes
PROFINET IO Controller  Services	
	Yes
— Isochronous mode	
— Direct data exchange — IRT	Yes; Requirement: IRT and isochronous mode (MRPD optional) Yes
— PROFlenergy	Yes; per user program
Prioritized startup	Yes; Max. 32 PROFINET devices
Number of connectable IO Devices, max.	512; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
<ul> <li>Of which IO devices with IRT, max.</li> </ul>	64
Number of connectable IO Devices for RT, max.	512
— of which in line, max.	512
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
— PROFINET Security Class	1
Update time for IRT	
— for send cycle of 250 μs	250 μs to 4 ms
— for send cycle of 500 μs	500 μs to 8 ms
— for send cycle of 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
<ul> <li>With IRT and parameterization of "odd" send cycles</li> </ul>	Update time = set "odd" send clock (any multiple of 125 $\mu$ s: 375 $\mu$ s, 625 $\mu$ s 3 875 $\mu$ 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	
— 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  PROFINET Converts Class	Yes; per user program
— PROFINET Security Class	SNMP Configuration and DCP Read Only
2. Interface Interface types	
• RJ 45 (Ethernet)	Yes; X2
Number of ports	1
integrated switch	No
Protocols	
IP protocol	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	No
PROFINET IO Controller	

Services  - Isochromous mode - Direct data exchange - IRT - PROFilanergy - Prioritized startup - Number of connectable IO Devoes for RT, max Of which him line, max Of which him line, max Of which him line, max Updating thres - Number of IO Devices per tool, max Updating thres - PROFINET Security Class  Update time for IV - PROFINET Security Class  In the Indiana Security Class IV - PROFINET Security Class  IN the Indiana Security Class  IN the Indiana Security Class IV - PROFINET Security Class  IN the Indiana Security Class  I	Services	
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activated/deactivated, max.  - Number of I/O Devices par tool, max.  - Updating times  - Updating times  - PROFINET Security Class  1  - PROFINET Security Class  1  - For send cycle of 1 ms  - For send cycle of 1 ms  - FROFINET I/O Devices  - FROFINET I/O Devices  - Instruction  - Instruction  - Instruction  - Instruction  - PROFIner of I/O Controllers with shared device, max.  - Instruction  - Instruction  - Number of I/O Controllers with shared device, max.  - Instruction  - Assert management record  - PROFINET Security Class  - Asset management record  - PROFINET Security Class  - Instruction  -		128
activated/deactivated, max.  - Number of I/O Devices par tool, max.  - Updating times  - Updating times  - PROFINET Security Class  1  - PROFINET Security Class  1  - For send cycle of 1 ms  - For send cycle of 1 ms  - FROFINET I/O Devices  - FROFINET I/O Devices  - Instruction  - Instruction  - Instruction  - Instruction  - PROFIner of I/O Controllers with shared device, max.  - Instruction  - Instruction  - Number of I/O Controllers with shared device, max.  - Instruction  - Assert management record  - PROFINET Security Class  - Asset management record  - PROFINET Security Class  - Instruction  -	Number of IO Devices that can be simultaneously	8; in total across all interfaces
- Updating times set for PROFINET ion and interpretation share set for PROFINET (D, on the number of IO devices, and on the quantity of configured user data		
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  PROFINET IO Device  Services  - Isochronous mode - IRT - PROFINET OF Controllers with shared device, max exhaltonic/searchagon of I devices - Asset management record - PROFINET Security Class  SNMP Configuration and DCP Read Only  Interface types  - R3 485 - Number of Ports - PROFIBUS DP master - Number of connections, max Sulvational communication - PROFIBUS DP master - Number of connections, max Services - Equidistance - Isochronous mode - Activation/deactivation of DP slaves - Activation/de	<ul> <li>Number of IO Devices per tool, max.</li> </ul>	8
