Data sheet

6ES7416-3XS07-0AB0



SIMATIC S7-400, CPU 416-3, Central processing unit with: Work memory 16 MB, (8 MB code, 8 MB data), 1st interface MPI/DP 12 Mbit/s, 2nd interface PROFIBUS DP, 3rd interface plug-in IFM module

General information	
Product type designation	CPU 416-3
HW functional status	01
Firmware version	V7.0
Product function	
 Isochronous mode 	Yes; For PROFIBUS only
Engineering with	
 Programming package 	STEP 7 V5.4 or higher with HSP 261
CiR - Configuration in RUN	
CiR synchronization time, basic load	100 ms
CiR synchronization time, time per I/O byte	10 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
Power loss, max.	6.5 W
Memory	
Type of memory	RAM
Work memory	
integrated	16 Mbyte
integrated (for program)	8 Mbyte
integrated (for data)	8 Mbyte
expandable	No
Load memory	
expandable FEPROM	Yes; with Memory Card (FLASH)
 expandable FEPROM, max. 	64 Mbyte
integrated RAM, max.	1 Mbyte
expandable RAM	Yes; with Memory Card (RAM)
expandable RAM, max.	64 Mbyte
Backup	
• present	Yes
with battery	Yes; all data
without battery	No
Battery	

Backup battery	
Backup current, typ.	180 μA; up to 40 °C
Backup current, max.	850 μA
Backup time, max.	Dealt with in the module data manual with the secondary conditions and
p ,	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.	12.5 ns
for word operations, typ.	12.5 ns
for fixed point arithmetic, typ.	12.5 ns
for floating point arithmetic, typ.	25 ns
CPU-blocks	
DB	
Number, max.	10 000; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
Number, max.	5 000; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
Number, max.	5 000; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
Number, max.	see instruction list
• Size, max.	64 kbyte
Number of free cycle OBs	1; OB 1
Number of time alarm OBs	8; OB 10-17
Number of delay alarm OBs	4; OB 20-23
Number of cyclic interrupt OBs	9; OB 30-38 (shortest cycle that can be set = 500 μs)
Number of PDV4 slarm OBs	8; OB 40-47
 Number of DPV1 alarm OBs Number of isochronous mode OBs 	3; OB 55-57
	4; OB 61-64
Number of multicomputing OBsNumber of background OBs	1; OB 60
_	1; OB 90
Number of startup OBsNumber of asynchronous error OBs	3; OB 100-102 9; OB 80-88
Number of asynchronous error OBs Number of synchronous error OBs	
Nesting depth	2; OB 121, 122
per priority class	24
additional within an error OB	2
Counters, timers and their retentivity	2
S7 counter	
Number	2 048
Retentivity	2 070
— adjustable	Yes
— lower limit	0
— upper limit	2 047
— upper innit — preset	Z 0 to Z 7
Counting range	201021
— 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

