SIEMENS

Data sheet

6ES7510-1DJ01-0AB0



SIMATIC DP, CPU 1510SP-1 PN for ET 200SP, Central processing unit with Work memory 100 KB for program and 750 KB for data, 1st interface: PROFINET IRT with 3-port switch, 72 ns bit performance, SIMATIC Memory Card required, BusAdapter required for Port 1 and 2

General information	
Product type designation	CPU 1510SP-1 PN
HW functional status	FS05
Firmware version	V2.9
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 625 μ s
Engineering with	
 STEP 7 TIA Portal configurable/integrated from version 	V17 (FW V2.9) / V13 SP1 Update 4 (FW V1.8) 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 	5 ms
Input current	
Current consumption (rated value)	0.6 A
Current consumption, max.	0.9 A
Inrush current, max.	4.7 A; Rated value
² t	0.14 A ² ·s
Power	
Infeed power to the backplane bus	8.75 W
Power loss	
Power loss, typ.	5.6 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	
• integrated (for program)	100 kbyte
 integrated (for data) 	750 kbyte
Load memory	
 Plug-in (SIMATIC Memory Card), max. 	32 Gbyte
Backup	
maintenance-free	Yes

CPU processing times	
for bit operations, typ.	72 ns
for word operations, typ.	86 ns
for fixed point arithmetic, typ.	115 ns
for floating point arithmetic, typ.	461 ns
CPU-blocks	
Number of elements (total)	4 000; 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
0	59 999, and number range of DBs created via SFC 86: 60 000 60 999
• Size, max.	750 kbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	
Number range	0 65 535
• Size, max.	100 kbyte
FC	A 45 565
Number range	065 535
• Size, max.	100 kbyte
OB	
• Size, max.	100 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 500 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.	128 kbyte; Available retentive memory for bit memories, timers, counters, DBs,
	and technology data (axes): 88 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
Retentivity preset	No
Local data	
 per priority class, max. 	64 kbyte; max. 16 KB per block

Subject to change without notice © Copyright Siemens

Number of ID modules 1024; max.number of modules / submodules ID address area 32 Myter. All inputs are in the process image 32 Myter. All inputs are in the process image 32 Myter. Imputs (volume) 8 Myte	Address area	
IVD address same SZ kbyler, Al inputs are in the process image • Oxputs SZ kbyler, Al inputs are in the process image SZ kbyler, Al inputs are in the process image SZ kbyler, Al inputs are in the process image Cupus (volume) - Cupus (vol		1 024; max. number of modules / submodules
• Populs 22 byter. All loputs are in the process image • Origuts 32 byter. All outputs are in the process image • Inputs (volume) 8 byte • Origuts (volume) 8 byte • Outputs (volume) 8 byte • Matheward in upprocess images, max. 32 • Address space per mobile • • Address space per mobile • • Address space per mobile • • Address space per station, max. 256 byte for central inputs and output data respectively Address space per station, max. 256 byte for central inputs and output data respectively Matheward of distributed IO systems • • Address space per station, max. 256 byte for central inputs and output data respectively Number of DP masters • • Address space per module, max. 1 Number of DO systems 1 • Via CM 1 Number of DO controless • • Via CM 1 • Modules per rack, max. 2004, incolates + server module (mounting worth max. 1 m) + 18 ET • Via CM 1 • Modules per rack, max. 10 <td></td> <td></td>		
• Octools 32 hybr: All outputs are in the process image • Inputs (volume) 8 ktyle • Octools (volume) 8 ktyle • Autores of autopocess images. 32 • Autores of autopoces images.max. 32 • Address space per module, max. 9 atopics (volume) • Address space per station.max. gets bits (F or central inputs and output data respectively • Address space per station.max. gets bits (F or central inputs and output data respectively • Address space per station.max. gets bits (F or central inputs and output data respectively • Address space per station.max. gets bits (F or central inputs and output data respectively • Address space per module, max. gets (F or central inputs and output data respectively • Address space per module, max. gets (F or central inputs and output data respectively • Address space per module, max. gets (F or central inputs and output data respectively • Addres space per module, max. gets (F or cent	Inputs	32 kbyte; All inputs are in the process image
principale (IO subjects) 8 ktyle Outputs (volume) 8 ktyle per CMRCP 8 ktyle Outputs (volume) 32	-	
- Odpuils (Yourne) B style per CMUCP - Inpuils (Yourne) B style - Odpuils - Od	per integrated IO subsystem	
per CMCP Inputs (volume)	— Inputs (volume)	8 kbyte
- Inputs (volume) 8 kbyte 8 k	— Outputs (volume)	8 kbyte
- Outputs (volume) 8 ktype Subprocess images - Number of Subprocess images, max. 32 Address space per module, max. 288 byte, for input and output data respectively Address space per station, max. 2580 byte, for central inputs and outputs; depending on configuration; 20.08 Parkware configuration - Address space per station, max. 2580 byte, for central inputs and outputs; depending on configuration; 20.08 - Address space per station, max. 2580 byte, for central inputs and outputs; depending on configuration; 20.08 - Address space per station, max. 2580 byte, for central inputs and outputs; depending on configuration; 20.08 - Address space per station, max. 2580 byte, for central inputs and outputs; depending on configuration; 20.08 - Address space per station, max. 2580 byte, for central inputs; and outputs; depending on configuration; 20.08 - Address space per station, max. 2580 byte, for central inputs; and outputs; depending on configuration; 20.08 - Address space per station; 20.08 - Address per rack, max. 20.08 - Address per rack, max. 200; CPU + 64 modules + server module (mounting witht max. 1 m) + 16 ET - Outputs of operable ET 20.09 Produles; max. 64 - Quantity of operable ET 20.00 Produles; max. 10 b; Typ: 2 s - Outputs of per day. 72 s - Outputs of per day. 72 s - Outputs of PP CMs is only limited by the number of available able - Provision per day, max. 10 b; Typ: 2 s - Outputs of per day. 72 s - Outputs of per day. 72 s - Supported - Ves Via CM DP module - In Provision per day, max. 10 b; Typ: 2 s - Outputs of POP/INET Interfaces - 1 - Number of POP/INET Interfaces - 1 - Number of POP/INET Interfaces - 1 - Number of POP/INET Interfaces - 1 - Nu	per CM/CP	
Studprocess images 32 • Number of subprocess images, max. 32 • Address space per module 28 byte, For input and output data respectively • Address space per station, max. 2560 byte, for entral inputs and outputs; depending on configuration, 20.48 • Address space per station, max. 2560 byte, for entral inputs and outputs; depending on configuration, 20.48 • Markers configuration 1 Number of distributed I/O systems 1 • Via CM 1 • Via CM 1 • Via CM 0 • Outhing of operable ET 2005P modules, max. 84 • Quantity of operable ET 2005P modules, max. 84 • Outhing of PIP CMs the number of connectable PIP CMs is only limited by the number of available slots • During of day 56 • Stack prime 6 • Outhing of ends, max. 84 • Outhing of	— Inputs (volume)	8 kbyte
