## SIEMENS

## Data sheet

## 6ES7416-5HS06-0AB0



SIMATIC S7-400H, CPU 416-5H, central processing unit for S7-400H and S7-400F/FH, 5 interfaces: 1x MPI/DP, 1x DP, 1x PN and 2 for sync modules, 16 MB memory (10 MB data/6 MB program)

General information	
Product type designation	CPU 416-5H PN/DP
HW functional status	1
Firmware version	V6.0
Product function	
Isochronous mode	No
Engineering with	
<ul> <li>Programming package</li> </ul>	As of STEP 7 V5.5 SP2 with HF1
CiR - Configuration in RUN	
CiR synchronization time, basic load	100 ms
CiR synchronization time, time per I/O byte	0 µs
Supply voltage	
Rated value (DC)	Power supply via system power supply
Input current	
from backplane bus 5 V DC, typ.	1.6 A
from backplane bus 5 V DC, max.	1.9 A
from backplane bus 24 V DC, max.	150 mA; 150 mA per DP interface
from interface 5 V DC, max.	90 mA; At each DP interface
Power loss	
Power loss, typ.	7.5 W
Memory	
Type of memory	RAM
Work memory	
<ul> <li>integrated</li> </ul>	16 Mbyte
<ul> <li>integrated (for program)</li> </ul>	6 Mbyte
<ul> <li>integrated (for data)</li> </ul>	10 Mbyte
expandable	No
Load memory	
expandable FEPROM	Yes; with Memory Card (FLASH)
<ul> <li>expandable FEPROM, max.</li> </ul>	64 Mbyte
<ul> <li>integrated RAM, max.</li> </ul>	1 Mbyte
expandable RAM	Yes
expandable RAM, max.	64 Mbyte
Backup	
• present	Yes
with battery	Yes; all data
without battery	No
Battery	
Backup battery	

- Deckup current two	$190 \text{ uV} \cdot \text{Valid up to } 10^{\circ} \text{C}$	
Backup current, typ.     Backup current, max	180 μA; Valid up to 40°C	
Backup current, max.     Backup time, max.	1 000 μA Dealt with in the medule data manual with the secondary conditions and	
Backup time, max.	Dealt with in the module data manual with the secondary conditions and the factors of influence	
<ul> <li>Feeding of external backup voltage to CPU</li> </ul>	5 V DC to 15 V DC	
CPU processing times		
	12.5 ns	
for bit operations, typ.		
for word operations, typ.	12.5 ns	
for fixed point arithmetic, typ.	12.5 ns	
for floating point arithmetic, typ.	25 ns	
CPU-blocks		
DB		
Number, max.	16 000; Number range: 1 to 16000	
• Size, max.	64 kbyte	
FB		
<ul> <li>Number, max.</li> </ul>	8 000; Number range: 0 to 7999	
• Size, max.	64 kbyte	
FC		
Number, max.	8 000; Number range: 0 to 7999	
• Size, max.	64 kbyte	
OB		
Number, max.	see instruction list	
• Size, max.	64 kbyte	
<ul> <li>Number of free cycle OBs</li> </ul>	1; OB 1	
Number of time alarm OBs	8; OB 10-17	
<ul> <li>Number of delay alarm OBs</li> </ul>	4; OB 20-23	
Number of cyclic interrupt OBs	9; OB 30-38	
Number of process alarm OBs	8; OB 40-47	
Number of DPV1 alarm OBs	3; OB 55-57	
Number of startup OBs	2; OB 100, 102	
Number of asynchronous error OBs	9; OB 80-88	
Number of asynchronous error OBs	2; OB 121, 122	
Nesting depth	2,00121,122	
per priority class	24	
additional within an error OB	2	
	2	
Counters, timers and their retentivity		
S7 counter		
• Number	2 048	
Retentivity		
— adjustable	Yes	
— lower limit	0	
— upper limit	2 047	
— preset	Z 0 to Z 7	
Counting range		
— lower limit	0	
upper limit	999	
IEC counter		
• present	Yes	
• Туре	SFB	
Number	Unlimited (limited only by RAM capacity)	
S7 times		
Number	2 048	
Retentivity		
— adjustable	Yes	
— lower limit	0	
— upper limit	2 047	
— preset	No times retentive	
Time range		
— lower limit	10 ms	
— upper limit	9 990 s	

IEC timer	
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	Total working and load memory (with backup battery)
Flag	
• Size, max.	16 384 byte
Retentivity available	Yes
Retentivity preset	MB 0 to MB 15
Number of clock memories	8; in 1 memory byte
Local data	
<ul> <li>adjustable, max.</li> </ul>	64 kbyte
• preset	32 kbyte
Address area	
I/O address area	
Inputs	16 kbyte
Outputs	16 kbyte
Process image	
Inputs, adjustable	16 kbyte
Outputs, adjustable	16 kbyte
Inputs, default	1 024 byte
Outputs, default	1 024 byte
<ul> <li>consistent data, max.</li> <li>Access to consistent data in process image</li> </ul>	244 byte Yes
Subprocess images	
Number of subprocess images, max.	15
Digital channels	
Inputs	131 072
— of which central	131 072
Outputs	131 072
— of which central	131 072
Analog channels	
Inputs	8 192
— of which central	8 192
Outputs	8 192
— of which central	8 192
Hardware configuration	
Number of expansion units, max.	21
connectable OPs	95
Multicomputing	No
Interface modules	
Number of connectable IMs (total), max.	6
Number of connectable IM 460s, max.	6
Number of connectable IM 463s, max.	4; Single mode only
Number of DP masters	
<ul> <li>integrated</li> <li>via CP</li> </ul>	2 10: CD 442 5 Extended
	10; CP 443-5 Extended
<ul> <li>Mixed mode IM + CP permitted</li> <li>via interface module</li> </ul>	No 0
Via Interface module     Number of IO Controllers	U
integrated	1
• via CP	0
Number of operable FMs and CPs (recommended)	
• FM	See manual Automation System S7-400H fault-tolerant systems.
	Limited by number of slots and number of connections
● CP, PtP	See manual Automation System S7-400H fault-tolerant systems.