Time range - lower limit - upper limit - upper limit - upper limit - present - fyree - fyresent - fyree - Number - Number of clock memors counters, flags), max. Flag - Size, max: - fixed mitted data area (incl. timers, counters, flags), max. Flag - Size, max: - fixed mitted data area (incl. timers, counters, flags), max. Flag - Size, max: - fixed mitted and present limited (imited only by RAMI capacity) Flag - Size, max: - fixed mitted (imited only by RAMI capacity) Flag - Size, max: - fixed mitted (imited only by RAMI capacity) Flag - Size, max: - fixed mitted (imited only by RAMI capacity) Flag - Size, max: - fixed mitted (imited only by RAMI capacity) Flag - Size, max: - fixed mitted (imited only by RAMI capacity) Flag - Size, max: - fixed mitted (imited only by RAMI capacity) Flag - Size, max: - fixed mitted (imited only by RAMI capacity) Flag - Size of bit memory (with backup battery) Flag - Size of bit memory visit backup battery) Flag - Size of bit memory visit backup battery) Flag - Size of bit memory visit backup battery) Flag - Size of bit memory visit backup battery) Flag - Size of bit memory visit backup battery) Flag - Size of bit memory visit backup battery) Flag - Size of bit memory visit backup battery) Flag - Size of bit memory visit backup battery) Flag - Size of bit memory visit backup battery) Flag - Size of bit memory visit backup battery) Flag - Size of bit memory visit backup battery) Flag - Size of bit memory visit backup battery) Flag - Size of bit memory visit backup battery) Flag - Size of bit memory visit backup battery) Flag - Size of bit memory visit backup battery) Flag - Size of bit memory visit backup battery) Flag - Size of bit memory visit backup battery Flag - Size of bit memory visit backup battery Flag - Size of bit memory visit backup battery Flag - Size of bit memory visit backup battery Flag - Size of bit memory visit backup battery Flag - Size of bit memory visit backup battery Flag - Size of bit memory visit backup battery Flag - Siz	— preset	No times retentive
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Size, max. 16 kbyte; Size of bit memory address area		Total Working and load memory (with backup battery)
Retentivity available Retentivity preset Retentivity Retentive Retentiv		16 kbyte: Size of bit memory address area
Retentivity preset	•	
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	Digital channels	
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Hardware configuration Number of expansion units, max. connectable OPs Multicomputing Number of connectable IMs (total), max. Number of DP masters integrated via CP via IM 467 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 Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers	— of which central	8 192
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Interface modules • Number of connectable IMs (total), max. • Number of connectable IM 460s, max. • Number of connectable IM 463s, max. • Number of DP masters • integrated • via CP • via IM 467 • Mixed mode IM + CP permitted • via interface module • Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers	connectable OPs	95
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 Number of connectable IM 460s, max. Number of connectable IM 463s, max. Number of DP masters integrated via CP via IM 467 Mixed mode IM + CP permitted via interface module Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers 6 IM 463-2 4 No; CP 443-5 Extended No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 1 Number of pluggable S5 modules (via adapter capsule in central device), max. 	Interface modules	
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PROFINET IO mode • via interface module • Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers		
Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers		
capsule in central device), max. Number of IO Controllers		1
		6
• integrated 0	Number of IO Controllers	
	• integrated	0

• via CP	4; Max. 4 in the central controller; no mixed operation of different CP
- TIG 01	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 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
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
to MPI, slave	Yes
• to DP, master	Yes
• to DP, slave	Yes
• in AS, master	Yes
• in AS, slave	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
Number of other interfaces	1; PROFIBUS DP with IF 964-DP (plug-in option; MLFB: 6ES7964-2AA04-0AB0)
1. Interface	
Interface type	MPI/PROFIBUS DP
Isolated	Yes
Interface types	
• RS 485	Yes
Output current of the interface, max. Protocols	150 mA
Protocols	Voc
MPI DROEIDUS DR master	Yes
PROFIBUS DP master PROFIBUS DP alove	Yes
PROFIBUS DP slave	Yes
Number of connections	44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1
Transmission rate, max.	12 Mbit/s
Services	1110100
— PG/OP communication	Yes
	Yes
— Routing	
— Routing— Global data communication	Yes

— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
PROFIBUS DP master	
Number of connections, max. Transmission rate, max.	32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 112 Mbit/s
Transmission rate, max. Number of DD playing, max.	32
Number of DP slaves, max.	32
Services	V
— 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)	Voc
— DPV1	Yes
Address area	011.4
— 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	32
Number of connectionsGSD file	http://support.automation.siemens.com/WW/view/en/113652
Number of connections	
Number of connectionsGSD file	http://support.automation.siemens.com/WW/view/en/113652
Number of connectionsGSD fileTransmission rate, max.	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s
 Number of connections GSD file Transmission rate, max. automatic baud rate search 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte 32 byte
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte 32 byte Yes; with interface active
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte 32 byte Yes; with interface active Yes; with interface active
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte 32 byte Yes; with interface active Yes; with interface active No
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte Yes; with interface active Yes; with interface active No No
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte Yes; with interface active Yes; with interface active No No No Yes
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte 32 byte Yes; with interface active Yes; with interface active No No Yes Yes
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte 32 byte Yes; with interface active Yes; with interface active No No Yes Yes Yes
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave) 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte 32 byte Yes; with interface active Yes; with interface active No No Yes Yes Yes
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte 32 byte Yes; with interface active Yes; with interface active No No Yes Yes Yes Yes No
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte 32 byte Yes; with interface active Yes; with interface active No No Yes Yes Yes Yes No
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 Transfer memory 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte Yes; with interface active Yes; with interface active No No Yes Yes Yes Yes Yes No No No
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 Transfer memory — Inputs 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte Yes; with interface active Yes; with interface active No No Yes
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 Transfer memory — Inputs — Outputs 2. Interface 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte Yes; with interface active Yes; with interface active No No Yes
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 Transfer memory — Inputs — Outputs 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte Yes; with interface active Yes; with interface active No No Yes Yes Yes Yes Yes No No No 244 byte 244 byte
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 Transfer memory — Inputs — Outputs 2. Interface Interface type Isolated 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte Yes; with interface active Yes; with interface active No No Yes Yes Yes Yes Yes Yes Yes Yes Yes No No No Po PROFIBUS DP Yes
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 Transfer memory — Inputs — Outputs 2. Interface Interface type Isolated Number of connection resources 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte Yes; with interface active Yes; with interface active No No Yes Yes Yes Yes Yes Yes Yes Yes Yes No No No PO PROFIBUS DP
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 Transfer memory — Inputs — Outputs 2. Interface Interface type Isolated Number of connection resources Interface types 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte Yes; with interface active Yes; with interface active No No Yes Yes Yes Yes Yes Yes Yes No No Po PROFIBUS DP Yes 32
 Number of connections GSD file Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 Transfer memory — Inputs — Outputs 2. Interface Interface type Isolated Number of connection resources 	http://support.automation.siemens.com/WW/view/en/113652 12 Mbit/s No 32; Virtual slots 32 byte Yes; with interface active Yes; with interface active No No Yes Yes Yes Yes Yes Yes Yes Yes Yes No No No Po PROFIBUS DP Yes

Protocols	
PROFIBUS DP master	Yes
PROFIBUS DP slave	Yes
PROFIBUS DP master	166
Number of connections, max.	32
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	125
Services	
— 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 communication) 	Yes
— DPV1	Yes
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
User data per DP slave	244 huta
— User data per DP slave, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max. PROFIBUS DP slave	128 byte
Number of connections	32
GSD file	http://support.automation.siemens.com/WW/view/en/113652
Transmission rate, max.	12 Mbit/s
Address area, max.	32
 User data per address area, max. 	32 byte
of which consistent, max.	32 byte
Services	02 b).0
— Routing	Yes; with interface active
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
3. Interface	
Interface type	pluggable interface module (IF), technical data as for 2nd interface
Plug-in interface modules	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0)
Isolated	Yes
automatic detection of transmission rate	No
Number of connection resources	32
Interface types	
• RS 485	Yes
Output current of the interface, max.	150 mA
Protocols	
• MPI	No
PROFIBUS DP master	No Yes
PROFIBUS DP master	Yes
PROFIBUS DP masterPROFIBUS DP slave	Yes
PROFIBUS DP master PROFIBUS DP slave PROFIBUS DP master	Yes Yes

Sorvices	
Services — PG/OP communication	Yes
PG/OP communication Routing	
Global data communication	Yes; S7 routing
	No Voc
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	Yes
— SYNC/FREEZE	Yes
 Activation/deactivation of DP slaves 	Yes
Direct data exchange (slave-to-slave	Yes
communication)	V
— DPV0	Yes
— DPV1	Yes
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 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	32
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
User data per address area, max.	32 byte
— of which consistent, max.	32 byte
Services	02 3).0
— PG/OP communication	Yes
— Routing	Yes; with interface active
Global data communication	No
— S7 basic communication	
	No Voc
— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
Direct data exchange (slave-to-slave communication)	No
communication)	No
— DPV1	No
Transfer memory	244 hyta
— Inputs	244 byte
— Outputs	244 byte
Protocols	
SIMATIC communication	
S7 routing	Yes
S7 routing	
Open IE communication	
	Via CP 443-1 and loadable FB
Open IE communication	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv.
Open IE communication • ISO-on-TCP (RFC1006)	
Open IE communication ISO-on-TCP (RFC1006) — Data length, max.	
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported	1 452 bytes via CP 443-1 Adv.
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode	1 452 bytes via CP 443-1 Adv. No
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance	1 452 bytes via CP 443-1 Adv. No Yes
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode	1 452 bytes via CP 443-1 Adv. No Yes 3
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance	1 452 bytes via CP 443-1 Adv. No Yes

