SIEMENS

Data sheet

6ES7414-2XL07-0AB0



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)	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
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	
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 (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
— 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
— preset	No times retentive
Time range	
— lower limit	10 ms
— upper limit	9 990 s
— upper limit IEC timer	9 990 s

Reientive data area (mot. timers, counters, flags), max. Risign Size, max. Risign Reientive data area (mot. timers, counters, flags), max. Risign	• Type	SFB
Pate areas and their restantivity Relentive data area (nct. timen, counters, flags), max. Flag Size, max. Flagenthy available Flagenthy preset Flagent	•	
Size, max. Steenhilly preset Retenhilly preset	Data areas and their retentivity	
Size, max Patentish'ty available Patentish'ty preset All Di to Ma 15 Authorish of clock memorise Authorish of clock memorise Authorish of clock memorise Algustable, max Preset Addrass area Addrass area Addrass area Vo address area Vo address area Process image Inputs Outputs Addrass area Addrass area Addrass area Vo address area Addrass area	Retentive data area (incl. timers, counters, flags), max.	Total working and load memory (with backup battery)
Retentivity available Yes MB 0 to MB 15 Retentivity preset MB 0 to MB 15 Retentivity preset Retentivity preset Retentivity preset Retentivity preset Retentivity available Retentivity Retenti	Flag	
Relaminity preset	• Size, max.	8 kbyte; Size of bit memory address area
Number of clock memories I diskyte I disk	Retentivity available	Yes
Local data • alglystable, max. • preset • preset • RNOPE • Process area • Inputs • Culputs • C	Retentivity preset	MB 0 to MB 15
	Number of clock memories	8; in 1 memory byte
Process area 8 kbyte 8 kbyte 9 kbyte	Local data	
I/O address area	adjustable, max.	16 kbyte
If pouts If pouts If pouts If pouts If pouts If pouts a keybe If pouts adjustable If pouts, adjustable If pouts I	·	8 kbyte
Inputs Outputs Outputs Outputs, adjustable Outputs, adjustable Outputs, adjustable Outputs, default Outputs default Outputs	Address area	
Process mage Injust, adjustable Outputs, adjustable Outputs, default Outputs Outputs Outputs Outputs Of which central Outputs O	I/O address area	
Process image Inputs, adjustable Outputs, adjustable Inputs, default Outputs, default Outputs Ou	• Inputs	8 kbyte
Inputs, adjustable Outputs, adjustable Outputs, adjustable Outputs, default Outputs Number of subprocess images Number of subprocess images, max. If Digital chamnels Inputs Of \$536 Outputs Of which central Of \$536 Outputs Of which central Of \$536 Outputs Of which central Outputs Of \$536 Outputs Of which central Outputs Of \$6536 Outputs Outputs Of which central Outputs Outputs Outputs Outputs Of which central Outputs Output	Outputs	8 kbyte
Outputs, adjustable Inputs, default Outputs, default Outputs, default Consistent data, max. Access to consistent data in process image Number of subprocess images Number of subprocess images, max. Digital channels Inputs Of which central Outputs Outputs Of which central Outputs Outputs Of which central Outputs Of which central Outputs Outputs Of which central Outputs Of which central Outputs Of which central Outputs Outputs Of which central Outputs Of which central Outputs Of which central Outputs Out		
In Inputs, default Outputs, default Outputs, default Outputs, default Outputs, default Outputs, default Outputs Access to consistent data, max. Access to consistent data in process image Number of subprocess images, max. 15 Digital channels Inputs Outputs O		
Coutputs, default Consistent data, max. Access to consistent data in process image Yes Subprocess images Number of subprocess images, max. 15 Digital channels		
Consistent data, max. Access to consistent data in process image Number of subprocess images, max. Number of subprocess images, max. Is Digital channels Inputs Of which central Outputs	•	
Access to consistent data in process image Number of subprocess images, max. Inputs Inputs Outputs Output	•	
Subprocess images Number of subprocess images, max. Inputs Inputs Of which central Set 536 Outputs Of which central Set 536 Outputs Of 536 Outputs Of 536 Analog channels Inputs Inputs Outputs Outp		
Number of subprocess images, max. Digital channels	The state of the s	res
Inputs 65 536 Outputs 65 536 Analog channels Inputs 4 096 Outputs 4 096 Inputs 4 096 Outputs 4 096 Outputs 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 IM s (total), max. 6 Number of connectable IM s (total), max. 6 Number of connectable IM 463s, max. 4; IM 463-2 Number of DP masters Integrated 2 Via IM 467 Via IM 467 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 modules Noumber of IO Controllers Integrated 0 No. IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode Via interface modules Number of Outputs (via adapter capsule in central device), max. 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 Via CP 440: Limited by number of slots and number of connections FM CP, PIP CP 440: Limited by number of slots, CP 441: limited by number of connections CP 440: Limited by number of slots, CP 441: limited by number of connections 14: In total max. 10 CPs as DP master and PROFINET controller, of which up	· · · · · · · · · · · · · · · · · · ·	15
