SIEMENS

Data sheet

6AG1412-5HK06-7AB0

SIPLUS S7-400 CPU 412-5H -25...+70 °C with conformal coating based on 6ES7412-5HK06-0AB0 . Central processing unit for S7-400H and S7-400F/FH, 5 interfaces: 1x MPI/DP, 1x DP, 1x PN and 2 for SYNC modules, 1 MB memory (512 KB data/512 KB program)



Figure similar

General information	
	CPU 412-5H PN/DP
Product type designation	
HW functional status	1
Firmware version	V6.0
Engineering with	
 Programming package 	As of STEP 7 V5.5 SP2 with HF1
CiR – Configuration in RUN	
CiR synchronization time, basic load	100 ms
CiR synchronization time, time per I/O byte	0 µs
Supply voltage	
Rated value (DC)	
• 24 V DC	No; Power supply via system power supply
Input current	
from backplane bus 5 V DC, typ.	1.6 A
from backplane bus 5 V DC, max.	1.9 A
from backplane bus 24 V DC, max.	150 mA; 150 mA per DP interface

from interface 5 V DC, max.	90 mA; At each DP interface
Power loss	
Power loss, typ.	7.5 W
Memory	
Type of memory	RAM
Work memory	
• integrated	1 Mbyte
 integrated (for program) 	512 kbyte
• integrated (for data)	512 kbyte
• expandable	No
Load memory	
expandable FEPROM	Yes; with Memory Card (FLASH)
• expandable FEPROM, max.	64 Mbyte
• integrated RAM, max.	512 kbyte
• expandable RAM	Yes
• expandable RAM, max.	64 Mbyte
Backup	
• present	Yes
• with battery	Yes; all data
 without battery 	No
-	
Battery	
- -	
Battery	180 μA; Valid up to 40°C
Battery Backup battery	1 000 µA
Backup battery • Backup current, typ.	
Battery Backup battery • Backup current, typ. • Backup current, max.	1 000 μA Dealt with in the module data manual with the secondary
Battery Backup battery • Backup current, typ. • Backup current, max. • Backup time, max. • Feeding of external backup voltage to CPU	1 000 μA Dealt with in the module data manual with the secondary conditions and the factors of influence
Battery Backup battery • Backup current, typ. • Backup current, max. • Backup time, max.	1 000 μA Dealt with in the module data manual with the secondary conditions and the factors of influence
Backup battery Backup current, typ. Backup current, max. Backup time, max. Feeding of external backup voltage to CPU CPU processing times	1 000 μA Dealt with in the module data manual with the secondary conditions and the factors of influence 5 V DC to 15 V DC
Battery Backup battery • Backup current, typ. • Backup current, max. • Backup time, max. • Feeding of external backup voltage to CPU CPU processing times for bit operations, typ.	1 000 μA Dealt with in the module data manual with the secondary conditions and the factors of influence 5 V DC to 15 V DC 31.25 ns
Battery Backup battery • Backup current, typ. • Backup current, max. • Backup time, max. • Feeding of external backup voltage to CPU CPU processing times for bit operations, typ. for word operations, typ.	1 000 μA Dealt with in the module data manual with the secondary conditions and the factors of influence 5 V DC to 15 V DC 31.25 ns 31.25 ns
Battery Backup battery • Backup current, typ. • Backup current, max. • Backup time, max. • Feeding of external backup voltage to CPU CPU processing times for bit operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. CPU-blocks	1 000 μA Dealt with in the module data manual with the secondary conditions and the factors of influence 5 V DC to 15 V DC 31.25 ns 31.25 ns 31.25 ns
Battery Backup battery • Backup current, typ. • Backup current, max. • Backup time, max. • Feeding of external backup voltage to CPU CPU processing times for bit operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ.	1 000 μA Dealt with in the module data manual with the secondary conditions and the factors of influence 5 V DC to 15 V DC 31.25 ns 31.25 ns 31.25 ns 62.5 ns
Battery Backup battery • Backup current, typ. • Backup current, max. • Backup time, max. • Feeding of external backup voltage to CPU CPU processing times for bit operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. CPU-blocks	1 000 μA Dealt with in the module data manual with the secondary conditions and the factors of influence 5 V DC to 15 V DC 31.25 ns 31.25 ns 31.25 ns 62.5 ns 62.5 ns
Battery Backup battery • Backup current, typ. • Backup current, max. • Backup time, max. • Feeding of external backup voltage to CPU CPU processing times for bit operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. CPU-blocks DB	1 000 μA Dealt with in the module data manual with the secondary conditions and the factors of influence 5 V DC to 15 V DC 31.25 ns 31.25 ns 31.25 ns 62.5 ns
Battery Backup battery • Backup current, typ. • Backup current, max. • Backup time, max. • Feeding of external backup voltage to CPU CPU processing times for bit operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. CPU-blocks DB • Number, max.	1 000 μA Dealt with in the module data manual with the secondary conditions and the factors of influence 5 V DC to 15 V DC 31.25 ns 31.25 ns 31.25 ns 62.5 ns 62.5 ns 62.5 ns
Battery Backup battery • Backup current, typ. • Backup current, max. • Backup time, max. • Feeding of external backup voltage to CPU CPU processing times for bit operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. CPU-blocks DB • Number, max. • Size, max.	1 000 μA Dealt with in the module data manual with the secondary conditions and the factors of influence 5 V DC to 15 V DC 31.25 ns 31.25 ns 31.25 ns 62.5 ns 6000; Number range: 1 to 16000 64 kbyte 3 000; Number range: 0 to 7999
Battery Backup battery • Backup current, typ. • Backup current, max. • Backup time, max. • Feeding of external backup voltage to CPU CPU processing times for bit operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. DB • Number, max. • Size, max.	1 000 μA Dealt with in the module data manual with the secondary conditions and the factors of influence 5 V DC to 15 V DC 31.25 ns 31.25 ns 31.25 ns 62.5 ns 62.5 ns 62.5 ns

• Number, max.	3 000; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
• Number, max.	see instruction list
• Size, max.	64 kbyte
 Number of free cycle OBs 	1; OB 1
 Number of time alarm OBs 	4; OB 10-13
 Number of delay alarm OBs 	4; OB 20-23
 Number of cyclic interrupt OBs 	4; OB 32-35
 Number of process alarm OBs 	4; OB 40-43
 Number of DPV1 alarm OBs 	3; OB 55-57
 Number of startup OBs 	2; OB 100, 102
 Number of asynchronous error OBs 	9; OB 80-88
 Number of synchronous error OBs 	2; OB 121, 122
Nesting depth	
 per priority class 	24
 additional within an error OB 	1
Counters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	2 047
— preset	Z 0 to Z 7
Counting range	
— lower limit	0
— upper limit	999
IEC counter	
Number	Unlimited (limited only by RAM capacity)
S7 times	
• Number	2 048
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	2 047
— preset	No times retentive
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	

• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	Total working and load memory (with backup better)
retentive data area in total	Total working and load memory (with backup battery)
Flag	8 192 byte
Number, max.	Yes
Retentivity available	
Retentivity preset	MB 0 to MB 15
Number of clock memories	8; in 1 memory byte
Local data	
 adjustable, max. 	16 kbyte
● preset	8 kbyte
Address area	
I/O address area	
• Inputs	8 kbyte
Outputs	8 kbyte
of which distributed	
— MPI/DP interface, inputs	2 kbyte
— MPI/DP interface, outputs	2 kbyte
— DP interface, inputs	4 kbyte
— DP interface, outputs	4 kbyte
— PROFINET interface, inputs	8 kbyte
— PROFINET interface, outputs	8 kbyte
Process image	
 Inputs, adjustable 	8 kbyte
 Outputs, adjustable 	8 kbyte
 Inputs, default 	256 byte
• Outputs, default	256 byte
• consistent data, max.	244 byte
 Access to consistent data in process image 	Yes
Subprocess images	
 Number of subprocess images, max. 	15
Digital channels	
• Inputs	65 536
— of which central	65 536
Outputs	65 536
— of which central	65 536
Analog channels	
Inputs	4 096
— of which central	4 096

Outputs	4 096
— of which central	4 096
Hardware configuration	21
Number of expansion units, max.	47
Multicomputing	47 No
Interface modules	NO
	6
Number of connectable IMs (total), max.	
• Number of connectable IM 460s, max.	
Number of connectable IM 463s, max.	4; Single mode only
Number of DP masters	
integrated	2
● via CP	10; CP 443-5 Extended
 Mixed mode IM + CP permitted 	No
 via interface module 	0
Number of IO Controllers	
 integrated 	1
● via CP	0
Number of operable FMs and CPs (recommended)	
● FM	See manual Automation System S7-400H fault-tolerant systems.
	Limited by number of slots and number of connections
• CP, PtP	See manual Automation System S7-400H fault-tolerant systems.
	Limited by number of slots and number of connections
PROFIBUS and Ethernet CPs	14; Of which max. 10 CP as DP master
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; 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
• retentive	Yes
Clock synchronization	
• supported	Yes
• to MPI, master	Yes

• to MPI, slave	Yes
• to DP, master	Yes
• to DP, slave	Yes
• in AS, master	Yes
• in AS, slave	Yes
 on Ethernet via NTP 	Yes; As client
Time difference in system when synchronizing via	
• Ethernet, max.	10 ms; Via NTP
• MPI, max.	200 ms

Interfaces	
Number of RS 485 interfaces	2
Number of other interfaces	2; Fiber-optic interface

1. Interface	
Interface type	Integrated
Physics	RS 485 / PROFIBUS + MPI
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	150 mA
Number of connection resources	MPI: 32, DP: 16
Functionality	
• MPI	Yes
 PROFIBUS DP master 	Yes
PROFIBUS DP slave	No
MPI	
 Number of connections 	32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1
 Transmission rate, max. 	12 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
DP master	
 Number of connections, max. 	16; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1
• Transmission rate, max.	12 Mbit/s
 Number of DP slaves, max. 	32
Services	
— PG/OP communication	Yes

— Routing	Yes
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
— Equidistance	No
— Isochronous mode	No
- SYNC/FREEZE	No
 Activation/deactivation of DP slaves 	No
 — Direct data exchange (slave-to-slave communication) 	No
— 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
DP slave	
Number of connections	No configuration of CPU as DP slave
2. Interface	
Interface type	PROFINET
Physics	Ethernet RJ45
Isolated	Yes
automatic detection of transmission rate	Yes; Autosensing
Autonegotiation	Yes
Autocrossing	Yes
Change of IP address at runtime, supported	No

2. Interface	
Interface type	PROFINET
Physics	Ethernet RJ45
Isolated	Yes
automatic detection of transmission rate	Yes; Autosensing
Autonegotiation	Yes
Autocrossing	Yes
Change of IP address at runtime, supported	No
Number of connection resources	48
Interface types	
 Number of ports 	2
 integrated switch 	Yes
Media redundancy	
• supported	Yes
 Switchover time on line break, typ. 	200 ms
 Number of stations in the ring, max. 	50
Functionality	
PROFINET IO Controller	Yes