max. cycle	32 ms
communication functions / header	
PG/OP communication	Yes
Number of connectable OPs without message processing	95
 Number of connectable OPs with message processing 	95; When using Alarm_S/SQ and Alarm_D/DQ
Data record routing	Yes
Global data communication	
• supported	Yes
 Number of GD loops, max. 	16
 Number of GD packets, transmitter, max. 	16
 Number of GD packets, receiver, max. 	32
 Size of GD packets, max. 	54 byte
 Size of GD packet (of which consistent), max. 	1 variable
S7 basic communication	
supported	Yes
 User data per job, max. 	76 byte
User data per job (of which consistent), max.	1 variable
S7 communication	
supported	Yes
• as server	Yes
• as client	Yes
 User data per job, max. 	64 kbyte
User data per job (of which consistent), max.	462 byte; 1 variable
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. 	64/64
Standard communication (FMS)	
• supported	Yes; Via CP and loadable FB
Number of connections	
• overall	96
 usable for PG communication 	95
 reserved for PG communication 	1
 adjustable for PG communication, max. 	0
 usable for OP communication 	95
 reserved for OP communication 	1
 adjustable for OP communication, max. 	0
 usable for S7 basic communication 	94
 reserved for S7 basic communication 	0
 adjustable for S7 basic communication, max. 	0
 usable for S7 communication 	94
 reserved for S7 communication 	0
 adjustable for S7 communication, max. 	0
 usable for routing 	47
reserved for routing	0
— adjustable for routing, max.	0
S7 message functions	
Number of login stations for message functions, max.	95; Max. 95 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 16 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC)
Symbol-related messages	Yes
SCAN procedure	Yes
Program alarms	Yes
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks
Alarm 8-blocks	Yes
 Number of instances for alarm 8 and S7 communication blocks, max. 	4 000

• preset, max.	600
Process control messages	Yes
Number of archives that can log on simultaneously (SFB	32
37 AR_SEND)	
Number of messages	
• overall, max.	1 024
• in 100 ms grid, max.	128
● in 500 ms grid, max.	512
● in 1000 ms grid, max.	1 024
Number of additional values	
with 100 ms grid, max.	1
• with 500, 1000 ms grid, max.	10
Test commissioning functions	
Status block	Yes; Up to 16 simultaneously
Single step	Yes
Number of breakpoints	16
Status/control	
 Status/control variable 	Yes; Up to 16 variable tables
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
 Number of variables, max. 	70; Status/control
Forcing	
• Forcing	Yes
Forcing, variables	Inputs, outputs, bit memories, peripheral inputs, peripheral outputs
Number of variables, max.	512
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 / header	
Configuration software	
• STEP 7	Yes
configuration / programming / header	
Command set	see instruction list
Nesting levels	7
Access to consistent data in process image	Yes
System functions (SFC)	see instruction list
System functions (SFC) System function blocks (SFB)	see instruction list
	SCC IIISU UCUOTI IISU
Programming language	Voc
— LAD — FBD	Yes
	Yes
— STL	Yes
— SCL	Yes

— CFC	Yes	
— GRAPH	Yes	
— HiGraph®	Yes	
configuration / programming / number of simultaneously	active SFC / header	
— DPSYC_FR	2; SFC 11; per interface	
— D_ACT_DP	8; SFC 12; per interface	
— RD_REC	8; SFC 59; per interface	
— WR_REC	8; SFC 58; per interface	
— WR_PARM	8; SFC 55; per interface	
— PARM_MOD	1; SFC 57; per interface	
— WR_DPARM	2; SFC 56; per interface	
— DPNRM_DG	8; SFC 13; per interface	
— RDSYSST	8; SFC 51	
— DP_TOPOL	1; SFC 103; per interface	
configuration / programming / number of simultaneously active SFB / header		
— RDREC	8; SFB 52; per interface, but not more than 32 across all external interfaces	
— WRREC	8; SFB 53; per interface, but not more than 32 across all external interfaces	
Know-how protection		
 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	

8/10/2021

last modified: