## **SIEMENS**

## **Data sheet**

## 6AG1416-3XS07-7AB0



SIPLUS S7-400 CPU 416-3 based on 6ES7416-3XS07-0AB0 with conformal coating, -25...+70 °C, central processing unit with: work memory 16 MB, (8 MB code, 8 MB data), interfaces 1st interface MPI/DP 12 Mbps, 2nd interface PROFIBUS DP, 3rd interface plug-in IFM module

Figure similar

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General information	
Product type designation	CPU 416-3
HW functional status	01
Firmware version	V7.0
based on	6ES7416-3XS07-0AB0
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	10 μs
Supply voltage	
Rated value (DC)	Power supply via system power supply
Input current	
from backplane bus 5 V DC, typ.	1.1 A
from backplane bus 5 V DC, max.	1.3 A
from backplane bus 24 V DC, max.	450 mA; 150 mA per DP interface
from interface 5 V DC, max.	90 mA; At each DP interface
Power loss	
Power loss, typ.	5.5 W
Memory	
Type of memory	RAM
Work memory	
• integrated	16 Mbyte
<ul><li>integrated (for program)</li></ul>	8 Mbyte
<ul><li>integrated (for data)</li></ul>	8 Mbyte
expandable	No
Load memory	
<ul> <li>expandable FEPROM</li> </ul>	Yes; with Memory Card (FLASH)
<ul> <li>expandable FEPROM, max.</li> </ul>	64 Mbyte
<ul><li>integrated RAM, max.</li></ul>	1 Mbyte
<ul> <li>expandable RAM</li> </ul>	Yes; with Memory Card (RAM)
expandable RAM, max.	64 Mbyte
Backup	
• present	Yes
·	Yes Yes; all data
• present	

Backup battery	
Backup current, typ.	180 µA; up to 40 °C
Backup current, max.	850 µA
Backup time, max.	Dealt with in the module data manual with the secondary conditions and the factors of influence
<ul> <li>Feeding of external backup voltage to CPU</li> </ul>	5 V DC to 15 V DC
PU processing times	
for bit operations, typ.	12.5 ns
for word operations, typ.	12.5 ns
for fixed point arithmetic, typ.	12.5 ns
for floating point arithmetic, typ.	25 ns
PU-blocks	
DB	
<ul><li>Number, max.</li></ul>	10 000; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
<ul><li>Number, max.</li></ul>	5 000; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
Number, max.	5 000; 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
<ul> <li>Number of time alarm OBs</li> </ul>	8; OB 10-17
<ul> <li>Number of delay alarm OBs</li> </ul>	4; OB 20-23
<ul> <li>Number of cyclic interrupt OBs</li> </ul>	9; OB 30-38 (shortest cycle that can be set = 500 μs)
<ul> <li>Number of process alarm OBs</li> </ul>	8; OB 40-47
<ul> <li>Number of DPV1 alarm OBs</li> </ul>	3; OB 55-57
<ul> <li>Number of isochronous mode OBs</li> </ul>	4; OB 61-64
<ul> <li>Number of multicomputing OBs</li> </ul>	1; OB 60
<ul> <li>Number of background OBs</li> </ul>	1; OB 90
<ul> <li>Number of startup OBs</li> </ul>	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	2
ounters, timers and their retentivity	
S7 counter	0.040
Number  Patentivity	2 048
Retentivity	Von
— adjustable	Yes
— preset  Counting range	Z 0 to Z 7
Counting range  — lower limit	0
— lower limit — upper limit	999
— upper limit IEC counter	
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
S7 times	Stimmed (mined only by to an oupdoing)
• Number	2 048
Retentivity	
— adjustable	Yes
— preset	No times retentive
Time range	To timos rotoriaro
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	

- mroomb	Van
• present	Yes
• Type	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.	16 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	
<ul> <li>adjustable, max.</li> </ul>	32 kbyte
• preset	16 kbyte
Address area	
I/O address area	
<ul><li>Inputs</li></ul>	16 kbyte
Outputs	16 kbyte
Process image	
<ul> <li>Inputs, adjustable</li> </ul>	16 kbyte
<ul> <li>Outputs, adjustable</li> </ul>	16 kbyte
<ul><li>Inputs, default</li></ul>	512 byte
<ul> <li>Outputs, default</li> </ul>	512 byte
<ul> <li>consistent data, max.</li> </ul>	244 byte
Access to consistent data in process image	Yes
Subprocess images	
Number of subprocess images, max.	15
Digital channels	
<ul><li>Inputs</li></ul>	131 072
— of which central	131 072
<ul><li>Outputs</li></ul>	131 072
— of which central	131 072
Analog channels	
<ul><li>Inputs</li></ul>	8 192
— of which central	8 192
<ul><li>Outputs</li></ul>	8 192
— of which central	8 192
Hardware configuration	
Number of expansion units, max.	21
connectable OPs	95
Multicomputing	Yes; 4 CPUs max. (with UR1 or UR2)
Interface modules	
<ul> <li>Number of connectable IMs (total), max.</li> </ul>	6
<ul> <li>Number of connectable IM 460s, max.</li> </ul>	6
Number of connectable IM 463s, max.	4; IM 463-2
Number of DP masters	
• integrated	2
• via CP	10; CP 443-5 Extended
● via IM 467	4
Mixed mode IM + CP permitted	No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode
via interface module	1
Number of pluggable S5 modules (via adapter capsule in appetral device) may	6
central device), max.	
Number of IO Controllers	0
• integrated	0 4: No private apprehim of CR442 4 EV40 and CR442 4 EV 44/EV20/CV20
• 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 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	2
Time of day	
Clock	
Hardware clock (real-time)	Yes
retentive and synchronizable	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	
<ul><li>Number</li></ul>	16
<ul> <li>Number/Number range</li> </ul>	0 to 15
<ul> <li>Range of values</li> </ul>	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     to DR, master	Yes
• to DP, master	Yes Yes
<ul><li>on DP, device</li><li>in AS, master</li></ul>	Yes
<ul><li>in AS, master</li><li>in AS, device</li></ul>	Yes
on Ethernet via NTP	No; Via CP
• to IF 964 DP	Yes
Time difference in system when synchronizing via	
• MPI, max.	200 ms
Interfaces	
Interfaces/bus type	1 x MPI/PROFIBUS DP, 1 x PROFIBUS DP, 1 x PROFIBUS DP (optionally
	pluggable)
Number of RS 485 interfaces	2; Combined MPI / PROFIBUS DP and PROFIBUS DP
Number of other interfaces	1; PROFIBUS DP with IF 964-DP (plug-in option; MLFB: 6ES7964-2AA04-0AB0)
1. Interface	0, 150)
Interface type	MPI/PROFIBUS DP
Isolated	Yes
Interface types	
• RS 485	Yes
<ul> <li>Output current of the interface, max.</li> </ul>	150 mA
Protocols	
• MPI	Yes
<ul> <li>PROFIBUS DP master</li> </ul>	Yes
PROFIBUS DP device	Yes
MPI	
<ul> <li>Number of connections</li> </ul>	44; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1
Transmission rate, max.	resources on the line is reduced by 1  12 Mbit/s
• Transmission rate, max.  Services	12 IVIDIUS
— PG/OP communication	Yes
— Routing	Yes
Global data communication	Yes
S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
PROFIBUS DP master	
Number of connections, max.	32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1
Transmission rate, max.	12 Mbit/s
max. number of DP devices	32
Services	
— PG/OP communication	Yes

Douting	Voc. 67 routing
— Routing	Yes; S7 routing
— Global data communication	No
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	Yes
— SYNC/FREEZE	Yes
<ul> <li>activation/deactivation of DP devices</li> </ul>	Yes
<ul> <li>— Direct data exchange (slave-to-slave communication)</li> </ul>	Yes
— DPV1	Yes
Address area	165
— 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
— user data per DP device, max. — Inputs, max.	244 byte
•	
— Outputs, max.	244 byte 244
— Slots, max.	
— per slot, max.	128 byte
1st interface / PROFIBUS DP device / header	22
Number of connections     CSD file	32
• GSD file	http://support.automation.siemens.com/WW/view/en/113652
Transmission rate, max.	12 Mbit/s
automatic baud rate search	No
<ul> <li>Address area, max.</li> </ul>	32; Virtual slots
<ul> <li>User data per address area, max.</li> </ul>	32 byte
— of which consistent, max.	32 byte
Services	
— PG/OP communication	Yes; with interface active
— Routing	Yes; with interface active
<ul> <li>Global data communication</li> </ul>	No
<ul> <li>S7 basic communication</li> </ul>	No
— S7 communication	Yes
<ul> <li>— S7 communication, as client</li> </ul>	Yes
<ul> <li>— S7 communication, as server</li> </ul>	Yes
<ul> <li>Direct data exchange (slave-to-slave</li> </ul>	No
communication)	
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2. Interface	
Interface type	PROFIBUS DP
Isolated	Yes
Interface types	
• RS 485	Yes
Output current of the interface, max.	150 mA
Protocols	
<ul> <li>PROFIBUS DP master</li> </ul>	Yes
PROFIBUS DP device	Yes
PROFIBUS DP master	
Number of connections, max.	32
Transmission rate, max.	12 Mbit/s
max. number of DP devices	125
Services	
— PG/OP communication	Yes
— PG/OP communication	
	Yes Yes; S7 routing No

— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as crieft  — S7 communication, as server	Yes
— S7 communication, as server — Equidistance	Yes
Equidistance      Isochronous mode	Yes
	Yes
— SYNC/FREEZE	Yes
activation/deactivation of DP devices	Yes
<ul><li>— Direct data exchange (slave-to-slave communication)</li><li>— DPV1</li></ul>	
	Yes
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 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.	128 byte
2nd interface / PROFIBUS DP device / header	
<ul> <li>Number of connections</li> </ul>	32
• GSD file	http://support.automation.siemens.com/WW/view/en/113652
Transmission rate, max.	12 Mbit/s
<ul> <li>Address area, max.</li> </ul>	32
<ul> <li>User data per address area, max.</li> </ul>	32 byte
<ul><li>of which consistent, max.</li></ul>	32 byte
Services	
— Routing	Yes; with interface active
Transfer memory	
— Inputs	244 byte
•	• • • • • • • • • • • • • • • • • • • •
— Outputs	244 byte
•	
— Outputs	
Outputs 3. Interface	244 byte
— Outputs  3. Interface Interface type	244 byte pluggable interface module (IF), technical data as for 2nd interface
— Outputs  3. Interface Interface type Plug-in interface modules	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0)
— Outputs  3. Interface Interface type Plug-in interface modules Isolated	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes
— Outputs  3. Interface  Interface type  Plug-in interface modules  Isolated  automatic detection of transmission rate	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes
— Outputs  3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No
— Outputs  3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types  • RS 485	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes
— Outputs  3. Interface  Interface type  Plug-in interface modules  Isolated  automatic detection of transmission rate  Interface types  • RS 485  • Output current of the interface, max.	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes
— Outputs  3. Interface  Interface type  Plug-in interface modules  Isolated  automatic detection of transmission rate  Interface types  RS 485  Output current of the interface, max.  Protocols	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA
— Outputs  3. Interface  Interface type  Plug-in interface modules  Isolated  automatic detection of transmission rate  Interface types  • RS 485  • Output current of the interface, max.  Protocols  • MPI	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA
— Outputs  3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types  • RS 485 • Output current of the interface, max.  Protocols • MPI • PROFIBUS DP master	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA
— Outputs  3. Interface  Interface type  Plug-in interface modules  Isolated  automatic detection of transmission rate  Interface types  • RS 485  • Output current of the interface, max.  Protocols  • MPI  • PROFIBUS DP master  • PROFIBUS DP device  PROFIBUS DP master	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes
— Outputs  3. Interface  Interface type  Plug-in interface modules  Isolated  automatic detection of transmission rate  Interface types  • RS 485  • Output current of the interface, max.  Protocols  • MPI  • PROFIBUS DP master  • PROFIBUS DP device  PROFIBUS DP master  • Number of connections, max.	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes
— Outputs  3. Interface  Interface type  Plug-in interface modules  Isolated  automatic detection of transmission rate  Interface types  • RS 485  • Output current of the interface, max.  Protocols  • MPI  • PROFIBUS DP master  • PROFIBUS DP device  PROFIBUS DP master	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA  No Yes Yes Yes 12 Mbit/s
— Outputs  3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types  • RS 485  • Output current of the interface, max.  Protocols  • MPI  • PROFIBUS DP master  • PROFIBUS DP device  PROFIBUS DP master  • Number of connections, max.  • Transmission rate, max.  • max. number of DP devices	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA No Yes Yes
— Outputs  3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types  RS 485 Output current of the interface, max.  Protocols  MPI PROFIBUS DP master PROFIBUS DP device  PROFIBUS DP master Number of connections, max. Transmission rate, max. max. number of DP devices Services	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA  No Yes Yes 125
— Outputs  3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes Yes Yes  125  Yes
- Outputs  3. Interface  Interface type  Plug-in interface modules  Isolated  automatic detection of transmission rate  Interface types  RS 485  Output current of the interface, max.  Protocols  MPI  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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes Yes 125  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
- Outputs  3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types  • RS 485 • Output current of the interface, max.  Protocols  • MPI • 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes Yes Yes Yes  72  12 Mbit/s 125  Yes Yes; S7 routing No
- Outputs  3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types  • RS 485  • Output current of the interface, max.  Protocols  • MPI  • 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes Yes Yes Yes  Yes  Yes  Yes  Yes  Y
- Outputs  3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types  RS 485 Output current of the interface, max.  Protocols  MPI PROFIBUS DP master PROFIBUS DP device  PROFIBUS DP master Number of connections, max. Transmission rate, max.	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes
- Outputs  3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • 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 - S7 communication, as client	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes Yes 125  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Interface  Interface type  Plug-in interface modules  Isolated  automatic detection of transmission rate  Interface types  RS 485  Output current of the interface, max.  Protocols  MPI  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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes
- Outputs  3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA  No Yes
Outputs  3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No  Yes 150 mA  No Yes
Outputs  3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types  • RS 485 • Output current of the interface, max.  Protocols • MPI • 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 Isochronous mode SYNC/FREEZE	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA  No Yes
Outputs  3. Interface Interface type Plug-in interface modules Isolated automatic detection of transmission rate Interface types • RS 485 • Output current of the interface, max.  Protocols • MPI • 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	pluggable interface module (IF), technical data as for 2nd interface IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) Yes No Yes 150 mA  No Yes

communication)	
communication)	Von
— DPV0 — DPV1	Yes
	Yes
Address area	9 khyta
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
3rd 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. — per slot, max.	244 139 byte
— per siot, max.  3rd interface / PROFIBUS DP device / header	128 byte
number of possible connections / at the 3rd interface / as	32
DP slave	32
GSD file	http://support.automation.siemens.com/WW/view/en/113652
<ul> <li>transfer rate / at the 3rd interface / as DP slave / maximum</li> </ul>	12 Mbit/s
automatic baud rate search	No
<ul> <li>Address area, max.</li> </ul>	32
<ul> <li>data volume / at the 3rd interface / as DP slave / as user data per address range / maximum</li> </ul>	32 byte
<ul> <li>data volume / at the 3rd interface / as DP slave / as consistent reference data per address range / maximum</li> </ul>	32 byte
Services	
— PG/OP communication	Yes
— Routing	Yes; with interface active
Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
— S7 communication  — S7 communication, as client	Yes
— S7 communication, as circle  — S7 communication, as server	Yes
•	No
<ul> <li>Direct data exchange (slave-to-slave communication)</li> </ul>	NO
— DPV1	No
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	3
User data per isochronous slave, max.	244 byte
shortest clock pulse	1 ms; 0.5 ms without use of SFC 126, 127
max. cycle	32 ms
communication functions / header	
PG/OP communication	Yes
Number of connectable OPs without message processing	95
Number of connectable OPs with message processing	95; When using Alarm_S/SQ and Alarm_D/DQ
Data record routing	Yes
Global data communication	
supported	Yes
Number of GD loops, max.	16
Number of GD packets, transmitter, max.	16

Number of GD packet, receiver, max.   Set byto		
See of GD packet (of which consistent), max.  **upported**  **User data per job, for which consistent), max.  **User data per job, max.  **upported**  **user data per job, for which consistent), max.  **upported**  **user data per job, max.  **user data per job, max.  **User data per job (of which consistent), max.  **User data	<ul> <li>Number of GD packets, receiver, max.</li> </ul>	32
### ST basic communication  ### Standard communication  ##	·	
User data per job. (max. 76 byte 1 variable 57 communication 4 variable 57 communication 4 variable 57 communication 58 comm	Size of GD packet (of which consistent), max.	1 variable
User data per job, (mix) User data per job, (	S7 basic communication	
Vesi	<ul><li>supported</li></ul>	Yes
### Server   Yes   ### server	<ul> <li>User data per job, max.</li> </ul>	76 byte
* supported     * server	<ul> <li>User data per job (of which consistent), max.</li> </ul>	1 variable
sa server     as cilient	S7 communication	
Sas client   Ves   G4k byte     User data per job, raw.   64k byte     User data per job (of which consistent), max.   482 byte; 1 variable     S5 compatible communication     Supported   Yes, Via FC AG_SEND and AG_RECV, max. via 10 CP 443-1 or 443-5     Sklybe   Sklybe     User data per job, for which consistent), max.   24 byte     User data per job, for which consistent), max.   24 byte     Standard communication FMIS)     Supported   Yes, Via CP and loadable FB     Number of simultaneous AG-SEND/AG-RECV orders per CPU, max.     Standard communication   FMIS)     Supported   Yes, Via CP and loadable FB     Number of comencians   96     User of the period of the	<ul><li>supported</li></ul>	Yes
User data per job, max User data per job, max User data per job (or which consistent), max.  User data per job (or which consistent), max.  User data per job, max.  User data per job (or which consistent), max.  User data per job, m	• as server	Yes
User data per job (of which consistent), max.  *St compatibile communication  *upported  User data per job, max.  *User data per job, max.  *User data per job, of which consistent), max.  *Number of simultaneous AG-SEND/AG-RECV orders per CPU, max.  *Number of simultaneous AG-SEND/AG-RECV orders per CPU, max.  *Standard communication (FMS)  *Supported  *User data per job, of which consistent), max.  *User data per job, of which consistent), max.  *Standard communication (FMS)  *Supported  *User Standard communication (FMS)  *User Standard for OP communication (FMS)  *User Sta	• as client	Yes
SScompatible communication  • supported • User data per job, max. • User data per job, for which consistent), max. • User data per job (of which consistent), max. • User data per job (of which consistent), max. • User data per job (of which consistent), max. • User data per job (of which consistent), max. • User data per job (of which consistent), max. • User data per job (of which consistent), max. • Standard communication (FMS)  • supported  Number of connections • overall • usable for PG communication • reserved for PC communication • adjustable for PG communication • adjustable for PG communication • reserved for PC pC pommunication • reserved for PC	<ul> <li>User data per job, max.</li> </ul>	64 kbyte
Supported     Super data per job, max.     Suber data per job (of which consistent), max.     Suber data per job (of which consistent), max.     Number of simultaneous AG-SEND/AG-RECV orders per CPU, max.     Standard communication (FMS)     Supported     Supported     Supported     Supported     Supported     Supported     Subset for PG communication     Subset for PG commu	<ul> <li>User data per job (of which consistent), max.</li> </ul>	462 byte; 1 variable
User data per job, for fwhich consistent), max. User data per job, for fwhich consistent), max. Unimber of simultaneous AG-SEND/AG-RECV orders per CPU, max.  Standard communication (FMS)  Supported  Ves; Via CP and loadable FB  Number of connections  Overall Subsible for PG communication  — reserved for PC communication — adjustable for PG communication — reserved for PC communication — reserved for PC communication — adjustable for OP communication — adjustable for PG communication — reserved for PC communication — reserved for PC communication — adjustable for PC communication — adjustable for ST basic communication — adjustable for ST basic communication — adjustable for ST communication — adjustable for Touting — reserved for PC communication — adjustable for ST communication — adjustable for Touting — reserved for ST communication — adjustable for routing — reserved for ST communication — adjustable for routing — reserved for ST communication — adjustable for routing — reserved for ST communication — adjustable for routing — reserved for ST communication — adjustable for routing — reserved for routing — reserved for ST communication — adjustable for routing — reserved for stouting — reserved for routing — reserved for stouting — reserved for routing — reserved for r	S5 compatible communication	
User data per job, for fwhich consistent), max. User data per job, for fwhich consistent), max. Unimber of simultaneous AG-SEND/AG-RECV orders per CPU, max.  Standard communication (FMS)  Supported  Ves; Via CP and loadable FB  Number of connections  Overall Subsible for PG communication  — reserved for PC communication — adjustable for PG communication — reserved for PC communication — reserved for PC communication — adjustable for OP communication — adjustable for PG communication — reserved for PC communication — reserved for PC communication — adjustable for PC communication — adjustable for ST basic communication — adjustable for ST basic communication — adjustable for ST communication — adjustable for Touting — reserved for PC communication — adjustable for ST communication — adjustable for Touting — reserved for ST communication — adjustable for routing — reserved for ST communication — adjustable for routing — reserved for ST communication — adjustable for routing — reserved for ST communication — adjustable for routing — reserved for ST communication — adjustable for routing — reserved for routing — reserved for ST communication — adjustable for routing — reserved for stouting — reserved for routing — reserved for stouting — reserved for routing — reserved for r	• supported	Yes; Via FC AG SEND and AG RECV, max. via 10 CP 443-1 or 443-5
User data per job (of which consistent), max.  Number of simultaneous AG-SEND/AG-RECV orders per CPU, max.  Standard communication (FMS)  Supported  Supp		
Number of simultaneous AG-SEND/AG-RECV orders per CPU, max.  Standard communication (FMS)  • supported Yes; Via CP and loadable FB  Number of connections  • overall 96  • usable for PG communication 95  • usable for PG communication 11  — adjustable for PG communication 95  • usable for PG communication 95  • usable for PG communication 95  — reserved for PG communication 95  — reserved for OP communication 11  — adjustable for OP communication 11  — adjustable for S7 basic communication 94  — reserved for S7 communication 94  — reserved for Trouting 94  — reserved for Trouting 94  — reserved for Trouting 90  — adjustable for routing 10  — sable for routing 10  — reserved for routing 10  — reserved for routing 10  — adjustable for routing 10  — adjustable for routing 10  — reserved for S7 communication 10  — reserved for so reseases 10  **Timesauge for routing 10  — reserved for S7 communication 10  — reserved for Pc remainient 10  — reserved for Pc remainient 10  — reser		·
CPU, max. Slandard communication (FMS)  • supported  • supported  • verall  • usable for PG communication  — reserved for PG communication — adjustable for ST basic communication — adjustable for ST basic communication — adjustable for ST communication — adjustable for routing — reserved for ST communication — adjustable for routing — adjustable for routing — adjustable for routing — reserved for FM communication — adjustable for routing — adjustable for routing — adjustable for routing — adjustable for routing, max.  95; Max. 95 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 16 with Alarm, Alarm_S, Alarm_SP, Notify and Notify_8 (e.g. WinCC)  **Symbol-related messages**  Yes  **SCAN procedure**  **Process diagnostic message**  Yes  **Process diagnostic messages**  Yes  **Process diagnostic messages**  Yes  **Process diagnostic messages**  Yes  **Process diagnostic messages**  Yes  **Process cantrot messages**  Yes  **Process cantrot messages**  **Yes  **Number of instances for alarm 8 and ST communication blocks, max.  **Alarm 8-blocks**  • Number of messages**  Number of archives that can log on simultaneously (SF8 37 AR_SENO)  **Number of messages**  **Yes  **Number of messages**  **Yes  **Number of messages**  **Yes  **Number of archives that can log on simultaneously (SF8 37 AR_SENO)  **Number of archives that can log on simultaneously (SF8 37 AR_SENO)  **Number of messages**  **Number of		·
Number of connections		
voverall   96	Standard communication (FMS)	
versall     vusable for PG communication     — reserved for PG communication     — adjustable for PG communication     — adjustable for PG communication     — adjustable for PG communication     — reserved for OP communication     — adjustable for OP communication     — adjustable for OP communication     — adjustable for SP basic communication     — adjustable for SP communication     — adjustable for routing     — reserved for GP communication     — adjustable for routing     — reserved for FG communication     — adjustable for routing     — reserved for routing     — reserved for FG communication     — adjustable for routing     — reserved for routing     — reserved for FG communication     — adjustable for routing     — reserved for FG communication     — adjustable for routing     — reserved for FG communication     — adjustable for routing     — reserved for FG communication     — adjustable for routing     — reserved for FG communication     — adjustable for routing     — reserved for FG communication     — adjustable for routing     — reserved for FG communication     — adjustable for routing     — reserved for FG communication     — adjustable for routing     — reserved for FG communication     — adjustable for routing     — reserved for FG communication     — adjustable for routing     — reserved for FG communication     — adjustable for routing     — reserved for FG communication     — adjustable for routing     — reserved for FG communication     — adjustable for Fixed f	• supported	Yes; Via CP and loadable FB
■ usable for PG communication	Number of connections	
- reserved for PG communication	overall	96
- adjustable for PG communication, max.  • usable for OP communication - reserved for OP communication - adjustable for OP communication - adjustable for S7 basic communication - adjustable for S7 communication - adjustable for s0 communication - adjustable for routing - adjustable f	<ul> <li>usable for PG communication</li> </ul>	95
■ usable for OP communication	<ul> <li>reserved for PG communication</li> </ul>	1
■ usable for OP communication	<ul> <li>adjustable for PG communication, max.</li> </ul>	0
- reserved for OP communication	•	95
- adjustable for OP communication, max.  • usable for S7 basic communication  - reserved for S7 basic communication  - adjustable for S7 basic communication, max.  • usable for S7 communication  - adjustable for S7 communication  - reserved for S7 communication  - adjustable for S7 communication  - adjustable for S7 communication, max.  • usable for routing  - adjustable for S7 communication, max.  • usable for routing  - adjustable for routing  - reserved for routing  - adjustable for routing  - adjustable for routing  - reserved for routing  - adjustable for routing  - adjustable for routing  - reserved for routing  - reserved for routing  - adjustable for routing  - reserved for routing  -		
usable for S7 basic communication  reserved for S7 basic communication, max.  usable for S7 communication  reserved for S7 communication  adjustable for S7 communication  reserved for S7 communication  adjustable for S7 communication  reserved for S7 communication, max.  usable for routing  reserved for routing  reserved for routing  adjustable for routing  reserved for routing  adjustable for routing  reserved for routing  adjustable for routing  set of the state of		
- reserved for S7 basic communication 0 - adjustable for S7 basic communication, max. 0 • usable for S7 communication 94 - reserved for S7 communication 0 - adjustable for S7 communication, max. 0 • usable for routing 47 - reserved for routing 0 - adjustable for routing 47 - reserved for routing 0 - adjustable for solved for routing 0 - adjustable for S7 communication 10 - adjustable for routing 0 - adjustable for S7 communication 10 - adjustable for routing 47 - reserved for routing 48 - sind particular for since for adam 48 - since for adam 48 - since for since for adam 48 - since for adam 48 - since for since for adam 48 - since for since for adam 48 - since for since for since for adam 48 - since for since for adam 48 - since for since for adam 48 - since for since for since for adam 48 - since for since for since for since	•	
- adjustable for S7 basic communication, max.  • usable for S7 communication  - reserved for S7 communication  - adjustable for S7 communication, max.  • usable for routing  - reserved for routing  - reserved for routing  - adjustable for routing  - adjustable for routing  - adjustable for routing  - adjustable for routing, max.    S7 message functions  Number of login stations for messages functions, max.  S7 message functions  Number of login stations for messages  - Yes  SCAN procedure  - Yes  SCAN procedure  - Yes  - Program alarms  - Yes  - Process diagnostic messages  - Yes  - Process diagnostic messages  - Yes  - Number of instances for alarm 8 and S7 communication blocks, max.  - I 1000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks  - Number of instances for alarm 8 and S7 communication blocks, max.  - preset, max.  - process control messages  - Ves  Number of archives that can log on simultaneously (SFB 37 AR_SEND)  Number of messages  - overall, max.  - in 100 ms grid, max.  - in 100 ms grid, max.  - in 500 ms grid, max.  - in 100 ms grid, max.  - in 100 ms grid, max.  - with 500, 1000 ms grid, max.		
usable for S7 communication  - reserved for S7 communication, max.  usable for routing  - reserved for routing  - adjustable for routing, max.  0  S7 message functions  Number of login stations for message functions, max.  95; Max. 95 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 16 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.  1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks  Alarm-8-blocks  Number of instances for alarm 8 and S7 communication blocks, max.  • preset, max.  • preset, max.  Process control messages  Yes  Number of archives that can log on simultaneously (SFB 37 AR_SEND)  Number of messages  • overall, max.  • in 100 ms grid, max.  • with 100 ms grid, max.		
- reserved for S7 communication 0 - adjustable for S7 communication, max. 0   • usable for routing 47   - reserved for routing 0   - adjustable for routing, max. 0    S7 message functions  Number of login stations for message functions, max. 95; Max. 95 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 16 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. 1000; 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. 600  Process control messages Yes Number of archives that can log on simultaneously (SFB 37 AR_SEND)  Number of messages   • overall, max. 1024 • in 100 ms grid, max. 128 • in 500 ms grid, max. 128 • in 1000 ms grid, max. 1024  Number of additional values • with 100 ms grid, max. 1 • with 500, 1000 ms grid, max. 1 • with 500, 1000 ms grid, max. 1 • with 500, 1000 ms grid, max. 1		
- adjustable for S7 communication, max.  • usable for routing - reserved for frouting - adjustable for routing 0 - adjustable for routing 0 S7 message functions  Number of login stations for message functions, max.  95; Max. 95 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 16 with Alarm, Alarm_8, Alarm_8, Notify and Notify_8 (e.g. WinCC)  Symbol-related messages Yes SCAN procedure Program alarms Yes Process diagnostic messages Yes simultaneously active Alarm-S blocks, max.  1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks  Alarm 8-blocks • Number of instances for alarm 8 and S7 communication blocks, max.  • preset, max. • preset, max.  Process control messages Yes  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 500 ms grid, max. • in 100 ms grid, max. • in 100 ms grid, max. • in 100 ms grid, max. • with 500, 1000 ms grid, max. • with 500, 1000 ms grid, max. • with 500, 1000 ms grid, max.		
usable for routing — reserved for routing — adjustable for routing, max.  S7 message functions  Number of login stations for message functions, max.  95; Max. 95 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 16 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC)  Symbol-related messages  Yes  SCAN procedure  Yes  Program alarms  Process diagnostic messages  Yes simultaneously active Alarm-S blocks, max.  1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks  Alarm 8-blocks  Number of instances for alarm 8 and S7 communication blocks, max.  Process control messages  Yes  Number of archives that can log on simultaneously (SFB 37 AR_SEND)  Number of messages  overall, max.  1 024  in 100 ms grid, max.  1 1024  in 100 ms grid, max.  1 1024  with 100 ms grid, max.  1 1024  with 100 ms grid, max.  1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
- reserved for routing - adjustable for routing, max.  7 message functions  Number of login stations for message functions, max.  95; Max. 95 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 16 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_6 (e.g. WinCC)  Symbol-related messages  Yes  SCAN procedure  Yes  Program alarms  Yes  Process diagnostic messages  Yes  simultaneously active Alarm-S blocks, max.  1 000; 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.  preset, max.  preset, max.  preset, max.  Process control messages  Yes  Number of archives that can log on simultaneously (SFB 37 AR_SEND)  Number of messages  overall, max.  in 100 ms grid, max.  in 100 ms grid, max.  in 100 ms grid, max.  vith 100 ms grid, max.	•	
	· ·	
Number of login stations for message functions, max.  95; Max. 95 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 16 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC)  Symbol-related messages  Yes  SCAN procedure  Program alarms  Yes  Process diagnostic messages  Yes  simultaneously active Alarm-S blocks, max.  1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks  Alarm 8-blocks  Number of instances for alarm 8 and S7 communication blocks, max.  Process control messages  Number of archives that can log on simultaneously (SFB 37 AR_SEND)  Number of messages  overall, max.  1 024  in 100 ms grid, max.  1 1024  in 100 ms grid, max.  1 1024  with 100 ms grid, max.  1 1024  Number of additional values  with 100 ms grid, max.  1 1024  Number of additional values  with 100 ms grid, max.  1 1024  Number of additional values  with 100 ms grid, max.  1 1024	<u> </u>	
Number of login stations for message functions, max.  95; Max. 95 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 16 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  simultaneously active Alarm-S blocks, max.  1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks  Alarm 8-blocks  Number of instances for alarm 8 and S7 communication blocks, max.  preset, max.  Process control messages  Number of archives that can log on simultaneously (SFB 37 AR_SEND)  Number of messages  overall, max.  in 100 ms grid, max.  in 100 ms grid, max.  in 1000 ms grid, max.  in 1000 ms grid, max.  with 100 ms grid, max.  with 100 ms grid, max.  with 500, 1000 ms grid, max.  with 500, 1000 ms grid, max.  with 500, 1000 ms grid, max.		U
Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC)  Symbol-related messages  Yes  SCAN procedure  Program alarms  Yes  Process diagnostic messages  simultaneously active Alarm-S blocks, max.  1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks  Alarm 8-blocks  Number of instances for alarm 8 and S7 communication blocks, max.  preset, max.  Process control messages  Number of archives that can log on simultaneously (SFB 37 AR_SEND)  Number of messages  o overall, max.  in 100 ms grid, max.		
SCAN procedure Program alarms Yes Process diagnostic messages Simultaneously active Alarm-S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND) Number of messages  o overall, max. in 100 ms grid, max. in 1000 ms grid, max. in 1000 ms grid, max. with 100 ms grid, max. o with 500, 1000 ms grid, max.  with 500, 1000 ms grid, max.  100  Yes  4 000  600  7 es  4 000  4 000  5 do  4 000  5 do  5 do  6 do  7 es  4 000  5 do  6 do  7 es  5 do  6 do  7 es  5 do  6 do  7 es  6 do  7 es  6 do  7 es  7 es  8 do  7 es  8 do  8 do  9 es  9 es  1 do		Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC)
Process diagnostic messages  Process diagnostic messages  Simultaneously active Alarm-S blocks, max.  Alarm 8-blocks  Number of instances for alarm 8 and S7 communication blocks, 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 100 ms grid, max.  In 1000 ms grid, max.  With 100 ms grid, max.  With 1000 ms grid, max.  With 500, 1000 ms grid, max.  With 500, 1000 ms grid, max.  In 100 ms grid, max.	· · · · · · · · · · · · · · · · · · ·	
Process diagnostic messages simultaneously active Alarm-S blocks, max.  Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max.  preset, max.  preset, max.  Process control messages  Number of archives that can log on simultaneously (SFB 37 AR_SEND)  Number of messages  overall, max.  in 100 ms grid, max.  in 1000 ms grid, max.  in 1000 ms grid, max.  with 100 ms grid, max.  with 100 ms grid, max.  with 500, 1000 ms grid, max.  with 500, 1000 ms grid, max.  1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks  Yes  4 000  4 000  4 000  1	·	
simultaneously active Alarm-S blocks, max.  Alarm 8-blocks  Number of instances for alarm 8 and S7 communication blocks, max.  preset, max.  preset, max.  Process control messages  Number of archives that can log on simultaneously (SFB 37 AR_SEND)  Number of messages  o overall, max.  1 004  in 100 ms grid, max.  1 1024  in 1000 ms grid, max.  1 1024  with 100 ms grid, max.  1 1024  with 100 ms grid, max.  with 500, 1000 ms grid, max.  1 100  1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks  Yes  1 000		
Alarm 8-blocks  Number of instances for alarm 8 and S7 communication blocks, max.  preset, max.  preset, max.  process control messages  Number of archives that can log on simultaneously (SFB 37 AR_SEND)  Number of messages  overall, max.  in 100 ms grid, max.  in 500 ms grid, max.  in 1000 ms grid, max.  in 1000 ms grid, max.  vin 1000 ms grid, max.  1024  Number of additional values  with 100 ms grid, max.  with 500, 1000 ms grid, max.  100		
<ul> <li>Number of instances for alarm 8 and S7 communication blocks, max.</li> <li>preset, max.</li> <li>process control messages</li> <li>Number of archives that can log on simultaneously (SFB 37 AR_SEND)</li> <li>Number of messages</li> <li>overall, max.</li> <li>in 100 ms grid, max.</li> <li>in 500 ms grid, max.</li> <li>in 100 ms grid, max.</li> <li>in 100 ms grid, max.</li> <li>win 100 ms grid, max.</li> <li>with 100 ms grid, max.</li> <li>with 100 ms grid, max.</li> <li>with 500, 1000 ms grid, max.</li> <li>with 500, 1000 ms grid, max.</li> <li>10</li> </ul>	· · · · · · · · · · · · · · · · · · ·	1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks
blocks, max.  • preset, max.  • preset, max.  600  Process control messages  Number of archives that can log on simultaneously (SFB 37 AR_SEND)  Number of messages  • overall, max.  • in 100 ms grid, max.  • in 500 ms grid, max.  • in 1000 ms grid, max.  • in 1000 ms grid, max.  • with 100 ms grid, max.  1 024  Number of additional values  • with 500, 1000 ms grid, max.  1 0	Alarm 8-blocks	Yes
Process control messages  Number of archives that can log on simultaneously (SFB 37 AR_SEND)  Number of messages  overall, max.  in 100 ms grid, max.  in 500 ms grid, max.  in 1000 ms grid, max.  in 1000 ms grid, max.  overall, max.  128  in 1000 ms grid, max.  1024  Number of additional values  with 100 ms grid, max.  overall, max.  1024  1024  Number of additional values  with 500, 1000 ms grid, max.  10		4 000
Number of archives that can log on simultaneously (SFB 37 AR_SEND)  Number of messages  overall, max.  in 100 ms grid, max.  in 500 ms grid, max.  in 1000 ms grid, max.  in 1000 ms grid, max.  vin 1000 ms grid, max.  1024  Number of additional values  with 100 ms grid, max.  owith 500, 1000 ms grid, max.	• preset, max.	600
AR_SEND)         Number of messages         ● overall, max.       1 024         ● in 100 ms grid, max.       128         ● in 500 ms grid, max.       512         ● in 1000 ms grid, max.       1 024         Number of additional values         ● with 100 ms grid, max.       1         ● with 500, 1000 ms grid, max.       10		Yes
<ul> <li>overall, max.</li> <li>in 100 ms grid, max.</li> <li>in 500 ms grid, max.</li> <li>in 1000 ms grid, max.</li> <li>in 1000 ms grid, max.</li> <li>1 024</li> <li>Number of additional values</li> <li>with 100 ms grid, max.</li> <li>with 500, 1000 ms grid, max.</li> <li>10</li> </ul>		32
<ul> <li>in 100 ms grid, max.</li> <li>in 500 ms grid, max.</li> <li>in 1000 ms grid, max.</li> <li>in 1000 ms grid, max.</li> <li>Number of additional values</li> <li>with 100 ms grid, max.</li> <li>with 500, 1000 ms grid, max.</li> <li>10</li> </ul>	Number of messages	
• in 500 ms grid, max.         • in 1000 ms grid, max.         1 024  Number of additional values          • with 100 ms grid, max.         • with 500, 1000 ms grid, max.         10	• overall, max.	1 024
<ul> <li>in 1000 ms grid, max.</li> <li>Number of additional values</li> <li>with 100 ms grid, max.</li> <li>with 500, 1000 ms grid, max.</li> <li>10</li> </ul>	● in 100 ms grid, max.	128
Number of additional values  • with 100 ms grid, max.  • with 500, 1000 ms grid, max.  10	• in 500 ms grid, max.	512
<ul> <li>with 100 ms grid, max.</li> <li>with 500, 1000 ms grid, max.</li> <li>10</li> </ul>	● in 1000 ms grid, max.	1 024
• with 500, 1000 ms grid, max. 10	Number of additional values	
•	• with 100 ms grid, max.	1
Test commissioning functions	• with 500, 1000 ms grid, max.	10
	Test commissioning functions	

Otation blank	Van Ha ta 40 along the annual
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
<ul> <li>Forcing, variables</li> </ul>	Inputs, outputs, bit memories, peripheral inputs, peripheral outputs
Number of variables, max.	512
Diagnostic buffer	
<ul><li>present</li></ul>	Yes
<ul> <li>Number of entries, max.</li> </ul>	3 200
— adjustable	Yes
— preset	120
Service data	
can be read out	Yes
Standards, approvals, certificates	
CE mark	Yes
EAC (formerly Gost-R)	Yes
Ambient conditions	
Ambient temperature during operation	
• min.	-25 °C; = Tmin
• max.	70 °C; = Tmax
Altitude during operation relating to sea level	
Installation altitude above sea level, max.	5 000 m
Ambient air temperature-barometric pressure-altitude	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax
	- 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax -20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m)
Relative humidity	
<ul> <li>With condensation, tested in accordance with IEC 60068- 2-38, max.</li> </ul>	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Resistance	
Use in stationary industrial systems	
<ul> <li>to biologically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
<ul> <li>to chemically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
<ul> <li>to mechanically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
<ul> <li>to biologically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
<ul> <li>to chemically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); $^{\star}$
<ul> <li>to mechanically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
<ul> <li>Against chemically active substances acc. to EN 60654-4</li> </ul>	Yes; Class 3 (excluding trichlorethylene)
<ul> <li>Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04</li> </ul>	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
<ul> <li>Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04</li> </ul>	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating	
Coatings for printed circuit board assemblies acc. to EN 61086	Yes; Class 2 for high reliability
Protection against fouling acc. to EN 60664-3	Yes; Type 1 protection
Military testing according to MIL-I-46058C, Amendment 7	Yes; Discoloration of coating possible during service life
Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A	Yes; Conformal coating, Class A

OSTEP 7         Yes           configuration / programming / header         See instruction list           ● 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         Yes           — LAD         Yes           — FBD         Yes           — STL         Yes           — SCL         Yes           — CFC         Yes           — GRAPH         Yes           — HiGraph®         Yes           configuration / programming / number of simultaneously active 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_PARM         8; SFC 55; per interface           — WR_PARM         8; SFC 56; per interface           — WR_DPARM         2; SFC 56; per interface	configuration / header		
Comfiguration / programming / header         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 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 59; per interface           — WR_PARM         8; SFC 59; per interface           — PARM_MOD         1; SFC 57; per interface	Configuration software		
Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  SCL  SCR  FGRAPH  HIGraph®  Yes  Configuration / programming / number of simultaneously active SFC / header  DPSYC_FR  D_ACT_DP  RD_REC  RD_REC  WR_PARM  SYSTE (STS)  Frogramming list  Frogramming list  Yes  See instruction list  Frogramming list  Yes  see instruction list  Fyes  STC AB  SSFC 59; per interface  SSFC 59; per interface  WR_PARM SSFC 55; per interface  PARM_MOD  1; SFC 57; per interface	• STEP 7	Yes	
Nesting levels     Access to consistent data in process image     System functions (SFC)     see instruction list     System function blocks (SFB)     see instruction list  Programming language      — LAD     — Yes     — FBD     — Yes     — STL     — Yes     — SCL     — Yes     — CFC     — GRAPH     — HiGraph®     Yes  configuration / programming / number of simultaneously active SFC / header  — DPSYC_FR — D_ACT_DP     8; SFC 12; per interface     — WR_REC     — WR_PARM     — PARM_MOD     1; SFC 57; per interface  — PARM_MOD     1; SFC 57; per interface        Yes       Yes	configuration / programming / header		
<ul> <li>Access to consistent data in process image</li> <li>System functions (SFC)</li> <li>see instruction list</li> <li>System function blocks (SFB)</li> <li>see instruction list</li> </ul> Programming language <ul> <li>LAD</li> <li>Yes</li> <li>FBD</li> <li>Yes</li> <li>STL</li> <li>Yes</li> <li>SCL</li> <li>Yes</li> <li>CFC</li> <li>GRAPH</li> <li>HiGraph®</li> <li>Yes</li> </ul> Configuration / programming / number of simultaneously active SFC / header <ul> <li>DPSYC_FR</li> <li>C_ACT_DP</li> <li>SFC 12; per interface</li> <li>RD_REC</li> <li>WR_REC</li> <li>SFC 55; per interface</li> <li>WR_PARM</li> <li>SFC 57; per interface</li> </ul>	<ul> <li>Command set</li> </ul>	see instruction list	
<ul> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> <li>See instruction list</li> <li>Programming language</li> <li>— LAD</li> <li>— FBD</li> <li>— FBD</li> <li>— STL</li> <li>— SCL</li> <li>— Yes</li> <li>— SCL</li> <li>— Yes</li> <li>— CFC</li> <li>— GRAPH</li> <li>— HiGraph®</li> <li>Yes</li> <li>Configuration / programming / number of simultaneously active SFC / header</li> <li>— DPSYC_FR</li> <li>— D_ACT_DP</li> <li>— RD_REC</li> <li>— WR_REC</li> <li>— WR_PARM</li> <li>— PARM_MOD</li> <li>1; SFC 57; per interface</li> <li>— SFC 57; per interface</li> <li>— PARM_MOD</li> </ul>	<ul> <li>Nesting levels</li> </ul>	7	
System function blocks (SFB)  Programming language  — LAD — FBD — Yes — STL — STL — Yes — CFC — CFC — GRAPH — HiGraph®  Configuration / programming / number of simultaneously active SFC / header — DPSYC_FR — D_ACT_DP — RD_REC — WR_REC — WR_PARM — PARM_MOD  Yes  Yes  e instruction list  Yes  Yes  Yes  Yes  Yes  Yes  Yes  2 SFC 11; per interface  8; SFC 59; per interface  8; SFC 59; per interface  1; SFC 57; per interface  9 PARM_MOD  1; SFC 57; per interface	<ul> <li>Access to consistent data in process image</li> </ul>	Yes	
Programming language  — LAD Yes  — FBD Yes  — STL Yes  — SCL Yes  — CFC Yes  — GRAPH Yes  — HiGraph® Yes  configuration / programming / number of simultaneously active 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 55; per interface  — WR_PARM 8; SFC 55; per interface  — PARM_MOD 1; SFC 57; per interface	<ul> <li>System functions (SFC)</li> </ul>	see instruction list	
— LAD       Yes         — FBD       Yes         — STL       Yes         — SCL       Yes         — CFC       Yes         — GRAPH       Yes         — HiGraph®       Yes         configuration / programming / number of simultaneously active 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	<ul> <li>System function blocks (SFB)</li> </ul>	see instruction list	
— FBD       Yes         — STL       Yes         — SCL       Yes         — CFC       Yes         — GRAPH       Yes         — HiGraph®       Yes         configuration / programming / number of simultaneously active 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	Programming language		
STL Yes SCL Yes CFC Yes GRAPH Yes HiGraph® Yes  configuration / programming / number of simultaneously active 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 59; per interface WR_PARM 8; SFC 55; per interface WR_PARM 8; SFC 55; per interface PARM_MOD 1; SFC 57; per interface	— LAD	Yes	
- SCL Yes - CFC Yes - GRAPH Yes - HiGraph® Yes  configuration / programming / number of simultaneously active 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	— FBD	Yes	
- CFC Yes - GRAPH Yes - HiGraph® Yes  configuration / programming / number of simultaneously active 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	— STL	Yes	
- GRAPH - HiGraph® Yes  configuration / programming / number of simultaneously active SFC / header - DPSYC_FR - D_ACT_DP - RD_REC - WR_REC - WR_PARM - WR_PARM - WR_MOD - Yes  Yes  Yes  Yes  Yes  Yes  Yes  1; yes  SFC 19; per interface  8; SFC 59; per interface  8; SFC 59; per interface  8; SFC 55; per interface  1; SFC 57; per interface	— SCL	Yes	
— HiGraph®       Yes         configuration / programming / number of simultaneously active       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	— CFC	Yes	
configuration / programming / number of simultaneously active SFC / header	— GRAPH	Yes	
- DPSYC_FR - D_ACT_DP - RD_REC - WR_REC - WR_PARM - WR_MOD - PARM_MOD - 2; SFC 11; per interface - 8; SFC 12; per interface - 8; SFC 59; per interface - 8; SFC 55; per interface - 1; SFC 57; per interface	— HiGraph®	Yes	
- D_ACT_DP  - RD_REC  - WR_REC  - WR_PARM  - PARM_MOD  8; SFC 12; per interface  8; SFC 59; per interface  8; SFC 58; per interface  1; SFC 55; per interface	configuration / programming / number of simultaneously active	SFC / header	
- 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	— DPSYC_FR	2; SFC 11; per interface	
<ul> <li>WR_REC</li> <li>WR_PARM</li> <li>PARM_MOD</li> <li>8; SFC 58; per interface</li> <li>8; SFC 55; per interface</li> <li>1; SFC 57; per interface</li> </ul>	— D_ACT_DP	8; SFC 12; per interface	
<ul><li>— WR_PARM</li><li>— PARM_MOD</li><li>8; SFC 55; per interface</li><li>1; SFC 57; per interface</li></ul>	— RD_REC	8; SFC 59; per interface	
— PARM_MOD 1; SFC 57; per interface	— WR_REC	8; SFC 58; per interface	
_	— WR_PARM	8; SFC 55; per interface	
— WR_DPARM 2; SFC 56; per interface	— PARM_MOD	1; SFC 57; per interface	
·	— WR_DPARM	2; SFC 56; per interface	
— DPNRM_DG 8; SFC 13; per interface	— DPNRM_DG	8; SFC 13; per interface	
— RDSYSST 8; SFC 51	— RDSYSST	8; SFC 51	
— DP_TOPOL 1; SFC 103; per interface	— 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	— 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	— WRREC	8; SFB 53; per interface, but not more than 32 across all external interfaces	
Know-how protection	Know-how protection		
User program protection/password protection     Yes	<ul> <li>User program protection/password protection</li> </ul>	Yes	
Block encryption     Yes; With S7 block Privacy	Block encryption	Yes; With S7 block Privacy	
Dimensions			
Width 50 mm	Width	50 mm	
Height 290 mm	Height	290 mm	
Depth 219 mm	Depth	219 mm	
Weights	Weights		
Weight, approx. 900 g	Weight, approx.	900 g	

last modified:

5/29/2024