		15
Of which central Outputs Outputs Of S536 Outputs Of S536 Of which central Of S536 Analog channels Inputs Of which central Outputs Outp		65 536
Outputs — of which central — of which central Inputs Inputs	•	
Analog channels Inputs Outputs Outputs Of which central Outputs Outputs Of which central Outputs Outputs Of which central Outputs Out		
Analog channels Inputs Inputs Inputs Outputs Outputs Outputs Of which central Inputs Outputs Outputs Outputs Of which central Inputs Inp	·	
Inputs Outputs Outputs Outputs Of which central Outputs O		
- 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 IM 460s, max. 6 • Number of connectable IM 460s, max. 4; IM 463-2 Number of DP masters • integrated 2 • via CP 10; CP 443-5 Extended • via IM 467 • 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 • Number of ID Controllers • integrated 0 • Via IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode • Via Interface module • Number of pluggable S5 modules (via adapter capsule in central device), max. Number of ID Controllers • integrated 0 • via CP 440-1 Limited by number of slots; CP 441: limited by number of connections • CP, PtP CP 440: Limited by number of slots; CP 441: limited by number of connections 14; In total max. 10 CPs as DP master and PROFINET controller, of which up		4 096
Outputs Outputs Of which central 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. Number of connectable IMs (total), max. Number of connectable IM 460s, max. Number of DP masters integrated via CP via IM 467 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 modules Number of IO Controllers integrated Number of IO Controllers integrated Number of DP masters Limited by number of plugable S5 modules (via adapter capsule in central device), max. Number of IO Controllers Limited by number of slots; CP 441: limited by number of connections Number of operable FMs and CPs (recommended) Limited by number of slots; CP 441: limited by number of connections CP, PtP PROFIBUS and Ethernet CPs 14; In total max. 10 CPs as DP master and PROFINET controller, of which up	•	
Hardware configuration Number of expansion units, max. connectable OPs Multicomputing Yes; 4 CPUs max. (with UR1 or UR2) Interface modules • Number of connectable IMs (total), max. • Number of connectable IM 460s, max. • Number of connectable IM 463s, max. Number of DP masters • integrated • via CP • via IM 467 • Mixed mode IM + CP permitted • via interface module • Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers • integrated • via CP • Via CP • Via interface module • Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers • integrated • via CP • Via Via interface module • Via CP • Via Via interface module • Via CP • Via Via interface module • Via CP • Via		4 096
Number of expansion units, max. connectable OPs Multicomputing Yes; 4 CPUs max. (with UR1 or UR2) Interface modules Number of connectable IMs (total), max. Number of connectable IM 460s, max. Number of connectable IM 463s, max. Number of DP masters integrated via CP via IM 467 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 Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers integrated via CP Via CP Limited by number of slots and number of connections PROFINET IO mode Limited by number of slots, CP 441: limited by number of connections CP 440: Limited by number of slots, CP 441: limited by number of connections Limited by number of slots, CP 441: limited by number of connections 14; In total max. 10 CPs as DP master and PROFINET controller, of which up	of which central	4 096
Number of expansion units, max. connectable OPs Multicomputing Yes; 4 CPUs max. (with UR1 or UR2) Interface modules Number of connectable IM 460s, max. Number of DP masters integrated via CP via IM 467 Mixed mode IM + CP permitted via interface module Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers integrated via CP Via interface module Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers integrated via CP Limited by number of slots and number of connections PROFINET IO mode Limited by number of slots, CP 441: limited by number of connections CP 440: Limited by number of slots, CP 441: limited by number of connections 14; In total max. 10 CPs as DP master and PROFINET controller, of which up	Hardware configuration	
