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
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	100 ms
CiR synchronization time, time per I/O byte	0 μs
Supply voltage	
Rated value (DC)	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	4 Mbyte
integrated (for program)	2 Mbyte
integrated (for data)	2 Mbyte
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	
Backup battery	
Backup current, typ.	180 μA; Valid up to 40°C

Backup current, max.	1 000 μΑ
 Backup time, max. 	Dealt with in the module data manual with the secondary conditions and the factors of influence
 Feeding of external backup voltage to CPU 	5 V DC to 15 V DC
CPU processing times	0 7 20 10 10 7 20
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	0.16.16
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	
Number, max.	3 000; Number range: 0 to 7999
• Size, max.	64 kbyte
ОВ	
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
Number Retentivity	
Number Retentivity — adjustable	Yes
Number Retentivity — adjustable — lower limit	Yes 0
Number Retentivity — adjustable — lower limit — upper limit	Yes 0 2 047
 Number Retentivity — adjustable — lower limit — upper limit — preset 	Yes 0
● Number Retentivity — adjustable — lower limit — upper limit — preset Counting range	Yes 0 2 047 Z 0 to Z 7
 Number Retentivity — adjustable — lower limit — upper limit — preset Counting range — lower limit 	Yes 0 2 047 Z 0 to Z 7
● Number Retentivity — adjustable — lower limit — upper limit — preset Counting range — lower limit — upper limit — upper limit	Yes 0 2 047 Z 0 to Z 7
● Number Retentivity — adjustable — lower limit — upper limit — preset Counting range — lower limit — upper limit — upper limit IEC counter	Yes 0 2 047 Z 0 to Z 7 0 999
 Number Retentivity — adjustable — lower limit — upper limit — preset Counting range — lower limit — upper limit IEC counter present 	Yes 0 2 047 Z 0 to Z 7 0 999
 Number Retentivity — adjustable — lower limit — upper limit — preset Counting range — lower limit — upper limit IEC counter present Type 	Yes 0 2 047 Z 0 to Z 7 0 999 Yes SFB
 Number Retentivity — adjustable — lower limit — upper limit — preset Counting range — lower limit — upper limit IEC counter ● present ● Type ● Number 	Yes 0 2 047 Z 0 to Z 7 0 999
 Number Retentivity — adjustable — lower limit — upper limit — preset Counting range — lower limit — upper limit IEC counter present Type 	Yes 0 2 047 Z 0 to Z 7 0 999 Yes SFB
 Number Retentivity — adjustable — lower limit — upper limit — preset Counting range — lower limit — upper limit IEC counter ● present ● Type ● Number S7 times 	Yes 0 2 047 Z 0 to Z 7 0 999 Yes SFB Unlimited (limited only by RAM capacity)
● Number Retentivity — adjustable — lower limit — upper limit — preset Counting range — lower limit — upper limit IEC counter ● present ● Type ● Number S7 times ● Number Retentivity	Yes 0 2 047 Z 0 to Z 7 0 999 Yes SFB Unlimited (limited only by RAM capacity)
Number Retentivity — adjustable — lower limit — upper limit — preset Counting range — lower limit — upper limit — upper limit IEC counter • present • Type • Number S7 times • Number	Yes 0 2 047 Z 0 to Z 7 0 999 Yes SFB Unlimited (limited only by RAM capacity)
Number Retentivity — adjustable — lower limit — upper limit — preset Counting range — lower limit — upper limit IEC counter • present • Type • Number S7 times • Number Retentivity — adjustable	Yes 0 2 047 Z 0 to Z 7 0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes
Number Retentivity — adjustable — lower limit — upper limit — preset Counting range — lower limit — upper limit IEC counter • present • Type • Number S7 times • Number Retentivity — adjustable — lower limit	Yes 0 2 047 Z 0 to Z 7 0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes 0
Number Retentivity — adjustable — lower limit — upper limit — preset Counting range — lower limit — upper limit IEC counter • present • Type • Number S7 times • Number Retentivity — adjustable — lower limit — upper limit — upper limit	Yes 0 2 047 Z 0 to Z 7 0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes 0 2 047
Number Retentivity — adjustable — lower limit — upper limit — preset Counting range — lower limit — upper limit IEC counter • present • Type • Number S7 times • Number Retentivity — adjustable — lower limit — upper limit — upper limit — upper limit — upper limit — preset	Yes 0 2 047 Z 0 to Z 7 0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes 0 2 047
 Number Retentivity — adjustable — lower limit — upper limit — preset Counting range — lower limit — upper limit IEC counter • present • Type • Number S7 times • Number Retentivity — adjustable — lower limit — upper set Time range 	Yes 0 2 047 Z 0 to Z 7 0 9999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes 0 2 047 No times retentive
