Data sheet

SIMATIC S7-400, CPU 414-2 Central processing unit with: Work memory 2 MB, (1 MB code, 1 MB data), 1st interface MPI/DP 12 Mbit/s, 2nd interface PROFIBUS DP,



General information	
Product type designation	CPU 414-2
HW functional status	01
Firmware version	V7.0
Product function	
• Isochronous mode	Yes; For PROFIBUS only
Engineering with	
Programming package	STEP 7 V5.4 or higher with HSP 261
CiR - Configuration in RUN	
CiR synchronization time, basic load	100 ms
CiR synchronization time, time per I/O byte	15 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.	0.9 A
from backplane bus 5 V DC, max.	1.1 A
from backplane bus 24 V DC, max.	300 mA; 150 mA per DP interface

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from interface 5 V DC, max.	90 mA; At each DP interface
Power loss	
Power loss, typ.	4.5 W
Power loss, max.	5.5 W
Memory	
Type of memory	RAM
Work memory	
• integrated	2 Mbyte
• integrated (for program)	1 Mbyte
• integrated (for data)	1 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; with Memory Card (RAM)
• expandable RAM, max.	64 Mbyte
Backup	
• present	Yes
with battery	Yes; all data
without battery	No
Battery	
Backup battery	
Backup current, typ.	180 μA; up to 40 °C
Backup current, max.	850 µA
Backup time, max.	Dealt with in the module data manual with the secondary conditions and the factors of influence
 Feeding of external backup voltage to CPU 	5 V DC to 15 V DC
CPU processing times	
for bit operations, typ.	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	
	6 000; Number range: 1 to 16000
• Number, max.	64 kbyte
• Size, max.	OH NOVICE
FB	3 000: Number range: 0 to 7000
• Number, max.	3 000; Number range: 0 to 7999
Size, max.	64 kbyte



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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 (shortest cycle that can be set = 500 μs)
 Number of process alarm OBs 	4; OB 40-43
 Number of DPV1 alarm OBs 	3; OB 55-57
 Number of isochronous mode OBs 	3; OB 61-63
 Number of multicomputing OBs 	1; OB 60
 Number of background OBs 	1; OB 90
 Number of startup OBs 	3; OB 100-102
 Number of asynchronous error OBs 	9; OB 80-88
 Number of synchronous error OBs 	2; OB 121, 122
Nesting depth	
• per priority class	24
 additional within an error OB 	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
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
S7 times	
Number	2 048
Retentivity	
— adjustable	Yes
— lower limit	0



— upper limit	2 047	
— preset	No times retentive	
Time range		
— lower limit	10 ms	
— upper limit	9 990 s	
IEC timer		
• present	Yes	
• Type	SFB	
• Number	Unlimited (limited only by RAM capacity)	
Data areas and their retentivity		
retentive data area in total	Total working and load memory (with backup battery)	
Flag	, (min. 222111)	
Number, max.	8 kbyte; Size of bit memory address area	
Retentivity available	Yes	
Retentivity preset	MB 0 to MB 15	
Number of clock memories	8; in 1 memory byte	
Local data		
• adjustable, max.	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		

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

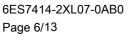


— of which central	4 096
Hardware configuration	
Number of expansion units, max.	21
connectable OPs	63
Multicomputing	Yes; 4 CPUs max. (with UR1 or UR2)
Interface modules	
 Number of connectable IMs (total), max. 	6
 Number of connectable IM 460s, max. 	6
 Number of connectable IM 463s, max. 	4; IM 463-2
Number of DP masters	
• integrated	2
• via CP	10; CP 443-5 Extended
● via IM 467	4
 Mixed mode IM + CP permitted 	No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode
• via interface module	0
 Number of pluggable S5 modules (via adapter capsule in central device), max. 	6
Number of IO Controllers	
• integrated	0
● via CP	4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode
Number of operable FMs and CPs (recommended)	
• FM	Limited by number of slots and number of connections
● CP, PtP	CP 440: Limited by number of slots; CP 441: limited by number of connections
PROFIBUS and Ethernet CPs	14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller
Slots	
• required slots	1
Time of day	
Clock	
Hardware clock (real-time)	Yes
retentive and synchronizable	Yes
Resolution	1 ms
Deviation per day (buffered), max.	1.7 s; Power off
Deviation per day (unbuffered), max.	8.6 s; For power On
Operating hours counter	
• Number	16
Number/Number range	0 to 15
Range of values	SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2^31 - 1 hours





