SIEMENS

Data sheet

6AG1416-3ES07-7AB0



SIPLUS S7-400 CPU 416-3 PN/DP based on 6ES7416-3ES07-0AB0 with conformal coating, -25...+70 °C, central processing unit with: work memory 16 MB, (8 MB code, 8 MB data), interfaces 1st interface MPI/DP 12 Mbps, (X1), 2nd interface ETHERNET/PROFINET (X5) 3rd interface IF 964-DP plug-in (IF1)

Figure simila

Figure similar	
General information	
Product type designation	CPU 416-3 PN/DP
HW functional status	01
Firmware version	V7.0
based on	6ES7416-3ES07-0AB0
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	10 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
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	

Dealing halfam.	
Backup battery	400 vA v v to 40 °C
Backup current, typ.	180 μA; up to 40 °C
Backup current, max. Parly time max.	850 µA
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
PU-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	
Number	2 048
Retentivity	
— adjustable	Yes
— preset	No times retentive
Time range	
— lower limit	10 ms
-	
— upper limit	9 990 s

	v
• 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.	16 kbyte; Size of bit memory address area
Retentivity available	Yes
Retentivity preset	MB 0 to MB 15
Number of clock memories	8; in 1 memory byte
Local data	
adjustable, max.	32 kbyte
• preset	16 kbyte
Address area	
I/O address area	
• Inputs	16 kbyte
Outputs	16 kbyte
Process image	
• Inputs, adjustable	16 kbyte
Outputs, adjustable	16 kbyte
• Inputs, default	512 byte
Outputs, default	512 byte
consistent data, max.	244 byte
Access to consistent data in process image	Yes
Subprocess images	
Number of subprocess images, max.	15
Digital channels	404.000
• Inputs	131 072
— of which central	131 072
Outputs	131 072
— of which central	131 072
Analog channels	0.400
• Inputs	8 192
— of which central	8 192
Outputs	8 192
— of which central	8 192
Hardware configuration	
Number of expansion units, max.	21
connectable OPs	95
Multicomputing	Yes; 4 CPUs max. (with UR1 or UR2)
Interface modules	
Number of connectable IMs (total), max. Number of connectable IM 400s, max.	6
Number of connectable IM 460s, max. Number of connectable IM 460s, max.	6
Number of connectable IM 463s, max. Number of DD receive.	4; IM 463-2
Number of DP masters	4
• integrated	1 10: CD 4/3 5 Evtended
• via CP	10; CP 443-5 Extended
• via IM 467	No: IM 467 cappet he used jointly with CB 443.5 Ext. or CB 443.1 in
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 all graphs S5 modules (via adapter capable in	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 or number of connections
• CP, PtP	
• CP, PIP	CP 440: Limited by number of slots; CP 441: Limited by number of slots and
PROFIBUS and Ethernet CPs	CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections 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
• on MPI, device	Yes
• to DP, master	Yes
• on DP, device	Yes
● in AS, master	Yes
• in AS, device	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
Interfaces	
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)
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 device	Yes
MPI • Number of connections	44; If a diagnostics repeater is used on the line, the number of connection
• Number of connections	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
 max. number of DP devices 	32

