SIEMENS

Data sheet

6ES7514-2DN03-0AB0



SIMATIC DP, CPU 1514SP-2 PN for ET 200SP, central processing unit with work memory 600 KB for program and 3.5 MB for data, 1st interface: PROFINET IRT with 2-port switch, 2nd interface: PROFINET RT, 6 ns bit performance, SIMATIC Memory Card required, BusAdapter required for 1st interface

Figure similar

General information	
Product type designation	CPU 1514SP-2 PN
HW functional status	FS04
Firmware version	V4.0
• FW update possible	Yes
Product function	
• I&M data	Yes; I&M0 to I&M3
 Module swapping during operation (hot swapping) 	Yes; Multi-hot swapping
Isochronous mode	Yes; only with PROFINET; with minimum OB 6x cycle of 375 µs
• SysLog	Yes
Engineering with	
STEP 7 TIA Portal configurable/integrated from version	V20 (FW V4.0) / V18 (FW V3.0) or higher
Configuration control	
via dataset	Yes
Control elements	
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	
 Mains/voltage failure stored energy time 	10 ms
Input current	
Current consumption (rated value)	0.48 A
Current consumption, max.	0.7 A
Inrush current, max.	1.34 A; Rated value
l²t	0.3 A ² ·s
Power	
Infeed power to the backplane bus	8.05 W
Power loss	
Power loss, typ.	3.5 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	
 integrated (for program) 	600 kbyte
 integrated (for data) 	3.5 Mbyte
Load memory	

Plug-in (SIMATIC Memory Card), max.	32 Gbyte		
Backup			
maintenance-free	Yes		
CPU processing times			
for bit operations, typ.	6 ns		
for word operations, typ.	7 ns		
for fixed point arithmetic, typ.	9 ns		
for floating point arithmetic, typ.	37 ns		
CPU-blocks			
Number of elements (total)	8 000; Blocks (OB, FB, FC, DB) and UDTs		
DB			
Number range	1 60 999; subdivided into: number range that can be used by the user: 1 59 999, and number range of DBs created via SFC 86: 60 000 60 999		
• Size, max.	3.5 Mbyte; For DBs with absolute addressing, the max. size is 64 KB		
FB			
Number range	0 65 535		
• Size, max.	600 kbyte		
FC			
Number range	0 65 535		
• Size, max.	600 kbyte		
OB			
• Size, max.	600 kbyte		
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 	1		
 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			
• 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.	512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB		
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		