• Number of subprocess images, max. 32 Address space per induide - • Address space per induide, max. 280 byte; For input and output data respectively Address space per station - • Address space per station, max. 2500 byte; for central inputs and outputs; depending on configuration; 2 048 byte; for CE 2005P modules + 512 bytes for ET 2004L modules Hardware configuration 32: A distributed I/O systems of the integration of integrated in or why byte connection of I/O via AS1 master modules or links (e.g., EPPS-Link) Number of DP masters - • Via CM 1 • Number of Controles - • Integrated 1 • Via CM 0 • Via CM 1 • Via CM 0 • Outputs of I/O Controles - • Integrated 1 • Via CM 1 • Outputs of I/O Controles - • Modules per radiu 1 • Unother of PIP CMs B0, CPU + 64 modules + server module (mounting width max. 1 m) + 16 ET 200AL modules, max. • Quantity of operable ET 2005P modules, max. 64 • Quantity of operable ET 2005P modules, max. 64 • Quantity of operable ET 2005P modules, max. 16 • PIP CM Hardware clock 60x • Number of PIP CMs 16 with a number of a	— Outputs (volume)	8 kbyte
Address space per module, max. 288 byte; For input and output data respectively Address space per station. 288 byte; For input and outputs; depending on configuration; 2.048 bytes for ET 2004 modules for ET 2004 modules for ET 2004 modules for ET 2004 modules. Hardware configuration 2% A distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of integrated • Via CM 1 Number of IO Controllers 1 • Via CM 0 Rek 80: CPU + 94 modules + server module (mounting width max. 1 m) + 16 ET 2004, modules, max. • Quantity of operable ET 2004L modules, max. 16 PiP CM 1 • Number of PiP CMs 6 wix: 44 0 °C ambient temperature, typically • Output of day, max. 10 s; Typ: 2 s Operating House counter 6 wix: 44 0 °C ambient temperature, typically • Output of day, max. 16 • Number of PiP CMs	Subprocess images	
• Address space per module, max. 288 byte; For input and output data respectively Address space per station 2500 byte; for central inputs and outputs; depending on configuration; 2.048 bytes for ET 2.00AL modules Number of distributed I/O systems 32; 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 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 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 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 career module (mounting width max. 1 m) + 16 ET 200AL modules, max. • Quantity of operable ET 200AL modules, max. B0. CPU + 64 modules + server module (mounting width max. 1 m) + 16 ET 200AL modules. • Outan By of operable ET 200AL modules, max. B0 • Pir CM If a number of connectable PIP CMs is only limited by the number of avaitable sito is • Outan By of operable E	 Number of subprocess images, max. 	32
Address space per station 2 560 byte, for central inputs and exputs; depending on configuration; 2 048 bytes for ET 200AL modules Hardware configuration 32; 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 Integration of distributed I/O appRoFINET or PROFINET OR PRO	Address space per module	
Address space per station, max. 2 560 byte for central inputs and outputs depending on configuration 2 048 byte for E 2008P modules + 512 bytes for E 12 opties for E	Address space per module, max.	288 byte; For input and output data respectively
bytes for ET 200SP modules + 512 bytes for ET 200AL modules Hardware configuration Number of distributed IO systems S2: A statisticated IO experime is characterized not only by the integration of day the contection of IO Via AS1 models or ninks (e.g. IE/PB-LnN) Number of IOP masters 1 • Via CM 1 Number of IOC Controllers 1 • Integrated 1 • Via CM 0 Read 0 Read 0 • Via CM 1 • Via CM 1 • Via CM 0 • Via CM 0 • Via CM 0 • Read 0 • Oudality of operable ET 200SP modules, max. 64 • Quantity of operable ET 200SP modules, max. 64 • Read way 1 1 • Number of PIP CMs the number of connectable PIP CMs is only limited by the number of available stot • Number 64 w. At 40 °C ambient temperature, typically 0 • Deviation per day, max. 10 stryp: 2 s 0 • Operating haus counter 16 10	Address space per station	
Hardware configuration 32: 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 wa AS-i master modules of links (e.g. IE/PS-Link) Number of DP masters 1 • Via CM 1 Number of I/O Controllers 1 • integrated 1 • Via CM 0 Rack 80: CPU + 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. 64 • Pir CM • • Number of PIP CMs the number of connectable PIP CMs is only limited by the number of available alots • Time of day • Clock • • Type Hardware clock • Backup time 6 wk; At 40 "C ambient temperature, typically • Deviation per day, max. 10; Typ: 2 is Operating hours counter • • Number 16 Clock synchronization • • supported Yes • to DP, master Yes	 Address space per station, max. 	
Number of distributed IO systems 32: A distributed VD system is characterized not by by the integration of distributed VD system is characterized not by by the integration of distributed VD system is characterized not by by the integration of distributed VD system is characterized not by by the integration of distributed VD system is characterized not by by the integration of distributed VD system is characterized not by by the integration of distributed VD system is characterized not by by the integration of distributed VD system is characterized not by by the integration of distributed VD system is characterized not by by the integration of distributed VD system is characterized not by by the integration of distributed VD system is characterized not by by the integration of distributed VD system is characterized not by by the integration of distributed VD system is characterized not by by the integration of distributed VD system is characterized not by by the integration of distributed VD system is characterized not by by the integration of distributed VD system is characterized not by by the integration of distributed VD system is characterized not by the integration of distributed VD system is characterized not by by the integration of distributed VD system is characterized not by the integration of distributed VD system. • Number of Clock • Oughtly of operable ET 200AL modules, max. 64 • Number of PIP CMs • Number of Clock • Number of PIP CMs is only limited by the number of available slots • Number of PIP CMs • Number of PIP CMs is only limited by the number of available slots • Number of PIP CMs • Number of PIP CMs • Number of PIP CMs • Number of PIP CMs • Number of PIP CMs • System System System System System System Syste		bytes for ET 200SP modules + 512 bytes for ET 200AL modules
distributed I/D via PROFINET or PROFINES communication mobules, but also by the connection Of I/O via ASI master modules or links (e.g. IE/PB-Link) via CM 1 Number of I/O Controllers 1 via CM 0 Via CM 0 Rack 8 0 Rack 8 0 Rack 8 0 Rack 8 0 Rack 8 0 Rack 8 0 Rack 9 0 Rack 9	Hardware configuration	
• Via CM 1 Number of IO Controllers 1 • Inlegrated 1 • Via CM 0 Rack 80; CPU + 64 modules + server module (mounting width max. 1 m) + 16 ET 200AL modules, max. • Quantity of operable ET 200SP modules, max. 64 • Quantity of operable ET 200AL modules, max. 16 PIP CM the number of connectable PIP CMs is only limited by the number of available slots Time of day Cleaket • Type Hardware clock • Backup time 6 wk; At 40 °C ambient temperature, typically • Deviation per day, max. 10 s; Typ: 2 s Clocks youthronization 16 • Supported Yes; Via CM DP module • In AS, master Yes • In AS, master Yes • In AS, master Yes • In PROFINET interfaces 1 Number of PROFINET interfaces 1 Number of PROFINET interfaces 1, Via CM DP module • In AS, master Yes • Rate of PROFINET interfaces 1 Number of PROFINET interfaces 1 Number of PROFINET interfaces 1, Via CM DP module	Number of distributed IO systems	distributed I/O via PROFINET or PROFIBUS communication modules, but also
