SIEMENS

Data sheet

6ES7414-3EM07-0AB0



SIMATIC S7-400, CPU 414-3 PN/DP Central processing unit with: Work memory 4 MB, (2 MB code, 2 MB data), interfaces 1st interface MPI/DP 12 Mbit/s, (X1), 2nd interface Ethernet/PROFINET (X5) 3rd interface IF 964-DP plug-in (IF1)

General information	
Product type designation	CPU 414-3 PN/DP
Firmware version	V7.0
Product function	
Isochronous mode	Yes; Via PROFIBUS DP or PROFINET interface
Engineering with	
 Programming package 	STEP 7 V5.5 or higher with HSP 262
CiR - Configuration in RUN	
CiR synchronization time, basic load	100 ms
CiR synchronization time, time per I/O byte	15 µs
Supply voltage	
Rated value (DC)	Power supply via system power supply
Input current	
from backplane bus 5 V DC, typ.	1.3 A
from backplane bus 5 V DC, max.	1.6 A
from backplane bus 24 V DC, max.	300 mA; 150 mA per DP interface
from interface 5 V DC, max.	90 mA; At each DP interface
Power loss	
Power loss, typ.	6.5 W
Power loss, max.	8 W
Memory	
Type of memory	RAM
Work memory	
integrated	4 Mbyte
integrated (for program)	2 Mbyte
integrated (for data)	2 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.	180 μA; up to 40 °C
 Backup current, max. 	850 μΑ
Backup time, max.	Dealt with in the module data manual with the secondary conditions and the factors of influence
 Feeding of external backup voltage to CPU 	5 V DC to 15 V DC
CPU processing times	
for bit operations, typ.	18.75 ns
for word operations, typ.	18.75 ns
for fixed point arithmetic, typ.	18.75 ns
for floating point arithmetic, typ.	37.5 ns
CPU-blocks	
DB	
Number, max.	6 000; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	0.1.0,10
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 20-23 4; OB 32, 33, 34, 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
— lower limit	0
— upper limit	2 047
— 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
— lower limit	0
— upper limit	2 047
— preset	No times retentive
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
• 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.	8 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.	16 kbyte
• preset	8 kbyte
Address area	
I/O address area	
• Inputs	8 kbyte
Outputs	8 kbyte
Process image	
Inputs, adjustable	8 kbyte
Outputs, adjustable	8 kbyte
• Inputs, default	256 byte
Outputs, default	256 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	65 536
— of which central	65 536
Outputs	65 536
— of which central	65 536
Analog channels	
• Inputs	4 096
of which central	4 096
Outputs	4 096
of which central	4 096
Hardware configuration	
	24
Number of expansion units, max.	21
connectable OPs	63 Voc. 4 CBLIs may (with LIB4 or LIB2)
Multicomputing	Yes; 4 CPUs max. (with UR1 or UR2)
Interface modules	6
Number of connectable IMs (total), max. Number of connectable IM (CO), max.	6
Number of connectable IM 460s, max.	6
Number of connectable IM 463s, max.	4; IM 463-2
Number of DP masters	4
• integrated	1 40: 0P 440 5 Februard
• via CP	10; CP 443-5 Extended
• via IM 467	4
 Mixed mode IM + CP permitted 	No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode

via interface module	1; IF 964-DP
 Number of pluggable S5 modules (via adapter capsule in central device), max. 	6
Number of IO Controllers	
integrated	1
• via CP	4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode
Number of operable FMs and CPs (recommended)	
• FM	Limited by number of slots and number of connections
• CP, PtP	CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections
 PROFIBUS and Ethernet CPs 	14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller
Slots	
required slots	2
ime 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
 • to MPI, slave 	Yes
• to DP, master	Yes
• to DP, slave	Yes
● in AS, master	Yes
• in AS, slave	Yes
on Ethernet via NTP	Yes; As client
● to IF 964 DP	Yes
Time difference in system when synchronizing via	
• Ethernet, max.	10 ms
• MPI, max.	200 ms
nterfaces	
Interfaces/bus type	1 x MPI/PROFIBUS DP, 1 x PROFINET (2 ports), 1 x PROFIBUS DP (optionally pluggable)
Number of RS 485 interfaces	1; Combined MPI / PROFIBUS DP
Number of other interfaces	1; PROFIBUS DP with IF 964-DP (plug-in option; MLFB: 6ES7964-2AA04-0AB0)
. Interface	
Interface type	MPI/PROFIBUS DP
Isolated	Yes
Interface types	
• RS 485	Yes
 Output current of the interface, max. 	150 mA
Protocols	
• MPI	Yes
PROFIBUS DP master	Yes
PROFIBUS DP masterPROFIBUS DP slave	Yes Yes

	connection resources on the line is reduced by 1
Transmission rate, max. Services	12 Mbit/s
Services	Voc
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
PROFIBUS DP master	40.15 11 11 11 11 11 11
 Number of connections, max. 	16; 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
Number of DP slaves, max.	32
Services	02
— PG/OP communication	Yes
— Routing	Yes; S7 routing
Global data communication	No