• PROFINET ICD Pavice No • PROFINET CBA No • PROFINEUS DP master No • PROFIBUS DP slave No • Open IE communication Yes • Proint-opinit connection No PROFINET IO Controller No • Proint-opinit connection No PROFINET IO Controller No • Proint-opinit connection No PROFINET IO Controller Yes • Proof Partice point communication Yes - S7 routing Yes - S7 routing Yes - Shared device Yes - Number of connectable IO Devices (max. 256 - Activation/deactivation of IO Devices No - Number of connectable IO Devices for RT. 256 - Activation/deactivation of IO Devices No - Device replacement without swap medium Yes - Send cycles 250 us 50 us 1 ms. 1 ms. 2 ms. 4 ms - Send cycles 250 us to 12 ms. minimum value depends on the number of configured user data and the configured single or redundant mode cabfigured user data consistency, max.		
PROFIBUS DP master No PROFIBUS DP slave No Open IE communication Yes Web server No Point-to-point connection No PROFINET IO Controller 100 Mbit/s Services - - PG/OP communication Yes - S7 routing Yes - S7 communication Yes - S7 communication Yes - S7 communication Yes - Shared device Yes: Single mode only - Open IE communication Yes - Shared device Yes: Single mode only - Number of connectable IO Devices, max. 256: In redundant mode via both interfaces - Number of connectable IO Devices for RT, max. 256 - No dvich in line, max. 256 - Or which in line, max. 256 - No Devices changing during operation No (parture ports), supported Yes - Device replacement without swap medium Yes - Send cycles 250 µs, 500 µs, 1 ms, 2 ms, 4 ms - Updating time Configured user data and the configured single or redundant mode of configured user data and the configured single or redundant mode - Updating time 250 µs, 500 µs, 1 ms, 2 ms, 4 ms - Updating time 250 µs, 500 µs, 1 ms, 2 ms, 4 ms	PROFINET IO Device	No
PROFIBUS DP slave No • Open IE communication Yes • Web server No • Point-to-point connection No PROFINET IC Controller - • Transmission rate, max. 100 Mbit/s Services - • PG/OP communication Yes • S7 routing Yes • S7 routing Yes • S7 communication Yes • Shared device Yes: Single mode only • Prioritized starup No • Number of connectable IO Devices, max. 256; In redundant mode via both interfaces • of which in line, max. 256 • Device replacement without swap medium Yes • Send cycles 250 µs, 500 µs, 1 ms, 2 ms, 4 ms • Updating time 250 µs, 500 µs, 1 ms, 2 ms, 4 ms • Updating time 250 µs to 51 2 ms, minimum value depends on the number of configured user data and the configured userd and the configured user of aconfigured u	• PROFINET CBA	No
Open IE communication Yes Web server No PPoint-to-point connection No PROFINET IO Controller 100 Mbit/s Transmission rate, max. 100 Mbit/s Services - - PG(OP communication Yes - S7 routing Yes - S7 routing Yes - S7 routing Yes - S7 communication Yes - Sommunication Yes - Sommunication Yes - Shared device Yes; Single mode only - Prioritized startup No - Number of connectable IO Devices, max. 256; In redundant mode via both interfaces - Number of connectable IO Devices (noR). 256 - Number of connectable IO Devices No - Io Device rehanging during operation (partner ports), supported Yes - Device replacement without swap medium Yes - Send cycles 250 µs 500 µs, 1 ms, 2 ms, 4 ms - Updating time 250 µs 500 µs, 1 ms, 2 ms, 4 ms - Updating time 250 µs to 512 ms, minimum value depends on the number of configured user data and the configur	PROFIBUS DP master	No
Web server No • Point-to-point connection No • PROFENET IO Controller 100 Mbit/s • Transmission rate, max. 100 Mbit/s Services - - PG/OP communication Yes - S7 routing Yes - S7 communication Yes - S7 communication Yes - S7 communication Yes - S7 communication Yes - Shared device Yes; Single mode only - Prioritized startup No - Number of connectable IO Devices, max. 256; In redundant mode via both interfaces - Number of connectable IO Devices, max. 256 - of which in line, max. 256 - of which in line, max. 256 - O bevices changing during operation No - Up Devices changing during operation No - Device replacement without swap medium Yes - Updating time 250 µs, 500 µs, 1 ms, 2 ms, 4 ms - Updating time 250 µs, 500 µs, 1 ms, 2 ms, 4 ms - Updating time 250 µs, 500 µs, 1 ms, 2 ms, 4 ms - Updating time	PROFIBUS DP slave	No
Point-to-pint connection No PROFINET IO Controller 100 Mbit/s Services - PGCPOP communication Yes - S7 routing Yes - S7 communication Yes - So communication Yes - So communication Yes - So communication Yes - Shared device Yes; Single mode only - Number of connectable IO Devices, max. 256; In redundant mode via both interfaces - Number of connectable IO Devices, max. 256 - Activation/deactivation of IO Devices No - Io Devices changing during operation (partner ports), supported No - Device replacement without swap medium Yes - Send cycles 250 µs to 512 ms, minimum value depends on the number of configured user data and the configured single or redundant mode Address area a kbyte - Updating time 250 µs to 512 ms, minimum value depends on the number of configured user data and the configured single or redundant mode Address area a kbyte - Updating time 250 µs to 512 ms, minimum value depends, on the number of configured user data and the configured single or redundant mode <td>Open IE communication</td> <td>Yes</td>	Open IE communication	Yes
PROFINET IO Controller • Transmission rate, max. 100 Mbit/s Services – PG/OP communication Yes – PG/OP communication Yes – S7 routing Yes – S for outing Yes – S for communication Yes – Isochronous mode No – Open IE communication Yes; Single mode only – Prioritized startup No – Number of connectable IO Devices, max. 256; In redundant mode via both interfaces – Number of connectable IO Devices for RT, max. 256 – of which in line, max. 256 – of which in line, max. 256 – of which in g during operation (partner ports), supported No – Device replacement without swap medium Yes – Send cycles 250 µs to 512 ms, nimimum value depends on the number of configured user data and the configured single or redundant mode – Updating time 250 µs to 512 ms, inimum value depends on the number of configured user data consistency, max. – Updating time 102 byte Open IE communication 46	Web server	No
• Transmission rate, max. 100 Mbil/s Services - - PG/OP communication Yes - S7 routing Yes - S7 communication Yes - S7 communication Yes - S7 communication Yes - Softward No - Open IE communication Yes - Shared device Yes; Single mode only - Prioritized startup No - Number of connectable IO Devices, max. 256; In redundant mode via both interfaces - Number of connectable IO Devices, max. 256 - Number of connectable IO Devices No No - of which in line, max. 256 - Activation/deactivation of IO Devices No - IO Devices changing during operation No - IO Devices changing during operation No - Device replacement without swap medium Yes - Send cycles 250 µs 500 µs, 1 ms, 2 ms, 4 ms - Updating time 250 µs to 512 ms, minimum value depen	 Point-to-point connection 	No