 Number Retentivity — adjustable — lower limit — upper limit — preset Counting range — lower limit — upper limit IEC counter • present • Type • Number S7 times • Number Retentivity — adjustable — lower limit — upper limit — upper limit — upper limit — preset Time range — lower limit 	Yes 0 2 047 Z 0 to Z 7 0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes 0 2 047 No times retentive
 Number Retentivity — adjustable — lower limit — upper limit — preset Counting range — lower limit — upper limit IEC counter • present • Type • Number S7 times • Number Retentivity — adjustable — lower limit — upper limit — upper limit — upper limit — upper limit — preset Time range — lower limit — upper limit 	Yes 0 2 047 Z 0 to Z 7 0 9999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes 0 2 047 No times retentive

• Type	SFB
Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	Total working and load memory (with backup battery)
Flag	
• Size, max.	8 192 byte
Retentivity available	Yes
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
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	4.000
Inputs— of which central	4 096 4 096
Outputs	4 096
— of which central	4 096
Hardware configuration	1000
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. Limited by
OD DAD	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	, or miler max. to or do by master
• required slots	2
·	
ime of day	

Hardware clock (real-time)	Yes
retentive and synchronizable	Yes
Resolution	1 ms
Deviation per day (buffered), max. Periodical per day (sub-fffered), person	1.7 s; Power off
Deviation per day (unbuffered), max.	8.6 s; Power on
Operating hours counter • Number	16
	0 to 15
Number/Number range Pagga of voluce	
Range of values Crapularity	SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2^31 - 1 hours
Granularityretentive	1 h Yes
Clock synchronization	TES
• 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	, co, , to unone
• 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
Optical interface	No
1. Interface	
Interface type	MPI/PROFIBUS DP
Isolated	Yes
Interface types	
• RS 485	Yes
 Output current of the interface, max. 	150 mA
Protocols	
• MPI	Yes
 PROFIBUS DP master 	Van
	Yes
PROFIBUS DP slave	No No
PROFIBUS DP slave MPI	
	No 32; If a diagnostics repeater is used on the line, the number of connection
MPI ◆ Number of connections	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1
Number of connections Transmission rate, max.	No 32; If a diagnostics repeater is used on the line, the number of connection
MPI • Number of connections • Transmission rate, max. Services	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s
MPI	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes
MPI • Number of connections • Transmission rate, max. Services — PG/OP communication — Routing	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes
MPI • Number of connections • Transmission rate, max. Services — PG/OP communication — Routing — Global data communication	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No
Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No
MPI • Number of connections • Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No No Yes
Number of connections Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No Yes Yes
Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication, as client S7 communication, as server	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No No Yes
Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication, as client S7 communication, as server PROFIBUS DP master	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No Yes Yes Yes Yes
Number of connections Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No Yes Yes
Number of connections Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as server PROFIBUS DP master	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No Yes Yes Yes Yes Yes Yes
Number of connections Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as server PROFIBUS DP master Number of connections, max.	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No Yes
Number of connections Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max.	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No Yes
Number of connections Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max. Number of DP slaves, max.	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No Yes
Number of connections Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max. Number of DP slaves, max. Services	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No Yes
Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication, as client S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max. Number of DP slaves, max. Services PG/OP communication	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No Yes
Number of connections Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max. Number of DP slaves, max. Services — PG/OP communication — Routing	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No Yes
Number of connections Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max. Number of DP slaves, max. Services — PG/OP communication — Routing — Global data communication	No 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes No No 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
PROFIBUS DP slave	
Number of connections	No configuration of CPU as DP slave
2. Interface	
Interface type	PROFINET
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	
• RJ 45 (Ethernet)	Yes
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	165
Transmission rate, max.	100 Mbit/s
Services	TOO MINIUS
— PG/OP communication	Yes
— S7 communication	Yes
— Isochronous mode	No
Shared device	Yes; Single mode only
— Shared device — Prioritized startup	No
— Number of connectable IO Devices, max.	256; In redundant mode via both interfaces
Number of connectable IO Devices, max. Number of connectable IO Devices for RT, max.	256 256
— number of conflectable to Devices for R1, max. — of which in line, max.	256
Of which in line, max. 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	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte

— User data consistency, max.	1 024 byte
Open IE communication	1 027 DJ10
Number of connections, max.	62
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	PROFIBUS DP
Number of connection resources	16
Interface types	
• RS 485	Yes
Output current of the interface, max.	150 mA
Protocols	
PROFIBUS DP master	Yes
PROFIBUS DP slave	No
PROFIBUS DP master	40
Number of connections, max.	16
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max. Sequines	96
Services	Yes
— PG/OP communication— Routing	Yes
— Routing — Global data communication	No
Global data communication S7 basic communication	No
— S7 basic confinuncation — S7 communication	Yes
S7 communication 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	Pluggable cynobronization cybmodule (EQ)
Interface type Plug in interface modules	Pluggable synchronization submodule (FO) Synchronization modules 6557960 1AA06 0YA0 or 6557960 1AB06 0YA0
Plug-in interface modules	Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0
5. Interface	Pluggable synchronization sylmodyle (EQ)
Interface type Plug in interface modules	Pluggable synchronization submodule (FO) Synchronization modules 6ES7960 1AA06 0XA0 or 6ES7960 1AB06 0XA0
Plug-in interface modules Protocols	Synchronization modules 6ES7960-1AA06-0XA0 or 6ES7960-1AB06-0XA0
Redundancy mode Media redundancy	
Media redundancy — Switchover time on line break, typ.	200 ms
Switchover time on line break, typ. Number of stations in the ring, max.	50
— Number of Stations in the ring, max. 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
-	

 several passive connections per port, supported 	Yes
• ISO-on-TCP (RFC1006)	Yes; Via integrated PROFINET interface or CP 443-1 and loadable FBs
 Number of connections, max. 	62
— Data length, max.	32 kbyte; 1 452 bytes via CP 443-1 Adv.
• UDP	Yes; via integrated PROFINET interface and loadable FBs
 Number of connections, max. 	62
— Data length, max.	1 472 byte
Web server	
supported	No
Isochronous mode	
Equidistance	No
communication functions / header	
PG/OP communication	Yes
Number of connectable OPs without message processing	63
 Number of connectable OPs with message processing 	63; When using Alarm_S/SQ and Alarm_D/DQ
Data record routing	Yes
Global data communication	
supported	No
S7 basic communication	
communication function / S7 basic communication	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	102 syco, 1 valuatio
• 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	64/64
CPU, max.	V-1/0-1
Standard communication (FMS)	
• supported	Yes; Via CP and loadable FB
Number of connections	
• overall	64
 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, max.	0
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.	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
Number of instances for alarm 8 and S7 communication	2 500
	2000

block, max.		
Process control messages Yes AR SEND That commission for auto interference acc. to EN 55 011 - Imit class A, for use in industral areas Yes - Imit class A, for use in industral areas Yes - Imit class A, for use in industral areas - Imi	blocks, max.	