— S7 basic communication	Yes
— S7 communication	Yes
S7 communication, as client	Yes
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	Yes
— SYNC/FREEZE	Yes
Activation/deactivation of DP slaves	Yes
Direct data exchange (slave-to-slave)	Yes
communication)	100
— DPV1	Yes
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
User data per DP slave	
— User data per DP slave, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
PROFIBUS DP slave	
Number of connections	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	
— 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
Direct data exchange (slave-to-slave)	No
communication)	
— DPV1	No
Transfer memory	

- Inputs	
Interface type	
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- Isochronous mode - Shared device - Prioritized startup - Number of IO devices with prioritized startup, max Number of connectable IO Devices, max Of which IO devices with IRT, max Of which In line, max Number of IO Devices with IRT and the option "high flexibility" - of which in line, max Of which in li	
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- Prioritized startup - Number of IO devices with prioritized startup, max. - Number of connectable IO Devices, max Of which IO devices with IRT, max of which in line, max Number of IO Devices with IRT and the option "high flexibility" - of which in line, max Number of connectable IO Devices for RT, max Number of connectable IO Devices for RT, max of which in line, max O	
- Number of IO devices with prioritized startup, max. - Number of connectable IO Devices, max. - Of which IO devices with IRT, max. - of which in line, max. - Number of IO Devices with IRT and the option "high flexibility" - of which in line, max. - Number of connectable IO Devices for RT, max. - Number of connectable IO Devices for RT, max. - of which in line, max. - yes - Number of IO Devices that can be simultaneously activated/deactivated, max. - IO Devices changing during operation (partner ports), supported - Number of IO Devices per tool, max. - IO Devices changing during operation (partner ports) are supported - Number of IO Devices per tool, max. - Send cycles - Send cycles - Updating time 32 256 44 256 256 256 256 256 256	
max. — Number of connectable IO Devices, max. — Of which IO devices with IRT, max. — of which in line, max. — Number of IO Devices with IRT and the option "high flexibility" — of which in line, max. — Number of connectable IO Devices for RT, max. — of which in line, max. — IO Devices that can be simultaneously activated/deactivated, max. — IO Devices changing during operation (partner ports), supported — Number of IO Devices per tool, max. — Device replacement without swap medium — Device replacement without swap medium — Send cycles — Updating time 256 64 64 65 65 67 68 88 88 88 88 88 88 88 88	
- Of which IO devices with IRT, max of which in line, max Number of IO Devices with IRT and the option "high flexibility" - of which in line, max Number of connectable IO Devices for RT, max Of which in line,	
 of which in line, max. Number of IO Devices with IRT and the option "high flexibility" of which in line, max. Number of connectable IO Devices for RT, max. of which in line, max. Activation/deactivation of IO Devices Number of IO Devices that can be simultaneously activated/deactivated, max. IO Devices changing during operation (partner ports), supported Number of IO Devices per tool, max. 8; 8 parallel calls of the SFC 12 "D_ACT_DP" possible per line. No Devices changing during operation (partner ports) are support Yes Send cycles Updating time 256 Yes 8 8 8 8 9 parallel calls of the SFC 12 "D_ACT_DP" possible per line. No Devices changing during operation (partner ports) are support Yes 250 µs, 500 µs, 1 ms, 2 ms, 4 ms additionally with IRT with high performance: 250 µs to 4 ms in 125 µs frame Updating time 250 µs to 512 ms; minimum value depends on preset communication. 	
 Number of IO Devices with IRT and the option "high flexibility" — of which in line, max. — Number of connectable IO Devices for RT, max. — of which in line, max. — of which in line, max. — of which in line, max. — Activation/deactivation of IO Devices — Number of IO Devices that can be simultaneously activated/deactivated, max. — IO Devices changing during operation (partner ports), supported — Number of IO Devices per tool, max. — Device replacement without swap medium — Send cycles — Updating time 256 41 256 48 8 8 8 8 8 8 8 9 arallel calls of the SFC 12 "D_ACT_DP" possible per line. No Devices changing during operation (partner ports) are support yes 250 μs, 500 μs, 1 ms, 2 ms, 4 ms additionally with IRT with high performance: 250 μs to 4 ms in 125 μs frame — Updating time 250 μs to 512 ms; minimum value depends on preset communication. 	