Services PG/OP communication Yes - S7 routing Yes - S7 communication Yes - Isochronous mode No - Open IE communication Yes - Shared device Yes; Single mode only - Prioritized startup No - Number of connectable IO Devices, max. 256; In redundant mode via both interfaces - Number of connectable IO Devices for RT, max. 256 - of which in line, max. 256 - Activation/deactivation of IO Devices No - IO Devices changing during operation (partner ports), supported No - Device replacement without swap medium Yes - Send cycles 250 µs, 500 µs, 1 ms, 2 ms, 4 ms - Updating time 250 µs to 512 ms, minimum value depends on the number of configured user data and the configured single or redundant mode configured user data and the configured single or redundant mode configured user data consistency, max. - Inputs, max. 8 kbyte - User data consistency, max. 8 kbyte - User data consistency, max. 0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535 • Keep-alive function, supported Yes Interface Ves	PROFINET IO Controller	
PG/OP communication Yes S7 routing Yes S7 communication Yes Isochronous mode No Open IE communication Yes Shared device Yes; Single mode only Prioritized startup No Number of connectable IO Devices, max. 256; In redundant mode via both interfaces Number of connectable IO Devices for RT, 256 max. 256 - of which in line, max. 256 - Activation/deactivation of IO Devices No - Ito Devices changing during operation (partner ports), supported No - Device replacement without swap medium Yes - Send cycles 250 µs, 500 µs, 1 ms, 2 ms, 4 ms - Updating time 250 µs to 512 ms, minimum value depends on the number of configured user data and the configured single or redundant mode Address area 8 kbyte - Inputs, max. 8 kbyte - Outputs, max. 8 kbyte - User data consistency, max. 9 kbyte Other for connections, max. 46 0. Local port numbers used at the system end 0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535 • Keep-alive function, supported Yes Interface type Integrated Physics RS 485 / PROFIBUS <td> Transmission rate, max. </td> <td>100 Mbit/s</td>	 Transmission rate, max. 	100 Mbit/s
ST routingYes	Services	
	— PG/OP communication	Yes
Isochronous modeNo- Open IE communicationYes- Shared deviceYes; Single mode only- Prioritized startupNo- Number of connectable IO Devices, max.256; In redundant mode via both interfaces- Number of connectable IO Devices for RT, max.256- of which in line, max.256- of which in line, max.256- Otevices changing during operation (partner ports), supportedNo- Device replacement without swap medium (partner ports), supportedYes- Send cycles250 µs, 500 µs, 1 ms, 2 ms, 4 ms- Updating time250 µs to 512 ms, minimum value depends on the number of configured user data and the configured single or redundant modeAddress area Inputs, max.8 kbyte- Outputs, max.8 kbyte- User data consistency, max.1024 byteOpen IE communicationYes• Number of connections, max.46• Local port numbers used at the system end 0 < 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535• Keep-alive function, supportedYesInterfaceIntegratedPhysicsRS 485 / PROFIBUSPower supply to interface (15 to 30 V DC), max.150 mA	— S7 routing	Yes
Open IE communication Yes Shared device Yes; Single mode only Prioritized startup No Number of connectable IO Devices, max. 256; In redundant mode via both interfaces Number of connectable IO Devices for RT, max. 256 - of which in line, max. 256 - Activation/deactivation of IO Devices No - IO Devices changing during operation (partner ports), supported No - Device replacement without swap medium Yes Send cycles 250 µs, 500 µs, 1 ms, 2 ms, 4 ms - Updating time 250 µs, 500 µs, 1 ms, 2 ms, 4 ms - Updating time 250 µs to 512 ms, minimum value depends on the number of configured user data and the configured single or redundant mode Address area 1 - Outputs, max. 8 kbyte - Outputs, max. 8 kbyte - User data consistency, max. 1024 byte Open IE communication 0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535 • Keep-alive function, supported Yes Interface Integrated Physics RS 485 / PROFIBUS Power supply to interface (15 to 30 V DC), max. 150 mA	— S7 communication	Yes
 Shared device Yes; Single mode only Prioritized startup Number of connectable IO Devices, max. Shared device Number of connectable IO Devices for RT, max. of which in line, max. of which in line, max. of which in line, max. Activation/deactivation of IO Devices No No Activation/deactivation of IO Devices No IO Devices changing during operation (partner ports), supported Device replacement without swap medium Send cycles Send cycles Updating time Sou post Startes Address area Integrated Outputs, max. 8 kbyte User data consistency, max. 46 Local port numbers used at the system end Ves Local port numbers used at the system end Yes Keep-alive function, supported Yes Interface Interface type Integrated Physics RS 485 / PROFIBUS Fower supply to interface (15 to 30 V DC), max. 150 mA 	— Isochronous mode	No
Prioritized startup No Number of connectable IO Devices, max. 256; In redundant mode via both interfaces Number of connectable IO Devices for RT, max. 256 - of which in line, max. 256 - Activation/deactivation of IO Devices No - Activation/deactivation of IO Devices No - IO Devices changing during operation (partner ports), supported No - Device replacement without swap medium Yes - Send cycles 250 µs, 500 µs, 1 ms, 2 ms, 4 ms - Updating time 250 µs to 512 ms, minimum value depends on the number of configured user data and the configured single or redundant mode Address area 8 kbyte - Upduts, max. 8 kbyte - Uptputs, max. 8 kbyte - User data consistency, max. 1024 byte Open IE communication 0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65535, 75536, 65535, 75536, 65535, 75536, 65535, 75536, 7553	— Open IE communication	Yes
Number of connectable IO Devices, max. 256; In redundant mode via both interfaces Number of connectable IO Devices for RT, max. 256 - of which in line, max. 256 - of which in line, max. 256 - Activation/deactivation of IO Devices No - IO Devices changing during operation (partner ports), supported No - Device replacement without swap medium Yes - Send cycles 250 µs, 500 µs, 1 ms, 2 ms, 4 ms - Updating time 250 µs, 500 µs, 1 ms, 2 ms, 4 ms - Updating time 250 µs to 512 ms, minimum value depends on the number of connections, max. - Inputs, max. 8 kbyte - Outputs, max. 1024 byte Open IE communication 1024 byte Ves 0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535 • Keep-alive function, supported Yes Strieface Interface type Interface type Integrated Physics RS 485 / PROFIBUS Power supply to interface (15 to 30 V DC), max. 150 mA	— Shared device	Yes; Single mode only