Multicomputing Interface modules • Number of connectable IMs (total), max. • Number of connectable IM 460s, max. • Number of connectable IM 463s, max. • Number of DP masters • integrated • via CP • via IM 467 • Mixed mode IM + CP permitted • via interface module • Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers • integrated • via CP 10; CP 443-5 Extended 4 No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 0 0 6 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 10 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 10 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 10 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 10 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 10 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 10 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 10 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 10 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 10 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 10 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 10 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 10 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 10 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 10 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 10 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode	·	21
Interface modules • Number of connectable IMs (total), max. • Number of connectable IM 460s, max. • Number of connectable IM 463s, max. • Number of DP masters • integrated • via CP • via IM 467 • Mixed mode IM + CP permitted • via interface module • Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers • integrated • via CP • via CP • Via interface module • Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers • integrated • via CP Number of operable FMs and CPs (recommended) • FM • CP, PtP • PROFIBUS and Ethernet CPs 6 6 6 6 6 7 8 9 10; CP 443-5 Extended 4 No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 0 6 6 6 7 8 9 10; CP 443-5 Extended 4 No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 0 10 10 11 12 13 14 15 16 16 17 18 18 18 18 18 18 19 19 10 10 10 11 11 11 11 11	connectable OPs	63
Number of connectable IMs (total), max. Number of connectable IM 460s, max. Number of DP masters integrated via CP via IM 467 Mixed mode IM + CP permitted Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers integrated via CP Number of poerable FMs and CPs (recommended) Number of operable FMs and CPs (recommended) FM CP, PtP PROFIBUS and Ethernet CPs Number of connectable IM 460s, max. 4; IM 463-2 Ni IM 463-2 No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 0 4, Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode Limited by number of slots and number of connections CP, PtP PROFIBUS and Ethernet CPs 14; In total max. 10 CPs as DP master and PROFINET controller; of which up	Multicomputing	Yes; 4 CPUs max. (with UR1 or UR2)
Number of connectable IM 460s, max. Number of DP masters integrated via CP via IM 467 Mixed mode IM + CP permitted via interface module via interface module Number of IO Controllers integrated via CP Via CP No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode via interface module Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers integrated via CP Vi	Interface modules	
Number of DP masters integrated via CP via IM 467 Mixed mode IM + CP permitted via interface module via interface module Number of IO Controllers integrated via CP Via CP Via interface module Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers integrated via CP Via CP Limited by number of slots and number of connections CP, PtP PROFIBUS and Ethernet CPs Via IM 463-2 A; IM 463-2 10; CP 443-5 Extended 4 No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 0 6 6 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 CP, PtP CP 440: Limited by number of slots; CP 441: limited by number of connections 14; In total max. 10 CPs as DP master and PROFINET controller, of which up	Number of connectable IMs (total), max.	6
Number of DP masters integrated via CP via IM 467 Mixed mode IM + CP permitted via interface module Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers integrated via CP Via CP Limited by number of slots and number of connections PROFIBUS and Ethernet CPs 10; CP 443-5 Extended No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 0 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 CP, PtP CP 440: Limited by number of slots; CP 441: limited by number of connections 14; In total max. 10 CPs as DP master and PROFINET controller, of which up	 Number of connectable IM 460s, max. 	6
 integrated via CP via IM 467 Mixed mode IM + CP permitted via interface module via interface module so trained device), max. Number of IO Controllers integrated via CP 4 No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode 0 6 central device), max. Number of IO Controllers integrated 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 CP, PtP CP 440: Limited by number of slots; CP 441: limited by number of connections CP 440: Limited by number and PROFINET controller, of which up 	Number of connectable IM 463s, max.	4; IM 463-2