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• exprisingly class, max. 04 kbyte; max. 16 KB per block. Address area • Number of Oncolutes • Number of Oncolutes 8 192: max. number of modulus / submodules • explas 32 kbyte; Al inputs are in the process image • olpuds 32 kbyte; Al inputs are in the process image • olpuds 32 kbyte; Al inputs are in the process image • olpuds (volume) 8 kbyte • Address space per module, max. 28 byte; For input and output data respectively Address space per station, max. 28 byte; For input and output data respectively Address space per station, max. 25 byte; for inputs and output data respectively Address space per station, max. 25 byte; for inputs and output data respectively Number of Donateles - • via CM 1 Number of Donateles - • via CM 1 Number of Operatole T2 codes - • via CM 1 Number of Drestis contruncato		140
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distributed I/O via PROFINET or PROFINET scemunication modules, but also by the connection I/O via AS-I master modules or links (e.g. IE/PB-Link) • Via CM 1 Number of IO Controllers 2 • Via CM 0 Rack 2 • Modules per rack, max. 22 (PU + 64 modules + server module (mounting width max. 1 m) + 16 ET 200AL modules • Quantity of operable ET 200SP modules, max. 64 • Quantity of operable ET 200AL modules, max. 1 • Number of Iines, max. 1 • Number of PIP CMs 1 • Number of PIP CMs the number of connectable PIP CMs is only limited by the number of available slots • Tripe of day 5 Clock 1 • Type Hardware clock • Backup time 6 wk; At 40 "C ambient temperature, typically • Deviation per day, max. 16 • Clock 10 • Number 16 Clock synchronization 19; Typ: 2 s • Number 16 Clock synchronization Yes • Number 16 Clock synchronization Yes • Io DP, master Yes • Io	Hardware configuration	
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• Number of lines, max. 1 PIP CM 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 1 • Number 16 Clock synchronization Yes • to DP, master Yes; Via CM DP module • on DP, device Yes; Via CM DP module • in AS, master Yes • on Ethernet via NTP Yes via S, device Yes • on Ethernet via NTP Yes via CM DP module Yes • on Ethernet via NTP Yes Vaster Yes • on Ethernet via NTP Yes Interfaces 2 Number of PROFINET interfaces 1; Via CM DP module Optical interface Yes; Via SIMATIC BusAdapter Interface types 1; Via CM DP module Optical interfaces	 Quantity of operable ET 200SP modules, max. 	64
PtP CM • Number of PtP CMs the number of connectable PtP CMs is only limited by the number of available slots Time of day Clock • Type Hardware clock • Backup time 6 wk; At 40 "C ambient temperature, typically • Deviation per day, max. 10 s; Typ.: 2 s Operating hours counter • Number 16 Clock ynchronization • supported Yes • to DP, master Yes; Via CM DP module • on DP, device Yes • in AS, master Yes • in AS, device Yes • on Ethernet via NTP Yes Interfaces 2 Number of PROFINET interfaces 2 Number of PROFINET interfaces 2 Number of PROFIBUS interfaces 1; Via CM DP module Optical interface Yes; Via SIMATIC BusAdapter 1. Interface Yes; X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 2; via BusAdapter	 Quantity of operable ET 200AL modules, max. 	16
• 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 16 • Number 16 Clock synchronization 16 • to DP, master Yes; Via CM DP module • on DP, device Yes; Via CM DP module • in AS, master Yes • in AS, device Yes • on Ethernet via NTP Yes Interfaces 2 Number of PROFINET interfaces 2 Number of PROFINET interfaces 2 Number of PROFINET interfaces 2 Interface 1; Via CM DP module Optical interfaces 1; Via CM DP module Optical interfaces 2 Number of PROFINET interfaces 2 Number of PROFINET interfaces 2; Via SIMATIC BusAdapter 1. Interface 1 Interface types - • Number of ports 2; via BusAdapte	Number of lines, max.	1
slots Time of day Clock I hardware clock Backup time Backup time Backup time Backup time Deviation per day, max. Deviation per day, max. Operating hours counter I hours counter	PtP CM	
Clock Hardware 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 16 • Number 16 Clock synchronization 16 • to DP, master Yes; Via CM DP module • on DP, device Yes; Via CM DP module • in AS, master Yes • in AS, device Yes • on Ethernet via NTP Yes Interfaces 2 Number of PROFIBUS interfaces 1; Via CM DP module Optical interface Yes; Via SIMATIC BusAdapter 1. Interface Interface Interface types • RJ 45 (Ethernet) • RJ 45 (Ethernet) Yes; X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 2; via BusAdapter	Number of PtP CMs	
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Operating hours counter 16 Older Synchronization 16 Clock synchronization Yes • to DP, master Yes; Via CM DP module • on DP, device Yes; Via CM DP module • in AS, master Yes • in AS, device Yes • on Ethernet via NTP Yes Interfaces 2 Number of PROFINET interfaces 2 Number of PROFIBUS interfaces 1; Via CM DP module Optical interface Yes; Via SIMATIC BusAdapter 1. Interface 1 Interface types - • RJ 45 (Ethernet) Yes; X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 2; via BusAdapter	Backup time	6 wk; At 40 °C ambient temperature, typically
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Clock synchronization• supportedYes• to DP, masterYes; Via CM DP module• on DP, deviceYes; Via CM DP module• in AS, masterYes• in AS, deviceYes• on Ethernet via NTPYesInterfacesNumber of PROFINET interfaces2Number of PROFIBUS interfaces0 ptical interfaceYes; Via CM DP module0 ptical interfaceYes; Via SIMATIC BusAdapter1. InterfaceYes; Via SIMATIC BusAdapter1. InterfaceYes; X1 P1 and X1 P2 via BusAdapter BA 2x RJ45• Number of ports2; via BusAdapter	Operating hours counter	
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• in AS, deviceYes• on Ethernet via NTPYesInterfacesInterfacesNumber of PROFINET interfaces2Number of PROFIBUS interfaces1; Via CM DP moduleOptical interfaceYes; Via SIMATIC BusAdapter 1. Interface Interface types• RJ 45 (Ethernet)Yes; X1 P1 and X1 P2 via BusAdapter BA 2x RJ45• Number of ports2; via BusAdapter	• on DP, device	Yes; Via CM DP module
• on Ethernet via NTPYesInterfacesNumber of PROFINET interfaces2Number of PROFIBUS interfaces1; Via CM DP moduleOptical interfaceYes; Via SIMATIC BusAdapter1. Interface1Interface types• RJ 45 (Ethernet)• RJ 45 (Ethernet)Yes; X1 P1 and X1 P2 via BusAdapter BA 2x RJ45• Number of ports2; via BusAdapter	• in AS, master	Yes
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Number of PROFINET interfaces 2 Number of PROFIBUS interfaces 1; Via CM DP module Optical interface Yes; Via SIMATIC BusAdapter 1. Interface Interface types • RJ 45 (Ethernet) Yes; X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 2; via BusAdapter	on Ethernet via NTP	Yes
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Optical interface Yes; Via SIMATIC BusAdapter 1. Interface Interface types • RJ 45 (Ethernet) • Number of ports Yes; X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 2; via BusAdapter	Number of PROFINET interfaces	2
1. Interface Interface types • RJ 45 (Ethernet) Yes; X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 2; via BusAdapter	Number of PROFIBUS interfaces	1; Via CM DP module
Interface types • RJ 45 (Ethernet) • Number of ports Yes; X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 2; via BusAdapter	Optical interface	Yes; Via SIMATIC BusAdapter
• RJ 45 (Ethernet) Yes; X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 2; via BusAdapter	1. Interface	
Number of ports 2; via BusAdapter	Interface types	
	RJ 45 (Ethernet)	Yes; X1 P1 and X1 P2 via BusAdapter BA 2x RJ45
integrated switch Yes	Number of ports	2; via BusAdapter
	integrated switch	Yes