- Number of connectable IO Devices for RT, max.256- of which in line, max.256- of which in line, max.256- Activation/deactivation of IO DevicesNo- IO Devices changing during operation (partner ports), supportedNo- Device replacement without swap medium - Send cyclesYes- Updating time250 µs, 500 µs, 1 ms, 2 ms, 4 ms- Updating time250 µs to 512 ms, minimum value depends on the number of configured user data and the configured single or redundant modeAddress area8 kbyte- Inputs, max.8 kbyte- Outputs, max.1024 byteOpen IE communication46- Local port numbers used at the system end b Local port numbers used at the system end b Keep-alive function, supported0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535• Keep-alive function, supportedYesInterface typeIntegratedPhysicsRS 485 / PROFIBUSPower supply to interface (15 to 30 V DC), max.150 mA	— Prioritized startup	No
max.256- of which in line, max.256- Activation/deactivation of IO DevicesNo- IO Devices changing during operation (partner ports), supportedNo- Device replacement without swap mediumYes- Device replacement without swap mediumYes- Send cycles250 µs, 500 µs, 1 ms, 2 ms, 4 ms- Updating time250 µs to 512 ms, minimum value depends on the number of configured user data and the configured single or redundant modeAddress area8 kbyte- Inputs, max.8 kbyte- Outputs, max.1024 byteOpen IE communication46• Local port numbers used at the system end b Local port numbers used at the system end b Keep-alive function, supported0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535• Keep-alive function, supportedYesInterface typeIntegratedPhysicsRS 485 / PROFIBUSPower supply to interface (15 to 30 V DC), max.150 mA	— Number of connectable IO Devices, max.	256; In redundant mode via both interfaces
- of which in line, max.256- Activation/deactivation of IO DevicesNo- IO Devices changing during operation (partner ports), supportedNo- Device replacement without swap mediumYes- Send cycles250 µs, 500 µs, 1 ms, 2 ms, 4 ms- Updating time250 µs to 512 ms, minimum value depends on the number of configured user data and the configured single or redundant modeAddress area8 kbyte- Inputs, max.8 kbyte- Outputs, max.8 kbyte- User data consistency, max.1024 byteOpen IE communication46- Local port numbers used at the system end (5534, 65535)0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535- Keep-alive function, supportedYes- InterfaceIntegratedPhysicsRS 485 / PROFIBUSPower supply to interface (15 to 30 V DC), max.150 mA	— Number of connectable IO Devices for RT,	256
Activation/deactivation of IO DevicesNo— Activation/deactivation of IO DevicesNo— IO Devices changing during operation (partner ports), supportedNo— Device replacement without swap mediumYes— Send cycles250 µs, 500 µs, 1 ms, 2 ms, 4 ms— Updating time250 µs to 512 ms, minimum value depends on the number of configured user data and the configured single or redundant modeAddress area8 kbyte— Inputs, max.8 kbyte— Outputs, max.8 kbyte— User data consistency, max.1 024 byteOpen IE communication0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535• Keep-alive function, supportedYesS InterfaceIntegratedInterface typeIntegratedPhysicsRS 485 / PROFIBUSPower supply to interface (15 to 30 V DC), max.150 mA	max.	
Industriation of controlNo- IO Devices changing during operation (partner ports), supportedNo- Device replacement without swap mediumYes- Send cycles250 µs, 500 µs, 1 ms, 2 ms, 4 ms- Updating time250 µs to 512 ms, minimum value depends on the number of configured user data and the configured single or redundant modeAddress area8 kbyte- Inputs, max.8 kbyte- Outputs, max.1024 byteOpen IE communication1024 byte• Number of connections, max.46• Local port numbers used at the system end0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535• Keep-alive function, supportedYesInterfaceIntegratedPhysicsRS 485 / PROFIBUSPower supply to interface (15 to 30 V DC), max.150 mA	— of which in line, max.	256
(partner ports), supported(partner ports), supported- Device replacement without swap medium- Send cycles- Updating time250 µs, 500 µs, 1 ms, 2 ms, 4 ms250 µs to 512 ms, minimum value depends on the number of configured user data and the configured single or redundant modeAddress area- Inputs, max.8 kbyte- Outputs, max.8 kbyte- User data consistency, max.1 024 byteOpen IE communication• Number of connections, max.46• Local port numbers used at the system end0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535• Keep-alive function, supportedYesInterfaceInterface typeIntegratedPhysicsRS 485 / PROFIBUSPower supply to interface (15 to 30 V DC), max.150 mA	 Activation/deactivation of IO Devices 	No
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Address area8 kbyte- Inputs, max.8 kbyte- Outputs, max.8 kbyte- User data consistency, max.1 024 byteOpen IE communication46• Number of connections, max.46• Local port numbers used at the system end0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535• Keep-alive function, supportedYesInterfaceInterface typeIntegratedPhysicsRS 485 / PROFIBUSPower supply to interface (15 to 30 V DC), max.150 mA	— Updating time	
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- Outputs, max.8 kbyte- User data consistency, max.1 024 byteOpen IE communication46• Number of connections, max.46• Local port numbers used at the system end0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535• Keep-alive function, supportedYesInterfaceInterface typeIntegratedPhysicsRS 485 / PROFIBUSPower supply to interface (15 to 30 V DC), max.150 mA		
— User data consistency, max.1 024 byteOpen IE communication• Number of connections, max.46• Local port numbers used at the system end0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535• Keep-alive function, supportedYesInterfaceInterface typeIntegratedPhysicsRS 485 / PROFIBUSPower supply to interface (15 to 30 V DC), max.150 mA		
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• Number of connections, max.46• Local port numbers used at the system end0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535• Keep-alive function, supportedYesS. InterfaceYesInterface typeIntegratedPhysicsRS 485 / PROFIBUSPower supply to interface (15 to 30 V DC), max.150 mA	-	1 024 byte
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 Keep-alive function, supported Keep-alive function, supported Yes <u>3. Interface</u> Interface type Integrated Physics RS 485 / PROFIBUS Power supply to interface (15 to 30 V DC), max. 150 mA 		
3. Interface Interface type Integrated Physics RS 485 / PROFIBUS Power supply to interface (15 to 30 V DC), max. 150 mA	 Local port numbers used at the system end 	
Interface type Integrated Physics RS 485 / PROFIBUS Power supply to interface (15 to 30 V DC), max. 150 mA	 Keep-alive function, supported 	Yes
Physics RS 485 / PROFIBUS Power supply to interface (15 to 30 V DC), max. 150 mA		
Power supply to interface (15 to 30 V DC), max. 150 mA		-
	-	
Number of connection resources 16		
	Number of connection resources	16