Conjecc	
Services	Von
— PG/OP communication	Yes S7 routing
— Routing	Yes; S7 routing
— Global data communication	No
— S7 basic communication	Yes
— S7 communication	Yes
 S7 communication, as client 	Yes
 S7 communication, as server 	Yes
— Equidistance	Yes
— Isochronous mode	Yes
— SYNC/FREEZE	Yes
 activation/deactivation of DP devices 	Yes
Direct data exchange (slave-to-slave	Yes
communication) — DPV1	Yes
	res
Address area	2 leberto
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
User data per DP device	244 byte
— user data per DP device, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
1st interface / PROFIBUS DP device / header	
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)	
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2. Interface	
Interface type	PROFINET
Interface type Isolated	Yes
Isolated automatic detection of transmission rate	Yes Yes; Autosensing
Isolated	Yes Yes; Autosensing Yes
Isolated automatic detection of transmission rate	Yes Yes; Autosensing Yes Yes
Isolated automatic detection of transmission rate Autonegotiation	Yes Yes; Autosensing Yes Yes Yes Yes; Assignment by higher-level IO-Controller or by the user program with
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Change of IP address at runtime, supported	Yes Yes; Autosensing Yes Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types	Yes Yes; Autosensing Yes Yes Yes Yes; Assignment by higher-level IO-Controller or by the user program with SFB104 "IP_CONF"
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet)	Yes Yes; Autosensing Yes Yes Yes Yes Yes; Assignment by higher-level IO-Controller or by the user program with SFB104 "IP_CONF" Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports	Yes Yes; Autosensing Yes Yes Yes Yes Yes; Assignment by higher-level IO-Controller or by the user program with SFB104 "IP_CONF" Yes 2
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types RJ 45 (Ethernet) Number of ports integrated switch	Yes Yes; Autosensing Yes Yes Yes Yes; Assignment by higher-level IO-Controller or by the user program with SFB104 "IP_CONF" Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols	Yes Yes; Autosensing Yes Yes Yes Yes; Assignment by higher-level IO-Controller or by the user program with SFB104 "IP_CONF" Yes 2 Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller	Yes Yes; Autosensing Yes Yes Yes Yes; Assignment by higher-level IO-Controller or by the user program with SFB104 "IP_CONF" Yes 2 Yes Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols	Yes Yes; Autosensing Yes Yes Yes Yes; Assignment by higher-level IO-Controller or by the user program with SFB104 "IP_CONF" Yes 2 Yes

PROFIBUS DP master	No
PROFIBUS DP device	No
Open IE communication	Yes
Web server	Yes
 Point-to-point connection 	No
Media redundancy	Yes
PROFINET IO Controller	
 Transmission rate, max. 	100 Mbit/s
Services	
— PG/OP communication	Yes
— S7 communication	Yes
— Isochronous mode	Yes; Only with IRT and the High Performance option
— Shared device	Yes
 Prioritized startup 	Yes
 Number of IO devices with prioritized startup, max. 	32
 Number of connectable IO Devices, max. 	256
 Of which IO devices with IRT, max. 	64
— of which in line, max.	64
 Number of IO Devices with IRT and the option "high flexibility" 	256
— of which in line, max.	61
 Number of connectable IO Devices for RT, max. 	256
— of which in line, max.	256
 Activation/deactivation of IO Devices 	Yes
 Number of IO Devices that can be simultaneously 	8
activated/deactivated, max. — IO Devices changing during operation (partner	Yes
ports), supported — Number of IO Devices per tool, max.	8; 8 parallel calls of the SFC 12 "D_ACT_DP" possible per line. Max. 32 IO
Davies replacement without away madium	Devices changing during operation (partner ports) are supported
Device replacement without swap medium Send cycles	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 share for PROFINET IO, on the number of IO Devices and on the amount of configured user data, see PROFINET system description
Address area	additional transfer of the state of the stat
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
User data consistency, max.	1 024 byte
PROFINET IO Device	1 02 1 5310
Services	
— PG/OP communication	Yes
— S7 communication	Yes
— Isochronous mode	No
— ISOCITIONOUS Mode — IRT	Yes
Prioritized startup	Yes
— Prioritized startup — Shared device	Yes
	Yes 2
Number of IO Controllers with shared device, max. Transfer memory.	4
Transfer memory	1.440 buto: Par IO Controllar with about device
— Inputs, max.	1 440 byte; Per IO Controller with shared device
— Outputs, max.	1 440 byte; Per IO Controller with shared device
Submodules	64
— Number, max.	64
— User data per submodule, max.	1 024 byte
PROFINET CBA	Voc
acyclic transmission	Yes
• cyclic transmission	Yes
Open IE communication	
Number of connections, max.Local port numbers used at the system end	94 0, 20, 21, 25, 80, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534,
Keep-alive function, supported	65535 Yes

