## SIEMENS

## Data sheet

## 6ES7412-1XJ05-0AB0



\*\*\*\*\*\*\*\*\* Replacement part \*\*\*\*\*\*\*\* SIMATIC S7-400, CPU 412-1 Central processing unit with: work memory 288 KB, (144 KB code, 144 KB of data), Interface MPI/DP 12 Mbit/s,

General information	
Product type designation	CPU 412-1
HW functional status	03
Firmware version	V5.3
Product function	
Isochronous mode	Yes; For PROFIBUS only
Engineering with	
<ul> <li>Programming package</li> </ul>	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	30 µs
Supply voltage	
Rated value (DC)	Power supply via system power supply
Input current	
from backplane bus 5 V DC, typ.	0.5 A
from backplane bus 5 V DC, max.	0.6 A
from backplane bus 24 V DC, max.	150 mA; 150 mA per DP interface
from interface 5 V DC, max.	90 mA
Power loss	
Power loss, typ.	2.5 W
Power loss, max.	3 W
Memory	
Type of memory	RAM
Work memory	
integrated	288 kbyte
<ul> <li>integrated (for program)</li> </ul>	144 kbyte
<ul> <li>integrated (for data)</li> </ul>	144 kbyte
expandable	No
Load memory	
expandable FEPROM	Yes; with Memory Card (FLASH)
<ul> <li>expandable FEPROM, max.</li> </ul>	64 Mbyte
<ul> <li>integrated RAM, max.</li> </ul>	512 kbyte
expandable RAM	Yes; with Memory Card (RAM)
<ul> <li>expandable RAM, max.</li> </ul>	64 Mbyte
Backup	
• present	Yes
with battery	Yes; all data
without battery	No
Battery	
Backup battery	

Backup current, typ.	125 μA; up to 40 °C
Backup current, max.	300 µA
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.	75 ns
for word operations, typ.	75 ns
for fixed point arithmetic, typ.	75 ns
for floating point arithmetic, typ.	225 ns
CPU-blocks	
DB	
Number, max.	1 500; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
Number, max.	750; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
<ul> <li>Number, max.</li> </ul>	750; 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
<ul> <li>Number of time alarm OBs</li> </ul>	2; OB 10, 11
<ul> <li>Number of delay alarm OBs</li> </ul>	2; OB 20, 21
<ul> <li>Number of cyclic interrupt OBs</li> </ul>	2; OB 32, 35 (shortest cycle that can be set = 500 µs)
<ul> <li>Number of process alarm OBs</li> </ul>	2; OB 40, 41
<ul> <li>Number of DPV1 alarm OBs</li> </ul>	3; OB 55-57
<ul> <li>Number of isochronous mode OBs</li> </ul>	2; OB 61-62
<ul> <li>Number of multicomputing OBs</li> </ul>	1; OB 60
Number of background OBs	1; OB 90
Number of startup OBs	3; OB 100-102
<ul> <li>Number of asynchronous error OBs</li> </ul>	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	2 040
	Yes
— adjustable — lower limit	0
— upper limit	2 047
	Z 0 to Z 7
- preset	
Counting range — lower limit	0
	0
— upper limit	999
IEC counter	Vee
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
S7 times	
Number	2 048
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	2 047
— preset	No times retentive
Time range	

Lauran Barté	10
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	Vee
• present	Yes SFB
• Type	
Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	Tatal walding and load manager (with basiling batter)
Retentive data area (incl. timers, counters, flags), max.	Total working and load memory (with backup battery)
Flag	4 July day Circo of hit managery address area
• 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	0 librate
• adjustable, max.	8 kbyte
• preset	4 kbyte
Address 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
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	1
• 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
<ul> <li>Number of pluggable S5 modules (via adapter capsule in central device), max.</li> </ul>	6
Number of IO Controllers	
integrated	0
• via CP	4; No mixed operation of CP443-1 EX40 and CP443-1 EX 41/EX20/GX20,
	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 slots and number of connections
PROFIBUS and Ethernet CPs	14; Of which 10 CPs max. or IMs as DP master, 4 PROFINET controller maximum
Slots	
<ul> <li>required slots</li> </ul>	1
ime of day	
Clock	
<ul> <li>Hardware clock (real-time)</li> </ul>	Yes
<ul> <li>retentive and synchronizable</li> </ul>	Yes
Resolution	1 ms
<ul> <li>Deviation per day (buffered), max.</li> </ul>	1.7 s; Power off
<ul> <li>Deviation per day (unbuffered), max.</li> </ul>	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
• to MPI, slave	Yes
• to DP, master	Yes
• to DP, slave	Yes
• in AS, master	Yes
• in AS, slave	Yes
<ul> <li>on Ethernet via NTP</li> </ul>	No; Via CP
• to IF 964 DP	No
Time difference in system when synchronizing via	
• MPI, max.	200 ms
nterfaces	
Interfaces/bus type	1 x MPI/PROFIBUS DP
Number of RS 485 interfaces	1; Combined MPI / PROFIBUS DP
Optical interface	No
. Interface	
Interface type	MPI/PROFIBUS DP
Isolated	Yes
Interface types	
RS 485	
<ul> <li>Output current of the interface, max.</li> </ul>	Yes
	Yes 150 mA
Protocols	Yes 150 mA
Protocols	150 mA
• MPI	150 mA Yes
MPI     PROFIBUS DP master	150 mA Yes Yes
<ul><li>MPI</li><li>PROFIBUS DP master</li><li>PROFIBUS DP slave</li></ul>	150 mA Yes
MPI     PROFIBUS DP master	150 mA Yes Yes Yes 32; If a diagnostics repeater is used on the line, the number of connection
MPI     PROFIBUS DP master     PROFIBUS DP slave  MPI     Number of connections	150 mA         Yes         Yes         Yes         Yes         Yes         Yes         Yes         Yes         Second State         Yes         Yes
MPI     PROFIBUS DP master     PROFIBUS DP slave  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
MPI     PROFIBUS DP master     PROFIBUS DP slave  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
MPI     PROFIBUS DP master     PROFIBUS DP slave  MPI     Number of connections     Transmission rate, max.     Services     — PG/OP communication	150 mA         Yes
MPI     PROFIBUS DP master     PROFIBUS DP slave  MPI     Number of connections     Transmission rate, max.     Services    PG/OP communication    Routing	150 mA         Yes
MPI     PROFIBUS DP master     PROFIBUS DP slave  MPI     Number of connections     Transmission rate, max.     Services     — PG/OP 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
MPI     PROFIBUS DP master     PROFIBUS DP slave  MPI     Number of connections     Transmission rate, max.     Services    PG/OP communication    Routing	150 mA         Yes
MPI     PROFIBUS DP master     PROFIBUS DP slave  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
MPI     PROFIBUS DP master     PROFIBUS DP slave  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
MPI     PROFIBUS DP master     PROFIBUS DP slave  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	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
MPI     PROFIBUS DP master     PROFIBUS DP slave  MPI     Number of connections     Transmission rate, max.     Services     — PG/OP communication     — Routing     — Global data communication     — S7 basic communication     — S7 communication     — S7 communication, as client	150 mA         Yes         Yes <t< td=""></t<>

• Number of DP Jalens, max.2Service- ColorD communicationYes- ColorD communicationNo- Goldal data communicationNo- S7 basic communicationYes- S7 communication, as elientYes- SynC/FREEZEYes- Achadro data between of the serviceYes- Achadro data between Service	Transmission rate, max.	12 Mbit/s
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• automatic baud rate searchNo• Address area, max.32; Virtual slots• User data per address area, max.32 byte- of which consistent, max.32 byteServices PG/OP communicationYes; with interface active- RoutingYes; with interface active- Global data communicationNo- S7 basic communicationNo- S7 communication, as serverYes- S7 communication, as serverYes- Direct data exchange (slave-to-slave communication)No- Direct data exchange (slave-to-slave communication)No- Direct data exchange (slave-to-slave communication)No- Direct data exchange (slave-to-slave communication)Yes- Direct data exchange (slave-to-slave communication)No- Direct data exchange (slave-to-slave communication)No- Direct data exchange (slave-to-slave communication)Yes- Direct data exchange (slave-to-slave communication)Yes- Direct data exchange (slave-to-slave communication)Yes- Dutus244 byte- Dutus244 byte- DutusYes- Data length, max.1452 bytes via CP 443-1 Adv. and loadable FB - Data length, max IsoportedNoIsochronous modeNoIsochronous modeYes- Direct data per isochronous slave, max.244 byte- Dutus till bytes wit isochronous mode1- Duta length, max.Yes- Data length, max.Yes- Dutus till bytes wit bytes wis		
• Address area, max.32; Virtual slots• User data per address area, max.32 byte- of which consistent, max.32 byteof which consistent, max.32 byte• PG/OP communicationYes; with interface active- RoutingYes; with interface active- Global data communicationNo- S7 basic communicationNo- S7 communication, as clientYes- S7 communication, as clientYes- S7 communication, as serverYes- Direct data exchange (slave-to-slave communication)No- DIrect data exchange (slave-to-slave communication)No- Direct data exchange (slave-to-slave communication)Via CP 443-1 Adv. and loadable FB 1 - Data length, max Den IE communicationVia CP 443-1 Adv. and loadable FB - Data length, max buser data per isochronous modeYes- figlidistanceYes- supportedNoIsochronous mode1LigdistanceYes- LigdistanceYes- SuportedYes- Suported1- Suported isochronous slave, max.244 byte- Suported isochronous slave,	Transmission rate, max.	
• User data per address area, max.32 byte- of which consistent, max.32 byteServices PG/OP communicationYes; with interface active- RoutingYes; with interface active- RoutingYes; with interface active- Global data communicationNo- S7 basic communicationNo- S7 communication, as clientYes- S7 communication, as clientYes- S7 communication, as serverYes- S7 communication, as serverYes- Direct data exchange (slave-to-slave communication)No- DPV1No- DPV1No- DPV1No- Direct data exchange (slave-to-slave communication)No- Direct data exchange (slave-to-slave communication)No- DPV1No- DPV1No- DeptitVes- Direct data exchange (slave-to-slave communication)No- Direct data exchange (slave-to-slave communication)No- DPV1No- DeptitVes- Direct data exchange (slave-to-slave communication)No- Deptit244 byte- Dutputs244 byte- DeptitNo- Socon-TCP (RFC1006)Via CP 443-1 Adv. and loadable FB- Data length, max.1452 bytes via CP 443-1 Adv.Veb server supportedNo- Dutputs of DP masters with isochronous mode1- User data per isochronous slave, max.244 byte- Suported1.5 ms; 0.5 ms withou	<ul> <li>automatic baud rate search</li> </ul>	
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, as client     Yes       S7 communication, as client     Yes       S7 communication, as server     Yes       S7 communication, as server     Yes       Direct data exchange (slave-to-slave communication)     No       DPV1     No       Inputs     244 byte       Outputs     244 byte       Potocols     Yes via CP 443-1 Adv. and loadable FB       Data length, max.     1452 bytes via CP 443-1 Adv.       Yeb server     Yes       supported     No       Isochronous mode     No       Isochronous mode     1       Equidistance     Yes       - Number of DP masters with isochronous mode     1       User data per isochronous mode     1       User data per isochronous mode     1       Shortest clock pulse     544 byte		32; Virtual slots
Services	<ul> <li>User data per address area, max.</li> </ul>	32 byte
PG/OP communicationYes; with interface active RoutingYes; with interface active RoutingYes; with interface active Global data communicationNo S7 basic communicationNo S7 communication, as clientYes S7 communication, as clientYes S7 communication, as serverYes Direct data exchange (slave-to-slave communication)No DPV1No DPV1No Inputs244 byte Outputs244 bytePortocolsVia CP 443-1 Adv. and loadable FB - Data length, max Data length, max.1452 bytes via CP 443-1 Adv.Web server supportedNoIsochronous modeFouriest server Duta length, max.1452 bytes via CP 443-1 Adv.Web server Data length, max.1452 bytes via CP 443-1 Adv.Isochronous mode1LiguidistanceYesSupported1LiguidistanceYesSupported for Pm masters with isochronous mode1User data per isochronous slave, max.244 byteShortest clock pulse1.5 ms; 0.5 ms without use of SFC 126, 127	— of which consistent, max.	32 byte
RoutingYes; with interface active	Services	
Global data communicationNo- S7 basic communicationNo- S7 communicationYes- S7 communication, as clientYes- S7 communication, as serverYes- Direct data exchange (slave-to-slave communication)No- DPV1No- DPV1NoTransfer memory244 byte- Outputs244 bytePotocolsImage: State	— PG/OP communication	Yes; with interface active
S7 basic communicationNoS7 communicationYesS7 communication, as clientYesS7 communication, as serverYesDirect data exchange (slave-to-slave communication)NoDPV1NoDPV1NoDPV1NoDrect data exchange (slave-to-slave communication)244 byteDPV1244 byteDureut server244 byteOutputs244 byteDene te communicationYia CP 443-1 Adv. and loadable FBData length, max.Yes bytes via CP 443-1 Adv.NoYesserverNoData length, max.NoDete te communicationYesData length, max.NoData length, max.No	— Routing	Yes; with interface active
	<ul> <li>Global data communication</li> </ul>	No
	<ul> <li>— S7 basic communication</li> </ul>	No
- S7 communication, as serverYes- Direct data exchange (slave-to-slave communication)No- DPV1No- DPV1NoTransfer memory244 byte- Outputs244 byte- Outputs244 byteProtocolsVia CP 443-1 Adv. and loadable FB- Data length, max.1 452 bytes via CP 443-1 Adv.Web serverNo• supportedNoIsochronous mode1EquidistanceYesNumber of DP masters with isochronous mode1User data per isochronous slave, max.244 byteshortest clock pulse1.5 ms; 0.5 ms without use of SFC 126, 127	— S7 communication	Yes
- Direct data exchange (slave-to-slave communication)No- DPV1NoTransfer memory244 byte- Inputs244 byte- Outputs244 byteProtocols244 byteProtocolsOpen IE communication1452 bytes via CP 443-1 Adv. and loadable FB 1452 bytes via CP 443-1 Adv.• ISO-on-TCP (RFC1006)1452 bytes via CP 443-1 Adv.• Data length, max.1452 bytes via CP 443-1 Adv.Web serverIsochronous mode• supportedNoIsochronous mode1EquidistanceYesNumber of DP masters with isochronous mode1User data per isochronous slave, max.244 byteshortest clock pulse1.5 ms; 0.5 ms without use of SFC 126, 127	<ul> <li>— S7 communication, as client</li> </ul>	Yes
communication)No— DPV1NoTransfer memory244 byte— Inputs244 byte— Outputs244 byteProtocolsVia CP 443-1 Adv. and loadable FB— Data length, max.1 452 bytes via CP 443-1 Adv.Web server1 452 bytes via CP 443-1 Adv.• supportedNoIsochronous modeVesEquidistanceYesNumber of DP masters with isochronous mode1User data per isochronous slave, max.244 byteshortest clock pulse1.5 ms; 0.5 ms without use of SFC 126, 127	- S7 communication, as server	Yes
- DPV1NoTransfer memory244 byte- Inputs244 byte- Outputs244 byteProtocolsOpen IE communication- Data length, max.Via CP 443-1 Adv. and loadable FB- Data length, max.1452 bytes via CP 443-1 Adv.Web server supportedNoIsochronous mode-EquidistanceYesNumber of DP masters with isochronous mode1User data per isochronous slave, max.244 byteshortest clock pulse1.5 ms; 0.5 ms without use of SFC 126, 127	<b>o</b> (	No
Transfer memory         - Inputs       244 byte         - Outputs       244 byte         Protocols         Open IE communication         • ISO-on-TCP (RFC1006)       Via CP 443-1 Adv. and loadable FB         - Data length, max.       1 452 bytes via CP 443-1 Adv.         Web server       1 452 bytes via CP 443-1 Adv.         • supported       No         Isochronous mode       Yes         Equidistance       Yes         Number of DP masters with isochronous mode       1         User data per isochronous slave, max.       244 byte         shortest clock pulse       1.5 ms; 0.5 ms without use of SFC 126, 127	-	
Inputs244 byte Outputs244 byteProtocolsOpen IE communication• ISO-on-TCP (RFC1006) Data length, max.Via CP 443-1 Adv. and loadable FB 1 452 bytes via CP 443-1 Adv.Web server1 452 bytes via CP 443-1 Adv.• supportedNoIsochronous modeEquidistanceYesNumber of DP masters with isochronous mode1User data per isochronous slave, max.244 byteshortest clock pulse1.5 ms; 0.5 ms without use of SFC 126, 127		No
Outputs244 byteProtocolsOpen IE communication• ISO-on-TCP (RFC1006)Via CP 443-1 Adv. and loadable FB Data length, max.1 452 bytes via CP 443-1 Adv.Web server• supportedNoIsochronous modeEquidistanceYesNumber of DP masters with isochronous mode1User data per isochronous slave, max.244 byteshortest clock pulse1.5 ms; 0.5 ms without use of SFC 126, 127	-	
Protocols         Open IE communication         • ISO-on-TCP (RFC1006)       Via CP 443-1 Adv. and loadable FB         Data length, max.       1 452 bytes via CP 443-1 Adv.         Web server       1 452 bytes via CP 443-1 Adv.         • supported       No         Isochronous mode       Isochronous mode         Equidistance       Yes         Number of DP masters with isochronous mode       1         User data per isochronous slave, max.       244 byte         shortest clock pulse       1.5 ms; 0.5 ms without use of SFC 126, 127	-	
Open IE communication         • ISO-on-TCP (RFC1006)       Via CP 443-1 Adv. and loadable FB         — Data length, max.       1 452 bytes via CP 443-1 Adv.         Web server       • supported         • supported       No         Isochronous mode       •         Equidistance       Yes         Number of DP masters with isochronous mode       1         User data per isochronous slave, max.       244 byte         shortest clock pulse       1.5 ms; 0.5 ms without use of SFC 126, 127	•	244 byte
• ISO-on-TCP (RFC1006)Via CP 443-1 Adv. and loadable FB— Data length, max.1 452 bytes via CP 443-1 Adv.Web serverNo• supportedNoIsochronous modeYesEquidistanceYesNumber of DP masters with isochronous mode1User data per isochronous slave, max.244 byteshortest clock pulse1.5 ms; 0.5 ms without use of SFC 126, 127		
Data length, max.       1 452 bytes via CP 443-1 Adv.         Web server       No         • supported       No         Isochronous mode       Yes         Rumber of DP masters with isochronous mode       1         User data per isochronous slave, max.       244 byte         shortest clock pulse       1.5 ms; 0.5 ms without use of SFC 126, 127	·	
Web server           • supported         No           Isochronous mode         Isochronous mode           Equidistance         Yes           Number of DP masters with isochronous mode         1           User data per isochronous slave, max.         244 byte           shortest clock pulse         1.5 ms; 0.5 ms without use of SFC 126, 127		
• supported     No       Isochronous mode	— Data length, max.	1 452 bytes via CP 443-1 Adv.
Isochronous mode       Yes         Equidistance       Yes         Number of DP masters with isochronous mode       1         User data per isochronous slave, max.       244 byte         shortest clock pulse       1.5 ms; 0.5 ms without use of SFC 126, 127		
EquidistanceYesNumber of DP masters with isochronous mode1User data per isochronous slave, max.244 byteshortest clock pulse1.5 ms; 0.5 ms without use of SFC 126, 127	supported	No
Number of DP masters with isochronous mode       1         User data per isochronous slave, max.       244 byte         shortest clock pulse       1.5 ms; 0.5 ms without use of SFC 126, 127	Isochronous mode	
User data per isochronous slave, max.       244 byte         shortest clock pulse       1.5 ms; 0.5 ms without use of SFC 126, 127	Equidistance	Yes
shortest clock pulse 1.5 ms; 0.5 ms without use of SFC 126, 127	Number of DP masters with isochronous mode	1
	User data per isochronous slave, max.	244 byte
max, cycle 32 ms	shortest clock pulse	1.5 ms; 0.5 ms without use of SFC 126, 127
	max. cycle	32 ms
communication functions / header	communication functions / header	

PG/OP communication	Yes
Number of connectable OPs without message processing	31
<ul> <li>Number of connectable OPs with message processing</li> </ul>	31; When using Alarm_S/SQ and Alarm_D/DQ
Data record routing	Yes
Global data communication	
supported	Yes
<ul> <li>Number of GD loops, max.</li> </ul>	8
<ul> <li>Number of GD packets, transmitter, max.</li> </ul>	8
<ul> <li>Number of GD packets, receiver, max.</li> </ul>	16
<ul> <li>Size of GD packets, max.</li> </ul>	54 byte
<ul> <li>Size of GD packet (of which consistent), max.</li> </ul>	1 variable
S7 basic communication	
supported	Yes
<ul> <li>User data per job, max.</li> </ul>	76 byte
<ul> <li>User data per job (of which consistent), max.</li> </ul>	1 variable
S7 communication	
<ul> <li>supported</li> </ul>	Yes
• as server	Yes
● as client	Yes
<ul> <li>User data per job, max.</li> </ul>	64 kbyte
<ul> <li>User data per job (of which consistent), max.</li> </ul>	462 byte
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	24/24
CPU, max.	
Standard communication (FMS)	
supported	Yes; Via CP and loadable FB
Number of connections	
• overall	32
<ul> <li>usable for PG communication</li> </ul>	31
— reserved for PG communication	1
<ul> <li>— adjustable for PG communication, max.</li> </ul>	0
usable for OP communication	31
<ul> <li>reserved for OP communication</li> </ul>	1
<ul> <li>adjustable for OP communication, max.</li> </ul>	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	
	21: May 21 with Alarm S/SO and Alarm D/DO (OBs); may 2 with Alarm 2
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	
Program alarms	Yes
Process diagnostic messages	Yes
	Yes Yes
simultaneously active Alarm-S blocks, max.	Yes Yes 250; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks
simultaneously active Alarm-S blocks, max. Alarm 8-blocks	Yes Yes 250; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes
simultaneously active Alarm-S blocks, max.	Yes Yes 250; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks
simultaneously active Alarm-S blocks, max. Alarm 8-blocks • Number of instances for alarm 8 and S7 communication	Yes Yes 250; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes
simultaneously active Alarm-S blocks, max. Alarm 8-blocks • Number of instances for alarm 8 and S7 communication blocks, max.	Yes Yes 250; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 300
simultaneously active Alarm-S blocks, max. Alarm 8-blocks • Number of instances for alarm 8 and S7 communication blocks, max. • preset, max.	Yes Yes 250; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 300 150
simultaneously active Alarm-S blocks, max. Alarm 8-blocks • Number of instances for alarm 8 and S7 communication blocks, max. • preset, max. Process control messages	Yes Yes 250; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 300 150 Yes

• overall, max.	256
	0
• in 100 ms grid, max.	256
• in 500 ms grid, max.	
in 1000 ms grid, max.     Number of additional values	256
	0
• with 100 ms grid, max.	0
• with 500, 1000 ms grid, max.	1
Test commissioning functions	
Status block	Yes; Up to 2 simultaneously
Single step	Yes
Number of breakpoints	4
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
<ul> <li>Forcing, variables</li> </ul>	Inputs/outputs, bit memories, distributed I/Os
Number of variables, max.	64
Diagnostic buffer	
• present	Yes
Number of entries, max.	200
— 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°0
• max.	60 °C
configuration / header	
Configuration software	
• STEP 7	Yes
configuration / programming / header	
Command set	see instruction list
Nesting levels	7
<ul> <li>Access to consistent data in process image</li> </ul>	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	
— number of simultaneously active system functions	2; SFC 11; per interface
(SFC) / with DPSYC_FR	
(SFC) / WITN DPSYC_FR	

<ul> <li>— number of simultaneously active system functions (SFC) / with D_ACT_DP</li> </ul>	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	
<ul> <li>User program protection/password protection</li> </ul>	Yes
Dimensions	
Width	25 mm
Height	290 mm
Depth	219 mm
Weights	
Weight, approx.	700 g

last modified:

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