SIEMENS

Data sheet



SIMATIC S7-1500T, CPU 1516T-3 PN/DP, Central processing unit with 1.5 MB RAM for program and 5 MB for data, 1st interface: PROFINET IRT with 2-port switch, 2nd interface, Ethernet, 3rd interface, PROFIBUS, 10 ns bit performance, SIMATIC Memory Card required

General information	
Product type designation	CPU 1516T-3 PN/DP
HW functional status	FS10
Firmware version	V2.9
Product function	
 I&M data 	Yes; I&M0 to I&M3
Isochronous mode	Yes; Distributed and central; with minimum OB $6x$ cycle of $375~\mu s$ (distributed) and $1~ms$ (central)
Engineering with	
STEP 7 TIA Portal configurable/integrated from version	V17 (FW V2.9) / V15 (FW V2.5) 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	
Type of supply voltage	24 V DC
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)	1.2 A
Current consumption, max.	1.55 A
Inrush current, max.	2.4 A; Rated value
l ² t	0.02 A ² ·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)	1.5 Mbyte
• integrated (for data)	5 Mbyte
Load memory	O Milyto
Plug-in (SIMATIC Memory Card), max.	32 Gbyte
Backup	02 00)(0
maintenance-free	Yes
CPU processing times	
for bit operations, typ.	10 ns
for word operations, typ.	12 ns
for fixed point arithmetic, typ.	16 ns
for floating point arithmetic, typ.	64 ns
CPU-blocks	
Number of elements (total)	8 000; Blocks (OB, FB, FC, DB) and UDTs
DB	0 000, Blocks (OB, 1 B, 1 O, BB) and OB 13
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.	5 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	<u> </u>
Number range	0 65 535
• Size, max.	1 Mbyte
FC	
Number range	0 65 535
• Size, max.	1 Mbyte
OB	
• Size, max.	1 Mbyte
 Number of free cycle OBs 	100
 Number of time alarm OBs 	20
 Number of delay alarm OBs 	20
 Number of cyclic interrupt OBs 	20; With minimum OB 3x cycle of 250 μs
 Number of process alarm OBs 	50
 Number of DPV1 alarm OBs 	3
 Number of isochronous mode OBs 	3
 Number of technology synchronous alarm OBs 	2
Number of startup OBs	100
Number of asynchronous error OBs	4
Number of synchronous error OBs	2
Number of diagnostic alarm OBs	1
Nesting depth	
per priority class	24
Counters, timers and their retentivity	
S7 counter	0.040
Number	2 048
Retentivity	V
— adjustable	Yes
IEC counter	Any (only limited by the main memory)
Number Potentivity	Any (only limited by the main memory)
Retentivity	Vos
— adjustable S7 times	Yes
Number	2 048
Retentivity	۷ کا ۲۰
— adjustable	Yes
IEC timer	100
• Number	Any (only limited by the main memory)
Retentivity	, (,
— adjustable	Yes
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	512 kbyte; In total; available retentive memory for bit memories, timers,
Totomiro data aroa (inoi. timoro, countero, nago), max.	one may to, in total, available retentive memory for bit memories, timers,



Extended retentive data area (incl. timers, counters, flags), max. Flag Size, max Number of clock memories Patentivity adjustable Patentivity preset Patentivity		counters DRs and technology data (avec): 472 VD
Fig. Size, max. Number of clock memories Retentivity adjustable Retentivity adjustable Retentivity preset No No Local data Per per priority class, max. Address area Robusts Robusts Robusts Robusts Robusts Robusts Retentivity preset No Robusts	Extended retentive data area (incl. timese according)	counters, DBs, and technology data (axes): 472 KB
Size, max Size,		5 Mbyte; when using PS 6 UW 24/48/60 V DC HF
** Size, max		
Number of clock memories National blocks Retentivity adjustable Retentivity adjustable Retentivity preset No Retentivity preset Per priority class, max. Retentivity class, max. Retentivity preset Per priority class, max. Retentivity preset Per priority class, max. Retentivity preset Per priority class, max. Per priority class, max. Per integrated if subsystem Per integrated if subsystem Per cMiCP Per priority (volume) Per priority (volume) Per CMiCP Per priority (volume) Per priori		16 kbyte
Pate blocks Petentivity preset Retentivity presentation Reten	•	
Retentivity preset Local data	Data blocks	
Local data • per priority class, max. 64 kbyte; max. 16 KB per block Address area Number of I'O modules 1 linguis • Inputs • Inputs • Inputs • Inputs • Uniputs (volume) — Inputs (volume) — Outputs (volume) — Inputs (volume) — Visit (volume) —	Retentivity adjustable	Yes
Local data	Retentivity preset	No
Address area Number of IO modules Number of ID Controllers Number of ID Control		
Number of IO modules Number of IO modules 8 192; max. number of modules / submodules	 per priority class, max. 	64 kbyte; max. 16 KB per block