Granularity	1 h
·	Yes
• retentive Clock synchronization	165
• supported	Yes
• to MPI, master	Yes
• to MPI, slave	Yes
	Yes
• to DP, master	Yes
• to DP, slave	Yes
• in AS, master	Yes
• in AS, slave	
on Ethernet via NTP	No; Via CP
• to IF 964 DP	No
Time difference in system when synchronizing via	200 ms
• MPI, max.	200 IIIS
Interfaces	
Interfaces/bus type	1 x MPI/PROFIBUS DP, 1 x PROFIBUS DP
Number of RS 485 interfaces	2; Combined MPI / PROFIBUS DP and PROFIBUS DP
1. Interface	
Interface type	Integrated
Physics	RS 485 / PROFIBUS + MPI
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	150 mA
Protocols	
• MPI	Yes
 PROFIBUS DP master 	Yes
 PROFIBUS DP slave 	Yes
MPI	
Number of connections	32; If a diagnostics repeater is used on the line, the number of
	connection resources on the line is reduced by 1
• Transmission rate, max.	12 Mbit/s
Services	Ver
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes
 S7 communication, as client 	Yes
— S7 communication, as server	Yes
PROFIBUS DP master	
 Number of connections, max. 	16; If a diagnostics repeater is used on the line, the number of





connection resources on the line is reduced by 1

 Transmission rate, max. 	12 Mbit/s
 Number of DP slaves, max. 	32
Services	
— PG/OP communication	Yes
— Routing	Yes; S7 routing
 Global data communication 	No
 S7 basic communication 	Yes
— S7 communication	Yes
 S7 communication, as client 	Yes
 S7 communication, as server 	Yes
— Equidistance	Yes
— Isochronous mode	Yes
— SYNC/FREEZE	Yes
 Activation/deactivation of DP slaves 	Yes
— Direct data exchange (slave-to-slave	Yes
communication)	
— 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
ROFIBUS DP slave	
Number of connections	16
• GSD file	http://support.automation.siemens.com/WW/view/en/113652
• Transmission rate, max.	12 Mbit/s
• automatic baud rate search	No
 Address area, max. 	32; Virtual slots
• User data per address area, max.	32 byte
— of which consistent, max.	32 byte
Services	
PG/OP communication	Yes; with interface active
— Routing	Yes; with interface active
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
 S7 communication, as client 	Yes



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Yes
No
No
244 byte
244 byte

2. Interface		
Interface type	Integrated	
Physics	RS 485 / PROFIBUS	
Isolated	Yes	
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	Yes	
PROFIBUS DP master		
 Number of connections, max. 	16	
Transmission rate, max.	12 Mbit/s	
Number of DP slaves, max.	96	
Services		
— PG/OP communication	Yes	
— Routing	Yes; S7 routing	
 Global data communication 	No	
 S7 basic communication 	Yes	
— S7 communication	Yes	
 — S7 communication, as client 	Yes	
 — S7 communication, as server 	Yes	
— Equidistance	Yes	
— Isochronous mode	Yes	
— SYNC/FREEZE	Yes	
 Activation/deactivation of DP slaves 	Yes	
 Direct data exchange (slave-to-slave 	Yes	
communication)		
— 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	



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— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
PROFIBUS DP slave	
Number of connections	16
• GSD file	http://support.automation.siemens.com/WW/view/en/113652
Transmission rate, max.	12 Mbit/s
Address area, max.	32
 User data per address area, max. 	32 byte
— of which consistent, max.	32 byte
Services	
— Routing	Yes; with interface active
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
Protocols	
Open IE communication	
• ISO-on-TCP (RFC1006)	Via CP 443-1 and loadable FB
— Data length, max.	1 452 bytes via CP 443-1 Adv.
Web server	
• supported	No
• supported	No
Isochronous mode	
Isochronous mode Equidistance	Yes
Isochronous mode Equidistance Number of DP masters with isochronous mode	Yes 2
Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max.	Yes 2 244 byte
Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse	Yes 2 244 byte 1 ms; 0.5 ms without use of SFC 126, 127
Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max.	Yes 2 244 byte
Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse	Yes 2 244 byte 1 ms; 0.5 ms without use of SFC 126, 127
Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle	Yes 2 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes
Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle Communication functions PG/OP communication • Number of connectable OPs without message	Yes 2 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms
Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle Communication functions PG/OP communication • Number of connectable OPs without message processing	Yes 2 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 63
Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle Communication functions PG/OP communication • Number of connectable OPs without message processing • Number of connectable OPs with message	Yes 2 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes
Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle Communication functions PG/OP communication • Number of connectable OPs without message processing • Number of connectable OPs with message processing	Yes 2 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 63 63; When using Alarm_S/SQ and Alarm_D/DQ
Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle Communication functions PG/OP communication • Number of connectable OPs without message processing • Number of connectable OPs with message processing Data record routing	Yes 2 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 63
Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle Communication functions PG/OP communication • Number of connectable OPs without message processing • Number of connectable OPs with message processing Data record routing Global data communication	Yes 2 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 63 63; When using Alarm_S/SQ and Alarm_D/DQ Yes
Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle Communication functions PG/OP communication • Number of connectable OPs without message processing • Number of connectable OPs with message processing Data record routing Global data communication • supported	Yes 2 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 63 63; When using Alarm_S/SQ and Alarm_D/DQ Yes
Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle Communication functions PG/OP communication • Number of connectable OPs without message processing • Number of connectable OPs with message processing Data record routing Global data communication • supported • Number of GD loops, max.	Yes 2 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 63 63; When using Alarm_S/SQ and Alarm_D/DQ Yes Yes 8
Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle Communication functions PG/OP communication • Number of connectable OPs without message processing • Number of connectable OPs with message processing Data record routing Global data communication • supported • Number of GD loops, max. • Number of GD packets, transmitter, max.	Yes 2 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 63 63; When using Alarm_S/SQ and Alarm_D/DQ Yes Yes 8 8 8
Isochronous mode Equidistance Number of DP masters with isochronous mode User data per isochronous slave, max. shortest clock pulse max. cycle Communication functions PG/OP communication • Number of connectable OPs without message processing • Number of connectable OPs with message processing Data record routing Global data communication • supported • Number of GD loops, max.	Yes 2 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 32 ms Yes 63 63; When using Alarm_S/SQ and Alarm_D/DQ Yes Yes 8



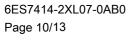
• Size of GD packet (of which consistent), max.



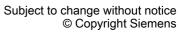
1 variable

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S7 basic communication	
• supported	Yes
User data per job, max.	76 byte
• •	1 variable
 User data per job (of which consistent), max. S7 communication 	i variable
	Yes
• supported	Yes
• as server	Yes
• as client	
User data per job, max.	64 kbyte
User data per job (of which consistent), max.	462 byte; 1 variable
S5 compatible communication	Very Vie EC AC CEND and AC DECV many vie 40 CD 442 4 and
• supported	Yes; Via FC AG_SEND and AG_RECV, max. via 10 CP 443-1 or 443-5
● 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. 	24/24
Standard communication (FMS)	
• supported	Yes; Via CP and loadable FB
Number of connections	
• overall	64
 usable for PG communication 	63
 reserved for PG communication 	1
 adjustable for PG communication, max. 	0
 usable for OP communication 	63
 reserved for OP communication 	1
— adjustable for OP communication, max.	0
 usable for S7 basic communication 	62
— reserved for S7 basic communication	0
 adjustable for S7 basic communication, max. 	0
usable for S7 communication	62
— reserved for S7 communication	0
— adjustable for S7 communication, max.	0
usable for routing	31
— 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	Yes