Update time for RT — for send cycle of 1 ms — recommendation  PROFINET to Device  Services — lacothronous mode — litt — for Send cycle of 1 ms — PROFilenergy — Proritized startup — Proritized startup — Proritized startup — Shared device — Number of IO Controllers with shared device, max. — activation/deactivation of I-devices — Asset management record — PROFINET Security Class — Asset management record — PROFINET Security Class — SNMP Configuration and DCP Read Only  Interface types — RS 455 — Number of ports — PROFIBUS DP master — PROFIBUS DP slave — SIMATIC communication — PROFIBUS DP slave — Number of connections, max. — Number of DP slaves, max. — REQUISITATION — REQUISITAT	— Updating times	set for PROFINET IO, on the number of IO devices, and on the quantity of
- for send cycle of 1 ms   PROFINET IO Device  Services  - Isochronous mode	— PROFINET Security Class	
PROFINET IO Device  Services  - Isochronous mode - IRT - PROFlenergy - Prioritized startup - PROFlenergy - Prioritized startup - Shared device - Number of IO Controllers with shared device, max activation/deactivation of 1-devices - Asset management record - PROFINET Security Class - Asset management record - PROFINET Security Class - SMAP Configuration and DCP Read Only  3. Interface  Interface types - RS 485 - Number of ports - PROFIBUS DP master - PROFIBUS DP master - PROFIBUS DP slave - SIMATIC communication - PROFIBUS DP master - Number of DP slaves, max RS 485 - Leguidistance - Activation/deactivation of DP slaves -	·	
Services	— for send cycle of 1 ms	1 ms to 512 ms
Isochronous mode	· · · · · · · · · · · · · · · · · · ·	
- IRT - PROFlenergy - Prioritized startup - Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record - PROFINET Security Class - Asset management record - PROFINET Security Class - Shared device - PROFINET Security Class - Shared Asset management record - PROFINET Security Class - Shared Profined Shared S	Services	
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Prioritized startup Shared device Number of IO Controllers with shared device, max.  - activation/deactivation of I-devices Number of IO Controllers with shared device, max.  - activation/deactivation of I-devices PROFINET Security Class SNMP Configuration and DCP Read Only  SINTerface  Interface types RS 485 Number of ports PROFIBUS DP master PROFIBUS DP master PROFIBUS DP slave No SIMATIC communication PROFIBUS DP master Number of connections, max. Number of DP slaves, max. Als, for the integrated PROFIBUS DP interface PROFIBUS DP slaves, max. Als, for the integrated PROFIBUS DP interface PROFIBUS DP master Services PEquidistance Services PEquidistance It such the integrated PROFIBUS DP interface PROFIBUS OP PROFINET  Services PROFIBUS DP slaves, max. Als, for the integrated PROFIBUS DP interface PROFIBUS DP interface PROFIBUS DP interface PROFIBUS DP interface PROFIBUS OP PROFINET  Services PEquidistance Pequi	— IRT	No
Prioritized startup Shared device Number of IO Controllers with shared device, max.  - activation/deactivation of I-devices Number of IO Controllers with shared device, max.  - activation/deactivation of I-devices PROFINET Security Class SNMP Configuration and DCP Read Only  SINTerface  Interface types RS 485 Number of ports PROFIBUS DP master PROFIBUS DP master PROFIBUS DP slave No SIMATIC communication PROFIBUS DP master Number of connections, max. Number of DP slaves, max. Als, for the integrated PROFIBUS DP interface PROFIBUS DP slaves, max. Als, for the integrated PROFIBUS DP interface PROFIBUS DP master Services PEquidistance Services PEquidistance It such the integrated PROFIBUS DP interface PROFIBUS OP PROFINET  Services PROFIBUS DP slaves, max. Als, for the integrated PROFIBUS DP interface PROFIBUS DP interface PROFIBUS DP interface PROFIBUS DP interface PROFIBUS OP PROFINET  Services PEquidistance Pequi	— PROFlenergy	Yes; per user program