Functionality	
PROFIBUS DP master	Yes
PROFIBUS DP slave	No
DP master	
 Number of connections, max. 	16
 Number of DP slaves, max. 	64
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
- S7 communication, as client	Yes
— S7 communication, as server	Yes
— Equidistance	No
— Isochronous mode	No
- SYNC/FREEZE	No
 Activation/deactivation of DP slaves 	No
— Direct data exchange (slave-to-slave communication)	No
— DPV0	Yes
— DPV1	Yes
Address area	
— Inputs, max.	4 kbyte
— Outputs, max.	4 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
. Interface	
Interface type	Pluggable synchronization submodule (FO)
Plug-in interface modules	Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960- 1AB06-0XA0
. Interface	
Interface type	Pluggable synchronization submodule (FO)
Plug-in interface modules	Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960- 1AB06-0XA0
Protocols	
SIMATIC communication	

Open IE communication Yes: via integrated PROFINET interface and loadable FBs - Data length, max. 32 kbyte - several passive connections per port, supported Yes • ISO-on-TCP (RFC1008) Yes; Via integrated PROFINET interface or CP 443-1 and loadable FBs - Data length, max. 32 kbyte; 1452 bytes via CP 443-1 Adv. • UDP Yes; via integrated PROFINET interface and loadable FBs - Data length, max. 1472 byte • Number of connections, max. 1472 byte • Data length, max. 1472 byte Isochronous operation (application synchronized up to terminal) No Equidistance No Communication functions Yes FG/OP communication Yes • Number of connectable OPs without message processing 47 • Number of connectable OPs with message processing 47; When using Alarm_S/SQ and Alarm_D/DQ • Supported No S7 basic communication Yes • supported No S7 basic communication Yes • supported Yes • User data per job, max. 64 kbyte • User data	S7 routing	Yes
• TCP/IP Yes; via integrated PROFINET interface and loadable FBs - 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 - Data length, max. 32 kbyte; 1452 bytes via CP 443-1 Adv. • UDP Yes; via integrated PROFINET interface and loadable FBs - Data length, max. 1472 byte Isochronous mode No Isochronous poration (application synchronized up to terminal) No Equilatance No Communication functions Yes • Number of connectable OPs without message processing 47 • Number of connectable OPs with message 47 processing 47 • Number of connectable OPs with message 47 • Supported No S7 communication Yes • supported No S7 communication Yes • supported Yes • as clent Yes • supported Yes • supported Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV) • supoported <t< td=""><td></td><td></td></t<>		
several passive connections per port, supported Yes • ISO-on-TCP (RFC1006) Yes; Via integrated PROFINET interface or CP 443-1 and loadable FBs Data length, max. 32 kbyte; 1452 bytes via CP 443-1 Adv. • UDP Yes; via integrated PROFINET interface and loadable FBs Data length, max. 1472 byte Eochronous node No Isochronous operation (application synchronized up to terminal) No Equidistance No Communication functions Yes PGIOP communication Yes • Number of connectable OPs without message processing 47 • Number of connectable OPs with message processing Yes • Supported No S7 basic communication Yes • supported No S7 communication Yes • supported Yes • supported Yes • supported Yes • supported Yes • State communication Yes • supported Yes • supported Yes • supported Yes <td>• TCP/IP</td> <td>Yes; via integrated PROFINET interface and loadable FBs</td>	• TCP/IP	Yes; via integrated PROFINET interface and loadable FBs
supported iISO-on-TCP (RFC1006) Ves: Via integrated PROFINET interface or CP 443-1 and loadable FBs	— Data length, max.	32 kbyte
supported Yes; Via integrated PROFINET interface or CP 443-1 and loadable FBs - Data length, max. 32 kbyte; 1452 bytes via CP 443-1 Adv. UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 46 - Data length, max. 1472 byte Isochronous potention (application synchronized up to terminal) No Equidistance No Communication functions 47 PG/OP communication of connectable OPs without message processing 47 Number of connectable OPs with message processing 47; When using Alarm_S/SQ and Alarm_D/DQ Data record routing Yes Supported No Stock communication Yes supported No Stock communication Yes supported No Stock communication Yes supported Yes supported Yes supported Yes supported Yes supported Yes supported Yes suported Yes	- several passive connections per port,	Yes
Ioadable FBs - Data length, max. 32 kbyte; 1452 bytes via CP 443-1 Adv. • UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 46 - Data length, max. 1472 byte Isochronous mode Isochronous specific (application synchronized up to terminal) Equidistance No Communication functions Yes Number of connectable OPs without message processing 47 Number of connectable OPs without message processing 47; When using Alarm_S/SQ and Alarm_D/DQ Data record routing Yes Global data communication Yes • supported No S7 communication Yes • supported Yes • User data per job, max. 64 kbyte • User data per job (of which consistent), max. 64 kbyte		
Data length, max. 32 kbyte; 1452 bytes via CP 443-1 Adv. •-UDP Yes; via integrated PROFINET interface and loadable FBs Number of connections, max. 46 Data length, max. 1472 byte Isochronous operation (application synchronized up to terminal) No Equidistance No Communication functions Yes •Number of connectable OPs without message processing 47 •Number of connectable OPs without message processing 47 •Number of connectable OPs with message processing Yes •Stable accord routing Yes Obtaic accord routing Yes •Supported No •Supported No •Stable of build ata communication Yes •supported Yes (via CP max. 10 and FC AG_SEND and FC AG_RECV) <t< td=""><td> ISO-on-TCP (RFC1006) </td><td>Yes; Via integrated PROFINET interface or CP 443-1 and</td></t<>	 ISO-on-TCP (RFC1006) 	Yes; Via integrated PROFINET interface or CP 443-1 and
• UDPYes, via integrated PROFINET interface and loadable FBs Number of connections, max.46 Data length, max.1472 byteIsochronous operation (application synchronized up to terminal)No EquidistanceNoCommunication functionsYesPG/OP communicationYes• Number of connectable OPs without message processing47 Number of connectable OPs with message processing47 Data record routingYes Data cord routingYes SupportedNoSolbal data communicationYes SupportedNoSolportedYes SupportedYes (via CP max. 10 and FC AG_SEND and FC AG_RECV) SupportedYes (via CP max. 10 and FC AG_SEND and FC AG_RECV) SupportedYes (via CP max. 10 and FC AG_SEND and FC AG_RECV) SupportedYes (via CP max. 10 and FC AG_SEND and FC AG_RECV) SupportedYes (via CP max. 10 and FC AG_SEND and FC AG_RECV) SupportedYes (via CP max. 10 and FC AG_SEND and FC AG_RECV) </td <td></td> <td>loadable FBs</td>		loadable FBs
Number of connections, max.46 Data length, max.1 472 byteIsochronous operation (application synchronized up to terminal)NoEquidistanceNoCommunication functionsYesPG/OP communicationYes• Number of connectable OPs without message processing47• Number of connectable OPs without message processing47• Number of connectable OPs with message processing47• SupportedYes• SupportedYes• SupportedNoS7 communicationYes• supportedNoS7 communicationYes• supportedYes• SupportedYes (via CP max. 10 and FC AG SEND and FC AG RECV)• User data per job (of which consistent), max.240 byte• User data per job (of which consistent), max.240 byte• User data per job (of which consistent), max.240 byte• User data per job (of which consistent), max.240 byte• User data per job (of which consistent), max.240 byte• User data per job (of which consistent), max.240 byte• User da	— Data length, max.	32 kbyte; 1452 bytes via CP 443-1 Adv.
- Data length, max. 1472 byte Isochronous mode Isochronous operation (application synchronized up to terminal) No Equidistance No Communication functions Yes PG/OP communication Yes • Number of connectable OPs without message processing 47, When using Alarm_S/SQ and Alarm_D/DQ • Number of connectable OPs with message processing Yes • Number of connectable OPs with message processing Yes • Supported Yes Global data communication Yes • supported No S7 basic communication Yes • supported No S7 communication Yes • supported Yes (via CP max. 10 and FC AG_SEND and FC AG_RECV) • User data per job, max. 8 kbyte • User data per job (of which consistent), max. <td< td=""><td>• UDP</td><td>Yes; via integrated PROFINET interface and loadable FBs</td></td<>	• UDP	Yes; via integrated PROFINET interface and loadable FBs