	Limited by number of slots and number of connections
PROFIBUS and Ethernet CPs	14; Of which max. 10 CP as DP master
Slots	

required slots	2
	2
Time of day	
Clock	Yes
Hardware clock (real-time)     rotoptive and everypropizable	Yes
retentive and synchronizable	
Resolution     Deviction per dev (buffered) mey	1 ms
<ul> <li>Deviation per day (buffered), max.</li> <li>Deviation per day (unbuffered), max.</li> </ul>	1.7 s; Power off 8.6 s; Power on
• Deviation per day (unburiered), max. Operating hours counter	o.o s, Power on
Number	16
	0 to 15
Number/Number range	
Range of values	SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2^31 - 1 hours 1 h
<ul> <li>Granularity</li> <li>retentive</li> </ul>	Yes
	res
Clock synchronization	Vee
• supported	Yes
• to MPI, master	Yes
• to MPI, slave	Yes
• to DP, master	Yes
• to DP, slave	Yes
• in AS, master	Yes
• in AS, slave	Yes
• on Ethernet via NTP	Yes; As client
Time difference in system when synchronizing via	
• Ethernet, max.	10 ms; Via NTP
• MPI, max.	200 ms
Interfaces	
Number of RS 485 interfaces	2
Number of other interfaces	2; Fiber-optic interface
Optical interface	No
•	
1. Interface	
•	MPI/PROFIBUS DP
1. Interface Interface type Isolated	MPI/PROFIBUS DP Yes
1. Interface Interface type Isolated Interface types	Yes
1. Interface Interface type Isolated	
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.	Yes
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols	Yes Yes 150 mA
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.	Yes
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master	Yes Yes 150 mA Yes Yes
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master         • PROFIBUS DP slave	Yes Yes 150 mA Yes
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master         • PROFIBUS DP slave         MPI	Yes Yes 150 mA Yes Yes No
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master         • PROFIBUS DP slave	Yes Yes 150 mA Yes Yes No 44; If a diagnostics repeater is used on the line, the number of
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master         • PROFIBUS DP slave         MPI         • Number of connections	Yes Yes 150 mA Yes Yes No 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master         • PROFIBUS DP slave         MPI         • Number of connections         • Transmission rate, max.	Yes Yes 150 mA Yes Yes No 44; If a diagnostics repeater is used on the line, the number of
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master         • PROFIBUS DP slave         MPI         • Number of connections         • Transmission rate, max.         Services	Yes Yes 150 mA Yes Yes No 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master         • PROFIBUS DP slave         MPI         • Number of connections         • Transmission rate, max.         Services         — PG/OP communication	Yes Yes 150 mA Yes Yes No 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master         • PROFIBUS DP slave         MPI         • Number of connections         • Transmission rate, max.         Services         — PG/OP communication         — Routing	Yes Yes 150 mA Yes Yes No 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master         • PROFIBUS DP slave         MPI         • Number of connections         • Transmission rate, max.         Services         — PG/OP communication         — Routing         — Global data communication	Yes Yes 150 mA Yes Yes No 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master         • PROFIBUS DP slave         MPI         • Number of connections         • Transmission rate, max.         Services         — PG/OP communication         — Routing         — Global data communication         — S7 basic communication	Yes Yes 150 mA Yes Yes No 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master         • PROFIBUS DP slave         MPI         • Number of connections         • Transmission rate, max.         Services         — PG/OP communication         — Routing         — Global data communication         — S7 basic communication         — S7 communication	Yes Yes 150 mA Yes Yes No 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No No Yes
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master         • PROFIBUS DP slave         MPI         • Number of connections         • Transmission rate, max.         Services         - PG/OP communication         - Routing         - Global data communication         - S7 basic communication         - S7 communication         - S7 communication	Yes Yes 150 mA Yes Yes No 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No No Yes Yes
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master         • PROFIBUS DP slave         MPI         • Number of connections         • Transmission rate, max.         Services         - PG/OP communication         - Routing         - Global data communication         - S7 basic communication         - S7 communication, as client         - S7 communication, as server	Yes Yes 150 mA Yes Yes No 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No No Yes
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master         • PROFIBUS DP slave         MPI         • Number of connections         • Transmission rate, max.         Services         — PG/OP communication         — Routing         — Global data communication         — S7 basic communication         — S7 communication         — S7 communication, as client         — S7 communication, as server	Yes Yes 150 mA Yes Yes No 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No No Yes Yes Yes Yes Yes
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master         • PROFIBUS DP slave         MPI         • Number of connections         • Transmission rate, max.         Services         - PG/OP communication         - Routing         - Global data communication         - S7 basic communication         - S7 communication, as client         - S7 communication, as server	Yes Yes 150 mA Yes Yes No 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No No Yes Yes Yes Yes Yes Yes Yes
1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master         • PROFIBUS DP slave         MPI         • Number of connections         • Transmission rate, max.         Services         — PG/OP communication         — Routing         — Global data communication         — S7 basic communication         — S7 communication, as client         — S7 communication, as server         PROFIBUS DP master         • Number of connections, max.	Yes Yes 150 mA Yes Yes No 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No No Yes Yes Yes Yes Yes Yes
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1. Interface         Interface type         Isolated         Interface types         • RS 485         • Output current of the interface, max.         Protocols         • MPI         • PROFIBUS DP master         • PROFIBUS DP slave         MPI         • Number of connections         • Transmission rate, max.         Services         — PG/OP communication         — Routing         — Global data communication         — S7 basic communication         — S7 communication         — S7 communication, as client         — S7 communication, as server         PROFIBUS DP master         • Number of connections, max.         • Transmission rate, max.         • Number of DP slaves, max.	Yes Yes 150 mA Yes Yes No 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No No Yes Yes Yes Yes Yes Yes Yes Yes