"high flexibility" — of which in line, max. — Number of connectable IO Devices for RT, max. — of which in line, max. — of which in line, max. — of which in line, max. — Activation/deactivation of IO Devices — Number of IO Devices that can be simultaneously activated/deactivated, max. — IO Devices changing during operation (partner ports), supported — Number of IO Devices per tool, max. — IO Devices changing during operation (partner ports), supported — Number of IO Devices per tool, max. 8; 8 parallel calls of the SFC 12 "D_ACT_DP" possible per line. No Devices changing during operation (partner ports) are supported — Device replacement without swap medium — Send cycles — Send cycles — Updating time 250 µs, 500 µs, 1 ms, 2 ms, 4 ms additionally with IRT with high performance: 250 µs to 4 ms in 125 µs frame — Updating time	
 — Number of connectable IO Devices for RT, max. — of which in line, max. — Activation/deactivation of IO Devices — Number of IO Devices that can be simultaneously activated/deactivated, max. — IO Devices changing during operation (partner ports), supported — Number of IO Devices per tool, max. — Device replacement without swap medium — Send cycles — Updating time 256 36 36 37 38 38 39 30 30<!--</td--><td></td>	
max. — of which in line, max. — Activation/deactivation of IO Devices — Number of IO Devices that can be simultaneously activated/deactivated, max. — IO Devices changing during operation (partner ports), supported — Number of IO Devices per tool, max. — Device replacement without swap medium — Send cycles — Updating time 256 Yes 8 8 8 8 8 8 8 8 8 8 8 8 8	
 — Activation/deactivation of IO Devices — Number of IO Devices that can be simultaneously activated/deactivated, max. — IO Devices changing during operation (partner ports), supported — Number of IO Devices per tool, max. — Device replacement without swap medium — Send cycles — Updating time Yes 8; 8 parallel calls of the SFC 12 "D_ACT_DP" possible per line. No IO Devices changing during operation (partner ports) are support Yes — 250 μs, 500 μs, 1 ms, 2 ms, 4 ms additionally with IRT with high performance: 250 μs to 4 ms in 125 μs frame — Updating time 	
 Number of IO Devices that can be simultaneously activated/deactivated, max. IO Devices changing during operation (partner ports), supported Number of IO Devices per tool, max. Device replacement without swap medium Send cycles Updating time 8 Yes Yes Yes O Devices changing during operation (partner ports) are support yes Yes 250 μs, 500 μs, 1 ms, 2 ms, 4 ms additionally with IRT with high performance: 250 μs to 4 ms in 125 μs frame Updating time 	
simultaneously activated/deactivated, max. — IO Devices changing during operation (partner ports), supported — Number of IO Devices per tool, max. — Device replacement without swap medium — Send cycles — Updating time Yes Yes 8; 8 parallel calls of the SFC 12 "D_ACT_DP" possible per line. No Devices changing during operation (partner ports) are support Yes 250 µs, 500 µs, 1 ms, 2 ms, 4 ms additionally with IRT with high performance: 250 µs to 4 ms in 125 µs frame 250 µs to 512 ms; minimum value depends on preset communication.	
ports), supported — Number of IO Devices per tool, max. 8; 8 parallel calls of the SFC 12 "D_ACT_DP" possible per line. No Devices changing during operation (partner ports) are supported. — Device replacement without swap medium — Send cycles — Send cycles — Updating time 8; 8 parallel calls of the SFC 12 "D_ACT_DP" possible per line. No Devices changing during operation (partner ports) are supported. Yes 250 μs, 500 μs, 1 ms, 2 ms, 4 ms additionally with IRT with high performance: 250 μs to 4 ms in 125 μs frame 250 μs to 512 ms; minimum value depends on preset communication.	
 Number of IO Devices per tool, max. 8; 8 parallel calls of the SFC 12 "D_ACT_DP" possible per line. No Device replacement without swap medium Device replacement without swap medium Send cycles 250 μs, 500 μs, 1 ms, 2 ms, 4 ms additionally with IRT with high performance: 250 μs to 4 ms in 125 μs frame Updating time 250 μs to 512 ms; minimum value depends on preset communication. 	
 Device replacement without swap medium Send cycles 250 μs, 500 μs, 1 ms, 2 ms, 4 ms additionally with IRT with high performance: 250 μs to 4 ms in 125 μs frame Updating time 250 μs to 512 ms; minimum value depends on preset communication. 	
 — Send cycles 250 μs, 500 μs, 1 ms, 2 ms, 4 ms additionally with IRT with high performance: 250 μs to 4 ms in 125 μs frame — Updating time 250 μs to 512 ms; minimum value depends on preset communication. 	
 — Updating time 250 μs to 512 ms; minimum value depends on preset communication 	h
share for PROFINET IO, on the number of IO Devices and on the amount of configured user data, see PROFINET system descript	the
Address area	
— Inputs, max. 8 kbyte	
— Outputs, max. 8 kbyte	
— User data consistency, max. 1 024 byte	
PROFINET IO Device	

Services	
— PG/OP communication	Yes
— S7 communication	Yes
— Isochronous mode	No
— IRT	Yes
— Prioritized startup	Yes
 Shared device 	Yes
 Number of IO Controllers with shared device, 	2
max.	
Transfer memory	
— Inputs, max.	1 440 byte; Per IO Controller with shared device
— Outputs, max.	1 440 byte; Per IO Controller with shared device
Submodules	
— Number, max.	64
— User data per submodule, max.	1 024 byte
PROFINET CBA	
 acyclic transmission 	Yes
cyclic transmission	Yes
Open IE communication	
Number of connections, max.	62
 Local port numbers used at the system end 	0, 20, 21, 25, 80, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535
Keep-alive function, supported	Yes
3. Interface	
Interface type	Pluggable interface module (IF)
Plug-in interface modules	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0)
Isolated	Yes
automatic detection of transmission rate	No
Interface types	
• RS 485	Yes
Output current of the interface, max.	150 mA
Protocols	
• MPI	No
 PROFIBUS DP master 	Yes
PROFIBUS DP slave	Yes
PROFIBUS DP master	
	16
 Number of connections, max. 	