Isochronus operation (application synchronized up to terminal) No Equidistance No PG/OP communication Yes • Number of connectable OPs without message processing 47 • Number of connectable OPs with message processing 47; When using Alarm_S/SQ and Alarm_D/DQ Data record routing Yes Global data communication Yes • supported No S7 communication Yes • supported No S7 communication Yes • supported No S7 communication Yes • supported Yes • supported Yes • supported Yes • as server Yes • User data per job, max. 64 kbyte • User data per job, max. 64 kbyte • User data per job, max. 8 kbyte • User data per job, max. 8 kbyte • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max.	— Number of connections, max.	46
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to terminal) Equidistance Equidistance No Communication functions Yes PG/OP communication Yes • Number of connectable OPs without message processing 47 • Number of connectable OPs with message processing 47; When using Alarm_S/SQ and Alarm_D/DQ Data record routing Yes Global data communication Yes • supported No S7 basic communication Yes • supported No S7 communication Yes • supported Yes • supported Yes • supported Yes • supported Yes • as server Yes • as client Yes • User data per job (of which consistent), max. 64 kbyte • User data per job (of which consistent), max. 240 byte (ab b	Isochronous mode	
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Communication functions Yes PG/OP communication Yes • Number of connectable OPs without message processing 47 • Number of connectable OPs with message processing 47; When using Alarm_S/SQ and Alarm_D/DQ Data record routing Yes Global data communication • • supported No S7 basic communication • • supported No S7 communication • • supported Yes • user data per job, max. 642 byte; 1 variable S5 compatible communication 452 byte; 1 variable S5 compatible communication 9 kbyte • User data per job, max. 8 kbyte • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max. 240 byte • Number of simultaneous AG-SEND/AG-RECV orders per CPU, max. 64/64 • support	,	
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• Number of connectable OPs without message processing 47 • Number of connectable OPs with message processing 47; When using Alarm_S/SQ and Alarm_D/DQ Data record routing Yes Global data communication • • supported No S7 basic communication • • supported No S7 communication • • supported No S7 communication • • supported Yes • supported Yes • 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 * • User data per job, max. 8 kbyte • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max. 64/64 • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max. 54/64 •	Communication functions	
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processing Yes Clobal data communication No • supported No 57 basic communication supported • supported No 57 communication S7 communication • supported No 57 communication Yes • 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 Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV) • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max. 240 byte • 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) Yes; Via CP and loadable FB		
Data record routing Yes Global data communication No • supported No S7 basic communication No • supported No S7 communication No • supported No S7 communication Ves • 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 Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV) • User data per job, max. 8 kbyte • User data per job (of which consistent), max. 240 byte • 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) Yes; Via CP and loadable FB	_	47; When using Alarm_S/SQ and Alarm_D/DQ
Global data communication No S7 basic communication No • supported No S7 communication Ves • supported Yes • 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 Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV) • User data per job, max. 8 kbyte • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max. 64/64 • User data per job (of which consistent), max. Standard communication (FMS) • supported Yes; Via CP and loadable FB		Ves
• supportedNoS7 basic communicationNo• supportedNoS7 communicationYes• supportedYes• as serverYes• as clientYes• User data per job, max.64 kbyte• User data per job (of which consistent), max.462 byte; 1 variableS5 compatible communicationYes; (via CP max. 10 and FC AG_SEND and FC AG_RECV)• User data per job (of which consistent), max.8 kbyte• User data per job (of which consistent), max.8 kbyte• Stordard aper job (of which consistent), max.240 byte• User data per job (of which consistent), max.64/64• Standard communication (FMS)Yes; Via CP and loadable FB		165
S7 basic communication No • supported No S7 communication Yes • as ported 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 Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV) • User data per job, max. 8 kbyte • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max. 240 byte • Number of simultaneous AG-SEND/AG-RECV 64/64 • Standard communication (FMS) Yes; Via CP and loadable FB		No
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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 Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV) • User data per job, max. 8 kbyte • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max. 64/64 • Supported Yes; Via CP and loadable FB		No
• supportedYes• as serverYes• as clientYes• User data per job, max.64 kbyte• User data per job (of which consistent), max.462 byte; 1 variable• S5 compatible communicationS5 compatible communication• supportedYes; (via CP max. 10 and FC AG_SEND and FC AG_RECV)• User data per job, max.8 kbyte• User data per job (of which consistent), max.240 byte• User data per job (of which consistent), max.64/64• Standard communication (FMS)Yes; Via CP and loadable FB		
• as serverYes• as clientYes• User data per job, max.64 kbyte• User data per job (of which consistent), max.462 byte; 1 variable• Stompatible communicationYes; (via CP max. 10 and FC AG_SEND and FC AG_RECV)• User data per job, max.8 kbyte• User data per job (of which consistent), max.240 byte• User data per job (of which consistent), max.240 byte• Standard communication (FMS)64/64• supportedYes; Via CP and loadable FB		Yes
• as clientYes• User data per job, max.64 kbyte• User data per job (of which consistent), max.462 byte; 1 variableS5 compatible communication462 byte; 1 variable• supportedYes; (via CP max. 10 and FC AG_SEND and FC AG_RECV)• 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.64/64Standard communication (FMS)Yes; Via CP and loadable FB		Yes
• User data per job, max.64 kbyte• User data per job (of which consistent), max.462 byte; 1 variable• S5 compatible communication462 byte; 1 variable• supportedYes; (via CP max. 10 and FC AG_SEND and FC AG_RECV)• 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• supportedYes; Via CP and loadable FB		
• User data per job (of which consistent), max.462 byte; 1 variableS5 compatible communicationS5 compatible communication• supportedYes; (via CP max. 10 and FC AG_SEND and FC AG_RECV)• 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.64/64Standard communication (FMS)Yes; Via CP and loadable FB		
S5 compatible communication Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV) • 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) Yes; Via CP and loadable FB		
• supportedYes; (via CP max. 10 and FC AG_SEND and FC AG_RECV)• 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.64/64Standard communication (FMS)Yes; Via CP and Ioadable FB		
• 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.64/64Standard communication (FMS)Standard I and	·	Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV)
 User data per job (of which consistent), max. Number of simultaneous AG-SEND/AG-RECV orders per CPU, max. Standard communication (FMS) supported Yes; Via CP and loadable FB 		
Number of simultaneous AG-SEND/AG-RECV orders per CPU, max. Standard communication (FMS) • supported Yes; Via CP and loadable FB		240 byte
orders per CPU, max. Standard communication (FMS) • supported Yes; Via CP and loadable FB		
• supported Yes; Via CP and loadable FB		
	Standard communication (FMS)	
Web server	• supported	Yes; Via CP and loadable FB
	Web server	

• supported	No
Number of connections	
• overall	48
 usable for PG communication 	
- reserved for PG communication	1
— adjustable for PG communication, max.	0
 usable for OP communication 	
— reserved for OP communication	1
— adjustable for OP communication, max.	0
 usable for S7 basic communication 	
- reserved for S7 basic communication	0
 adjustable for S7 basic communication, 	0
max.	
 usable for S7 communication 	
 reserved for S7 communication 	0
 adjustable for S7 communication, max. 	0
• usable for routing	
— reserved for routing	0
— adjustable for routing, max.	0
S7 message functions	

Number of login stations for message functions, max.	47; Max. 47 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8
	with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC)
Symbol-related messages	No
SCAN procedure	No
Program alarms	Yes
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	250; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ
	blocks
Alarm 8-blocks	Yes
 Number of instances for alarm 8 and S7 	600
communication blocks, max.	
• preset, max.	300
Process control messages	Yes
Number of archives that can log on simultaneously	16
(SFB 37 AR_SEND)	
Test commissioning functions	
Status block	Yes
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
Forcing	
• Forcing	Yes
 Forcing, variables 	Inputs/outputs, bit memories, distributed I/Os
 Number of variables, max. 	256
Diagnostic buffer	
• present	Yes
 Number of entries, max. 	3 200
— adjustable	Yes
— preset	120
Service data	
• can be read out	Yes
EMC	
Emission of radio interference acc. to EN 55 011	
 Limit class A, for use in industrial areas 	Yes
 Limit class B, for use in residential areas 	No
Standards, approvals, certificates	
CE mark	Yes
Ambient conditions	
Ambient temperature during operation	25 °C: - Tmin
Ambient temperature during operation min. 	-25 °C; = Tmin
Ambient temperature during operation	70 °C; = Tmax; @ 60°C for UL/ATEX/FM and safety-related
Ambient temperature during operation min. 	
Ambient temperature during operation min. max. 	70 °C; = Tmax; @ 60°C for UL/ATEX/FM and safety-related
Ambient temperature during operation min. max. Ambient temperature during storage/transportation	70 °C; = Tmax; @ 60°C for UL/ATEX/FM and safety-related application
Ambient temperature during operation min. max. Ambient temperature during storage/transportation min. 	70 °C; = Tmax; @ 60°C for UL/ATEX/FM and safety-related application -40 °C
Ambient temperature during operation min. max. Ambient temperature during storage/transportation min. max. 	70 °C; = Tmax; @ 60°C for UL/ATEX/FM and safety-related application
Ambient temperature during operation min. max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level	70 °C; = Tmax; @ 60°C for UL/ATEX/FM and safety-related application -40 °C 70 °C
Ambient temperature during operation min. max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. 	70 °C; = Tmax; @ 60°C for UL/ATEX/FM and safety-related application -40 °C 70 °C 5 000 m
Ambient temperature during operation min. max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. Ambient air temperature-barometric pressure- 	70 °C; = Tmax; @ 60°C for UL/ATEX/FM and safety-related application -40 °C 70 °C 5 000 m Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 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); with "F-System" applications max. +2 000 m above
Ambient temperature during operation min. max. Ambient temperature during storage/transportation min. max. Altitude during operation relating to sea level Installation altitude above sea level, max. Ambient air temperature-barometric pressure-altitude 	70 °C; = Tmax; @ 60°C for UL/ATEX/FM and safety-related application -40 °C 70 °C 5 000 m Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 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); with "F-System" applications max. +2 000 m above
Ambient temperature during operation • min. • max. Ambient temperature during storage/transportation • min. • max. Altitude during operation relating to sea level • Installation altitude above sea level, max. • Ambient air temperature-barometric pressure- altitude Relative humidity • With condensation, tested in accordance with	70 °C; = Tmax; @ 60°C for UL/ATEX/FM and safety-related application -40 °C 70 °C 5 000 m Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 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); with "F-System" applications max. +2 000 m above sea level permissible
Ambient temperature during operation • min. • max. Ambient temperature during storage/transportation • min. • max. Altitude during operation relating to sea level • Installation altitude above sea level, max. • Ambient air temperature-barometric pressure- altitude Relative humidity • With condensation, tested in accordance with IEC 60068-2-38, max.	70 °C; = Tmax; @ 60°C for UL/ATEX/FM and safety-related application -40 °C 70 °C 5 000 m Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 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); with "F-System" applications max. +2 000 m above sea level permissible

 — to chemically active substances according to EN 60721-3-3 	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2- 52 (severity degree 3); *
 — to mechanically active substances according to EN 60721-3-3 	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
 — to biologically active substances according to EN 60721-3-6 	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
 — to chemically active substances according to EN 60721-3-6 	Yes; Class 6C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2- 52 (severity degree 3); *
 — to mechanically active substances according to EN 60721-3-6 	Yes; Class 6S4 incl. sand, dust; *
from supply voltage 1L+	
 — Note regarding classification of environmental conditions acc. to EN 60721 	* The supplied plug covers must remain in place over the unused interfaces during operation!
Configuration	
Configuration software	
• STEP 7	Yes
Programming	
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
Number of simultaneously active SFCs	
- RD_REC	8
— WR_REC	8
— WR_PARM	8
— PARM_MOD	1
— WR_DPARM	2
— DPNRM_DG	8
— RDSYSST	8
- DP_TOPOL	1
Number of simultaneously active SFBs	
— RDREC	8

— WRREC	8
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.	995 g
last modified:	03/16/2018