Modules area Inputs 32 kbyte; All inputs are in the process image Outputs 29 kbyte; All outputs are in the process image Outputs 29 kbyte; All outputs are in the process image Outputs 29 kbyte; All outputs are in the process image Outputs 29 kbyte; All outputs are in the process image Outputs 29 kbyte Outputs O	Address area	
Inputs	Number of IO modules	8 192; max. number of modules / submodules
Outputs per integrated IO subsystem	I/O address area	
per integrated IO subsystem — Inputs (volume) — Outputs (volume) 9 8 kbyte 9 Per CM/CP — Inputs (volume) 9 8 kbyte 9 Coutputs (volume) 9 8 kbyte 9 Vulputs (volume) 9 8 kbyte 9 8 Vulputs (volume) 9 8 kbyte 9 Vulputs (volume) 9 Vulputs (volume) 9 8 kbyte 9 Vulputs (volume) 9 Vulputs (volum	Inputs	32 kbyte; All inputs are in the process image
- Inputs (volume) 8 kbyte - Outputs (volume) 9 k	Outputs	32 kbyte; All outputs are in the process image
— Outputs (volume) per CM/CP — Inputs (volume) — Outputs (volume) 8 kbyte Subprocess images • Number of subprocess images, max. 92 Hardware configuration Number of distributed I/O systems 64; A distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of Standard I/O system is characterized not only by the integrate of Standard I/O system is characterized not only by the integrate of Standard I/O system is characterized not only by the integrate of Standard I/O system is characterized not only by the integrate of Standard I/O system is characterized not only by the integrate of Standard I/O system is characterized not only by the integrate of Standard I/O system is characterized not only by the integrate of Standard I/O system is characterized not only by the integrate of Standard I/O system is characterized not only by the integrate of Standard I/O system is characterized not only by the integrate of Standard I/O system is characterized not only by the integrate of Standard I/O system	per integrated IO subsystem	
per CM/CP - Inputs (volume) - Outputs (volume) - Ou	— Inputs (volume)	8 kbyte
per CM/CP - Inputs (volume) - Outputs (volume) 8 kbyte Subprocess images • Number of subprocess images, max. 32 - Airdware configuration Number of distributed IO systems 64; A distributed I/O system is characterized not only by the integration of distributed I/O system is characterized not only by the integration of distributed I/O system is characterized not only by the integration of distributed I/O system is characterized not only by the integration of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of I/O system is characterized not only by the integrate of distributed I/O system is characterized not only by the integrate of A: A distributed I/O system is characterized not only by the integrate of A: A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total Rack • Number of I/O controllers • Number of SCMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total **Integrated** • Number of SCMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total **Integrated** • Number of SCMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total **Integrated** • Number of SCMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total **Integrated** • Number of SCMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total **Integrated** • Number of SCMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total **Integrated** • Number of	— Outputs (volume)	8 kbyte
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Number of subprocess images, max. Number of distributed IO systems 64; A distributed IO system is characterized not only by the integrate of distributed I/O via PROFINET or PROFIBUS communication modules, but also by the connection of I/O via AS-i master modules links (e.g., IE/PB-Link) Number of DP masters integrated integrated integrated via CM 8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) callor inserted in total Number of IO Controllers integrated via CM 8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) callor inserted in total Rack Modules per rack, max. Number of lines, max. Number of lines, max. 1 PIP CM Number of PIP CMs the number of connectable PIP CMs is only limited by the number of available slots Time of day Clock Type Backup time Backup time Clock yenchronization Number of PIP CMs is only limited by the number of available slots Time of the connectable PIP CMs is only limited by the number of available slots Time of the connectable PIP CMs is only