## **SIEMENS**

## Data sheet

## 6ES7414-5HM06-0AB0

SIMATIC S7-400H, CPU 414-5H, central processing unit for S7-400H and S7-400F/FH, 5 interfaces: 1x MPI/DP, 1x DP, 1x PN and 2 for sync modules, 4 MB memory (2 MB data/2 MB program),



General information	
Product type designation	CPU 414-5H PN/DP
HW functional status	1
Firmware version	V6.0
Engineering with	
<ul> <li>Programming package</li> </ul>	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	
Supply voltage Rated value (DC)	
	No; Power supply via system power supply
Rated value (DC)	No; Power supply via system power supply
Rated value (DC) • 24 V DC	No; Power supply via system power supply
Rated value (DC) • 24 V DC Input current	
Rated value (DC) • 24 V DC Input current from backplane bus 5 V DC, typ.	1.6 A

Power loss	
Power loss, typ.	7.5 W
Memory	
Type of memory	other
Work memory	
• integrated	4 Mbyte
<ul> <li>integrated (for program)</li> </ul>	2 Mbyte
<ul> <li>integrated (for data)</li> </ul>	2 Mbyte
• expandable	No
Load memory	
expandable FEPROM	Yes; with Memory Card (FLASH)
<ul> <li>expandable FEPROM, max.</li> </ul>	64 Mbyte
<ul> <li>integrated RAM, max.</li> </ul>	512 kbyte
• expandable RAM	Yes
• expandable RAM, max.	64 Mbyte
Backup	
• present	Yes
• with battery	Yes; all data
• without battery	No
Battery	
Backup battery	
<ul> <li>Backup current, typ.</li> </ul>	180 μA; Valid up to 40°C
<ul> <li>Backup current, max.</li> </ul>	1 000 µA
• Backup time, max.	Dealt with in the module data manual with the secondary conditions and the factors of influence
<ul> <li>Feeding of external backup voltage to CPU</li> </ul>	5 V DC to 15 V DC
CPU processing times	
for bit operations, typ.	18.75 ns
for word operations, typ.	18.75 ns
for fixed point arithmetic, typ.	18.75 ns
for floating point arithmetic, typ.	37.5 ns
CPU-blocks	
DB	
• Number, max.	6 000; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
• Number, max.	3 000; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
<ul> <li>Number, max.</li> </ul>	3 000; Number range: 0 to 7999

• Size, max.	64 kbyte
OB	
• Number, max.	see instruction list
• Size, max.	64 kbyte
<ul> <li>Number of free cycle OBs</li> </ul>	1; OB 1
<ul> <li>Number of time alarm OBs</li> </ul>	4; OB 10-13
<ul> <li>Number of delay alarm OBs</li> </ul>	4; OB 20-23
<ul> <li>Number of cyclic interrupt OBs</li> </ul>	4; OB 32-35
<ul> <li>Number of process alarm OBs</li> </ul>	4; OB 40-43
<ul> <li>Number of DPV1 alarm OBs</li> </ul>	3; OB 55-57
<ul> <li>Number of startup OBs</li> </ul>	2; OB 100, 102
<ul> <li>Number of asynchronous error OBs</li> </ul>	9; OB 80-88
<ul> <li>Number of synchronous error OBs</li> </ul>	2; OB 121, 122
Nesting depth	
• per priority class	24
<ul> <li>additional within an error OB</li> </ul>	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	
• present	Yes
• Туре	SFB
• Number	Unlimited (limited only by RAM capacity)
S7 times	0.040
• 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