BusAdapter (PROFINET)	Yes; compatible BusAdapters: BA 2x RJ45, BA 2x M12, BA 2x FC, BA 2x LC, BA LC/RJ45, BA LC/FC, BA 2x SCRJ, BA SCRJ/RJ45, BA SCRJ/FC		
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	Yes		
PROFINET IO Controller			
Services			
— Isochronous mode	Yes		
— Direct data exchange	Yes; Requirement: IRT and isochronous mode (MRPD optional)		
— IRT	Yes		
— PROFlenergy	Yes; per user program		
— Prioritized startup	Yes; Max. 32 PROFINET devices		
 — Number of connectable IO Devices, max. 	256; in total, up to 1024 distributed I/O devices can be connected via AS-i,		
- Number of connectable to Devices, max.	PROFIBUS or PROFINET		
- Of which IO devices with IRT, max.	64		
- Number of connectable IO Devices for RT, max.	256		
— of which in line, max.	256		
 — Number of IO Devices that can be simultaneously activated/deactivated, max. 	8; in total across all interfaces		
- Number of IO Devices per tool, max.	8		
— Updating times	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data		
— PROFINET Security Class	1		
Update time for IRT			
— for send cycle of 250 μ s	250 μs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 375 μs of the isochronous OB is decisive		
— for send cycle of 500 µs	500 µs to 8 ms		
— for send cycle of 1 ms	1 ms to 16 ms		
— for send cycle of 2 ms	2 ms to 32 ms		
— for send cycle of 4 ms	4 ms to 64 ms		
— With IRT and parameterization of "odd" send cycles	Update time = set "odd" send clock (any multiple of 125 μs : 375 μs , 625 μs 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	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		

