SIEMENS

Data sheet

6ES7417-4XT07-0AB0



SIMATIC S7-400, CPU 417-4 Central processing unit with: Work memory 32 MB, (16 MB code; 16 MB data) 1st interface MPI 12 Mbit/s; 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
Product function	
Isochronous mode	Yes; For PROFIBUS only
Engineering with	
 Programming package 	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
integrated (for program)	16 Mbyte
integrated (for data)	16 Mbyte
expandable	No
Load memory	
expandable FEPROM	Yes; with Memory Card (FLASH)
 expandable FEPROM, max. 	64 Mbyte
integrated RAM, max.	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, typ.	225 μA; up to 40 °C

Backup current, max.	1 275 μΑ
Backup time, max.	See reference manual, module data, Chapter 3.3
Feeding of external backup voltage to CPU	5 V DC to 15 V DC
CPU processing times	
for bit operations, typ.	7.5 ns
for word operations, typ.	7.5 ns
for fixed point arithmetic, typ.	7.5 ns
for floating point arithmetic, typ.	15 ns
CPU-blocks	
DB	
Number, max.	16 000; Number range: 1 to 16000
Size, max.	64 kbyte
FB	
Number, max.	8 000; Number range: 0 to 7999
Size, max.	64 kbyte
FC	
Number, max.	8 000; Number range: 0 to 7999
Size, max.	64 kbyte
OB	
Number, max.	see instruction list
• Size, max.	64 kbyte
 Number of free cycle OBs 	1; OB 1
 Number of time alarm OBs 	8; OB 10-17
 Number of delay alarm OBs 	4; OB 20-23
 Number of cyclic interrupt OBs 	9; OB 30-38 (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 isochronous mode OBs 	4; OB 61-64
 Number of multicomputing OBs 	1; OB 60
 Number of background OBs 	1; OB 90
 Number of startup OBs 	3; OB 100-102
 Number of asynchronous error OBs 	9; OB 80-88
 Number of synchronous error OBs 	2; OB 121, 122
Nesting depth	
	24
 per priority class 	24
per priority classadditional within an error OB	2
additional within an error OB	
additional within an error OB Counters, timers and their retentivity	
additional within an error OB Counters, timers and their retentivity S7 counter	2
additional within an error OB Counters, timers and their retentivity S7 counter Number	2
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity	2 048
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity — adjustable	2 2 048 Yes
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity — adjustable — preset	2 2 048 Yes
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity — adjustable — preset Counting range	2 048 Yes Z 0 to Z 7
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity adjustable preset Counting range lower limit	2 2 048 Yes Z 0 to Z 7
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity adjustable preset Counting range lower limit upper limit	2 2 048 Yes Z 0 to Z 7
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity — adjustable — preset Counting range — lower limit — upper limit IEC counter	2 2 048 Yes Z 0 to Z 7 0 999
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity — adjustable — preset Counting range — lower limit — upper limit IEC counter present	2 2 048 Yes Z 0 to Z 7 0 999 Yes
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity adjustable preset Counting range lower limit upper limit retentivity IEC counter present Type	2 2 048 Yes Z 0 to Z 7 0 999 Yes SFB
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity	2 2 048 Yes Z 0 to Z 7 0 999 Yes SFB
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity — adjustable — preset Counting range — lower limit — upper limit IEC counter present Type Number S7 times	2 2 048 Yes Z 0 to Z 7 0 999 Yes SFB Unlimited (limited only by RAM capacity)
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity — adjustable — preset Counting range — lower limit — upper limit IEC counter present Type Number S7 times Number	2 2 048 Yes Z 0 to Z 7 0 999 Yes SFB Unlimited (limited only by RAM capacity)
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity — adjustable — preset Counting range — lower limit — upper limit IEC counter present Type Number S7 times Number Retentivity	2 048 Yes Z 0 to Z 7 0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity — adjustable — preset Counting range — lower limit — upper limit IEC counter present Type Number S7 times Number Retentivity — adjustable	2 2 048 Yes Z 0 to Z 7 0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity — adjustable — preset Counting range — lower limit — upper limit IEC counter • present • Type • Number S7 times • Number Retentivity — adjustable — preset	2 2 048 Yes Z 0 to Z 7 0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity — adjustable — preset Counting range — lower limit — upper limit IEC counter • present • Type • Number S7 times • Number Retentivity — adjustable — preset Time range — lower limit	2 2 048 Yes Z 0 to Z 7 0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes No times retentive
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity — adjustable — preset Counting range — lower limit — upper limit IEC counter present Type Number S7 times Number Retentivity — adjustable — preset Time range	2 048 Yes Z 0 to Z 7 0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes No times retentive 10 ms
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity — adjustable — preset Counting range — lower limit — upper limit IEC counter present Type Number S7 times Number Retentivity — adjustable — preset Time range — lower limit — upper limit	2 048 Yes Z 0 to Z 7 0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes No times retentive 10 ms
additional within an error OB Counters, timers and their retentivity S7 counter Number Retentivity — adjustable — preset Counting range — lower limit — upper limit IEC counter present Type Number S7 times Number Retentivity — adjustable — preset Time range — lower limit — upper limit IEC timer	2 2 048 Yes Z 0 to Z 7 0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes No times retentive 10 ms 9 990 s