Number of IO Controllers with shared device, max activation/deactivation of Leterices Asset management record PROFINET Security Class SNMP Configuration and DCP Read Only  Interface types RS 485 Number of ports PROFIBUS DP master PROFIBUS DP master PROFIBUS DP slave SIMATIC communication Number of connections, max Number of DP slaves, max Number of DP slaves, max PROFIBUS DP islave slave slaves, max Number of DP slaves, max Number of DP slaves, max Services Equidistance slaves, max PROFIBUS or PROFINET  Services Redutation/deactivation of DP slaves Activation/deactivation of DP slaves Redutation/deactivation of DP slaves Redutation slaves, max Profibus slaves, max Profibus slaves, max		
	— Shared device	Yes
	- Number of IO Controllers with shared device, max.	4
- PROFINET Security Class  Interface types  • RS 485 • 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 PROFIBU	<ul> <li>activation/deactivation of I-devices</li> </ul>	Yes; per user program
Interface types  RS 485 RS 485 Number of ports 1 Protocols  PROFIBUS DP master PROFIBUS DP slave No SIMATIC communication PROFIBUS DP master Number of connections, max. Number of DP slaves, max. Services  Equidistance Equidistance Equidistance Services  Activation/deactivation of DP slaves Activation/deactivation of DP slaves  RJ 45 (Ethernet) Autocrossing Autorogoliation Autocrossing Autorogoliation Fransmission rate, max.  PROFIBUS  RS 485 Number of connections, max.  Number of connections, max.  12 Mbit/s  Protocols  PROFIBUS  No Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections reserved for ES/HMI/web Number of connections reserved for ES/HMI/web Number of connections was integrated interfaces Number of s7 routing paths  64; in total, only 16 S7-Routing connections are supported via PROFIBUS	<ul> <li>Asset management record</li> </ul>	Yes; per user program
Interface types  • RS 485  • Number of ports  • PROFIBUS DP master  • PROFIBUS DP slave  • SIMATIC communication  • PROFIBUS DP master  • Number of connections, max.  • Number of DP slaves, max.  • Number of DP slaves, max.  • Number of DP slaves, max.  • Services  — Equidistance — Lequidistance — Lequidistance — Lequidistance — Lequidistance — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  • 100 Mbps • Autonegotiation • Autocrossing • Industrial Ethernet status LED Yes  RS 485 • Transmission rate, max.  • Number of connections  • Number of connections  • Number of connections • Number of connections reserved for ES/HMI/web • Number of S7 routing paths	-	
RS 485  Number of ports  Number of ports  PROFIBUS DP master PROFIBUS DP slave PROFIBUS DP master SIMATIC communication PROFIBUS DP master Number of connections, max. Number of DP slaves, max. PROFIBUS OP PROFIBUS OP PROFIBUS DP interface Number of DP slaves, max. PROFIBUS or PROFIBUS OP PROFINET  Services  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves PROFIBUS OP PROFINET  PROFIBUS OF PROFINET  Services  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves Pres  Interface types  RJ 45 (Ethernet)  100 Mbps Pes Autonegotiation Pres Autocrossing Pes Industrial Ethernet status LED Pes  RS 485  • Transmission rate, max. Protocols  PROFIBIE  PROFIBIE  No  Number of connections, max. Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections reserved for ES/HMI/web Number of connections real intergrated interfaces PROFIBUS  64; in total, only 16 S7-Routing connections are supported via PROFIBUS	3. Interface	
Number of ports  Protocols  PROFIBUS DP master PROFIBUS DP slave No SIMATIC communication PROFIBUS DP master Number of connections, max. Number of DP slaves, max. PROFIBUS or PROFINET  Services PROFIBUS or PROFIBUS Profined Profibuted I/O devices can be connected via AS-i, profibus pr	Interface types	
Protocols  PROFIBUS DP master PROFIBUS DP slave SIMATIC communication Yes  PROFIBUS DP master  No SIMATIC communication Yes  PROFIBUS DP master  Number of connections, max. Services  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Profibus DP slaves, max.  Yes  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  RJ 45 (Ethernet)  No Number of connections  Transmission rate, max.  Profocols  PROFIsafe No 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  Profibus  148; for the integrated PROFIBUS DP interface  48; for the integrated	• RS 485	Yes; X3