• present	Yes
	Yes
• Туре	SFB
• Number	Unlimited (limited only by RAM capacity)
Dete areas and their retarts it.	
Data areas and their retentivity retentive data area in total	Total working and load memory (with backup battery)
Flag	rotar working and load memory (with backup battery)
• Number, max.	8 192 byte
Retentivity available	Yes
Retentivity preset	MB 0 to MB 15
Number of clock memories	8; in 1 memory byte
Local data	
	16 kbyte
• adjustable, max.	8 kbyte
• preset	o kuyle
Address area	
I/O address area	
• Inputs	8 kbyte
Outputs	8 kbyte
Process image	
<ul> <li>Inputs, adjustable</li> </ul>	8 kbyte
<ul> <li>Outputs, adjustable</li> </ul>	8 kbyte
<ul> <li>Inputs, default</li> </ul>	256 byte
• Outputs, default	256 byte
• consistent data, max.	244 byte
<ul> <li>Access to consistent data in process image</li> </ul>	Yes
Subprocess images	
<ul> <li>Number of subprocess images, max.</li> </ul>	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	
Number of expansion units, max.	21
connectable OPs	63
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.
· 1 IVI	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
<ul> <li>PROFIBUS and Ethernet CPs</li> </ul>	14; Of which max. 10 CP as DP master
Slots	
<ul> <li>required slots</li> </ul>	2
Time of day	
Clock	
Clock	Yes
Clock <ul> <li>Hardware clock (real-time)</li> </ul>	Yes Yes
Clock	
Clock <ul> <li>Hardware clock (real-time)</li> <li>retentive and synchronizable</li> <li>Resolution</li> </ul>	Yes 1 ms
Clock <ul> <li>Hardware clock (real-time)</li> <li>retentive and synchronizable</li> <li>Resolution</li> <li>Deviation per day (buffered), max.</li> </ul>	Yes
Clock <ul> <li>Hardware clock (real-time)</li> <li>retentive and synchronizable</li> <li>Resolution</li> <li>Deviation per day (buffered), max.</li> <li>Deviation per day (unbuffered), max.</li> </ul>	Yes 1 ms 1.7 s; Power off
Clock <ul> <li>Hardware clock (real-time)</li> <li>retentive and synchronizable</li> <li>Resolution</li> <li>Deviation per day (buffered), max.</li> </ul>	Yes 1 ms 1.7 s; Power off
Clock <ul> <li>Hardware clock (real-time)</li> <li>retentive and synchronizable</li> <li>Resolution</li> <li>Deviation per day (buffered), max.</li> <li>Deviation per day (unbuffered), max.</li> </ul> Operating hours counter <ul> <li>Number</li> </ul>	Yes 1 ms 1.7 s; Power off 8.6 s; Power on
Clock <ul> <li>Hardware clock (real-time)</li> <li>retentive and synchronizable</li> <li>Resolution</li> <li>Deviation per day (buffered), max.</li> <li>Deviation per day (unbuffered), max.</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number/Number range</li> </ul>	Yes 1 ms 1.7 s; Power off 8.6 s; Power on 16 0 to 15
Clock <ul> <li>Hardware clock (real-time)</li> <li>retentive and synchronizable</li> <li>Resolution</li> <li>Deviation per day (buffered), max.</li> <li>Deviation per day (unbuffered), max.</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number</li> <li>Range of values</li> </ul>	Yes 1 ms 1.7 s; Power off 8.6 s; Power on 16
Clock <ul> <li>Hardware clock (real-time)</li> <li>retentive and synchronizable</li> <li>Resolution</li> <li>Deviation per day (buffered), max.</li> <li>Deviation per day (unbuffered), max.</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number</li> <li>Range of values</li> <li>Granularity</li> </ul>	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 <ul> <li>Hardware clock (real-time)</li> <li>retentive and synchronizable</li> <li>Resolution</li> <li>Deviation per day (buffered), max.</li> <li>Deviation per day (unbuffered), max.</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number</li> <li>Range of values</li> <li>Granularity</li> <li>retentive</li> </ul>	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 <ul> <li>Hardware clock (real-time)</li> <li>retentive and synchronizable</li> <li>Resolution</li> <li>Deviation per day (buffered), max.</li> <li>Deviation per day (unbuffered), max.</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number</li> <li>Range of values</li> <li>Granularity</li> </ul>	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 <ul> <li>Hardware clock (real-time)</li> <li>retentive and synchronizable</li> <li>Resolution</li> <li>Deviation per day (buffered), max.</li> <li>Deviation per day (unbuffered), max.</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> <li>Granularity</li> <li>retentive</li> </ul> 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 <ul> <li>Hardware clock (real-time)</li> <li>retentive and synchronizable</li> <li>Resolution</li> <li>Deviation per day (buffered), max.</li> <li>Deviation per day (unbuffered), max.</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> <li>Granularity</li> <li>retentive</li> </ul> Clock synchronization <ul> <li>supported</li> </ul>	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 <ul> <li>Hardware clock (real-time)</li> <li>retentive and synchronizable</li> <li>Resolution</li> <li>Deviation per day (buffered), max.</li> <li>Deviation per day (unbuffered), max.</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> <li>Granularity</li> <li>retentive</li> </ul> Clock synchronization <ul> <li>supported</li> <li>to MPI, master</li> <li>to MPI, slave</li> </ul>	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
Clock <ul> <li>Hardware clock (real-time)</li> <li>retentive and synchronizable</li> <li>Resolution</li> <li>Deviation per day (buffered), max.</li> <li>Deviation per day (unbuffered), max.</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> <li>Granularity</li> <li>retentive</li> </ul> Clock synchronization <ul> <li>supported</li> <li>to MPI, master</li> <li>to DP, master</li> </ul>	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 <ul> <li>Hardware clock (real-time)</li> <li>retentive and synchronizable</li> <li>Resolution</li> <li>Deviation per day (buffered), max.</li> <li>Deviation per day (unbuffered), max.</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> <li>Granularity</li> <li>retentive</li> </ul> Clock synchronization <ul> <li>supported</li> <li>to MPI, master</li> <li>to DP, master</li> <li>to DP, slave</li> </ul>	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 <ul> <li>Hardware clock (real-time)</li> <li>retentive and synchronizable</li> <li>Resolution</li> <li>Deviation per day (buffered), max.</li> <li>Deviation per day (unbuffered), max.</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> <li>Granularity</li> <li>retentive</li> </ul> Clock synchronization <ul> <li>supported</li> <li>to MPI, master</li> <li>to MPI, slave</li> <li>to DP, master</li> <li>to DP, slave</li> <li>in AS, master</li> </ul>	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
Clock <ul> <li>Hardware clock (real-time)</li> <li>retentive and synchronizable</li> <li>Resolution</li> <li>Deviation per day (buffered), max.</li> <li>Deviation per day (unbuffered), max.</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> <li>Granularity</li> <li>retentive</li> </ul> Clock synchronization <ul> <li>supported</li> <li>to MPI, master</li> <li>to DP, master</li> <li>to DP, slave</li> </ul>	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 Yes Yes

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
Protocols	
• MPI	Yes
<ul> <li>PROFIBUS DP master</li> </ul>	Yes
PROFIBUS DP slave	No
MPI	
<ul> <li>Number of connections</li> </ul>	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
PROFIBUS 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
<ul> <li>Transmission rate, max.</li> </ul>	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
	Yes
- S7 communication, as client	Yes
— S7 communication, as server	165

— Equidistance	No
— Isochronous mode	No
	No
— Activation/deactivation of DP slaves	No
<ul> <li>Direct data exchange (slave-to-slave communication)</li> </ul>	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	
<ul> <li>Number of connections</li> </ul>	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	64
Interface types	
Number of ports	2
<ul> <li>integrated switch</li> </ul>	Yes
Media redundancy	
<ul> <li>supported</li> </ul>	Yes
<ul> <li>Switchover time on line break, typ.</li> </ul>	200 ms
<ul> <li>Number of stations in the ring, max.</li> </ul>	50
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
PROFINET IO Controller	
• Transmission rate, max.	100 Mbit/s
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
<ul> <li>— Number of connectable IO Devices for RT, max.</li> </ul>	256
— of which in line, max.	256
— Activation/deactivation of IO Devices	No
<ul> <li>IO Devices changing during operation (partner ports), supported</li> </ul>	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	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
— User data consistency, max.	1 024 byte
Open IE communication	
<ul> <li>Number of connections, max.</li> </ul>	62
<ul> <li>Local port numbers used at the system end</li> </ul>	0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535
<ul> <li>Keep-alive function, supported</li> </ul>	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	16
Protocols	
PROFIBUS DP master	Yes
PROFIBUS DP slave	No
PROFIBUS DP master	
<ul> <li>Number of connections, max.</li> </ul>	16
<ul> <li>Transmission rate, max.</li> </ul>	12 Mbit/s

