SIEMENS

Data sheet

6ES7414-2XK05-0AB0



******* repair part ******* SIMATIC S7-400, CPU 414-2 central processing unit with: work memory 1 MB, (0.5 MB code, 0.5 MB data), 1st interface MPI/DP 12 Mbps, 2nd interface PROFIBUS DP

Figure similar

CPU 414-2	riguresiiiiia	
HW functional status 03 Firmware version V5.3 Product function • Isochronous mode Yes; For PROFIBUS only Engineering with • Programming package STEP 7 V5.3 SP2 or higher with HW update 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, max. 1.1 A from backplane bus 5 V DC, max. 1.1 A from backplane bus 2 V DC, max. 1.1 A from backplane bus 2 V DC, max. 90 mA; At each DP interface Fower loss. Power loss, typ. 4.5 W Memory Type of memory • integrated • integrated (for program) • integrated (for program) • integrated (for program) • integrated (for program) • integrated (for data) • expandable FEPROM, max. • expandable FEPROM, max. • expandable FEPROM, max. • expandable FEPROM, max. • expandable RAM, max. • expandable RAM • expandable RAM, max.	General information	
Firmware version V5.3 Product function • Isochronous mode Engineering with • Programming package STEP 7 V5.3 SP2 or higher with HW update CIR - Configuration in RUN CIR synchronization time, basic load 100 ms CIR synchronization time, the per I/O byte 15 µs Supply voltage Rated value (DC) Input current from backplane bus 5 V DC, typ. 4.1 A from backplane bus 5 V DC, max. 4.1 A from backplane bus 24 V DC, max. 4.1 A from backplane bus 24 V DC, max. 4.5 W Memory Type of memory Work memory • integrated (for data) • expandable FEPROM, max. • expandable FEPROM, max. • expandable FEPROM, max. • expandable RAM, max.	Product type designation	CPU 414-2
Product function I slochronous mode Ingineering with Programming package STEP 7 V5.3 SP2 or higher with HW update CIR - Configuration in RUN CIR synchronization time, basic load 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. 90 mA; 150 mA per DP interface Tom interface 5 V DC, max. 90 mA; At each DP interface Power loss. Power lo	HW functional status	03
e Isochronous mode Engineering with ● Programming package STEP 7 V5.3 SP2 or higher with HW update CIR - Configuration in RUN CIR synchronization time, basic load IOR synchronization time, basic load IOR synchronization time, time per I/O byte IS ps Supply voitage Rated value (DC) Power supply via system power supply Input current from backplane bus 5 V DC, typ. Ifom backplane bus 5 V DC, max. I.1 A from backplane bus 5 V DC, max. J.1 A from backplane bus 24 V DC, max. J.1 A from backplane bus 5 V DC, max. J.1 A from backplane for your max. J.1 A J.2 W Memory Type of memory Pype of memory Integrated (for program) Integrated (for program) Integrated (for data) J.5 Mbyte Integrated (for data) J.5 Mbyte J.5	Firmware version	V5.3
Engineering with Programming package STEP 7 V5.3 SP2 or higher with HW update CIR - Configuration in RUN CIR synchronization time, basic load 100 ms CIR synchronization time, basic load 100 ms CIR synchronization time, time per I/O byte 15 µs Supply voltage Rated value (DC) 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 5 V DC, max. 90 mA; 150 mA per DP Interface from interface 5 V DC, max. 90 mA; At each DP interface Power loss, typ. 4.5 W Memory Type of memory RAM Work memory integrated (for forgram) integrated (for forgram) integrated (for forgram) expandable Load memory expandable FEPROM expandable RAM expandable	Product function	
Programming package STEP 7 V5.3 SP2 or higher with HW update CIR - Configuration in RUN CIR synchronization time, basic load IS synchronization time, time per I/O byte I5 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 5 V DC, max. 90 mA; 150 mA per DP interface from interface 5 V DC, max. 90 mA; 41 each DP interface Power loss, typ. Memory Type of memory integrated integrated (1 hbyte integrated (for fotata) integrated (for fotata) expandable Power loss, Whyte expandable FEPROM expandable FEPROM expandable FEPROM, max. expandable FEPROM, max. expandable FAM, max. for higher and the first with Memory Card (FLASH) expandable RAM, max. for higher and the first with Memory Card (RAM) expandable RAM, max. for higher and the first without battery expressent expressent expressent expressent expressent expressent expressent expressert expr	Isochronous mode	Yes; For PROFIBUS only
CIR - Configuration in RUN CIR synchronization time, basic load CIR synchronization time, basic load CIR synchronization time, time per I/O byte 15 µs Supply voltage Rated value (DC)	Engineering with	
