SIEMENS

Data sheet

6ES7417-5HT06-0AB0

SIMATIC S7-400H, CPU 417-5H, central processing unit for S7-400H and S7-400F/FH, 5 interfaces: 1x MPI/DP, 1x DP, 1x PN and 2 for sync modules, 32 MB memory (16 MB data/16 MB program)



General information	
Product type designation	CPU 417-5H PN/DP
HW functional status	1
Firmware version	V6.0
Product function	
Isochronous mode	No
Engineering with	
 Programming package 	As of STEP 7 V5.5 SP2 with HF1
CiR - Configuration in RUN	
CiR synchronization time, basic load	60 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	other
Work memory	
• integrated	32 Mbyte
 integrated (for program) 	16 Mbyte
• integrated (for data)	16 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
• expandable RAM, max.	64 Mbyte
Backup	
• present	Yes
• with battery	Yes; all data
• without battery	No
Battery	
Battery Backup battery	
	180 μA; Valid up to 40°C
Backup battery	180 μA; Valid up to 40°C 1 000 μA
Backup battery Backup current, typ.	
Backup batteryBackup current, typ.Backup current, max.	1 000 μA Dealt with in the module data manual with the secondary
 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
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
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 7.5 ns
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 7.5 ns 7.5 ns
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. for fixed 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 7.5 ns 7.5 ns 7.5 ns
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 7.5 ns 7.5 ns 7.5 ns
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 7.5 ns 7.5 ns 7.5 ns
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 7.5 ns 7.5 ns 7.5 ns 15 ns
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 7.5 ns 7.5 ns 7.5 ns 15 ns 15 ns 16 000; Number range: 1 to 16000
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 7.5 ns 7.5 ns 7.5 ns 15 ns 15 ns 16 000; Number range: 1 to 16000
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. for fixed point arithmetic, typ. for floating point arithmetic, typ. for loating point arithmetic, typ. FB	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 7.5 ns 7.5 ns 7.5 ns 15 ns 16 000; Number range: 1 to 16000 64 kbyte

 Number, max. 	8 000; 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
 Number of process alarm OBs 	8; OB 40-47
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 	2
Counters, timers and their retentivity S7 counter	
Number	2 048
Retentivity	2010
— adjustable	Yes
— lower limit	0
— upper limit	2 047
— preset	Z 0 to Z 7
Counting range	
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Туре	SFB
• Number	Unlimited (limited only by RAM capacity)
S7 times	, <i>.</i>
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
• Туре	SFB
• Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
retentive data area in total	Total working and load memory (with backup battery)
Flag	
• Number, max.	16 384 byte
Retentivity available	Yes
Retentivity preset	MB 0 to MB 15
 Number of clock memories 	8; in 1 memory byte
Local data	
• adjustable, max.	64 kbyte
• preset	32 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 	1 024 byte
Outputs, default	1 024 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	131 072
— of which central	131 072
Outputs	131 072
— of which central	131 072
Analog channels	
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	119

Multicomputing	No
Interface modules	
 Number of connectable IMs (total), max. 	6
• Number of connectable IM 460s, max.	6
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	
i i i i e oi uay	
Clock	
	Yes
Clock	Yes
Clock • Hardware clock (real-time)	
Clock Hardware clock (real-time) retentive and synchronizable 	Yes
Clock Hardware clock (real-time) retentive and synchronizable Resolution 	Yes 1 ms
Clock Hardware clock (real-time) retentive and synchronizable Resolution Deviation per day (buffered), max. 	Yes 1 ms 1.7 s; Power off
Clock Hardware clock (real-time) retentive and synchronizable Resolution Deviation per day (buffered), max. Deviation per day (unbuffered), max. 	Yes 1 ms 1.7 s; Power off
Clock Hardware clock (real-time) retentive and synchronizable Resolution Deviation per day (buffered), max. Deviation per day (unbuffered), max. 	Yes 1 ms 1.7 s; Power off 8.6 s; Power on
Clock Hardware clock (real-time) retentive and synchronizable Resolution Deviation per day (buffered), max. Deviation per day (unbuffered), max. Operating hours counter Number 	Yes 1 ms 1.7 s; Power off 8.6 s; Power on 16
Clock Hardware clock (real-time) retentive and synchronizable Resolution Deviation per day (buffered), max. Deviation per day (unbuffered), max. Operating hours counter Number Number/Number range 	Yes 1 ms 1.7 s; Power off 8.6 s; Power on 16 0 to 15