. 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
	150 111A
Protocols	A)
• MPI	No
PROFIBUS DP master	Yes
PROFIBUS DP device	Yes
PROFIBUS DP master	
 Number of connections, max. 	32
 Transmission rate, max. 	12 Mbit/s
 max. number of DP devices 	125
Services	
— PG/OP communication	Yes
— Routing	Yes; S7 routing
Global data communication	No
— S7 basic communication	Yes
— S7 communication	Yes
 S7 communication, as client 	Yes
 S7 communication, as server 	Yes
— Equidistance	Yes
 Isochronous mode 	Yes
— SYNC/FREEZE	Yes
 activation/deactivation of DP devices 	Yes
 Direct data exchange (slave-to-slave 	Yes
communication)	
— DPV0	Yes
— DPV1	Yes
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
User data per DP device	o no jie
— user data per DP device, max.	244 byte
·	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
3rd interface / PROFIBUS DP device / header	
 Number of connections 	32
GSD file	http://support.automation.siemens.com/WW/view/en/113652
• transfer rate / at the 3rd interface / as DP slave /	12 Mbit/s
maximum	
 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
— Routing	Yes; with interface active
<u> </u>	
— 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	
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	
• TCP/IP	Yes; via integrated PROFINET interface and loadable FBs
Number of connections, max.	94
— Data length, max.	32 kbyte
 several passive connections per port, supported 	Yes
• ISO-on-TCP (RFC1006)	Yes; Via integrated PROFINET interface or CP 443-1 and loadable FBs
Number of connections, max.	94
— Data length, max.	32 kbyte; 1 452 bytes via CP 443-1 Adv.
• UDP	Yes; via integrated PROFINET interface and loadable FBs
Number of connections, max.	94
— Data length, max.	1 472 byte
Web server	
• supported	Yes
 User-defined websites 	Yes
Number of HTTP clients	5
Isochronous mode	
Equidistance	Yes
Number of DP masters with isochronous mode	2
User data per isochronous slave, max.	244 byte
shortest clock pulse	1 ms; 0.5 ms without use of SFC 126, 127
max. cycle	32 ms
communication functions / header	
PG/OP communication	Yes
 Number of connectable OPs with message processing 	95; When using Alarm_S/SQ and Alarm_D/DQ
 Number of connectable OPs without message processing 	95
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	
	VV6- FO AO OFND and AO DEOV many size 40 OD 440 4 an 440 5
·	Yes: Via FC AG SEND and AG RECV max via 10 CP 443-1 of 443-5
• supported	Yes; Via FC AG_SEND and AG_RECV, max. via 10 CP 443-1 or 443-5 8 kbyte
supportedUser data per job, max.	8 kbyte
supportedUser data per job, max.User data per job (of which consistent), max.	8 kbyte 240 byte
supportedUser data per job, max.	8 kbyte
 supported User data per job, max. User data per job (of which consistent), max. Number of simultaneous AG-SEND/AG-RECV orders per 	8 kbyte 240 byte
 supported User data per job, max. User data per job (of which consistent), max. Number of simultaneous AG-SEND/AG-RECV orders per CPU, max. 	8 kbyte 240 byte

