SIEMENS

Data sheet



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 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.	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 process alarm OBs 	8; OB 40-47
 Number of DPV1 alarm OBs 	3; OB 55-57
 Number of isochronous mode OBs 	4; OB 61-64
 Number of multicomputing OBs 	1; OB 60
 Number of background OBs 	1; OB 90
 Number of startup OBs 	3; OB 100-102
 Number of asynchronous error OBs 	9; OB 80-88
Number of synchronous error OBs	2; OB 121, 122
Nesting depth	
 per priority class 	24
additional within an error OB	2
Counters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	
— adjustable	Yes
— preset	Z 0 to Z 7
Counting range	
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
S7 times	0.040
• Number	2 048
Retentivity	V
— adjustable	Yes
— preset	No times retentive
Time range	40
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	V
present	Yes



* Number ** Unlimited (limited only by RAMi capacity) Retentive data area (incl. times, counters, flags), max. Flags ** ** Size, max. ** Retentive data area (incl. times, counters, flags), max. ** Retentive data area (incl. times, counters, flags), max. ** Retentive data area (incl. times, counters, flags), max. ** Retentive data area (incl. times, counters, flags), max. ** Retentive data area (incl. times, counters, flags), max. ** Retentive data area (incl. times, counters, flags), max. ** Retentive data area (incl. times, counters, flags), max. ** Retentive data area (incl. times, counters, flags), max. ** Retentive data area (incl. times, counters, flags), max. ** Retentive data area (incl. times, counters, flags), max. ** Propose (incl. times, counters, flags), max. ** Propose (incl. times, counters, flags), max. ** Propose, default (incl. times, counters, counte	• Type	SFB
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Local data	· .	
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## Outputs 16 kbyte	adjustable, max.	32 kbyte
Figures 16 kbyte	• preset	16 kbyte
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Access to consistent data in process image Number of subprocess images, max. 15 Digital channels Inputs Outputs Outputs Analog channels Inputs Outputs As 192 Outputs	 Outputs, default 	512 byte
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Number of subprocess images, max. Digital channels	Access to consistent data in process image	Yes
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Inputs	 Number of subprocess images, max. 	15
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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		· · · · · · · · · · · · · · · · · · ·
to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller		
	● FROFIDOS and Editelliet CFS	
	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	1h
• retentive	Yes
Clock synchronization	V
• supported	Yes
• to MPI, master	Yes
• to MPI, slave	Yes
• to DP, master	Yes Yes
to DP, slave in AS, master	Yes
in A5, masterin AS, slave	Yes
on Ethernet via NTPto IF 964 DP	No; Via CP Yes
• to IF 964 DP Time difference in system when synchronizing via	100
MPI, max.	200 ms
Interfaces	200 1110
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.	150 mA
Protocols	
• MPI	Yes
PROFIBUS DP master	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	
— 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	
Number of connections, max.	32; 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
Od	
Services	
— PG/OP communication — Routing	Yes Yes; S7 routing



Clabel data communication	Ma
— Global data communication	No Was
— 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.	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
• 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)	110
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2. Interface	
Interface type	PROFIBUS DP
Isolated	Yes
Interface types	
• RS 485	Yes
No 465Output current of the interface, max.	150 mA
Output current of the interface, max. Protocols	100 111/4
	Voc
PROFIBUS DP clave	Yes
PROFIBUS DP slave	Yes
PROFIBUS DP master	20
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	Yes
— S7 communication, as client— 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	163
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
User data per DP slave	o kbyte
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	22
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	
— Routing	Yes; with interface active
Transfer memory	
— Inputs	244 byte
Outputs	244 byte
·	
3. Interface	
·	pluggable interface module (IF), technical data as for 2nd interface
3. Interface	
3. Interface Interface type	pluggable interface module (IF), technical data as for 2nd interface
3. Interface Interface type Plug-in interface modules	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0)
Interface type Plug-in interface modules Isolated	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes
3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types RS 485 Output current of the interface, max.	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types RS 485 Output current of the interface, max. Protocols	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max. Protocols • MPI	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave PROFIBUS DP master	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave PROFIBUS DP master • Number of connections, max.	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave PROFIBUS DP master • Number of connections, max. • Transmission rate, max.	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes Yes Yes
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • Number of DP slaves, max.	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes Yes Yes
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • Number of DP slaves, max. Services	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes 125
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • Number of DP slaves, max. Services — PG/OP communication	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes Yes 125 Yes
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave PROFIBUS DP master Number of connections, max. Transmission rate, max. Number of DP slaves, max. Services — PG/OP communication — Routing	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes Yes Yes Yes Yes 725 Yes Yes Yes; S7 routing
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • Number of DP slaves, max. Services — PG/OP communication — Routing — Global data communication	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • Number of DP slaves, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes Yes Yes Yes 725 Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave PROFIBUS DP master Number of connections, max. 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave PROFIBUS DP master Number of connections, max. 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave PROFIBUS DP master • Number of connections, max. • 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave PROFIBUS DP master Number of connections, max. Transmission rate, max. Number of DP slaves, max. Rervices 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave PROFIBUS DP slave PROFIBUS DP master Number of connections, max. 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes
Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave PROFIBUS DP master Number of connections, max. Transmission rate, max. Number of DP slaves, max. Rervices 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes



— 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	
— PG/OP communication	Yes
— Routing	Yes; with interface active
 Global data communication 	No
 S7 basic communication 	No
— S7 communication	Yes
 S7 communication, as client 	Yes
 S7 communication, as server 	Yes
 Direct data exchange (slave-to-slave 	No
communication)	
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
Protocols	
SIMATIC communication	
	Yes
S7 routing	
S7 routing Open IE communication	
	Via CP 443-1 and loadable FB
Open IE communication	
Open IE communication ● ISO-on-TCP (RFC1006)	Via CP 443-1 and loadable FB
Open IE communication ■ ISO-on-TCP (RFC1006) — Data length, max.	Via CP 443-1 and loadable FB
Open IE communication • ISO-on-TCP (RFC1006) — Data length, max. Web server	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv.
Open IE communication • ISO-on-TCP (RFC1006) — Data length, max. Web server • supported	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv.
Open IE communication • ISO-on-TCP (RFC1006) — Data length, max. Web server • supported Isochronous mode	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No
Open IE communication • ISO-on-TCP (RFC1006) — Data length, max. Web server • supported Isochronous mode Equidistance	Via CP 443-1 and loadable FB 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	Via CP 443-1 and loadable FB 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 Number of DP masters with isochronous mode User data per isochronous slave, max.	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server • supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication • Number of connectable OPs without message processing	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 95
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server • supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication • Number of connectable OPs without message processing • Number of connectable OPs with message processing	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 95 95; When using Alarm_S/SQ and Alarm_D/DQ
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication Number of connectable OPs without message processing Number of connectable OPs with message processing Data record routing Global data communication	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 95 95; When using Alarm_S/SQ and Alarm_D/DQ
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication Number of connectable OPs without message processing Number of connectable OPs with message processing Data record routing Global data communication supported	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 95 95; When using Alarm_S/SQ and Alarm_D/DQ Yes Yes
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication Number of connectable OPs without message processing Number of connectable OPs with message processing Data record routing Global data communication supported Number of GD loops, max.	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 95 95; When using Alarm_S/SQ and Alarm_D/DQ Yes Yes 16
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication Number of connectable OPs without message processing Number of connectable OPs with message processing Data record routing Global data communication supported Number of GD loops, max. Number of GD packets, transmitter, max.	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 95 95; When using Alarm_S/SQ and Alarm_D/DQ Yes Yes 16 16
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication Number of connectable OPs without message processing Number of connectable OPs with message processing Data record routing Global data communication supported Number of GD loops, max. Number of GD packets, transmitter, max. Number of GD packets, receiver, max.	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 95 95; When using Alarm_S/SQ and Alarm_D/DQ Yes Yes 16 16 32
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication Number of connectable OPs without message processing Number of connectable OPs with message processing Number of connectable OPs with message processing Data record routing Global data communication supported Number of GD loops, max. Number of GD packets, transmitter, max. Number of GD packets, receiver, max.	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 95 95; When using Alarm_S/SQ and Alarm_D/DQ Yes Yes 16 16 32 54 byte
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication Number of connectable OPs without message processing Number of connectable OPs with message processing Number of connectable OPs with message processing Data record routing Global data communication supported Number of GD loops, max. Number of GD packets, transmitter, max. Number of GD packets, receiver, max. Size of GD packets, max. Size of GD packet (of which consistent), max.	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 95 95; When using Alarm_S/SQ and Alarm_D/DQ Yes Yes 16 16 32
Open IE communication ISO-on-TCP (RFC1006) — Data length, max. Web server supported Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle communication functions / header PG/OP communication Number of connectable OPs without message processing Number of connectable OPs with message processing Number of connectable OPs with message processing Data record routing Global data communication supported Number of GD loops, max. Number of GD packets, transmitter, max. Number of GD packets, receiver, max.	Via CP 443-1 and loadable FB 1 452 bytes via CP 443-1 Adv. No Yes 3 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 95 95; When using Alarm_S/SQ and Alarm_D/DQ Yes Yes 16 16 32 54 byte



. Hoor data novich	76 hida
User data per job, max. User data per job (of which consistent) may.	76 byte
User data per job (of which consistent), max. S7 communication.	1 variable
S7 communication	Von
• supported	Yes Yes
• as server	Yes
as client User data per job, may	64 kbyte
User data per job, max.User data per job (of which consistent), max.	462 byte; 1 variable
S5 compatible communication	402 byte, i variable
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, max. User data per job (of which consistent), max.	240 byte
Number of simultaneous AG-SEND/AG-RECV orders per	64/64
CPU, max.	04/04
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 37 AR_SEND)	32
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
in 1000 ms grid, max. Number of additional values	1 024
	1 024
Number of additional values	
Number of additional values • with 100 ms grid, max.	1
Number of additional values • with 100 ms grid, max. • with 500, 1000 ms grid, max.	1
Number of additional values • with 100 ms grid, max. • with 500, 1000 ms grid, max. Test commissioning functions	1 10
Number of additional values • with 100 ms grid, max. • with 500, 1000 ms grid, max. Test commissioning functions Status block	1 10 Yes; Up to 16 simultaneously
Number of additional values • with 100 ms grid, max. • with 500, 1000 ms grid, max. Test commissioning functions Status block Single step	1 10 Yes; Up to 16 simultaneously Yes
Number of additional values • with 100 ms grid, max. • with 500, 1000 ms grid, max. Test commissioning functions Status block Single step Number of breakpoints	1 10 Yes; Up to 16 simultaneously Yes



Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
VariablesNumber of variables, max.	70; Status/control
Forcing	ro, diatus control
• 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 function blocks (SFB) Programming to the program	see instruction list
Programming language	Van
— LAD	Yes
— FBD — STL	Yes
	Yes
— SCL — CFC	Yes
— CFC — GRAPH	Yes Yes
— GRAPH — HiGraph®	Yes
configuration / programming / number of simultaneously active	
— 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	·
— 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 protectionBlock encryption	Yes Yes; With S7 block Privacy
Dimensions	
Width	50 mm
Height	290 mm
Depth	219 mm
Weights	
Weight, approx.	900 g

last modified: 9/7/2023 🖸