Number of IO Controllers • Integrated 1 • Via CM 0 Rack 80; CPU + 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. 64 • Quantity of operable ET 200AL modules, max. 16 PIP CM Interface • Number of PIP CMs the number of connectable PIP CMs is only limited by the number of available slobs Time of day Elock • Type Hardware clock • Backup time 6 wk. At 40 °C ambient temperature, typically • Deviation per day, max. 10 s; Typ: 2 s Operating hours counter • • Number 16 Clock synchronization Yes • to DP, master Yes, Via CM DP module • to DP, master Yes • in AS, slave Yes • in AS, slave Yes, Via CM DP module • in AS, slave Yes, Via CM DP module • DP, for PROFINET interfaces 1 Number of PROFINET interfaces 1	Number of DP masters	
• integrated 1 • Via CM 0 Rack 0 • Modules per rack, max. 20; CPU + 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. 16 PIP CM 16 PIP CM 16 Clock 16 • Type Hardware clock • Backup time 6 wk, At 40 °C ambient temperature, typically • Deviation per day, max. 10 Clock synchronization 5 (yia CM DP module • Number 16 Clock synchronization Yes • to DP, master Yes • to DP, slave Yes • in AS, master Yes • in AS, slave Yes • on Ethernet via NTP Yes Number of PROFINET interfaces 1 Number of PROFINET interfaces 1 Number of PR	• Via CM	1
• Va OM 0 Rack 80; CPU + 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. 16 PIP CM 16 FUR of day 16 Cloantity of operable ET 200SP modules, max. 16 PIP CM 16 Cloantity of operable ET 200SP modules, max. 16 PIP CM 10 Cloantity of operable State	Number of IO Controllers	
Rack 80; CPU + 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. 64 • Number of PIP CMs 16 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 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 via CM DP module Yes • to DP, slave Yes; Via CM DP module • in AS, master Yes • in AS, slave Yes • on Ethernet via NTP Yes • no Ethernet via NTP Yes Ves Yes (DM DP module • DPROFINET interfaces 1 Number of PROFINET interfaces 1 Number of ports 1 • Number of ports 3; 1, integr. + 2, via BusAdapter BA 2x RJ45 • Number of ports 3; 1, integr. + 2, via BusAdapter BA 2x RJ45 • Number of ports 3; 1, integr. + 2, via BusAdapter • Number of ports	integrated	
• Modules per rack, max. 80; CPU + 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. 16 PIP CM • he number of connectable PtP CMs is only limited by the number of available slots • Number of PtP CMs • he number of connectable PtP CMs is only limited by the number of available slots • Tope • Hardware clock • Type • Gwk; At 40 °C ambient temperature, typically • Deviation per day, max. 10 s; Typ:. 2 s Operating hours counter • (Mumber • Number 16 Clock synchronization • Yes • Number 16 Clock synchronization • Yes • Number 16 Clock synchronization • Yes • to DP, naster Yes; Via CM DP module • to DP, slave Yes • in AS, master Yes • on Ethernet via NTP Yes Interfaces 1 Number of PROFINET interfaces 1	• Via CM	0
200AL modules 200AL modules • Quantity of operable ET 200SP modules, max. 64 • Quantity of operable ET 200AL modules, max. 16 PEP CM • Number of PIP CMs • Number of PIP CMs the number of connectable PIP CMs is only limited by the number of available slots Clock • Time of day Clock • Education per day, max. • Deviation per day, max. 10 s; Typ.: 2 s Operating hours counter 16 • Number 16 Clock synchronization Yes • Unported Yes; Via CM DP module • to DP, slave Yes; Via CM DP module • in AS, master Yes • in AS, slave Yes • Interfaces 1 Number of PROFINET interfaces 1 Number of PROFINET interfaces 1 • RJ 45 (Ethernet) Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 3; 1. integr. + 2. via BusAdapter • Number of ports 3; 1. integr. + 2. via BusAdapter BA 2x RJ45, BA 2x FC, BA 2x M12 Protocol Yes; IPv4		
• Quantity of operable ET 200AL modules, max. 16 PIP CM the number of connectable PIP CMs is only limited by the number of available slots Time of day Elock Clock • Number of PIP CMs • Deviation per day, max. 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 Yes; Via CM DP module • supported Yes; Via CM DP module • to DP, naster Yes; Via CM DP module • in AS, naster Yes • in AS, slave Yes • on Ethernet via NTP Yes Interfaces 1 Number of PROFIBUS interfaces 1 Number of PROFIBUS interfaces 1; Via CM DP module Optical interface No 1. Interface No 1. Interface Yes; Via CM DP module • RJ 45 (Ethernet) Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of profs 3; 1. integr. + 2. via BusAdapter BA 2x RJ45 • Number of ports 3; 1. integr. + 2. via BusAdapter BA 2x RJ45 •	Modules per rack, max.	
PIP CM the number of connectable PtP CMs is only limited by the number of available slobs Time of day Time of day Clock • Number of Connectable PtP CMs is only limited by the number of available slobs Clock • Namber • Backup time 6 wk; xit 40 °C ambient temperature, typically • Deviation per day, max. 10 s; Typ. 2 s Operating hours counter • • Number 16 Clock synchronization • • upported Yes • to DP, master Yes; Via CM DP module • to DP, slave Yes • in AS, naster Yes • on Ethernet via NTP Yes Interfaces 1 Number of PROFIBUS interfaces 1 Number of PROFIBUS interfaces 1; Via CM DP module Optical interface No 1.Interface No 1.Interface Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 3; 1. integr. + 2. via BusAdapter BA 2x RJ45 • Number of ports 3; 1. integr. + 2. via BusAdapter BA 2x RJ45 • Number of ports 3; 1. integr. + 2. via BusAdapter FG, BA 2x FC, BA 2x M12 <	 Quantity of operable ET 200SP modules, max. 	64
• Number of PtP CMs the number of connectable PtP CMs is only limited by the number of available slots Time of day Clock • Type • Type Hardware clock • Backup time 6 wk; At 40 °C ambient temperature, typically • Deviation per day, max. 10 s; Typ: 2 s Operating hours counter • • Number 16 Clock synchronization Yes • to DP, master Yes; Via CM DP module • to DP, slave Yes; Via CM DP module • to DP, slave Yes • on Ethernet via NTP Yes Interfaces 1 Number of PROFIBUS interfaces 1 Number of PROFIBUS interfaces 1; Via CM DP module Optical interface No 1 Interface Number of PROFIBUS interfaces 1; Via CM DP module Optical interface No 1 Number of prost • RJ 45 (Ethernet) Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 3; 1. integr. + 2. via BusAdapter • integrated switch Yes • BusAdapter (PROFINET) Yes; rowa	 Quantity of operable ET 200AL modules, max. 	16
slots Time of day Clock Type Backup time Wk, At 40 °C ambient temperature, typically Deviation per day, max. 10 s; Typ: 2 s Operating hours counter 16 Clock synchronization • • Number 16 Clock synchronization • • supported Yes • to DP, master Yes; Via CM DP module • to DP, slave Yes • in AS, master Yes • on Ethernet via NTP Yes Interfaces 1 Number of PROFINET interfaces 1 Number of PROFINUS Interfaces 1; Via CM DP module Optical interface No Optical interfaces 1; Via CM DP module • RJ 45 (Ethernet) Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 3; 1. integr. + 2. via BusAdapter BA 2x RJ45 • Number of ports S; 1. integr. + 2. via BusAdapter • integrated switch Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12 Protocols Yes; IPv4	PtP CM	