PROFIBUS DP master PROFIBUS DP slave No 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 125; In total, up to 1 000 distributed I/O devices can be connected via AS-I, PROFIBUS or PROFIBUS or PROFIBUS or PROFINET  Services  — Equidistance — Services — Equidistance — Ves — Isochronous mode — Activation/deactivation of DP slaves  Profice types  RJ 45 (Ethernet)  100 Mbps Yes Autonegotiation Yes Autorossing Yes Industrial Ethernet status LED Yes  RS 485 Transmission rate, max.  12 Mbit/s  Protocols  PROFISafe No Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces 288 Number of S7 routing paths  64; in total, only 16 S7-Routing connections are supported via PROFIBUS	<ul> <li>Number of ports</li> </ul>	1
PROFIBUS DP slave SIMATIC communication Yes  PROFIBUS DP master  Number of connections, max. Number of DP slaves, max. Services  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  RJ 45 (Ethernet)  100 Mbps Autocrossing Industrial Ethernet status LED  PROFIBUS  RS 485  Transmission rate, max.  PROFIBUS  PROFIBUS or PROFINET  Yes  Autocrossing Yes  Autocrossing Industrial Ethernet status LED  Protocols  PROFISafe No  Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections reserved for ES/HMI/web Number of connections reserved interfaces Number of S7 routing paths  64; in total, only 16 S7-Routing connections are supported via PROFIBUS	Protocols	
SIMATIC communication PROFIBUS DP master  Number of connections, max. Number of connections, max. Services  Equidistance Services  Equidistance Services  PROFIBUS or PROFINET  Services  Services  Services  Services  PROFIBUS or PROFINET  Services  Sevended Profiles  Services  Services  Services  Services  Services	PROFIBUS DP master	Yes
PROFIBUS DP master  Number of connections, max. Number of DP slaves, max. PROFIBUS or PROFIBUS DP interface  Lequidistance Services  Lequidistance Services Services  Lequidistance Services Services  Lequidistance Services Services  Lequidistance Services	PROFIBUS DP slave	No
Number of connections, max.  Number of DP slaves, 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 PROFINET  Services  - Equidistance - Isochronous mode - Activation/deactivation of DP slaves    Yes		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  — Equidistance Yes — Isochronous mode Yes — Activation/deactivation of DP slaves Yes  Interface types  RJ 45 (Ethernet)  • 100 Mbps Yes • Autonegotiation Yes • Autocrossing Yes • Industrial Ethernet status LED Yes  RS 485  • Transmission rate, max.  Protocols  PROFISafe No  Number of connections  • Number of connections, max.  • 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  64; in total, only 16 S7-Routing connections are supported via PROFIBUS	<ul> <li>SIMATIC communication</li> </ul>	
Services		
Services  - Equidistance Yes - Isochronous mode Yes - Activation/deactivation of DP slaves Yes  Interface types  RJ 45 (Ethernet)  • 100 Mbps Yes • Autonegotiation Yes • Autocrossing Yes • Industrial Ethernet status LED Yes  RS 485 • Transmission rate, max. 12 Mbit/s  Protocols  PROFIsafe No Number of connections, max. 320; via integrated interfaces of the CPU and connected CPs / CMs • Number of connections via integrated interfaces 288 • Number of S7 routing paths 64; in total, only 16 S7-Routing connections are supported via PROFIBUS	PROFIBUS DP master	48; for the integrated PROFIBUS DP interface
Equidistance Isochronous mode Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  100 Mbps Autonegotiation Autocrossing Autocrossing Autocrossing Industrial Ethernet status LED Yes  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 Activation/deactivation of Yes Yes Activation/deactivation of DP slaves Yes Yes Autoreory Auto	PROFIBUS DP master  • Number of connections, max.	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i,
- Isochronous mode Yes Yes  - Activation/deactivation of DP slaves Yes  Interface types  RJ 45 (Ethernet)  • 100 Mbps Yes  • Autonegotiation Yes  • Autocrossing Yes  • Industrial Ethernet status LED Yes  RS 485  • Transmission rate, max. 12 Mbit/s  Protocols  PROFIsafe No  Number of connections, max. 320; via integrated interfaces of the CPU and connected CPs / CMs  • Number of connections reserved for ES/HMI/web  • Number of connections via integrated interfaces 288  • Number of S7 routing paths 64; in total, only 16 S7-Routing connections are supported via PROFIBUS	PROFIBUS DP master  • 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,