CiR synchronization time, basic load CiR synchronization time, time per I/O byte Supply voitage Rated value (DC) Input current from backplane bus 5 V DC, typ. from backplane bus 5 V DC, max. from backplane bus 24 V DC, max. from backplane bus 24 V DC, max. from backplane bus 24 V DC, max. from interface 5 V DC, max. Power loss, typ. Memory Type of memory Integrated integrated (for program) integrated (for data) expandable FEPROM expandable FEPROM, max. integrated RAM, max. integrat	 Programming package 	STEP 7 V5.3 SP2 or higher with HW update
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, typ. 4.5 W Memory Type of memory RAM Work memory • Integrated (for program) 0.5 Mbyte • Integrated (for data) 0.5 Mbyte • integrated (for data) 0.5 Mbyte • 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 • without battery	CiR - Configuration in RUN	
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 5 V DC, max. 300 mA; 150 mA per DP interface from interface 5 V DC, max. 90 mA; At each DP interface Power loss, typ. 4.5 W Memory Type of memory RAM Work memory integrated for data) 0.5 Mbyte integrated (for data) 0.5 Mbyte integrated (for data) 0.5 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 byte expandable RAM, max. 64 Mbyte Backup expandable RAM, max. 64 Mbyte	CiR synchronization time, basic load	100 ms
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 2 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 Memory Integrated for program 0.5 Mbyte integrated (for program) 0.5 Mbyte integrated (for data) 0.5 Mbyte 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 Yes; with Memory Card (RAM) expandable RAM, max. 64 Mbyte Backup expresent Yes without battery Yes; all data without battery without battery No Battery	CiR synchronization time, time per I/O byte	15 μs
Input current from backplane bus 5 V DC, typ. from backplane bus 5 V DC, max. from backplane bus 24 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, typ. 4.5 W Memory Type of memory integrated integrated (for program) integrated (for data) expandable expandable Load memory expandable FEPROM expandable FEPROM, max. 64 Mbyte expandable FEPROM, max. 64 Mbyte expandable RAM, max. 512 kbyte expandable RAM expan	Supply voltage	
from backplane bus 5 V DC, typ. from backplane bus 5 V DC, max. from backplane bus 24 V DC, max. 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. Memory Type of memory integrated 1 Mbyte integrated (for program) 0.5 Mbyte integrated (for data) 0.5 Mbyte expandable No Load memory expandable FEPROM Yes; with Memory Card (FLASH) expandable FEPROM, max. integrated RAM, max. integrated RAM, max. expandable RAM expandable RAM expandable RAM expandable RAM yes; with Memory Card (RAM) expandable RAM expandable RAM Yes; with Memory Card (RAM) expandable RAM, max. full Mbyte expandable RAM yes; with Memory Card (RAM) expandable RAM expandable RAM Yes; with Memory Card (RAM) expandable RAM expandable RAM Yes; with Memory Card (RAM) expandable RAM expandable RAM yes; with Memory Card (RAM) expandable RAM expandable RAM Yes; with Memory Card (RAM) expandable RAM	Rated value (DC)	Power supply via system power supply
from backplane bus 5 V DC, max. from backplane bus 24 V DC, max. from backplane bus 24 V DC, max. 90 mA; 150 mA per DP interface Power loss Power loss, typ. 4.5 W Memory Type of memory integrated integrated (for program) integrated (for data) expandable expandable Load memory expandable FEPROM expandable FEPROM, max. integrated RAM, max. integrated RAM, max. expandable RAM ex	Input current	
from backplane bus 24 V DC, max. from interface 5 V DC, max. Power loss Power loss, typ. Memory Type of memory vintegrated (for program) integrated (for data) integrated (for data) expandable FEPROM expandable FEPROM, max. vexpandable FEPROM, max. vexpandable FEPROM, max. vexpandable FEPROM, max. vexpandable FAM, max. vexpandable RAM expandable RAM expa	from backplane bus 5 V DC, typ.	0.9 A
from interface 5 V DC, max. Power loss Power loss, typ. 4.5 W Memory Type of memory integrated integrated (for program) integrated (for data) expandable expandable Load memory expandable FEPROM expandable FEPROM, max. expandable FEPROM, max. expandable FEPROM, max. expandable FEPROM, max. expandable FAM expandab	from backplane bus 5 V DC, max.	1.1 A
Power loss Power loss, typ. 4.5 W Memory Type of memory integrated integrated (for program) integrated (for data) expandable Load memory expandable FEPROM expandable FEPROM, max. integrated RAM, max. expandable FERAM expandable RAM expa	from backplane bus 24 V DC, max.	300 mA; 150 mA per DP interface
Power loss, typ. Memory Type of memory integrated integrated (for program) integrated (for data) integrated (for data) expandable Load memory expandable FEPROM expandable FEPROM, max. integrated RAM, max. expandable RAM expandable RAM expandable RAM expandable FEPROM for the data of the da	from interface 5 V DC, max.	90 mA; At each DP interface
Type of memory Work memory integrated integrated (for program) integrated (for data) expandable Load memory expandable FEPROM expandable FEPROM, max. integrated RAM, max. expandable RAM expandable RAM, max. 64 Mbyte Backup expandable RAM, max. 64 Mbyte Backup expandable RAM, max. 64 Mbyte Backup expandable RAM, max. 65 Migration RAM expandable RAM expandable RAM, max. 66 Mbyte Backup expandable RAM expandable RAM, max. 68 Mbyte Backup expandable RAM e	Power loss	
Type of memory Work memory integrated integrated (for program) integrated (for data) expandable No Load memory expandable FEPROM expandable FEPROM expandable FEPROM, max. integrated RAM, max. expandable RAM expandable RAM expandable RAM expandable RAM, max. for the state of	Power loss, typ.	4.5 W
Work memory integrated integrated (for program) integrated (for data) expandable Load memory expandable FEPROM expandable FEPROM, max. expandable FEPROM, max. fintegrated RAM, max. expandable RAM expandable RAM expandable RAM fintegrated RAM, max. fintegrated RAM, max. fintegrated RAM, max. fintegrated RAM fintegr	Memory	
 integrated integrated (for program) integrated (for data) expandable expandable expandable FEPROM expandable FEPROM, max. integrated RAM, max. expandable RAM expandable RAM expandable RAM, max. expa	Type of memory	RAM
 integrated (for program) integrated (for data) expandable No Load memory expandable FEPROM expandable FEPROM, max. expandable FEPROM, max. integrated RAM, max. expandable RAM expandable RAM expandable RAM, max. Backup present with battery with battery without battery Battery No Battery Battery	Work memory	
 integrated (for data) expandable No Load memory expandable FEPROM expandable FEPROM, max. integrated RAM, max. expandable RAM expandable RAM expandable RAM, max. Expandable RAM, max. expandable RAM, max. expandable RAM, max. full Memory Card (RAM) Expandable RAM, max. expandable RAM, max. full Memory Card (RAM) Expandable RAM, max. expandable RAM, max. full Memory Card (RAM) Expandable RAM, max. full Memory Card (RAM) Expandable RAM, max. full Memory Card (RAM) Expandable RAM, max. full Memory Card (RAM) Expandable RAM, max. full Memory Card (RAM) Expandable RAM, max. full Memory Card (RAM) Figure RAM full Memory Card (RAM)	integrated	1 Mbyte
 expandable Load memory expandable FEPROM expandable FEPROM, max. integrated RAM, max. expandable RAM expandable RAM expandable RAM, max. for the simple state of the	integrated (for program)	0.5 Mbyte
Load memory • expandable FEPROM • expandable FEPROM, max. • integrated RAM, max. • expandable RAM • expandable RAM • expandable RAM, max. • present • with battery • without battery • without battery • Battery Yes; with Memory Card (FLASH) 64 Mbyte 712 kbyte 723 yes; with Memory Card (RAM) 64 Mbyte 743 yes 744 yes 745 yes 745 yes 746 yes; all data 746 No	integrated (for data)	0.5 Mbyte
 expandable FEPROM expandable FEPROM, max. integrated RAM, max. expandable RAM expandable RAM expandable RAM, max. for the state of the st	expandable	No
 expandable FEPROM, max. integrated RAM, max. expandable RAM expandable RAM, max. 64 Mbyte Backup present with battery with battery without battery Battery 64 Mbyte Yes Without battery No Battery State of the properties of the properties	Load memory	
 integrated RAM, max. expandable RAM expandable RAM, max. 64 Mbyte Backup present with battery without battery without battery Battery 512 kbyte Yes; with Memory Card (RAM) 64 Mbyte Yes with Memory Card (RAM) Without Memory Card (RAM) Wes Wes Wes Wes Wes Wo Battery	expandable FEPROM	Yes; with Memory Card (FLASH)
 expandable RAM expandable RAM, max. 64 Mbyte Backup present with battery without battery without battery No Battery No	 expandable FEPROM, max. 	64 Mbyte
 expandable RAM, max. Backup present with battery without battery Without battery No Battery	integrated RAM, max.	512 kbyte
Backup • present • with battery • without battery No Battery	expandable RAM	Yes; with Memory Card (RAM)
 present with battery without battery No Battery	expandable RAM, max.	64 Mbyte
 with battery without battery No Battery	Backup	
• without battery No Battery	present	Yes
Battery	with battery	Yes; all data
	without battery	No
Backup battery	Battery	
	Backup battery	