- Routing

Yes

<ul> <li>S7 communication as server</li> <li>S7 communication, as server</li> <li>Yes</li> <li>S7 communication, as server</li> <li>Yes</li> <li>Equilations</li> <li>No</li> <li>Isochronous mode</li> <li>No</li> <li>SYNC/FREEZE</li> <li>Na</li> <li>Advisorial of DP slaves</li> <li>Direct data exchange (slave-to-slave communication)</li> <li>DPV1</li> <li>Yes</li> <li>Address area</li> <li>Used data per DP slave</li> <li>Outputs, max.</li> <li>Z kbyte</li> <li>User data per DP slave.</li> <li>Outputs, max.</li> <li>Z kbyte</li> <li>User data per DP slave.</li> <li>Outputs, max.</li> <li>Z kbyte</li> <li>User data per DP slave.</li> <li>Outputs, max.</li> <li>Z kbyte</li> <li>User data per DP slave.</li> <li>Outputs, max.</li> <li>Z kbyte</li> <li>User data per DP slave.</li> <li>Outputs, max.</li> <li>Z kbyte</li> <li>User data per DP slave.</li> <li>Nonconfiguration of CPU as DP slave.</li> <li>Number of connectons</li> <li>No configuration of CPU as DP slave.</li> <li>Number of connectons</li> <li>No configuration of CPU as DP slave.</li> <li>Interface type</li> <li>PROFINET</li> <li>Distated</li> <li>Yes</li> <li>Autonogotistion</li> <li>Yes</li> <li>Autonogotistion</li> <li>Yes</li> <li>PROFINET IO Device</li> <li>No</li> <li>PROFINET IO Controller</li> <li>Yes</li> <li>PROFINET I</li></ul>	— Global data communication	No
<ul> <li>S7 communication, as elient</li> <li>Yes</li> <li>S7 communication, as server</li> <li>Yes</li> <li>Equidistance</li> <li>No</li> <li>SNACTREEZE</li> <li>No</li> <li>Activation/descrivation of DP slaves</li> <li>No</li> <li>Check date exchange (slave-to-slave</li> <li>No</li> <li>Decide date exchange (slave-to-slave)</li> <li>No</li> <li>Check date exchange (slave-to-slave)</li> <li>Check date date exchange (slave-to-slave)</li> <li>Check date date exchange (slave-to-slave)</li> <li>Check date date date date date date date date</li></ul>		
<ul> <li>ST communication, as server</li> <li>Yes</li> <li>Galdwarce</li> <li>No</li> <li>SYNC/REEZE</li> <li>No</li> <li>Activation/deactivation of DP slaves</li> <li>No</li> <li>Direct data exchange (slave-to-slave</li> <li>Communication)</li> <li>DPV1</li> <li>Yes</li> <li>Address area</li> <li>Imputs, max.</li> <li>2 khyle</li> <li>User data per DP slave</li> <li>Apputs, max.</li> <li>244 byle</li> <li>Imputs, max.</li> <li>244 byle</li> <li>Statis, max.</li> <li>244 byle</li> <li>Statis, max.</li> <li>244 byle</li> <li>Statis, max.</li> <li>244 byle</li> <li>Statis, max.</li> <li>244 byle</li> <li>Statisted</li> <li>Yes</li> <li>Number of connections</li> <li>No configuration of CPU as DP slave</li> <li>Interface type</li> <li>Interface type</li> <li>Interface type</li> <li>Interface type</li> <li>Yes</li> <li>Autorossing</li> <li>Yes</li> <li>Autorossing</li> <li>Yes</li> <li>Autorosting at runtime, supported</li> <li>No</li> <li>No</li> <li>PROFINET IO Controller</li> <li>Yes</li> <li>PROFINET IO Controller</li>     &lt;</ul>		
		Yes
- SYNC/FREEZE     No     - Activationideactivation of DP slaves     No     - DProf data exchange (slave)d-slave     communication)     - DPrV1     Yes  Address area     - Outputs, max.     2 kbyte     - Sots, max.     - Outputs, max.     2 kbyte     - Sots, max.     - Sots, max.     - Det slave     - Outputs, max.     2 kbyte     - Sots, max.     - Sots, max.     - Det slave     - Outputs, max.     2 kbyte     - Sots, max.     - Det slave     - Outputs, max.     2 kbyte     - Sots, max.     - Det slave     - Outputs, max.     - Det slave     - Det	— Equidistance	No
Achivation/deactivation of DP slaves     No     Direct data schange (slave-to-slave     communication)     POPU     Yes     Address area     Dirupts, max.     Zkhyle     User data per DP slave     User data per DP slave     User data per DP slave, max.     Zkhyle     User data per DP slave, max.     Zkhyle     Duputs, max.     Status     Duputs, max.     Zkhyle     De Slave     Duputs, max.     Zkhyle     Duputs, max.     Zkhyle     Stata     Duputs, max.     Zkhyle     Stata     Duputs, max.     Zkhyle     Stata      Duputs, max.     Zkhyle     Stata      Duputs, max.     Zkhyle     Stata      Duputs, max.     Zkhyle     Stata      Duputs, max.     Zkhyle     Stata      Duputs, max.     Zkhyle     Stata      S	<ul> <li>— Isochronous mode</li> </ul>	No
Direct data schange (slave-to-slave communication)     DeV1     Yes  Address area      Inputs, max,     2 kbyte      User data per DP slave      User data per DP slave, max,     24 kbyte      User data per DP slave, max,     24 kbyte      User data per DP slave, max,     24 kbyte      Deputs, max,     Duputs, max,     24 kbyte      Deputs, max,     Duputs, max,     24 kbyte      Deputs, max,     Duputs,     Duputs,     Duputs,     Duputs,     Duputs,     Dup	- SYNC/FREEZE	No
	<ul> <li>Activation/deactivation of DP slaves</li> </ul>	No
→ DPV1       Yes         Address area       -         → Liputs, max,       2 kbyte         → Outputs, max,       2 kbyte         → User data per DP slave, max,       244 byte         → Inputs, max,       244 byte         → Slots, max,       128 byte         PROFIBUS DP slave       -         Number of connections       No configuration of CPU as DP slave         2. Interface       -         Presonatic detection of transmission rate       Yes         Autoregotistion       Yes         Autoregotistion       Yes         Autoregotistion       Yes         Autoregotistion       Yes         • Number of contection resources       96         Interface type       PROFINET         • PROFINET 10 Device       No         • No       Yes         • PROFINET 10 Device       No         • PROFINET 10 Device       No         • PROFINET 10 Device       No         • PROFINET 20 Device       No         • PROFINET 10 Device		No
Address area     -       -     Inputs, max.     2 ktyte       -     Outputs, max.     2 ktyte       User data per DP slave, max.     244 byte       -     Outputs, max.     244 byte       -     Distance     128 byte       PFOFIBUS DP slave     No configuration of CPU as DP slave       2. Interface		
<ul> <li>Inputs, max.</li> <li>2 kbyte</li> <li>Outputs, max.</li> <li>2 kbyte</li> <li>User data per DP stave, max.</li> <li>244 byte</li> <li>User data per DP stave, max.</li> <li>244 byte</li> <li>Outputs, max.</li> <li>244 byte</li> <li>Outputs, max.</li> <li>244 byte</li> <li>Outputs, max.</li> <li>244 byte</li> <li>Status</li> <li>244 byte</li> <li>Status</li> <li>Status</li> <li>244 byte</li> <li>Status</li> <li>Status</li> <li>244 byte</li> <li>Status</li>     &lt;</ul>	— DPV1	Yes
— Outputs, max.         2 kbyte           — User data per DP slave, max.         244 byte           — Inputs, max.         244 byte           — Outputs, max.         244 byte           — Outputs, max.         244 byte           — Stots, max.         244 byte           — Stots, max.         244 byte           — Der slot, max.         128 byte           PROFILUS DP slave         —           Interface Stope         PROFINET           Isolated         Yes           automatic detection of transmission rate         Yes.           Autoropolation         Yes           Autoropolation         Yes           Autoropolation         Yes           Autoropolation         Yes           Autoropolation         Yes           Autoropolation         Yes           Number of connection resources         96           Number of ports         2           • Interface type         —           • RQ45 (Ethernet)         Yes           • PROFINET IO Controller         Yes           • PROFIN		
User data per DP slave         - User data per DP slave, max.         244 byte         - Outputs, max.         - Stots, max.         - Stots, max.         - per slot, max.         - Number of connections         No configuration of CPU as DP slave         2. Interface         PROFIBUS DP slave         2. Interface         Protocols         2. Interface type         - Number of connection resources         96         Interface types         - Rot Stetement)         Yes         - Autorcossing         - Rot Stetement)         Yes         - PROFINET IO Controller         PROFINET CAA         No		-
- User data per DP slave, max.     244 byte       - Inputs, max.     244 byte       - Outputs, max.     244 byte       - Stots, max.     244 byte       - stots, max.     244 byte       - per slot, max.     24b byte       PROFIBUS DP slave     No configuration of CPU as DP slave       2. Interface     PROFINET       Interface type     PROFINET       Isolated     Yes       automatic detection of transmission rate     Yes       Autocrossing     Yes       Change of IP address at runtime, supported     No       Number of connector resources     96       Interface type     Yes       • Number of ports     2       • integrated switch     Yes       • PROFINET IC Controller     Yes       • PROFINET IC Device     No       • PROFINET IC Controller     Yes       • PROFINET IC Device     No       • PROFINET IC Controller     Yes       • PROFINET IC Device     No       • PROFINET IC Controller     Yes       • PROFINET IC Controller     Yes       • PROFINET IC Controller     Yes       • PROFINET IC Controller     Yes <td></td> <td>2 kbyte</td>		2 kbyte
<ul> <li>Inputs, max.</li> <li>Outputs, max.</li> <li>Stots, max.</li> <li>Tab byte</li> <li>Stots, max.</li> <li>Tab byte</li> <li>PROFIBUS DP slave</li> <li>Number of connections</li> <li>No configuration of CPU as DP slave</li> <li>Interface bype</li> <li>PROFINET I</li> <li>Isolated</li> <li>Autoreoptialization</li> <li>Yes</li> <li>Autoreoptialization</li> <li>Yes</li> <li>Change of IP address at runtime, supported</li> <li>No</li> <li>Number of connectioner</li> <li>Yes</li> <li>Autoreoptialization</li> <li>Yes</li> <li>Autoreoptialization</li> <li>Yes</li> <li>Autoreoptialization</li> <li>Yes</li> <li>Autoreoptialization</li> <li>Yes</li> <li>Change of IP address at runtime, supported</li> <li>No</li> <li>Number of connection resources</li> <li>96</li> <li>Interface types</li> <li>PROFINET IO Controller</li> <li>Yes</li> <li>PROFINET IO Controller</li> <li>Yes</li> <li>PROFINET IO Device</li> <li>No</li> <li>PROFINET CAA</li> <li>No</li> <li>PROFINET IO Device</li> <li>No</li> <li>PROFINET CAA</li> <li>No</li> <li>PROFINET CONTOILER</li> <li>Yes</li> <li>PROFINET CONTOILER</li> <li>PROFINET CONTOILER</li> <li>Yes</li> <li>PROFINET CAA</li> <li>No</li> <li>PROFINET CAA</li> <li>No</li> <li>PROFINET CAA</li> <li>No</li> <li>PROFINET CONTOILER</li> <li>PROFINET CONTOILER</li> <li>PROFINET CONTOILER</li> <li>No</li> <li>PROFINET CONTOILER</li> <li>PROFINET CONTOILER</li> <li>PROFINET CONTOILER</li> <li>No</li> <li>PROFINET CONTOILER</li> <li>PROFINET CONTOILER</li> <li>PROFINET CONTOILER</li> <li>PROFINET CONTOILER</li> <li>PROFINE</li></ul>		
Outputs, max.     244       per slot, max.     244       per slot, max.     128 byte       PROFIEUS DP slave	— User data per DP slave, max.	244 byte
	— Inputs, max.	244 byte
per slot, max.         128 byte           PROFIBUS DP slave	— Outputs, max.	244 byte
PROFIBUS DP slave       No configuration of CPU as DP slave         2. Interface       PROFINET         Isolated       Yes         automatic detection of transmission rate       Yes, Autosensing         Autoregotiation       Yes         Autoregotiation       Yes         Autoregotiation       Yes         Autoregotiation       Yes         Autoregotiation       Yes         Charge of IP dadress at runtime, supported       No         Number of connection resources       96         Interface types       Yes         • FL3 45 (Ethernet)       Yes         • Number of ports       2         • integrated switch       Yes         • PROFINET IO Controller       Yes         • PROFINET CBA       No         • PROFINET CBA       No         • PROFIBUS DP master       No         • Open IE communication       Yes         • Open IE communication       Yes         • PROFINET IO Controller       Yes         • PROFINET COntroller       No         • Open IE communication       Yes         • Open IE communication       Yes         • PROFINET IO Controller       No         • Media redundancy       Yes	— Slots, max.	244
• Number of connections         No configuration of CPU as DP slave           2. Interface type         PROFINET           Interface type         PROFINET           Isolated         Yes           automodition         Yes           Autoregotiation         Yes           Interface types         96           Protocots         2           Interface types         96           ProtoFINET IO Controller         Yes           In PROFINET IO Controller         Yes           In ProtoFINE	— per slot, max.	128 byte
2. Interface       PROFINET         Isolated       Yes         automatic detection of transmission rate       Yes, Autosensing         Autocrossing       Yes         Charge of IP address at runtime, supported       No         Number of connection resources       96         Interface types       • RI 45 (Ethernet)         • RI 43 (Ethernet)       Yes         • Interface types       •         • Ist 43 (Ethernet)       Yes         • Interface types       •         • ROFINET IO Controller       Yes         • PROFINET Do controller       Yes         • PROFINET IO Controller       Yes         • PROFINET Device       No         • PROFINET BAR       No         • PROFINET CBA       No         • Open E communication       Yes         • PROFINET CBA       No         • Open E communication       Yes         • PROFINET IO Controller       No         • Open E communication       Yes         • PROFINET IO Controller       No         • Open E communication       Yes         • PROFINET IO Controller       No         • Starde advice       Yes         - Stared device       Yes <t< td=""><td>PROFIBUS DP slave</td><td></td></t<>	PROFIBUS DP slave	
2. Interface       PROFINET         Isolated       Yes         automatic detection of transmission rate       Yes, Autosensing         Autocrossing       Yes         Charge of IP address at runtime, supported       No         Number of connection resources       96         Interface types       • RI 45 (Ethernet)         • RI 43 (Ethernet)       Yes         • Interface types       •         • Ist 43 (Ethernet)       Yes         • Interface types       •         • ROFINET IO Controller       Yes         • PROFINET Do controller       Yes         • PROFINET IO Controller       Yes         • PROFINET Device       No         • PROFINET BAR       No         • PROFINET CBA       No         • Open E communication       Yes         • PROFINET CBA       No         • Open E communication       Yes         • PROFINET IO Controller       No         • Open E communication       Yes         • PROFINET IO Controller       No         • Open E communication       Yes         • PROFINET IO Controller       No         • Starde advice       Yes         - Stared device       Yes <t< td=""><td>Number of connections</td><td>No configuration of CPU as DP slave</td></t<>	Number of connections	No configuration of CPU as DP slave
Interface type         PROFINET           Isolated         Yes           automatic detection of transmission rate         Yes, Autosensing           Autorcossing         Yes           Autorcossing         Yes           Change of IP address at runtime, supported         No           Number of connection resources         96           Interface types            • RJ 45 (Ethernet)         Yes           • Number of ports         2           • integrated switch         Yes           Protocols            Protocols            • PROFINET IO Controller         Yes           • PROFINET IO Device         No           • PROFINET DD Device         No           • PROFIBUS DP master         No           • Open IE communication         Yes           • Versonission rate, max.         100 Mbit/s           Services            - PG/OP communication         Yes           - Sortomoliser         No           - Services         Yes           - PG/OP communication         Yes           - Stared device         Yes, Single mode only           - No         No           - Shared device	2. Interface	
Isolated         Yes           automatic detection of transmission rate         Yes; Autosensing           Autoregotistion         Yes           Autoregotistion         Yes           Autoregotistion         Yes           Autoregotistion         Yes           Autoregotistion         Yes           Change of IP address at runtime, supported         No           Number of connection resources         96           Interface types         Iterface types           • RU 45 (Ethernet)         Yes           • Integrated switch         Yes           • Integrated switch         Yes           • PROFINET IO Controller         Yes           • PROFINET IO Device         No           • PROFINET CBA         No           • PROFINET IO Device         No           • PROFINET IO Device         No           • PROFINET IO Controller         Yes           • Velot-to-point connection         No           • Web server         No           • Open IE communication         Yes           • Proof Controller         Yes           • Proof Communication         Yes           • Proof Communication         Yes           • PGOP communication         Yes		PROFINET
automatic detection of transmission rate         Yes; Autosensing           Autocrossing         Yes           Autocrossing         Yes           Charge of IP address at runtime, supported         No           Number of connection resources         96           Interface types         •           • RJ 43 (Ethernet)         Yes           • Number of ports         2           • integrated switch         Yes           Protocols         •           • PROFINET IO Controller         Yes           • PROFINET IO Controller         Yes           • PROFINET IO Device         No           • PROFIBUS DP master         No           • PROFIBUS DP master         No           • Open IE communication         Yes           • Veb server         No           • Web server         No           • Otomolier         Yes           PROFINET IO Controller         Yes           PROFINET IO Controller         Yes           • Protocols         •           • Cransmission rate, max.         100 Mbit/s           Services         -           • PG/OP communication         Yes           • Shared device         Yes; Single mode only		
Autonegotiation         Yes           Autocrossing         Yes           Change of IP address at runtime, supported         No           Number of connection resources         96           Interface types         96           Interface types         Yes           • RJ 45 (Ethernet)         Yes           • Integrated switch         Yes           Protocols         2           • Integrated switch         Yes           • PROFINET IO Controller         Yes           • PROFINET O Device         No           • Open IE communication         Yes           • Open IE communication         Yes           • PROFINET IO Controller         Ves           • Transmission rate, max.         100 Mbit/s           Services         -           • PG/OP communication         Yes           • S7 communication         Yes           • Sromonous mode         No           • Shared device         Yes; Single mode only           • Stared device         Yes; Single mode only      <		
Autocrossing         Yes           Change of IP address at runtime, supported         No           Number of connection resources         96           Interface types         96           • RJ 45 (Ethernet)         Yes           • Number of ports         2           • integrated switch         Yes           Protocols         7           • PROFINET IO Controller         Yes           • PROFINET IO Device         No           • PROFINET CBA         No           • PROFINET CBA         No           • PROFIBUS DP master         No           • Open IE communication         Yes           • PROFIEUS DP slave         No           • Open IE communication         Yes           • PROFIDET IO Controller         Yes           • PROFIDET IO Controller         Yes           • PROFIDE T IO Controller         Yes           • PROFIDET IO Controller         Yes           • Transmission rate, max.         100 Mbit/s           Services         -           - S7 communication         Yes           - Shared device         Yes           - Number of connectable IO Devices, max.         256           - Number of connectable IO Devices for RT, max.		-
Change of IP address at runtime, supported         No           Number of connection resources         96           Interface types         •           • RI 45 (Ethernet)         Yes           • Number of ports         2           • integrated switch         Yes           Protocols         •           • PROFINET IO Controller         Yes           • PROFINET IO Device         No           • PROFINET CBA         No           • PROFIBUS DP master         No           • PROFIBUS DP slave         No           • Open IE communication         Yes           • PROFINET IO Controller         Yes           • PROFINET IO Controller         No           • Open IE communication         Yes           • PROFINET IO Controller         No           • Open IE communication         Yes           • PROFINET IO Controller         100 Mbit/s           • Transmission rate, max.         100 Mbit/s           Services         -           • PG/OP communication         Yes           • S7 communication         Yes           • S1 contronous mode         No           • Shared device         Yes           • Sochronous mode         No		
Number of connection resources         96           Interface types         •           • RJ 45 (Ethernet)         Yes           • Number of ports         2           • integrated switch         Yes           Protocols         •           • PROFINET IO Controller         Yes           • PROFINET ODevice         No           • PROFINET CBA         No           • PROFIBUS DP master         No           • Open IE communication         Yes           • Point-to-point connection         No           • Media redundancy         Yes           PROFINET IO Controller         •           • Transmission rate, max.         100 Mbit/s           Services         -           -         PG/OP communication           Yes         Yes           -         Services           -         -           -         Services           -         Services           -         Services           -         Services           -         Services           -         Services           -         No           -         Service           -         Sochronous mode		
Interface types         • RJ 45 (Ethmet)       Yes         • Number of ports       2         • integrated switch       Yes         Protocols       Yes         • PROFINET IO Controller       Yes         • PROFINET IO Device       No         • PROFINET CBA       No         • PROFIBUS DP master       No         • PROFIBUS DP slave       No         • PROFIBUS DP slave       No         • Open IE communication       Yes         • PROFINET Connection       No         • Media redundancy       Yes         Point-to-point connection       No         • Media redundancy       Yes         POFINET IO Controller       100 Mbit/s         Services       -         - PG/OP communication       Yes         - Socommunication       Yes         - Socommunication       Yes         - Socommunication       Yes         - Socommunication       Yes         - Shared device       Yes; Single mode only         - Prioritized startup       No         - Number of connectable IO Devices, max.       256; In redundant mode via both interfaces         - Number of connectable IO Devices for RT, max.       256      <		-
• RJ 45 (Ethernet)       Yes         • Number of ports       2         • integrated switch       Yes         Protocols          • PROFINET IO Controller       Yes         • PROFINET IO Device       No         • PROFINET CBA       No         • PROFIBUS DP master       No         • PROFIBUS DP slave       No         • Open IE communication       Yes         • Web server       No         • Protection       No         • Protection       Yes         • Protection       No         • Open IE communication       Yes         • Protection       No         • Point-to-point connection       No         • Media redundancy       Yes <b>PROFINET IO Controller</b> -         • Transmission rate, max.       100 Mbit/s         Services       -         - PGOP communication       Yes         - Soft communication       Yes         - Soft device       Yes; Single mode only         - Shared device       Yes; Single mode only         - Number of connectable IO Devices for RT, max.       256         - Activation/deactivation of IO Devices       No         - Of which		90
• Number of ports     2       • integrated switch     Yes       Protocols     -       • PROFINET IO Controller     Yes       • PROFINET IO Device     No       • PROFINET SP master     No       • PROFIBUS DP master     No       • Open IE communication     Yes       • Veb server     No       • PROFINET IO Controller     Yes       • Profinet IO Controller     Yes       • Profinet IO Controller     Yes       • PROFINET IO Controller     No       • Profinet IO Controller     Yes       • PROFINET IO Controller     -       • Transmission rate, max.     100 Mbit/s       Services     -       • PG/OP communication     Yes       • Soft communication     Yes       • Services     -       • PG/OP communication     Yes       • Soft connotler     -       • Of which in line, max.     256; In redundant mode via both interfaces       • Number of connectable IO Devices for RT, max.     256       • Activation/deactivation of IO Devices     No       • O Which in		Von
• integrated switch       Yes         Protocols       -         • PROFINET IO Controller       Yes         • PROFINET IO Device       No         • PROFINET CBA       No         • PROFIBUS DP master       No         • Open IE communication       Yes         • Web server       No         • Profinet connection       No         • Media redundancy       Yes         PROFINET IO Controller       -         • Transmission rate, max.       100 Mbit/s         Services       -         - PG/OP communication       Yes         - PG/OP communication       Yes         - S7 communication       Yes         - S1 connectable IO Devices, max.       256         - Number of connectable IO Devices for RT, max.       256         - Activation/deactivation of IO Devices       No         - Of		
Protocols <ul> <li>PROFINET IO Controller</li> <li>PROFINET IO Device</li> <li>No</li> <li>PROFINET CBA</li> <li>No</li> <li>PROFIBUS DP master</li> <li>No</li> <li>PROFIBUS DP slave</li> <li>Open IE communication</li> <li>Yes</li> <li>Web server</li> <li>No</li> <li>Point-to-point connection</li> <li>No</li> <li>Media redundancy</li> <li>Yes</li> <li>PROFINET IO Controller</li> <li>Transmission rate, max.</li> <li>100 Mbit/s</li> <li>Services</li> <li>PG/OP communication</li> <li>Yes</li> <li>Signification</li> <li>Services</li> <li>Signification</li> <li>Services</li> <li>Signification</li> <li>Signification</li> <li>Services</li> <li>Prioritized startup</li> <li>No</li> <li>Nomber of connectable IO Devices (max.</li> <li>Services for RT, max.</li> <li>Services for RT, max.</li></ul>		
• PROFINET IO Controller       Yes         • PROFINET IO Device       No         • PROFINET CBA       No         • PROFIBUS DP master       No         • PROFIBUS DP slave       No         • Open IE communication       Yes         • Web server       No         • Point-to-point connection       No         • Media redundancy       Yes         PROFINET IO Controller       Too Mbit/s         • Transmission rate, max.       100 Mbit/s         Services       -         • PG/OP communication       Yes         • Services       -         • PG/OP communication       Yes         • Stared device       Yes; Single mode only         • Shared device       Yes; Single mode only         • Prioritized startup       No         • Number of connectable IO Devices, max.       256; In redundant mode via both interfaces         • Number of connectable IO Devices for RT, max.       256         • - Activation/deactivation of IO Devices       No         • Of which in line, max.       256         • - Of bevices changing during operation (partner ports), supported       No		Yes
• PROFINET IO DeviceNo• PROFINET CBANo• PROFIBUS DP masterNo• PROFIBUS DP slaveNo• Open IE communicationYes• Open IE communicationYes• Web serverNo• Point-to-point connectionNo• Media redundancyYes• PROFINET IO ControllerIon Mbit/s• Transmission rate, max.100 Mbit/s• Services-• PG/OP communicationYes• PG/OP communicationYes• PG/OP communicationYes• Services-• PG/OP communicationYes• Services-• PG/OP communicationYes• ServicesNo• Shared deviceYes; Single mode only• Phintitized startupNo• Number of connectable IO Devices, max.256; In redundant mode via both interfaces• Number of connectable IO Devices for RT, max.256• Of which in line, max.256• Of which in line, max.256• Of bevices changing during operation (partner ports), supportedNo		N/
PROFINET CBANoPROFIBUS DP masterNoPROFIBUS DP slaveNoOpen IE communicationYesVeb serverNoWeb serverNoMedia redundancyYesPROFINET IO Controller100 Mbit/sServicesPROFINET IO Controller- PG/OP communicationYesServices100 Mbit/sServices PG/OP communicationYes- S7 communicationYes; Single mode only- Isochronous modeNo- Shared deviceYes; Single mode only- Prioritized startupNo- Number of connectable IO Devices, max.256; In redundant mode via both interfaces- no dwhich in line, max.256- of which in line, max.256- NoNo- IO Devices changing during operation (partner ports), supportedNo		
PROFIBUS DP masterNoPROFIBUS DP slaveNoOpen IE communicationYesWeb serverNoPoint-to-point connectionNoMedia redundancyYesPROFINET IO Controller100 Mbit/sServices100 Mbit/sPG/OP communicationYes- PG/OP communicationYes- S7 communicationYes- Sf communicationYes- Shared deviceYes; Single mode only- Shared deviceYes; Single mode only- Number of connectable IO Devices, max.256; In redundant mode via both interfaces- Number of connectable IO Devices for RT, max.256- of which in line, max.256- Of which in line, max.256- No- Shared device- Number of connectable IO DevicesNo- Number of connectable IO Devices for RT, max.256- Number of connectable IO Devices for RT, max.256- No- No- No Devices changing during operation (partner ports), supportedNo		
• PROFIBUS DP slaveNo• Open IE communicationYes• Web serverNo• Point-to-point connectionNo• Media redundancyYes• PROFINET IO Controller100 Mbit/s• Transmission rate, max.100 Mbit/sServicesServices• PG/OP communicationYes• S7 communicationYes• Shared deviceYes; Single mode only• Shared deviceYes; Single mode only• Number of connectable IO Devices, max.256; In redundant mode via both interfaces• Number of connectable IO Devices for RT, max.256• of which in line, max.256• of which in line, max.256• O Devices changing during operation (partner ports), supportedNo		
Open IE communicationYes• Web serverNo• Point-to-point connectionNo• Media redundancyYesPROFINET IO Controller100 Mbit/s• Transmission rate, max.100 Mbit/sServices PG/OP communicationYes- S7 communicationYes- Isochronous modeNo- Shared deviceYes; Single mode only- Prioritized startupNo- Number of connectable IO Devices, max.256; In redundant mode via both interfaces- of which in line, max.256- of which in line, max.256- No- Activation/deactivation of IO Devices- IO Devices changing during operation (partner ports), supportedNo		
Web serverNo• Point-to-point connectionNo• Media redundancyYesPROFINET IO Controller• Transmission rate, max.100 Mbit/sServices PG/OP communicationYes- S7 communicationYes- Isochronous modeNo- Shared deviceYes; Single mode only- Prioritized startupNo- Number of connectable IO Devices, max.256; In redundant mode via both interfaces- Number of connectable IO Devices for RT, max.256- of which in line, max.256- Activation/deactivation of IO DevicesNo- IO Devices changing during operation (partner ports), supportedNo		
<ul> <li>Point-to-point connection</li> <li>Media redundancy</li> <li>Yes</li> <li>PROFINET IO Controller</li> <li>Transmission rate, max.</li> <li>100 Mbit/s</li> <li>Services</li> <li>PG/OP communication</li> <li>S7 communication</li> <li>S7 communication</li> <li>Shared device</li> <li>Shared device</li> <li>Yes; Single mode only</li> <li>Prioritized startup</li> <li>No</li> <li>Number of connectable IO Devices, max.</li> <li>S6; In redundant mode via both interfaces</li> <li>Number of connectable IO Devices for RT, max.</li> <li>of which in line, max.</li> <li>of which in line, max.</li> <li>No</li> <li>Activation/deactivation of IO Devices</li> <li>No</li> <li>No</li> <li>No</li> <li>No</li> </ul>		
• Media redundancy       Yes         PROFINET IO Controller       100 Mbit/s         • Transmission rate, max.       100 Mbit/s         Services       -         - PG/OP communication       Yes         - S7 communication       Yes         - Isochronous mode       No         - Shared device       Yes; Single mode only         - Prioritized startup       No         - Number of connectable IO Devices, max.       256; In redundant mode via both interfaces         - Number of connectable IO Devices for RT, max.       256         - of which in line, max.       256         - Activation/deactivation of IO Devices       No         - IO Devices changing during operation (partner ports), supported       No		
PROFINET IO Controller         • Transmission rate, max.       100 Mbit/s         Services       -         - PG/OP communication       Yes         - S7 communication       Yes         - Isochronous mode       No         - Shared device       Yes; Single mode only         - Prioritized startup       No         - Number of connectable IO Devices, max.       256; In redundant mode via both interfaces         - Number of connectable IO Devices for RT, max.       256         - of which in line, max.       256         - Activation/deactivation of IO Devices       No         - IO Devices changing during operation (partner ports), supported       No	<ul> <li>Point-to-point connection</li> </ul>	
• Transmission rate, max.       100 Mbit/s         Services       -         - PG/OP communication       Yes         - S7 communication       Yes         - Isochronous mode       No         - Shared device       Yes; Single mode only         - Prioritized startup       No         - Number of connectable IO Devices, max.       256; In redundant mode via both interfaces         - Number of connectable IO Devices for RT, max.       256         - of which in line, max.       256         - Activation/deactivation of IO Devices       No         - IO Devices changing during operation (partner ports), supported       No		Yes
Services	PROFINET IO Controller	
PG/OP communicationYes S7 communicationYes Isochronous modeNo Shared deviceYes; Single mode only Prioritized startupNo Number of connectable IO Devices, max.256; In redundant mode via both interfaces Number of connectable IO Devices for RT, max.256 of which in line, max.256 Activation/deactivation of IO DevicesNo IO Devices changing during operation (partner ports), supportedNo	Transmission rate, max.	100 Mbit/s
S7 communicationYes Isochronous modeNo Shared deviceYes; Single mode only Prioritized startupNo Number of connectable IO Devices, max.256; In redundant mode via both interfaces Number of connectable IO Devices for RT, max.256 of which in line, max.256 Activation/deactivation of IO DevicesNo IO Devices changing during operation (partner ports), supportedNo	Services	
Isochronous modeNo Shared deviceYes; Single mode only Prioritized startupNo Number of connectable IO Devices, max.256; In redundant mode via both interfaces Number of connectable IO Devices for RT, max.256 of which in line, max.256 of which in line, max.256 Activation/deactivation of IO DevicesNo IO Devices changing during operation (partner ports), supportedNo	— PG/OP communication	Yes
Shared deviceYes; Single mode only Prioritized startupNo Number of connectable IO Devices, max.256; In redundant mode via both interfaces Number of connectable IO Devices for RT, max.256 of which in line, max.256 of which in line, max.256 Activation/deactivation of IO DevicesNo IO Devices changing during operation (partner ports), supportedNo	— S7 communication	Yes
<ul> <li>Prioritized startup</li> <li>No</li> <li>Number of connectable IO Devices, max.</li> <li>Number of connectable IO Devices for RT, max.</li> <li>of which in line, max.</li> <li>of which in line, max.</li> <li>Activation/deactivation of IO Devices</li> <li>No</li> <li>No</li> <li>No</li> <li>No</li> </ul>	— Isochronous mode	No
<ul> <li>Prioritized startup</li> <li>No</li> <li>Number of connectable IO Devices, max.</li> <li>Number of connectable IO Devices for RT, max.</li> <li>of which in line, max.</li> <li>of which in line, max.</li> <li>Activation/deactivation of IO Devices</li> <li>No</li> <li>No</li> <li>No</li> <li>No</li> </ul>	— Shared device	Yes; Single mode only
- Number of connectable IO Devices, max.256; In redundant mode via both interfaces- Number of connectable IO Devices for RT, max.256- of which in line, max.256- of which in line, max.256- Activation/deactivation of IO DevicesNo- IO Devices changing during operation (partner ports), supportedNo		
Number of connectable IO Devices for RT, max.256 of which in line, max.256 Activation/deactivation of IO DevicesNo IO Devices changing during operation (partner ports), supportedNo		256; In redundant mode via both interfaces
— of which in line, max.256— Activation/deactivation of IO DevicesNo— IO Devices changing during operation (partner ports), supportedNo	— Number of connectable IO Devices for RT,	
<ul> <li>Activation/deactivation of IO Devices</li> <li>No</li> <li>IO Devices changing during operation (partner ports), supported</li> <li>No</li> </ul>		256
— IO Devices changing during operation (partner No ports), supported		
ports), supported		
— Device replacement without swap medium     Yes		NU
	<ul> <li>Device replacement without swap medium</li> </ul>	Yes

O and available	
— Send cycles	250 μs, 500 μs, 1 ms, 2 ms, 4 ms
— Updating time	250 μs to 512 ms, minimum value depends on the number of configured user data and the configured single or redundant mode
Address area	door data and the configured single of redundant mode
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
	-
— User data consistency, max.     Open IE communication	1 024 byte
	04
Number of connections, max.	94
<ul> <li>Local port numbers used at the system end</li> </ul>	0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535
<ul> <li>Keep-alive function, supported</li> </ul>	Yes
3. Interface	
Interface type	PROFIBUS DP
Number of connection resources	32
	52
Interface types     • RS 485	Yes
Output current of the interface, max.	150 mA
Protocols	Vee
PROFIBUS DP master	Yes
PROFIBUS DP slave	No
PROFIBUS DP master	20
Number of connections, max.	32
• Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	125
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
<ul> <li>— S7 communication, as client</li> </ul>	Yes
— S7 communication, as server	Yes
— Equidistance	No
— Isochronous mode	No
— SYNC/FREEZE	No
<ul> <li>Activation/deactivation of DP slaves</li> </ul>	No
— Direct data exchange (slave-to-slave	No
communication)	N
— DPV0	Yes
— DPV1	Yes
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
User data per DP slave	
— User data per DP slave, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
4. Interface	
Interface type	Pluggable synchronization submodule (FO)
Plug-in interface modules	Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06- 0XA0
5. Interface	
Interface type	Pluggable synchronization submodule (FO)
Plug-in interface modules	Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-
	0XA0
Protocols	
Redundancy mode	
Media redundancy	

— Switchover time on line break, typ.	200 ms
<ul> <li>— Switchover time of fine break, typ.</li> <li>— Number of stations in the ring, max.</li> </ul>	50
SIMATIC communication	
• S7 routing	Yes
Open IE communication	
• TCP/IP	Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.	94
— Data length, max.	32 kbyte
-	Yes
<ul> <li>— several passive connections per port, supported</li> </ul>	
<ul> <li>ISO-on-TCP (RFC1006)</li> </ul>	Yes; Via integrated PROFINET interface or CP 443-1 and loadable FBs
<ul> <li>— Number of connections, max.</li> </ul>	94
— Data length, max.	32 kbyte; 1 452 bytes via CP 443-1 Adv.
• UDP	Yes; via integrated PROFINET interface and loadable FBs
<ul> <li>— Number of connections, max.</li> </ul>	94
— Data length, max.	1 472 byte
Web server	
supported	No
Isochronous mode	
Equidistance	No
communication functions / header	
PG/OP communication	Yes
<ul> <li>Number of connectable OPs without message processing</li> </ul>	95
<ul> <li>Number of connectable OPs with message processing</li> </ul>	95; When using Alarm_S/SQ and Alarm_D/DQ
Data record routing	Yes
Global data communication	
<ul> <li>supported</li> </ul>	No
S7 basic communication	
supported	No
S7 communication	
supported	Yes
• as server	Yes
• as client	Yes
• User data per job, max.	64 kbyte
<ul> <li>User data per job (of which consistent), max.</li> </ul>	462 byte; 1 variable
S5 compatible communication	
supported	Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV)
<ul> <li>User data per job, max.</li> </ul>	8 kbyte
<ul> <li>User data per job, max.</li> <li>User data per job (of which consistent), max.</li> </ul>	240 byte
Number of simultaneous AG-SEND/AG-RECV	
• Number of simultaneous AG-SEND/AG-RECV orders per CPU, max.	64/64
Standard communication (FMS)	
supported	Yes; Via CP and loadable FB
Number of connections	
• overall	96
usable for PG communication	
— reserved for PG communication	1
— adjustable for PG communication, max.	0
usable for OP communication	
reserved for OP communication	1
— adjustable for OP communication, max.	0
usable for S7 basic communication	Ŭ
	0
— reserved for S7 basic communication     adjustable for S7 basic communication	0
— adjustable for S7 basic communication, max.	0
usable for S7 communication	
- reserved for S7 communication	0
— adjustable for S7 communication, max.	0
usable for routing	
<ul> <li>reserved for routing</li> </ul>	0

<ul> <li>adjustable</li> </ul>	for	routing,	max.
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— adjustable for routing, max.	U
S7 message functions	
Number of login stations for message functions, max.	95; Max. 95 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 16 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC)
Symbol-related messages	No
SCAN procedure	No
Program alarms	Yes
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks
Alarm 8-blocks	Yes
Number of instances for alarm 8 and S7	10 000
communication blocks, max.	4 000
• preset, max.	1 200
Process control messages	Yes
Number of archives that can log on simultaneously (SFB 37 AR_SEND)	64
Test commissioning functions	
Status block	Yes
Single step	Yes
Number of breakpoints	16
Status/control	
Status/control variable	Yes; Up to 16 variable tables
• Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Number of variables, max.	70
Forcing	
Forcing	Yes
<ul> <li>Forcing, variables</li> </ul>	Inputs/outputs, bit memories, distributed I/Os
<ul> <li>Number of variables, max.</li> </ul>	512
Diagnostic buffer	
present	Yes
<ul> <li>Number of entries, max.</li> </ul>	3 200
— adjustable	Yes
	120
— preset Service data	120
	N
• can be read out	Yes
EMC	
Emission of radio interference acc. to EN 55 011	
<ul> <li>Limit class A, for use in industrial areas</li> </ul>	Yes
<ul> <li>Limit class B, for use in residential areas</li> </ul>	No
configuration / header	
Configuration software	
STEP 7	Yes
	100
configuration / programming / header	
Command set	see instruction list
Nesting levels	7
<ul> <li>Access to consistent data in process image</li> </ul>	Yes
<ul> <li>System functions (SFC)</li> </ul>	see instruction list
<ul> <li>System function blocks (SFB)</li> </ul>	see instruction list
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— STL — SCL	
	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
configuration / programming / number of simultaneously	active SFC / header
- RD_REC	8
_ WR_REC	8
— WR_PARM	8

— PARM_MOD	1	
— WR_DPARM	2	
— DPNRM_DG	8	
— RDSYSST	8	
- DP_TOPOL	1	
configuration / programming / number of simultaneously	active SFB / header	
- RDREC	8	
— WRREC	8	
Know-how protection		
<ul> <li>User program protection/password protection</li> </ul>	Yes	
<ul> <li>Block encryption</li> </ul>	Yes; With S7 block Privacy	
Dimensions		
Width	50 mm	
Height	290 mm	
Depth	219 mm	
Weights		
Weight, approx.	995 g	
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