• Number of DP slaves, max.	96
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	No
communication)	
— DPV0	Yes
— DPV1	Yes
Address area	
— Inputs, max.	6 kbyte
— Outputs, max.	6 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	
SIMATIC communication	
• S7 routing	Yes
Open IE communication	
• TCP/IP	Yes; via integrated PROFINET interface and loadable FBs
— Number of connections, max.	62
— Data length, max.	32 kbyte

<ul> <li>— several passive connections per port,</li> </ul>	Yes
supported	Vac: Via integrated DBOEINET interface or CD 442.1 and
• ISO-on-TCP (RFC1006)	Yes; Via integrated PROFINET interface or CP 443-1 and loadable FBs
— Number of connections, max.	62
— 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.	62
— Data length, max.	1 472 byte
Web server	1 112 0100
supported	No
Isochronous mode	
Isochronous operation (application synchronized up	No
to terminal)	N
Equidistance	No
Communication functions	
PG/OP communication	Yes
<ul> <li>Number of connectable OPs without message</li> </ul>	63
processing	
<ul> <li>Number of connectable OPs with message</li> </ul>	63; When using Alarm_S/SQ and Alarm_D/DQ
processing	
Data record routing	Yes
Global data communication	
• supported	No
S7 basic communication	
• supported	No
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes
<ul> <li>User data per job, max.</li> </ul>	64 kbyte
<ul> <li>User data per job (of which consistent), max.</li> </ul>	462 byte; 1 variable
S5 compatible communication	
• supported	Yes; (via CP max. 10 and FC AG_SEND and FC AG_RECV)
<ul> <li>User data per job, max.</li> </ul>	8 kbyte
<ul> <li>User data per job (of which consistent), max.</li> </ul>	240 byte
<ul> <li>Number of simultaneous AG-SEND/AG-RECV orders per CPU, max.</li> </ul>	64/64
Standard communication (FMS)	
• supported	Yes; Via CP and loadable FB
Number of connections	
• overall	64

<ul> <li>usable for PG communication</li> </ul>	
— reserved for PG communication	1
— adjustable for PG communication, max.	0
<ul> <li>usable for OP communication</li> </ul>	
— reserved for OP communication	1
— adjustable for OP communication, max.	0
<ul> <li>usable for S7 basic communication</li> </ul>	
- reserved for S7 basic communication	0
— adjustable for S7 basic communication,	0
max.	
<ul> <li>usable for S7 communication</li> </ul>	
- reserved for S7 communication	0
— adjustable for S7 communication, max.	0
<ul> <li>usable for routing</li> </ul>	
— reserved for routing	0
— adjustable for routing, max.	0

## S7 message functions

Number of login stations for message functions, max.	63; Max. 63 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.	400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ
	blocks
Alarm 8-blocks	Yes
<ul> <li>Number of instances for alarm 8 and S7</li> </ul>	2 500
communication blocks, max.	
• preset, max.	900
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	
<ul> <li>Status/control variable</li> </ul>	Yes; Up to 16 variable tables
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers,
	counters
<ul> <li>Number of variables, max.</li> </ul>	70
Forcing	

Forcing, variablesInsufficulty us, bit memories, distributed I/Os• Forcing, variables, max.256Diagnostic bufferYes• presentYes• adjustable200- adjustableYes• preset120Service dataYes• can be read outYes• can be read outYes• function interference acc. to EN 55 011Yes• Limit class A, for use in insidential areasNoConfiguration softwareYes• Limit class A, for use in insidential areasNoProgrammingYes• Command setSee instruction list• NoSee instruction list• No classes in aggio and setSee instruction list• System functions blocks (SFB)see instruction list• System function blocks (SFB)see instruction list• System function blocks (SFB)See instruction list• System functions blocks (SFB)See instruction list• System functions blocks (SFB)See instruction list• SittYes- LADYes- SCLYes- SCLYes- SittYes- HiGraph®Yes- HiGraph®See- WR_REC8- WR_PARM8- PARM_MODO1- PARM_MODO8- PARM_MODO8- PARM_MODO8- PARM_MODO8- PD FOPCL1- PD FOPCL1- PD POPL8- PDFARM_ODO<	• Forcing	Yes
• Number of variables, max.256Diagnostic bufferYes• present3200- adjustableYes- preset120Service dataYes• can be read outYes• can be read outYesEMCEmission of radio interference acc. to EN 55 011Yes• Limit class A, for use in industrial areasNoConfiguration softwareYes• STEP 7Yes• Configuration software7• Sterp 7Yes• System function (SFC)see instruction list• System function blocks (SFB)see instruction list• System function blocks (SFB)see instruction list• StuftYes- StuftYes- StuftYes- StuftYes- StuftYes- StuftYes- StuftYes- StuftYes- StuftSe- StuftYes- StuftSe- StuftYes- StuftSe- StuftSe- StuftSe- StuftSe- StuftSe- S	-	
Diagnostic buffer         Yes           • present         Yes           • adjustable         3 200           - adjustable         120           Service data            • can be read out         Yes           • can be read out         Yes           Emission of radio interference acc. to EN 55 011            • Linit class A, for use in residential areas         Yes           • Linit class A, for use in residential areas         No           Configuration software         Yes           • STEP 7         Yes           • Sterp 7         Yes           • Programming         Yes           • Command set         See instruction list           • Nesting levels         7           • Access to consistent data in process image         Yes           • System function blocks (SFD)         see instruction list           • System function blocks (SFD)         see instruction list           • System function blocks (SFD)         see instruction list           - STL         Yes           - STL         Yes           - SCL         Yes           - GRAPH         Yes           - GRAPH         Yes           - WR, PARM         8	-	
• present         Yes           • Number of entries, max.         3200           - adjustable         Yes           - preset         20           Service dat         -           • can be read out         Yes           Present         20           Service dat         -           • can be read out         Yes           Emission of radio interference acc. to EN 55 011         -           • Limit class A, for use in industrial areas         No           Configuration         Yes           Configuration software         -           • STEP 7         Yes           Programming         see instruction list           • Notional set         see instruction list           • Nexting levels         7           • Access to consistent data in process image         Yes           • System function blocks (SFB)         see instruction list           • System function blocks (SFB)         see instruction list           • System function blocks (SFB)         see instruction list           - SCL         Yes           - SCL         Yes           - STL         Yes           - SCL         Yes           - SCL         Yes		200
Number of entries, max.         3200           - adjustable         Yes           - preset         120           Service data         -           - can be read out         Yes           • can be read out         Yes           • can be read out         Yes           EMC         -           Emission of radio interference acc. to EN 55 011         -           • Limit class A, for use in industrial areas         No           Configuration offware         No           • Limit class A, for use in residential areas         No           Programming         -           Configuration software         See instruction list           • STEP 7         Yes           Programming         -           • Command set         see instruction list           • Nesting levels         7           • Acccess to consistent data in process image         See instruction list           • System function blocks (SFB)         see instruction list           • System function blocks (SFB)         see instruction list           • FBD         Yes           - FLAD         Yes           - STL         See instruction list           - STL         See instruction list		Yes
opesation         120           Service data         Yes                • can be read out         Yes           Emission of radio interference acc. to EN 55 011         Image: Second Se		
Service data           • can be read out         Yes           Emission of radio interference acc. to EN 55 011         • Limit class A, for use in industrial areas         Yes           • Limit class B, for use in industrial areas         No         • Configuration           Configuration software         • Yes           • STEP 7         Yes           Programming         • See instruction list           • Command set         see instruction list           • No to consistent data in process image         Yes           • System functions (SFC)         see instruction list           • System function blocks (SFB)         see instruction list           • System function blocks (SFB)         see instruction list           • System function solver         Yes           - LAD         Yes           - STL         Yes           - SCL         Yes           - SCL         Yes           - GRAPH         Yes           - GRAPH         Yes           - Micraph@         Yes           - Number of simultaneously active SFCs         8           - WR_REC         8           - WR_PARM         8           - PARM_MOD         1           - WR_DPARM         8	-	
• can be read outYesEMCEmission of radio interference acc. to EN 55 011• Limit class A, for use in industrial areasYes• Limit class B, for use in residential areasNoConfigurationYesConfiguration softwareYes• STEP 7Yes• STEP 7YesProgramming• See instruction list• Command setsee instruction list• Nesting levels7• Access to consistent data in process imageYes• System functions (SFC)see instruction list• System function blocks (SFB)see instruction list• System function blocks (SFB)see instruction list• System function blocks (SFB)Yes- I-ADYes- FBDYes- SCLYes- SCLYes- GRAPHYes- HiGraph®Yes- HiGraph®YesNumber of simultaneously active SFCS8- WR_REC8- WR_PARM8- PARM_MOD1- WR_PARM8- PNRM_DG8- RDSYSST8- DP_TOPOL1		120
Emission of radio interference acc. to EN 55 011            Limit class A, for use in industrial areas         No             Limit class B, for use in residential areas         No          Configuration         Configuration software             STEP 7          Programming             Command set             Nesting levels             Nesting levels             System functions (SFC)             System function blocks (SFB)             Programming             - LAD             - FBD             - SCL             - SCL             - GRAPH             - HiGraph®             Number of simultaneously active SFCs             - RD_REC             - RD_REC             - WR_PARM             - PARM_MOD             - PARMMA		Yes
• Limit class A, for use in industrial areas       Yes         • Limit class B, for use in residential areas       No         Configuration       Configuration software         • STEP 7       Yes         Programming       see instruction list         • Command set       see instruction list         • No       Yes         • Command set       see instruction list         • Nesting levels       7         • Access to consistent data in process image       Yes         • System function blocks (SFB)       see instruction list         • System function blocks (SFB)       see instruction list         • Programming language       res         - LAD       Yes         - FBD       Yes         - SCL       Yes         - SCL       Yes         - GRAPH       Yes         - HiGraph®       Yes         Number of simultaneously active SFCs       8         - WR_REC       8         - WR_PARM       8         - PARM_MOD       1         - WR_DPARM       2         - DPNRM_DG       8         - RDSYSST       8         - RDYSSST       8	EMC	
