## 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	
<ul> <li>Backup current, typ.</li> </ul>	180 μA; Valid up to 40°C

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<ul><li>Backup current, max.</li><li>Backup time, max.</li></ul>	1 000 μA Dealt with in the module data manual with the secondary conditions and the
• Backup time, max.	factors of influence
<ul> <li>Feeding of external backup voltage to CPU</li> </ul>	5 V DC to 15 V DC
CPU processing times	
for bit operations, typ.	12.5 ns
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	
Number, max.	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 OB	
Number, max.	see instruction list
• Size, max.	64 kbyte
Number of free cycle OBs	1; OB 1
Number of time alarm OBs	8; OB 10-17
Number of delay alarm OBs	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 synchronous error OBs	2; OB 121, 122
Nesting depth	_,
per priority class	24
<ul> <li>additional within an error OB</li> </ul>	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	
	Yes
IEC counter	Yes SFB
IEC counter • present	
IEC counter • present • Type	SFB
IEC counter • present • Type • Number	SFB
IEC counter • present • Type • Number S7 times	SFB Unlimited (limited only by RAM capacity)
IEC counter • present • Type • Number S7 times • Number	SFB Unlimited (limited only by RAM capacity)
IEC counter • present • Type • Number S7 times • Number Retentivity	SFB Unlimited (limited only by RAM capacity) 2 048
IEC counter • present • Type • Number S7 times • Number Retentivity — adjustable	SFB Unlimited (limited only by RAM capacity) 2 048 Yes
IEC counter • present • Type • Number S7 times • Number Retentivity — adjustable — lower limit	SFB Unlimited (limited only by RAM capacity) 2 048 Yes 0
IEC counter • present • Type • Number S7 times • Number Retentivity — adjustable — lower limit — upper limit	SFB Unlimited (limited only by RAM capacity) 2 048 Ves 0 2 047
IEC counter • present • Type • Number S7 times • Number Retentivity — adjustable — lower limit — upper limit — preset	SFB Unlimited (limited only by RAM capacity) 2 048 Ves 0 2 047
IEC counter • present • Type • Number S7 times • Number Retentivity — adjustable — lower limit — upper limit — preset Time range	SFB Unlimited (limited only by RAM capacity) 2 048 Yes 0 2 047 No times retentive
IEC counter • present • Type • Number S7 times • Number Retentivity — adjustable — lower limit — upper limit — preset Time range — lower limit	SFB         Unlimited (limited only by RAM capacity)         2048         Yes         0         2047         No times retentive         10 ms
IEC counter • present • Type • Number S7 times • Number Retentivity — adjustable — lower limit — upper limit — preset Time range — lower limit — upper limit — upper limit	SFB         Unlimited (limited only by RAM capacity)         2048         Yes         0         2047         No times retentive         10 ms

• Туре	SFB
• Type • 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	
• adjustable, max.	64 kbyte
• preset	32 kbyte
Address area	
I/O address area	
Inputs	16 kbyte
Outputs	16 kbyte
Process image	
<ul> <li>Inputs, adjustable</li> </ul>	16 kbyte
<ul> <li>Outputs, adjustable</li> </ul>	16 kbyte
Inputs, default	1 024 byte
Outputs, default	1 024 byte
consistent data, max.	244 byte
Access to consistent data in process image	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 <ul> <li>Inputs</li> </ul>	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	
• integrated	2
• via CP	10; CP 443-5 Extended
Mixed mode IM + CP permitted	No
via interface module	0
Number of IO Controllers	
<ul> <li>integrated</li> </ul>	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
<ul> <li>PROFIBUS and Ethernet CPs</li> </ul>	14; Of which max. 10 CP as DP master
Slots	
Slots <ul> <li>required slots</li> </ul>	2
	2

<ul> <li>Hardware clock (real-time)</li> </ul>	Vac
	Yes
retentive and synchronizable	Yes
Resolution	1 ms
• Deviation per day (buffered), max.	1.7 s; Power off
Deviation per day (unbuffered), max.	8.6 s; Power on
Operating hours counter	
• Number	16
Number/Number range	0 to 15
Range of values	SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2^31 - 1 hours
Granularity	1 h
retentive	Yes
Clock synchronization	
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	
Interface type	MPI/PROFIBUS DP
Isolated	Yes
Interface types	
• RS 485	Yes
<ul> <li>Output current of the interface, max.</li> </ul>	150 mA
Protocols	
• MPI	Yes
MPI     PROFIBUS DP master	Yes
PROFIBUS DP master	Yes
<ul><li>PROFIBUS DP master</li><li>PROFIBUS DP slave</li></ul>	Yes No 44; If a diagnostics repeater is used on the line, the number of connection
<ul> <li>PROFIBUS DP master</li> <li>PROFIBUS DP slave</li> <li>MPI</li> <li>Number of connections</li> </ul>	Yes No 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1
PROFIBUS DP master     PROFIBUS DP slave MPI     Number of connections     Transmission rate, max.	Yes No 44; If a diagnostics repeater is used on the line, the number of connection
PROFIBUS DP master     PROFIBUS DP slave  MPI      Number of connections      Transmission rate, max.     Services	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
PROFIBUS DP master     PROFIBUS DP slave  MPI      Number of connections      Transmission rate, max. Services      — PG/OP communication	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
PROFIBUS DP master     PROFIBUS DP slave  MPI      Number of connections      Transmission rate, max.      Services          — PG/OP communication         — Routing	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
PROFIBUS DP master     PROFIBUS DP slave  MPI      Number of connections      Transmission rate, max.  Services      PG/OP communication      — Routing      — Global data communication	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
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 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
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 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 Yes
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	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 Yes Yes
<ul> <li>PROFIBUS DP master</li> <li>PROFIBUS DP slave</li> <li>MPI</li> <li>Number of connections</li> <li>Transmission rate, max.</li> <li>Services</li> <li>— PG/OP communication</li> <li>— Routing</li> <li>— Global data communication</li> <li>— S7 basic communication</li> <li>— S7 communication, as client</li> <li>— S7 communication, as server</li> </ul>	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 Yes
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	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 Yes Yes
<ul> <li>PROFIBUS DP master</li> <li>PROFIBUS DP slave</li> <li>MPI</li> <li>Number of connections</li> <li>Transmission rate, max.</li> <li>Services</li> <li>— PG/OP communication</li> <li>— Routing</li> <li>— Global data communication</li> <li>— S7 basic communication</li> <li>— S7 communication, as client</li> <li>— S7 communication, as server</li> </ul>	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
<ul> <li>PROFIBUS DP master</li> <li>PROFIBUS DP slave</li> <li>MPI <ul> <li>Number of connections</li> <li>Transmission rate, max.</li> </ul> </li> <li>Services <ul> <li>PG/OP communication</li> <li>Routing</li> <li>Global data communication</li> <li>S7 basic communication</li> <li>S7 communication</li> <li>S7 communication, as client</li> <li>S7 communication, as server</li> </ul> </li> <li>PROFIBUS DP master <ul> <li>Number of connections, max.</li> <li>Transmission rate, max.</li> </ul> </li> </ul>	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 Yes Yes Yes Yes Yes
<ul> <li>PROFIBUS DP master</li> <li>PROFIBUS DP slave</li> <li>MPI</li> <li>Number of connections</li> <li>Transmission rate, max.</li> <li>Services <ul> <li>PG/OP communication</li> <li>Routing</li> <li>Global data communication</li> <li>S7 basic communication</li> <li>S7 communication</li> <li>S7 communication, as client</li> <li>S7 communication, as server</li> </ul> </li> <li>PROFIBUS DP master <ul> <li>Number of connections, max.</li> </ul> </li> </ul>	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
<ul> <li>PROFIBUS DP master</li> <li>PROFIBUS DP slave</li> <li>MPI <ul> <li>Number of connections</li> <li>Transmission rate, max.</li> </ul> </li> <li>Services <ul> <li>PG/OP communication</li> <li>Routing</li> <li>Global data communication</li> <li>S7 basic communication</li> <li>S7 communication</li> <li>S7 communication, as client</li> <li>S7 communication, as server</li> </ul> </li> <li>PROFIBUS DP master <ul> <li>Number of connections, max.</li> <li>Transmission rate, max.</li> </ul> </li> </ul>	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 Yes Yes Yes Yes Yes Yes
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<ul> <li>PROFIBUS DP master</li> <li>PROFIBUS DP slave</li> <li>MPI</li> <li>Number of connections</li> <li>Transmission rate, max.</li> <li>Services <ul> <li>PG/OP communication</li> <li>Routing</li> <li>Global data communication</li> <li>S7 basic communication</li> <li>S7 communication</li> <li>S7 communication</li> <li>S7 communication, as client</li> <li>S7 communication, as server</li> </ul> </li> <li>PROFIBUS DP master <ul> <li>Number of connections, max.</li> <li>Transmission rate, max.</li> <li>Number of DP slaves, max.</li> </ul> </li> </ul>	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 Yes Yes Yes 22; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s 32
<ul> <li>PROFIBUS DP master</li> <li>PROFIBUS DP slave</li> <li>MPI</li> <li>Number of connections</li> <li>Transmission rate, max.</li> <li>Services <ul> <li>PG/OP communication</li> <li>Routing</li> <li>Global data communication</li> <li>S7 basic communication</li> <li>S7 communication</li> <li>S7 communication</li> <li>S7 communication, as client</li> <li>S7 communication, as server</li> </ul> </li> <li>PROFIBUS DP master <ul> <li>Number of connections, max.</li> <li>Transmission rate, max.</li> <li>Number of DP slaves, max.</li> </ul> </li> <li>Services <ul> <li>PG/OP communication</li> </ul> </li> </ul>	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 Yes Yes Yes Yes Yes Yes
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<ul> <li>— S7 communication, as server</li> </ul>	Yes
— Equidistance	No
<ul> <li>— Isochronous mode</li> </ul>	No
— SYNC/FREEZE	No
<ul> <li>Activation/deactivation of DP slaves</li> </ul>	No
<ul> <li>— Direct data exchange (slave-to-slave</li> </ul>	No
communication)	
— DPV1	Yes
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 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
PROFIBUS DP slave	
Number of connections	No configuration of CPU as DP slave
2. Interface	
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes; Autosensing
Autonegotiation	Yes
Autocrossing	Yes
Change of IP address at runtime, supported	No
Number of connection resources	96
Interface types	
RJ 45 (Ethernet)	Yes
Number of ports	2
<ul> <li>integrated switch</li> </ul>	Yes
Protocols	
<ul> <li>PROFINET IO Controller</li> </ul>	Yes
PROFINET IO Device	No
PROFINET CBA	No
PROFIBUS DP master	No
PROFIBUS DP slave	No
Open IE communication	Yes
Web server	No
<ul> <li>Point-to-point connection</li> </ul>	No
Media redundancy	Yes
PROFINET IO Controller	
Transmission rate, max.	100 Mbit/s
Services	
Services — PG/OP communication	Yes
Services — PG/OP communication — S7 communication	Yes Yes
Services — PG/OP communication — S7 communication — Isochronous mode	Yes Yes No
Services — PG/OP communication — S7 communication — Isochronous mode — Shared device	Yes Yes No Yes; Single mode only
Services — PG/OP communication — S7 communication — Isochronous mode — Shared device — Prioritized startup	Yes Yes No Yes; Single mode only No
Services — PG/OP communication — S7 communication — Isochronous mode — Shared device — Prioritized startup — Number of connectable IO Devices, max.	Yes Yes No Yes; Single mode only No 256; In redundant mode via both interfaces
Services — PG/OP communication — S7 communication — Isochronous mode — Shared device — Prioritized startup — Number of connectable IO Devices, max. — Number of connectable IO Devices for RT, max.	Yes Yes No Yes; Single mode only No 256; In redundant mode via both interfaces 256
Services 	Yes Yes No Yes; Single mode only No 256; In redundant mode via both interfaces 256 256
Services 	Yes Yes No Yes; Single mode only No 256; In redundant mode via both interfaces 256 256 No
Services 	Yes Yes No Yes; Single mode only No 256; In redundant mode via both interfaces 256 256
Services 	Yes Yes No Yes; Single mode only No 256; In redundant mode via both interfaces 256 256 No
Services 	Yes Yes No Yes; Single mode only No 256; In redundant mode via both interfaces 256 256 No No
Services 	Yes Yes No Yes; Single mode only No 256; In redundant mode via both interfaces 256 256 No No Yes 250 µs, 500 µs, 1 ms, 2 ms, 4 ms 250 µs to 512 ms, minimum value depends on the number of configured user
Services - PG/OP communication - S7 communication - Isochronous mode - Shared device - Prioritized startup - Number of connectable IO Devices, max. - Number of connectable IO Devices for RT, max. - Number of connectable IO Devices for RT, max. - Number of connectable IO Devices for RT, max. - of which in line, max. - Activation/deactivation of IO Devices - IO Devices changing during operation (partner ports), supported - Device replacement without swap medium - Send cycles - Updating time	Yes Yes No Yes; Single mode only No 256; In redundant mode via both interfaces 256 256 No No Yes 250 µs, 500 µs, 1 ms, 2 ms, 4 ms
Services - PG/OP communication - S7 communication - Isochronous mode - Shared device - Prioritized startup - Number of connectable IO Devices, max. - Number of connectable IO Devices for RT, max. - Number of connectable IO Devices for RT, max. - of which in line, max. - Activation/deactivation of IO Devices - IO Devices changing during operation (partner ports), supported - Device replacement without swap medium - Send cycles - Updating time Address area	Yes Yes No Yes; Single mode only No 256; In redundant mode via both interfaces 256 256 No No Yes 250 µs, 500 µs, 1 ms, 2 ms, 4 ms 250 µs, 500 µs, 1 ms, 2 ms, 4 ms
Services - PG/OP communication - S7 communication - Isochronous mode - Shared device - Prioritized startup - Number of connectable IO Devices, max. - Number of connectable IO Devices for RT, max. - Number of connectable IO Devices for RT, max. - Number of connectable IO Devices for RT, max. - of which in line, max. - Activation/deactivation of IO Devices - IO Devices changing during operation (partner ports), supported - Device replacement without swap medium - Send cycles - Updating time	Yes Yes No Yes; Single mode only No 256; In redundant mode via both interfaces 256 256 No No Yes 250 µs, 500 µs, 1 ms, 2 ms, 4 ms 250 µs to 512 ms, minimum value depends on the number of configured user

Open III: Bootmanuaciation         Percent Section           • Number of connections, max.         94           • Local prof. Links         94           • Keep-alive function, supported         Yes           > Interface type         PROFIBUS DP           • Interface type         PROFIBUS DP           • Response         32           • Response         150 mA           • Response         122           • Response         123           • Response         124           • POLOP communication         Yes           • - Routing         Yes           • - Routing         Yes           • - SP consist communication         No           • - SP consist communication         Yes           • - SP consist communication         Yes           • - SP consist communication         No	— User data consistency, max.	1 024 byte
• Number of connections, max.     94       • Local port numbers used at the system and 65355     92, 12, 55, 102, 125, 101, 34092, 34093, 34094, 65532, 65533, 65534, 65535       • Number of connection, resources     32       • Interface interface     92       • Ref Ref Mys     Profinues DP       • Number of connection resources     32       • R 4.405     Yes       • R 4.405     Yes       • R ROFERS DP alwas     No <b>PROFERS DP</b> master     Yes       • R ROFERS DP alwas     No <b>PROFERS DP</b> master     Yes       • R ROFERS DP alwas     No <b>PROFERS DP</b> master     Yes       • R ROFERS DP alwas     No       • R ROFERS DP alwas     No       • R ROFERS DP alwas     No       • R ROFERS DP alwas     12 Abbits       • R ROFERS DP alwas     12 Abbits       • R ROFERS DP alwas     No       • R ROFERS DP alwas     12 Abbits       • R ROFERS DP alwas     No       • S To ommunication     Yes       • S To ommunication, as server     Yes       • S To ommunication of DP alwas     No       • Direct date exchange (alwe to slawe     No       • Direct date exchange (alwe to slawe     No       • Direct date exchange (alwe to slawe     No       • Direc	· · · · · · · · · · · · · · · · · · ·	
		94
Junification         PROFIBUS DP           Interface type         PROFIBUS DP           • R8488         32           Interface type         Yes           • Chupt ourient of the interface, max.         150 mA           PROFIBUS DP master         Yes           • PROFIBUS DP master         Yes           • PROFIBUS DP master         Yes           • Number of connections, max.         32           • Transmission rate, max.         12 Matrix           • Number of connections, max.         12 Matrix           • Roof RBUS DP master         Yes           • Number of connections, max.         12 Matrix           • Number of connections, max.         12 Matrix           • Services         -           - PGOP communication         Yes           - Seconnumication         No           - S7 communication, as enver         Yes           - S7 communication, as enver         Yes           - S7 communication, as enver         Yes           - Struct data schange (size=-fo-alize         No           - SYNOFTREEZE         No           - Advitavorideadvisation of DP sizves         No           - Divid         Yes           Addites area         A khyte		0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534,
Interface type         PROFIBUE DP           Number of connection resources         92           • R5 495         Yes           • Output current of the interface, max.         150 mA           • PROFIBUS DP matter         Yes           • Number of connections, max.         12           • Number of De laves, max.         125           Services         • PROFID Marks, max.           - PCOP communication         Yes           - Roung         Yes           - S7 communication, as elimit         Yes           - Drivit Clabs exchange (silve-to-slave         No           - Outputs, max.         8 kbyte           - Outputs, max.         8 kbyte           - Outputs, max.         244 byte           - Outputs, max.         244 byte <td><ul> <li>Keep-alive function, supported</li> </ul></td> <td>Yes</td>	<ul> <li>Keep-alive function, supported</li> </ul>	Yes
Number of connection resources         92           Initiation by loss         • R3 45           • Vest         • Output current of the interface, max.         150 mA           PROCENS         • PROFIBUS DP master         Yest           • PROFIBUS DP master         Yest         • No           • PROFIBUS DP master         Yest         • No           • Number of connections, max.         32         • Transmission rate, max.         12 Mbit/s           • Number of DP slaves, max.         12 Mbit/s         • Number of DP slaves, max.         12 Mbit/s           • ROUTING         Yest         • Clobal data communication         No           - Services         • Facion munication         No         • Services           - Souring         Yest         • Souring         Yest           - Souring         Yest         • Souring         Yest           - Souring         Yest         • Souring         Yest           - Souring         Yest         • Souring         No           - Souring         Yest         • Souring         No           - Souring         No         • Souring         No           - Devide         No         • Souring         No           - Devide         No	3. Interface	
Interface types       • R5 436       • Oupla current of the interface. max.       150 mA       PROFIBUS DP matter       • PROFIBUS SP matter       • PROFIBUS SP matter       • PROFIBUS SP matter       • PROFIBUS SP matter       • Transmission rate, max.       12 Mobils       • Number of connections, max.       12 Mobils       • Number of SP staves, max.       12 Mobils       • PROP Communication       • Routing       • Optical data communication       • No       - ST balls Communication       • ST communication       • ST communication       • ST communication       • ST communication, as client       • ST communication, as server       • ST communication, as server       • ST communication, as server       • St contranscilent, as server       • ST communication, as server       • ST communication, as server       • St contranscilent, as server       • St communication, as server       • Outputs, max.       • Advises/able/able/able/able/able/able/able/able	Interface type	PROFIBUS DP
• RS 485     Yes       • Output current of the Interface, max.     150 mA       • PROFIBUS DP master     Yes       • PROFIBUS DP master     No       • PROFIDUS DP master     No       • Number of commetons, max.     12       • Transmission rate, max.     12 Mol/6       • Number of DP sites, max.     12 Mol/6       • Rode DP sites, max.     12 Mol/6       • Static communication     No       • Static communication, scient     Yes       • Static communication, scient     Yes       • Static communication on set over Yes     -       • Diver data sexchange (stave-to-st	Number of connection resources	32
• Output current of the interface, max.         150 mA           PROFIBUS DP master         Yes           • PROFIBUS DP master         No           • Transmission rate, max.         32           • Transmission rate, max.         12 Motifs           • Number of DP slaves, max.         125           Services         -           • PROP Bus De dida ac communication         No           • OPCOP communication         Yes           • OPCOP communication         No           • ST basic communication         No           • ST communication, as client         Yes           • ST communication, as client         Yes           • ST communication, as client         Yes           • ST communication, as dient         Yes           • Struct Asia exchange (size-to-sizee         No           • Struct Asia exchange (size-to-sizee         No           • Output, max.         8 ktyte           • Output, max.         8 ktyte           • Output, max.         8 ktyte           • Output, max.         244 byte           • Struct, moutput, max.         244 byt	Interface types	
Procession         • PROFIBUS DP stave           • PROFIBUS DP master         Yes           • PROFIBUS DP master         • No           • Number of connections, max.         32           • Transmission rate, max.         12 Mubbis           • Number of DP shaves, max.         125           Services         -           - RCOP communication         No           - Static communication         No           - ST communication, as surver         Yes           - Global data communication         No           - ST communication, as surver         Yes           - ST communication, as surver         Yes           - Equiditatione         No           - ST communication, as surver         Yes           - Equiditatione         No           - ST communication, as surver         Yes           - Equiditatione         No           - ST communication, as surver         Yes           - Obstronous mode         No           - ST communication of PP slaves         No           - Advariant and the PD P slave         No           - Direct data setchange (alwet-to-slave         No           - Uputy, max.         8 kbyte           - Uputy, max.         24 byte <t< td=""><td>• RS 485</td><td>Yes</td></t<>	• RS 485	Yes
• PROFIBUS DP naster     Yes       • PROFIBUS DP fave     No       • Number of connections, max.     32       • Transmission rate, max.     124 Multis       • Number of DP sloves, max.     125       Services     -       - PGOPC communication     Yes       - Routing     Yes       - Globel data communication     No       - S7 basic communication     No       - S7 communication, as client     Yes       - S7 communication, as sever     Yes       - Equidistance     No       - S7 communication, as sever     Yes       - Equidistance     No       - S7 communication of DP slaves     No       - Direct data schange (lave-to-slave     No       - Uptuft, max.     244 byte       - Uptuft, max.     244 byte       - Liputts, max.     128 byte       User data per DP slave, max.     128 byte       Interface type     Pluggab	<ul> <li>Output current of the interface, max.</li> </ul>	150 mA
PROFIBUS DP slave     No       PROFIBUS DP master     32       • Number of connections, max.     32 Number Num	Protocols	
PROFIBUS DP master         • Number of connections, max.       32         • Transmission rate, max.       12 Mbi/s         • Number of DP sites, max.       125         Services       -         - PG/OP communication       Yes         - Global data communication       No         - ST basic communication       No         - ST communication, as client       Yes         - ST communication, as server       Yes         - ST communication, as server       Yes         - ST communication, as server       Yes         - Equidistance       No         - activation/description       No         - structionation as client       Yes         - Struction/description       No         - activation/description of DP siteves       No         - activation/description of DP siteves       No         - Direct data acchange (save-to-stave communication)       No         - Direct data scription (save-to-stave communication)       No         - Direct data per DP slave       No         -	PROFIBUS DP master	Yes
Number of connections, max. 32     Transmission rate, max. 12 Molifs     Number of DP slaves, max. 125     Services     — PGOP Communication Yes     — Routing Yes     — Global data communication No     — S7 communication No     — S7 communication No     — S7 communication, as enver Yes     — Equidistance     Services No     — S7 communication, as enver Yes     — S7 communication, as enver Yes     — S7 communication, as enver Yes     — Equidistance     No     — S7 communication, as enver Yes     — Equidistance     No     — S7 communication, as enver Yes     — Equidistance     No     — S7 communication, as enver Yes     — Equidistance     No     — S7 communication BP slaves     No     — S7 communication OID P slaves     No     — Direct data exchange (slave-to-slave     — Direct data exchange (slave-to-slave)     — Direct data exchange (slave-to-slave     — Direct data exchange (slave-to-slave)     — Direct data exchandex     — Direct data exchange	PROFIBUS DP slave	No
12 Moti/s      Number of DP sitves, max. 125 <td< td=""><td>PROFIBUS DP master</td><td></td></td<>	PROFIBUS DP master	
• Number of DP slaves, max.     125       Services     -       - PG/OP communication     Yes       - Routing     Yes       - Global data communication     No       - S7 basic communication     No       - S7 communication, as server     Yes       - S7 communication of DP slaves     No       - S7 continuoid contion of DP slaves     No       - S7 continuoid contion of DP slaves     No       - S7 continuoid contion of DP slaves     No       - Devid data excharge (slave-to-slave communication)     No       - DPV0     Yes       - DPV1     Yes       - Uputs, max.     8 kbyte       - Uputs, max.     244 byte       - Inputs, max.     244 byte       - Stos, max.     244 byte       - per slot, max.     244 byte       - Nuther of slatons in	<ul> <li>Number of connections, max.</li> </ul>	32
Services     -       -     PC/OP communication     Yes       -     Global data communication     No       -     SF7 basic communication     No       -     SF7 basic communication     Yes       -     SF7 communication     Yes       -     SF7 communication, as alient     Yes       -     SF7 communication, as server     Yes       -     SF7 communication, as server     Yes       -     Equidistance     No       -     SF7 communication of De slaves     No       -     SF7 communication of De slaves     No       -     Activation/ideactivation of DP slaves     No       -     Activation/ideactivation of DP slaves     No       -     DPV0     Yes       -     DPV0     Yes       -     DPV1     Yes       -     Drupts, max.     8 kbyte       -     Inputs, max.     244 byte       -     Inputs, max.     244 byte       -     Outputs, max.     244 byte       -     Synchronization modules (ECO)       Plugable synchronization modules (ECO)       Plugable synchronization modules (ECO)       Plugable synchronization modules (ECO)       Plugable synchronization modules (ECO)       Plugab	Transmission rate, max.	12 Mbit/s
	Number of DP slaves, max.	125
- RoutingYes- Global data communicationNo- S7 communicationNo- S7 communication, as clientYes- S7 communication, as serverYes- S7 communication, as serverYes- EquidistanceNo- EquidistanceNo- ST COMERCIPACEZENo- ST COMERCIPACEZENo- Direct data exchange (slave-to-slaveNo- Direct data exchange (slave-to-slaveNo- Direct data exchange (slave-to-slaveNo- DPV0Yes- DPV1Yes- DPV1Yes- User data per DP slave, max.8 kbyte- User data per DP slave, max.244 byte- User data per DP slave, max.244 byte- Slobi, max.244 byte- per slot, max.244 byte- Slobi, max.244 byte- per slot, max.244 byte- Plug-in interface modulesSynchronization modules 6ES7960-1AA06-0XA0 or 6ES7860-1AB06-0XA0Plug-in interface modulesSynchronization modules 6ES7960-1AA06-0XA0 or 6ES7860-1AB06-0XA0<	Services	
- Global data communication     No       - S7 basic communication     No       - S7 basic communication     Yes       - S7 communication, as client     Yes       - S7 communication, as server     Yes       - Equidistance     No       - Bochronuz mode     No       - Isochronuz mode     No       - Isochronuz mode     No       - Achvalano/deactivation of DP slaves     No       - Achvalano/deactivation of DP slaves     No       - Direct data exchange (slave-to-slave     No       communication)     Yes       - DPV0     Yes       - DPV1     Yes       - DPV1     Yes       - User data per DP slave, max.     8 kbyte       - User data per DP slave, max.     244 byte       - User data per DP slave, max.     244 byte       - User data per DP slave, max.     244 byte       - Slots, max.     240 byte       - Number of stations in the ring, max.     50	— PG/OP communication	Yes
	— Routing	Yes
	— Global data communication	No
	— S7 basic communication	No
	— S7 communication	Yes
− EquidistanceNo− Isochronous modeNo− SSYNC/FREEZENo∧ Activation/deadtvation of DP slavesNo− Direct data exchange (slave-to-slave communication)No− DPV0Yes− DPV1Yes− DPV1Yes− DV1S kbyte− Dutst, max.8 kbyte− Outputs, max.8 kbyte− Outputs, max.8 kbyte− Outputs, max.244 byte− Outputs, max.244 byte− User data per DP slave, max.244 byte− Stots, max.244 byte− Stots, max.244 byte− Stots, max.244 byte− per slot, max.128 byteInterface typePlugable synchronization submodule (FO)Plug-in interface modulesSynchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0ProtocolsFRedundancy modeSynchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0ProtocolsFFSynchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0FSinterface modulesSinterface modulesSynchronization modules 6ES7960-1AA	- S7 communication, as client	Yes
	- S7 communication, as server	Yes
-SYNC/FREEZENo-Adtivation/deactivation of DP slavesNo-Direct data exchange (slave-to-slave communication)No-DPV0Yes-DPV1Yes-DPV1Yes-Outputs, max.8 kbyte-Outputs, max.8 kbyte-Outputs, max.8 kbyte-Outputs, max.244 byte-Outputs, max.244 byte-Outputs, max.244 byte-Outputs, max.244 byte-Outputs, max.244 byte-Stots, max.244 byte-Stots, max.244 byte-Stots, max.244 byte-Pugable synchronization submodule (FO)Plug-in interface modulesSynchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0-SinderfaceSinderface-SinderfaceSinderface-SinderfaceSinderface-SinderfaceSinderface<	— Equidistance	No
Activation/deactivation of DP slavesNo Direct data exchange (slave-to-slave communication)No DPV0Yes DPV1Yes DPV1YesAddress area8 kbyte Outputs, max.8 kbyte Outputs, max.8 kbyte User data per DP slave, max.244 byte User data per DP slave, max.244 byte Outputs, max.244 byte Outputs, max.244 byte Outputs, max.244 byte Outputs, max.244 byte Slots, max.244 per slot, max.244 per slot, max.50 Interface typePlugable synchronization submodule (FO)Plug-in interface modulesSynchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0 Interface typePlugable synchronization submodule (FO)Plug-in interface modulesSynchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0 Solts, max.50 Sitterface200 ms Sitterface modules200 ms Sitterface modules200 ms Number of stations in the ring, max.50 SitterfaceYes Open IE communicationYes, yia integrated PROFINET interface and loadable FBS Number of connections, max.94	— Isochronous mode	No
→ Direct data exchange (slave-to-slave communication)         No           → DPV0         Yes           → DPV1         Yes           Address area         -           → Inputs, max.         8 kbyte           User data per DP slave         -           → User data per DP slave, max.         244 byte           → Outputs, max.         244 byte           → Der slot, max.         244 byte           → per slot, max.         244 byte           → per slot, max.         128 byte           Interface type         Pluggable synchronization submodule (FO)           Plug-in interface modules         Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0           5.Interface         Fetococis           Redundancy mode         Ves           Media redundancy         200 ms           → Number of stations in the ring, max.         50           SIMATIC communication         Yes           Open IE communication         Yes, via integrated PROFINET interface and loadable FBs           → Number of stations, max.         54 <td>- SYNC/FREEZE</td> <td>No</td>	- SYNC/FREEZE	No
communication)       - DPV0         - DPV1       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         - Outputs, max.       244 byte         - Slots, max.       244 byte         - Slots, max.       244 byte         - per slot, max.       245 byte         Interface type       Pluggable synchronization submodule (FO)         Pug-in interface modules       Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0         5 Interface       Fedundancy         - Switchover time on line break, typ.       200 ms         - Switchover time on line break, typ.       200 ms         - Number of stations in the ring, max.       50         SIMATIC communication       -         - Svitchover time on line break, typ.       200 ms         - Number of connections, m	<ul> <li>Activation/deactivation of DP slaves</li> </ul>	No
- 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         - Outputs, max.       244 byte         - Stots, max.       244 byte         - per slot, max.       128 byte         A Interface       Plugable synchronization submodule (FO)         Plug-in Interface modules       Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0         5 Interface       Plugable synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0         Plug-in Interface modules       Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0         Protocols	communication)	
Address area         - Inputs, max.       8 kbyte         - Outputs, max.       8 kbyte         User data per DP slave       244 byte         - Inputs, max.       244 byte         - Outputs, max.       244 byte         - Slots, max.       244 byte         - per slot, max.       28 byte         Interface type       Plugable synchronization submodule (FO)         Plug-in interface modules       Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0         Protocols       -         Redundancy mode       Subtronization modules 6ES7960-1AB06-0XA0 or 6ES7960-1AB06-0XA0         - Switchover time on line break, typ.		
-     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       -     Outputs, max.     244 byte       -     Slots, max.     244       -     per slot, max.     Synchronization submodule (FO)       Plug-in interface modules     Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0       Protocols     -     -       Redundancy     -     200 ms       -     Switchover time on line break, typ.     200 ms       -     Number of statio		Yes
Outputs, max.8 kbyteUser data per DP slave244 byte User data per DP slave, max.244 byte Inputs, max.244 byte Outputs, max.244 byte Stots, max.244 per slot, max.244 byte per slot, max.245 byteInterface typePlugable synchronization submodule (FO)Plug-in interface modulesSynchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA05. InterfacePluggable synchronization submodule (FO)Plug-in interface modulesSynchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA06. Interface typePluggable synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA07. ProtocolsPlug-in interface modulesMedia redundancy200 ms- Switchover time on line break, typ.200 ms- Number of stations in the ring, max.50SIMATIC communicationYes• S7 routingYesOpen IE communicationYes- Number of connections, max.94		
User data per DP slave       244 byte         - User data per DP slave, max.       244 byte         - Inputs, max.       244 byte         - Outputs, max.       244 byte         - Slots, max.       244         - per slot, max.       28 byte         A. Interface type       Pluggable synchronization submodule (FO)         Plug-in interface modules       Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0         Protocols       Fredundancy mode         Media redundancy	• •	
User data per DP slave, max.     244 byte       Inputs, max.     244 byte       Outputs, max.     244 byte       Slots, max.     244       per slot, max.     244       per slot, max.     244       per slot, max.     244       per slot, max.     128 byte       4. Interface     128 byte       Interface type     Pluggable synchronization submodule (FO)       Plug-in interface modules     Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0       Flotg-in interface modules     Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0       Protocols     Plug-in interface modules       Redundancy mode     Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0       Protocols     Sinterface       SiMATIC communication     200 ms       - Number of stations in the ring, max.     50       SIMATIC communication     Sinterface       • ST routing     Yes       Open IE communication     Yes; via integrated PROFINET interface and loadable FBs       - Number of connections, max.     94		8 kbyte
- Inputs, max.     244 byte       - Outputs, max.     244 byte       - Slots, max.     244       - per slot, max.     128 byte       A. Interface     Plugable synchronization submodule (FO)       Plug-in interface modules     Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0       5. Interface     Interface type       Plugable synchronization submodule (FO)     Plugable synchronization submodule (FO)       Plug-in interface modules     Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0       5. Interface     Pluggable synchronization submodule (FO)       Plug-in interface modules     Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0       Protocols     Protocols       Redundancy mode     Vestor       Media redundancy     200 ms       - Number of stations in the ring, max.     50       SIMATIC communication     50       • S7 routing     Yes       Open IE communication     Yes; via integrated PROFINET interface and loadable FBS       - Number of connections, max.     94		
- Outputs, max.244 byte- Slots, max.244- per slot, max.128 byteA. InterfacePluggable synchronization submodule (FO)Plug-in interface modulesSynchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA05. InterfacePluggable synchronization submodule (FO)Plug-in interface modulesSynchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA05. InterfacePluggable synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0ProtocolsProtocolsRedundancy modeSynchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0Media redundancy200 ms- Switchover time on line break, typ.200 ms- Switchover time on line break, typ.200 ms- Synchronization50SIMATIC communicationYesOpen IE communicationYes; via integrated PROFINET interface and loadable FBs 94	•	
Slots, max.244 per slot, max.128 byte4. InterfacePlugable synchronization submodule (FO)Plug-in interface modulesSynchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA05. InterfacePlugable synchronization submodule (FO)Plug-in interface modulesSynchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA05. InterfacePlugable synchronization submodule (FO)Plug-in interface modulesSynchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0ProtocolsProtocolsRedundancy mode200 ms- Switchover time on line break, typ.200 ms- Number of stations in the ring, max.50SIMATIC communicationSo• ST routingYesOpen IE communicationYes; via integrated PROFINET interface and loadable FBs – Number of connections, max.• TCP/IPYes; via integrated PROFINET interface and loadable FBs 94	-	
per slot, max.     128 byte       Interface     Plugable synchronization submodule (FO)       Plug-in interface modules     Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0       5. Interface     Interface type       Interface type     Plugable synchronization submodule (FO)       Plug-in interface modules     Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0       Protocols     Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0       Protocols     Redundancy mode       Media redundancy     200 ms       - Switchover time on line break, typ.     200 ms       - Number of stations in the ring, max.     50       SIMATIC communication     Yes       • S7 routing     Yes       Open IE communication     Yes; via integrated PROFINET interface and loadable FBs       - Number of connections, max.     94	-	
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         Interface type       Pluggable synchronization submodule (FO)         Plug-in interface modules       Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0         Protocols       Redundancy mode         Media redundancy		
Interface type       Pluggable synchronization submodule (FO)         Plug-in interface modules       Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0         5. Interface       Pluggable synchronization submodule (FO)         Plug-in interface modules       Pluggable synchronization submodule (FO)         Plug-in interface modules       Synchronization submodule (FO)         Plug-in interface modules       Synchronization submodule (FO)         Plug-in interface modules       Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0         Protocols       Redundancy mode         Media redundancy		128 Dyte
Plug-in interface modules       Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0         5. Interface       Pluggable synchronization submodule (FO)         Plug-in interface modules       Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0         Protocols       Protocols         Redundancy mode       Vestor         Media redundancy       200 ms         - Number of stations in the ring, max.       50         SIMATIC communication       Yes         Open IE communication       Yes; via integrated PROFINET interface and loadable FBs         - Number of connections, max.       94		
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		
Interface type       Pluggable synchronization submodule (FO)         Plug-in interface modules       Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0         Protocols       Protocols         Redundancy mode	-	Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0
Plug-in interface modules       Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0         Protocols       Redundancy mode         Media redundancy		
Protocols         Redundancy mode         Media redundancy         — Switchover time on line break, typ.         200 ms         — Number of stations in the ring, max.         50         SIMATIC communication         • S7 routing       Yes         Open IE communication         • TCP/IP       Yes; via integrated PROFINET interface and loadable FBs         — Number of connections, max.       94		
Redundancy mode         Media redundancy         - Switchover time on line break, typ.       200 ms         - Number of stations in the ring, max.       50         SIMATIC communication       50         • S7 routing       Yes         Open IE communication       Yes; via integrated PROFINET interface and loadable FBs         - Number of connections, max.       94	-	Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0
Media redundancy         - Switchover time on line break, typ.       200 ms         - Number of stations in the ring, max.       50         SIMATIC communication       50         • S7 routing       Yes         Open IE communication       Yes; via integrated PROFINET interface and loadable FBs         - Number of connections, max.       94		
- Switchover time on line break, typ.     200 ms       - Number of stations in the ring, max.     50       SIMATIC communication     50       • S7 routing     Yes       Open IE communication     Yes; via integrated PROFINET interface and loadable FBs       - Number of connections, max.     94		
Number of stations in the ring, max.     50       SIMATIC communication     Yes       • S7 routing     Yes       Open IE communication     Yes; via integrated PROFINET interface and loadable FBs       Number of connections, max.     94	· · · · · · · · · · · · · · · · · · ·	
SIMATIC communication     Yes       • S7 routing     Yes       Open IE communication     Yes; via integrated PROFINET interface and loadable FBs       • TCP/IP     Yes; via integrated PROFINET interface and loadable FBs       - Number of connections, max.     94		
• S7 routing     Yes       Open IE communication        • TCP/IP     Yes; via integrated PROFINET interface and loadable FBs       - Number of connections, max.     94		50
Open IE communication         • TCP/IP       Yes; via integrated PROFINET interface and loadable FBs         - Number of connections, max.       94		
• TCP/IP Yes; via integrated PROFINET interface and loadable FBs — Number of connections, max. 94		Yes
- Number of connections, max. 94		
	• TCP/IP	Yes; via integrated PROFINET interface and loadable FBs
— Data length, max. 32 kbyte		
	— Data length, max.	32 kbyte

<ul> <li>— several passive connections per port, supported</li> </ul>	Yes
ISO-on-TCP (RFC1006)	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
Number of connectable OPs without message processing	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	
supported	No
S7 basic communication	
supported	No
S7 communication	
• supported	Yes
• as server	Yes
as client	Yes
• User data per job, max.	64 kbyte
• User data per job (of which consistent), max.	462 byte; 1 variable
S5 compatible communication	
• supported	Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV)
• User data per job, max.	8 kbyte
User data per job (of which consistent), max.	240 byte
Number of simultaneous AG-SEND/AG-RECV orders per	64/64
CPU, max.	
Standard communication (FMS)	
supported	Yes; Via CP and loadable FB
Number of connections	
overall	96
<ul> <li>usable for PG communication</li> </ul>	
<ul> <li>reserved for PG communication</li> </ul>	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	
— reserved for S7 basic communication	0
	0
usable for S7 basic communication, max.	
- reserved for S7 communication	0
- adjustable for S7 communication, max.	0
usable for routing	
usable for routing     — reserved for routing	0
— adjustable for routing, max.	0
S7 message functions	
	05: May 05 with Alarm S/SO and Alarm D/DO (ODa); may 40 with Alarm
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
Program alarms Process diagnostic messages	Yes
Process diagnostic messages	Yes

blocks, max.	
• 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
Forcing, variables	Inputs/outputs, bit memories, distributed I/Os
Number of variables, max.	512
Diagnostic buffer	512
	Voc
present     Number of optrion, max	Yes
Number of entries, max.	3 200
— adjustable	Yes
— preset	120
Service data	
• 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
Limit class B, for use in residential areas	No
configuration / header	
Configuration software	
• STEP 7	Yes
configuration / programming / header	
Command set	see instruction list
Nesting levels	7
<ul><li>Nesting levels</li><li>Access to consistent data in process image</li></ul>	7 Yes
Access to consistent data in process image	Yes
<ul><li>Access to consistent data in process image</li><li>System functions (SFC)</li></ul>	Yes see instruction list
<ul> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> </ul>	Yes see instruction list
<ul> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language</li> </ul>	Yes see instruction list see instruction list
<ul> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language <ul> <li>LAD</li> <li>FBD</li> </ul> </li> </ul>	Yes see instruction list see instruction list Yes
<ul> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language <ul> <li>LAD</li> </ul> </li> </ul>	Yes see instruction list see instruction list Yes Yes
<ul> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language <ul> <li>LAD</li> <li>FBD</li> <li>STL</li> <li>SCL</li> </ul> </li> </ul>	Yes see instruction list see instruction list Yes Yes Yes Yes
<ul> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language <ul> <li>LAD</li> <li>FBD</li> <li>STL</li> <li>SCL</li> <li>CFC</li> </ul> </li> </ul>	Yes see instruction list see instruction list Yes Yes Yes
<ul> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language <ul> <li>LAD</li> <li>FBD</li> <li>STL</li> <li>SCL</li> <li>CFC</li> <li>GRAPH</li> </ul> </li> </ul>	Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes
<ul> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language <ul> <li>LAD</li> <li>FBD</li> <li>STL</li> <li>SCL</li> <li>CFC</li> <li>GRAPH</li> <li>HiGraph®</li> </ul> </li> </ul>	Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes
<ul> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language <ul> <li>LAD</li> <li>FBD</li> <li>STL</li> <li>SCL</li> <li>CFC</li> <li>GRAPH</li> <li>HiGraph®</li> </ul> </li> </ul>	Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes
<ul> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language <ul> <li>LAD</li> <li>FBD</li> <li>STL</li> <li>SCL</li> <li>CFC</li> <li>GRAPH</li> <li>HiGraph®</li> </ul> </li> <li>configuration / programming / number of simultaneously active</li> <li>RD_REC</li> </ul>	Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes SFC / header 8
<ul> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language <ul> <li>LAD</li> <li>FBD</li> <li>STL</li> <li>SCL</li> <li>CFC</li> <li>GRAPH</li> <li>HiGraph®</li> </ul> </li> <li>configuration / programming / number of simultaneously active</li> <li>RD_REC</li> <li>WR_REC</li> </ul>	Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes SFC / header 8
<ul> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language <ul> <li>LAD</li> <li>FBD</li> <li>STL</li> <li>SCL</li> <li>CFC</li> <li>GRAPH</li> <li>HiGraph®</li> </ul> </li> <li>configuration / programming / number of simultaneously active</li> <li>RD_REC</li> <li>WR_REC</li> <li>WR_PARM</li> </ul>	Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes SFC / header 8 8
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<ul> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language <ul> <li>LAD</li> <li>FBD</li> <li>STL</li> <li>SCL</li> <li>CFC</li> <li>GRAPH</li> <li>HiGraph®</li> </ul> </li> <li>configuration / programming / number of simultaneously actives <ul> <li>RD_REC</li> <li>WR_REC</li> <li>WR_PARM</li> <li>PARM_MOD</li> <li>WR_DPARM</li> </ul> </li> </ul>	Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes SFC / header 8 8 8 1 2
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<ul> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>Programming language <ul> <li>LAD</li> <li>FBD</li> <li>STL</li> <li>SCL</li> <li>CFC</li> <li>GRAPH</li> <li>HiGraph®</li> </ul> </li> <li>configuration / programming / number of simultaneously active</li> <li>RD_REC</li> <li>WR_REC</li> <li>WR_PARM</li> <li>PARM_MOD</li> <li>WR_DPARM</li> <li>DPNRM_DG</li> <li>RDSYSST</li> </ul>	Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes SFC / header 8 8 8 8 8 8 8
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Width	50 mm	
Height Depth	290 mm	
Depth	219 mm	
Weights		
Weight, approx.	995 g	

last modified:

4/1/2022 🖸