• NormalizationYes, Optionally also encrypted• Nedia redunctancyNoPROFINET IO ControllerNo- Service- Service- Indert data exchangeNo- Oriert data exchangeNo- Oriert data exchangeNo- Oriert data exchangeNo- Profited attractingNo- Number of connectable IO Devices (max.PROFINUS or PROFINET- Number of connectable IO Devices for RT, max.32- Number of connectable IO Devices for RT, max.32- Number of Connectable IO Devices for RT, max.32- Number of IO Devices period, max.8- PROFINET Security Class1Profinet ServiceIns to S12 ms- Profinet ServiceYes- Profinet ServiceYes- Number of IO Cervices with shated device, max.4- Stated deviceYes- PROFINET Security Class1- Profinet ServiceYes per user program- PROFINET Security ClassYes per user program- Number of IO Cervices with shated device, max.4- Number of Connectable II LeóvicesYes per user program- PROFINET Security ClassYes ye	SIMATIC communication	Yes			
• Web sarrorYesPROFINET IO ControllerServicesNo- Incortorous modeNo- Incortorous modeNo- Incortorous modeNo- InterfNo- PROFIGNERYYes, per user program- Profice data exchangeNo- Profice data exchangeSi the data exchange- Profice data exchangeSi the data exchange- Profice data exchangeSi the data exchange- Number of IO Devices hat can be simultaneousSi the data exchange- Number of IO Devices per tool, max.Si the data exchange- Profice RTInst to S12 me- Profice RTNo- Profice RTNo- Profice RTNo- Profice RTNo- Profice RTNo- Profice RTNo- Represented dataYes per user program- Profice RTNo- Represented dataYes per user program- Profice RTNo- Represented data exchangeYes per user program- Profice RTYes per user program- Represented data exchangeYes Yes CAND Product					
Notional mode No - Direct data exchange No - Direct data exchange No - Profile data exchange No - Number of connectable ID Devices (max. 32 - Number of connectable ID Devices for RT, max. 32 - Number of ID Devices period, max. 8 - Updating times 8 - Updating times 10 bevices period, max. - PROFINET ID Security Class 1 - Profile or optic of 1 ms 8 - Profile optic of 1 ms 1 ms to 512 ms - Profile optic of 1 ms No - Profile optic of 10 devices with shared device, max. 1 - Profile optic of 10 devices No - Profile optic of 10 devices Yes, per user program - Profile optic of 10 devices Yes, per user program - Profile optic of 10 devices Yes, per user program - Profile optic of 10 devices Yes, per user program	-				
PROFINET IO Controller Service - Isochronous mode No - Direct data exchange No - RACE Status - Reveal Status - Reveal Status - Muniter of connectable IO Devices, max. Status - Muniter of CONcesces period, max. Status - Number of IO Devices period, max. Status - RACE Status - RACE Status - RACE Status - RACE No - Status Status - Status No - Status Status - RACE </td <td></td> <td colspan="3"></td>					
Services No - Direct data exchange No - PROF lenergy Yes, per user program - PROF lenergy Yes, per user program - PROF for connectable I/O Devices, max. Yes, per user program - Number of connectable I/O Devices, max. Yes, per user program - Number of connectable I/O Devices, max. Yes, per user program - Number of Connectable I/O Devices, max. Yes, in total up to 1024 distributed I/O devices, and on the connected via AS-I. - Number of Connectable I/O Devices Yes, in total across all interfaces - Number of I/O Devices per tool, max. 8 - Number of I/O Devices In two IS 12 ms - PROFINET I Security Class 1 - Prost optical of 1 ms In two IS 12 ms - PROFINET I Security Class No - PROFINET I O Device In two IS 12 ms - PROFINET I Security Class No - PROFINET I O Device Ves. per user program - PROFINET I Security Class Yes per user program - PROFINET I Security Class Yes per user program - Prostored device Yes per user program - PROFINET I Security Class		NO			
→ Isochronous mode No → Picot data sexhange No → PROFInerry Yes, per user program → PROFInerry Yes, per user program → Prototes datusp No → Number of connectable IO Devices, max. 32 → of which in line, max. 32 → of which in line, max. 32 → Number of IO Devices for RT, max. 32 → Number of IO Devices that can be simultaneously activitatiod/activited. max. 8 → Updating times 8 → Updating times 8 → Profine To Society Class 1 → First Society Class Yes, per user program → First Society Class Yes, per user program → Society Origens Yes Yes, per user program → Protitized statusp No → Society Origens Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes					
- Direct data exchange No - IRT No - PROFIlerergy Yes, per user program - Proofized startup No - Number of connectable IO Devices, max. 2: In total, up to 102 distributed IO devices can be connected via ASI. - Number of connectable IO Devices for RT, max. 32 - Number of IO Devices that an be simultaneously 8 - Number of IO Devices per tool, max. 8 - Number of IO Devices per tool, max. 8 - Updating times 1 not to 12 not explain the number of IO devices, and on the quantity of configured user data - PROFINET Security Class 1 not to 12 not explain the number of IO devices. - PROFINET Security Class 1 not to 12 not explain the number of IO devices. - PROFINET Security Class 1 not to 12 not explain the number of IO devices. - PROFINET Security Class No - PROFINET Security Class No - PROFINET Security Class No - Revised device Yes, per user program - PROFINET Security Class Yes, per user program - PROFINET Security Class Yes, per user program - Stast management reccod Yes, per user program<		Ne			
- RT No - PROFInency Yes, per user program - Number of connectable I/O Devices, max. 32 - Number of connectable I/O Devices, max. 32 - Or with in line, max. 32 - Or with in line, max. 32 - Number of I/O Devices that can be simultaneously activated/decativated, max. 8 - Number of I/O Devices that can be simultaneously activated/decativated, max. 8 - Number of I/O Devices that can be simultaneously activated/decativated, max. 8 - Number of I/O Devices that can be simultaneously activated/decativated, max. 8 - PROFINET Security Class 1 - FROFINET Security Class 1 - FROFINET Security Class 1 - FROFINET Security Class 1 - PROFINET I/O Device that hared device, max. 1 - Solutionous mode No - REVER 1 - REVER 5 - Revised device Yes, per user program - Asset management record Yes, per user program - REVISE Demaker Yes, Yes, Yes, Per user program - REVISE Devise 1 - REVISE Demaker Yes, Yes, Per user program - REVISE Demaker Yes, Yes, Yes, Yes, Yes, Yes, Yes, Yes,					
- PROFIlestry Yes, per user program - Prioritized stanup No - Number of connectable I/O Devices, max. 32 - Number of connectable I/O Devices for RT, max. 32 - Number of I/O Devices that an be simultaneously in total across all interfaces - Number of I/O Devices per ton, max. 6 - Number of I/O Devices per ton, max. 6 - PROFINET Security Class 1 - PROFINET Security Class 1 - PROFINET Security Class 1 - Inscharbaneous mode No - INTO Device 1 - PROFINET Security Class 1 - PROFINET Security Class 1 - Inscharbaneous mode No - INTO Device 1 - ROFCINET I/O Control 1 - Number of I/O Control 1 - Number of I/O Control 1 </td <td>-</td> <td></td>	-				