D 1	405 4 4000
Backup current, typ.	125 μA; up to 40 °C
Backup current, max.	550 μΑ
Backup time, max.	See reference manual, module data, Chapter 3.3
Feeding of external backup voltage to CPU	5 V DC to 15 V DC
CPU processing times	
for bit operations, typ.	45 ns
for word operations, typ.	45 ns
for fixed point arithmetic, typ.	45 ns
for floating point arithmetic, typ.	135 ns
CPU-blocks	
DB	0.000 N. J. 10000
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
OB	
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
IEC timer	
• present	Yes

 Type 	SFB
Number	
Data areas and their retentivity	Unlimited (limited only by RAM capacity)
	Total working and load moment (with backup batton)
Retentive data area (incl. timers, counters, flags), max. Flag	Total working and load memory (with backup battery)
• Size, max.	8 kbyte; Size of bit memory address area
Retentivity available	Yes
•	MB 0 to MB 15
Retentivity presetNumber of clock memories	8; in 1 memory byte
Local data	o, in Timemory byte
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	
• Inputs	4 096
— of which central	4 096
 Outputs 	4 096
— of which central	4 096
Hardware configuration	
Integrated power supply	No
Number of expansion units, max.	21
connectable OPs	31
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 not suitable for use with CP 443-5 Ext. and CP 443-1 EX4x, EX20, GX20 (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; No mixed operation of CP443-1 EX40 and CP443-1 EX 41/EX20/GX20,
- VIG OI	max. 4 in central controller
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; Of which 10 CPs max. or IMs as DP master, 4 PROFINET controller
	maximum

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
• 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
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
Optical interface	No
1. Interface	
lata of a a trong	MANUFRACTION OF THE STATE OF THE
Interface type	MPI/PROFIBUS DP
Isolated	MPI/PROFIBUS DP Yes
Isolated Interface types	Yes
Isolated Interface types • RS 485	Yes
Isolated Interface types RS 485 Output current of the interface, max.	Yes
Isolated Interface types RS 485 Output current of the interface, max. Protocols	Yes Yes 150 mA
Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI	Yes Yes 150 mA Yes
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master	Yes Yes 150 mA Yes Yes
Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI	Yes Yes 150 mA Yes
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device	Yes Yes 150 mA Yes Yes
Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI	Yes Yes 150 mA Yes Yes Yes Yes
Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI	Yes Yes 150 mA Yes Yes Yes Yes Yes Yes Yes Ye
Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI • Number of connections • Transmission rate, max. Services	Yes Yes 150 mA Yes Yes Yes Yes Yes Yes Yes Ye
Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI • Number of connections • Transmission rate, max.	Yes Yes 150 mA Yes Yes Yes Yes Yes Yes Yes Ye
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services	Yes 150 mA Yes Yes Yes Yes Yes Yes Yes Yes Magnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s
Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI • Number of connections • Transmission rate, max. Services — PG/OP communication	Yes Yes 150 mA Yes Yes Yes Yes Yes Yes 12 Mbit/s Yes
Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI • Number of connections • Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication	Yes Yes 150 mA Yes Yes Yes Yes Yes Yes Yes Ye
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication	Yes Yes 150 mA Yes Yes Yes Yes Yes Yes Yes Ye
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication	Yes 150 mA Yes Yes Yes Yes Yes Yes 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 Yes Yes Yes Yes Yes Yes Yes Y
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI 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	Yes Yes 150 mA Yes Yes Yes Yes Yes Yes Yes Ye
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI 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	Yes 150 mA Yes Yes Yes Yes Yes 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 Yes Yes Yes Yes Yes Yes Yes Y
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI 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	Yes Yes 150 mA Yes Yes Yes Yes Yes Yes Yes Ye
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI 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	Yes 150 mA Yes Yes Yes Yes Yes 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 Yes Yes Yes Yes Yes Yes Yes Y
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI 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.	Yes Yes Yes Yes Yes Yes Yes Yes
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI 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.	Yes 150 mA Yes Yes Yes Yes Yes Yes 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 Yes Yes Yes Yes Yes Yes Yes Y
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI 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 Number of connections, max. Transmission rate, max. Transmission rate, max.	Yes 150 mA Yes Yes Yes Yes Yes Yes 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 Yes Yes Yes Yes Yes Yes Yes Y
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI 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 S7 communication, as client S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max. max. number of DP devices Services	Yes Yes Yes Yes Yes Yes Yes Yes
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI 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 S7 communication, as client S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max. max. number of DP devices Services PG/OP communication	Yes Yes Yes Yes Yes Yes Yes Yes

— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication — S7 communication, as client	Yes
— S7 communication, as crieft — S7 communication, as server	Yes
— 57 communication, as server — Equidistance	Yes
Equidistance Isochronous mode	Yes
— SYNC/FREEZE	
	Yes Yes
— activation/deactivation of DP devices	
Direct data exchange (slave-to-slave communication)	Yes
— DPV1	Yes
Address area	014.4-
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
1st interface / DP master / payload data per DP Device / heade	
— user data per DP device, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244 420 hada
— per slot, max.	128 byte
1st interface / PROFIBUS DP device / header	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	No
communication) — DPV1	No
	No
Transfer memory	244 buto
— Inputs	244 byte
— Outputs	244 byte
2. Interface	DDOCIDI IS DD
Interface type Isolated	PROFIBUS DP Yes
	res
Interface types	Von
RS 485 Output current of the interface, may	Yes
Output current of the interface, max. Protocols	150 mA
Protocols • PROFIBUS DP master	Von
PROFIBUS DP master PROFIBUS DP device	Yes
PROFIBUS DP device	Yes
	16
Number of connections, max. Transmission rate, max.	12 Mbit/s
Transmission rate, max. max number of DR devices.	
max. number of DP devices Services	96
Services	Von
— PG/OP communication	Yes
— Routing	Yes; S7 routing
— Global data communication	No V
— S7 basic communication	Yes
S7 communication	Yes

 S7 communication, as client 	Yes
— S7 communication, as circle — 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.	6 kbyte
— Outputs, max.	6 kbyte
2nd interface / DP master / payload data per DP Device / head	
— user data per DP device, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max. 2nd interface / PROFIBUS DP device / header	128 byte
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
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
Protocols	
SIMATIC communication	
S7 routing	Yes
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
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	V
PG/OP communication	Yes
Number of connectable OPs without message processing Number of connectable OPs with message processing.	31 21: When using Alarm, S/SO and Alarm, D/DO
Number of connectable OPs with message processing Data record routing	31; When using Alarm_S/SQ and Alarm_D/DQ Yes
Global data communication	165
supported	Yes
Number of GD loops, max.	8
Number of GD packets, transmitter, max.	8
Number of GD packets, transmitter, max. Number of GD packets, receiver, max.	16
Size of GD packets, max.	54 byte
Size of GD packets, max. 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, max. User data per job (of which consistent), max.	1 variable
S7 communication	