limited by the number of available slots Time of the connectable PIP CMs is only limited by the number of available slots Time of the connectable PIP CMs is only limited by the number of available slots Time of the connectable PIP CMs is only limited by the number of available slots Time of the connectable PIP CMs is only limited by the number of available slots Time of the connectable PIP CMs is only limited by the number of available slots Time of the connectable PIP CMs is only limited by the number of the number of connectable PIP CMs is only limited by the number of the number of connectable PIP CMs is only limited by the number of the number of connectable PIP CMs is only limited by the number of the number of the number of connectable PIP CMs is only limited by the number of the number of connectable PIP CMs is only limited by the number of the number of connectable PIP CMs is only limited by the number of the number of connectable PIP CMs is only limited by the number of the number of connect	— Outputs (volume)	8 kbyte
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Via CM Number of IO Controllers integrated Via CM Rack Modules per rack, max. Number of IP CMs Number of PtP CMs Number of PtP CMs Backup time Deviation per day, max. Number Number Number PtP CM Ptype Backup time Deviation per day, max. Deviation per day. Deviation	Number of DP masters	
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Via CM 8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) cabe inserted in total Rack Modules per rack, max. Number of lines, max. Number of lines, max. 1 PtP CM Number of PROFINET and the number of connectable PtP CMs is only limited by the number of available slots Time of day Clock Type Backup time Obeviation per day, max. Operating hours counter Number Number Number Rock Number Ptype Alardware clock Wk; At 40 °C ambient temperature, typically Operating hours counter Number Number Number Ptype Ptype Pt	Number of IO Controllers	
Rack • Modules per rack, max. • Number of lines, max. • Number of PtP CMs the number of connectable PtP CMs is only limited by the number of available slots Fine of day Clock • Type • Backup time • Deviation per day, max. Operating hours counter • Number • Number • Number • Supported • supported • to DP, master • in AS, master • in AS, slave • on Ethernet via NTP Number of PROFINET interfaces Number of PROFIBUS interfaces 1 Interface	• integrated	2
Rack • Modules per rack, max. • Number of lines, max. • Number of PtP CMs • Number of oconnectable PtP CMs is only limited by the number of available slots Firme of day Clock • Type • Backup time • Deviation per day, max. Operating hours counter • Number • Number • Number • Number • ODP, master • in AS, master • in AS, slave • on Ethernet via NTP Number of PROFIBUS interfaces Number of PROFIBUS interfaces 1. Interface	• Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can
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Number of lines, max. PtP CM Number of PtP CMs the number of connectable PtP CMs is only limited by the number of available slots Fime of day Clock Type Backup time Deviation per day, max. Operating hours counter Number Number Supported To DP, master In AS, master In AS, slave In AS, slave In AS, slave In Clock SynChronizet in In AS, slave In AS, slave In Clock SynChronizet in In AS, slave In AS, slave In Clock SynChronizet in In AS, slave Interfaces Number of PROFINET interfaces Number of PROFIBUS interfaces Interface Interface Interface Number of PROFIBUS interfaces Interface Inte		22: CDLL + 24 modulos
PtP CM Number of PtP CMs the number of connectable PtP CMs is only limited by the number of available slots Fime of day Clock Type Backup time Deviation per day, max. Operating hours counter Number Number Supported To DP, master To		
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Clock Type Backup time Obeviation per day, max. Operating hours counter Number Number Supported Obeviation Properation Supported Obeviation AS, master On Ethernet via NTP Number Number On Ethernet via NTP Number of PROFINET interfaces I Hardware clock Ow, at 40 °C ambient temperature, typically Obeviation Yes Ves Ves Yes Yes Yes Yes Yes		the number of connectable PtP CMs is only limited by the number of available slots
Clock Type Backup time Overation per day, max. Operating hours counter Number Number Supported Ot DP, master On AS, master On Ethernet via NTP Number of PROFINET interfaces Number of PROFIBUS interfaces Hardware clock Swk; At 40 °C ambient temperature, typically Of with a 40 °C ambient temperature, typically Of a 40 °C ambient temperature,	Fime of day	