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- of which in ite, max. 92 - Number of 10 Devices per tool, max. 8: in total across all interfaces - Number of 10 Devices per tool, max. 8 - Updating times 8 - PROFINET Security Class 1 - PROFINET Security Class 1 - for send cycle of 1 ms 1 ms to 512 ms PROFINET IO Devices 1 Security - - Insoftward security Class 1 PROFINET IO Device - Security - - PROFINET Security Class No - Insoftward security Yes, per user program - PROFINET Security Class Yes, per user program - PROFINET Security Class Yes, per user program - Asset management record Yes, per user program - Asset management record Yes, per user program - Asset management record Yes, yea (M DP module - Number of ports 1 - PROFIBUS DP master Yes, Yea (M DP module - Number of ports Yes - PROFIBUS DP master Yes - ROOFIBUS DP master Yes - Equidistance No - Stard Class and HMI 425. In total, up to 1024 distributed 1/0 devices can be connected via AS-I, per US - Interface Yes	 Number of connectable IO Devices, max. 				
	 Number of connectable IO Devices for RT, max. 	32			
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Update time for RT I ms to 512 ms — for send cycle of 1 ms 1 ms to 512 ms PROFINE TO bavice Services — lischronous mode No — RT No — PROFINE TO bavice Yes; per user program — PROFIENT OF Controllers with shared device, max. 4 — activation/deactivation of 1-devices Yes; per user program — activation/deactivation Yes; Per user program — activation/deactivation Yes; Via CM DP module — PROFIBUS DP master Yes; Via CM DP module • No Number of ports Yes PROFIBUS DP master Yes • SiMATC Yes OFIBUS OF PROFINET • Equidistance No • activation/d	— Updating times	set for PROFINET IO, on the number of IO devices, and on the quantity of			
for send cycle of 1 ms 1 ms to 512 ms PROFINET IO Device	- PROFINET Security Class	1			
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Services Isochronous mode No	— for send cycle of 1 ms	1 ms to 512 ms			
− lschronous mode No − IRT No − PROFInergy Yes; per user program − Prioritized startup No − 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 − PROFINET Security Class SUMP Configuration and DCP Read Only 3. Interface Test Security Class • RS 485 Yes; Via CM DP module • RS 485 Yes; Via CM DP module • Number of ports 1 • PROFIBUS DP device Yes • SIMATIC communication Yes • SIMATIC communication Yes • Number of connections, max. 43; Of which 4 each reserved for ES and HMI • max. number of DP devices Yes • Equidistance No • Isochronous mode No • activation/deactivation of DP devices Yes • Laddistance Yes • Side Gement) Yes • Side Gement) Yes	PROFINET IO Device				
- IRTNo- PROFlenergyYes; per user program- Prioritized starupNo- Shared deviceYes- Number of DC 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- ROFINET Security ClassVes: Yer user program- ROFINET Security ClassYes; Val CM DP module- RotoroYes; Val CM DP module- ROFINET Security ClassYes; Val CM DP module- ROFIEUS DP masterYes- PROFIEUS DP masterYes- PROFIEUS DP deviceYes- ROFIEUS DP masterYes- Number of connections, max.48; Of which 4 each reserved for ES and HMI- AssetYes- EquidistanceNo- EquidistanceYes- EquidistanceNo- activation/deactivation of D devicesYes- EquidistanceNo- activation/deactivation of D devicesYes- Intomes modeNo- AutonegolationYes- Farsmission rate, max.Yes- ProFisefYes- ProFisef <td< td=""><td>Services</td><td></td></td<>	Services				
PROFlenergyYes; per user programPROFlenergyNoPrioritized startupNoShared deviceYesNumber of IO Controllers with shared device, max.4- activation/deactivation of I-devicesYes; per user program- Asset management recordYes; per user program- PROFINET Security ClassSIMMP Configuration and DCP Read OnlyInterface types• PROFINET Security Class• Number of ports10• Number of ports10• PROFIBUS DP masterYes; Via CM DP module• PROFIBUS DP masterYes• PROFIBUS DP masterYes• SIMATIC communicationYes• Number of Donections, max.48; Of which 4 each reserved for ES and HMI• max. number of DP devicesYes• PROFIBUS DP masterYes• elquiditanceNo• activation/deactivation of DP devicesYes• activation/deactivationYes• activation/deactivationYes <td>— Isochronous mode</td> <td>No</td>	— Isochronous mode	No			
- Priortized startup No - Shared device Yes - Number of IO Controllers with shared device, max. 4 - activation/deactivation of Ldevices Yes; per user program - Asset management record Yes; per user program - PROFINET Security Class SNMP Configuration and DCP Read Only 3. Interface Interface Interface Yes; Via CM DP module - RROFIBUS DP master Yes; Via CM DP module - PROFIBUS DP master Yes - PROFIBUS DP device Yes - SIMATIC communication Yes PROFIBUS DP master Yes - Number of ports Yes - Number of DP devices Yes - SIMATIC communication Yes PROFIBUS DP master Yes - Number of DP devices Yes DribuS or PROFINET Services - Equidistance - Equidistance No - Isochronous mode No - activation/deactivation of DP devices Yes - Autonegotiation Yes - Autonegotiation Yes - Autonegotiation Yes - Autonegotiation Yes - RS 485 Yes - Isochronous mode Yes - Autonegotitation Yes	— IRT	No			
	— PROFlenergy	Yes; per user program			
- 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 - PROFINET Security Class SIMMP Configuration and DCP Read Only 3. Interface Yes; Via CM DP module • Number of ports 1 • RS 485 Yes; Via CM DP module • Number of ports 1 • PROFIBUS DP master Yes • PROFIBUS DP device Yes • SIMATIC communication Yes • SIMATIC communication Yes • SIMATIC communication Yes • SIMATIC communication Yes • ROFIBUS DP master Yes • Number of connections, max. 48; Of which 4 each reserved for ES and HMI • max. number of DP devices PROFIBUS OP ROFINET Services - • Equidistance No • Isochronous mode No • activation/deactivation of DP devices Yes • Autonegotiation Yes	— Prioritized startup	No			
	— Shared device	Yes			
	 Number of IO Controllers with shared device, max. 	4			
		Yes: per user program			
3. Interface Interface types • RS 485 Yes; Via CM DP module • Number of ports 1 Protocols ************************************	C C				
Interface types • RS 485 Yes; Via CM DP module • Number of ports 1 Protocols 1 • PROFIBUS DP master Yes • PROFIBUS DP device Yes • SIMATIC communication Yes PROFIBUS DP master Yes • Number of connections, max. 48; Of which 4 each reserved for ES and HMI • nax. number of DP devices 125; in total, up to 1024 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Services - - Equidistance No - activation/deactivation of DP devices Yes Interface types Yes RJ 43 (Ethernet) Yes • 100 Mbps Yes • Autonegotiation Yes • Autoresing Yes • Industrial Ethernet status LED Yes • Industrial Ethernet status LED Yes • Transmission rate, max. 12 Mbit/s Protocols PROFISafe					