Setpoint for the CPU communication load Number of remote interconnection partners Interconnection partners Interconnection partners Interconnection partners Interconnection partners Interconnection partners Interconnections Interconnections Data length of all outgoing master/device connections, max. Number of device-internal and PROFIBUS Interconnections Data length of device-internal und PROFIBUS Interconnections Data length of device-internal und PROFIBUS Interconnections, max. Data length of all incoming interconnection / with acyclic transfer / header Sampling interval, min. Data length of all incoming interconnections Data length of all incoming interconnections, max. Data length of all incoming interconnections, max. Data length of all outgoing interconnections, max. Data length of all outgoing interconnections, max. Data length of all outgoing interconnections with cyclic transfer / header Transmission frequency: Transmission interval, min. Number of incoming interconnections Number of outgoing interconnections Number of outgoing interconnections Number of incoming interconnections, max. Data length of all incoming interconnections, max. A 800 byte Data length of all outgoing interconnections, max. A 800 byte Performance data / PROFINET CBA / HMI variables via PROFINET / acyclic / header Number of HMI variables Number of HMI variables Data length of APROFINET CBA / PROFIBUS proxy functionality / header A 800 byte Data length of APROFINET CBA / PROFIBUS proxy functionality / header A 800 byte Data length of PROFINET CBA / PROFIBUS proxy functionality / header A 800 byte Data length of outgoing interconnection, max. Obstacle	ections
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o Data length of device-internal und PROFIBUS interconnections, max. o Data length per connection, max. o Data length per connection, max. o Data length per connection, max. 2 000 byte performance data / PROFINET CBA / remote interconnection / with acyclic transfer / header — Sampling Interval, min. 000 ms; Depending on preset communication load, number of interconnections and data length used — Number of incoming interconnections — Number of outgoing interconnections, max. — Data length of all outgoing interconnections, max. — Data length per connection, max. — Data length of events of the province of	ections
interconnections, max. ◆ Data length per connection, max. performance data / PROFINET CBA / remote interconnection / with acyclic transfer / header — 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. — Data length per connection, max. — Data length per connection, max. — Transmission frequency: Transmission interval, min. — Number of incoming interconnections — Number of outgoing interconnections — Number of outgoing interconnections — Number of outgoing interconnections — Data length of all incoming interconnections — Data length of all incoming interconnections, max. — Data length of all outgoing interconnections, max. — Data length of all HMI variables via PROFINET / acyclic / header — Number of stations that can log on for HMI variables via PROFINET / acyclic / header — Number of HMI variables and variab	ections
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performance data / PROFINET CBA / remote interconnection / with acyclic transfer / header — 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. — Data length per connection, max. — Data length per connection, max. — Transmission frequency: Transmission interval, min. — Transmission frequency: Transmission interval, min. — Number of incoming interconnections — Number of outgoing interconnections — Number of outgoing interconnections, max. — Data length of all incoming interconnections, max. — Data length of all incoming interconnections, max. — Data length of all incoming interconnections, max. — Data length of all outgoing interconnections, max. — Data length of all outgoing interconnections, max. — Data length of stations that can log on for HMI variables via PROFINET / acyclic / header — Number of stations that can log on for HMI variables (PN OPC/fMap) — HMI variable updating — Number of HMI variables, max. — Pata length of all HMI variables, max. — Data length of all HMI variables, max. — Ala 000 byte performance data / PROFINET CBA / PROFIBUS proxy functionality / header — supported — supported — Data length per connection, max. Number of connections	ections
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- 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 Transmission frequency: Transmission interval, min Transmission frequency: Transmission interval, min Number of incoming interconnections - Number of outgoing interconnections - Number of outgoing interconnections - Data length of all incoming interconnections, max Data length of all outgoing interconnections, max Data length per connection, max Data length per connection, max Number of stations that can log on for HMI variables (PN OPC/IMap) - HMI variable updating - Number of HMI variables - Data length of all HMI variables, max Bato byte - Data length of all HMI variables, max Also obyte - Data length of all HMI variables, max Bato obyte - Data length of all HMI variables, max Bato obyte - Data length of all HMI variables, max Bato obyte - Supported - Supported - Supported - Supported - Data length per connection, max.	
- Number of outgoing interconnections 500 - Data length of all incoming interconnections, max. 16 000 byte - Data length of all outgoing interconnections, max. 16 000 byte - Data length per connection, max. 2 000 byte performance data / PROFINET CBA / remote interconnection / with cyclic transfer / header - Transmission frequency: Transmission interval, min. 1 ms; Depending on preset communication load, number of interconnection data length used 1 ms; Depending on preset communication load, number of interconnection on the data length used 1 ms; Depending on preset communication load, number of interconnection on the data length used 1 ms; Depending on preset communication load, number of interconnection of the data length used 1 ms; Depending on preset communication load, number of interconnection of the data length used 1 ms; Depending on preset communication load, number of interconnection on and data length used 1 ms; Depending on preset communication load, number of interconnection on and data length used 1 ms; Depending on preset communication load, number of interconnection on and data length used 1 ms; Depending on preset communication load, number of interconnection on and data length used 1 ms; Depending on preset communication load, number of interconnections 1 ms; Depending on preset communication load, number of interconnection, max. 4 800 byte 1 ms; Depending on preset communication load, number of interconnection, max. 4 800 byte 1 ms; Depending on preset communication load, number of interconnection, max. 4 800 byte 1 ms; Depending on preset communication load, number of interconnection, max. 4 800 byte 1 ms; Depending on preset communication load, number of interconnection, max. 1 ms; Depending on preset communication load, number of interconnection, max. 1 ms; Depending on preset communication load, number of interconnections 1 ms; Depending on preset communication load, number of interconnections 1 ms; Depending on preset communication load, number of interconnections 1 ms; Depending on	
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performance data / PROFINET CBA / remote interconnection / with cyclic transfer / header — Transmission frequency: Transmission 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. — Data length per connection, max. — Data length per connection, max. — Profined data / PROFINET CBA / HMI variables via PROFINET / acyclic / header — Number of stations that can log on for HMI variables — Number of HMI variable updating — HMI variable updating — Number of HMI variables — Data length of all HMI variables, max. — Data length of all HMI variables, max. — Supported — Supported — Data length per connection, max. Number of connections	
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— Data length of all incoming interconnections, max. — Data length of all outgoing interconnections, max. — Data length per connection, max. — Data length per connection, max. 4800 byte — Data length per connection, max. 450 byte performance data / PROFINET CBA / HMI variables via PROFINET / acyclic / header — Number of stations that can log on for HMI variables (PN OPC/iMap) — HMI variable updating — Number of HMI variables — Number of HMI variables — Data length of all HMI variables, max. 48 000 byte performance data / PROFINET CBA / PROFIBUS proxy functionality / header — supported — supported — Data length per connection, max. Number of connections	
— Data length of all outgoing interconnections, max. — Data length per connection, max. — Data length per connection, max. — PROFINET CBA / HMI variables via PROFINET / acyclic / header — Number of stations that can log on for HMI variables (PN OPC/iMap) — HMI variable updating — Number of HMI variables — Number of HMI variables — Data length of all HMI variables, max. — Data length of all HMI variables proxy functionality / header — supported — Supported — Data length per connection, max. Number of connections	
— Data length per connection, max. performance data / PROFINET CBA / HMI variables via PROFINET / acyclic / header — Number of stations that can log on for HMI variables (PN OPC/iMap) — HMI variable updating — Number of HMI variables — Number of HMI variables — Data length of all HMI variables, max. 48 000 byte performance data / PROFINET CBA / PROFIBUS proxy functionality / header — supported — supported — Data length per connection, max. Number of connections	
performance data / PROFINET CBA / HMI variables via PROFINET / acyclic / header — Number of stations that can log on for HMI variables (PN OPC/iMap) — HMI variable updating — Number of HMI variables — Number of HMI variables — Data length of all HMI variables, max. — PROFINET CBA / PROFIBUS proxy functionality / header — supported — supported — Data length per connection, max. Number of connections	
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(PN OPC/iMap) — HMI variable updating — Number of HMI variables — Data length of all HMI variables, max. performance data / PROFINET CBA / PROFIBUS proxy functionality / header — supported — Data length per connection, max. Number of connections	
— HMI variable updating 500 ms — Number of HMI variables 1500 — Data length of all HMI variables, max. 48 000 byte performance data / PROFINET CBA / PROFIBUS proxy functionality / header — supported Yes; 32 PROFIBUS slaves max. connectable — Data length per connection, max. 240 byte; Slave-dependent	
 Number of HMI variables Data length of all HMI variables, max. 48 000 byte performance data / PROFINET CBA / PROFIBUS proxy functionality / header supported Data length per connection, max. Number of connections 	
— Data length of all HMI variables, max. performance data / PROFINET CBA / PROFIBUS proxy functionality / header supported Data length per connection, max. Yes; 32 PROFIBUS slaves max. connectable 240 byte; Slave-dependent Number of connections	
performance data / PROFINET CBA / PROFIBUS proxy functionality / header — supported Yes; 32 PROFIBUS slaves max. connectable — Data length per connection, max. 240 byte; Slave-dependent Number of connections	
 — supported — Data length per connection, max. Number of connections Yes; 32 PROFIBUS slaves max. connectable 240 byte; Slave-dependent 	
— Data length per connection, max. 240 byte; Slave-dependent Number of connections	
Number of connections	
• Overall	
• usable for PG communication 95	
— reserved for PG communication 1	
— adjustable for PG communication, max.	
• usable for OP communication 95	
— reserved for OP communication 1	
— adjustable for OP communication, max.	
• usable for S7 basic communication 94	
— reserved for S7 basic communication 0	
— adjustable for S7 basic communication, max.	
• usable for S7 communication 94	
— reserved for S7 communication 0	
— adjustable for S7 communication, max.	
• usable for routing 47	
— reserved for routing 0	
— adjustable for routing, max.	
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_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC)	
Symbol-related messages Yes Yes	·m,
SCAN procedure Yes	m,
Program alarms Yes	·m,
Process diagnostic messages Yes	m,
1 100000 diagnostic medauges	m,