Clock Hardware clock (real-time) retentive and synchronizable Resolution Deviation per day (buffered), max. Deviation per day (unbuffered), max. Operating hours counter Number Number Range of values 	Yes 1 ms 1.7 s; Power off 8.6 s; Power on 16 0 to 15 SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2^31 - 1 hours
Clock Hardware clock (real-time) retentive and synchronizable Resolution Deviation per day (buffered), max. Deviation per day (unbuffered), max. Operating hours counter Number Number Range of values Granularity 	Yes 1 ms 1.7 s; Power off 8.6 s; Power on 16 0 to 15 SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2^31 - 1 hours 1 h
Clock Hardware clock (real-time) retentive and synchronizable Resolution Deviation per day (buffered), max. Deviation per day (unbuffered), max. Operating hours counter Number Number/Number range Range of values Granularity retentive 	Yes 1 ms 1.7 s; Power off 8.6 s; Power on 16 0 to 15 SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2^31 - 1 hours 1 h
Clock Hardware clock (real-time) retentive and synchronizable Resolution Deviation per day (buffered), max. Deviation per day (unbuffered), max. Operating hours counter Number Number/Number range Range of values Granularity retentive Clock synchronization	Yes 1 ms 1.7 s; Power off 8.6 s; Power on 16 0 to 15 SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2^31 - 1 hours 1 h Yes
Clock Hardware clock (real-time) retentive and synchronizable Resolution Deviation per day (buffered), max. Deviation per day (unbuffered), max. Operating hours counter Number Number/Number range Range of values Granularity retentive Clock synchronization supported 	Yes 1 ms 1.7 s; Power off 8.6 s; Power on 16 0 to 15 SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2^31 - 1 hours 1 h Yes Yes
Clock Hardware clock (real-time) retentive and synchronizable Resolution Deviation per day (buffered), max. Deviation per day (unbuffered), max. Operating hours counter Number Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master 	Yes 1 ms 1.7 s; Power off 8.6 s; Power on 16 0 to 15 SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2^31 - 1 hours 1 h Yes Yes
Clock Hardware clock (real-time) retentive and synchronizable Resolution Deviation per day (buffered), max. Deviation per day (unbuffered), max. Operating hours counter Number Number Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master to MPI, slave 	Yes 1 ms 1.7 s; Power off 8.6 s; Power on 16 0 to 15 SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2^31 - 1 hours 1 h Yes Yes Yes Yes
Clock Hardware clock (real-time) retentive and synchronizable Resolution Deviation per day (buffered), max. Deviation per day (unbuffered), max. Operating hours counter Number Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master to DP, master 	Yes 1 ms 1.7 s; Power off 8.6 s; Power on 16 0 to 15 SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2^31 - 1 hours 1 h Yes Yes Yes Yes Yes
Clock Hardware clock (real-time) retentive and synchronizable Resolution Deviation per day (buffered), max. Deviation per day (unbuffered), max. Operating hours counter Number Number Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master to DP, master to DP, slave 	Yes 1 ms 1.7 s; Power off 8.6 s; Power on 16 0 to 15 SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2^31 - 1 hours 1 h Yes Yes Yes Yes Yes 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		
Interfaces Number of RS 485 interfaces	2	
Number of other interfaces	2; Fiber-optic interface	
Optical interface	No	
1. Interface		
Interface type		
Physics	RS 485 / PROFIBUS + MPI	
Isolated	Yes	
Power supply to interface (15 to 30 V DC), max.	150 mA	
Protocols	Yes	
• MPI		
 PROFIBUS DP master 	Yes	
PROFIBUS DP slave	No	
MPI		
Number of connections	44; If a diagnostics repeater is used on the line, the number of	
. .	connection resources on the line is reduced by 1	
• Transmission rate, max.	12 Mbit/s	
Services		
— PG/OP communication	Yes	
— Routing	Yes	
— Global data communication	No	
— S7 basic communication	No	
— S7 communication	Yes	
— S7 communication, as client	Yes	
— S7 communication, as server	Yes	
PROFIBUS DP master		
 Number of connections, max. 	32; If a diagnostics repeater is used on the line, the number of	
	connection resources on the line is reduced by 1	
 Transmission rate, max. 	12 Mbit/s	
 Number of DP slaves, max. 	32	
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
	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
PROFIBUS 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
Number of connection resources	120
Interface types	
 Number of ports 	2
 integrated switch 	Yes
Protocols	
PROFINET IO Controller	Yes
PROFINET IO Device	No
• PROFINET CBA	No