arrange d	Ver
• 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 CPU, max. 	24/24
Standard communication (FMS)	
• supported	Yes; Via CP and loadable FB
Number of connections	Too, Via of and todadable TB
• overall	32
usable for PG communication	31
reserved for PG communication	1
adjustable for PG communication, max.	0
usable for OP communication	31
reserved for OP communication	1
adjustable for OP communication, max.	0
usable for S7 basic communication	30
reserved for S7 basic communication	0
adjustable for S7 basic communication, max.	0
usable for S7 communication	30
— reserved for S7 communication	0
adjustable for S7 communication, max.	0
usable for routing	15
— reserved for routing	0
adjustable for routing, max.	0
S7 message functions	
Number of login stations for message functions, max.	31; Max. 31 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm_8
	and Alarm_P (e.g. WinCC)
Symbol-related messages	Yes
SCAN procedure	Yes
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 blocks, max. 	1 200
DIUCKS, IIIAX.	
• preset, max.	300
preset, max. Process control messages	300 Yes
• preset, max.	300
preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37)	300 Yes
preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND)	300 Yes
 preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages 	300 Yes 16
 preset, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages overall, max. 	300 Yes 16
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.	300 Yes 16 512 128
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. in 500 ms grid, max.	300 Yes 16 512 128 256
 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. in 500 ms grid, max. in 1000 ms grid, max. 	300 Yes 16 512 128 256
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. in 500 ms grid, max. in 1000 ms grid, max. Number of additional values	300 Yes 16 512 128 256 512
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. in 500 ms grid, max. in 1000 ms grid, max. with 100 ms grid, max.	300 Yes 16 512 128 256 512
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. in 500 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.	300 Yes 16 512 128 256 512
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. in 500 ms grid, max. in 1000 ms grid, max. with 100 ms grid, max. Number of additional values with 100 ms grid, max. with 500, 1000 ms grid, max. Test commissioning functions	300 Yes 16 512 128 256 512 1 10
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. in 500 ms grid, max. in 1000 ms grid, max. with 100 ms grid, max. Number of additional values with 100 ms grid, max. with 500, 1000 ms grid, max. Status block	300 Yes 16 512 128 256 512 1 10 Yes; Up to 2 simultaneously
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. in 1000 ms grid, max. in 1000 ms grid, max. with 100 ms grid, max. Number of additional values with 100 ms grid, max. with 500, 1000 ms grid, max. Status block Single step	300 Yes 16 512 128 256 512 1 10 Yes; Up to 2 simultaneously Yes
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. in 500 ms grid, max. in 1000 ms grid, max. with 100 ms grid, max. Number of additional values with 100 ms grid, max. with 500, 1000 ms grid, max. Test commissioning functions Status block Single step Number of breakpoints	300 Yes 16 512 128 256 512 1 10 Yes; Up to 2 simultaneously Yes
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. in 500 ms grid, max. in 1000 ms grid, max. with 100 ms grid, max. Number of additional values with 100 ms grid, max. with 500, 1000 ms grid, max. Status block Single step Number of breakpoints Status/control	300 Yes 16 512 128 256 512 1 10 Yes; Up to 2 simultaneously Yes 4
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. in 500 ms grid, max. in 1000 ms grid, max. with 100 ms grid, max. Number of additional values with 100 ms grid, max. with 500, 1000 ms grid, max. Test commissioning functions Status block Single step Number of breakpoints Status/control Status/control variable	300 Yes 16 512 128 256 512 1 10 Yes; Up to 2 simultaneously Yes 4 Yes; Up to 16 variable tables

- Farring	Ven
• Forcing	Yes
Forcing, variables Alumber of variables, may	Inputs, outputs, bit memories, peripheral inputs, peripheral outputs
Number of variables, max.	256
Diagnostic buffer	V
• present	Yes
Number of entries, max.	400
— adjustable	Yes
— preset	120
Service data	· ·
• can be read out	Yes
Standards, approvals, certificates	· ·
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	re SFC / header
— 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
— DP_TOPOL	1; SFC 103; per interface
	re SFB / header
configuration / programming / number of simultaneously active	
configuration / programming / number of simultaneously activ — RDREC	8; SFB 52; per interface, but not more than 32 across all external interfaces
— RDREC	8; SFB 52; per interface, but not more than 32 across all external interfaces
— RDREC — WRREC	8; SFB 52; per interface, but not more than 32 across all external interfaces
— RDREC — WRREC Know-how protection	8; SFB 52; per interface, but not more than 32 across all external interfaces 8; SFB 53; per interface, but not more than 32 across all external interfaces

Height	290 mm
Depth	219 mm
Weights	
Weight, approx.	700 g

last modified: 5/22/2024 🖸