Clock Type Backup time G wk: At 40 °C ambient temperature, typically Deviation per day, max. 10 s; Typ.: 2 s Operating hours counter Number 16 Clock synchronization supported Yes to DP, master Yes; Via CM DP module to DP, slave Yes, Via CM DP module in AS, master Yes on Ethernet via NTP Yes Therfaces Number of PROFIBUS interfaces ty Via CM DP module Optical interface No 1.Interface Interfaces RJ 45 (Ethernet) Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 S; 1. integr. + 2. via BusAdapter Yes BusAdapter (PROFINET) Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12 Protocols IP protocol Yes; IPV4 	Number of PtP CMs	
• 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 * • supported Yes • to DP, master Yes; Via CM DP module • to DP, slave Yes; Via CM DP module • in AS, master Yes • in AS, slave Yes • on Ethernet via NTP Yes Interfaces 1 Number of PROFIBUS interfaces 1; Via CM DP module Optical interface No Interface No Interface Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 3; 1. integr. + 2. via BusAdapter • integrated switch Yes • BusAdapter (PROFINET) Yes; compatible BusA	Time of day	
• Backup time6 wk; At 40 °C ambient temperature, typically• Deviation per day, max.10 s; Typ.: 2 sOperating hours counter16• Number16Clock synchronizationYes• to DP, masterYes• to DP, masterYes; Via CM DP module• to DP, slaveYes; Via CM DP module• in AS, masterYes• on Ethernet via NTPYesInterfaces1Number of PROFINET interfaces1Number of PROFINET interfaces1Optical interfaceNoInterface typesYes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45• Number of ports3; 1. integr. + 2. via BusAdapter BA 2x RJ45, BA 2x FC, BA 2x M12ProtocolsYes; IPv4		
• Deviation per day, max. 10 s; Typ.: 2 s Operating hours counter 16 • Number 16 Clock synchronization Yes • supported Yes, Via CM DP module • to DP, master Yes; Via CM DP module • to DP, slave Yes; Via CM DP module • in AS, master Yes • in AS, slave Yes • on Ethernet via NTP Yes Interfaces 1 Number of PROFINET interfaces 1 Number of PROFIBUS interfaces 1; Via CM DP module Optical interface No 1. Interface types Interface types • RJ 45 (Ethernet) Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 3; 1. integr. + 2. via BusAdapter • integrated switch Yes; • BusAdapter (PROFINET) Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12 Protocols Yes; IPV4	• Туре	Hardware clock
Operating hours counter 16 Clock synchronization 16 clock synchronization Yes • to DP, naster Yes; Via CM DP module • to DP, slave Yes; Via CM DP module • to DP, slave Yes; Via CM DP module • in AS, master Yes • in AS, slave Yes • on Ethernet via NTP Yes Interfaces 1 Number of PROFINET interfaces 1 Number of PROFIBUS interfaces 1; Via CM DP module Optical interface No 1. Interface types Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 3; 1. integr. + 2. via BusAdapter • integrated switch Yes • BusAdapter (PROFINET) Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12 Protocols Yes; IPV4	Backup time	6 wk; At 40 °C ambient temperature, typically
• Number 16 Clock synchronization Yes • supported Yes; Via CM DP module • to DP, master Yes; Via CM DP module • to DP, slave Yes; Via CM DP module • in AS, master Yes • in AS, slave Yes • on Ethernet via NTP Yes Interfaces 1 Number of PROFINET interfaces 1 Number of PROFIBUS interfaces 1; Via CM DP module Optical interface No Interface types Interface types • RJ 45 (Ethernet) Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 3; 1. integr. + 2. via BusAdapter • integrated switch Yes • BusAdapter (PROFINET) Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12 Protocols Yes; IPv4	 Deviation per day, max. 	10 s; Typ.: 2 s
Clock synchronization Yes • supported Yes • to DP, master Yes; Via CM DP module • to DP, slave Yes; Via CM DP module • in AS, master Yes • in AS, slave Yes • on Ethernet via NTP Yes Interfaces 1 Number of PROFINET interfaces 1 Number of PROFIBUS interfaces 1; Via CM DP module Optical interface 1; Via CM DP module Interface types 1; Via CM DP module • RJ 45 (Ethernet) Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 3; 1. integr. + 2. via BusAdapter • integrated switch Yes • BusAdapter (PROFINET) Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12 Protocols Yes; IPv4	Operating hours counter	
• supportedYes• to DP, masterYes; Via CM DP module• to DP, slaveYes; Via CM DP module• in AS, masterYes• in AS, slaveYes• on Ethernet via NTPYesInterfaces1Number of PROFINET interfaces1Number of PROFIBUS interfaces1; Via CM DP moduleOptical interfaceNoInterface typesYes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45• RJ 45 (Ethernet)Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45• integrated switchYes• BusAdapter (PROFINET)Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12ProtocolsYes; IPv4	Number	16
No• is DP, masterYes; Via CM DP module• is DP, slaveYes; Via CM DP module• in AS, masterYes• in AS, slaveYes• on Ethernet via NTPYesInterfaces1Number of PROFINET interfaces1Number of PROFIBUS interfaces1; Via CM DP moduleOptical interfaceNoInterfaceNoInterface1; Via CM DP moduleOptical interface3; 1, integr. + 2, via BusAdapter BA 2x RJ45• RJ 45 (Ethernet)Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45• Number of ports3; 1, integr. + 2, via BusAdapter• integrated switchYes• BusAdapter (PROFINET)Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12ProtocolsIP protocol	Clock synchronization	
• to DP, slaveYes; Via CM DP module• in AS, masterYes• in AS, slaveYes• on Ethernet via NTPYesInterfacesNumber of PROFINET interfaces1Number of PROFINET interfaces1Number of PROFIBUS interfaces1; Via CM DP moduleOptical interfaceNo1. InterfaceInterfacePROFIGUEYes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45• RJ 45 (Ethernet)Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45• Integrated switchYes• BusAdapter (PROFINET)Yes; compatible BusAdapters: BA 2x RJ45, BA 2x RJ45, BA 2x RJ45• IP protocolsYes; IPv4		
• in AS, masterYes• in AS, slaveYes• on Ethernet via NTPYesInterfacesNumber of PROFINET interfaces1Number of PROFIBUS interfaces1Number of PROFIBUS interfaces1; Via CM DP moduleOptical interfaceNo1. InterfaceYes;Interface types		
• in AS, slaveYes• on Ethernet via NTPYesInterfacesYesNumber of PROFINET interfaces1Number of PROFIBUS interfaces1; Via CM DP moduleOptical interfaceNo1. InterfaceNo1. InterfaceInterfaceInterface types• RJ 45 (Ethernet)Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45• Number of ports3; 1. integr. + 2. via BusAdapter• integrated switchYes• BusAdapter (PROFINET)Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12ProtocolsYes; IPv4		
• on Ethernet via NTPYesInterfaces1Number of PROFINET interfaces1Number of PROFIBUS interfaces1; Via CM DP moduleOptical interfaceNo1. InterfaceInterface types• RJ 45 (Ethernet)Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45• Number of ports3; 1. integr. + 2. via BusAdapter• integrated switchYes• BusAdapter (PROFINET)Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12ProtocolsYes; IPv4		
Interfaces Number of PROFINET interfaces 1 Number of PROFIBUS interfaces 1; Via CM DP module Optical interface No Interface No Interface types • RJ 45 (Ethernet) • RJ 45 (Ethernet) Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 3; 1. integr. + 2. via BusAdapter • integrated switch Yes • BusAdapter (PROFINET) Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12 Protocols Yes; IPv4		