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Deviation per day, max. Operating hours counter Number Number Supported ves to DP, master in AS, master in AS, slave on Ethernet via NTP Number of PROFIBUS interfaces Interface 10 s; Typ.: 2 s 16 16 16 17 Yes Yes Yes Yes Yes Yes Yes Ye		
Operating hours counter Number Number 16 Clock synchronization supported to DP, master in AS, master in AS, slave on Ethernet via NTP Number of PROFINET interfaces Number of PROFIBUS interfaces 1. Interface		
● Number 16 Clock synchronization ● supported Yes ● to DP, master Yes ● in AS, master Yes ● in AS, slave Yes ● on Ethernet via NTP Yes Interfaces Number of PROFINET interfaces 2 Number of PROFIBUS interfaces 1 1. Interface		
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 to DP, master in AS, master in AS, slave on Ethernet via NTP Number of PROFINET interfaces Number of PROFIBUS interfaces 1. Interface 	Clock synchronization	
 in AS, master in AS, slave on Ethernet via NTP Yes Interfaces Number of PROFINET interfaces Number of PROFIBUS interfaces 1. Interface 	• supported	Yes
in AS, slave on Ethernet via NTP Yes Interfaces Number of PROFINET interfaces Number of PROFIBUS interfaces 1. Interface	• to DP, master	Yes
● on Ethernet via NTP Yes Interfaces Number of PROFINET interfaces Number of PROFIBUS interfaces 1 1. Interface	• in AS, master	Yes
Number of PROFINET interfaces 2 Number of PROFIBUS interfaces 1 1. Interface	• in AS, slave	Yes
Number of PROFINET interfaces 2 Number of PROFIBUS interfaces 1 1. Interface	on Ethernet via NTP	Yes
Number of PROFINET interfaces 2 Number of PROFIBUS interfaces 1 1. Interface	nterfaces	
Number of PROFIBUS interfaces 1 1. Interface		2
1. Interface		
	1 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
INTERFACE TYPES	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 • SIMATIC communication Yes • Open IE communication Yes; Optionally also encrypted Yes Web server Media redundancy Yes **PROFINET IO Controller** Services - PG/OP communication Yes - Isochronous mode Yes - Direct data exchange Yes; Requirement: IRT and isochronous mode (MRPD optional) - IRT — PROFlenergy Yes; per user program - Prioritized startup Yes; Max. 32 PROFINET devices - Number of connectable IO Devices, max. 256; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET - Of which IO devices with IRT, max. - Number of connectable IO Devices for RT, 256 256 - of which in line, max - Number of IO Devices that can be 8; in total across all interfaces simultaneously activated/deactivated, max. - Number of IO Devices per tool, max. 8 - Updating times The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for IRT — for send cycle of 250 µs 250 µs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 375 µs of the isochronous OB is decisive — for send cycle of 500 µs 500 µs to 8 ms - for send cycle of 1 ms 1 ms to 16 ms - for send cycle of 2 ms 2 ms to 32 ms - for send cycle of 4 ms 4 ms to 64 ms - With IRT and parameterization of "odd" send Update time = set "odd" send clock (any multiple of 125 μs: 375 μs, 625 cycles μs ... 3 875 μs) Update time for RT — for send cycle of 250 µs 250 µs to 128 ms — for send cycle of 500 µs 500 µs to 256 ms - for send cycle of 1 ms 1 ms to 512 ms - for send cycle of 2 ms 2 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms **PROFINET IO Device** Services PG/OP communication Yes - Isochronous mode No - IRT Yes - PROFlenergy Yes; per user program - Shared device Yes - Number of IO Controllers with shared device, 4 max. - activation/deactivation of I-devices Yes; per user program - Asset management record Yes; per user program 2. Interface Interface types • RJ 45 (Ethernet) Yes: X2 Number of ports 1 integrated switch No



Protocols	
IP protocol	Yes; IPv4
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
SIMATIC communication	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
Media redundancy	No
PROFINET IO Controller	110
Services	
— PG/OP communication	Yes
— Isochronous mode	No
Direct data exchange	No
— IRT	No
— PROFlenergy	Yes; per user program
Prioritized startup	No
Number of connectable IO Devices, max.	32; In total, up to 1 000 distributed I/O devices can be connected via
— Number of conficctable to bevices, max.	AS-i, PROFIBUS or PROFINET
 Number of connectable IO Devices for RT, 	32
max.	
— of which in line, max.	32
Number of IO Devices that can be	8; in total across all interfaces
simultaneously activated/deactivated, max.	
 Number of IO Devices per tool, max. 	8
Updating times	The minimum value of the update time also depends on communication
	share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data
Update time for RT	4y
— for send cycle of 1 ms	1 ms to 512 ms
PROFINET IO Device	1 110 10 0 12 110
Services	
— PG/OP communication	Yes
— Isochronous mode	No
— IRT	No
— PROFlenergy	Yes; per user program
Prioritized startup	No
— Shared device	Yes
Number of IO Controllers with shared device,	4
max.	T
 activation/deactivation of I-devices 	Yes; per user program
 Asset management record 	Yes; per user program
3. Interface	
Interface types	
• RS 485	Yes; X3
Number of ports	1
Protocols	
PROFIBUS DP master	Yes
PROFIBUS DP slave	No
SIMATIC communication	Yes
PROFIBUS DP master	
Number of connections, max.	48; for the integrated PROFIBUS DP interface
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	
Services — PG/OP communication	Yes
	Yes Yes
— PG/OP communication	
— PG/OP communication— Equidistance	Yes
— PG/OP communication— Equidistance— Isochronous mode	Yes Yes
— PG/OP communication — Equidistance — Isochronous mode — Activation/deactivation of DP slaves Interface types	Yes Yes
— PG/OP communication— Equidistance— Isochronous mode— Activation/deactivation of DP slaves	Yes Yes



 Autonegotiation 	Yes
 Autocrossing 	Yes
Industrial Ethernet status LED	Yes
RS 485	
Transmission rate, max.	12 Mbit/s
Protocols	
PROFIsafe	No
Number of connections	
 Number of connections, max. 	256; 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 	128
Number of S7 routing paths	16
Redundancy mode	
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
 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. 5 multicast circuits
• DHCP	Yes
• DNS	Yes
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Encryption	Yes; Optional
Web server	V 0: 1 1 1
• HTTP	Yes; Standard and user pages
• HTTPS	Yes; Standard and user pages
OPC UA	Voc. "Modium" license required
Runtime license required ORC HA Client	Yes; "Medium" license required
OPC UA Client Application authoritiestics	Yes
Application authentication Security policies.	Yes Available acquirity policies: Name Posici 22 Posic 256 Posit 5
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
— Number of connections, max.	10
Number of nodes of the client interfaces, max.	2 000
 Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/C max. 	300
Number of elements for one call of	20



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OPC_UA_NameSpaceGetIndexList, max.	400
 Number of elements for one call of OPC_UA_MethodGetHandleList, max. 	100
Number of simultaneous calls of the client	1
instructions per connection (except OPC_UA_ReadList,OPC_UA_WriteList,OPC_UA_M max.	
Number of simultaneous calls of the client	5
instructions OPC_UA_ReadList,OPC_UA_WriteList and OPC_UA_MethodCall, max.	