• Number	Linkingtod (limited only by DAM consoits)
Number Pote gross and their retentivity	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	T. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
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
• Inputs, default	1 024 byte
Outputs, default	1 024 byte
• consistent data, max.	244 byte
Access to consistent data in process image	Yes
Subprocess images	
 Number of subprocess images, max. 	15
Digital channels	
Inputs	131 072
— of which central	131 072
 Outputs 	131 072
— of which central	131 072
Analog channels	
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
Mixed mode IM + CP permitted	No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in
- p	PROFINET IO mode
via interface module	2
Number of pluggable S5 modules (via adapter capsule in	6
central device), max.	
Number of IO Controllers	
• integrated	0
• 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 CDs (recommended)	types in Fivor inch to mode
Number of operable FMs and CPs (recommended)	Limited by number of clote and number of connections
• FM	Limited by number of slots and number of connections
CP, PtP DROFIRIS and Ethernet CPa	CP 440: Limited by number of slots; CP 441: limited by number of connections
PROFIBUS and Ethernet CPs	14; Of which 10 CPs max. or IMs as DP master, 4 PROFINET controller maximum
Slots	
required slots	2
- 4	

Time of day	
Clock	
Hardware clock (real-time)	Yes
retentive and synchronizable	Yes
Resolution	1 ms
Deviation per day (buffered), max.	1.7 s; Power off
 Deviation per day (unbuffered), max. 	8.6 s; For power On
Operating hours counter	0.0 0,1 01 power 011
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	165
• supported	Yes
• to MPI, master	Yes
	Yes
on MPI, deviceto DP, master	Yes
	Yes
• on DP, device	
• in AS, master	Yes
in AS, deviceon Ethernet via NTP	Yes
	No; Via CP
• to IF 964 DP	Yes
Time difference in system when synchronizing via	000
• 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	
1. Interface Interface type	MPI/PROFIBUS DP
Interface type	MPI/PROFIBUS DP Yes
Interface type Isolated	MPI/PROFIBUS DP Yes
Interface type Isolated Interface types	Yes
Interface type Isolated Interface types • RS 485	Yes Yes
Interface type Isolated Interface types • RS 485 • Output current of the interface, max.	Yes
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols	Yes Yes 150 mA
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI	Yes Yes 150 mA Yes
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master	Yes Yes 150 mA Yes Yes
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device	Yes Yes 150 mA Yes
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master	Yes Yes 150 mA Yes Yes Yes Yes Yes Yes Yes Ye
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections	Yes Yes 150 mA Yes Yes Yes Yes Yes Yes Yes Ye
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max.	Yes Yes 150 mA Yes Yes Yes Yes Yes Yes Yes Ye
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services	Yes Yes 150 mA Yes Yes Yes Yes Yes Yes Yes Ye
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services — PG/OP communication	Yes Yes 150 mA Yes Yes Yes Yes Yes Yes 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services — PG/OP communication — Routing	Yes Yes 150 mA Yes Yes Yes Yes Yes A4; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services — PG/OP communication — Routing — Global data communication	Yes 150 mA Yes Yes Yes Yes Yes Yes 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication	Yes Yes 150 mA Yes Yes Yes Yes Yes Yes 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication	Yes Yes 150 mA Yes Yes Yes Yes Yes Yes 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Y
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication	Yes Yes 150 mA Yes Yes Yes Yes Yes Yes 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Y
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication, as client S7 communication, as server	Yes Yes 150 mA Yes Yes Yes Yes Yes Yes 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Y
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication	Yes 150 mA Yes Yes Yes Yes 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Y
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication R7 basic communication S7 communication S7 communication S7 communication, as client S7 communication, as server PROFIBUS DP master Number of connections, max.	Yes Yes Yes Yes Yes Yes Yes 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Y
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication, as client S7 communication, as server PROFIBUS DP master Number of connections, max.	Yes 150 mA Yes Yes Yes Yes Yes 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Y
Interface types Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication, as client S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max. max. number of DP devices	Yes Yes Yes Yes Yes Yes Yes 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Y
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication, as client S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max. Transmission rate, max. max. number of DP devices Services	Yes 150 mA Yes Yes Yes Yes Yes Yes 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Y
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication, as client S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max. Transmission rate, max. max. number of DP devices Services PG/OP communication	Yes Yes Yes Yes Yes Yes Yes 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Y
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication, as client S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max. Transmission rate, max. max. number of DP devices Services	Yes 150 mA Yes Yes Yes Yes Yes Yes 44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Y