Number of PROFINET interfaces 1 Number of PROFIBUS interfaces 1; Via CM DP module Optical interface No 1. Interface No Interface types • RJ 45 (Ethernet) • RJ 45 (Ethernet) Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 3; 1. integr. + 2. via BusAdapter • integrated switch Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12 Protocols Yes; IPv4		Yes
Number of PROFIBUS interfaces1; Via CM DP moduleOptical interfaceNo1. InterfaceInterface types• RJ 45 (Ethernet)Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45• Number of ports3; 1. integr. + 2. via BusAdapter• integrated switchYes• BusAdapter (PROFINET)Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12Protocols• IP protocolYes; IPv4		
Optical interfaceNo1. InterfaceInterface types• RJ 45 (Ethernet)• RJ 45 (Ethernet)• Number of ports• integrated switch• BusAdapter (PROFINET)Protocols• IP protocolYes; IPv4		
1. Interface Interface types • RJ 45 (Ethernet) Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 3; 1. integr. + 2. via BusAdapter • integrated switch Yes • BusAdapter (PROFINET) Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12 Protocols Yes; IPv4		1; Via CM DP module
Interface types • RJ 45 (Ethernet) Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45 • Number of ports 3; 1. integr. + 2. via BusAdapter • integrated switch Yes • BusAdapter (PROFINET) Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12 Protocols Yes; IPv4		No
• RJ 45 (Ethernet)Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45• Number of ports3; 1. integr. + 2. via BusAdapter• integrated switchYes• BusAdapter (PROFINET)Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12ProtocolsYes; IPv4	1. Interface	
• Number of ports 3; 1. integr. + 2. via BusAdapter • integrated switch Yes • BusAdapter (PROFINET) Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12 Protocols • IP protocol Yes; IPv4	Interface types	
• integrated switch Yes • BusAdapter (PROFINET) Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12 Protocols Yes; IPv4	RJ 45 (Ethernet)	Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45
BusAdapter (PROFINET) Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12 Protocols IP protocol Yes; IPv4	Number of ports	3; 1. integr. + 2. via BusAdapter
Protocols Ves; IPv4	 integrated switch 	Yes
IP protocol Yes; IPv4	BusAdapter (PROFINET)	Yes; compatible BusAdapters: BA 2x RJ45, BA 2x FC, BA 2x M12
	Protocols	
PROFINET IO Controller Yes	IP protocol	Yes; IPv4
	PROFINET IO Controller	Yes

Headmark II Disknee in the image of the second	PROFINET IO Device	Yes
Open IE communication Yes Media redundancy Yes MP Automanager according to IEC 62439-2 Edition 2.0 PROFINET IO Controller Services		
• Web server Yes • Media redundancy Yes, MRP Automanager according to IEC 62439-2 Edition 2.0 • PROPINET IO Communication Yes - boot data exchange Yes - FROFILE of State exchange Yes - FROFILE of Vectors Was, 32 PROFINET devices - Rober of connectable IO Devices, max. FROFILE of PROFINET - Of which IO devices with IRT, max: 64 - Or which in Ine, max: 64 - of which in Ine, max: 64 - Update time of IO Devices for RT, max. 64 - Update time of ROF PROFINET 64 - Update time of ROF 65 - Update time of ROF 65 - Update time of ROF 65 - of which ing imax 7 - of send cycle of 500 µs 200 µs to 4 ms, Note: In the case of IRT with isochronous mode, the minimum update time of 625 µs of the isochronous GB is decisive - for send cycle of 1ms 1 ms to 15 ms - for s		
Addia redundancy Yes, MRP Automanager according to IEC 62439-2 Edition 2.0 PROFINET IO Controller Services PROF Controller PROF PROF PROF Control PROF PROF PROF PROF PROF PROF PROF P	-	
PROFINET ID Controller Services - PROP communication Yes - adochnonus mode Yes - Direct data exchange Yes, Requirement: IRT and isochronous mode (MRPD optional) - IRT Yes - PROFileurogy Yes, per user program - Number of connectable ID Devices, max. 64 - Of which ID devices with IRT, max. 64 - Of which ID devices that can be simultaneously 87. - Of which ID devices that can be simultaneously 84. - Wurber of Oncertable ID Devices for RT, max. 64 - Wurber of Dovices that can be simultaneously 87. - Wurber of Dovices per tool, max. 64 - Updating times 87. - Updating times 87. - Tor send cycle of 250 µs 250 µs for ars: Note: In the case of IRT with isochronous mode, the minimum update time of 625 µs of the isochronous OB is decisive - for send cycle of 1 ms 1 ms to 16 ms - for send cycle of 250 µs 250 µs to 25 ms - for send cycle of 260 µs 250 µs to 128 ms - for send cycle of 260 µs 250 µs to 228 ms - for send cycle of 260 µs 250 µs to 128 ms - for send cycle of 260 µs 250 µs to 128 ms - for send cycle of 260 µs 250 µs to 128 ms - for send cycle o		
Services PG/OP communication Ves Direct data exchange Ves, Requirement: IRT and isochronous mode (MRPD optional) Ves, Peruser program PROFInency Ves, the automation of connectable IO Devices, max. Of which IIO devices with IRT, max. Of which IIO devices that can be simultaneously activate of connectable IO Devices for RT, max. Of which IIIn, max. Of the sochronous mode, the minimum update file of 102 by the sochronous mode, the minimum update time of CSD as of the sochronous mode, the minimum update time of CSD as of the sochronous OB is decaive For send cycle of 220 µs So to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of CSD as of the sochronous OB is decaive For send cycle of 220 µs So to 50 µs to 4 ms The to 64 ms The to 64 ms The send cycle of 220 µs So to 228 ms		Yes; MRP Automanager according to IEC 62439-2 Edition 2.0
		Vac
- Direct data exchange Yes; Requirement: IRT and isochronous mode (MRPD optional) - IRT Yes; Per user program - PROFlenergy Yes; per user program - Profitzed startup Yes; Nar, 32 PROFINET devices - Number of connectable IO Devices, max. 64 - Number of connectable IO Devices for RT, max. 64 - Number of Connectable IO Devices for RT, max. 64 - Number of Domescable in Devices for RT, max. 64 - Of which in line, max. 64 - Number of IO Devices phate and be simultaneously activated/deactivated, max. 8 - Updating times 8 - Update time of iSD 8 - Update time of 10 Devices per tool, max. 8 - for send cycle of 520 µs 250 µs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 625 µs of the isochronous OB is decisive - for send cycle of 500 µs 200 µs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 625 µs of the isochronous OB is decisive - for send cycle of 10 ms 1 ms to 16 ms - for send cycle of 20 µs 200 µs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 625 µs of the isochronous OB is decisive - for send cycle of 10 ms 1 ms to 16 ms - for send cycle of 20 µs 200 µs to 4 ms - for send cycle of 10 ms 2 ms to 32 ms		
	-	
- Prioritized startup Yes; Max. 32 PROFINET devices - Number of connectable IO Devices, max. 64 - Of which IO devices with IRT, max. 64 - Number of connectable IO Devices for RT, max. 64 - Number of IO Devices that can be simultaneously activate/dedectivate, max. 64 - Number of IO Devices that can be simultaneously activate/dedectivate, max. 64 - Number of IO Devices that can be simultaneously activate/dedectivate, max. 64 - Number of IO Devices that can be simultaneously activate/dedectivate, max. 8 - Updating times 8 - Updating times 8 - Tor send cycle of 250 µs 250 µs to 4 ms; Note: In the case of IRT with isochronous mode; the minimum update time of 625 µs of the isochronous OB is decisive - for send cycle of 250 µs 250 µs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 625 µs of the isochronous OB is decisive - for send cycle of 250 µs 250 µs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 625 µs of the isochronous OB is decisive - for send cycle of 250 µs 250 µs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 625 µs of the isochronous OB is decisive - for send cycle of 4 ms 4 ms to 16 ms - for send cycle of 500 µs 500 µs to 28 ms - for send cycle of 260 µs 500 µs to 28 ms - for send cycle of 28 µs </td <td></td> <td></td>		
 PROFIBUS of PROFINET Of which I/O devices with IRT, max. Of which II line, max. which II line, max. of which II line, max. Whither of I Connectable I/O Devices for RT, max. Whither of I/O Devices that can be simultaneously activated/deactivated, max. Under of I/O Devices that can be simultaneously activated/deactivated, max. Under of I/O Devices that can be simultaneously activated/deactivated, max. Under of I/O Devices that can be simultaneously activated/deactivated, max. Updating times The minimum value of the update time also depends on communication share set for PROFINET I/O, on the number of I/O devices, and on the quantity of configured user data Update time for IRT for send cycle of 250 µS go up to 8 ms. Note: In the case of IRT with isochronous mode, the minimum update time of 625 µs of the isochronous OB is decisive for send cycle of 250 µS go up to 8 ms. Note: In the case of IRT with isochronous oB is decisive for send cycle of 2 ms for send cycle of 250 µS Update time for RT for send cycle of 250 µS for send cycle of		
- Number of connectable IO Devices for RT, max. 64 - of which in line, max. 64 - Number of IO Devices that can be simultaneously adivated/deadivated, max. 8; in total across all interfaces - Updating times 8 - Updating times 8 - Update time for IRT 7 - 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 625 μs of the isochronous OB is decisive - for send cycle of 500 μs 500 μs to 8 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 625 μs of the isochronous OB is decisive - for send cycle of 2 ms 1 ms to 16 ms - for send cycle of 4 ms 4 ms to 64 ms - for send cycle of 4 ms 4 ms to 64 ms - for send cycle of 4 ms 1 ms to 18 ms - for send cycle of 4 ms 2 ms to 32 ms - for send cycle of 4 ms 2 ms to 52 ms - for send cycle of 2 ms 2 ms to 52 ms - for send cycle of 1 ms 1 ms to 18 ms - for send cycle of 20 μs 500 μs to 28 ms - for send cycle of 2 ms 2 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms Yes; per user program		PROFIBUS or PROFINET
of which in line, max. 64 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 8 Update time for IRT 250 µs to 4 ms, Note: In the case of IRT with isochronous mode, the minimum update time of 500 µs for send cycle of 500 µs 250 µs to 4 ms, Note: In the case of IRT with isochronous mode, the minimum update time of 250 µs to 4 ms, Note: In the case of IRT with isochronous mode, the minimum update time of 250 µs to 4 ms, Note: In the case of IRT with isochronous mode, the minimum update time of 250 µs to 4 ms, Note: In the case of IRT with isochronous mode, the minimum update time of 025 µs to 8 ms. Note: In the case of IRT with isochronous mode, the minimum update time of 025 µs to 8 ms. Note: In the case of IRT with isochronous mode, the minimum update time of 025 µs to 8 ms. Note: In the case of IRT with isochronous mode, the minimum update time of 025 µs to 8 ms. Note: In the case of IRT with isochronous mode, the minimum update time of 025 µs to 8 ms. Note: In the case of IRT with isochronous mode, the minimum update time of 026 µs to 32 ms for send cycle of 1 ms 1 ms to 18 ms for send cycle of 2 ms 2 ms to 32 ms for send cycle of 250 µs 250 µs to 128 ms for send cycle of 250 µs 250 µs to 128 ms for send cycle of 250 µs 250 µs to 128 ms for send cycle of 250 µs 250 µs to 128 ms for send cycle of 250 µs 250 µs to 128 ms f		
 Number of IO Devices that can be simultaneously advated/deadtivated, max. Number of IO Devices per tool, max. Updating times The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for 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 625 µs of the isochronous OB is declisive for send cycle of 2 ms for send cycle of 1 ms ins to 16 ms for send cycle of 2 ms 2 ms to 50 µs 2 ms to 50 µs 2 ms to 50 µs 2 ms to 50 ms 4 ms to 64 ms Update time of c250 µs 2 ms to 50 ms 4 ms to 64 ms Update time of c25 µs 2 ms to 50 µs 2 ms to 51 ms 4 ms to 64 ms Update time of c25 µs 2 ms to 51 ms 500 µs to 28 ms 500 µs to 512 ms 500 µs to 512 ms 512 ms FOROFINET IO Device Services PGOP communication Yes PROFINET IO Device Yes per user program Asset management record Yes; per user program Asset management record Yes; Yua CM DP module Number of ports 		
activated/deadtvated, 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 250 µs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 625 µs of the isochronous OB is decisive - for send cycle of 500 µs 500 µs to 8 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 625 µs of the isochronous OB is decisive - for send cycle of 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 cycle Update time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs 3 0 Update time for RT - for send cycle of 2 ms 2 ms to 512 ms - for send cycle of 2 ms 2 ms to 512 ms 500 µs to 250 ms - for send cycle of 2 ms 2 ms to 512 ms 500 µs to 250 ms - for send cycle of 2 ms 2 ms to 512 ms - for send cycle of 2 ms 2 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 2 ms 2 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - ROP		
- Updating times The minimum value of the update time also depends on communication share set for PROFINET 10, on the number of 10 devices, and on the quantity of confinence of the product time for IRT - for send cycle of 250 μs Update time of 625 μs of the isochronous OB is decisive - for send cycle of 100 μs 500 μs to 4 ms; Note: in the case of IRT with isochronous mode, the minimum update time of 625 μs of the isochronous OB is decisive - for send cycle of 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 = 8* odd" send clock (any multiple of 125 μs: 375 μs, 625 μs 3 Vipdate time for RT - - for send cycle of 2 ms 250 μs to 128 ms - for send cycle of 4 ms 4 ms to 64 ms - for send cycle of 250 μs 250 μs to 128 ms - for send cycle of 250 μs 250 μs to 128 ms - for send cycle of 2 ms 250 μs to 128 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - Robinet to Device Yes; per user program		8; in total across all interfaces
set for PROFINET IQ, on the number of IO devices, and on the quantity of configured user data Update time for IRT - for send cycle of 250 µs Device the minimum update time of 625 µs of the isochronous mode, the minimum update time of 625 µs of the isochronous OB is decisive - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 4 ms - With IRT and parameterization of "odd" send cycles Update time of 625 µs - for send cycle of 250 µs - for send cycle of 4 ms - for send cycle of 200 µs - for send cycle of 4 ms - for send cycle of 10 devices - With IRT and parameterization of "odd" send cycles - For send cycle of 200 µs - for send cycle of 100 pros - for send cycle of 100 µs - for send cycle of 200 µs - for send cycle of 4 ms - setivation/device - PROFINET ID Device - PROFINET ID Device - PROFINET ID Device - PROFINET Ves - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Number of IO Controllers with shared d	 Number of IO Devices per tool, max. 	
Update time for IRT 250 µs to 4 ms; Note: In the case of IRT with isochronous OB is decisive - for send cycle of 500 µs 250 µs to 4 ms; Note: In the case of IRT with isochronous OB is decisive - for send cycle of 1 ms 1 ms to 16 ms - for send cycle of 4 ms 2 ms to 32 ms - for send cycle of 4 ms 4 ms to 64 ms - for send cycle of 4 ms 4 ms to 16 ms - for send cycle of 4 ms 4 ms to 16 ms - With IRT and parameterization of "odd" send cycles Update time of 625 µs of the isochronous OB is decisive - for send cycle of 500 µs 250 µs to 128 ms - for send cycle of 500 µs 250 µs to 128 ms - for send cycle of 500 µs 500 µs to 256 ms - for send cycle of 500 µs 500 µs to 256 ms - for send cycle of 2 ms 2 ms to 512 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 2 ms 2 ms to 512 ms - for send cycle of 2 ms 2 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - activation/deactivation Y	— Updating times	set for PROFINET IO, on the number of IO devices, and on the quantity of
- 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 625 µs of the isochronous OB is decisive - for send cycle of 500 µs 500 µs to 8 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 625 µs of the isochronous OB is decisive - for send cycle of 1 ms 1 ms to 16 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 µs) Update time for RT - for send cycle of 250 µs 250 µs to 128 ms - for send cycle of 250 µs 250 µs to 128 ms 500 µs to 285 ms; Mole: In the case of 125 µs: 375 µs, 625 µs 3 875 µs) Update time for RT - for send cycle of 250 µs 250 µs to 128 ms 500 µs to 256 ms - for send cycle of 1 ms 1 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 2 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - Stochronous mode No	Update time for IRT	
update time of 625 μs of the isochronous OB is decisive 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 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 for send cycle of 4 ms 4 ms to 512 ms for send cycle of 4 ms 4 ms to 512 ms for send cycle of 4 ms 4 ms to 512 ms for send cycle of 2 ms 2 ms to 512 ms for send cycle of 4 ms 4 to 512 ms for send cycle of 4 ms 4 to 512 ms for send cycle of 2 ms 2 ms to 512 ms for send cycle of 4 ms Yes for send cycle of 4 ms 4 to 512 ms PG/OP communication Yes IRT Yes - Aster de	•	
- for send cycle of 2 ms2 ms to 32 ms- for send cycle of 4 ms4 ms to 64 ms- With IRT and parameterization of 'odd' send cyclesUpdate time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs 3 875 µs).Update time for RT- for send cycle of 250 µs250 µs to 128 ms- for send cycle of 500 µs500 µs to 256 ms- for send cycle of 1 ms1 ms to 512 ms- for send cycle of 2 ms2 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- FO/OP communicationYes- PROFIENET IO DeviceYes- Shared deviceYes per user program- Shared deviceYes per user program- Asset management recordYes; per user program- Asset management recordYes; per user program- Asset management recordYes; Via CM DP module• RS 485Yes; Via CM DP module• Number of ports1	— for send cycle of 500 μs	
- for send cycle of 4 ms4 ms to 64 ms- With IRT and parameterization of "odd" send cyclesUpdate time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs 3 a 75 µs)Update time for RT for send cycle of 250 µs250 µs to 128 ms- for send cycle of 1 ms500 µs to 256 ms- for send cycle of 2 ms2 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- FOG/OP communicationYes- IRTYes- PROFlenergyYes; per user program- Shared deviceYes- Number of IO Controllers with shared device, max.4- activation/deactivation of I-devicesYes; per user program- Asset management recordYes; per user program- RS 485Yes; Via CM DP module• Number of ports1	— for send cycle of 1 ms	1 ms to 16 ms
- With IRT and parameterization of "odd" send cyclesUpdate time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 µs 3 875 µs)Update time for RT for send cycle of 250 µs250 µs to 128 ms- for send cycle of 500 µs500 µs to 256 ms- for send cycle of 1 ms1 ms to 512 ms- for send cycle of 4 ms2 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- for send cycle of 4 ms4 ms to 512 ms- FG/OP communicationYes- IRTYes- PROFIenergyYes; per user program- Shared deviceYes- Number of IO Controllers with shared device, max.4- activation/deactivation of I-devicesYes; per user program- Asset management recordYes; per user program- Asset 8485Yes; Via CM DP module• Number of ports1	— for send cycle of 2 ms	2 ms to 32 ms
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 4 ms 2 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms PROFINET IO Device Services - PG/OP communication Yes - IRT Yes - Shared device Yes - Shared device Yes - Number of IO Controllers with shared device, max. 4 - activation/deactivation of I-devices Yes; per user program - Asset management record Yes; per user program - Asset management record Yes; per user program - RS 485 Yes; Via CM DP module • Number of ports 1	— for send cycle of 4 ms	4 ms to 64 ms
	- With IRT and parameterization of "odd" send cycles	
- for send cycle of 500 µs500 µs to 256 ms- for send cycle of 1 ms1 ms to 512 ms- for send cycle of 2 ms2 ms to 512 ms- for send cycle of 4 ms4 ms to 512 msPROFINET IO DeviceServices- PG/OP communicationYes- lsochronous modeNo- IRTYes- PROFInergyYes; per user program- Shared deviceYes- Number of IO Controllers with shared device, max.4- activation/deactivation of I-devicesYes; per user program- Asset management recordYes; per user program2. InterfaceYes; Via CM DP module• RS 485Yes; Via CM DP module• Number of ports1	Update time for RT	
- for send cycle of 1 ms1 ms to 512 ms- for send cycle of 2 ms2 ms to 512 ms- for send cycle of 4 ms4 ms to 512 msPROFINET IO DeviceServices- PG/OP communicationYes- Isochronous modeNo- IRTYes- PROFIenergyYes; per user program- Shared deviceYes- Number of IO Controllers with shared device, max.4- activation/deactivation of I-devicesYes; per user program- Asset management recordYes; per user program2. InterfaceInterfaceInterface typesYes; Via CM DP module• Number of ports1	— for send cycle of 250 μs	250 µs to 128 ms
- for send cycle of 2 ms2 ms to 512 ms- for send cycle of 4 ms4 ms to 512 msPROFINET IO DeviceServices- PG/OP communicationYes- Isochronous modeNo- IRTYes- PROFIenergyYes; per user program- Shared deviceYes- Number of IO Controllers with shared device, max.4- activation/deactivation of I-devicesYes; per user program2. InterfacePterface types- RS 485Yes; Via CM DP module- Number of ports1	— for send cycle of 500 μ s	500 µs to 256 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 PROFIenergy 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 2. Interface Yes; per user program •- RS 485 Yes; Via CM DP module •- Number of ports 1	— for send cycle of 1 ms	1 ms to 512 ms
PROFINET IO Device Services	— for send cycle of 2 ms	2 ms to 512 ms