• RS 485 Yes; Via CM DP module • Number of ports 1 Protocols ************************************					
Number of ports1Protocols• PROFIBUS DP masterYes• PROFIBUS DP deviceYes• SIMATIC communicationYesPROFIBUS DP master48; Of which 4 each reserved for ES and HMI• nax. number of DP devices48; Of which 4 each reserved for ES and HMI• nax. number of DP devices48; Of which 4 each reserved for ES and HMI• nax. number of DP devices48; Of which 4 each reserved for ES and HMI• nax. number of DP devices48; Of which 4 each reserved for ES and HMI• nax. number of DP devices48; Of which 4 each reserved for ES and HMI• nax. number of DP devices48; Of which 4 each reserved for ES and HMI• nax. number of DP devices48; Of which 4 each reserved for ES and HMI• nax. number of DP devices48; Of which 4 each reserved for ES and HMI• nax. number of DP devices48; Of which 4 each reserved for ES and HMI• national status125; in total, up to 1024 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINETServices• Services• national statusNo• activation/deactivation of DP devicesYes• 100 MbpsYes• AutoregotiationYes• AutoregotiationYes• Industrial Ethernet status LEDYes• Industrial Ethernet status LEDYes• Transmission rate, max.12 Mbit/sPROFIsafeNo	and the second sec	Ves: Via CM DP module			
Protocols PROFIBUS DP master PROFIBUS DP device SIMATIC communication Yes PROFIBUS DP master Yes • Number of connections, max. 48; Of which 4 each reserved for ES and HMI • max. number of DP devices 125; in total, up to 1024 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Services - Equidistance No - activation/deactivation of DP devices Yes RJ 45 (Ethernet) Yes • Autocrossing Yes • Autocrossing Yes • Autocrossing Yes • Transmission rate, max. 12 Mbit/s Protocols Yes					
• PROFIBUS DP masterYes• PROFIBUS DP deviceYes• SIMATIC communicationYes PROFIBUS DP master Yes• Number of connections, max.48; Of which 4 each reserved for ES and HMI• max. number of DP devices125; in total, up to 1024 distributed I/O devices can be connected via AS-I, PROFIBUS or PROFINETServices EquidistanceNo- Isochronous modeNo- activation/deactivation of DP devicesYesInterface typesYesRJ 45 (Ethernet)Yes• AutocrossingYes• AutocrossingYes• Industrial Ethernet status LEDYesRS 485Yes• Transmission rate, max.12 Mbit/sPROFISafeNo		1			
• PROFIBUS DP deviceYes• SIMATIC communicationYesPROFIBUS DP master48; Of which 4 each reserved for ES and HMI• max. number of connections, max.48; Of which 4 each reserved for ES and HMI• max. number of DP devices125; in total, up to 1024 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFIBUS or PROFINETServices- Equidistance- EquidistanceNo- activation/deactivation of DP devicesYesInterface typesYesRJ 45 [Ethernet]Yes• AutonegotiationYes• AutonegotiationYes• AutocrossingYes• Industrial Ethernet status LEDYesRS 485Ital Mit/s• Transmission rate, max.12 Mbit/sPROFISafeNo		Vec			
SIMATIC communicationYesPROFIBUS DP master48; Of which 4 each reserved for ES and HMI• max. number of DP devices125; in total, up to 1024 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINETServices EquidistanceNo- Isochronous modeNo- activation/deactivation of DP devicesYesInterface typesRJ 45 (Ethernet)Yes00 MbpsYes- AutonegotiationYes- AutonegotiationYes- AutocrossingYes- Industrial Ethernet status LEDYesRS 485YesPROFISafeNo					
PROFIBUS DP master 48; Of which 4 each reserved for ES and HMI • max. number of DP devices 125; in total, up to 1024 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET Services - Equidistance - Equidistance No - Isochronous mode No - activation/deactivation of DP devices Yes Interface types Yes RJ 45 (Ethemet) Yes • 100 Mbps Yes • Autonegotiation Yes • Autoressing Yes • Industrial Ethernet status LED Yes RS 485 Yes • Transmission rate, max. 12 Mbit/s PROFIsafe No					
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• max. number of DP devices125; in total, up to 1024 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINETServices- EquidistanceNo- Isochronous modeNo- activation/deactivation of DP devicesYesInterface typesRJ 45 (Ethernet)Yes- 100 MbpsYes- AutonegotiationYes- AutoregotiationYes- Industrial Ethernet status LEDYes- RS 485 Transmission rate, max.12 Mbit/sPROFIsafeNo					
Services - Equidistance No - Isochronous mode No - activation/deactivation of DP devices Yes Interface types RJ 45 (Ethernet) Yes • 100 Mbps Yes • Autonegotiation Yes • Autorossing Yes • Industrial Ethernet status LED Yes RS 485 Yes Protocols No		125; in total, up to 1024 distributed I/O devices can be connected via AS-i,			
EquidistanceNo Isochronous modeNo activation/deactivation of DP devicesYesInterface typesRJ 45 (Ethernet)• 100 MbpsYes• AutonegotiationYes• AutorossingYes• Industrial Ethernet status LEDYesRS 485Yes• Transmission rate, max.12 Mbit/sPROFIsafeNo	Sonvisos				
- Isochronous modeNo- activation/deactivation of DP devicesYesInterface typesRJ 45 (Ethernet)• 100 MbpsYes• 100 MbpsYes• AutonegotiationYes• AutocrossingYes• Industrial Ethernet status LEDYesRS 485• Transmission rate, max.12 Mbit/sPROFIsafeNo		No			
- activation/deactivation of DP devices Yes Interface types RJ 45 (Ethernet) F • 100 Mbps Yes • Autonegotiation Yes • Autocrossing Yes • Industrial Ethernet status LED Yes • Transmission rate, max. 12 Mbit/s PROFIsafe No	-				
Interface types RJ 45 (Ethernet) • 100 Mbps Yes • Autonegotiation Yes • Autocrossing Yes • Industrial Ethernet status LED Yes RS 485 12 Mbit/s • Transmission rate, max. 12 Mbit/s PROFIsafe No					
RJ 45 (Ethernet) • 100 Mbps Yes • Autonegotiation Yes • Autocrossing Yes • Industrial Ethernet status LED Yes RS 485 12 Mbit/s Protocols No		Tes			
• 100 Mbps Yes • Autonegotiation Yes • Autocrossing Yes • Industrial Ethernet status LED Yes RS 485 Yes • Transmission rate, max. 12 Mbit/s Protocols No					
AutonegotiationYesAutocrossingYesIndustrial Ethernet status LEDYesRS 485Yes• Transmission rate, max.12 Mbit/sProtocolsYesPROFIsafeNo					
Autocrossing Yes Industrial Ethernet status LED Yes RS 485 Transmission rate, max. 12 Mbit/s Protocols PROFIsafe No	• 100 Mbps				
• Industrial Ethernet status LED Yes RS 485 • Transmission rate, max. • Transmission rate, max. 12 Mbit/s Protocols • No	Autonegotiation	Yes			
RS 485 • Transmission rate, max. Protocols PROFIsafe No	Autocrossing	Yes			
• Transmission rate, max. 12 Mbit/s Protocols PROFIsafe No	 Industrial Ethernet status LED 	Yes			
Protocols PROFIsafe No	RS 485				
PROFIsafe No	Transmission rate, max.	12 Mbit/s			
	Protocols				
Number of connections	PROFIsafe	No			
	Number of connections				