SCAN procedure



Yes

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Process diagnostic messages simultaneously active Alarm-S blocks, max. 400; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Alarm 8-blocks *Number of instances for alarm 8 and \$7 communication blocks, max. *preset, max. *preset, max. *process control messages *Number of archives that can log on simultaneously (SF8 37 AR SEND) *Number of messages *overall, max. *in 100 ms grid, max. *process control messages *overall, max. *preset,	Program alarms	Yes
simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and \$7 communication blocks, max. preset, max. process control messages Number of archives that can log on simultaneously (SFB 37 AR SEND) Number of messages overall, max. in 100 ms grid, max. with 100 ms grid, max. with 500, 1000 ms grid, max. preset or breakpoints Status block Yes; Up to 16 simultaneously Status foortrol variable Variables Number of variables, max. Number of va		Yes
Number of instances for alarm 8 and S7 communication blocks, max. preset, max. process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages overall, max. in 1000 ms grid, max. in 1000 ms grid, max. with 100 ms grid, max. with 100 ms grid, max. process control messages overall, max. process or additional values with 100 ms grid, max. process or additional values with 100 ms grid, max. process or additional values process or additional values with 100 ms grid, max. process or additional values process	simultaneously active Alarm-S blocks, max.	
communication blocks, max. • preset, max. • preset, max. • preset, max. • preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages • overall, max. • in 100 ms grid, max. • in 100 ms grid, max. • in 1000 ms grid, max. • with 100 ms grid, max. • with 500, 1000 ms grid, max. • with 500, 1000 ms grid, max. • overall, max. • with 500, 1000 ms grid, max. • the set commissioning functions Status block	Alarm 8-blocks	Yes
Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages • overall, max. • in 100 ms grid, max. • in 500 ms grid, max. • in 1000 ms grid, max. • in 1000 ms grid, max. • in 1000 ms grid, max. • with 100 ms grid, max. • with 500, 1000 ms grid, max. • with 500, 1000 ms grid, max. 10 **est commissioning functions Status flootic Status block Yes; Up to 16 simultaneously Single step Ves Number of breakpoints 16 Status/control • Status/control variable • Variables • Variables • Number of variables, max. • Number of variables, max. Forcing • Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. — adjustable — preset • can be read out Yes Ves Ves Ves Ves Ves Ves Ves		1 200
Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages • overall, max. • in 100 ms grid, max. • in 1000 ms grid, max. • in 1000 ms grid, max. • with 100 ms grid, max. • with 100 ms grid, max. • with 500, 1000 ms grid, max. • with 500, 1000 ms grid, max. • with 500, 1000 ms grid, max. • with 500, 1000 ms grid, max. • with 500, 1000 ms grid, max. • with 500, 1000 ms grid, max. • status/control • Status/control • Status/control variable • Variables • Variables • Variables • Number of variables, max. • Number of variables, max. • Forcing • Forcing • Forcing, variables • Number of variables, max. • Number of variables, max. • Number of variables, max. • Status/control • Status/control • Status/control • Status/control • Status/control variable tables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters • Number of variables, max. • Number of variables, max. • Forcing • Forcing • Forcing, variables • Number of variables, max. 256 Diagnostic buffer • present • Number of entries, max. — adjustable — preset • Number of entries, max. — adjustable — preset • can be read out	• preset, max.	300
(SFB 37 AR_SEND) Number of messages • overall, max. • in 100 ms grid, max. • in 500 ms grid, max. • in 1000 ms grid, max. • in 1000 ms grid, max. • with 100 ms grid, max. • with 500, 1000 ms grid, max. • with 500, 1000 ms grid, max. • with 500, 1000 ms grid, max. 10 est commissioning functions Status block Status block Yes; Up to 16 simultaneously Single step Yes Number of breakpoints 16 Status/control • Status/control variable • Variables	Process control messages	Yes
overall, max. in 100 ms grid, max. in 500 ms grid, max. in 1000 ms grid, max. in 1000 ms grid, max. in 1000 ms grid, max. in 1000 ms grid, max. in 1000 ms grid, max. in 1000	Number of archives that can log on simultaneously (SFB 37 AR_SEND)	16
in 100 ms grid, max. in 500 ms grid, max. in 1000 ms grid, max. in 1000 ms grid, max. in 1000 ms grid, max. with 100 ms grid, max. with 500, 1000 ms grid, max. 10 est commissioning functions Status block Yes; Up to 16 simultaneously Single step Number of breakpoints Status/control Status/control variable variables Number of variables, max. Number of variables Number of variables, max. Number of variables, max. Ves Number of variables, max. Ves Number of variables, max. Ves Number of variables, max. Solagnostic buffer present present ves Number of entries, max. alou preset 120 Service data can be read out Yes Statualardards, approvals, certificates CE mark Yes	Number of messages	
in 500 ms grid, max. in 1000 ms grid, max. in 1000 ms grid, max. in 1000 ms grid, max. in with 100 ms grid, max. in with 500, 1000 ms grid, max. in with 500 ms g	• overall, max.	512
In 1000 ms grid, max. In with 100 ms grid, max. In with 100 ms grid, max. In with 500, 1000 ms grid, max. It with 500, 1000 ms	• in 100 ms grid, max.	128
in 1000 ms grid, max. in with 100 ms grid, max. in with 500, 1000 ms grid, max. in with 100 ms grid, max. in with 500, 1000 ms grid, max. in with 500,	● in 500 ms grid, max.	256
Number of additional values • with 100 ms grid, max. • with 500, 1000 ms grid, max. 10 Vest commissioning functions Status block Yes; Up to 16 simultaneously Single step Yes Number of breakpoints 16 Status/control • Status/control variable • Variables • Number of variables, max. Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. — adjustable — preset Status/coates • Can be read out Yes Ves Ves 10 10 10 10 10 10 10 10 10 1		512
with 500, 1000 ms grid, max. Status block	Number of additional values	
Status block Single step Ves Number of breakpoints • Status/control • Status/control variable • Variables Number of variables, max. • Number of variables, max. Forcing • Forcing, variables • Number of variables, max. • Number of variables, max. • Status/control • Status/control • Status/control variables, max. • Number of variables, max. • Number of variables, max. • Forcing • Forcing, variables • Number of variables, max. • present • present • present • present • number of entries, max. — adjustable — preset Service data • can be read out Yes Standards, approvals, certificates CE mark Yes	• with 100 ms grid, max.	1
Status block Yes; Up to 16 simultaneously Single step Yes Number of breakpoints 16 Status/control Status/control variable Variables Variables Number of variables, max. Forcing Forcing Forcing Forcing, variables Number of variables, max. Status/control Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 70; Status/control Forcing Forcing Forcing Forcing Forcing, variables Inputs, outputs, bit memories, peripheral inputs, peripheral outputs Number of variables, max. Status/control Forcing Forci	● with 500, 1000 ms grid, max.	10
Status block Yes; Up to 16 simultaneously Yes Number of breakpoints 16 Status/control Status/control variable Variables Number of variables, max. Number of variables, max. Forcing Forcing Forcing, variables Number of variables, max. Diagnostic buffer Present Number of entries, max. - adjustable — preset Service data can be read out Yes Yes Yes Yes Yes 16 Yes; Up to 16 variable tables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 70; Status/control Yes Inputs, outputs, bit memories, peripheral inputs, peripheral outputs 256 Diagnostic buffer Yes 120 Service data can be read out Yes Standards, approvals, certificates CE mark Yes		
Single step Number of breakpoints Status/control Status/control variable Variables Number of variables, max. Number of variables, max. Forcing Forcing Forcing, variables, max. Number of variables, max. Page of variables, max. Page of variables, max. Page of variables, max. Diagnostic buffer present Number of entries, max. adjustable preset 120 Service data can be read out Yes Yes Standards, approvals, certificates CE mark Yes 16 Yes; Up to 16 variable tables Inputs/outputs, nemory bits, DBs, distributed I/Os, timers, counters Page of the variables occurrency Yes 10; Status/control Yes Inputs, outputs, bit memories, peripheral inputs, peripheral outputs 256 Yes 120 Service data Yes		Very life to 40 circultana contr
Number of breakpoints Status/control Status/control variable Variables Number of variables, max. Number of variables, max. Forcing Forcing Forcing, variables, max. Number of variables, max. Number of variables, max. Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 70; Status/control Forcing Forcing Forcing, variables Number of variables, max. 256 Diagnostic buffer Present Number of entries, max. - adjustable - preset 120 Service data Can be read out Yes Standards, approvals, certificates CE mark Yes Yes		
Status/control Status/control variable Ves; Up to 16 variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Number of variables, max. Forcing Forcing Forcing Forcing, variables Number of variables, max. Number of variables, max. Status/control Yes Inputs, outputs, bit memories, peripheral inputs, peripheral outputs Number of variables, max. Yes Number of entries, max. - adjustable - preset Preset Yes - preset Service data Can be read out Yes Standards, approvals, certificates CE mark Yes		
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Forcing Forcing Forcing Forcing, variables Number of variables, max. Diagnostic buffer Present Number of entries, max. Adjustable Preset Preset Preset Yes 120 Service data Can be read out Yes Standards, approvals, certificates Yes Yes Yes		counters
 Forcing Forcing, variables Number of variables, max. Diagnostic buffer Present Number of entries, max. Adjustable preset 120 Service data can be read out Yes 		70; Status/control
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Diagnostic buffer	Forcing, variables	Inputs, outputs, bit memories, peripheral inputs, peripheral outputs
 present Number of entries, max. adjustable preset 120 Service data can be read out Yes Standards, approvals, certificates CE mark Yes 	 Number of variables, max. 	256
 Number of entries, max. — adjustable — preset Service data • can be read out Standards, approvals, certificates CE mark 3 200 Yes 120 Yes 	Diagnostic buffer	
 — adjustable — preset	• present	
— preset 120 Service data	Number of entries, max.	3 200
Service data • can be read out Yes Standards, approvals, certificates CE mark Yes	— adjustable	Yes
• can be read out Yes Standards, approvals, certificates CE mark Yes	— preset	120
Standards, approvals, certificates CE mark Yes	Service data	
CE mark Yes	• can be read out	Yes
	Standards, approvals, certificates	
CSA approval Yes	CE mark	Yes
	CSA approval	Yes



UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
Use in hazardous areas	
• ATEX	ATEX II 3G Ex nA IIC T4 Gc
Ambient conditions	

Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	60 °C

Configuration	
Configuration software	
• STEP 7	Yes
Programming	
Command set	see instruction list
 Nesting levels 	7
 Access to consistent data in process image 	Yes
 System functions (SFC) 	see instruction list
 System function blocks (SFB) 	see instruction list
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
Number of simultaneously active SFCs	
— DPSYC_FR	2; SFC 11; per interface
— D_ACT_DP	8; SFC 12; per interface
— RD_REC	8; SFC 59; per interface
— WR_REC	8; SFC 58; per interface
— WR_PARM	8; SFC 55; per interface
— PARM_MOD	1; SFC 57; per interface
— WR_DPARM	2; SFC 56; per interface
— DPNRM_DG	8; SFC 13; per interface
— RDSYSST	8; SFC 51
— DP_TOPOL	1; SFC 103; per interface
Number of simultaneously active SFBs	





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— RDREC	8; SFB 52; per interface, but not more than 32 across all external
	interfaces
WDDEO	9. CED 52, nor interface, but not more than 22 corose all external
— WRREC	8; SFB 53; per interface, but not more than 32 across all external
	interfaces
Know-how protection	
User program protection/password protection	Yes
	V MU 0711 1 D :
Block encryption	Yes; With S7 block Privacy
• block encryption	ree, marer breakt masy
	155, War C. Block Hady
Dimensions	195, War C. Block Hady
	25 mm
Dimensions	
Dimensions Width Height	25 mm 290 mm
Dimensions Width	25 mm
Dimensions Width Height Depth	25 mm 290 mm
Dimensions Width Height	25 mm 290 mm

last modified: 10/09/2020