PROFIBUS DP master	No
 PROFIBUS DP slave 	No
 Open IE communication 	Yes
• Web server	No
 Point-to-point connection 	No
Media redundancy	Yes
PROFINET IO Controller	

• Transmission rate, max.	100 Mbit/s
Services	
— PG/OP communication	Yes
— S7 routing	Yes
— S7 communication	Yes
— Isochronous mode	No
— 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	$250\ \mu s$ to $512\ m s,$ minimum value depends on the number of configured user data and the configured single or redundant mode
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
— User data consistency, max.	1 024 byte
Open IE communication	
 Number of connections, max. 	118
 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
3. Interface	
Interface type	Integrated
Physics	RS 485 / PROFIBUS
Power supply to interface (15 to 30 V DC), max.	150 mA
Number of connection resources	32
Protocols	
 PROFIBUS DP master 	Yes
PROFIBUS DP slave	No
PROFIBUS DP master	
 Number of connections, max. 	32
• Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	125
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.	8 kbyte
— Outputs, max.	8 kbyte
User data per DP slave	
— User data per DP slave, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
4. Interface	
Interface type	Pluggable synchronization submodule (FO)
Plug-in interface modules	Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960- 1AB06-0XA0
5. Interface	
Interface type	Pluggable synchronization submodule (FO)
Plug-in interface modules	Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960- 1AB06-0XA0
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.	118

	Data length may	32 kbyte
supported version connections per per version of version connections per per version of version connections of ver	— Data length, max.	
• ISO-on-TCP (RFC1006)Yes; Via integrated PROFINET interface or CP 443-1 and loadable FBs- Number of connections, max.118- Data length, max.32 kbyte: 1 452 bytes via CP 443-1 Adv.• UDPYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.118- Data length, max.1472 byte- Data length, max.1472 byte• burnber of connections, max.118- Data length, max.1472 byte• burnber of connections, max.118- Data length, max.NoStachronous modeVesEquidistanceNoCommunication functionsYesPG/OP communicationYes• Number of connectable OPs without message processing119• Number of connectable OPs with message processingYes• Data record routingYesCald data communicationYes• supportedNoS7 basic communicationYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes (via CP max. 10 and FC AG_SEND and FC AG_RECV)• User data per job, max.64 kbyte• User data per job (of which consistent), max.426 byte: 1 variable• SteromaticationSteromatication• User data per job (of which consistent), max.64/64• User data per job (of which consistent), max.64/64• SupportedYes; Via CP and loadable FB• SupportedSteromatication (FMS)		
Ioadable FBs - Number of connections, max. 118 - Data length, max. 32 kbyte; 1 452 bytes via CP 443-1 Adv. • UUDP Yes: via integrated PROFINET interface and loadable FBs - Number of connections, max. 118 - Data length, max. 1472 byte Web server . - Data length, max. 1472 byte Web server . - Supported No Sectorious mode Equidistance Equidistance No Occommunication functions Yes Number of connectable OPs without message processing 119: When using Alarm_S/SQ and Alarm_D/DQ PGOP communication Yes • Number of connectable OPs with message processing 119: When using Alarm_S/SQ and Alarm_D/DQ Data record routing Yes • Supported No S7 communication Yes • supported Yes • supported Yes • supported Yes • supported Yes (via CP max. 10 and FC AG_SEND and FC AG_RECV) • supported Yes: (via CP max. 10 and FC A		Yes: Via integrated PROFINET interface or CP 443-1 and
Instal englin, max. 32 kbyte; 1 452 bytes via CP 443-1 Adv. • UDP Yes; via integrated PROFINET interface and loadable FBs • Number of connections, max. 118 • Data length, max. 1472 byte Web server * • supported No Regulation of the tensor of the tensor of tensor		-
• UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 118 - Data length, max. 1472 byte Web server . • supported No Supported Supported Supported Supported No Communication functions PGOP communication Yes • Number of connectable OPs without message processing 119 • Number of connectable OPs with message processing 119; When using Alarm_S/SQ and Alarm_D/DQ Data record routing Yes Communication Yes • supported No Store communication • supported No Store communication • supported Yes • supported No Store communication • supported Yes • supported Yes • supported Yes • supported Yes • Store data	— Number of connections, max.	118
Number of connections, max.118 Data length, max.1472 byteWeb server	— Data length, max.	32 kbyte; 1 452 bytes via CP 443-1 Adv.