- S7 basic communication Yes - S7 communication, as client Yes - S7 communication, as server Yes - Equidistance Yes - Isochronous mode Yes - Isochronous mode Yes - SYNC/FREEZE Yes - activation/deactivation of DP devices Yes - Direct data exchange (slave-to-slave communication) - DPV1 Yes Address area - Inputs, max. 2 kbyte - Juputs, max. 2 kbyte - User data per DP device, max. 244 byte - Inputs, max. 244 byte - Inputs, max. 244 byte - Slots, max. 244 - per slot, max. 128 byte 1st interface / PROFIBUS DP device / header	
- S7 communication, as client - S7 communication, as server - Equidistance - Lequidistance - Isochronous mode - Yes - SYNC/FREEZE - activation/deactivation of DP devices - Direct data exchange (slave-to-slave communication) - DPV1 - Yes Address area - Inputs, max Outputs, max Outputs, max. 2 kbyte - User data per DP device, max. 2 list interface / DP master / payload data per DP Device / header - user data per DP device, max. 2 list interface / DP master / payload data per DP Device / header - user data per DP device, max. 2 list interface / PROFIBUS DP device / header - Slots, max Slots, max Slots, max. 244 byte - per slot, max. 244 byte - Slots, max. 244 byte - Slots, max Slo	
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- Isochronous mode Yes - SYNC/FREEZE Yes - activation/deactivation of DP devices Yes - Direct data exchange (slave-to-slave communication) - DPV1 Yes Address area - Inputs, max. 2 kbyte - Outputs, max. 2 kbyte 1st interface / DP master / payload data per DP Device / header - user data per DP device, max. 244 byte - Inputs, max. 244 byte - Outputs, 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	
- SYNC/FREEZE - activation/deactivation of DP devices - Direct data exchange (slave-to-slave communication) - DPV1 Yes Address area - Inputs, max Outputs, max. 2 kbyte 1st interface / DP master / payload data per DP Device / header - user data per DP device, max. 244 byte - Inputs, max. 244 byte - Outputs, max. 244 byte - Slots, max. 244 byte - per slot, max. 128 byte 1st interface / PROFIBUS DP device / header Number of connections GSD file Transmission rate, max. 128 Mbit/s automatic baud rate search No	
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Direct data exchange (slave-to-slave communication) DPV1 Yes Address area Inputs, max Outputs, max Outputs, max Unputs, max Untputs, max Un	
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1st interface / DP master / payload data per DP Device / header — user data per DP device, max. — Inputs, max. — Outputs, max. — Slots, max. — per slot, max. — per slot, max. 128 byte 1st interface / PROFIBUS DP device / header • Number of connections • GSD file • Transmission rate, max. • automatic baud rate search 124 byte 244 byte 244 byte 245 byte 246 byte 247 byte 248 byte 249 byte 249 byte 240 byte 240 byte 241 byte 242 byte 243 byte 244 byte 244 byte 244 byte 245 byte 246 byte 247 byte 248 byte 248 byte 248 byte 128 byte 128 byte	
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 — Slots, max. — per slot, max. 128 byte 1st interface / PROFIBUS DP device / header Number of connections GSD file Transmission rate, max. automatic baud rate search 128 byte 32 http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No No	
 per slot, max. 128 byte 1st interface / PROFIBUS DP device / header Number of connections GSD file Transmission rate, max. automatic baud rate search 128 byte 128 by	
1st interface / PROFIBUS DP device / header • Number of connections • GSD file • Transmission rate, max. • automatic baud rate search 32 http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No	
 Number of connections GSD file Transmission rate, max. automatic baud rate search No 	
 GSD file Transmission rate, max. automatic baud rate search http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 	
 Transmission rate, max. automatic baud rate search No 	
• automatic baud rate search No	
Address area, max. 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	
— S7 communication, as server	
— Direct data exchange (slave-to-slave	
communication)	
— DPV1 No	
Transfer memory 244 byte	
— Inputs 244 byte	
— Outputs 244 byte	
2. Interface	
Interface type PROFIBUS DP	
Isolated Yes	
Interface types	
• RS 485 Yes	
Output current of the interface, max. 150 mA	
Protocols	
PROFIBUS DP master Yes	
PROFIBUS DP device Yes	
PROFIBUS DP master	
• Number of connections, max. 32	
• Transmission rate, max. 12 Mbit/s	
• max. number of DP devices 125	
Services	
— PG/OP communication Yes	
— Routing Yes; S7 routing	
— Global data communication No	
— S7 basic communication Yes	
— S7 communication Yes	

07	V
— S7 communication, as client	Yes
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	Yes
— SYNC/FREEZE	Yes
activation/deactivation of DP devices	Yes
 — Direct data exchange (slave-to-slave communication) 	Yes
— DPV1	Yes
Address area	100
— 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	,
Number of connections	32
GSD file	http://support.automation.siemens.com/WW/view/en/113652
Transmission rate, max.	12 Mbit/s
Address area, max.	32
User data per address area, max.	32 byte
— of which consistent, max.	32 byte
Services	<u></u>
— Routing	Yes; with interface active
Transfer memory	100, 1111 1110 1110
— Inputs	244 byte
— Outputs	244 byte
3. Interface	
	pluggable interface module (IF), technical data as for 2nd interface
Interface type	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0)
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)
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	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 • 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	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	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 12 Mbit/s
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 12 Mbit/s
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 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	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 — S7 basic communication — S7 communication	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No 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.	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 — S7 communication, as client — S7 communication, as server	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 — 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
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
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 - S7 communication, as client - S7 communication, as server - Equidistance - Isochronous mode - SYNC/FREEZE - activation/deactivation of DP devices	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 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. Transmission rate	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye

DDV4	Voc
— DPV1 Address area	Yes
	8 kbyte
— Inputs, max. — 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	
number of possible connections / at the 3rd interface / as DP slave	32
GSD file	http://support.automation.siemens.com/WW/view/en/113652
 transfer rate / at the 3rd interface / as DP slave / maximum 	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
 Global data communication 	No
 S7 basic communication 	No
— S7 communication	Yes
 S7 communication, as client 	Yes
 — S7 communication, as server 	Yes
 Direct data exchange (slave-to-slave communication) 	No
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
4. Interface	
Interface type	pluggable interface module (IF), technical data as for 2nd interface
Plug-in interface modules	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0)
Protocols	
SIMATIC communication	
• S7 routing	Yes
Open IE communication	Via CD 442.4 and leadable ED
ISO-on-TCP (RFC1006) Data length, max.	Via CP 443-1 and loadable FB
— Data length, max. Web server	1 452 bytes via CP 443-1 Adv.
	No
• supported Isochronous mode	NO TO THE PART OF
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
Number of GD loops, max.	16

 Number of GD packets, transmitter, max. 	16
 Number of GD packets, receiver, max. 	32
 Size of GD packets, max. 	54 byte
 Size of GD packet (of which consistent), max. 	1 variable
S7 basic communication	
• supported	Yes
User data per job, max.	76 byte
 User data per job (of which consistent), max. 	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
	402 byte, i valiable
S5 compatible communication	Very Via FC AC CENID and AC DECV may via 40 CD 442 4 or 442 5
• 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 CPU, max. 	64/64
Standard communication (FMS)	
	Voc. Via CB and loadable EB
supported Number of connections	Yes; Via CP and loadable FB
	120
overall veable for DC communication	120 119
usable for PG communication	
— reserved for PG communication	1
— adjustable for PG communication, max.	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
 adjustable for S7 communication, max. 	0
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
Program alarms	Yes
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks
Alarm 8-blocks	Yes
Number of instances for alarm 8 and S7 communication	10 000
blocks, max.	
• preset, max.	1 200
Process control messages	Yes
Number of archives that can log on simultaneously (SFB 37	64
AR_SEND)	
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
• 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	ro, otatus/control
• Forcing	Yes
Forcing, variables	Inputs, outputs, bit memories, peripheral inputs, peripheral outputs
Number of variables, max.	512
Diagnostic buffer	012
• present	Yes
Number of entries, max.	3 200
— adjustable	Yes
— adjustable — preset	120
	120
Service data • can be read out	Yes
	100
Standards, approvals, certificates	Vee
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
 Access to consistent data in process image 	Yes
• System functions (SFC)	see instruction list
System function blocks (SFB)	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	SFC / header
— DPSYC_FR	2; SFC 11; per interface
— D_ACT_DP	8; SFC 12; per interface
— RD_REC	8; SFC 59; per interface
WD DEG	8; SFC 58; per interface
— WR_REC	
— WR_REC — WR_PARM	8; SFC 55; per interface
	8; SFC 55; per interface 1; SFC 57; per interface
— WR_PARM	
— WR_PARM — PARM_MOD	1; SFC 57; 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	
 User program protection/password protection 	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:

4/26/2024