Interface types  RJ 45 (Ethernet)  • 100 Mbps • Autonegotiation • Autocrossing • Industrial Ethernet status LED  RS 485 • Transmission rate, max.  Protocols  PROFIsafe No 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  Yes  Yes  Yes  Yes  Yes  Yes  Yes  Y	PROFIBUS DP master  • Number of connections, max.  • Number of DP slaves, max.  Services	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
Interface types  RJ 45 (Ethernet)  • 100 Mbps  • Autonegotiation  • Autocrossing  • Industrial Ethernet status LED  Yes  RS 485  • Transmission rate, max.  12 Mbit/s  Protocols  PROFIsafe  No  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  64; in total, only 16 S7-Routing connections are supported via PROFIBUS	PROFIBUS DP master  • Number of connections, max.  • Number of DP slaves, max.  Services  — Equidistance	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes
RJ 45 (Ethernet)  • 100 Mbps  • Autonegotiation  • Autocrossing  • Industrial Ethernet status LED  RS 485  • Transmission rate, max.  Protocols  PROFIsafe  No  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  64; in total, only 16 S7-Routing connections are supported via PROFIBUS	PROFIBUS DP master  • Number of connections, max.  • Number of DP slaves, max.  Services  — Equidistance — Isochronous mode	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes Yes
• 100 Mbps     • Autonegotiation     • Autocrossing     • Industrial Ethernet status LED     Yes  RS 485     • Transmission rate, max.  Protocols  PROFIsafe     No Number of connections     • Number of connections, max.  Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths  Yes  Yes  Yes  Yes  Yes  Yes  Yes  Y	PROFIBUS DP master  • Number of connections, max.  • Number of DP slaves, max.  Services  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes Yes
<ul> <li>Autocrossing</li> <li>Autocrossing</li> <li>Industrial Ethernet status LED</li> <li>Yes</li> <li>RS 485</li> <li>Transmission rate, max.</li> <li>Mbit/s</li> </ul> Protocols PROFIsafe <ul> <li>No</li> </ul> Number of connections <ul> <li>Number of connections, max.</li> <li>Number of connections reserved for ES/HMI/web</li> <li>Number of connections via integrated interfaces</li> <li>Number of S7 routing paths</li> <li>4; in total, only 16 S7-Routing connections are supported via PROFIBUS</li> </ul>	PROFIBUS DP master  • Number of connections, max.  • Number of DP slaves, max.  Services  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes Yes
Autocrossing     Industrial Ethernet status LED     Yes  RS 485      Transmission rate, max.  Protocols  PROFIsafe  No  Number of connections  Number of connections, max.  Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces Number of S7 routing paths  Yes  Yes  Yes  Yes  Yes  Yes  12 Mbit/s  12 Mbit/s  12 Mbit/s  12 Mbit/s  12 Mbit/s  12 Mbit/s  13 Mbit/s  14 Minimal S7 CPU and connected CPs / CMs  16 Number of S7 Routing connections are supported via PROFIBUS	PROFIBUS DP master  • Number of connections, max.  • Number of DP slaves, max.  Services  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes Yes Yes
Industrial Ethernet status LED  RS 485  Transmission rate, max.  Protocols  PROFIsafe  No  Number of connections  Number of connections, max.  Number of connections reserved for ES/HMI/web  Number of connections via integrated interfaces  Number of S7 routing paths  Yes  Yes  Yes  Yes  Yes  12 Mbit/s  12 Mbit/s  12 Mbit/s  No  No  No  Number of connections  280; via integrated interfaces of the CPU and connected CPs / CMs  10  288  4; in total, only 16 S7-Routing connections are supported via PROFIBUS	PROFIBUS DP master  • Number of connections, max.  • Number of DP slaves, max.  Services  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes Yes Yes