Alarm 8-blocks	Yes
Number of instances for alarm 8 and S7 communication	4 000
blocks, max.	
• 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
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	, o, o addoroond or
• Forcing	Yes
Forcing, variables	Inputs/outputs, bit memories, distributed I/Os
Number of variables, max.	512
Diagnostic buffer	012
• present	Yes
Number of entries, max.	3 200
— adjustable	Yes
— preset	120
Service data	120
• can be read out	Yes
Standards, approvals, certificates	
CE mark	Yes
EAC (formerly Gost-R)	Yes
Ambient conditions	103
Ambient temperature during operation	
min.	-25 °C; = Tmin
	70 °C; = Tmax
max. Altitude during operation relating to sea level	70 0, = Illiax
<u> </u>	5 000 m
Installation altitude above sea level, max. Ambient air temperature-barometric pressure-altitude	5 000 m Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax
Ambient air temperature-barometric pressure-altitude	- 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax -20 K)
	at 658 hPa 540 hPa (+3 500 m +5 000 m)
Relative humidity	
With condensation, tested in accordance with IEC 60068- 3.20 may.	
2-38, max.	100 %; RH incl. condensation / frost (no commissioning in bedewed state),
Resistance	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Use in stationary industrial systems	horizontal installation
Use in stationary industrial systems — to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
Use in stationary industrial systems — to biologically active substances according to EN 60721-3-3 — to chemically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
Use in stationary industrial systems — to biologically active substances according to EN 60721-3-3 — to chemically active substances according to EN 60721-3-3 — to mechanically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity
Use in stationary industrial systems — to biologically active substances according to EN 60721-3-3 — to chemically active substances according to EN 60721-3-3 — to mechanically active substances according to EN 60721-3-3 Use on ships/at sea	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * Yes; Class 3S4 incl. sand, dust, *
Use in stationary industrial systems — to biologically active substances according to EN 60721-3-3 — to chemically active substances according to EN 60721-3-3 — to mechanically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
Use in stationary industrial systems — to biologically active substances according to EN 60721-3-3 — to chemically active substances according to EN 60721-3-3 — to mechanically active substances according to EN 60721-3-3 Use on ships/at sea — to biologically active substances according to EN	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * Yes; Class 3S4 incl. sand, dust, * Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on