Number of connections, max.Transmission rate, max.	12 Mbit/s
• Transmission rate, max.	12 Mbit/s
Transmission rate, max.Number of DP slaves, max.	12 Mbit/s
Transmission rate, max.Number of DP slaves, max.Services	12 Mbit/s 96
 Transmission rate, max. Number of DP slaves, max. Services — PG/OP communication 	12 Mbit/s 96 Yes
 Transmission rate, max. Number of DP slaves, max. Services — PG/OP communication — Routing 	12 Mbit/s 96 Yes Yes; S7 routing
 Transmission rate, max. Number of DP slaves, max. Services PG/OP communication Routing Global data communication 	12 Mbit/s 96 Yes Yes; S7 routing No
 Transmission rate, max. Number of DP slaves, max. Services PG/OP communication Routing Global data communication S7 basic communication 	12 Mbit/s 96 Yes Yes; S7 routing No Yes
 Transmission rate, max. Number of DP slaves, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication 	12 Mbit/s 96 Yes Yes; S7 routing No Yes Yes
 Transmission rate, max. Number of DP slaves, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication, as client 	12 Mbit/s 96 Yes Yes; S7 routing No Yes Yes Yes
 Transmission rate, max. Number of DP slaves, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication, as client S7 communication, as server 	12 Mbit/s 96 Yes Yes; S7 routing No Yes Yes Yes Yes Yes
 Transmission rate, max. Number of DP slaves, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication, as client S7 communication, as server Equidistance 	12 Mbit/s 96 Yes Yes; S7 routing No Yes Yes Yes Yes Yes Yes
 Transmission rate, max. Number of DP slaves, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Equidistance — Isochronous mode 	12 Mbit/s 96 Yes Yes; S7 routing No Yes Yes Yes Yes Yes Yes Yes Yes
 Transmission rate, max. Number of DP slaves, max. 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 	12 Mbit/s 96 Yes Yes; S7 routing No Yes
 Transmission rate, max. Number of DP slaves, max. 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 slaves — Direct data exchange (slave-to-slave 	12 Mbit/s 96 Yes Yes; S7 routing No Yes
 Transmission rate, max. Number of DP slaves, max. 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 — Activation/deactivation of DP slaves — Direct data exchange (slave-to-slave communication) 	12 Mbit/s 96 Yes Yes; S7 routing No Yes
 Transmission rate, max. Number of DP slaves, max. 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 — Activation/deactivation of DP slaves — Direct data exchange (slave-to-slave communication) — DPV0 	12 Mbit/s 96 Yes Yes; S7 routing No Yes
 Transmission rate, max. Number of DP slaves, max. 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 — Activation/deactivation of DP slaves — Direct data exchange (slave-to-slave communication) — DPV0 — DPV1 	12 Mbit/s 96 Yes Yes; S7 routing No Yes
 Transmission rate, max. Number of DP slaves, max. 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 — Activation/deactivation of DP slaves — Direct data exchange (slave-to-slave communication) — DPV0 — DPV1 Address area 	12 Mbit/s 96 Yes Yes; S7 routing No Yes

Hear data per DD alaya, may	244 byte
User data per DP slave, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
PROFIBUS DP slave • Number of connections	16
GSD file	16 http://support.automation.siemens.com/WW/view/en/113652
	12 Mbit/s
 Transmission rate, max. automatic baud rate search 	No
Address area, max.	32; Virtual slots
•	32 byte
 User data per address area, max. — of which consistent, max. 	32 byte
Services	32 byte
— PG/OP communication	Yes
— Routing	Yes; with interface active
Global data communication	No
S7 basic communication	No
— S7 communication	Yes
— S7 communication — S7 communication, as client	Yes
— S7 communication, as cirent — S7 communication, as server	Yes
Direct data exchange (slave-to-slave)	No
communication)	INU
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
Protocols	
Redundancy mode	
Media redundancy	
Switchover time on line break, typ.	200 ms
Number of stations in the ring, max.	50
SIMATIC communication	
• S7 routing	Yes
Open IE communication	
Open IE communication • TCP/IP	Yes; via integrated PROFINET interface and loadable FBs
•	Yes; via integrated PROFINET interface and loadable FBs
TCP/IP — Number of connections, max.	62
• TCP/IP	
 TCP/IP — Number of connections, max. — Data length, max. — several passive connections per port, supported 	62 32 kbyte
 TCP/IP — Number of connections, max. — Data length, max. — several passive connections per port, 	62 32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable
 TCP/IP Number of connections, max. Data length, max. several passive connections per port, supported ISO-on-TCP (RFC1006) 	62 32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs
 TCP/IP Number of connections, max. Data length, max. several passive connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. 	62 32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs 62
 TCP/IP Number of connections, max. Data length, max. several passive connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. 	62 32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs 62 32 kbyte; 1 452 bytes via CP 443-1 Adv.