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  12 Mbit/s  No  No  320; via integrated interfaces of the CPU and connected CPs / CMs  10  288  64; in total, only 16 S7-Routing connections are supported via PROFIBUS	PROFIBUS DP master  Number of connections, max.  Number of DP slaves, max.  Services  Equidistance  Isochronous mode  Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  100 Mbps	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes
<ul> <li>◆ Transmission rate, max.</li> <li>Protocols</li> <li>PROFIsafe</li> <li>Number of connections</li> <li>◆ Number of connections, max.</li> <li>◆ Number of connections reserved for ES/HMI/web</li> <li>◆ Number of connections via integrated interfaces</li> <li>◆ Number of S7 routing paths</li> <li>12 Mbit/s</li> <li>No</li> <li>320; via integrated interfaces of the CPU and connected CPs / CMs</li> <li>10</li> <li>288</li> <li>◆ Number of S7 routing paths</li> <li>64; in total, only 16 S7-Routing connections are supported via PROFIBUS</li> </ul>	PROFIBUS DP master  Number of connections, max.  Number of DP slaves, max.  Services  Equidistance  Isochronous mode  Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  100 Mbps Autonegotiation	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes
PROFIsafe  No  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  No  No  320; via integrated interfaces of the CPU and connected CPs / CMs  10  288  4; in total, only 16 S7-Routing connections are supported via PROFIBUS	PROFIBUS DP master  • Number of connections, max. • Number of DP slaves, max.  Services  — Equidistance — Isochronous mode — Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  • 100 Mbps • Autonegotiation • Autocrossing	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes Yes Yes
PROFIsafe  No  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  No  320; via integrated interfaces of the CPU and connected CPs / CMs  10  288  Number of connections via integrated interfaces  4; in total, only 16 S7-Routing connections are supported via PROFIBUS	PROFIBUS DP master  Number of connections, max.  Number of DP slaves, max.  Services  Equidistance Isochronous mode Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes Yes Yes
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  320; via integrated interfaces of the CPU and connected CPs / CMs  10  288  64; in total, only 16 S7-Routing connections are supported via PROFIBUS	PROFIBUS DP master  Number of connections, max.  Number of DP slaves, max.  Services  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.	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes Yes Yes Yes Yes Yes
<ul> <li>Number of connections, max.</li> <li>Number of connections reserved for ES/HMI/web</li> <li>Number of connections via integrated interfaces</li> <li>Number of S7 routing paths</li> <li>320; via integrated interfaces of the CPU and connected CPs / CMs</li> <li>10</li> <li>288</li> <li>64; in total, only 16 S7-Routing connections are supported via PROFIBUS</li> </ul>	PROFIBUS DP master  Number of connections, max.  Number of DP slaves, max.  Services  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.	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes Yes Yes Yes Yes Yes
<ul> <li>Number of connections reserved for ES/HMI/web</li> <li>Number of connections via integrated interfaces</li> <li>Number of S7 routing paths</li> <li>10</li> <li>288</li> <li>64; in total, only 16 S7-Routing connections are supported via PROFIBUS</li> </ul>	PROFIBUS DP master  Number of connections, max.  Number of DP slaves, max.  Services  Equidistance Isochronous mode Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  Autonegotiation Autocrossing Industrial Ethernet status LED  RS 485 Transmission rate, max.	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
<ul> <li>Number of connections via integrated interfaces</li> <li>Number of S7 routing paths</li> <li>288</li> <li>64; in total, only 16 S7-Routing connections are supported via PROFIBUS</li> </ul>	PROFIBUS DP master  Number of connections, max.  Number of DP slaves, max.  Services  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	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Number of S7 routing paths  64; in total, only 16 S7-Routing connections are supported via PROFIBUS	PROFIBUS DP master  Number of connections, max. Number of DP slaves, max.  Services  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	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes Yes Yes Yes Yes Yes No
	PROFIBUS DP master  Number of connections, max. Number of DP slaves, max.  Services  Equidistance Isochronous mode Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  100 Mbps Autonegotiation Autocrossing Industrial Ethernet status LED  RS 485 Transmission rate, max.  Protocols  PROFIsafe Number of connections Number of connections, max.	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes Yes Yes Yes Yes Yes You Yes
Redundancy mode	PROFIBUS DP master  Number of connections, max.  Number of DP slaves, max.  Services  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 reserved for ES/HMI/web	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes Yes Yes Yes Yes Yes Your services of the CPU and connected CPs / CMs 10
Troduction in the control in the con	PROFIBUS DP master  Number of connections, max. Number of DP slaves, max.  Services  Equidistance Isochronous mode Activation/deactivation of DP slaves  Interface types  RJ 45 (Ethernet)  Autonegotiation Autocrossing Industrial Ethernet status LED  RS 485 Transmission rate, max.  Protocols  PROFIsafe  Number of connections, max. Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET  Yes Yes Yes Yes Yes Yes Yes Yes Your state of the CPU and connected CPs / CMs 10 288

H-Sync forwarding	Yes
Media redundancy	
— Media redundancy	only via 1st interface (X1)
— MRP	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client
<ul> <li>MRP interconnection, supported</li> </ul>	Yes; as MRP ring node according to IEC 62439-2 Edition 3.0
— MRPD	Yes; Requirement: IRT
<ul> <li>Switchover time on line break, typ.</li> </ul>	200 ms; For MRP, bumpless for MRPD
— Number of stations in the ring, max.	50
SIMATIC communication	
PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
S7 routing	Yes
Data record routing	Yes
<ul> <li>S7 communication, as server</li> </ul>	Yes
<ul> <li>S7 communication, as client</li> </ul>	Yes
User data per job, max.	See online help (S7 communication, user data size)
Open IE communication	
• TCP/IP	Yes
— Data length, max.	64 kbyte
several passive connections per port, supported	Yes
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	64 kbyte
• UDP	Yes
— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast
— UDP multicast	Yes; 128 multicast circuits (of which max. 5 via X1)
• DHCP	Yes
• DNS	Yes
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
• Encryption	Yes; Optional
Web server	
• HTTP	Yes; Standard and user pages
• HTTPS	Yes; Standard and user pages
• web API	
<ul> <li>Number of sessions, max.</li> </ul>	200
<ul> <li>number of simultaneous HTTP calls, max.</li> </ul>	4
— HTTP request body, max.	131 072 byte
OPC UA	
Runtime license required	Yes; "Large" license required
OPC UA Client	Yes; Data Access (registered Read/Write), Method Call
<ul> <li>Application authentication</li> </ul>	Yes
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
<ul> <li>User authentication</li> </ul>	"anonymous" or by user name & password
<ul> <li>Number of connections, max.</li> </ul>	40
<ul> <li>Number of nodes of the client interfaces, recommended max.</li> </ul>	5 000
<ul> <li>Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_I max.</li> </ul>	300
Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.	20
Number of elements for one call of OPC_UA_MethodGetHandleList, max.	100
<ul> <li>Number of simultaneous calls of the client instructions for session management, per connection, max.</li> </ul>	1
Number of simultaneous calls of the client instructions for data access, per connection, max.	5
Number of registerable nodes, max.	5 000
-	100
<ul> <li>Number of registerable method calls of OPC_UA_MethodCall, max.</li> </ul>	
	100

OPC UA MethodCall, max.	
OPC UA Server	Yes; Data Access (Read, Write, Subscribe), Method Call, Alarms & Condition
	(A&C), Custom Address Space
<ul> <li>Application authentication</li> </ul>	Yes
— Security policies	available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256, Aes128Sha256RsaOaep, Aes256Sha256RsaPss
<ul> <li>User authentication</li> </ul>	"anonymous" or by user name & password
<ul> <li>— GDS support (certificate management)</li> </ul>	Yes
— Number of sessions, max.	64
<ul> <li>Number of accessible variables, max.</li> </ul>	200 000
<ul> <li>Number of registerable nodes, max.</li> </ul>	50 000
<ul> <li>Number of subscriptions per session, max.</li> </ul>	50
— Sampling interval, min.	10 ms
— Publishing interval, min.	10 ms
<ul> <li>Number of server methods, max.</li> </ul>	100
<ul> <li>Number of inputs/outputs per server method, max.</li> </ul>	20
<ul> <li>Number of monitored items, recommended max.</li> </ul>	10 000; for 1 s sampling interval and 1 s send interval
— Number of server interfaces, max.	10 of each "Server interfaces" / "Companion specification" type and 20 of the type "Reference namespace"
<ul> <li>Number of nodes for user-defined server interfaces, max.</li> </ul>	30 000
<ul> <li>Alarms and Conditions</li> </ul>	Yes
— Number of program alarms	400
Number of alarms for system diagnostics	200
Further protocols	
• MODBUS	Yes; MODBUS TCP
S7 message functions	
Number of login stations for message functions, max.	64
number of subscriptions, max.	750
number of tags/attributes for subscriptions, max.	20 000
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.	10 000
Number of simultaneously active program alarms	
<ul> <li>Number of program alarms</li> </ul>	2 000
<ul> <li>Number of alarms for system diagnostics</li> </ul>	1 000
<ul> <li>Number of alarms for motion technology objects</li> </ul>	480
Test commissioning functions	
Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 10 engineering systems
Status block	Yes; Up to 16 simultaneously (in total across all ES clients)
Single step	No
Number of breakpoints	20
Profiling	No
Status/control	
Status/control variable	Yes
<ul> <li>Variables</li> </ul>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Number of variables, max.	
— of which status variables, max.	200; per job
— of which control variables, max.	200; per job
Forcing	
• Forcing	Yes
Forcing, variables	Peripheral inputs/outputs
Number of variables, max.	200
Diagnostic buffer	
• present	Yes
Number of entries, max.	3 200
— of which powerfail-proof	1 000
Traces	
<ul> <li>Number of configurable Traces</li> </ul>	8
<ul> <li>Memory size per trace, max.</li> </ul>	512 kbyte
Interrupts/diagnostics/status information	

Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
<ul> <li>Connection display LINK TX/RX</li> </ul>	Yes
upported technology objects	
Motion Control	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool
<ul> <li>Number of available Motion Control resources for technology objects</li> </ul>	10 240
<ul> <li>Required Motion Control resources</li> </ul>	
— per speed-controlled axis	40
— per positioning axis	80
— per synchronous axis	160
— per external encoder	80
— per output cam	20
— per cam track	160
— per probe	40
<ul> <li>Positioning axis</li> </ul>	
<ul> <li>Number of positioning axes at motion control cycle of 4 ms (typical value)</li> </ul>	70
<ul> <li>Number of positioning axes at motion control cycle of 8 ms (typical value)</li> </ul>	128
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
mbient conditions	
Ambient temperature during operation	
<ul> <li>horizontal installation, min.</li> </ul>	0 °C
horizontal installation, max.	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
<ul> <li>vertical installation, min.</li> </ul>	0 °C
vertical installation, max.	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	
<ul> <li>Installation altitude above sea level, max.</li> </ul>	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
onfiguration / header	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
Know-how protection	
User program protection/password protection	Yes
• Oser program protection/password protection	
	Yes
Copy protection	
<ul><li>Copy protection</li><li>Block protection</li></ul>	Yes
Copy protection     Block protection  Access protection	Yes
Copy protection Block protection  Access protection protection of confidential configuration data	Yes
Copy protection Block protection  Access protection  protection of confidential configuration data Password for display	Yes Yes Yes
Copy protection Block protection  Access protection  protection of confidential configuration data Password for display Protection level: Write protection	Yes Yes Yes Yes
Copy protection     Block protection  Access protection     protection of confidential configuration data     Password for display	Yes Yes Yes

User administration	Yes; device-wide
programming / cycle time monitoring / header	
• lower limit	adjustable minimum cycle time
• upper limit	adjustable maximum cycle time
Dimensions	
Width	175 mm
Height	147 mm
Depth	129 mm
Weights	

last modified: 3/12/2024 🖸