Services - PG/OP communication Yes - Isochronous mode No - IRT Yes - PROFlenergy Yes; per user program - Shared device Yes - Number of IO Controllers with shared device, max. 4 - activation/deactivation of I-devices Yes; per user program - Asset management record Yes; per user program Interface Interface types Yes; Via CM DP module • Number of ports 1	— for send cycle of 4 ms	4 ms to 512 ms
	PROFINET IO Device	
	Services	
- IRTYes- PROFlenergyYes; per user program- Shared deviceYes- Number of IO Controllers with shared device, max.4- activation/deactivation of I-devicesYes; per user program- Asset management recordYes; per user programInterfaceInterface types• RS 485Yes; Via CM DP module• Number of ports1	- PG/OP communication	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 2. Interface Yes; ver user program e RS 485 Yes; Via CM DP module • Number of ports 1	— Isochronous mode	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 2. Interface Yes; Vis; Vis CM DP module • RS 485 Yes; Via CM DP module • Number of ports 1	— IRT	Yes
 Number of IO Controllers with shared device, max. activation/deactivation of I-devices Asset management record Yes; per user program 2. Interface Interface types • RS 485 Yes; Via CM DP module • Number of ports 1	- PROFlenergy	Yes; per user program
- activation/deactivation of I-devices Yes; per user program - Asset management record Yes; per user program 2. Interface Interface types • RS 485 Yes; Via CM DP module • Number of ports 1	— Shared device	Yes
Asset management record Yes; per user program 2. Interface Interface types • RS 485 Yes; Via CM DP module • Number of ports 1	 Number of IO Controllers with shared device, max. 	4
2. Interface Interface types • RS 485 Yes; Via CM DP module • Number of ports 1	 activation/deactivation of I-devices 	Yes; per user program
Interface types • RS 485 • Number of ports 1	- Asset management record	Yes; per user program
RS 485 Yes; Via CM DP module Number of ports 1	2. Interface	
Number of ports	Interface types	
	• RS 485	Yes; Via CM DP module
Protocols	Number of ports	1
	Protocols	
PROFIBUS DP master Yes	PROFIBUS DP master	Yes
PROFIBUS DP slave Yes	PROFIBUS DP slave	Yes
SIMATIC communication Yes	SIMATIC communication	Yes
PROFIBUS DP master	PROFIBUS DP master	
Number of connections, max. 48; Of which 4 each reserved for ES and HMI	Number of connections, max.	48; Of which 4 each reserved for ES and HMI
Number of DP slaves, max. 125; In total, up to 256 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET	Number of DP slaves, max.	
Services	Services	

— PG/OP communication	Yes
— Equidistance	No
— Isochronous mode	No
 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	
 Number of connections, max. 	96; 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 	64
 Number of connections per CP/CM 	32
Number of S7 routing paths	16
Redundancy mode	
H-Sync forwarding	Yes
Media redundancy	
— 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	Y.
• TCP/IP	Yes
— Data length, max.	64 kbyte
— several passive connections per port, supported	Yes
ISO-on-TCP (RFC1006)	Yes
— Data length, max.• UDP	64 kbyte Yes
DDP Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast
— UDP multicast	Yes; Max. 5 multicast circuits
ODP mulicast ODP DHCP	Yes
• DNS	Yes
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
ELDT Encryption	Yes; Optional
Web server	
• HTTP	Yes; Standard and user pages
• HTTPS	Yes; Standard and user pages
OPC UA	
Runtime license required	Yes; "Small" license required
OPC UA Client	Yes
 Application authentication 	Yes
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15,
	Basic256Sha256

	"
User authentication	"anonymous" or by user name & password
— Number of connections, max.	4
 — Number of nodes of the client interfaces, recommended max. 	1 000
- Number of elements for one call of	300
OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_U	
max.	
 — Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. 	20
— Number of elements for one call of	100
OPC_UA_MethodGetHandleList, max.	
- Number of simultaneous calls of the client	1
instructions for session management, per connection, max.	
— Number of simultaneous calls of the client	5
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	20
OPC_UA_MethodCall, max. • OPC UA Server	Very Data appears (read write, subscribe) method call subtract dataset
	Yes; Data access (read, write, subscribe), method call, custom address space
Application authentication	Yes Available security policies: None Pasie129Pes15 Pasie256Pes15
— 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.	32
- Number of accessible variables, max.	50 000
— Number of registerable nodes, max.	10 000
 Number of subscriptions per session, max. 	20
— Sampling interval, min.	100 ms
— Publishing interval, min.	500 ms
- Number of server methods, max.	20
- Number of inputs/outputs per server method, max.	20
 Number of monitored items, recommended max. 	1 000; 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, 	1 000
max.	
Alarms and Conditions	Yes
— Number of program alarms	100
 Number of alarms for system diagnostics 	50
Further protocols	
MODBUS	Yes; MODBUS TCP
S7 message functions	
Number of login stations for message functions, max.	32
Program alarms	Yes
Number of configurable program messages, max.	5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
Number of loadable program messages in RUN, max.	2 500
Test commissioning functions	
Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 5 engineering systems
Status block	Yes; Up to 8 simultaneously (in total across all ES clients)
Single step	No
Number of breakpoints	8
Status/control	
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	
Forcing	Yes
Forcing, variables	Peripheral inputs/outputs
- i oronig, ranaoloo	· enprieral inpationalipatio

Number of variables, max	200
Number of variables, max.	200
Diagnostic buffer	Yes
• present	
Number of entries, max.	1 000
— 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	
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
 Number of available Motion Control resources for technology objects 	program; selection guide via the TIA Selection Tool 800
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) 	5
 — Number of positioning axes at motion control cycle of 8 ms (typical value) 	10
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. 	-25 °C; No condensation
 horizontal installation, max. 	60 °C
 vertical installation, min. 	-25 °C; No condensation
 vertical installation, max. 	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
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
Protection level: Write protection	Yes
Protection level: White protection Protection level: Read/write protection	Yes
• Froteotion level. Neau/white proteotion	100

 Protection level: Complete protection 	Yes
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.	310 g

last modified:

4/25/2024 🖸