Number of archives that can log on simultaneously (SFB 37 16 18 18 18 18 18 18 18	• preset, max.	900
AR_SEND Test commissioning functions	Process control messages	Yes
Status block Yes Single step Yes		16
Single slape Yes Number of breakpoints 16	Test commissioning functions	
Number of breakpoints 16	Status block	Yes
Statuscontrol Statuscontrol variable Statuscontrol variables Variables Number of variables, max. Forcing For	Single step	Yes
Statuscontrol variable Statuscontrol variable Vas: Up to 16 variables tables Variables Variables Variables Variables Variables Variables Forcing Forci	Number of breakpoints	16
Number of variables, max. Forcing Forcing Forcing Forcing Forcing, variables Forcing, variables Forcing, variables, max. Forcing Forcing Forcing Forcing Forcing Forcing Forcing Forcing Forcing, variables Forcing, variables, max. 256 Diagnostic buffer Inputs/outputs, bit memories, distributed I/Os Number of variables, max. 258 Diagnostic buffer Inputs/outputs, bit memories, distributed I/Os Number of variables, max. 258 Ves Peset 120 Service data Can be read out Forcing Forc		
Number of Variables, max. Forcing For	Status/control variable	Yes; Up to 16 variable tables
Number of Variables, max. Forcing For	 Variables 	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	 Number of variables, max. 	
	Forcing	
Number of variables, max. 256	• Forcing	Yes
Diagnostic buffer Yes	Forcing, variables	Inputs/outputs, bit memories, distributed I/Os
	 Number of variables, max. 	256
Number of entries, max. 3 200	Diagnostic buffer	
Number of entries, max.	-	Yes
— preset 120		3 200
— preset 120	— adjustable	Yes
exor be read out **Can be read out **EMC** Emission of radio interference acc. to EN 55 011 **Limit class A, for use in industrial areas **Limit class B, for use in industrial areas **Limit class B, for use in residential areas **Limit class B, for use in residential areas **Limit class B, for use in residential areas **Configuration / header** **Configuration / header** **Configuration / programming / header **Command set **Command set **Command set **Nesting levels **To access to consistent data in process image **Access to consistent data in process image **System function locks (SFE) **System function locks (SFE) **System function locks (SFB) **See instruction list **Programming language	•	120
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 configuration / header Configuration / header • STEP 7 Yes configuration / programming / header • Command set see instruction list • Nesting levels 7 • Access to consistent data in process image Yes • System functions (SFC) see instruction list • System functions (SFC) • See instruction list Programming language - LAD - FBD - Yes - STL - Yes - STL - Yes - SCL - Yes - CFC - GRAPH - Yes - HiGraph® - Yes configuration / programming / number of simultaneously active SFC / header - RD_REC - WR_REC - WR_PARM - PARM_MOD - 1 - WR_DARM - PARM_MOD - 1 - WR_DARM - PARM_MOD - RDSYSST - B - DP_TOPOL - Configuration / programming / number of simultaneously active SFB / header - RDSYSST - RDPCC - RDRCC - WRREC - WRES With ST block Privacy	Service data	
Emission of radio interference acc. to EN 55 011 • Limit class B, for use in industrial areas Yes - Limit class B, for use in residential areas No	• can be read out	Yes
■ Limit class A, for use in industrial areas ■ Limit class B, for use in residential areas No Configuration / header Configuration software ■ STEP 7 Yes configuration programming / header ■ Command set ■ Nesting levels ■ Nesting levels ■ System functions (SFC) ■ See instruction list ■ System function blocks (SFB) ■ See instruction list ■ System function blocks (SFB) ■ See instruction list ■ Programming language ■ LAD ■ Yes ■ System function blocks (SFB) ■ See instruction list ■ Programming language ■ LAD ■ Yes ■ STL ■ Yes ■ STL ■ Yes ■ STL ■ SCL ■ CFC ■ Yes ■ GRAPH ■ Yes ■ HiGraph® ■ Onofiguration / programming / number of simultaneously active SFC / header ■ RD_REC ■ WR_REC ■ WR_PARM ■ B ■ PARM_MOD ■ 1 ■ WR_DPARM ■ 2 ■ DPNRM_DG ■ RDSYSST ■ 8 ■ DP_TOPOL configuration / programming / number of simultaneously active SFB / header ■ RDSYSST ■ B ■ DP_TOPOL configuration / programming / number of simultaneously active SFB / header ■ RDSYSST ■ B ■ RDSYCST ■ 8 ■ RDSYCST ■ 8 ■ RDSYCST ■ 8 ■ RDREC ■ RDREC ■ RREC ■ WRREC ■ RREC ■ RREC ■ WRREC ■ RDREC ■ RDREC ■ RURREC ■ R	EMC	
Limit class B, for use in residential areas Configuration / header STEP 7 Yes configuration / programming / header Command set see instruction list Nesting levels 7 Access to consistent data in process image Yes System functions (SFC) see instruction list System function blocks (SFB) see instruction list Programming language — LAD Yes — STL — SCL — STL — SCL — Yes — SCL — Yes — GRAPH — HiGraph® Yes configuration / programming / number of simultaneously active SFC / header — RD_REC — WR_PARM — PARM_MOD — DPNRM_DG — BR — RDSYSST — DP_TOPOL configuration / programming / number of simultaneously active SFB / header — RD_REC — BR — RDSYSST — DP_TOPOL configuration / programming / number of simultaneously active SFB / header — RDREC — RDREC — BR — RDSYSST — DP_TOPOL configuration / programming / number of simultaneously active SFB / header — RDREC — WR_REC — WRREC — WRREC — WRREC — WRREC — WRREC — ROSYSST — DP_TOPOL configuration / programming / number of simultaneously active SFB / header — RDREC — WRREC — WRES — WRES — WRES — WRES — WRES — WRES — WRREC — WRES — WRREC — WRES — WRES — WRES — WRREC — WRES — WRES — WRES — WRREC	Emission of radio interference acc. to EN 55 011	
Configuration / header • STEP 7 Yes configuration / programming / header 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 — FBD Yes — STL Yes — STL Yes — STL Yes — CFC Yes — RAPH Yes — HiGraph® Yes configuration / programming / number of simultaneously active SFC / header — RD_REC 8 — WR_PARM 8 — PARM_MOD 1 — WR_DPARM 2 — DPNRM_DG 8 — RDSYST 8 — DP_TOPOL 1 configuration / programming / number of simultaneously active SFB / header — RDREC 8 — WRREC 8 Know-how protection Yes	Limit class A, for use in industrial areas	Yes
STEP 7 Yes configuration / programming / header Command set Nesting levels System function (SFC) System function blocks (SFB) Frogramming language LAD FBD STL SCL SCL SCL SCL SCR SCL SCR SCR	 Limit class B, for use in residential areas 	No
STEP 7 Yes configuration / programming / header Command set Nesting levels System function (SFC) System function blocks (SFB) Frogramming language LAD FBD STL SCL SCL SCL SCL SCR SCL SCR SCR	configuration / header	
Command set Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) See instruction list System function blocks (SFB) Programming language LAD Yes FBD Yes STL Yes SCL Yes CFC Yes GRAPH HiGraph® Yes configuration / programming / number of simultaneously active SFC / header RD_REC WR_REC WR_PARM PARM PARM PARM, B PARM, B PARM, DD PNRM, DG RBSYSST B DP_TOPOL configuration / programming / number of simultaneously active SFB / header RD_REC B RBSYSST B RBSYSST B COPPINGNOB RDPTOPOL configuration / programming / number of simultaneously active SFB / header RD_REC B RBSYSST B RBSYSST B RBSYSST B S RDP_TOPOL SIMULTANEOUSLA Ves Know-how protection User program protection/password protection See instruction list FE FO FO SEE FO	-	Yes
Command set Nesting levels Access to consistent data in process image System functions (SFC) System function blocks (SFB) See instruction list System function blocks (SFB) Programming language LAD Yes FBD Yes STL Yes SCL Yes CFC Yes GRAPH HiGraph® Yes configuration / programming / number of simultaneously active SFC / header RD_REC WR_REC WR_PARM PARM PARM PARM, B PARM, B PARM, DD PNRM, DG RBSYSST B DP_TOPOL configuration / programming / number of simultaneously active SFB / header RD_REC B RBSYSST B RBSYSST B COPPINGNOB RDPTOPOL configuration / programming / number of simultaneously active SFB / header RD_REC B RBSYSST B RBSYSST B RBSYSST B S RDP_TOPOL SIMULTANEOUSLA Ves Know-how protection User program protection/password protection See instruction list FE FO FO SEE FO	configuration / programming / header	
Access to consistent data in process image System functions (SFC) System function blocks (SFB) See instruction list Programming language		see instruction list
System function sicks (SFB) see instruction list Programming language — LAD — FBD — FBD — FBD — STL — SCL — SCL — CFC — GRAPH — HiGraph® configuration / programming / number of simultaneously active — WR_PARM — PARM — CODPNRM_DG — RDSYSST — B — DP_TOPOL configuration / programming / number of simultaneously active SFB / header — RDFEC — 8 — WR_REC — WR_REC — WR_DPARM — PARM — PARM — PARM — PARM — PARM — B — RDSYSST — B — B — RDSYSST — B — B — WRREC — B Elock encryption Ves; With S7 block Privacy	Nesting levels	7
System function sicks (SFB) see instruction list Programming language — LAD — FBD — FBD — FBD — STL — SCL — SCL — CFC — GRAPH — HiGraph® configuration / programming / number of simultaneously active — WR_PARM — PARM — CODPNRM_DG — RDSYSST — B — DP_TOPOL configuration / programming / number of simultaneously active SFB / header — RDFEC — 8 — WR_REC — WR_REC — WR_DPARM — PARM — PARM — PARM — PARM — PARM — B — RDSYSST — B — B — RDSYSST — B — B — WRREC — B Elock encryption Ves; With S7 block Privacy	Access to consistent data in process image	Yes
● System function blocks (SFB) Programming language — LAD — FBD — Yes — STL — STL — Yes — SCL — Yes — GRAPH — HIGraph® configuration / programming / number of simultaneously active SFC / header — RD_REC — WR_REC — WR_PARM — PARM_MOD — WR_DPARM — PARM_DG — RDSYSST — RDSYSST — RDSYSST — RDSYSST — RDFEC — WRREC — WRREC — WRREC — WRREC — WRSYST — B SEB SEB SEB SEB SEB SEB SEB SEB SEB S	System functions (SFC)	see instruction list
LAD		
LAD		
STL		Yes
— SCL Yes — CFC Yes — GRAPH Yes — HiGraph® Yes configuration / programming / number of simultaneously active SFC / header — RD_REC 8 — WR_PREC 8 — WR_PARM 8 — PARM_MOD 1 — WR_DPARM 2 — DPNM_DG 8 — RDSYSST 8 — DP_TOPOL 1 configuration / programming / number of simultaneously active SFB / header — RDREC 8 — WRREC 8 Know-how protection Yes • Block encryption Yes; With S7 block Privacy	— FBD	Yes
— SCL Yes — CFC Yes — GRAPH Yes — HiGraph® Yes configuration / programming / number of simultaneously active SFC / header — RD_REC 8 — WR_PREC 8 — WR_PARM 8 — PARM_MOD 1 — WR_DPARM 2 — DPNM_DG 8 — RDSYSST 8 — DP_TOPOL 1 configuration / programming / number of simultaneously active SFB / header — RDREC 8 — WRREC 8 Know-how protection Yes • Block encryption Yes; With S7 block Privacy		
— CFC Yes — GRAPH Yes — HiGraph® Yes configuration / programming / number of simultaneously active SFC / header — RD_REC 8 — WR_REC 8 — WR_PARM 8 — PARM_MOD 1 — WR_DPARM 2 — DPNRM_DG 8 — RDSYSST 8 — DP_TOPOL 1 configuration / programming / number of simultaneously active SFB / header — RDREC 8 — WRREC 8 Know-how protection Yes • User program protection/password protection Yes • Block encryption Yes; With S7 block Privacy		
