SIEMENS

Data sheet

6ES7412-2XK07-0AB0



SIMATIC S7-400, CPU 412-2 Central processing unit with: Work memory 1 MB, (0.5 MB code; 0.5 MB data) 1st interface MPI/DP 12 Mbit/s, 2nd interface PROFIBUS DP,

General information	
Product type designation	CPU 412-2
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	30 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 	1 Mbyte
 integrated (for program) 	512 kbyte
 integrated (for data) 	512 kbyte
• 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 μΑ
Backup time, max.	Dealt with in the module data manual with the secondary conditions and the factors of influence
 Feeding of external backup voltage to CPU 	5 V DC to 15 V DC
CPU processing times	
for bit operations, typ.	31.25 ns
for word operations, typ.	31.25 ns
for fixed point arithmetic, typ.	31.25 ns
for floating point arithmetic, typ.	62.5 ns
CPU-blocks	
DB	
Number, max.	3 000; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	,
Number, max.	1 500; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
Number, max.	1 500; Number range: 0 to 7999
• Size, max.	64 kbyte
OB OB	
Number, max.	see instruction list
• Size, max.	64 kbyte
Number of free cycle OBs	1; OB 1
Number of time alarm OBs	2; OB 10, 11
Number of delay alarm OBs	2; OB 20, 21
Number of cyclic interrupt OBs	2; OB 32, 35 (shortest cycle that can be set = $500 \ \mu s$)
Number of process alarm OBs	2; OB 40, 41
Number of DPV1 alarm OBs	3; OB 55-57
Number of isochronous mode OBs	2; OB 61-62
 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	
	Yes
present	100

• Туре	SFB
Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	Total working and load memory (with backup battery)
Flag	
• Size, max.	4 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.	8 kbyte
• preset	4 kbyte
\ddress area	
I/O address area	
Inputs	4 kbyte
Outputs	4 kbyte
Process image	
Inputs, adjustable	4 kbyte
Outputs, adjustable	4 kbyte
Inputs, default	128 byte
Outputs, default	128 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	32 768
— of which central	32 768
Outputs	32 768
— of which central	32 768
Analog channels	
Inputs	2 048
- of which central	2 048
Outputs	2 048
— of which central	2 048
lardware configuration	
Number of expansion units, max.	21
connectable OPs	47
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 460s, max.	4; IM 463-2
Number of DP masters	1, III TOO 2
integrated	2
Integrated via CP	2 10; CP 443-5 Extended
• via CF • via IM 467	4
Mixed mode IM + CP permitted	4 No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in
• Mixed mode ini + CF permitted	PROFINET IO mode
• via interface module	0
Number of pluggable S5 modules (via adapter capsule in	6
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
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 slots and 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
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	200 113
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	2, combined with the bos bit and ther bos bit
	MPI/PROFIBUS DP
Interface type Isolated	Yes
Interface types	
	Vec
• RS 485	Yes
RS 485Output current of the interface, max.	Yes 150 mA
RS 485 Output current of the interface, max. Protocols	150 mA
RS 485 Output current of the interface, max. Protocols MPI	150 mA Yes
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master	150 mA Yes Yes
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device	150 mA Yes
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI	150 mA Yes Yes Yes
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device	150 mA Yes Yes
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI	150 mA Yes Yes Yes 32; If a diagnostics repeater is used on the line, the number of connection
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections	150 mA 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
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max.	150 mA 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
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services	150 mA 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
 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 	150 mA 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
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	150 mA 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
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	150 mA 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
 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 	150 mA 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
 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 	150 mA 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
 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, as client 	150 mA 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
 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, as client — S7 communication, as server 	150 mA 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
 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, as client S7 communication, as server PROFIBUS DP master 	150 mA 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
 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, as client S7 communication, as server PROFIBUS DP master Number of connections, max. 	150 mA 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
 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, as client — S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max. 	 150 mA 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
 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, as client S7 communication, as server PROFIBUS DP master Number of connections, max. 	 150 mA 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
 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, as client S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max. 	150 mA 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
 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 S7 basic communication S7 communication S7 communication, as client S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max. Transmission rate, max. 	150 mA 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

— 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 communication) 	Yes
— DPV1	Yes
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
PROFIBUS 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	Yes
	Yes
— S7 communication, as server	
 Direct data exchange (slave-to-slave communication) DPV1 	No
	No
Transfer memory	044 h to
— Inputs	244 byte
— Outputs	244 byte
— Outputs 2. Interface	
2. Interface Interface type	PROFIBUS DP
2. Interface Interface type Isolated	
2. Interface Interface type Isolated Interface types	PROFIBUS DP Yes
2. Interface Interface type Isolated	PROFIBUS DP
2. Interface Interface type Isolated Interface types	PROFIBUS DP Yes
2. Interface Interface type Isolated Interface types • RS 485	PROFIBUS DP Yes Yes
2. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max.	PROFIBUS DP Yes Yes
2. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols	PROFIBUS DP Yes Yes 150 mA
2. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • PROFIBUS DP master	PROFIBUS DP Yes Yes 150 mA Yes
2. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • PROFIBUS DP master • PROFIBUS DP device	PROFIBUS DP Yes Yes 150 mA Yes
2. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • PROFIBUS DP master • PROFIBUS DP device PROFIBUS DP master	PROFIBUS DP Yes Yes 150 mA Yes Yes
2. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • PROFIBUS DP master • PROFIBUS DP device PROFIBUS DP master • Number of connections, max.	PROFIBUS DP Yes Yes 150 mA Yes Yes Yes
2. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • PROFIBUS DP master • PROFIBUS DP device PROFIBUS DP master • Number of connections, max. • Transmission rate, max.	PROFIBUS DP Yes Yes 150 mA Yes Yes Yes 16 12 Mbit/s
2. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • PROFIBUS DP master • PROFIBUS DP device PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices	PROFIBUS DP Yes Yes 150 mA Yes Yes Yes 16 12 Mbit/s
2. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • PROFIBUS DP master • PROFIBUS DP device PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices Services	PROFIBUS DP Yes Yes 150 mA Yes Yes 16 12 Mbit/s 64
2. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • PROFIBUS DP master • PROFIBUS DP device PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices Services — PG/OP communication	PROFIBUS DP Yes Yes 150 mA Yes Yes Yes 16 12 Mbit/s 64
2. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • PROFIBUS DP master • PROFIBUS DP device PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • Transmission rate, max. • max. number of DP devices Services — PG/OP communication — Routing	PROFIBUS DP Yes Yes 150 mA Yes Yes Yes 16 12 Mbit/s 64 Yes Yes; S7 routing
2. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • PROFIBUS DP master • PROFIBUS DP device PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • Transmission rate, max. • max. number of DP devices Services — PG/OP communication — Routing — Global data communication	PROFIBUS DP Yes Yes 150 mA Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
2. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • PROFIBUS DP master • PROFIBUS DP device PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • Transmission rate, max. • max. number of DP devices Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication	PROFIBUS DP Yes Yes 150 mA Yes Yes Yes Yes Yes Yes Yes Yes Yes S7 routing No Yes Yes Yes
2. Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • PROFIBUS DP master • PROFIBUS DP device PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • Transmission rate, max. • max. number of DP devices Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client	PROFIBUS DP Yes Yes 150 mA Yes Yes Yes Yes Yes Yes Yes Yes Yes; S7 routing No Yes Yes Yes Yes Yes
2. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • PROFIBUS DP master • PROFIBUS DP device PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication, as client — S7 communication, as server	PROFIBUS DP Yes Yes 150 mA Yes Yes Yes Yes Yes Yes Yes Yes Yes; S7 routing No Yes Yes Yes Yes Yes Yes
2. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • PROFIBUS DP master • PROFIBUS DP device PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication, as client — S7 communication, as server — Equidistance	PROFIBUS DP Yes Yes 150 mA Yes Yes Yes 16 12 Mbit/s 64 Yes Yes; S7 routing No Yes Yes Yes Yes Yes Yes
2. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • PROFIBUS DP master • PROFIBUS DP device PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices Services - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication - S7 communication, as client - S7 communication, as server - Equidistance - Isochronous mode	PROFIBUS DP Yes
2. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • PROFIBUS DP master • PROFIBUS DP device PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • max. number of DP devices Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication, as client — S7 communication, as server — Equidistance	PROFIBUS DP Yes Yes 150 mA Yes Yes