	400 vis interreted interference of the ODU and encounted ODs (OMs
Number of connections, max.	192; 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 connections per CP/CM	32
Number of S7 routing paths	16
Redundancy mode	Vee
H-Sync forwarding Media redundancy	Yes
— Media redundancy	Yes; only via BusAdapter
— 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. 118 multicast circuits
• DHCP	Yes
• DNS	Yes
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Encryption	Yes; Optional
Web server	
• HTTP	Yes; Standard and user pages
• HTTPS	Yes; Standard and user pages
• web API	100
- Number of sessions, max.	100
 — number of simultaneous HTTP calls, max. — HTTP request body, max. 	4 131 072 byte
OPC UA	
Runtime license required	Yes; "Medium" license required
OPC UA Client	Yes; Data Access (registered Read/Write), Method Call
- Application authentication	Yes
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
— Number of connections, max.	10
 Number of nodes of the client interfaces, recommended max 	2 000
recommended max. — Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_U max.	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
 — Number of simultaneous calls of the client instructions for session management, per connection, 	1

200 × 200 ×	
max.	5
 — Number of simultaneous calls of the client instructions for data access, per connection, max. 	5
- Number of registerable nodes, max.	5 000
— Number of registerable method calls of	100
OPC_UA_MethodCall, max.	
 — Number of inputs/outputs when calling OPC_UA_MethodCall, max. 	20
OPC UA Server	Yes; data access (read, write, subscribe), method call, alarms & condition (A&C), custom address space, role-based access control
 Application authentication 	Yes
— Security policies	available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256, Aes128Sha256RsaOaep, Aes256Sha256RsaPss
— User authentication	"anonymous" or by user name & password
 — GDS support (certificate management) 	Yes
 — Number of sessions, max. 	48
 Number of accessible variables, max. 	100 000
 — Number of registerable nodes, max. 	20 000
 — Number of subscriptions per session, max. 	50
— Sampling interval, min.	100 ms
— Publishing interval, min.	100 ms
— Number of server methods, max.	50; max. 20 concurrently running jobs each for asynchronous instructions OPC_UA_ServerMethodPre and OPC_UA_ServerMethodPost
 — Number of inputs/outputs per server method, max. 	20
 — Number of monitored items, recommended max. 	4 000; for 1 s sampling interval and 1 s send interval
- Number of server interfaces, max.	10 of each "Server interfaces" / "Companion specification" type and 20 of the type "Reference namespace"
 — Number of nodes for user-defined server interfaces, max. 	30 000
 Alarms and Conditions 	Yes
 — Number of program alarms 	200
 Number of alarms for system diagnostics 	100
Further protocols	
• MODBUS	Yes; MODBUS TCP
•	Yes; MODBUS TCP
MODBUS	Yes; MODBUS TCP 64
MODBUS S7 message functions	
MODBUS S7 message functions Number of login stations for message functions, max.	64
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max.	64 500
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max.	64 500 8 000
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block,
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max.	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max.	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200 160
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commission (Team Engineering) Status block	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200 160 Yes; Parallel online access possible for up to 8 engineering systems
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commissioning functions Joint commission (Team Engineering)	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients)
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) Yes
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Profiling	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) Yes 8
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) Yes 8
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Profiling Status/control	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) Yes 8 Yes 1 Yes
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Profiling Status/control Status/control variable Variables	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) Yes 8 Yes
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Profiling Status/control Status/control variable Variables Number of variables, max.	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) Yes 8 Yes 9 Yes 10 Yes 8 Yes 9 Yes 10 Yes
 MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Profiling Status/control Status/control variable Variables Number of variables, max. – of which status variables, max. 	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) Yes 8 Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of loadable program messages in RUN, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Profiling Status/control Status/control variable Variables Number of variables, max. — of which status variables, max.	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) Yes 8 Yes 9 Yes 10 Yes 8 Yes 9 Yes 10 Yes
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of loadable program messages in RUN, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Profiling Status/control Status/control variable Variables Number of variables, max. — of which status variables, max. — of which control variables, max.	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) Yes 8 Yes 9 Yes 10 9
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Profiling Status/control Status/control variable Variables Number of variables, max. — of which status variables, max. — of which control variables, max.	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) Yes 8 Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job 200; per job Yes
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of tags/attributes for subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Profiling Status/control Status/control variable Variables Number of variables, max. — of which control variables, max.	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) Yes 8 Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job 200; per job Yes Peripheral inputs/outputs
MODBUS S7 message functions Number of login stations for message functions, max. number of subscriptions, max. number of subscriptions, max. Program alarms Number of configurable program messages, max. Number of loadable program messages in RUN, max. Number of loadable program messages in RUN, max. Number of simultaneously active program alarms Number of program alarms Number of alarms for system diagnostics Number of alarms for motion technology objects Test commission (Team Engineering) Status block Single step Number of breakpoints Profiling Status/control Status/control variable Variables Number of variables, max. — of which status variables, max. — of which control variables, max.	64 500 8 000 Yes 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH 10 000 1 000 200 160 Yes; Parallel online access possible for up to 8 engineering systems Yes; Up to 8 simultaneously (in total across all ES clients) Yes 8 Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 200; per job 200; per job Yes