Usage in industrial process technology			
Against chemically active substances acc. to EN	Yes; Class 3 (excluding trichlor	ethylene)	
60654-4	, , , , , , , , , , , , , , , , , , , ,	,	
 Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04 	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)		
Remark	, , , ,		
 Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04 	* The supplied plug covers mus during operation!	st remain in place over the	unused interfaces
Conformal coating			
Coatings for printed circuit board assemblies acc. to EN 61086	Yes; Class 2 for high reliability		
 Protection against fouling acc. to EN 60664-3 	Yes; Type 1 protection		
 Military testing according to MIL-I-46058C, Amendment 7 	Yes; Discoloration of coating po	ossible during service life	
 Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC- CC-830A 	Yes; Conformal coating, Class	A	
configuration / header			
Configuration software			
• STEP 7	Yes		
configuration / programming / header	100		
Command set	see instruction list		
Nesting levels	7		
Access to consistent data in process image	Yes		
System functions (SFC)	see instruction list		
System function blocks (SFB)	see instruction list		
Programming language			
— LAD	Yes		
— FBD	Yes		
— STL	Yes		
— SCL	Yes		
— CFC	Yes		
— GRAPH	Yes		
— HiGraph®	Yes		
configuration / programming / number of simultaneously active	SFC / header		
— DPSYC_FR	2; SFC 11; per interface		
— D_ACT_DP	8; SFC 12; per interface		
— RD_REC	8; SFC 59; per interface		
— 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 no		
— WRREC	8; SFB 53; per interface, but no	t more than 32 across all	external interfaces
Know-how protection	V		
User program protection/password protection Plack appropriate.	Yes		
Block encryption Dimensions	Yes; With S7 block Privacy		
Dimensions	E0 mm		
Width	50 mm		
Height	290 mm		
Depth	219 mm		
Weight approx	000 a		
Weight, approx.	900 g		
Classifications		,	01 15
		Version	Classification
	eClass	14	27-24-22-07

eClass	9.1	27-24-22-07
eClass	9	27-24-22-07
eClass	8	27-24-22-07
eClass	7.1	27-24-22-07
eClass	6	27-24-22-07
ETIM	9	EC000236
ETIM	8	EC000236
ETIM	7	EC000236
IDEA	4	3565
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval

EMV

Miscellaneous



Manufacturer Declaration







For use in hazardous locations

CCC-Ex





last modified:

12/8/2024