SIEMENS

Data sheet

6ES7414-3XM05-0AB0



******* repair part ******* SIMATIC S7-400, CPU 414-3 central processing unit with: work memory 2.8 MB, (1.4 MB code, 1.4 MB data), 1st interface MPI/DP 12 Mbps, 2nd interface PROFIBUS DP, 3rd interface plug-in IFM module

Figure similar

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General information	
Product type designation	CPU 414-3
HW functional status	03
Firmware version	V5.3
Product function	
• Isochronous mode	Yes; For PROFIBUS only
Engineering with	
 Programming package 	STEP 7 V5.3 SP2 or higher with HW update
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.	1.1 A
from backplane bus 5 V DC, max.	1.3 A
from backplane bus 24 V DC, max.	450 mA; 150 mA per DP interface
from interface 5 V DC, max.	90 mA; At each DP interface
Power loss	
Power loss, typ.	5.5 W
Memory	
Type of memory	RAM
Work memory	
• integrated	2.8 Mbyte
integrated (for program)	1.4 Mbyte
integrated (for data)	1.4 Mbyte
expandable	No
Load memory	
 expandable FEPROM 	Yes; with Memory Card (FLASH)
 expandable FEPROM, max. 	64 Mbyte
integrated RAM, max.	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
Battery	
Backup battery	

 Backup current, typ. 	125 µA
 Backup current, max. 	550 μA
 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.	45 ns
for word operations, typ.	45 ns
for fixed point arithmetic, typ.	45 ns
for floating point arithmetic, typ.	135 ns
CPU-blocks	
DB	
• Number, max.	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
 Number of time alarm OBs 	4; OB 10-13
 Number of delay alarm OBs 	4; OB 20-23
 Number of cyclic interrupt OBs 	4; OB 32-35 (shortest cycle that can be set = 500 μs)
 Number of process alarm OBs 	4; OB 40-43
 Number of DPV1 alarm OBs 	3; OB 55-57
 Number of isochronous mode OBs 	3; OB 61-63
 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	
 per priority class 	24
 additional within an error OB 	1
Counters, timers and their retentivity	
S7 counter	
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
p - 6	9 990 s
— upper limit	9 990 8
— upper limit IEC timer	9 990 8
	Yes

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PROFIBUS and Ethernet CPs 14; Of which 10 CPs max. or IMs as DP master, 4 PROFINET controller		

Slots	
• required slots	2
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	
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
• 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, 1 x PROFIBUS DP (optionally pluggable)
Number of RS 485 interfaces	2; Combined MPI / PROFIBUS DP and PROFIBUS DP
Optical interface	No
1. Interface	
Interface type	MPI/PROFIBUS DP
Isolated	Yes
Interface types	AV.
• RS 485	Yes
Output current of the interface, max.	150 mA
Protocols	Van
MPI PPOEIRIS DP master	Yes
PROFIBUS DP master PROFIBUS DP device	Yes
PROFIBUS DP device MPI	Yes
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
Transmission rate may	12 Mbit/s
Transmission rate, max. Services	12 IVIDIUS
— PG/OP communication	Yes
	Yes
Routing Global data communication	Yes
	Yes
— S7 basic communication	1 C3
— S7 basic communication	Yes
— S7 communication	Yes
S7 communicationS7 communication, as client	Yes
— S7 communication— S7 communication, as client— S7 communication, as server	
S7 communication S7 communication, as client S7 communication, as server PROFIBUS DP master	Yes Yes
— S7 communication — S7 communication, as client — S7 communication, as server PROFIBUS DP master • Number of connections, max.	Yes Yes 16; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1
- S7 communication - S7 communication, as client - S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max.	Yes Yes 16; 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 - 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 16; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1
S7 communication S7 communication, as client S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max.	Yes Yes 16; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s

Douting	Voc. 97 routing
— 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
activation/deactivation of DP devices	Yes
 Direct data exchange (slave-to-slave communication) 	Yes
— DPV1	Yes
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
User data per DP device).0
— 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	120 0)10
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
Address area, max.	32; Virtual slots
User data per address area, max.	32 byte
— of which consistent, max.	32 byte
Services	02 by 60
— 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 — S7 communication, as client	Yes
	Yes
— S7 communication, as server	
 — Direct data exchange (slave-to-slave communication) 	No
— DPV1	No
Transfer memory	
— 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	
1 10100013	
PROFIBUS DP master	Yes
	Yes Yes
PROFIBUS DP masterPROFIBUS DP device	
PROFIBUS DP master PROFIBUS DP device PROFIBUS DP master	
 PROFIBUS DP master PROFIBUS DP device PROFIBUS DP master Number of connections, max. 	Yes 16
 PROFIBUS DP master PROFIBUS DP device PROFIBUS DP master Number of connections, max. Transmission rate, max. 	Yes 16 12 Mbit/s
PROFIBUS DP master PROFIBUS DP device PROFIBUS DP master Number of connections, max. Transmission rate, max. max. number of DP devices	Yes 16
PROFIBUS DP master PROFIBUS DP device PROFIBUS DP master Number of connections, max. Transmission rate, max. max. number of DP devices Services	Yes 16 12 Mbit/s 96
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	Yes 16 12 Mbit/s 96 Yes
PROFIBUS DP master PROFIBUS DP device PROFIBUS DP master Number of connections, max. Transmission rate, max. max. number of DP devices Services	Yes 16 12 Mbit/s 96

 — S7 basic communication 	Yes
— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
— Equidistance	Yes
Equidistance Isochronous mode	Yes
	Yes
— SYNC/FREEZE — activation/deactivation of DP devices	Yes
	Yes
Direct data exchange (slave-to-slave communication)	
— DPV1	Yes
Address area	
— Inputs, max.	6 kbyte
— Outputs, max.	6 kbyte
User data per DP device	0441
— 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	16
• 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	
— Routing	Yes; with interface active
Transfer memory	
— Inputs	244 byte
·	
— Outputs	244 byte
·	244 byte
— Outputs	244 byte pluggable interface module (IF), technical data as for 2nd interface
— Outputs 3. Interface	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0)
— Outputs 3. Interface Interface type	pluggable interface module (IF), technical data as for 2nd interface
— Outputs 3. Interface Interface type Plug-in interface modules	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0)
— Outputs 3. Interface Interface type Plug-in interface modules Isolated	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes
— Outputs 3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes
— Outputs 3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No
— Outputs 3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes
— Outputs 3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes
— Outputs 3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types RS 485 Output current of the interface, max. Protocols	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA
— Outputs 3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max. Protocols • MPI	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA
— Outputs 3. Interface 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes
— Outputs 3. Interface 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes
— Outputs 3. Interface 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes
— Outputs 3. Interface 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.	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes
— Outputs 3. Interface 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.	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes 16 12 Mbit/s
— Outputs 3. Interface 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes 16 12 Mbit/s
— Outputs 3. Interface 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes Yes 16 12 Mbit/s 96
— Outputs 3. Interface 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes Yes 16 12 Mbit/s 96
- Outputs 3. Interface 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes Yes Yes Yes Yes Yes Yes Yor Touting
- Outputs 3. Interface 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes Yes Yes Yes 16 12 Mbit/s 96 Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
- Outputs 3. Interface 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes Yes Yes Yes Yes You No Yes Yes You No No No No No
- Outputs 3. Interface 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 device PROFIBUS DP master Number of connections, max. Transmission rate, max. Transmission rate, max. Transmission rate, max. PG/OP communication Routing Global data communication S7 basic communication S7 basic communication	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
- Outputs 3. Interface 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. Transmission rate, max. Protocols PROFIBUS DP master Services - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication - S7 communication, as client	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes Yes Yes Yes Yes Yes Yes
Interface 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. Tran	pluggable interface module (IF), technical data as for 2nd interface 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 ra	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes Yes Yes Yes Yes Yes Ye
Outputs 3. Interface 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes
Outputs 3. Interface 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 ra	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes

a a manus in a stire - \	
communication) — DPV0	Von
	Yes
— DPV1	Yes
Address area	Clhida
— 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	40
Number of connections	16
• 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
 User data per address area, max. 	32 byte
— of which consistent, max.	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
Protocols	
SIMATIC communication	
SIMATIC communication • S7 routing	Yes
	Yes
S7 routing	Yes Via CP 443-1 and loadable FB
S7 routing Open IE communication	
S7 routing Open IE communication ISO-on-TCP (RFC1006)	Via CP 443-1 and loadable FB
S7 routing Open IE communication ISO-on-TCP (RFC1006) — Data length, max.	Via CP 443-1 and loadable FB
S7 routing Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv.
S7 routing Open IE communication ISO-on-TCP (RFC1006) Data length, max. Web server supported Isochronous mode	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv.
S7 routing Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No
S7 routing Open IE communication ISO-on-TCP (RFC1006) Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3
S7 routing Open IE communication ISO-on-TCP (RFC1006) Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max.	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte
S7 routing Open IE communication ISO-on-TCP (RFC1006) Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127
S7 routing Open IE communication ISO-on-TCP (RFC1006) Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte
S7 routing Open IE communication ISO-on-TCP (RFC1006) Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms
S7 routing Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes
S7 routing Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication Number of connectable OPs with message processing	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 31; When using Alarm_S/SQ and Alarm_D/DQ
S7 routing Open IE communication ISO-on-TCP (RFC1006) Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication Number of connectable OPs without message processing Number of connectable OPs without message processing	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 31; When using Alarm_S/SQ and Alarm_D/DQ 31
S7 routing Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication Number of connectable OPs with message processing Number of connectable OPs without message processing Data record routing	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 31; When using Alarm_S/SQ and Alarm_D/DQ
S7 routing Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication Number of connectable OPs with message processing Number of connectable OPs without message processing Data record routing Global data communication	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 31; When using Alarm_S/SQ and Alarm_D/DQ 31 Yes
Strouting Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication Number of connectable OPs with message processing Number of connectable OPs without message processing Data record routing Global data communication supported	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 31; When using Alarm_S/SQ and Alarm_D/DQ 31 Yes Yes
Strouting Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication Number of connectable OPs with message processing Number of connectable OPs without message processing Data record routing Global data communication supported Number of GD loops, max.	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 31; When using Alarm_S/SQ and Alarm_D/DQ 31 Yes Yes 8
Strouting Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication Number of connectable OPs with message processing Number of connectable OPs without message processing Data record routing Global data communication supported Number of GD loops, max. Number of GD packets, transmitter, max.	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 31; When using Alarm_S/SQ and Alarm_D/DQ 31 Yes Yes 8 8 8
S7 routing Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server Supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication Number of connectable OPs with message processing Number of connectable OPs without message processing Data record routing Global data communication supported Number of GD loops, max. Number of GD packets, transmitter, max. Number of GD packets, receiver, max.	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 31; When using Alarm_S/SQ and Alarm_D/DQ 31 Yes Yes 8 8 8 16
S7 routing Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server Supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication Number of connectable OPs with message processing Number of connectable OPs without message processing Data record routing Global data communication supported Number of GD loops, max. Number of GD packets, transmitter, max.	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 31; When using Alarm_S/SQ and Alarm_D/DQ 31 Yes Yes 8 8 8

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
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 CPU, max. 	24/24
Standard communication (FMS)	
• supported	Yes; Via CP and loadable FB
Number of connections	
• overall	32
usable for PG communication	31
reserved for PG communication	1
adjustable for PG communication, max.	0
usable for OP communication	31
reserved for OP communication	1
adjustable for OP communication, max.	0
usable for S7 basic communication	30
reserved for S7 basic communication	0
	0
— adjustable for S7 basic communication, max.	
usable for S7 communication	30
— reserved for S7 communication	0
— adjustable for S7 communication, max.	0
usable for routing	15
— reserved for routing	0
— adjustable for routing, max.	0
S7 message functions	24.14 24.11 11 202 11 202 12 20 20 20 20 20 20 20 20 20 20 20 20 20
Number of login stations for message functions, max.	31; Max. 31 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm_8 and Alarm_P (e.g. WinCC)
Symbol-related messages	Yes
SCAN procedure	Yes
Program alarms	Yes
Process diagnostic messages	Yes
simultaneously active Alarm_S blocks, max.	400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks
Alarm 8-blocks	Yes
 Number of instances for alarm 8 and S7 communication blocks, max. 	1 200
• 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 100 Hs grid, max. with 500, 1000 ms grid, max. 	10
Test commissioning functions	.,
Status block	Ves: Un to 2 simultaneously
Single step	Yes; Up to 2 simultaneously Yes
Number of breakpoints	4
National of prearboling	7

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	V
• Forcing	Yes
 Forcing, variables 	Inputs, outputs, bit memories, peripheral inputs, peripheral outputs
Number of variables, max.	256
Diagnostic buffer	
• present	Yes
 Number of entries, max. 	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
	Yes
RCM (formerly C-TICK)	
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
Command set Nesting levels	see instruction list
Nesting levels	7
Nesting levelsAccess to consistent data in process imageSystem functions (SFC)	7 Yes
Nesting levelsAccess to consistent data in process image	7 Yes see instruction list
 Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) 	7 Yes see instruction list
 Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language — LAD 	7 Yes see instruction list see instruction list
 Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD 	7 Yes see instruction list see instruction list Yes Yes
 Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL 	7 Yes see instruction list see instruction list Yes Yes Yes
 Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL 	7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes
 Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC 	7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes
 Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH 	7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes
 Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® 	7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® configuration / programming / number of simultaneously active.	7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language — LAD — FBD — STL — SCL — CFC — GRAPH — HiGraph® configuration / programming / number of simultaneously acti	7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® configuration / programming / number of simultaneously acti DPSYC_FR D_ACT_DP	7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® configuration / programming / number of simultaneously acti — DPSYC_FR — D_ACT_DP — RD_REC	7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® configuration / programming / number of simultaneously acti — DPSYC_FR — D_ACT_DP — RD_REC — WR_REC	7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® configuration / programming / number of simultaneously acti — DPSYC_FR — D_ACT_DP — RD_REC	7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® configuration / programming / number of simultaneously acti — DPSYC_FR — D_ACT_DP — RD_REC — WR_REC	7 Yes see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® configuration / programming / number of simultaneously acti DPSYC_FR D_ACT_DP RD_REC WR_REC WR_PARM	7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® configuration / programming / number of simultaneously acti DPSYC_FR D_ACT_DP RD_REC WR_REC WR_PARM PARM_MOD	7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® configuration / programming / number of simultaneously acti DPSYC_FR D_ACT_DP RD_REC WR_REC WR_PARM PARM_MOD WR_DPARM	7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® configuration / programming / number of simultaneously acti DPSYC_FR D_ACT_DP RD_REC WR_REC WR_PARM PARM_MOD WR_DPARM DPNRM_DG RDSYSST	7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language — LAD — FBD — STL — SCL — CFC — GRAPH — HiGraph® configuration / programming / number of simultaneously acti — DPSYC_FR — D_ACT_DP — RD_REC — WR_REC — WR_PARM — PARM_MOD — WR_DPARM — DPNRM_DG	7 Yes see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye

— WRREC	8; SFB 53; per interface, but not more than 32 across all external interfaces
Know-how protection	
 User program protection/password protection 	Yes
Dimensions	
Width	50 mm
Height	290 mm
Depth	219 mm
Weights	
Weight, approx.	900 g

last modified: 12/8/2024 **C**