Diagnostic buffer

e precent	Yes
 present Number of entries, max.	3 200
— of which powerfail-proof	500
Traces	500
Number of configurable Traces	4
Memory size per trace, max.	512 kbyte
Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
ERROR LED	Yes
MAINT LED	Yes
Monitoring of the supply voltage (PWR-LED)	Yes
Connection display LINK TX/RX	Yes
Supported 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
 Number of available Motion Control resources for technology objects 	2 400
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
 Positioning axis 	
 — Number of positioning axes at motion control cycle of 4 ms (typical value) 	11
 — Number of positioning axes at motion control cycle of 8 ms (typical value) 	20
Controller	
 PID_Compact 	Yes; Universal PID controller with integrated optimization
PID_3Step	Yes; PID controller with integrated optimization for valves
PID-Temp	Yes; PID controller with integrated optimization for temperature
Counting and measuring	
High-speed counter	Yes
Standards, approvals, certificates	
Ecological footprint	
environmental product declaration	Yes
Global warming potential	00.0 km
— global warming potential, (total) [CO2 eq]	83.2 kg
— global warming potential, (during production) [CO2 eq]	22.3 kg
— global warming potential, (during operation) [CO2 eq]	61.8 kg
— global warming potential, (after end of life cycle) [CO2 eq]	-0.949 kg
product functions / security / header	
PROFINET Security Class	1
signed firmware update	Yes
Secure Boot	Yes
safely removing data	Yes
Ambient conditions	
Ambient temperature during operation	20 °C: No condensation
horizontal installation, min.	-30 °C; No condensation
horizontal installation, max.	60 °C
vertical installation, min.	-30 °C; No condensation
vertical installation, max. Attitude during operation relating to see level	50 °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
• Installation allitude above sea level, max.	

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
Copy protection	Yes
Block protection	Yes
Access protection	
 protection of confidential configuration data 	Yes
 Protection level: Write protection 	Yes
 Protection level: Read/write protection 	Yes
 Protection level: Write protection for Failsafe 	No
 Protection level: Complete protection 	Yes
User administration	Yes; device-wide and centralized
Number of users	100
Number of groups	100
Number of roles	50
programming / cycle time monitoring / header	
lower limit	adjustable minimum cycle time
upper limit	adjustable maximum cycle time
Dimensions	
Width	100 mm
Height	117 mm
Depth	75 mm
Weights	
Weight, approx.	265 g
Classifications	
	Version Classification

	Version	Classification
eClass	14	27-24-26-07
eClass	12	27-24-26-07
eClass	9.1	27-24-26-07
eClass	9	27-24-26-07
eClass	8	27-24-26-07
eClass	7.1	27-24-26-07
eClass	6	27-24-26-07
ETIM	9	EC001603
ETIM	8	EC001603
ETIM	7	EC001603
IDEA	4	3565
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval

CE EG-Konf. UK CA

Miscellaneous



Miscellaneous

<u>KC</u>

General Product Approval

For use in hazardous locations

TUV		<u>FM</u>	CCC-Ex	K ATEX	IECEx
For use in hazardous loo	cations	Marine / Shipping			
<u>Miscellaneous</u>	CCC-Ex	ABS	BUREAU VERITAS		Lloyds Register urs
Marine / Shipping			other		
<u>NK / Nippon Kaiji Ky-</u> <u>okai</u>	RINA	<u>CCS (China Classifica-</u> <u>tion Society)</u>	Profibus	PROFINET	Profibus
Environment					
EPD					

last modified:

12/19/2024 🖸