## SIEMENS

## Data sheet

## 6ES7414-3FM07-0AB0



SIMATIC S7-400, CPU414F-3 PN/DP Central processing unit with: Work memory 4 MB, (2 MB code, 2 MB data), interfaces 1st interface MPI/DP 12 Mbit/s, (X1), 2nd interface Ethernet/PROFINET (X5) 3rd interface IF 964-DP plug-in (IF1)

General information	
Product type designation	CPU 414F-3 PN/DP
HW functional status	01
Firmware version	V7.0
Product function	
Isochronous mode	Yes; Via PROFIBUS DP or PROFINET interface
Engineering with	
<ul> <li>Programming package</li> </ul>	STEP 7 V5.5 or higher with HSP 262
CiR - Configuration in RUN	
CiR synchronization time, basic load	100 ms
CiR synchronization time, time per I/O byte	15 µs
Supply voltage	
Rated value (DC)	Power supply via system power supply
Input current	
from backplane bus 5 V DC, typ.	1.3 A
from backplane bus 5 V DC, max.	1.6 A
from backplane bus 24 V DC, max.	300 mA; 150 mA per DP interface
from interface 5 V DC, max.	90 mA; At each DP interface
Power loss	
Power loss, typ.	6.5 W
Memory	
Type of memory	RAM
Work memory	
integrated	4 Mbyte
<ul> <li>integrated (for program)</li> </ul>	2 Mbyte
<ul> <li>integrated (for data)</li> </ul>	2 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>	512 kbyte
expandable RAM	Yes; with Memory Card (RAM)
• expandable RAM, max.	64 Mbyte
Backup	
• present	Yes
with battery	Yes; all data
without battery	No
without battery Battery	No
	No 180 μΑ; up to 40 °C

Declara compation of	0504
Backup current, max.	850 µA
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	3 1 0 0 1 3 1 0 0
	18.75 ns
for bit operations, typ.	
for word operations, typ.	18.75 ns
for fixed point arithmetic, typ.	18.75 ns
for floating point arithmetic, typ.	37.5 ns
CPU-blocks	
DB	
<ul> <li>Number, max.</li> </ul>	6 000; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
Number, max.	3 000; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
Number, max.	3 000; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
Number, max.	see instruction list
• Size, max.	64 kbyte
Number of free cycle OBs	1; OB 1
<ul> <li>Number of time alarm OBs</li> </ul>	4; OB 10-13
<ul> <li>Number of delay alarm OBs</li> </ul>	4; OB 20-23
<ul> <li>Number of cyclic interrupt OBs</li> </ul>	4; OB 32, 33, 34, 35 (shortest cycle that can be set = 500 µs)
<ul> <li>Number of process alarm OBs</li> </ul>	4; OB 40-43
<ul> <li>Number of DPV1 alarm OBs</li> </ul>	3; OB 55-57
<ul> <li>Number of isochronous mode OBs</li> </ul>	3; OB 61-63
Number of multicomputing OBs	1; OB 60
Number of background OBs	1; OB 90
Number of startup OBs	2; OB 100, 102
<ul> <li>Number of asynchronous error OBs</li> </ul>	9; OB 80-88
Number of synchronous error OBs	2; OB 121, 122
Nesting depth	_, , ,
per priority class	24
additional within an error OB	1
Counters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	2 040
-	Vac
— adjustable	Yes
- preset	Z 0 to Z 7
Counting range	0
— 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
— preset	No times retentive
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
• present	Yes
• Туре	SFB
···	

Data areas and their researching         Total aversign and back memory (with backup battery)           Field         Total aversign and back memory (with backup battery)           Field         Bobyte: Size of bit memory address area           • Receiving present         Mit 0 to Mit 15           • Receiving present         Mit 0 to Mit 15           • Anuther of ock memories         Bit 1 memory byte           • adjustable:         Bit Network           • adjustable:         Bit Network <th>Number</th> <th>Unlimited (limited only by RAM capacity)</th>	Number	Unlimited (limited only by RAM capacity)
Figs.         Bit Stars, max.         Bit Stars, Sta	Data areas and their retentivity	
• Reaching variableProvide Reserve Re	Retentive data area (incl. timers, counters, flags), max.	Total working and load memory (with backup battery)
• Renervisy positive         Wein           • Renervisy positive         Bit Do Bit 5           • Auriber of clock memories         Bit Nyte           • adjustite, max.         Bit Myte           • function         Bit Myte	Flag	
Headmin by preset         M80 0 to M8 1 5           Number of clock memories         B, in 1 memory byte           Address         B ktyte           Address         B ktyte           Address         B ktyte           Outputs         Getsuit           Outputs         Getsuit </td <td></td> <td>8 kbyte; Size of bit memory address area</td>		8 kbyte; Size of bit memory address area
• Rundber of clock memories         8, in 1 memory byte           Local data         • Ricyte           • Individue, max.         16 ktyte           • Inputs         8 ktyte           Via dofess area         • Ricyte           • Inputs         8 ktyte           • Inputs, adjustable         8 ktyte           • Inputs, adjustable         8 ktyte           • Outputs, adjustable         8 ktyte           • Outputs         6 5 530           • of which central         6 5 536           • Outputs         6 6 536           • Outputs         4 086           • Outputs         4 086           • Outputs         4 086           • Outputs         4 086           • Outputs         10 ktyte	Retentivity available	Yes
Local data     If Brbyte          • adjustable, max.       16 Brbyte          • adjustable, max.       8 Brbyte          • Address series            • Oppdis       9 Brbyte          • Oppdis, digutable       8 Brbyte          • Oppdis       • Oppdis          • Oppdis       • Oppdis          • Oppdis       • Oppdis          • Oppdis       • Oppdis	Retentivity preset	MB 0 to MB 15
Local data     6 byte       • adjustable, max.     16 byte       • protest     8 kbyte       Addross area     6       • (Diputs)     8 kbyte       • (Diputs), diputs)     8 kbyte       • (Diputs)     6 5 58       of which central     4 066		8; in 1 memory byte
- priset     B ktyte       Addross area     -       • inputs     B ktyte       • Oupputs     B ktyte       • Oupputs, adjustable     B ktyte       • Outputs, adjustable     B ktyte       • Outputs     B 5 536       • outputs     B 5 536       • outputs     4 096       • outputs     4 096       • of which central     4 096       • outputs     4 096       • outputs, max.     6       • outputs, max.     6       • Number of connectable MK dota, max.     6       • Number of connectable MK dota, max.     6       • Number of connectable MK	Local data	
Address and         ID address area         • Inputs       8 kbyte         • Outputs       8 kbyte         Process image       8 kbyte         • Outputs, default       266 byte         • Outputs, default       266 byte         • Coulputs, default       266 byte         • Coulputs, default       266 byte         • Councest intage       9         • Number of subprocess images, max.       15         Ølgtal channels       65 536         • Outputs       65 536         - of which central       65 536         • Outputs       65 536         - of which central       65 536         • Outputs       65 536         - of which central       65 536         • Outputs       4 096         • Outputs       4 096         • Outputs       4 096         • Outputs       63         • Munther of connectable IMs (total), max.       6         • Number of connectable IMs (total), max.       6         • Number of connectable IM 4035, max.	<ul> <li>adjustable, max.</li> </ul>	16 kbyte
IVD address area     8 kbyte          • Outputs       8 kbyte         Process image <ul> <li>Inputs, adjustable</li> <li>B kbyte</li> <li>Outputs, adjustable</li> <li>B kbyte</li> <li>Subprocess images</li> <li>Number of subprocess images, max.</li> <li>Optist</li> <li>Outputs</li> <li>Outp</li></ul>	• preset	8 kbyte
<ul> <li>inputs</li> <li>inputs</li> <li>Keyle</li> <li>Outputs</li> <li>Keyle</li> <li>Outputs, adjustable</li> <li>Keyle</li> <li>Outputs, adjustable</li> <li>Keyle</li> <li>Stryte</li> <li>Outputs, adjustable</li> <li>Keyle</li> <li>Stryte</li> <li>Stryte</li> <li>outputs, default</li> <li>Stryte</li> <li>Constantion</li> <li>Stryte</li> <li>Control and an analysis</li> <li>Stryte</li> <li>Outputs, default</li> <li>Stryte</li> <li>Constantion</li> <li>Stryte</li> <li>Stryte</li></ul>	Address area	
Outputs         B keyte           Process image         -           - Inputs, adjustable         B kbyte           - Outputs, adjustable         Steprocess images           - Outputs, adjustable         Yes           Steprocess images         Yes           Steprocess images         Yes           Steprocess images         Steprocess images, max.           - Number of subprocess images, max.         15           Digital channels         65 536           - Or which central         65 536           - Or which central         4 096           - Number of connectab	I/O address area	
Outputs         B keyte           Process image         -           - Inputs, adjustable         B kbyte           - Outputs, adjustable         Steprocess images           - Outputs, adjustable         Yes           Steprocess images         Yes           Steprocess images         Yes           Steprocess images         Steprocess images, max.           - Number of subprocess images, max.         15           Digital channels         65 536           - Or which central         65 536           - Or which central         4 096           - Number of connectab	Inputs	8 kbyte
Process image <ul> <li>Inputs, adjustable</li> <li>Sktyte</li> <li>Oruputs, default</li> <li>266 byte</li> <li>Oruputs, default</li> <li>Consistent data max.</li> <li>244 byte</li> <li>Access to consistent data in process image</li> <li>Yes</li> <li>Subprocess images</li> <li>Inputs</li> <li>of statistent data in process image</li> <li>Statistent data in process images</li> <li>Inputs</li> <li>of visite data mases</li> <l< td=""><td>-</td><td></td></l<></ul>	-	
<ul> <li>Inputs, adjustable</li> <li>Rubyte</li> <li>Cuputs, adjustable</li> <li>Rubyte</li> <li>Cuputs, adjustable</li> <li>Rubyte</li> <li>Cuputs, default</li> <li>Cefe byte</li> <li>Consistent data. max.</li> <li>Consistent data. max.</li> <li>Subprocess images</li> <li>Number of subprocess images, max.</li> <li>Consistent data. max.</li> <li>Consistent data. max.</li> <li>Subprocess images</li> <li>Number of subprocess images, max.</li> <li>Consistent data. max.</li> <li>Consistent data. max.</li> <li>Subprocess images</li> <li>Number of subprocess images, max.</li> <li>Consistent data.</li> <li>Sistencess.</li> <li>Sistencess.</li> <li>Consistent data.</li> <li>Consistent data.</li> <li>Consistencess.</li> <li>Consistent data.</li> <li>Consistent data.</li> <li>Consistencess.</li> <li>Consistencess.</li></ul>		
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<ul> <li>Inputs, default</li> <li>Outputs, default</li> <li>Consistent data, max.</li> <li>Access to consistent data in process image</li> <li>Yes</li> <li>Subprocess images, max.</li> <li>15</li> <li>Digital channels</li> <li>- of which central</li> <li>65 536</li> <li>Outputs</li> <li>65 536</li> <li>Outputs</li> <li>65 536</li> <li>Outputs</li> <li>65 536</li> <li>Analog channels</li> <li>- of which central</li> <li>65 536</li> <li>Outputs</li> <li>4096</li> <li>Outputs</li> <li>Advare of connectable Ms (total), max.</li> <li>6</li> <li>Number of connectable Mde0s, max.</li> <li>6</li> <li>Number of connectable Mde0s, max.</li> <li>70 CP 443-5 Extended</li> <li>40 Mde32&lt;</li></ul>		
Outputs, default     consistent data, max.     244 byte     consistent data, max.     244 byte     consistent data in process image     Supprocess images     consistent data in process image     supprocess images, max.     Supprocess images, max.     15     Cipitat channels     convertent data in process images, max.     Supprocess images, max.     forputs     inputs     convertent data in process images, max.     inputs     convertent data, data data data data data data da		
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Subprocess images       15         Digital channels       65 536         - of which central       4 096         Wintborg/guilding       Yes; 4 CPUs max. (with UR1 or UR2)         Interface modules       6         • Number of connectable IM 463s, max.       6         • Number of connectable IM 463s, max.       6         • Number of Connectable IM 463s, max.       1         • via CP       10; CP 443-5 Extended         • via IM 467       4         • Number of ID paralles       1; IF 964-DP         • Number of IO Controllers       6         • via CP       1; IF 964-DP         • via CP       4; Max. 4 in the central controller, no mixed operation of different CP 443-1 in PROFINET IO mode         • via		
• Number of subprocess images, max.       15         Digital channels       65 536         • Inputs       65 536         • Outputs       65 536         • Inputs       4096         • of which central       4096         • Outputs       4096         • Number of connectable Max, max.       21         • Number of connectable MMs (total), max.       6         • Number of connectable MM 460s, max.       6         • Via IM 477       4         • Via CP		
Digital channels       6         • Inputs       65 536         of which central       65 536         of which central       65 536         of which central       65 536         Analog channels       4 096         of which central       4 096         ot which central       4 096         ot which central       4 096         ot which central       1 0; CP 443-5         - Number of connectable IM 460s, max.       6         - integrated       1         <		15
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of which central     of 538     outputs         65 536     outputs         65 536     outputs         65 536     outputs         of which central         65 536     outputs         of which central         4096         outputs         vis which central         4096         outputs         vis which central         4096         outputs         vis Ves; 4 CPUs max. (with UR1 or UR2)         Interface module         OPs         ves; 4 CPUs max. (with UR1 or UR2)         Interface module         outputs         ves; 4 CPUs max. (with UR1 or UR2)         Interface module         outputs         ves; 4 CPUs max. (with UR1 or UR2)         Interface module         outputs         ves; 4 CPUs max. (with UR1 or UR2)         Interface module         outputs         ves; 4 CPUs max. (with UR1 or UR2)         Interface module         outputs         ves; 4 CPUs max. (with UR1 or UR2)         Interface module         outputs         ves; 4 CPUs max. (with 46-2         ves; 4 CPUs max. (with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode         via integrated		65 536
• Outputs         65 536           Analog channels         4096           • Inputs         4096           • of which central         4096           • Outputs         4096           • Outputs         4096           • of which central         4096           • Outputs         4096           • of which central         4096           • Outputs         4096           • of which central         4096           • Muthe configuration         21           Connectable OPs         63           Multicomputing         Yes; 4 CPUs max. (with UR1 or UR2)           Interface modules         6           • Number of connectable IMs (total), max.         6           • Number of connectable IMs (total), max.         6           • Number of connectable IMs 460s, max.         6           • wia Interface module         1); CP 443-5 Extended           • wia CP         No; IM 467 cannot be use		
of which central       66 536         Analog channels       4 096        of which central       4 096         - of which central       4 096         Indegrated       6         Somectable IMs (total), max.       6         • Number of connectable IMs (total), max.       6         • Number of connectable IMs 460s, max.       6         • Number of connectable IMs 460s, max.       1         • Number of connectable IMs 460s, max.       6         • Number of connectable IMs 40s, max.       1         • Number of DP masters       1         • Number of ID Controllers       1         • via interface module       1; IF 964-DP         •		
Analog channels       4 096         - of which central       4 096         Hardware configuration       21         connectable OPs       63         Muticomputing       Yes; 4 CPUs max. (with UR1 or UR2)         Interface modules       6         • Number of connectable IMs (total), max.       6         • Number of connectable IM 460s, max.       6         • via CP       10; CP 443-5 Extended         • via IM 467       4         • Mixed mode IM + CP permitted       PROFINET IO mode         • via interface module       1; IF 964-DP         • Number of IO Controllers       6         • integrated       1         • integrated       1         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 in PROFINET IO mode         Number of IO Controllers       1         • integrated       1		
• Inputs     4 096       of which central     4 096       • Outputs     4 096       of which central     4 096       Hardware configuration     4 096       Hardware configuration     21       Number of expansion units, max.     21       connectable OPs     63       Multicomputing     Yes; 4 CPUs max. (with UR1 or UR2)       Interface modules     6       • Number of connectable IM 460s, max.     6       • Number of DP masters     1       • integrated     1       • via CP     10; CP 443-5 Extended       • wia M467     4       • Mixed mode IM + CP permitted     No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode       • via interface modules     1, IF 964-DP       • wia interface module     1       • via CP     4; Max. 4 in the central controller; no mixed operation of different CP 443-1 in PROFINET IO mode       • via CP     4; Max. 4 in the central controller; no mixed operation of different CP 443-1 in PROFINET on mode       • via CP     1       • via CP     1       • w		
- of which central4 096• Outputs4 096- of which central4 096Hardware configuration4 096Number of expansion units, max.21connectable OPs63MutticomputingYes; 4 CPUs max. (with UR1 or UR2)Interface modules6• Number of connectable IMs (total), max.6• Number of connectable IM 460s, max.6• Number of De masters1• Integrated1• Number of De masters1• Niked mode IM + CP permittedNo: IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET 10 mode• Via interface module1; IF 964-DP• Number of IO Controllers6• Integrated1• Integrated1• Via CP4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO modeNumber of IO Controllers1• Integrated1• KMLimited by number of slots and number of connections• CPPP• FMLimited by number of slots and number of slots	-	4.096
• Outputs       4 096         — of which central       4 096         Hardware configuration       21         Number of expansion units, max.       21         connectable OPs       63         Multicomputing       Yes; 4 CPUs max. (with UR1 or UR2)         Interface modules       6         • Number of connectable IM 460s, max.       6         • Number of DP masters       1         • integrated       1         • via CP       10; CP 443-5 Extended         • via IM 467       4         • Wixed mode IM + CP permitted       No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode         • via interface module       1; IF 964-DP         • via interface modules       1         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 tin PROFINET IO mode         • via CP       1         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 ty per in PROFINET io		
- of which central       4 096         Hardware configuration       21         Number of expansion units, max.       21         connectable OPs       63         Multicomputing       Yes; 4 CPUs max. (with UR1 or UR2)         Interface modules       6         • Number of connectable IMs (total), max.       6         • Number of connectable IMs (total), max.       6         • Number of connectable IM 460s, max.       6         • Number of connectable IM 463s, max.       4; IM 463-2         Number of DP masters       1         • integrated       1         • via CP       10; CP 443-5 Extended         • via IM 467       4         • Mixed mode IM + CP permitted       No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode         • via interface module       1; IF 964-DP         • Number of pluggable S5 modules (via adapter capsule in central device), max.       6         Number of Ocontrollers       -         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 the proFINET IO mode         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 the proFINET iO mode         • via CP       1       +         • via CP       1       +		
Hardware configuration       21         Number of expansion units, max.       21         connectable OPs       63         Multicomputing       Yes; 4 CPUs max. (with UR1 or UR2)         Interface modules       6         • Number of connectable IMs (total), max.       6         • Number of connectable IMs (total), max.       6         • Number of connectable IM 460s, max.       6         • Number of DP masters       1         • via CP       10; CP 443-5 Extended         • via IM 467       4         • Mixed mode IM + CP permitted       No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode         • via interface module       1; IF 964-DP         • Number of pluggable S5 modules (via adapter capsule in central device), max.       6         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 the PROFINET IO mode         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 the pres in PROFINET IO mode         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 the pres in PROFINET IO mode         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 the pres in PROFINET IO mode         • via CP       1       CP 440: Limited by number of slots; CP 441: Limited by	•	
Number of expansion units, max.       21         connectable OPs       63         Multicomputing       Yes; 4 CPUs max. (with UR1 or UR2)         Interface modules       6         • Number of connectable IMs (total), max.       6         • Number of connectable IM 460s, max.       6         • Number of connectable IM 460s, max.       6         • Number of DP masters       1         • integrated       1         • via CP       10; CP 443-5 Extended         • via IM 467       4         • Mixed mode IM + CP permitted       No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode         • via interface module       1; IF 964-DP         • Number of IO Controllers       6         • via CP       4         • via CP       4         • Number of IO Controllers       6         • via CP       4         • via CP       4         • via CP       4         • Via CP       4         • Number of IO Controllers       6         • via CP       4         • via CP       4         • Via CP       4         • Via CP       4         • Via CP       4 <t< td=""><td></td><td>4 090</td></t<>		4 090
connectable OPs       63         Multicomputing       Yes; 4 CPUs max. (with UR1 or UR2)         Interface modules       6         • Number of connectable IMs (total), max.       6         • Number of connectable IM 460s, max.       6         • Number of connectable IM 460s, max.       6         • Number of DP masters       1         • integrated       1         • via CP       10; CP 443-5 Extended         • wixed mode IM + CP permitted       NOF CH43-5 Extended         • Wixed mode IM + CP permitted       Nor CP 10; M467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode         • via interface module       1; IF 964-DP         • Number of IO Controllers       6         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         • via CP       1       1		21
Multicomputing       Yes; 4 CPUs max. (with UR1 or UR2)         Interface modules       6         • Number of connectable IMs (total), max.       6         • Number of connectable IM 460s, max.       6         • Number of connectable IM 460s, max.       6         • Number of DP masters       1         • via CP       10; CP 443-5 Extended         • via IM 467       4         • Mixed mode IM + CP permitted       No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode         • via interface module       1; IF 964-DP         • Number of pluggable S5 modules (via adapter capsule in central device), max.       6         Number of IO Controllers       1         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         • via CP       1         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         • via CP       1         • via CP       2         • PROFIBUS and Ethernet CPs       1		
Interface modules       6         • Number of connectable IMs (total), max.       6         • Number of connectable IM 460s, max.       6         • Number of connectable IM 463s, max.       4; IM 463-2         Number of DP masters       1         • via CP       10; CP 443-5 Extended         • via IM 467       4         • Wixed mode IM + CP permitted       No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode         • via interface module       1; IF 964-DP         • Number of pluggable S5 modules (via adapter capsule in central device), max.       6         Number of IO Controllers       1         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         • via CP       1         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         • via CP       1         • Via CP<		
• Number of connectable IMs (total), max.       6         • Number of connectable IM 460s, max.       6         • Number of connectable IM 463s, max.       4; IM 463-2         Number of DP masters       1         • integrated       1         • via CP       10; CP 443-5 Extended         • wind P4       4         • Mixed mode IM + CP permitted       4         • Mixed mode IM + CP permitted       No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode         • via interface module       1; IF 964-DP         • Number of IO Controllers       6         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         Number of operable FMs and CPs (recommended)       1         • FM       Limited by number of slots and number of connections         • CP, PtP       CP 440: Limited by number of slots; CP 441: Limited by number of slots; and number of connections         • PROFIBUS and Ethernet CPs       14; In total max. 10 CPs as DP master and PROFINET controller; of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller		res, 4 CPOs max. (with ORT of OR2)
• Number of connectable IM 460s, max.       6         • Number of connectable IM 463s, max.       4; IM 463-2         Number of DP masters       1         • integrated       1         • via CP       10; CP 443-5 Extended         • via IM 467       4         • Mixed mode IM + CP permitted       No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode         • via interface module       1; IF 964-DP         • via interface module       1; IF 964-DP         • Number of pluggable S5 modules (via adapter capsule in central device), max.       6         Number of IO Controllers       1         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         Number of operable FMs and CPs (recommended)       1         • FM       Limited by number of slots and number of connections         • CP, PtP       CP 440: Limited by number of slots; CP 441: Limited by number of slots; and number of slots; CP 441: Limited by number of slots; CP 440: Limited by		0
• Number of connectable IM 463s, max.       4; IM 463-2         Number of DP masters       1         • integrated       1         • via CP       10; CP 443-5 Extended         • via IM 467       4         • Mixed mode IM + CP permitted       No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode         • via interface module       1; IF 964-DP         • Number of pluggable S5 modules (via adapter capsule in central device), max.       6         Number of IO Controllers       1         • integrated       1         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         Number of operable FMs and CPs (recommended)       Limited by number of slots and number of connections         • CP, PtP       CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections         • CP, PtP       CP 440: Limited by number of slots; CP 441: Limite		
Number of DP masters         integrated       1         via CP       10; CP 443-5 Extended         integrated       4         Nixed mode IM + CP permitted       No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode         interface module       1; IF 964-DP         Number of pluggable S5 modules (via adapter capsule in central device), max.       6         Number of IO Controllers       1         integrated       1         via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         Number of operable FMs and CPs (recommended)       1         FM       Limited by number of slots and number of connections         CP, PtP       CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of slots; CP 441: Limited by number of slots and number of connections         PROFIBUS and Ethernet CPs       14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller		
• integrated       1         • via CP       10; CP 443-5 Extended         • via IM 467       4         • Mixed mode IM + CP permitted       No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode         • via interface module       1; IF 964-DP         • Number of pluggable S5 modules (via adapter capsule in central device), max.       6         Number of IO Controllers       6         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         Number of operable FMs and CPs (recommended)       1         • FM       Limited by number of slots and number of connections         • CP, PtP       CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of slots and number of slots; CP 441: Limited by number of slots and number of slots and number of slots and number of slots and number of slots; CP 441: Limited by number of slots and number of slots; CP 441: Limited by number of slots and number of slots; CP 441: Limited by number of slots and number of connections         • PROFIBUS and Ethernet CPs       14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller		4, IVI 403-2
• via CP10; CP 443-5 Extended• via IM 4674• Mixed mode IM + CP permittedNo; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode• via interface module1; IF 964-DP• Number of pluggable S5 modules (via adapter capsule in central device), max.6Number of IO Controllers1• via CP1• via CP1• via CP4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode• Number of operable FMs and CPs (recommended)1• FMLimited by number of slots and number of connections• CP, PtPCP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections• PROFIBUS and Ethernet CPs14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller		4
• via IM 4674• Mixed mode IM + CP permittedNo; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode• via interface module1; IF 964-DP• Number of pluggable S5 modules (via adapter capsule in central device), max.6Number of IO Controllers1• via CP4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode• via CP4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode• FM • CP, PtPLimited by number of slots and number of connections CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections• PROFIBUS and Ethernet CPs14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller	<b>C</b>	
• Mixed mode IM + CP permittedNo; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode• via interface module1; IF 964-DP• Number of pluggable S5 modules (via adapter capsule in central device), max.6Number of IO Controllers1• integrated1• via CP4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO modeNumber of operable FMs and CPs (recommended)Limited by number of slots and number of connections• FMLimited by number of slots; CP 441: Limited by number of slots and number of connections• PROFIBUS and Ethernet CPs14; In total max. 10 CPs as DP master and PROFINET controller; of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller		
PROFINET IO mode         • via interface module       1; IF 964-DP         • Number of pluggable S5 modules (via adapter capsule in central device), max.       6         Number of IO Controllers       1         • integrated       1         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         Number of operable FMs and CPs (recommended)       Limited by number of slots and number of connections         • FM       Limited by number of slots; CP 441: Limited by number of slots and number of connections         • CP, PtP       CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections         • PROFIBUS and Ethernet CPs       14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller		
• via interface module1; IF 964-DP• Number of pluggable S5 modules (via adapter capsule in central device), max.6Number of IO Controllers1• integrated1• via CP4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO modeNumber of operable FMs and CPs (recommended)Limited by number of slots and number of connections• FMLimited by number of slots and number of connections• CP, PtPCP 440: Limited by number of slots; CP 441: Limited by number of slots and number of slots; and number of slots as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller	<ul> <li>Mixed mode IM + CP permitted</li> </ul>	
<ul> <li>Number of pluggable S5 modules (via adapter capsule in central device), max.</li> <li>Number of IO Controllers         <ul> <li>integrated</li> <li>via CP</li> <li>Mumber of operable FMs and CPs (recommended)</li> </ul> </li> <li>FM         <ul> <li>CP, PtP</li> <li>CP 440: Limited by number of slots and number of slots; CP 441: Limited by number of slots and number of slots; CP 441: Limited by number of slots and number of slots and number of slots and number of slots; CP 441: Limited by number of slots and number of slots; CP 441: Limited by number of slots and number of connections</li> <li>PROFIBUS and Ethernet CPs</li> <li>14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller</li> </ul> </li> </ul>	• via interface module	
central device), max.         Number of IO Controllers         • integrated       1         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         Number of operable FMs and CPs (recommended)       Example         • FM       Limited by number of slots and number of connections         • CP, PtP       CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections         • PROFIBUS and Ethernet CPs       14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller		
• integrated       1         • via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         Number of operable FMs and CPs (recommended)       •         • FM       Limited by number of slots and number of connections         • CP, PtP       CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections         • PROFIBUS and Ethernet CPs       14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller		
• via CP       4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode         • Number of operable FMs and CPs (recommended)       • EM         • FM       Limited by number of slots and number of connections         • CP, PtP       CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections         • PROFIBUS and Ethernet CPs       14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller	Number of IO Controllers	
types in PROFINET IO mode         Number of operable FMs and CPs (recommended)         • FM       Limited by number of slots and number of connections         • CP, PtP       CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections         • PROFIBUS and Ethernet CPs       14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller	• integrated	1
Number of operable FMs and CPs (recommended)         • FM       Limited by number of slots and number of connections         • CP, PtP       CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections         • PROFIBUS and Ethernet CPs       14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller	• via CP	
<ul> <li>FM</li> <li>CP, PtP</li> <li>CP 440: Limited by number of slots and number of connections</li> <li>CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections</li> <li>PROFIBUS and Ethernet CPs</li> <li>14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller</li> </ul>		types in PROFINET IO mode
<ul> <li>CP, PtP</li> <li>CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections</li> <li>PROFIBUS and Ethernet CPs</li> <li>14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller</li> </ul>		
PROFIBUS and Ethernet CPs     PROFIBUS and Ethernet CPs     14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller		-
• PROFIBUS and Ethernet CPs 14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller	• CP, PtP	
to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller	• DECEIDING and Ethernet CDa	
	• FRUFIDUS and Ethemet UPS	
SIOIS	Slots	

•	required	slots
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required slots	2
Time of day	
Clock	
<ul> <li>Hardware clock (real-time)</li> </ul>	Yes
<ul> <li>retentive and synchronizable</li> </ul>	Yes
Resolution	1 ms
<ul> <li>Deviation per day (buffered), max.</li> </ul>	1.7 s; Power off
<ul> <li>Deviation per day (unbuffered), max.</li> </ul>	8.6 s; For 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
• on MPI, device	Yes
• to DP, master	Yes
	Yes
• on DP, device	
• in AS, master	Yes
• in AS, device	Yes
• on Ethernet via NTP	Yes; As client
• to IF 964 DP	Yes
Time difference in system when synchronizing via	
<ul> <li>Ethernet, max.</li> </ul>	10 ms
• MPI, max.	200 ms
Interfaces	
Interfaces/bus type	1 x MPI/PROFIBUS DP, 1 x PROFINET (2 ports), 1 x PROFIBUS DP (optionally pluggable)
Number of RS 485 interfaces	1; Combined MPI / PROFIBUS DP
Number of other interfaces	1; PROFIBUS DP with IF 964-DP (plug-in option; MLFB: 6ES7964-2AA04-
A Interface	0AB0)
1. Interface	
Interface type	MPI/PROFIBUS DP
Isolated	Yes
Interface types	
• RS 485	Yes
Output current of the interface, max.	150 mA
Protocols	
• MPI	Yes
<ul> <li>PROFIBUS DP master</li> </ul>	Yes
PROFIBUS DP device	Yes
MPI	
Number of connections	32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1
<ul> <li>Transmission rate, max.</li> </ul>	12 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes
- S7 communication, as client	Yes
— S7 communication, as server	Yes
PROFIBUS DP master	
Number of connections, max.	16; If a diagnostics repeater is used on the line, the number of connection
<b>—</b> · · · ·	resources on the line is reduced by 1
Transmission rate, max.	12 Mbit/s
• max. number of DP devices	32
Services	
<ul> <li>— PG/OP communication</li> </ul>	Yes

— Routing	Yes; S7 routing
<ul> <li>— Global data communication</li> </ul>	No
<ul> <li>— S7 basic communication</li> </ul>	Yes
- S7 communication	Yes
<ul> <li>— S7 communication, as client</li> </ul>	Yes
<ul> <li>— S7 communication, as server</li> </ul>	Yes
— Equidistance	Yes
— Isochronous mode	Yes
- SYNC/FREEZE	Yes
<ul> <li>activation/deactivation of DP devices</li> </ul>	Yes
<ul> <li>— Direct data exchange (slave-to-slave</li> </ul>	Yes
communication)	
— DPV1	Yes
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
User data per DP device	
— user data per DP device, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
1st interface / PROFIBUS DP device / header	
Number of connections	16
• GSD file	http://support.automation.siemens.com/WW/view/en/113652
Transmission rate, max.	12 Mbit/s
automatic baud rate search	No
<ul> <li>Address area, max.</li> </ul>	32; Virtual slots
User data per address area, max.	32 byte
— of which consistent, max.	32 byte
Services	02.07.0
— PG/OP communication	Yes; with interface active
- Routing	Yes; with interface active
— Global data communication	No
— S7 basic communication	No
- S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
<ul> <li>Direct data exchange (slave-to-slave communication)</li> </ul>	No
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2. Interface	
	PROFINET
Interface type	
Isolated	Yes
automatic detection of transmission rate	Yes; Autosensing
Autonegotiation	Yes
Autocrossing	Yes
Change of IP address at runtime, supported	Yes; Assignment by higher-level IO-Controller or by the user program with SFB104 "IP_CONF"
Interface types	
RJ 45 (Ethernet)	Yes
Number of ports	2
<ul> <li>integrated switch</li> </ul>	Yes
Protocols	
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
PROFINET CBA	Yes
PROFIBUS DP master	No
PROFIBUS DP device	No

Open IE communication	Yes
Web server	Yes
Point-to-point connection	No
Media redundancy	Yes
PROFINET IO Controller	
Transmission rate, max.	100 Mbit/s
Services	
— PG/OP communication	Yes
— S7 communication	Yes
— Isochronous mode	Yes; Only with IRT and the High Performance option
— Shared device	Yes
— Prioritized startup	Yes
<ul> <li>— Number of IO devices with prioritized startup, max.</li> </ul>	32
<ul> <li>Number of connectable IO Devices, max.</li> </ul>	256
<ul> <li>— Of which IO devices with IRT, max.</li> </ul>	64
— of which in line, max.	64
<ul> <li>— Number of IO Devices with IRT and the option "high flexibility"</li> </ul>	256
— of which in line, max.	61
— Number of connectable IO Devices for RT, max.	256
— of which in line, max.	256
Activation/deactivation of IO Devices	Yes
<ul> <li>Number of IO Devices that can be simultaneously activated/deactivated, max.</li> </ul>	8
<ul> <li>IO Devices changing during operation (partner ports), supported</li> </ul>	
— Number of IO Devices per tool, max.	8; 8 parallel calls of the SFC 12 "D_ACT_DP" possible per line. Max. 32 IO Devices changing during operation (partner ports) are supported
Device replacement without swap medium	Yes
— Send cycles	250 $\mu s,$ 500 $\mu s,$ 1 ms, 2 ms, 4 ms additionally with IRT with high performance: 250 $\mu s$ to 4 ms in 125 $\mu s$ frame
— Updating time	250 μs to 512 ms; minimum value depends on preset communication share for PROFINET IO, on the number of IO Devices and on the amount of configured user data, see PROFINET system description
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
— User data consistency, max.	1 024 byte
PROFINET IO Device	
Services	
— PG/OP communication	Yes
— S7 communication	Yes
— Isochronous mode	No
— IRT	Yes
— Prioritized startup	Yes
— Shared device	Yes
— Number of IO Controllers with shared device, max.	2
Transfer memory	1.440 byte: Por IO Controllor with abared device
— Inputs, max. — Outputs, max	1 440 byte; Per IO Controller with shared device
— Outputs, max. Submodules	1 440 byte; Per IO Controller with shared device
— Number, max.	64
— User data per submodule, max.	1 024 byte
PROFINET CBA	
acyclic transmission	Yes
cyclic transmission	Yes
Open IE communication	
Number of connections, max.	62
Local port numbers used at the system end	0, 20, 21, 25, 80, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535
<ul> <li>Keep-alive function, supported</li> </ul>	Yes
3. Interface	
Interface type	Pluggable interface module (IF)

Plug-in interface modules	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0)
Isolated	Yes
automatic detection of transmission rate	No
Interface types	
• RS 485	Yes
Output current of the interface, max.	150 mA
Protocols	130 11/4
• MPI	No
PROFIBUS DP master	Yes
PROFIBUS DP device	Yes
PROFIBUS DP master	165
Number of connections, max.	16
Transmission rate, max.	12 Mbit/s
max. number of DP devices	96
Services	90
	Vec
— PG/OP communication	Yes
— Routing	Yes; S7 routing
- Global data communication	No
- S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	Yes
- SYNC/FREEZE	Yes
<ul> <li>activation/deactivation of DP devices</li> </ul>	Yes
<ul> <li>— Direct data exchange (slave-to-slave communication)</li> </ul>	Yes
— DPV0	Yes
— DPV1	Yes
Address area	
— Inputs, max.	6 kbyte
— Outputs, max.	6 kbyte
User data per DP device	
— user data per DP device, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
3rd interface / PROFIBUS DP device / header	
Number of connections	16
• GSD file	http://support.automation.siemens.com/WW/view/en/113652
<ul> <li>transfer rate / at the 3rd interface / as DP slave / maximum</li> </ul>	12 Mbit/s
<ul> <li>automatic baud rate search</li> </ul>	No
Address area, max.	32; Virtual slots
<ul> <li>User data per address area, max.</li> </ul>	32 byte
— of which consistent, max.	32 byte
Services	
— PG/OP communication	Yes
— Routing	Yes; with interface active
<ul> <li>— Global data communication</li> </ul>	No
— S7 basic communication	No
— S7 communication	Yes
<ul> <li>— S7 communication, as client</li> </ul>	Yes
- S7 communication, as server	Yes
<ul> <li>— Direct data exchange (slave-to-slave communication)</li> </ul>	No
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte

Protocols	
Redundancy mode	
Media redundancy	
— Switchover time on line break, typ.	200 ms
<ul> <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.	62
— Data length, max.	32 kbyte
— bata length, max.     — several passive connections per port, supported	Yes
ISO-on-TCP (RFC1006)	Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs
	62
<ul><li>— Data length, max.</li><li>● UDP</li></ul>	32 kbyte; 1 452 bytes via CP 443-1 Adv.
	Yes; via integrated PROFINET interface and loadable FBs 62
— Number of connections, max.	
— Data length, max. Web server	1 472 byte
	Yes
supported	
User-defined websites     Number of HTTP clients	Yes 5
Number of HTTP clients	
Isochronous mode	
Equidistance	Yes
Number of DP masters with isochronous mode	2
User data per isochronous slave, max.	244 byte
shortest clock pulse	1 ms; 0.5 ms without use of SFC 126, 127
max. cycle	32 ms
communication functions / header	
PG/OP communication	Yes
<ul> <li>Number of connectable OPs with message processing</li> </ul>	63; When using Alarm_S/SQ and Alarm_D/DQ
<ul> <li>Number of connectable OPs without message processing</li> </ul>	63
Data record routing	Yes
Global data communication	
supported	Yes
<ul> <li>Number of GD loops, max.</li> </ul>	8
<ul> <li>Number of GD packets, transmitter, max.</li> </ul>	8
<ul> <li>Number of GD packets, receiver, max.</li> </ul>	16
<ul> <li>Size of GD packets, max.</li> </ul>	54 byte
<ul> <li>Size of GD packet (of which consistent), max.</li> </ul>	1 variable
S7 basic communication	
<ul> <li>supported</li> </ul>	Yes
<ul> <li>User data per job, max.</li> </ul>	76 byte
<ul> <li>User data per job (of which consistent), max.</li> </ul>	1 variable
S7 communication	
supported	Yes
• as server	Yes
• as client	Yes
<ul> <li>User data per job, max.</li> </ul>	64 kbyte
<ul> <li>User data per job (of which consistent), max.</li> </ul>	462 byte; 1 variable
S5 compatible communication	
<ul> <li>supported</li> </ul>	Yes; Via FC AG_SEND and AG_RECV, max. via 10 CP 443-1 or 443-5
<ul> <li>User data per job, max.</li> </ul>	8 kbyte
	240 byte
<ul> <li>User data per job (of which consistent), max.</li> </ul>	
Number of simultaneous AG-SEND/AG-RECV orders per	24/24
Number of simultaneous AG-SEND/AG-RECV orders per CPU, max.	24/24
Number of simultaneous AG-SEND/AG-RECV orders per CPU, max. Standard communication (FMS)	
Number of simultaneous AG-SEND/AG-RECV orders per CPU, max. Standard communication (FMS)     supported	Yes; Via CP and loadable FB
Number of simultaneous AG-SEND/AG-RECV orders per CPU, max. Standard communication (FMS)     supported communication functions / PROFINET CBA (with set target communication)	Yes; Via CP and loadable FB Inication load) / header
Number of simultaneous AG-SEND/AG-RECV orders per CPU, max. Standard communication (FMS)     supported	Yes; Via CP and loadable FB

number of master/device functions	150
total of all master/device connections	4 500
<ul> <li>data length of all incoming master/device connections, max.</li> </ul>	45 000 byte
<ul> <li>data length of all outgoing master/device connections, max.</li> </ul>	45 000 byte
Number of device-internal and PROFIBUS     interconnections	1 000
<ul> <li>Data length of device-internal und PROFIBUS interconnections, max.</li> </ul>	16 000 byte
Data length per connection, max.	2 000 byte
performance data / PROFINET CBA / remote interconnection	
— Sampling interval, min.	200 ms; Depending on preset communication load, number of interconnections
- Number of incoming interconnections	and data length used
-	250
— Number of outgoing interconnections	
<ul> <li>Data length of all incoming interconnections, max.</li> </ul>	8 000 byte
<ul> <li>Data length of all outgoing interconnections, max.</li> </ul>	8 000 byte
— Data length per connection, max.	2 000 byte
performance data / PROFINET CBA / remote interconnection	•
<ul> <li>Transmission frequency: Transmission interval, min.</li> </ul>	1 ms; Depending on preset communication load, number of interconnections and data length used
<ul> <li>Number of incoming interconnections</li> </ul>	300
<ul> <li>Number of outgoing interconnections</li> </ul>	300
<ul> <li>Data length of all incoming interconnections, max.</li> </ul>	4 800 byte
<ul> <li>Data length of all outgoing interconnections, max.</li> </ul>	4 800 byte
<ul> <li>— Data length per connection, max.</li> </ul>	450 byte
performance data / PROFINET CBA / HMI variables via PROF	INET / acyclic / header
<ul> <li>— Number of stations that can log on for HMI variables (PN OPC/iMap)</li> </ul>	2x PN OPC/1x iMap
— HMI variable updating	500 ms
<ul> <li>— Number of HMI variables</li> </ul>	1 000
<ul> <li>— Data length of all HMI variables, max.</li> </ul>	32 000 byte
performance data / PROFINET CBA / PROFIBUS proxy function	ionality / header
— supported	Yes; 32 PROFIBUS slaves max. connectable
<ul> <li>Data length per connection, max.</li> </ul>	240 byte; Slave-dependent
Number of connections	
• overall	64
<ul> <li>usable for PG communication</li> </ul>	63
<ul> <li>reserved for PG communication</li> </ul>	1
<ul> <li>adjustable for PG communication, max.</li> </ul>	0
<ul> <li>usable for OP communication</li> </ul>	63
<ul> <li>reserved for OP communication</li> </ul>	1
<ul> <li>adjustable for OP communication, max.</li> </ul>	0
usable for S7 basic communication	62
- reserved for S7 basic communication	0
— adjustable for S7 basic communication, max.	0
usable for S7 communication	62
<ul> <li>reserved for S7 communication</li> </ul>	0
<ul> <li>reserved for S7 communication</li> <li>adjustable for S7 communication, max.</li> </ul>	0 0
— adjustable for S7 communication, max.	0
<ul><li>— adjustable for S7 communication, max.</li><li>• usable for routing</li></ul>	0 31
<ul> <li>— adjustable for S7 communication, max.</li> <li>• usable for routing</li> <li>— reserved for routing</li> <li>— adjustable for routing, max.</li> </ul>	0 31 0
<ul> <li>adjustable for S7 communication, max.</li> <li>usable for routing</li> <li>reserved for routing</li> </ul>	0 31 0 0 63; Max. 63 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm,
<ul> <li>adjustable for S7 communication, max.</li> <li>usable for routing         <ul> <li>reserved for routing</li> <li>adjustable for routing, max.</li> </ul> </li> <li>S7 message functions         <ul> <li>Number of login stations for message functions, max.</li> </ul> </li> </ul>	0 31 0 0 63; Max. 63 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC)
<ul> <li>adjustable for S7 communication, max.</li> <li>usable for routing         <ul> <li>reserved for routing</li> <li>adjustable for routing, max.</li> </ul> </li> <li>S7 message functions         <ul> <li>Number of login stations for message functions, max.</li> </ul> </li> <li>Symbol-related messages</li> </ul>	0 31 0 0 63; Max. 63 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes
adjustable for S7 communication, max.     • usable for routing         reserved for routing         adjustable for routing, max.     S7 message functions     Number of login stations for message functions, max.     Symbol-related messages     SCAN procedure	0 31 0 0 63; Max. 63 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes
<ul> <li>adjustable for S7 communication, max.</li> <li>usable for routing         <ul> <li>reserved for routing</li> <li>adjustable for routing, max.</li> </ul> </li> <li>S7 message functions         <ul> <li>Number of login stations for message functions, max.</li> </ul> </li> <li>Symbol-related messages         <ul> <li>SCAN procedure</li> <li>Program alarms</li> </ul> </li> </ul>	0 31 0 0 63; Max. 63 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes
<ul> <li>adjustable for S7 communication, max.</li> <li>usable for routing         <ul> <li>reserved for routing</li> <li>adjustable for routing, max.</li> </ul> </li> <li>S7 message functions         <ul> <li>Number of login stations for message functions, max.</li> </ul> </li> <li>Symbol-related messages         <ul> <li>SCAN procedure</li> <li>Program alarms</li> <li>Process diagnostic messages</li> </ul> </li> </ul>	0 31 0 0 63; Max. 63 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes
<ul> <li>adjustable for S7 communication, max.</li> <li>usable for routing         <ul> <li>reserved for routing</li> <li>adjustable for routing, max.</li> </ul> </li> <li>S7 message functions         <ul> <li>Number of login stations for message functions, max.</li> </ul> </li> <li>Symbol-related messages         <ul> <li>SCAN procedure</li> <li>Program alarms</li> <li>Process diagnostic messages</li> <li>simultaneously active Alarm_S blocks, max.</li> </ul> </li> </ul>	0 31 0 0 0 63; Max. 63 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks
<ul> <li>adjustable for S7 communication, max.</li> <li>usable for routing         <ul> <li>reserved for routing</li> <li>adjustable for routing, max.</li> </ul> </li> <li>S7 message functions         <ul> <li>Number of login stations for message functions, max.</li> </ul> </li> <li>Symbol-related messages         <ul> <li>SCAN procedure</li> <li>Program alarms</li> <li>Process diagnostic messages</li> </ul> </li> </ul>	0 31 0 0 63; Max. 63 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes

blocks, max.	
• preset, max.	300
Process control messages	Yes
Number of archives that can log on simultaneously (SFB 37 AR_SEND)	16
Number of messages	
• overall, max.	512
• in 100 ms grid, max.	128
• in 500 ms grid, max.	256
• in 1000 ms grid, max.	512
Number of additional values	
● with 100 ms grid, max.	1
• with 500, 1000 ms grid, max.	10
Test commissioning functions	
Status block	Yes; Up to 16 simultaneously
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; Status/control
Forcing	
• Forcing	Yes
Forcing, variables	Inputs/outputs, bit memories, distributed I/Os
<ul> <li>Number of variables, max.</li> </ul>	256
Diagnostic buffer	
• present	Yes
<ul> <li>Number of entries, max.</li> </ul>	3 200
— adjustable	Yes
— preset	120
Service data	
• can be read out	Yes
Standards, approvals, certificates	
CE mark	Yes
CSA approval	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
Use in hazardous areas	
• ATEX	ATEX II 3G Ex nA IIC T4 Gc
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	60 °C
configuration / header	
Configuration software	
• STEP 7	Yes
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
500	No
— FBD	Yes
— FBD — STL — SCL	Yes

— CFC	Yes	
— GRAPH	Yes	
— HiGraph®	Yes	
configuration / programming / number of simultaneously ac	tive SFC / header	
— DPSYC_FR	2; SFC 11; per interface	
— D_ACT_DP	8; SFC 12; per interface	
- RD_REC	8; SFC 59; per interface	
- WR_REC	8; SFC 58; per interface	
— WR_PARM	8; SFC 55; per interface	
— PARM_MOD	1; SFC 57; per interface	
- WR_DPARM	2; SFC 56; per interface	
— DPNRM_DG	8; SFC 13; per interface	
- RDSYSST	8; SFC 51	
- DP_TOPOL	1; SFC 103; per interface	
configuration / programming / number of simultaneously active SFB / header		
- RDREC	8; SFB 52; per interface, but not more than 32 across all external interfaces	
- WRREC	8; SFB 53; per interface, but not more than 32 across all external interfaces	
Know-how protection		
<ul> <li>User program protection/password protection</li> </ul>	Yes	
Block encryption	Yes; With S7 block Privacy	
Dimensions		
Width	50 mm	
Height	290 mm	
Depth	219 mm	
Weights		
Weight, approx.	900 g	
last modified:	12/8/2024	

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