- Data length, max. 1 472 byte Web server No • supported No Stochronous mode No Equidistance No Communication functions Yes • Number of connectable OPs without message processing 119 • Number of connectable OPs with message processing 119 • Number of connectable OPs with message processing 119 • Number of connectable OPs with message processing 119 • Supported communication Yes • Supported 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 (of which consistent), max. 462 byte: 1 variable Stompatible communication Yes: (via CP max. 10 and FC AG_SEND and FC AG_RECV) • User data per job (of which consistent), max. 240 byte • Supported Stompatide <td>• UDP</td> <td>Yes; via integrated PROFINET interface and loadable FBs</td>	• UDP	Yes; via integrated PROFINET interface and loadable FBs
Web server No supported No Equidistance No Communication functions Yes PG/OP communication Yes • Number of connectable OPs without message processing 119 • Number of connectable OPs with message processing 119: 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 No S7 communication Yes • supported 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 240 byte • User data per job, 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. 2	- Number of connections, max.	118
• supported No Isochronous mode Equidistance No Communication functions PG/OP communication Yes PG/OP communication Yes 119 • Number of connectable OPs without message processing 119; When using Alarm_S/SQ and Alarm_D/DQ Data record routing Yes Obbal data communication Yes • supported No S7 basic communication Yes • supported No S7 communication Yes • supported No S7 communication 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 • 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 of cataper job (of which consistent), max. 24	— Data length, max.	1 472 byte
Isochronous mode Equidistance No Communication functions Yes PG/OP communication Yes • Number of connectable OPs without message processing 119 • Number of connectable OPs with message processing 119; 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 No S7 communication Yes • supported Yes • as server Yes • as client Yes • User data per job, max. 44 kbyte • User data per job (of which consistent), 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 • supported Yes; Via CP man loa	Web server	
Equidistance No Communication functions PG/OP communication Yes • Number of connectable OPs without message processing 119 • Number of connectable OPs with message processing 119; 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 • as server Yes • as client Yes • User data per job, max. 64 kbyte • User data per job (of which consistent), max. 8 kbyte • Supported 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. 8 kbyte • User data per job (of which consistent), max. 8 kbyte • Standard communication (FMS) 4/64 • supported Yes; Via CP and loadable FB Number of connections Yes; Via CP and loadable FB	• supported	No
Equidistance No Communication functions PG/OP communication Yes • Number of connectable OPs without message processing 119 • Number of connectable OPs with message processing 119; 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 • as server Yes • as client Yes • 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, max. 8 kbyte • User data per job (of which consistent), max. 240 byte • User data per job (of which consistent), max. 8 kbyte • User data per job (of which consistent), max. Standard communication • supported Yes; Via CP and loadable FB Number of connections Yes; Via CP and loadable FB	Isochronous mode	
PG/OP communication Yes • Number of connectable OPs without message processing 119 • Number of connectable OPs with message processing 119; When using Alarm_S/SQ and Alarm_D/DQ Data record routing Yes Global data communication Yes • supported No S7 basic communication No \$ supported No S7 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. 8 kbyte • User data per job (of which consistent), max. 9 kbyte • User data per job (of which consistent), max. 9 kbyte • User data per job (of which consistent), max. 9 kbyte • User data per job (of which consistent), max. 9 kbyte • User data per job (of which consistent), max. 9 kbyte • Standard communication (FMS) Yes; Via CP and loadable FB Number of connections Yes; Via CP and loadable FB		No