 TCP/IP Number of connections, max. Data length, max. several passive connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. UDP 	32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs 62 32 kbyte; 1 452 bytes via CP 443-1 Adv. Yes; via integrated PROFINET interface and loadable FBs
 TCP/IP Number of connections, max. Data length, max. several passive connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. UDP Number of connections, max. 	32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs 62 32 kbyte; 1 452 bytes via CP 443-1 Adv. Yes; via integrated PROFINET interface and loadable FBs 62
 TCP/IP Number of connections, max. Data length, max. several passive connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. UDP Number of connections, max. Data length, max. 	32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs 62 32 kbyte; 1 452 bytes via CP 443-1 Adv. Yes; via integrated PROFINET interface and loadable FBs
 TCP/IP Number of connections, max. Data length, max. several passive connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. UDP Number of connections, max. Data length, max. Web server 	32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs 62 32 kbyte; 1 452 bytes via CP 443-1 Adv. Yes; via integrated PROFINET interface and loadable FBs 62 1 472 byte
 TCP/IP Number of connections, max. Data length, max. several passive connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. UDP Number of connections, max. Data length, max. Web server supported 	32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs 62 32 kbyte; 1 452 bytes via CP 443-1 Adv. Yes; via integrated PROFINET interface and loadable FBs 62 1 472 byte
 TCP/IP Number of connections, max. Data length, max. several passive connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. UDP Number of connections, max. Data length, max. Web server supported User-defined websites 	32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs 62 32 kbyte; 1 452 bytes via CP 443-1 Adv. Yes; via integrated PROFINET interface and loadable FBs 62 1 472 byte Yes Yes
TCP/IP Number of connections, max. Data length, max. several passive connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. UDP Number of connections, max. Data length, max. Web server supported User-defined websites Number of HTTP clients	32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs 62 32 kbyte; 1 452 bytes via CP 443-1 Adv. Yes; via integrated PROFINET interface and loadable FBs 62 1 472 byte
 TCP/IP Number of connections, max. Data length, max. several passive connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. UDP Number of connections, max. Data length, max. Web server supported User-defined websites 	62 32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs 62 32 kbyte; 1 452 bytes via CP 443-1 Adv. Yes; via integrated PROFINET interface and loadable FBs 62 1 472 byte Yes Yes 5
TCP/IP Number of connections, max. Data length, max. several passive connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. UDP Number of connections, max. Data length, max. Veb server supported User-defined websites Number of HTTP clients	62 32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs 62 32 kbyte; 1 452 bytes via CP 443-1 Adv. Yes; via integrated PROFINET interface and loadable FBs 62 1 472 byte Yes Yes Yes
 TCP/IP Number of connections, max. Data length, max. several passive connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. UDP Number of connections, max. Data length, max. Web server supported User-defined websites Number of HTTP clients Isochronous mode Equidistance Number of DP masters with isochronous mode 	62 32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs 62 32 kbyte; 1 452 bytes via CP 443-1 Adv. Yes; via integrated PROFINET interface and loadable FBs 62 1 472 byte Yes Yes 5
TCP/IP Number of connections, max. Data length, max. several passive connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. UDP Number of connections, max. Data length, max. Veb server supported User-defined websites Number of HTTP clients Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max.	62 32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs 62 32 kbyte; 1 452 bytes via CP 443-1 Adv. Yes; via integrated PROFINET interface and loadable FBs 62 1 472 byte Yes Yes Yes 2 244 byte
TCP/IP Number of connections, max. Data length, max. several passive connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. UDP Number of connections, max. Data length, max. Web server supported User-defined websites Number of HTTP clients Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse	G2 32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs G2 32 kbyte; 1 452 bytes via CP 443-1 Adv. Yes; via integrated PROFINET interface and loadable FBs G2 1 472 byte Yes Yes Yes 1 Yes Yes 2 244 byte 1 ms; 0.5 ms without use of SFC 126, 127
TCP/IP Number of connections, max. Data length, max. several passive connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. UDP Number of connections, max. Data length, max. Web server supported User-defined websites Number of HTTP clients Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle	62 32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs 62 32 kbyte; 1 452 bytes via CP 443-1 Adv. Yes; via integrated PROFINET interface and loadable FBs 62 1 472 byte Yes Yes Yes 2 244 byte
TCP/IP Number of connections, max. Data length, max. several passive connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. UDP Number of connections, max. Data length, max. Veb server supported User-defined websites Number of HTTP clients Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse	G2 32 kbyte Yes Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs G2 32 kbyte; 1 452 bytes via CP 443-1 Adv. Yes; via integrated PROFINET interface and loadable FBs G2 1 472 byte Yes Yes Yes 1 Yes Yes 2 244 byte 1 ms; 0.5 ms without use of SFC 126, 127

 Number of connectable OPs without message 	
	63
processing	62: When using Alarm S/SO and Alarm D/DO
 Number of connectable OPs with message processing 	63; When using Alarm_S/SQ and Alarm_D/DQ
Data record routing	Yes
Global data communication	
• supported	Yes
Number of GD loops, max.	8
Number of GD packets, transmitter, max.	8
•	
Number of GD packets, receiver, max. Sing of GD packets may.	16
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
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	24/24
orders per CPU, max.	
Standard communication (FMS)	
• supported	Yes; Via CP and loadable FB
PROFINET CBA (at set setpoint communication load)	
Setpoint for the CPU communication load	20 %
Number of remote interconnection partners	32
 Number of functions, master/slave 	150
Total of all master/slave connections	4 500
Data length of all incoming connections	45 000 byte
master/slave, max.	
- Data langth of all outgoing connections	45 000 byta
Data length of all outgoing connections master/slave, max.	45 000 byte
	45 000 byte 1 000
master/slave, max. • Number of device-internal and PROFIBUS	·
master/slave, max. • Number of device-internal and PROFIBUS interconnections • Data length of device-internal und PROFIBUS	1 000
master/slave, max. • Number of device-internal and PROFIBUS interconnections • Data length of device-internal und PROFIBUS interconnections, max.	1 000 16 000 byte
master/slave, max. Number of device-internal and PROFIBUS interconnections Data length of device-internal und PROFIBUS interconnections, max. Data length per connection, max.	1 000 16 000 byte
master/slave, max. Number of device-internal and PROFIBUS interconnections Data length of device-internal und PROFIBUS interconnections, max. Data length per connection, max. Remote interconnections with acyclic transmission	1 000 16 000 byte 2 000 byte 200 ms; Depending on preset communication load, number of
 master/slave, max. Number of device-internal and PROFIBUS interconnections Data length of device-internal und PROFIBUS interconnections, max. Data length per connection, max. Remote interconnections with acyclic transmission — Sampling interval, min. Number of incoming interconnections 	1 000 16 000 byte 2 000 byte 200 ms; Depending on preset communication load, number of interconnections and data length used
master/slave, max. Number of device-internal and PROFIBUS interconnections Data length of device-internal und PROFIBUS interconnections, max. Data length per connection, max. Remote interconnections with acyclic transmission — Sampling interval, min. Number of incoming interconnections — Number of outgoing interconnections	1 000 16 000 byte 2 000 byte 200 ms; Depending on preset communication load, number of interconnections and data length used 250 250
 master/slave, max. Number of device-internal and PROFIBUS interconnections Data length of device-internal und PROFIBUS interconnections, max. Data length per connection, max. Remote interconnections with acyclic transmission — Sampling interval, min. Number of incoming interconnections 	1 000 16 000 byte 2 000 byte 200 ms; Depending on preset communication load, number of interconnections and data length used 250
master/slave, max. Number of device-internal and PROFIBUS interconnections Data length of device-internal und PROFIBUS interconnections, max. Data length per connection, max. Remote interconnections with acyclic transmission — Sampling interval, min. Number of incoming interconnections — Number of outgoing interconnections — Data length of all incoming interconnections,	1 000 16 000 byte 2 000 byte 200 ms; Depending on preset communication load, number of interconnections and data length used 250 250
master/slave, max. Number of device-internal and PROFIBUS interconnections Data length of device-internal und PROFIBUS interconnections, max. Data length per connection, max. Remote interconnections with acyclic transmission — Sampling interval, min. Number of incoming interconnections — Number of outgoing interconnections — Data length of all incoming interconnections, max. — Data length of all outgoing interconnections,	1 000 16 000 byte 2 000 byte 200 ms; Depending on preset communication load, number of interconnections and data length used 250 250 8 000 byte
master/slave, max. Number of device-internal and PROFIBUS interconnections Data length of device-internal und PROFIBUS interconnections, max. Data length per connection, max. Remote interconnections with acyclic transmission — Sampling interval, min. — Number of incoming interconnections — Number of outgoing interconnections — Data length of all incoming interconnections, max. — Data length of all outgoing interconnections, max. — Data length per connection, max.	1 000 16 000 byte 2 000 byte 200 ms; Depending on preset communication load, number of interconnections and data length used 250 250 8 000 byte 8 000 byte
master/slave, max. Number of device-internal and PROFIBUS interconnections Data length of device-internal und PROFIBUS interconnections, max. Data length per connection, max. Remote interconnections with acyclic transmission — Sampling interval, min. Number of incoming interconnections — Number of outgoing interconnections — Data length of all incoming interconnections, max. — Data length of all outgoing interconnections, max.	1 000 16 000 byte 2 000 byte 200 ms; Depending on preset communication load, number of interconnections and data length used 250 250 8 000 byte 8 000 byte
master/slave, max. Number of device-internal and PROFIBUS interconnections Data length of device-internal und PROFIBUS interconnections, max. Data length per connection, max. Remote interconnections with acyclic transmission — Sampling interval, min. Number of incoming interconnections — Number of outgoing interconnections — Data length of all incoming interconnections, max. — Data length of all outgoing interconnections, max. — Data length per connection, max. Remote interconnections with cyclic transmission — Transmission frequency: Transmission interval, min.	1 000 16 000 byte 2 000 byte 200 ms; Depending on preset communication load, number of interconnections and data length used 250 250 8 000 byte 8 000 byte 2 000 byte 1 ms; Depending on preset communication load, number of
 master/slave, max. Number of device-internal and PROFIBUS interconnections Data length of device-internal und PROFIBUS interconnections, max. Data length per connection, max. Remote interconnections with acyclic transmission Sampling interval, min. Number of incoming interconnections Number of outgoing interconnections Data length of all incoming interconnections, max. Data length of all outgoing interconnections, max. Data length per connection, max. Remote interconnections with cyclic transmission Transmission frequency: Transmission interval, min. Number of incoming interconnections 	1 000 16 000 byte 2 000 byte 200 ms; Depending on preset communication load, number of interconnections and data length used 250 250 8 000 byte 8 000 byte 1 ms; Depending on preset communication load, number of interconnections and data length used
master/slave, max. Number of device-internal and PROFIBUS interconnections Data length of device-internal und PROFIBUS interconnections, max. Data length per connection, max. Remote interconnections with acyclic transmission — Sampling interval, min. Number of incoming interconnections — Number of outgoing interconnections — Data length of all incoming interconnections, max. — Data length of all outgoing interconnections, max. — Data length per connection, max. Remote interconnections with cyclic transmission — Transmission frequency: Transmission interval, min.	1 000 16 000 byte 2 000 byte 200 ms; Depending on preset communication load, number of interconnections and data length used 250 250 8 000 byte 8 000 byte 1 ms; Depending on preset communication load, number of interconnections and data length used 300

 Data length of all outgoing interconnections, 	4 800 byte
max.	4501.4
— Data length per connection, max.	450 byte
HMI variables via PROFINET (acyclic)	
 Number of stations that can log on for HMI variables (PN OPC/iMap) 	2x PN OPC/1x iMap
 HMI variable updating 	500 ms
 Number of HMI variables 	1 000
 Data length of all HMI variables, max. 	32 000 byte
PROFIBUS proxy functionality	
— supported	Yes; 32 PROFIBUS slaves max. connectable
 Data length per connection, max. 	240 byte; Slave-dependent
Number of connections	
overall	64
 usable for PG communication 	63
 reserved for PG communication 	1
 adjustable for PG communication, max. 	0
usable for OP communication	63
— reserved for OP communication	1
adjustable for OP communication, max.	0
usable for S7 basic communication	62
reserved for S7 basic communication	0
adjustable for S7 basic communication, max.	0
adjustable for S7 basic communication, max. usable for S7 communication	62
reserved for S7 communication	0
— adjustable for S7 communication, max.	0
usable for routing	31
— reserved for routing	0
— adjustable for routing, max.	0
S7 message functions	
Number of login stations for message functions, max.	63; Max. 63 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC)
	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes
Number of login stations for message functions, max.	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC)
Number of login stations for message functions, max. Symbol-related messages	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes
Number of login stations for message functions, max. Symbol-related messages SCAN procedure	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max.	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks • Number of instances for alarm 8 and S7	Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max.	Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 1 200
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. preset, max.	Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 1 200 300
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND)	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 1 200 300 Yes
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. process control messages Number of archives that can log on simultaneously (SFB	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 1 200 300 Yes
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages	Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 1 200 300 Yes 16
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages overall, max. in 100 ms grid, max.	Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 1 200 300 Yes 16
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages overall, max. in 100 ms grid, max. in 500 ms grid, max.	Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 1 200 300 Yes 16
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages overall, max. in 100 ms grid, max.	Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 1 200 300 Yes 16
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages overall, max. in 100 ms grid, max. in 1000 ms grid, max. in 1000 ms grid, max. Number of additional values	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 1 200 300 Yes 16
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages overall, max. in 100 ms grid, max. in 500 ms grid, max. in 1000 ms grid, max. with 100 ms grid, max.	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 1 200 300 Yes 16 512 128 256 512
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages overall, max. in 100 ms grid, max. in 1000 ms grid, max. win 1000 ms grid, max. with 100 ms grid, max. with 100 ms grid, max. with 500, 1000 ms grid, max.	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 1 200 300 Yes 16
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages overall, max. in 100 ms grid, max. in 1000 ms grid, max. with 100 ms grid, max. with 500, 1000 ms grid, max. with 500, 1000 ms grid, max. Test commissioning functions	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 1 200 300 Yes 16 512 128 256 512
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages overall, max. in 100 ms grid, max. in 1000 ms grid, max. win 500 ms grid, max. with 100 ms grid, max. with 500, 1000 ms grid, max. with 500, 1000 ms grid, max. Test commissioning functions Status block	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 1 200 300 Yes 16 512 128 256 512 1 10 Yes; Up to 16 simultaneously
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages overall, max. in 100 ms grid, max. in 1000 ms grid, max. win 500 ms grid, max. with 100 ms grid, max. with 500, 1000 ms grid, max. with 500, 1000 ms grid, max. Test commissioning functions Status block Single step	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 1 200 300 Yes 16 512 128 256 512 1 10
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages overall, max. in 100 ms grid, max. in 100 ms grid, max. in 1000 ms grid, max. with 100 ms grid, max. with 500, 1000 ms grid, max. status block Single step Number of breakpoints	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 1 200 300 Yes 16 512 128 256 512 1 10 Yes; Up to 16 simultaneously