— GRAPH Yes — HiGraph® Yes configuration / programming / number of simultaneously active SFC / header — RD_REC 8 — WR_REC 8 — WR_PARM 8 — PARM_MOD 1 — WR_DPARM 2 — DPNRM_DG 8 — RDSYSST 8 — DP_TOPOL 1 configuration / programming / number of simultaneously active SFB / header — RDREC 8 — WRREC 8 Know-how protection Yes • User program protection/password protection Yes • Block encryption Yes; With S7 block Privacy		
— HiGraph® configuration / programming / number of simultaneously active SFC / header — RD_REC — WR_REC — WR_PARM — PARM_MOD — WR_DPARM — UR_DPARM — DPNRM_DG — RDSYSST — DP_TOPOL 1 configuration / programming / number of simultaneously active SFB / header — RDREC — WRREC 8 Know-how protection ● User program protection/password protection • User program protection/password protection		
configuration / programming / number of simultaneously active SFC / header		
— RD_REC 8 — WR_PARM 8 — PARM_MOD 1 — WR_DPARM 2 — DPNRM_DG 8 — RDSYSST 8 — DP_TOPOL 1 configuration / programming / number of simultaneously active SFB / header — RDREC 8 — WRREC 8 Know-how protection 8 • User program protection/password protection Yes • Block encryption Yes; With S7 block Privacy		
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— WR_PARM 8 — PARM_MOD 1 — WR_DPARM 2 — DPNRM_DG 8 — RDSYSST 8 — DP_TOPOL 1 configuration / programming / number of simultaneously active SFB / header — RDREC 8 — WRREC 8 Know-how protection ● User program protection/password protection Yes ● Block encryption Yes; With S7 block Privacy		
— PARM_MOD 1 — WR_DPARM 2 — DPNRM_DG 8 — RDSYSST 8 — DP_TOPOL 1 configuration / programming / number of simultaneously active SFB / header — RDREC 8 — WRREC 8 Know-how protection ● User program protection/password protection Yes ● Block encryption Yes; With S7 block Privacy		
— WR_DPARM 2 — DPNRM_DG 8 — RDSYSST 8 — DP_TOPOL 1 configuration / programming / number of simultaneously active SFB / header — RDREC 8 — WRREC 8 Know-how protection • User program protection/password protection Yes • Block encryption Yes; With S7 block Privacy		
DPNRM_DG 8 RDSYSST 8 DP_TOPOL 1 configuration / programming / number of simultaneously active SFB / header RDREC 8 WRREC 8 Know-how protection ● User program protection/password protection Yes Block encryption Yes; With S7 block Privacy		
 — RDSYSST — DP_TOPOL 1 configuration / programming / number of simultaneously active SFB / header — RDREC — WRREC 8 — WRREC 8 Know-how protection ● User program protection/password protection ● Block encryption Yes; With S7 block Privacy 		
— DP_TOPOL 1 configuration / programming / number of simultaneously active SFB / header — RDREC 8 — WRREC 8 Know-how protection ● User program protection/password protection Yes ● Block encryption Yes; With S7 block Privacy		
configuration / programming / number of simultaneously active SFB / header — RDREC 8 — WRREC 8 Know-how protection • User program protection/password protection Yes • Block encryption Yes; With S7 block Privacy		
 — RDREC — WRREC Know-how protection ● User program protection/password protection ● Block encryption Yes; With S7 block Privacy 		
— WRREC Know-how protection • User program protection/password protection • Block encryption Yes; With S7 block Privacy		
Know-how protection		
 User program protection/password protection Block encryption Yes; With S7 block Privacy 		
Block encryption Yes; With S7 block Privacy		Yes
	Dimensions	

Width	50 mm
Height	290 mm
Depth	219 mm
Weights	
Weight, approx.	995 g

last modified: 9/7/2023 🖸