 Number of registerable nodes, max. 	5 000
 Number of registerable method calls of OPC_UA_MethodCall, max. 	100
 Number of inputs/outputs when calling OPC_UA_MethodCall, max. 	20
OPC UA Server	Yes; Data access (read, write, subscribe), method call, custom address space
 Application authentication 	Yes
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
 GDS support (certificate management) 	Yes
— Number of sessions, max.	48
 Number of accessible variables, max. 	100 000
 Number of registerable nodes, max. 	20 000
 Number of subscriptions per session, max. 	20
— Sampling interval, min.	100 ms
— Publishing interval, min.	200 ms
 Number of server methods, max. 	50
 Number of inputs/outputs per server method, max. 	20
 Number of monitored items, max. 	2 000; 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. 	5 000
 Alarms and Conditions 	Yes
 Number of program alarms 	200
Number of alarms for system diagnostics	100
Further protocols	V. MODRIJO TOR
MODBUS	Yes; MODBUS TCP
Isochronous mode	
Equidistance	Yes
S7 message functions	
Number of login stations for message functions, max.	64
Program alarms	Yes
Number of configurable program messages, max.	10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
Number of loadable program messages in RUN, max.	5 000
Number of simultaneously active program alarms	4 000
Number of program alarms	1 000
Number of alarms for system diagnostics	200
Number of alarms for motion technology objects	480
Test commissioning functions	
Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 8 engineering systems
Status block	Yes; Up to 8 simultaneously (in total across all ES clients)
Single step	No
Number of breakpoints	8
Status/control	V
Status/control variable	Yes
Variables	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	200, por job
• Forcing	Yes
• Forcing, variables	Peripheral inputs/outputs
Number of variables, max.	200
Diagnostic buffer	200
• present	Yes
Number of entries, max.	3 200
— of which powerfail-proof	500
Traces	
Number of configurable Traces	4; Up to 512 KB of data per trace are possible
Interrupts/diagnostics/status information	4, Op to 012 NB of data per trace are possible
Diagnostics indication LED	Voc
RUN/STOP LED	Yes
ERROR LED MAINT LED	Yes
	Yes
Connection display LINK TX/RX	Yes
Supported technology objects	
Motion Control	Yes; Note: The number of technology objects affects the cycle time of
Number of available Motion Control resources for	the PLC program; selection guide via the TIA Selection Tool 6 400
technology objects	0 400
Required Motion Control resources	
— per speed-controlled axis	40
— per positioning axis	80
— per synchronous axis	160
— per external encoder	80
— per output cam	20
— per cam track	160
— per probe	40
 Number of available Extended Motion Control resources for technology objects 	192
Required Extended Motion Control resources	
— per cam (1 000 points and 50 segments)	2
— per cam (10 000 points and 50 segments)	20
— for each set of kinematics	30
 Per leading axis proxy 	3
Positioning axis	
Number of positioning axes at motion control cycle of 4 ms (typical value)	55
 Number of positioning axes at motion control 	80
cycle of 8 ms (typical value)	
Controller	
PID_Compact	Yes; Universal PID controller with integrated optimization
PID_3Step	Yes; PID controller with integrated optimization for valves
PID-Temp	Yes; PID controller with integrated optimization for temperature
Counting and measuring	
High-speed counter	Yes
Ambient conditions	
Ambient temperature during operation	
 horizontal installation, min. 	0 °C
 horizontal installation, max. 	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
 vertical installation, min. 	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	



 Installation altitude above sea level, max. 	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
configuration / header	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— GRAPH	Yes
Know-how protection	
 User program protection/password protection 	Yes
 Copy protection 	Yes
Block protection	Yes
Access protection	
 protection of confidential configuration data 	Yes
 Password for display 	Yes
 Protection level: Write protection 	Yes
 Protection level: Read/write protection 	Yes
Protection level: Complete protection	Yes
programming / cycle time monitoring / header	
lower limit	adjustable minimum cycle time
• upper limit	adjustable maximum cycle time
Dimensions	
Width	175 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	1 978 g

5/17/2021

last modified: