## **SIEMENS**

## **Data sheet**

6AG1417-4XT07-7AB0



SIPLUS S7-400 CPU 417-4 based on 6ES7417-4XT07-0AB0 with conformal coating, -25...+70 °C, central processing unit with: work memory 32 MB, (16 MB code; 16 MB data) interfaces 1st interface MPI 12 Mbps; 2nd interface PROFIBUS DP, 3rd/4th interface plug-in IFM module

General information	
Product type designation	CPU 417-4
HW functional status	01
Firmware version	V7.0
based on	6ES7417-4XT07-0AB0
Product function	
Isochronous mode	Yes; For PROFIBUS only
Engineering with	
<ul> <li>Programming package</li> </ul>	STEP 7 V5.4 or higher with HSP 261
CiR - Configuration in RUN	
CiR synchronization time, basic load	60 ms
CiR synchronization time, time per I/O byte	7 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.	600 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	32 Mbyte
<ul><li>integrated (for program)</li></ul>	16 Mbyte
<ul><li>integrated (for data)</li></ul>	16 Mbyte
expandable	No
Load memory	
<ul> <li>expandable FEPROM</li> </ul>	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; with Memory Card (RAM)
expandable RAM, max.	64 Mbyte
Backup	
• present	Yes
with battery	Yes; all data
without battery	No
Battery	
Backup battery	

* Backup current rep.   226 pt/A up to 427	5	005 4 4 4000
Reading of external backup voltage to CPU   5 V DC to 15 V DC	Backup current, typ.	225 μA; up to 40 °C
Feeding of external backup voltage to CPU		
CPU processing times   First Processing time	•	
for bit operations, typ.         7.5 ns           for word operations, typ.         7.5 ns           for fixed point arithmetic, typ.         7.5 ns           for fixed point arithmetic, typ.         15 ns           CPU shoekey         15 ns           DB         Number, max.           • Size, max.         64 kbyte           FB         Number, max.           • Size, max.         64 kbyte           FC         Number of max.           • Number of free cycle OBs         1, OB 1           • Number of free cycle OBs         1, OB 1           • Number of dealy aliam OBs         8, OB 10-17           • Number of dealy aliam OBs         8, OB 10-17           • Number of objects aliam OBs         9, OB 30-38 (shortest cycle that can be set = 500 μs)           • Number of absortances and OBs         1, OB 50           • Number of absortances are of bits         1, OB 50		5 V DC to 15 V DC
To roor operations, typ.		
Too find point anthmetic, typ.   7.5 ns		
15 ins	for word operations, typ.	7.5 ns
CRUENCES		7.5 ns
Number, max.		15 ns
Number, max.	CPU-blocks	
■ Size, max.		
Number, max.   8 000, Number range: 0 to 7999	<ul><li>Number, max.</li></ul>	16 000; Number range: 1 to 16000
Number, max.		64 kbyte
Size, max.   64 kbyte	FB	
Number, max,   8 000; Number range: 0 to 7999	<ul><li>Number, max.</li></ul>	8 000; Number range: 0 to 7999
• Number, max. • Size, max.  64 kbyte   8 1008  • Number, max. • Size, max.  5 ize, max.  8 see instruction list  6 kbyte  1 (081  • Number of free cycle O89 • Number of of delay alarm O89 • Number of cycle interrupt OB9 • Number of process alarm OB9 • Number of process alarm O89 • Number of process alarm O89 • Number of process alarm O89 • Number of isochronous mode O89 • Number of isochronous mode O89 • Number of startup O89 • O98 80-88 • Number of startup O89 • O98 80-88 • Number of startup O89 • O98 80-88 • O98	• Size, max.	64 kbyte
• Size, max.  • Number, max. • Size, max. • Number of free cycle OBs • Number of free deal of the cycle	FC	
Number, max   Size, max   See instruction list		
Number, max.   Size, max.   See instruction list		64 kbyte
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 cycle interrupt OBs   9; OB 30-38 (shortest cycle that can be set = 500 μs)     Number of process alarm OBs   8; OB 40-47     Number of DPV1 alarm OBs   3; OB 55-57     Number of DPV1 alarm OBs   4; OB 61-64     Number of multicomputing OBs   1; OB 60     Number of satrlup OBs   1; OB 60     Number of satrlup OBs   3; OB 100-102     Number of synchronous error OBs   9; OB 80-88     Number of synchronous error OBs   2; OB 121, 122     Nesting depth   9	OB	
Number of free cycle OBs     Number of time alarm OBs     Number of delay alarm OBs     Number of delay alarm OBs     Number of optic interrupt OBs     Number of process alarm OBs     Number of DPV1 alarm OBs     Number of process alarm OBs     Number of sechronous mode OBs     Number of multicomputing OBs     Number of multicomputing OBs     Number of startup OBs     Number of startup OBs     Number of startup OBs     Number of startup OBs     Number of synchronous error OBs     Number of synchronous		
Number of time alarm OBs     Number of delay alarm OBs     Number of delay alarm OBs     Number of oryclic interrupt OBs     Number of process alarm OBs     Number of pover alarm OBs     Number of pover alarm OBs     Number of pover alarm OBs     Number of isochronous mode OBs     Number of multicomputing OBs     Number of startup OBs     Number of startup OBs     Number of startup OBs     Number of startup OBs     Number of synchronous error OBs     Number or OB observed or OB ob		
Number of delay alarm OBs	•	1; OB 1
Number of cyclic interrupt OBs     Number of process alarm OBs     Number of DPV1 alarm OBs     Number of DPV1 alarm OBs     Number of isochronous mode OBs     Number of background OBs     Number of background OBs     Number of startup OBs     Number of startup OBs     Number of synchronous error OB     Number of synchronous error OBs     Number of synchronous error OBs     Number or Synchronous		
Number of process alarm OBs     Number of process alarm OBs     Number of sochronous mode OBs     Number of multicomputing OBs     Number of multicomputing OBs     Number of startup OBs     Number of startup OBs     Number of startup OBs     Number of savprchronous error OBs     Number of savprchronous error OBs     Number of synchronous error OB	•	
Number of DPV1 alarm OBs     Number of isochronous mode OBs     Number of isochronous mode OBs     Number of isochronous mode OBs     Number of background OBs     Number of background OBs     Number of sartup OBs     Number of sartup OBs     Number of sartup OBs     Number of synchronous error OBs     Number of		
Number of isochronous mode OBs     Number of multicomputing OBs     Number of multicomputing OBs     Number of startup OBs     Number of startup OBs     Number of asynchronous error OBs     Number of asynchronous error OBs     Number of synchronous error OBs     Number of such or observed or observe	•	
<ul> <li>Number of multicomputing OBs</li> <li>Number of background OBs</li> <li>Number of sartup OBs</li> <li>Number of asynchronous error OBs</li> <li>Number of saynchronous error OBs</li> <li>Number of synchronous error OBs</li> <li>Number of synchronous error OBs</li> <li>OB 80-88</li> <li>Number of synchronous error OBs</li> <li>OB 81-81</li> <li>OB 92</li> <li>OB 81-81</li> <li>OB 92</li> <li>OB 81-81</li> <li>OB 92</li> <li>OB 81-81</li> <li>OB 92</li> <li>OB 93-81</li> <li>OB 94-81</li> <li>OB 94-</li></ul>		
<ul> <li>Number of background OBs</li> <li>Number of startup OBs</li> <li>Number of startup OBs</li> <li>Number of synchronous error OBs</li> <li>Per priority class</li> <li>additional within an error OB</li> <li>additional within an error OB</li> <li>Counters, timers and their retentivity</li> <li>S7 counter</li> <li>Number</li> <li>Number</li> <li>Augustable</li> <li>— adjustable</li> <li>— preset</li> <li>— lower limit</li> <li>— upper limit</li> <li>999</li> <li>IEC counter</li> <li>• Type</li> <li>• Number</li> <li>Present</li> <li>• Type</li> <li>• Number</li> <li>Unlimited (limited only by RAM capacity)</li> <li>S7 times</li> <li>• Number</li> <li>Augustable</li> <li>— adjustable</li> <li>— adjustable</li> <li>— preset</li> <li>Number (limited only by RAM capacity)</li> <li>Time range</li> <li>— lower limit</li> <li>— upper limit</li> <li>9 990 s</li> <li>IEC timer</li> </ul>		
Number of startup OBs     Number of saynchronous error OBs     Number of synchronous error OBs     24     additional within an error OB     2  Counters, timers and their retentivity  Socunter      Number		
Number of asynchronous error OBs Number of synchronous error OBs Nesting depth per priority class additional within an error OB 2  Counters, timers and their retentivity S7 counter Number Adjustable preset Plower limit upper limit Ves SFB Number Ves Number Ves SFB Number Number Ves SFB Number Ves SFB Number Number Ves SFB Number Number Ves SFB Number Number Number Ves SFB Number Ves SFB Number Ves Number Ves SFB No times retentive Time range — lower limit SPB SPB No times retentive Time range — lower limit SPB SPB No times retentive Time range — lower limit SPB SPB SPB No times retentive Time range — lower limit SPB	-	
Nesting depth  per priority class additional within an error OB  Counters, timers and their retentivity  S7 counter  Number Adjustable Preset Counting range  Lower limit Present Pre	•	
Nesting depth  • per priority class • additional within an error OB  Counters, timers and their retentivity  S7 counter  • Number  - adjustable - preset - lower limit - upper limit - Number  • Num		
per priority class     additional within an error OB     2  Counters, timers and their retentivity  S7 counter      Number     Adjustable     — adjustable     — preset     — lower limit     — type     Number     Number     SFB     Number     Number     SFB     Number     Number     SFB     Number     N		2; OB 121, 122
additional within an error OB     Counters, timers and their retentivity  S7 counter      Number     2 048  Retentivity      — adjustable     — preset     Z 0 to Z 7  Counting range      — lower limit     — upper limit     999  IEC counter      **Prype**     ** Number**     ** Number**     ** Number**     ** Number**  No times retentive**  Time range**  — lower limit** — upper limit**  10 ms — upper limit* — upper limit**  9 990 s  IEC timer**	Nesting depth	
Counters, timers and their retentivity  \$7 counter  • Number 2 048  Retentivity  adjustable Yes preset Z 0 to Z 7  Counting range lower limit 0 upper limit 9999  IEC counter  • present Yes • Type • Number Unlimited (limited only by RAM capacity)  \$7 times  • Number 2 048  Retentivity adjustable Yes preset No times retentive  Time range lower limit 10 ms upper limit 9 990 s  IEC timer		
S7 counter  • Number 2 048  Retentivity  — adjustable Yes — preset Z 0 to Z 7  Counting range — lower limit 999  IEC counter  • present Yes • Type 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		2
■ Number 2 048  Retentivity      — adjustable Yes — preset Z 0 to Z 7  Counting range — lower limit 0 — upper limit 999  IEC counter      ● present Yes     ● Type 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		
Retentivity         — adjustable         Yes           — preset         Z 0 to Z 7           Counting range         — lower limit         0           — upper limit         999           IEC counter         • present         Yes           • Type         SFB           • Number         Unlimited (limited only by RAM capacity)           S7 times         • Number           • Number         2 048           Retentivity         — adjustable         Yes           — preset         No times retentive           Time range         — lower limit         10 ms           — upper limit         9 990 s           IEC timer		
adjustable		2 048
preset	·	
Counting range  — lower limit — upper limit 999  IEC counter  • present • Type • Number  • Number  Indicates the state of	•	
— lower limit         0           — upper limit         999           IEC counter         Yes           ● present         Yes           ● Type         SFB           ● Number         Unlimited (limited only by RAM capacity)           S7 times         Number           ● Number         2 048           Retentivity         Yes           — adjustable         Yes           — preset         No times retentive           Time range         — lower limit         10 ms           — upper limit         9 990 s           IEC timer	·	Z 0 to Z 7
— upper limit         999           IEC counter         Yes           ● present         Yes           ● Type         SFB           ● Number         Unlimited (limited only by RAM capacity)           S7 times         Number           ● Number         2 048           Retentivity         Yes           — adjustable         Yes           — preset         No times retentive           Time range         Iower limit           — upper limit         9 990 s           IEC timer	· · ·	
IEC counter  • present  • present  • Type  • Number  • N		
<ul> <li>present</li> <li>Type</li> <li>Number</li> <li>Number</li> <li>Number</li> <li>Number</li> <li>Retentivity</li> <li>— adjustable</li> <li>— preset</li> <li>No times retentive</li> <li>Time range</li> <li>— lower limit</li> <li>— upper limit</li> <li>9 990 s</li> </ul>		999
● Type 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		
● 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	·	
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		
● Number 2 048  Retentivity  adjustable Yes preset No times retentive  Time range lower limit 10 ms upper limit 9 990 s  IEC timer		Unlimited (limited only by RAM capacity)
Retentivity  — adjustable Yes — preset No times retentive  Time range — lower limit 10 ms — upper limit 9 990 s  IEC timer		
- adjustable Yes - preset No times retentive  Time range - lower limit 10 ms - upper limit 9 990 s  IEC timer		2 048
— preset No times retentive  Time range — lower limit 10 ms — upper limit 9 990 s  IEC timer	•	· ·
Time range  — lower limit 10 ms — upper limit 9 990 s  IEC timer		
— lower limit 10 ms — upper limit 9 990 s IEC timer	·	No times retentive
— upper limit 9 990 s IEC timer	·	
IEC timer		
		9 990 s
• present Yes		· ·
	• present	Yes

• Type	SFB
Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	Total working and load memory (with backup battery)
Flag	
• Size, max.	16 kbyte; Size of bit memory address area
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	
• Inputs, adjustable	16 kbyte
Outputs, adjustable	16 kbyte
<ul> <li>Inputs, default</li> </ul>	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	
• Inputs	8 192
— of which central	8 192
Outputs	8 192
— of which central	8 192
Hardware configuration	
Number of expansion units, max.	21
connectable OPs	119
Multicomputing	Yes; 4 CPUs max. (with UR1 or UR2)
Interface modules	
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	
• integrated	2
• via CP	10; CP 443-5 Extended
● via IM 467	4
	4 No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode
● via IM 467	No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in
<ul> <li>via IM 467</li> <li>Mixed mode IM + CP permitted</li> <li>via interface module</li> <li>Number of pluggable S5 modules (via adapter capsule in</li> </ul>	No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode
<ul> <li>via IM 467</li> <li>Mixed mode IM + CP permitted</li> <li>via interface module</li> <li>Number of pluggable S5 modules (via adapter capsule in central device), max.</li> </ul>	No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 2
<ul> <li>via IM 467</li> <li>Mixed mode IM + CP permitted</li> <li>via interface module</li> <li>Number of pluggable S5 modules (via adapter capsule in central device), max.</li> </ul> Number of IO Controllers	No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 2 6
<ul> <li>via IM 467</li> <li>Mixed mode IM + CP permitted</li> <li>via interface module</li> <li>Number of pluggable S5 modules (via adapter capsule in central device), max.</li> <li>Number of IO Controllers</li> <li>integrated</li> </ul>	No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 2 6
<ul> <li>via IM 467</li> <li>Mixed mode IM + CP permitted</li> <li>via interface module</li> <li>Number of pluggable S5 modules (via adapter capsule in central device), max.</li> </ul> Number of IO Controllers	No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 2 6
<ul> <li>via IM 467</li> <li>Mixed mode IM + CP permitted</li> <li>via interface module</li> <li>Number of pluggable S5 modules (via adapter capsule in central device), max.</li> <li>Number of IO Controllers</li> <li>integrated</li> </ul>	No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode  2  6  0  4; Max. 4 in the central controller; no mixed operation of different CP 443-1
<ul> <li>via IM 467</li> <li>Mixed mode IM + CP permitted</li> <li>via interface module</li> <li>Number of pluggable S5 modules (via adapter capsule in central device), max.</li> <li>Number of IO Controllers</li> <li>integrated</li> <li>via CP</li> </ul>	No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode  2  6  0  4; Max. 4 in the central controller; no mixed operation of different CP 443-1
<ul> <li>via IM 467</li> <li>Mixed mode IM + CP permitted</li> <li>via interface module</li> <li>Number of pluggable S5 modules (via adapter capsule in central device), max.</li> <li>Number of IO Controllers</li> <li>integrated</li> <li>via CP</li> <li>Number of operable FMs and CPs (recommended)</li> </ul>	No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode  2  6  0  4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode
via IM 467  Mixed mode IM + CP permitted  via interface module  Number of pluggable S5 modules (via adapter capsule in central device), max.  Number of IO Controllers  integrated  via CP  Number of operable FMs and CPs (recommended)  FM	No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode  2 6  0 4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode  Limited by number of slots and number of connections

• required slots	2
• required slots	2
Time of day	
Clock	
<ul> <li>Hardware clock (real-time)</li> </ul>	Yes
<ul> <li>retentive and synchronizable</li> </ul>	Yes
<ul> <li>Resolution</li> </ul>	1 ms
<ul> <li>Deviation per day (buffered), max.</li> </ul>	1.7 s; Power off
Deviation per day (unbuffered), max.	8.6 s; For power On
Operating hours counter	
Number	16
<ul> <li>Number/Number range</li> </ul>	0 to 15
<ul> <li>Range of values</li> </ul>	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
<ul> <li>◆ to MPI, master</li> </ul>	Yes
• on MPI, device	Yes
<ul> <li>to DP, master</li> </ul>	Yes
• on DP, device	Yes
• in AS, master	Yes
• in AS, device	Yes
on Ethernet via NTP	No; Via CP
• to IF 964 DP	Yes
Time difference in system when synchronizing via	
• MPI, max.	200 ms
Interfaces	
Interfaces/bus type	1 x MPI/PROFIBUS DP, 1 x PROFIBUS DP, 2 x PROFIBUS DP (optionally pluggable)
Number of RS 485 interfaces	2; Combined MPI / PROFIBUS DP and PROFIBUS DP
Number of other interfaces	2; PROFIBUS DP with IF 964-DP (plug-in option; MLFB: 6ES7964-2AA04-0AB0)
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
PROFIBUS DP master	Yes
PROFIBUS DP device	Yes
MPI	
Number of connections	44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1
Transmission rate, max.	12 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
<ul> <li>Global data communication</li> </ul>	Yes
<ul> <li>S7 basic communication</li> </ul>	Yes
— S7 communication	Yes
<ul> <li>S7 communication, as client</li> </ul>	Yes
or communication, ac ditcht	Tes
— S7 communication, as crieft  — S7 communication, as server	Yes
— S7 communication, as server	
— S7 communication, as server PROFIBUS DP master  • Number of connections, max.	Yes  32; If a diagnostics repeater is used on the line, the number of connection
— S7 communication, as server PROFIBUS DP master	Yes  32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1
— S7 communication, as server  PROFIBUS DP master  Number of connections, max.  Transmission rate, max.	Yes  32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1  12 Mbit/s
<ul> <li>— S7 communication, as server</li> <li>PROFIBUS DP master</li> <li>Number of connections, max.</li> <li>Transmission rate, max.</li> <li>max. number of DP devices</li> </ul>	Yes  32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1  12 Mbit/s
— S7 communication, as server  PROFIBUS DP master  Number of connections, max.  Transmission rate, max.  max. number of DP devices  Services	Yes  32; 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

Olahal dati	N-
— Global data communication	No Voc
— 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
— DPV1	Yes
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
1st interface / DP master / payload data per DP Device / heade	er en
<ul><li>user data per DP device, max.</li></ul>	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	32
• 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	
— 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	,
	PROFIBUS DP
Interface type	
Isolated	Yes
Interface types	V
• RS 485	Yes
Output current of the interface, max.	150 mA
Protocols	
PROFIBUS DP master	Yes
PROFIBUS DP device	Yes
PROFIBUS DP master	
<ul> <li>Number of connections, max.</li> </ul>	32
<ul> <li>Transmission rate, max.</li> </ul>	12 Mbit/s
max. number of DP devices	125
Services	
— PG/OP communication	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
Direct data exchange (slave-to-slave	Yes
communication)	V
— DPV1	Yes
Address area	9 khyda
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
2nd interface / DP master / payload data per DP Device / head	
— user data per DP device, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
2nd interface / PROFIBUS DP device / header	
<ul> <li>Number of connections</li> </ul>	32
• GSD file	http://support.automation.siemens.com/WW/view/en/113652
• Transmission rate, max.	12 Mbit/s
<ul> <li>Address area, max.</li> </ul>	32
<ul> <li>User data per address area, max.</li> </ul>	32 byte
— of which consistent, max.	32 byte
Services	
— Routing	Yes; with interface active
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
3. Interface	
3. Interface Interface type	pluggable interface module (IF), technical data as for 2nd interface
	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0)
Interface type	
Interface type Plug-in interface modules	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0)
Interface type Plug-in interface modules Isolated	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types  RS 485  Output current of the interface, max.	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max. Protocols	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max. Protocols • MPI	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device PROFIBUS DP master	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device  PROFIBUS DP master • Number of connections, max.	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes Yes Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device  PROFIBUS DP master • Number of connections, max. • Transmission rate, max.	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes Yes Yes Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device  PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes Yes Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device  PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices  Services	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA  No Yes Yes 125
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device  PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices  Services — PG/OP communication	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes Yes 125  Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device  PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices  Services — PG/OP communication — Routing	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes Yes Yes Yes  Yes  Yes  Yes  Yes  Y
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device  PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices  Services — PG/OP communication — Routing — Global data communication	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes Yes Yes  Yes  Yes  Yes  Yes  Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device  PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices  Services  — PG/OP communication — Routing — Global data communication — S7 basic communication	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes Yes Yes  Yes  Yes  Yes  Yes  Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device  PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices  Services  — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes Yes  32 12 Mbit/s 125  Yes Yes; S7 routing No Yes Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device  PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices  Services  — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes Yes Yes  Yes  Yes  Yes  Yes  Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types  RS 485 Output current of the interface, max.  Protocols  MPI PROFIBUS DP master PROFIBUS DP device PROFIBUS DP master Number of connections, max. Transmission rate, max.	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes Yes  125  Yes Yes Yes  Yes Yes Yes Yes Yes Yes Y
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device  PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices  Services  — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Equidistance	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes Yes Yes Yes  Yes  Yes  Yes Yes Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device  PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices  Services  — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Equidistance — Isochronous mode	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA  No Yes Yes Yes Yes Yes  Yes Yes Yes Yes Ye
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device  PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • Transmission rate, max. • max. number of DP devices  Services  - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication - S7 communication, as client - S7 communication, as server - Equidistance - Isochronous mode - SYNC/FREEZE	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA  No Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device  PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices  Services  — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Equidistance — Isochronous mode	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA  No Yes Yes Yes Yes Yes  Yes Yes Yes Yes Ye

DDV0	Von
— DPV0 — DPV1	Yes Yes
Address area	tes
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
3rd interface / DP master / payload data per DP Device / head	·
— 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	120 0)10
number of possible connections / at the 3rd interface / as DP slave	32
• 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
automatic baud rate search	No
Address area, max.	32
• data volume / at the 3rd interface / as DP slave / as user data per address range / maximum	32 byte
— data volume / at the 3rd interface / as DP slave / as consistent reference data per address range / maximum	32 byte
Services	
— PG/OP communication	Yes
— Routing	Yes; with interface active
<ul> <li>Global data communication</li> </ul>	No
<ul> <li>S7 basic communication</li> </ul>	No
— S7 communication	Yes
<ul> <li>— S7 communication, as client</li> </ul>	Yes
<ul> <li>S7 communication, as server</li> </ul>	Yes
<ul><li>— Direct data exchange (slave-to-slave communication)</li><li>— DPV1</li></ul>	No
Transfer memory	No
— Inputs	244 byte
— Outputs	244 byte
4. Interface	277 0910
Interface type	pluggable interface module (IF), technical data as for 2nd interface
Plug-in interface modules	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0)
Protocols	TOOL DE VIEL DE OFFICE DE VIEL OF DOOR
SIMATIC communication	
• S7 routing	Yes
Open IE communication	
• ISO-on-TCP (RFC1006)	Via CP 443-1 and loadable FB
— Data length, max.	1 452 bytes via CP 443-1 Adv.
Web server	
• supported	No
Isochronous mode	
Equidistance	Yes
Number of DP masters with isochronous mode	4
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
Number of connectable OPs without message processing	119
Number of connectable OPs with message processing	119; When using Alarm_S/SQ and Alarm_D/DQ
Data record routing	Yes
Global data communication	
• supported	Yes

<ul> <li>Number of GD loops, max.</li> </ul>	16
<ul> <li>Number of GD packets, transmitter, max.</li> </ul>	16
<ul> <li>Number of GD packets, receiver, max.</li> </ul>	32
<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
User data per job, max.	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
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 FC AG_SEND and AG_RECV, max. via 10 CP 443-1 or 443-5
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	120
usable for PG communication	119
<ul> <li>reserved for PG communication</li> </ul>	1
<ul> <li>adjustable for PG communication, max.</li> </ul>	0
usable for OP communication	119
reserved for OP communication	1
adjustable for OP communication, max.	0
usable for S7 basic communication	118
reserved for S7 basic communication	0
adjustable for S7 basic communication, max.	0
usable for S7 communication	118
— reserved for S7 communication	0
	0
— adjustable for S7 communication, max.	
usable for routing	59
— reserved for routing	0
— adjustable for routing, max.	0
S7 message functions	
Number of login stations for message functions, max.	119; Max. 119 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	Yes
SCAN procedure	Yes
·	Yes
Process diagnostic messages	Yes
Process diagnostic messages	
simultaneously active Alarm-S blocks, max.	1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks
Alarm 8-blocks	Yes 10,000
<ul> <li>Number of instances for alarm 8 and S7 communication blocks, max.</li> </ul>	10 000
• preset, max.	1 200
Process control messages	Yes
Number of archives that can log on simultaneously (SFB 37 AR_SEND)	64
Number of messages	
• overall, max.	1 024
• in 100 ms grid, max.	128
• in 500 ms grid, max.	512
• in 1000 ms grid, max.	1 024
Number of additional values	
• with 100 ms grid, max.	1
g, max.	

<ul> <li>with 500, 1000 ms grid, max.</li> </ul>	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
<ul> <li>Variables</li> </ul>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
<ul> <li>Number of variables, max.</li> </ul>	70; Status/control
Forcing	
<ul><li>Forcing</li></ul>	Yes
<ul> <li>Forcing, variables</li> </ul>	Inputs, outputs, bit memories, peripheral inputs, peripheral outputs
Number of variables, max.	512
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
EAC (formerly Gost-R)	Yes
Ambient conditions	
Ambient temperature during operation	
• min.	-25 °C; = Tmin
• max.	70 °C; = Tmax
Altitude during operation relating to sea level	F 000
Installation altitude above sea level, max.  Applicate six to propose the propose at the pr	5 000 m
Ambient air temperature-barometric pressure-altitude	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax -20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m)
Relative humidity	
<ul> <li>With condensation, tested in accordance with IEC 60068- 2-38, max.</li> </ul>	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Resistance	
Use in stationary industrial systems	
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
<ul> <li>to chemically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	Very Olera ODO mald and from the control of the con
— to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
— to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology  — Against chemically active substances acc. to EN	Yes; Class 3 (excluding trichlorethylene)
60654-4  — Environmental conditions for process, measuring	
and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
and control systems acc. to ANSI/ISA-71.04	
,	concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level
Remark  — Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and	concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)  * The supplied plug covers must remain in place over the unused interfaces
Remark  — Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)  * The supplied plug covers must remain in place over the unused interfaces
Remark  — Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04  Conformal coating  • Coatings for printed circuit board assemblies acc. to EN	concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)  * The supplied plug covers must remain in place over the unused interfaces during operation!

 Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A

Yes; Conformal coating, Class A

configuration / header	
Configuration software	
• STEP 7	Yes
configuration / programming / header	
<ul> <li>Command set</li> </ul>	see instruction list
<ul> <li>Nesting levels</li> </ul>	7
<ul> <li>Access to consistent data in process image</li> </ul>	Yes
<ul> <li>System functions (SFC)</li> </ul>	see instruction list
<ul> <li>System function blocks (SFB)</li> </ul>	see instruction list
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
configuration / programming / number of simultaneously active	e 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	e 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: 5/29/2024 🖸