Is a constrained of the second of the s	 Direct data exchange (slave-to-slave 	Yes
→ DPV1 Yes Address area		
 - Inputs max. 4 style - Outputs max. 4 style - User data per DP device, max. 2 44 byle Outputs, max. - Outputs, max. - Outputs, max. Outputs, max. Outputs, max. 	— DPV1	Yes
- Orgotas max. 4 skyle User data per DP device, max. 244 byte - linguta, max. 244 byte - linguta, max. 244 byte - Stots, max. 244 byte - Stots, max. 244 byte - Stots, max. 244 byte - Stots, max. 128 byte PROCENTS DF device PROCENTS DF device PROCENTS DF device PROCENTS DF device - Stots, max. 224 byte - Number of connectors 1 - Number of connectors 2 - Address area, max. 22 byte - advector	Address area	
User data per DP Java	— Inputs, max.	4 kbyte
 	— Outputs, max.	4 kbyte
 - Inputs. max. - Outputs. max. - Outputs. max. - Der sol, provide - Der sol, provide - Der sol, max. - Der sol, max. - Der sol, provide - Der sol, max. - Der sol, max.	User data per DP slave	
- Outputs, max. 244 byte - Stors, max. 284 byte PROFILIUS DP date PROFILIUS DP date P	— user data per DP device, max.	244 byte
 - Sios, max. - Sios, max. 128 byte PROFIBUS DP slave Number of connections 16 IntroStapport automation stimutes cont/WW/stavisnt13252 Transmission rate, max. 12 Multis - Address area, max. 32 byte - of which consistent, max. 32 byte Service - Rouling Yes, with interface active - Rouling Yes, with interface active - Rouling - Rouling Yes, with interface active - Rouling Yes - Orab length, max. 424 byte - Orab length, max. 424 byte - Orab length, max. 425 bytes via CP 443-1 and loadable FB - Orab length, max. - Stoon-TCP (RFC1006) - Ves - Orab length, max. - Stoon-TCP (RFC1006) - Ves - Orab length, max. - Stoon-TCP (RFC1006) - Ves - Number of CP matters with isochronous mode - Stoon-TCP (RFC1006) - Ves - Number of Connectable OPs with onessage processing - Number of Connectable OPs with message processing - Number of Connectable OPs with message processing 	— Inputs, max.	244 byte
— per kid. max. 128 byte PROFIBUS DP stars. 15 • Number of connections 15 • Transmission rate, max. 120 bibls • Address area, max. 32 • User of tape raddress area, max. 32 byte - of which consistent, max. 32 byte Services - - Pouling Yes: with interface active Transfer memory - - Pouling Yes: with interface active Transfer memory - - Pouling Yes: with interface active Transfer memory - - Poulputs 244 byte - Outputs 244 byte - Outputs 1452 bytes via CP 443-1 and loadable FB - Data length, max. 1452 bytes via CP 443-1 Adv. Web saver - - Start length with isochronous sime, max. 244 byte - Data length, max. 1452 bytes via CP 443-1 Adv. Web saver - - Start of DP masters with isochronous sime, max. 244 byte - Data length, max. 24 byte Vebrot of D	— Outputs, max.	244 byte
PROCREMUS DP save 16 • Number of connections 16 • Transmission rate, max. 12 Mbifs • Address area, max. 12 Mbifs • User data per address area, max. 32 byte • Of which consistent, max. 32 byte • Of which consistent, max. 32 byte • Of which consistent, max. 32 byte • Organization 42 byte • Organization 42 byte • Strong Communication • Strong Communication • Strong Communication 42 byte size CP 443-1 and loadable FB • Organization • Ves • Supported No Macheronous mode 2 • Equidistance Yes • Contendation Yes Number of DP masters with incohronous mode 2 • Equidistance 1.5 m; 0.5 m without use of SPC 126, 127 <td< td=""><td>— Slots, max.</td><td>244</td></td<>	— Slots, max.	244
• Number of connections 16 • CSD file Transmission rate, max. • Transmission rate, max. 12 Mbb/s • Address area, max. 32 • User data per address area, max. 32 • of which consistent, max. 32 byle Services	— per slot, max.	128 byte
• GSD filehttp://support automation aiemans.com/WW/sen/en/113652• Transmission rate, max.12 Molis• Address area, max.32 byte• User data per address area, max.32 byte• - Routing2 byteServices RoutingYes; with interface active Routing244 byte- Outpuds244 byte- Outpuds244 byte- Outpuds144 byte- RoutingYes- StructingYes- StructingYes- StructingYes- Dota length, max.1452 bytes via CP 443-1 and loadable FB- Data length, max.1452 bytes via CP 443-1 Adv.Web server StructingYes- StructingYes- StructingYes- Outpuds2Stortextow kop kubi2- Data length, max.1452 bytes via CP 443-1 Adv.Web server SupportedNoStortextow kubi lacchronous ande2- RoutingYesNumber of CP Restores area, max.24 byte- Stortextow kubi lacchronous ande2- Stortextow kubi lacchronous ande2 <t< td=""><td>PROFIBUS DP slave</td><td></td></t<>	PROFIBUS DP slave	
• Transmission rate, max.12 Mbt/s• Address area, max.32• User data per address area, max.32 byte- or which consistent, max.32 byteServices RoutingYes; with interface activeTransfer memory Inputs244 byte- Outputs244 byteProtocolsStandardSIMATIC communication-Services-Simatic communication-• Size or CP (RFC1008)Via CP 443-1 and loadable FB- Data length, max.1432 bytes via CP 443-1 Adv.Web server-• supportedNoIsochronous mode2Liser data per job (with consistent, max.244 byteshortest clock pulse1.5 ms; 0.5 ms without use of SFC 126, 127max cycle32 mscommunicationYesPCOP CommunicationYesNumber of CP masters with isochronous mode2User data per job (mouts interace)47Number of Connectable OPs with message processing47• Number of Connectable OPs with message processing47• Number of GD packets, max.54 byte• Size of GD packet, strasmitter, max.8• Size of GD packet, forwink, max.44 byte• Size of GD packets, reaver, max.16• Size of GD packet, forwink, max.4 byte• Size of GD packet, forwink, max.4 byte• Size of GD packet, forwink, max.4 byte• Size of GD packet, forwink, max.4 byte <t< td=""><td>Number of connections</td><td>16</td></t<>	Number of connections	16
• Address area, max.32• User data per address area, max.32 byte Orthich consistent, max.32 byteServices RoulingYes, with interface activeTransfer memory Inputs244 byte Outputs244 byteProtocolsSIMATIG communication ST routingYesOpen LE communication Data langth, max.1452 bytes via CP 443-1 and loadable FB Data langth, max.1452 bytes via CP 443-1 Adv.Web server SuportedNoIscon-Fro? (RFC 1006)VesNumber of DP masters with isochronous mode2Quert data per isochronous slave, max.244 byte SuportedNoIsochronous mode2OutputPGIOP communicationYesNumber of DP masters with isochronous mode2OutputNumber of cornectable OPs without message processing47Number of cornectable OPs without message processing47Number of CD packets, transmitter, max.8Number of CD packets, transmitter, max.8Number of CD packets, transmitter, max.8Number of CD packets, transmitter, max.4Stored of CD packets, transmitter, max.8Number of CD packets, transmitter, max.1 variableStored of Dpackets, transmitter, max.4Ves-SupportedYesVes of GD packets, tran	• GSD file	http://support.automation.siemens.com/WW/view/en/113652
• User data per address area, max.32 byte- of which consistent, max.32 byteServices RoutingYes Inputs244 byte- Outputs244 byte- Outputs244 byte- Outputs244 byteProtocols-Services-<	 Transmission rate, max. 	12 Mbit/s
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• supportedYes• as serverYes• as clientYes• User data per job, max.64 kbyte• User data per job (of which consistent), max.462 byte; 1 variable	communication functions / header 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. • Number of GD packets, receiver, max. • Size of GD packets, max. • Size of GD packet (of which consistent), max. S7 basic communication • supported • User data per job, max.	47 47; When using Alarm_S/SQ and Alarm_D/DQ Yes 9 8 8 16 54 byte 1 variable Yes 76 byte
• 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	communication functions / header 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. • Number of GD packets, receiver, max. • Size of GD packets, max. • Size of GD packets, max. • Size of GD packet (of which consistent), max. S7 basic communication • supported • User data per job, max. • User data per job (of which consistent), max.	47 47; When using Alarm_S/SQ and Alarm_D/DQ Yes 9 8 8 16 54 byte 1 variable Yes 76 byte
• as clientYes• User data per job, max.64 kbyte• User data per job (of which consistent), max.462 byte; 1 variable	communication functions / header 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. • Number of GD packets, receiver, max. • Size of GD packets, max. • Size of GD packet (of which consistent), max. S7 basic communication • supported • User data per job, max. • User data per job (of which consistent), max. S7 communication	47 47; When using Alarm_S/SQ and Alarm_D/DQ Yes Yes 8 8 8 16 54 byte 1 variable Yes 76 byte 1 variable
• User data per job, max.64 kbyte• User data per job (of which consistent), max.462 byte; 1 variable	communication functions / header 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. • Number of GD packets, receiver, max. • Size of GD packets, max. • Size of GD packet (of which consistent), max. S7 basic communication • supported • User data per job, max. • User data per job (of which consistent), max. S7 communication	47 47; When using Alarm_S/SQ and Alarm_D/DQ Yes Yes 8 8 8 16 54 byte 1 variable Yes 76 byte 1 variable
User data per job (of which consistent), max. 462 byte; 1 variable	communication functions / header 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. • Number of GD packets, receiver, max. • Size of GD packets, max. • Size of GD packets, max. • Size of GD packet (of which consistent), max. S7 basic communication • supported • User data per job, max. • User data per job (of which consistent), max. S7 communication • supported • User data per job (of which consistent), max.	47 47; When using Alarm_S/SQ and Alarm_D/DQ Yes Yes 8 8 8 16 54 byte 1 variable Yes 76 byte 1 variable
	communication functions / header 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. • Number of GD packets, receiver, max. • Size of GD packets, max. • Size of GD packets, max. • Size of GD packet (of which consistent), max. S7 basic communication • supported • User data per job, max. • User data per job (of which consistent), max. S7 communication • supported • as server • as client	47 47; When using Alarm_S/SQ and Alarm_D/DQ Yes Yes 8 8 16 54 byte 1 variable Yes 76 byte 1 variable Yes
S5 compatible communication	communication functions / header 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. • Number of GD packets, receiver, max. • Size of GD packets, max. • Size of GD packets, max. • Size of GD packet (of which consistent), max. S7 basic communication • supported • User data per job, max. • User data per job (of which consistent), max. S7 communication • supported • as server • as client • User data per job, max.	47 47; When using Alarm_S/SQ and Alarm_D/DQ Yes Yes 8 8 16 54 byte 1 variable Yes 76 byte 1 variable Yes 76 byte 1 variable
	communication functions / header 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. • Number of GD packets, receiver, max. • Size of GD packets, max. • Size of GD packets, max. • Size of GD packet (of which consistent), max. S7 basic communication • supported • User data per job, max. • User data per job (of which consistent), max. S7 communication • supported • as server • as client • User data per job, max. • User data per job (of which consistent), max.	47 47; When using Alarm_S/SQ and Alarm_D/DQ Yes Yes 8 8 16 54 byte 1 variable Yes 76 byte 1 variable Yes Yes Yes

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	24/24
CPU, max.	
Standard communication (FMS)	
supported	Yes; Via CP and loadable FB
Number of connections	
• overall	48
 usable for PG communication 	47
 reserved for PG communication 	1
 — adjustable for PG communication, max. 	0
 usable for OP communication 	47
 reserved for OP communication 	1
 — adjustable for OP communication, max. 	0
 usable for S7 basic communication 	46
 reserved for S7 basic communication 	0
 — adjustable for S7 basic communication, max. 	0
 usable for S7 communication 	46
 reserved for S7 communication 	0
 adjustable for S7 communication, max. 	0
 usable for routing 	23
- reserved for routing	0
 adjustable for routing, max. 	0
S7 message functions	
Number of login stations for message functions, max.	47; Max. 47 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
Program alarms	Yes
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	250; 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. 	300
• preset, max.	150
Process control messages	Yes
Number of archives that can log on simultaneously (SFB 37 AR_SEND)	4
Number of messages	
• overall, max.	256
• in 100 ms grid, max.	0
● in 500 ms grid, max.	256
● in 1000 ms grid, max.	256
Number of additional values	
 with 100 ms grid, max. 	0
• with 500, 1000 ms grid, max.	1
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.	64
Diagnostic buffer	
• present	Yes
Number of entries, max.	3 200

— adjustable	Yes
— adjustable — 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° 0
• max.	0° 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	Vac
	Yes
— FBD — STL	Yes
— STL — SCL	Yes
— 36L — 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	1; SFC 103; per interface
configuration / programming / number of simultaneously active	SFB / 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	
 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
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