 via CP via IM 467 Mixed mode IM + CP permitted via interface module Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers integrated 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 CP, PtP Limited by number of slots; CP 441: limited by number of connections CP 440: Limited by number of slots; CP 441: limited by number of which up 	Number of DP masters	
 via IM 467 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 Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers integrated via CP 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 CP, PtP Limited by number of slots and number of connections CP 440: Limited by number of slots; CP 441: limited by number of connections PROFIBUS and Ethernet CPs 	• integrated	2
 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 Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers integrated 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 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 	• via CP	10; CP 443-5 Extended
PROFINET IO mode • via interface module • Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers • integrated • 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 • CP, PtP • PROFIBUS and Ethernet CPs PROFIBUS and Ethernet CPs PROFIBUS and Ethernet CPs PROFIBUS and Ethernet CPs PROFINET IO mode 10 CP 440: Limited by number of slots; CP 441: limited by number of connections 14; In total max. 10 CPs as DP master and PROFINET controller, of which up	● via IM 467	4
 Number of pluggable S5 modules (via adapter capsule in central device), max. Number of IO Controllers integrated 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 Emitted 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 In total max. 10 CPs as DP master and PROFINET controller, of which up 	Mixed mode IM + CP permitted	
central device), max. Number of IO Controllers • integrated • 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 • 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	• via interface module	0
 integrated 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 		6
 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 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 	Number of IO Controllers	
types in PROFINET IO mode Number of operable FMs and CPs (recommended) • FM • CP, PtP • PROFIBUS and Ethernet CPs types in PROFINET IO mode Limited by number of slots and number of connections CP 440: Limited by number of slots; CP 441: limited by number of connections 14; In total max. 10 CPs as DP master and PROFINET controller, of which up	• integrated	0
 FM CP, PtP PROFIBUS and Ethernet CPs Limited by number of slots and number of connections CP 440: Limited by number of slots; CP 441: limited by number of connections 14; In total max. 10 CPs as DP master and PROFINET controller, of which up 	• via CP	
 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 	Number of operable FMs and CPs (recommended)	
• PROFIBUS and Ethernet CPs 14; In total max. 10 CPs as DP master and PROFINET controller, of which up	• 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
to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller	 PROFIBUS and Ethernet CPs 	
Slots	***	to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller

 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
• retentive	Yes
Clock synchronization	
• supported	Yes
• to MPI, master	Yes
• on MPI, device	Yes
• to DP, master	Yes
• on DP, device	Yes
• in AS, master	Yes
• in AS, device	Yes
on Ethernet via NTP	No; Via CP
• to IF 964 DP	No
Time difference in system when synchronizing via	
• MPI, max.	200 ms
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	MPI/PROFIBUS DP
Isolated	Yes
Interface types	
• RS 485	Yes
 Output current of the interface, max. 	150 mA
Protocols	
• MPI	Yes
PROFIBUS DP master	Yes
PROFIBUS DP device	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	
— 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
max. number of DP devices	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 devices 	Yes
Direct data exchange (slave-to-slave)	Yes
communication)	
— DPV1	Yes
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
PROFIBUS DP slave	40
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
 S7 communication, as server 	Yes
 Direct data exchange (slave-to-slave communication) 	No
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2. Interface	
Interface type	PROFIBUS DP
Isolated	Yes
Interface types	
• RS 485	Yes
Output current of the interface, max.	150 mA
Protocols	
PROFIBUS DP master	Yes
PROFIBUS DP device	Yes
PROFIBUS DP master	
Number of connections, max.	16
Transmission rate, max.	12 Mbit/s
max. number of DP devices	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
— S7 communication, as server — Equidistance	Yes
Equidistance Isochronous mode	Yes
— Isochronous mode — SYNC/FREEZE	Yes
	1 60
	Vac
— activation/deactivation of DP devices— Direct data exchange (slave-to-slave	Yes Yes

DDV4	Voo
— DPV1	Yes
Address area	6 kbyte
— Inputs, max.	