PG/OP communication Yes • Number of connectable OPs without message processing 119 • Number of connectable OPs with message processing 119; When using Alarm_S/SQ and Alarm_D/DQ Data record routing Yes Global data communication Yes • supported No S7 basic communication No \$ supported No S7 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. 8 kbyte • User data per job (of which consistent), max. 9 kbyte • User data per job (of which consistent), max. 9 kbyte • User data per job (of which consistent), max. 9 kbyte • User data per job (of which consistent), max. 9 kbyte • User data per job (of which consistent), max. 9 kbyte • Standard communication (FMS) Yes; Via CP and loadable FB Number of connections Yes; Via CP and loadable FB	Communication functions	
• Number of connectable OPs without message processing119• Number of connectable OPs with message processing119; When using Alarm_S/SQ and Alarm_D/DQData record routingYesObtat ac communicationYes• supportedNo57 basic communicationV• supportedNo57 basic communicationYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• user data per job, max.64 kbyte• User data per job (of which consistent), max.62 byte; 1 variableS5 compatible 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 communicationFMS• supportedYes; Via CP and loadable FB• Number of simultaneous AG-SEND/AG-RECVYes; Via CP and loadable FB• Number of connectionsYes; Via CP and load		Vec
processing • Number of connectable OPs with message processing119; When using Alarm_S/SQ and Alarm_D/DQData record routingYesData record routingNoGlobal data communicationNoStapportedNoSipportedYes• supportedYes• supportedYes• supportedYes• supportedYes• as clientYes• User data per job, max.64 kbyte• User data per job (of which consistent), max.64 kbyte• User data per job (of which consistent), max.8 kbyte• User data per job, max.240 byte• User data per job, max.64 kbyte• User data per job, max.240 byte• User data per job (of which consistent), max.8 kbyte• 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.240 byte• User data per job (of which consistent), max.55/00000000000000000000000000000000000		
Number of connectable OPs with message processing119; When using Alarm_S/SQ and Alarm_D/DQData record routingYesGlobal data communicationNo• supportedNoS7 basic communicationYes• supportedNoS7 communicationYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedSo compatible communication• User data per job, max.64 kbyte• User data per job (of which consistent), max.462 byte; 1 variableS5 compatible communicationStore• 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• User data per job (of which consistent), max.240 byte• Standard communication (FMS)Yes; Via CP and loadable FB• Number of connectionsYes; Via CP and loadable FB• overall120		110
processing		119; When using Alarm S/SQ and Alarm D/DQ
Global data communication• supportedNo\$7 basic communicationNo• supportedNo\$7 communicationYes• supportedYes• supportedYes• as serverYes• as clientYes• User data per job, max.64 kbyte• User data per job (of which consistent), max.462 byte; 1 variable\$5 compatible communicationYes; (via CP max. 10 and FC AG_SEND and FC AG_RECV)• User data per job, max.240 byte• User data per job (of which consistent), max.64/64• User data per job (of which consistent), max.64/64• User data per job (of which consistent), max.90 byte• 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 and loadable FB• Number of simultaneous AG-SEND/AG-RECVYes; Via CP and loadable FB• SupportedYes; Via CP and loadable FB• Number of connections120	_	
• supportedNoS7 basic communicationNo• supportedNoS7 communicationYes• supportedYes• 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)• SupportedYes; (via CP max. 10 and FC AG_SEND and FC AG_RECV)• User data per job, max.84 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.64/64• Standard communication (FMS)Yes; Via CP and loadable FB• supportedYes; Via CP and loadable FB• overall120	Data record routing	Yes
S7 basic communication No supported No 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) • Supported 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. 64/64 • User data per job (of which consistent), max. 64/64 • Supported Yes; Via CP and loadable FB • Standard communication (FMS) Yes; Via CP and loadable FB • Number of connections Yes; Via CP and loadable FB • overall 120	Global data communication	
• supportedNoS7 communication• supportedYes• as serverYes• as clientYes• User data per job, max.64 kbyte• User data per job (of which consistent), max.642 byte; 1 variableS5 compatible 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.8 kbyte• SupportedYes; (via CP max. 10 and FC AG_SEND and FC AG_RECV)• Supported64/64• Number of simultaneous AG-SEND/AG-RECV orders per CPU, max.64/64• supportedYes; Via CP and loadable FB• Number of connectionsYes; Via CP and loadable FB• overall120	supported	No
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 (of which consistent), max. 8 kbyte • User data per job (of which consistent), max. 9 kbyte • User data per job (of which consistent), max. 64/64 • User data per job (of which consistent), max. 64/64 • Standard communication (FMS) 54/64 • supported Yes; Via CP and loadable FB • Number of connections Yes; Via CP and loadable FB	S7 basic communication	
• 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, max.8 kbyte• User data per job (of which consistent), max.240 byte; 1 variable• User data per job (of which consistent), max.64/64• Number of simultaneous AG-SEND/AG-RECV orders per CPU, max.64/64Standard communication (FMS)Yes; Via CP and loadable FB• supportedYes; Via CP and loadable FB• overall120	• supported	No
ease protectYes• 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, max.8 kbyte• User data per job (of which consistent), max.8 kbyte• User data per job (of which consistent), max.240 byte• User data per job (of which consistent), max.64/64• Number of simultaneous AG-SEND/AG-RECV orders per CPU, max.64/64Standard communication (FMS)Yes; Via CP and loadable FB• supportedYes; Via CP and loadable FB• overall120	S7 communication	
e as clientYes• as client64 kbyte• User data per job (of which consistent), max.64 byte; 1 variable• 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• User data per job (of which consistent), max.64/64• Number of simultaneous AG-SEND/AG-RECV orders per CPU, max.64/64• supportedYes; Via CP and loadable FB• supportedYes; Via CP and loadable FB• overall120	• supported	Yes
• 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• User data per job (of which consistent), max.64/64• Number of simultaneous AG-SEND/AG-RECV orders per CPU, max.64/64Standard communication (FMS)Yes; Via CP and loadable FB• supportedYes; Via CP and loadable FBNumber of connections120	• as server	Yes
• User data per job (of which consistent), max.462 byte; 1 variable• Stompatible 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• Standard communication (FMS)Yes; Via CP and loadable FB• Number of connectionsYes; Via CP and loadable FB• overall120	• as client	Yes
S5 compatible communication • 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. 240 byte • Number of simultaneous AG-SEND/AG-RECV orders per CPU, max. 64/64 Standard communication (FMS) Yes; Via CP and loadable FB • supported Yes; Via CP and loadable FB Number of connections 120	• User data per job, max.	64 kbyte
• 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• supportedYes; Via CP and loadable FB• overall120	 User data per job (of which consistent), max. 	462 byte; 1 variable
• 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)5• supportedYes; Via CP and loadable FB• Number of connections120	S5 compatible communication	
• 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)• supportedYes; Via CP and loadable FBNumber of connections• overall120	• supported	Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV)
• Number of simultaneous AG-SEND/AG-RECV orders per CPU, max. 64/64 Standard communication (FMS) • supported • supported Yes; Via CP and loadable FB Number of connections • overall	• User data per job, max.	8 kbyte
orders per CPU, max. Standard communication (FMS) • supported Yes; Via CP and loadable FB Number of connections 120	 User data per job (of which consistent), max. 	240 byte
Standard communication (FMS) • supported Yes; Via CP and loadable FB Number of connections • overall 120	 Number of simultaneous AG-SEND/AG-RECV 	64/64
• supported Yes; Via CP and loadable FB Number of connections 120	orders per CPU, max.	
Number of connections • overall 120	Standard communication (FMS)	
• overall 120	supported	Yes; Via CP and loadable FB
	Number of connections	
usable for PG communication	• overall	120
	 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.	119; Max. 119 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	No
SCAN procedure	No
Program alarms	Yes
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks
Alarm 8-blocks	Yes
 Number of instances for alarm 8 and S7 communication blocks, max. 	10 000
• preset, max.	1 200
Process control messages	Yes
Number of archives that can log on simultaneously (SFB 37 AR_SEND)	64

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

 Number of variables, max. Diagnostic buffer present Number of entries, max. adjustable preset Service data can be read out Y Emission of radio interference acc. to EN 55 011 Limit class A, for use in industrial areas Limit class B, for use in residential areas Configuration software STEP 7 Programming Command set Nesting levels Access to consistent data in process image Y 	Inputs/outputs, bit memories, distributed I/Os 512 Yes 3 200 Yes 120 Yes Yes
Diagnostic buffer Y • present Y • Number of entries, max. 3 adjustable Y preset 1. Service data Y • can be read out Y EMC Y Emission of radio interference acc. to EN 55 011 Y • Limit class A, for use in industrial areas Y • Limit class B, for use in residential areas Y Configuration software Y • STEP 7 Y Programming Y • Command set S • Nesting levels 7 • Access to consistent data in process image Y	3 200 Yes Yes
 present Number of entries, max. adjustable preset Service data can be read out Y Emission of radio interference acc. to EN 55 011 Limit class A, for use in industrial areas Limit class B, for use in residential areas K Configuration software STEP 7 Programming Command set Nesting levels Access to consistent data in process image 	3 200 Yes Yes
	Yes 120 Yes Yes
preset 1. Service data • can be read out Y EMC Emission of radio interference acc. to EN 55 011 • Limit class A, for use in industrial areas Y • Limit class B, for use in residential areas N Configuration software • STEP 7 Y Programming • Command set sr • Nesting levels 7 • Access to consistent data in process image Y	120 Yes Yes
Service data • can be read out Y EMC Emission of radio interference acc. to EN 55 011 • Limit class A, for use in industrial areas Y • Limit class B, for use in residential areas Y • Configuration Y Configuration software Y • STEP 7 Y Programming Y • Nesting levels 7 • Access to consistent data in process image Y	Yes
 can be read out Y EMC Emission of radio interference acc. to EN 55 011 Limit class A, for use in industrial areas Limit class B, for use in residential areas Limit class B, for use in residential areas Configuration Software STEP 7 Y Programming Command set Nesting levels Access to consistent data in process image 	Yes
EMC Emission of radio interference acc. to EN 55 011 • Limit class A, for use in industrial areas Y • Limit class B, for use in residential areas N Configuration Configuration software • STEP 7 Programming • Command set • Nesting levels • Access to consistent data in process image	Yes
Emission of radio interference acc. to EN 55 011 • Limit class A, for use in industrial areas Y • Limit class B, for use in residential areas N Configuration Configuration software • STEP 7 Y Programming Command set • Nesting levels 7 • Access to consistent data in process image Y	
Emission of radio interference acc. to EN 55 011 • Limit class A, for use in industrial areas Y • Limit class B, for use in residential areas N Configuration Configuration software • STEP 7 Y Programming Command set • Nesting levels 7 • Access to consistent data in process image Y	
Limit class B, for use in residential areas Configuration Configuration software STEP 7 Y Programming Command set Nesting levels Access to consistent data in process image Y	
Configuration Configuration software • STEP 7 Y Programming • Command set set • Nesting levels 7 • Access to consistent data in process image Y	No
Configuration software • STEP 7 Y Programming Y • Command set Superstandard Set • Nesting levels 7 • Access to consistent data in process image Y	
Configuration software • STEP 7 Y Programming Y • Command set Superstandard Set • Nesting levels 7 • Access to consistent data in process image Y	
STEP 7 Y Programming Command set Nesting levels Access to consistent data in process image Y	
Programming set • Command set set • Nesting levels 7 • Access to consistent data in process image Y	Yes
Command set Nesting levels Access to consistent data in process image Y	
Nesting levels Access to consistent data in process image Y	see instruction list
Access to consistent data in process image Y	
····· ··· ··· ··· ··· ··· ··· ··· ···	Yes
■ System nunchons (SEC)	see instruction list
	see instruction list
Programming language	
	Yes
— HiGraph® Y	Yes
Number of simultaneously active SFCs	
- RD_REC 8	3
- WR_REC 8	8
- WR_PARM 8	8
— PARM_MOD 1	1
- WR_DPARM 2	2
- DPNRM_DG 8	3
- RDSYSST 8	8
- DP_TOPOL 1	
Number of simultaneously active SFBs	1
- RDREC 8	1

— WRREC	8
Know-how protection	
 User program protection/password protection 	Yes
Block encryption	Yes; With S7 block Privacy
Dimensione	
Dimensions	
Width	50 mm
Height	290 mm
Depth	219 mm
Weights	
Weight, approx.	995 g
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