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages overall, max. in 100 ms grid, max. in 1000 ms grid, max. with 100 ms grid, max. with 100 ms grid, max. with 500, 1000 ms grid, max. Test commissioning functions Status block Single step Number of breakpoints Status/control	Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 1 200 300 Yes 16 512 128 256 512 1 10 Yes; Up to 16 simultaneously Yes 16
Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages overall, max. in 100 ms grid, max. in 100 ms grid, max. in 1000 ms grid, max. with 100 ms grid, max. with 500, 1000 ms grid, max. status block Single step Number of breakpoints	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 1 200 300 Yes 16 512 128 256 512 1 10 Yes; Up to 16 simultaneously Yes

Number of variables, max.	70; Status/control
Forcing	
Forcing	Yes
Forcing, variables	Inputs/outputs, bit memories, distributed I/Os
 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
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	
Configuration software	Vac
• STEP 7	Yes
STEP 7 Programming	
STEP 7 Programming Command set	see instruction list
 STEP 7 Programming Command set Nesting levels 	see instruction list
 STEP 7 Programming Command set Nesting levels Access to consistent data in process image 	see instruction list 7 Yes
 STEP 7 Programming Command set Nesting levels Access to consistent data in process image System functions (SFC) 	see instruction list 7 Yes see instruction list
 STEP 7 Programming Command set Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) 	see instruction list 7 Yes
 STEP 7 Programming Command set Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language 	see instruction list 7 Yes see instruction list see instruction list
 STEP 7 Programming Command set Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD 	see instruction list 7 Yes see instruction list see instruction list
 STEP 7 Programming Command set Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD 	see instruction list 7 Yes see instruction list see instruction list Yes Yes
 STEP 7 Programming Command set Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL 	see instruction list 7 Yes see instruction list see instruction list Yes Yes Yes
 STEP 7 Programming Command set Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL 	see instruction list 7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes
 STEP 7 Programming Command set Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC 	see instruction list 7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes
 STEP 7 Programming Command set Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH 	see instruction list 7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes
 STEP 7 Programming Command set 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® 	see instruction list 7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes
 STEP 7 Programming Command set 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® Number of simultaneously active SFCs 	see instruction list 7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
 STEP 7 Programming Command set 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® Number of simultaneously active SFCs DPSYC_FR 	see instruction list 7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
 STEP 7 Programming Command set 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® Number of simultaneously active SFCs DPSYC_FR D_ACT_DP 	see instruction list 7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
 STEP 7 Programming Command set 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® Number of simultaneously active SFCs DPSYC_FR D_ACT_DP RD_REC 	see instruction list 7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
 STEP 7 Programming Command set 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® Number of simultaneously active SFCs DPSYC_FR D_ACT_DP RD_REC WR_REC 	see instruction list 7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
 STEP 7 Programming Command set 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® Number of simultaneously active SFCs DPSYC_FR D_ACT_DP RD_REC WR_PARM 	see instruction list 7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
 STEP 7 Programming Command set 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® Number of simultaneously active SFCs DPSYC_FR D_ACT_DP RD_REC WR_REC WR_PARM PARM_MOD 	see instruction list 7 Yes see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
 STEP 7 Programming Command set 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® Number of simultaneously active SFCs DPSYC_FR D_ACT_DP RD_REC WR_REC WR_PARM PARM_MOD WR_DPARM 	see instruction list 7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
 STEP 7 Programming Command set 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® Number of simultaneously active SFCs DPSYC_FR D_ACT_DP RD_REC WR_REC WR_PARM PARM_MOD WR_DPARM DPNRM_DG 	see instruction list 7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
 ◆ STEP 7 Programming ◆ Command set ◆ 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® Number of simultaneously active SFCs — DPSYC_FR — D_ACT_DP — RD_REC — WR_REC — WR_PARM — PARM_MOD — WR_DPARM — DPNRM_DG — RDSYSST 	see instruction list 7 Yes see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
● STEP 7 Programming ● Command set ● 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® Number of simultaneously active SFCs — DPSYC_FR — D_ACT_DP — RD_REC — WR_REC — WR_PARM — PARM_MOD — WR_DPARM — DPNRM_DG — RDSYSST — DP_TOPOL	see instruction list 7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
● STEP 7 Programming ● Command set ● 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® Number of simultaneously active SFCs — DPSYC_FR — D_ACT_DP — RD_REC — WR_REC — WR_PARM — PARM_MOD — WR_DPARM — DPNRM_DG — RDSYSST — DP_TOPOL Number of simultaneously active SFBs	see instruction list 7 Yes see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
● STEP 7 Programming ● Command set ● 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® Number of simultaneously active SFCs — DPSYC_FR — D_ACT_DP — RD_REC — WR_REC — WR_PARM — PARM_MOD — WR_DPARM — DPNRM_DG — RDSYSST — DP_TOPOL	see instruction list 7 Yes see instruction list 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
Block encryption	Yes; With S7 block Privacy
Dimensions	
Width	50 mm
Height	290 mm
Depth	219 mm
Weights	
Weight, approx.	900 g
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