— Outputs, max. User data per DP slave	6 kbyte
— user data per DP device, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte 244
— Slots, max.	
— per slot, max. PROFIBUS DP slave	128 byte
Number of connections	16
GSD file	
	http://support.automation.siemens.com/WW/view/en/113652
Transmission rate, max. Address area may.	12 Mbit/s
Address area, max.	32 32 h.ta
User data per address area, max.	32 byte
— of which consistent, max.	32 byte
Services	Voc. with interface active
— Routing	Yes; with interface active
Transfer memory	244 byta
— Inputs	244 byte
— Outputs	244 byte
Protocols	
SIMATIC communication	V
• S7 routing	Yes
Open IE communication	VI 00 40 4 14 14 50
• ISO-on-TCP (RFC1006)	Via CP 443-1 and loadable FB
— Data length, max.	1 452 bytes via CP 443-1 Adv.
Web server	N.
• supported	No
Isochronous mode	
Equidistance	Yes
Number of DP masters with isochronous mode	2
User data per isochronous slave, max.	244 byte
shortest clock pulse	1 ms; 0.5 ms without use of SFC 126, 127
max. cycle	32 ms
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	Yes
 Number of GD loops, max. 	8
 Number of GD packets, transmitter, max. 	8
 Number of GD packets, receiver, max. 	16
 Size of GD packets, max. 	54 byte
Size of GD packet (of which consistent), max.	1 variable
S7 basic communication	
• supported	Yes
 User data per job, max. 	76 byte
User data per job (of which consistent), max.	1 variable
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	
• 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 CPLL may:	24/24
CPU, max. Standard communication (FMS)	
• supported	Yes; Via CP and loadable FB
Number of connections	165, via of and loadable i b
• 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,
Cumbal related wassages	Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes
Symbol-related messages	Yes
SCAN procedure	Yes
Program alarms 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	1 200
blocks, max.	
• preset, max.	300
Process control messages	Yes
Number of archives that can log on simultaneously (SFB 37 AR_SEND)	16
Number of messages	
• overall, max.	512
• in 100 ms grid, max.	128
• in 500 ms grid, max.	256
• in 1000 ms grid, max.	512
Number of additional values	
with 100 ms grid, max.	1
• with 500, 1000 ms grid, max.	10
Test commissioning functions	
Status block	Yes; Up to 16 simultaneously
Single step	Yes
Number of breakpoints	16
Status/control	
Status/control variable	Yes; Up to 16 variable tables
 Variables 	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Number of variables, max.	70; Status/control
Forcing	
• Forcing	Yes
 Forcing, variables 	Inputs, outputs, bit memories, peripheral inputs, peripheral outputs
Number of variables, max.	256
Diagnostic buffer	
• present	Yes
 Number of entries, max. 	3 200
— adjustable	Yes

aven of	120
— preset Service data	120
• can be read out	Yes
Standards, approvals, certificates	165
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 temperature during operation	
• min.	0 °C
• max.	60 °C
configuration / header	
Configuration software	
• 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
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
configuration / programming / number of simultaneously active	
— 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 configuration / programming / number of simultaneously active 	1; SFC 103; per interface SFR / header
— RDREC	8; SFB 52; per interface, but not more than 32 across all external interfaces
— WRREC	8; SFB 53; per interface, but not more than 32 across all external interfaces
Know-how protection	o, o. 2 so, por interiore, partier more than oz dolose all external interiores
User program protection/password protection	Yes
Block encryption	Yes; With S7 block Privacy
Dimensions	
Width	25 mm
Height	290 mm
Depth	219 mm
Weights	
Weight, approx.	700 g
last modified:	4/25/2024 🗗