• Limit class B, for use in residential areas       No         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         • FBD       Yes         - FBD       Yes         - STL       Yes         - SCL       Yes         - SCL       Yes         - SR       Yes         - GRAPH       Yes         - HiGraph®       Yes         Number of simultaneously active SFCs       8         - WR_REC       8         - WR_RAM       8         - PARM_MOD       1         - WR_DPARM       2         - DPNRM_DG       8         - RDSYSST       8         - RDSYSST       8         - DP_TOPOL       1	Emission of radio interference acc. to EN 55 011	
Configuration software            • STEP 7        Yes         Programming        see instruction list             • 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             • STL        Yes             • STL        Yes             • SCL        Yes             • SCL        Yes             • SCL        Yes             • GRAPH        Yes             • GRAPH        Yes             • HiGraph@        Yes             • RD_REC        8             • WR_PARM        8             • WR_PARM        8             • PARM_MOD        1             • DPNRM_DG        8	<ul> <li>Limit class A, for use in industrial areas</li> </ul>	Yes
Configuration software         • STEP 7       Yes         Programming       see instruction list         • 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         - GRAPH       Yes         - HiGraph®       Yes         Number of simultaneously active SFCs       8         - WR_REC       8         - WR_PARM       8         - PARM_MOD       1         - WR_DPARM       2         - DPNRM_DG       8         - RDSYSST       8         - DP_TOPOL       1	<ul> <li>Limit class B, for use in residential areas</li> </ul>	No
• STEP 7         Yes           Programming         see instruction list           • 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           • System function blocks (SFB)         see instruction list           • Programming language            - LAD         Yes           - FBD         Yes           - STL         Yes           - SCL         Yes           - OFC         Yes           - GRAPH         Yes           - HiGraph®         Yes           Number of simultaneously active SFCs         8           - WR_REC         8           - WR_PARM         8           - PARM_MOD         1           - WR_DPARM         2           - DPNRM_DG         8           - RDSYSST         8           - DP_TOPOL         1		
Programming• Command setsee instruction list• Nesting levels7• Access to consistent data in process imageYes• System functions (SFC)see instruction list• System function blocks (SFB)see instruction list• System function blocks (SFB)see instruction list- LADYes- FBDYes- STLYes- SCLYes- CFCYes- GRAPHYes- HiGraph®YesNumber of simultaneously active SFCs8- WR_REC8- WR_PARM8- PARM_MOD1- WR_DPARM2- DPNRM_DG8- RDSYSST8- RDSYSST8- DP_TOPOL1	Configuration software	
• Command setsee instruction list• Nesting levels7• Access to consistent data in process imageYes• System functions (SFC)see instruction list• System function blocks (SFB)see instruction list• Programming languageYes- LADYes- FBDYes- STLYes- SCLYes- CFCYes- GRAPHYes- HiGraph@YesNumber of simultaneously active SFCs8- WR_REC8- WR_PARM8- PARM_MOD1- WR_DPARM2- DPNRM_DG8- RDSYSST8- DP_TOPOL1	• STEP 7	Yes
Formal levels7Access to consistent data in process imageYesSystem functions (SFC)see instruction listSystem function blocks (SFB)see instruction listProgramming languageYes- LADYes- STLYes- SCLYes- CFCYes- GRAPHYes- HIG raph®Yes- RD_REC8- WR_REC8- WR_PARM8- WR_PARM1- WR_DPARM2- DPNRM_DG8- DPNRM_DG8- DPNRM_DG8- DPNRM_DG8- DPNRM_DG8- DPTOPOL1	Programming	
Access to consistent data in process imageYes• System functions (SFC)see instruction list• System function blocks (SFB)see instruction list• Programming language LADYes- FBDYes- STLYes- SCLYes- CFCYes- GRAPHYes- HiGraph@Yes- RD_REC8- WR_REC8- WR_REC8- WR_PARM1- PARM_MOD1- WR_DPARM2- DPNRM_DG8- DPNRM_DG8- DPNRM_DG8- DPNRM_DG1- DPNC1	Command set	
Number of solution later improves image         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         Yes           - RD_REC         8           - WR_PARM         8           - PARM_MOD         1           - WR_DPARM         2           - DPNRM_DG         8           - DPNRM_DG         8           - DPNRM_DG         8           - DPNRM_DG         8	Nesting levels	
<ul> <li>System function blocks (SFB)</li> <li>see instruction list</li> <li>Programming language</li> <li>LAD</li> <li>Yes</li> <li>-FBD</li> <li>Yes</li> <li>-STL</li> <li>SCL</li> <li>SCL</li> <li>CFC</li> <li>Yes</li> <li>-CFC</li> <li>Yes</li> <li>-GRAPH</li> <li>Yes</li> <li>HiGraph®</li> <li>Yes</li> <li>Number of simultaneously active SFCs</li> <li>-WR_REC</li> <li>-WR_PARM</li> <li>-WR_DPARM</li> <li>-WR_DPARM</li> <li>-MIDD</li> <li>-WR_DPARM</li> <li>-DPNRM_DG</li> <li>-DPNRM_DG</li> <li>-DPNCDL</li> <li>1</li> </ul>	<ul> <li>Access to consistent data in process image</li> </ul>	
Programming language           - LAD         Yes           - FBD         Yes           - STL         Yes           - SCL         Yes           - CFC         Yes           - GRAPH         Yes           - HiGraph®         Yes           - RD_REC         8           - WR_REC         8           - WR_PARM         8           - WR_DPARM         2           - DPNRM_DG         8           - DPNRM_DG         8           - DP_TOPOL         1	<ul> <li>System functions (SFC)</li> </ul>	
-LADYes-FBDYes-STLYes-SCLYes-CFCYes-GRAPHYes-HIGraph®YesNumber of simultaneously active SFCs8-RD_REC8-WR_REC8-WR_PARM8-PARM_MOD1-WR_DPARM2-DPNRM_DG8-RDSYSST8-RDSYSST8-DP_TOPOL1	<ul> <li>System function blocks (SFB)</li> </ul>	see instruction list
- FBD         Yes           - STL         Yes           - SCL         Yes           - CFC         Yes           - GRAPH         Yes           - HiGraph®         Yes           Mumber of simultaneously active SFCs         Yes           - RD_REC         8           - WR_REC         8           - WR_PARM         1           - WR_DPARM         2           - WR_DPARM         8           - DPNRM_DG         8           - DPNRM_DG         8           - RDSYSST         8           - DP_TOPOL         1	Programming language	
- STL         Yes           - SCL         Yes           - CFC         Yes           - GRAPH         Yes           - HiGraph®         Yes           Mumber of simultaneously active SFCs         Yes           - RD_REC         8           - WR_REC         8           - PARM_MOD         1           - WR_DPARM         2           - DPNRM_DG         8           - RDSYSST         8           - DP_TOPOL         1	— LAD	Yes
- SCL         Yes           - CFC         Yes           - GRAPH         Yes           - HiGraph®         Yes           Number of simultaneously active SFCs         Yes           - RD_REC         8           - WR_REC         8           - WR_PARM         8           - WR_DPARM         1           - WR_DPARM         2           - DPNRM_DG         8           - DPNRM_DG         8           - RDSYSST         8           - DP_TOPOL         1	— FBD	
- CFCYes- GRAPHYes- HiGraph®YesNumber of simultaneously active SFCs8- RD_REC8- WR_REC8- WR_PARM8- PARM_MOD1- WR_DPARM2- DPNRM_DG8- DPNRM_DG8- RDSYSST8- DP_TOPOL1	— STL	
- GRAPH         Yes           - HiGraph®         Yes           Number of simultaneously active SFCs         8           - RD_REC         8           - WR_REC         8           - WR_PARM         8           - PARM_MOD         1           - WR_DPARM         2           - DPNRM_DG         8           - RDSYSST         8           - RDSYDST         1	— SCL	
HiGraph®YesNumber of simultaneously active SFCs- RD_REC8- WR_REC8- WR_PARM8- PARM_MOD1- WR_DPARM2- DPNRM_DG8- RDSYSST8- DP_TOPOL1	— CFC	
Number of simultaneously active SFCs RD_REC8 WR_REC8 WR_PARM8 PARM_MOD1 WR_DPARM2 DPNRM_DG8 RDSYSST8 DP_TOPOL1	— GRAPH	
- RD_REC       8         - WR_REC       8         - WR_PARM       8         - PARM_MOD       1         - WR_DPARM       2         - DPNRM_DG       8         - RDSYSST       8         - DP_TOPOL       1	— HiGraph®	Yes
WR_REC         8          WR_PARM         8          PARM_MOD         1          WR_DPARM         2          DPNRM_DG         8          RDSYSST         8          DP_TOPOL         1	Number of simultaneously active SFCs	
WR_PARM       8        PARM_MOD       1        WR_DPARM       2        DPNRM_DG       8        RDSYSST       8        DP_TOPOL       1	RD_REC	8
PARM_MOD       1         WR_DPARM       2         DPNRM_DG       8         RDSYSST       8         DP_TOPOL       1	— WR_REC	8
WR_DPARM       2        DPNRM_DG       8        RDSYSST       8        DP_TOPOL       1	— WR_PARM	8
DPNRM_DG     8       RDSYSST     8       DP_TOPOL     1	— PARM_MOD	1
<ul> <li>RDSYSST</li> <li>DP_TOPOL</li> </ul>	— WR_DPARM	2
- DP_TOPOL 1	— DPNRM_DG	8
	— RDSYSST	8
Number of simultaneously active SFBs	- DP_TOPOL	1
	Number of simultaneously active SFBs	

— RDREC	8	
— WRREC	8	
Know-how protection		
<ul> <li>User program protection/password protection</li> </ul>	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:	09/05/2019	