SIEMENS

Data sheet

6ES7416-3ES06-0AB0



SIMATIC S7-400, CPU 416-3 PN/DP CENTRAL PROCESSING UNIT WITH: 16 MB WORKING MEMORY, (8 MB KB CODE, 8 MB DATA), INTERFACES: 1. IF MPI/DP 12 MBIT/S (X1), 2. IF ETHERNET/PROFINET (X5), 3. IF IF964-DP PLUGABLE (IF1)

Figure similar

Product type designation Hardware product version 01 Firmware version V6.0 Engineering with STEP7 V5.5 or higher/iMap V3.0 + iMap STEP7 Add-on V3.0 SP5 • Programming package or higher CiR - Configuration in RUN CiR synchronization time, basic load 100 ms CiR synchronization time, time per I/O byte 10 µs; Time per I/O byte Supply voltage Rated value (DC) • 24 V DC No; Power supply via system power supply Input current from backplane bus 5 V DC, typ. 1.3 A from backplane bus 5 V DC, max. 1.5 A from backplane bus 24 V DC, max. 300 mA; 150 mA per DP interface from interface 5 V DC. max. 90 mA; At each DP interface Power losses Power loss, typ. 6.5 W Power loss, max. 7.5 W Memory Type of memory RAM



Work memory	
Integrated	16 Mbyte
 integrated (for program) 	8 Mbyte
 integrated (for data) 	8 Mbyte
• expandable	No
Load memory	
expandable FEPROM	Yes; with Memory Card (FLASH)
• expandable FEPROM, max.	64 Mbyte
 integrated RAM, max. 	1 Mbyte
• expandable RAM	Yes; with Memory Card (RAM)
• expandable RAM, max.	64 Mbyte
Backup	,
present	Yes
 with battery 	Yes; all data
without battery	No
-	
Battery	
Backup battery	125 v Au um to 40 °C
Backup current, typ.	125 μA; up to 40 °C
Backup current, max.	450 μA
 Backup time, max. 	Dealt with in the module data manual with the secondary conditions and the factors of influence
 Feeding of external backup voltage to CPU 	5 to 15 VDC
CPU processing times	
for bit operations, typ.	30 ns
for word operations, typ.	30 ns
for fixed point arithmetic, typ.	30 ns
for floating point arithmetic, typ.	90 ns
CPU-blocks	
DB	
• Number, max.	10 000; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
• Number, max.	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



 Number of time alarm OBs 	8; OB 10-17
 Number of delay alarm OBs 	4; OB 20-23
 Number of time interrupt OBs 	9; OB 30-38 (shortest cycle that can be set = 500 μ s)
 Number of process alarm OBs 	8; OB 40-47
 Number of DPV1 alarm OBs 	3; OB 55-57
Number isochronous mode OBs	4; OB 61-64
 Number of multicomputing OBs 	1; OB 60
 Number of background OBs 	1; OB 90
 Number of startup OBs 	3; OB 100-102
 Number of asynchronous error OBs 	9; OB 80-88
 Number of synchronous error OBs 	2; OB 121, 122
Nesting depth	
 per priority class 	24
 additional within an error OB 	2
Counters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	
— can be set	Yes
— lower limit	0
— upper limit	2 047
— preset	Z 0 to Z 7
Counting range	
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Туре	SFB
Number	Unlimited (limited only by RAM capacity)
S7 times	
• Number	2 048
Retentivity	
— can be set	Yes
— lower limit	0
— upper limit	2 047
— preset	No times retentive
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
• present	Yes



• NumberUnlimited (limited only by RAM capacity)Delation of the interference of the interfe	• Туре	SFB
Total retentive data area Total working and load memory (with backup battery) Flag • Number, max. 16 kbyte; Size of bit memory address area • Retentivity available Yes • Retentivity preset MB 0 to MB 15 • Number, max. 64 in 1 memory byte Data blocks 0000; Number range: 1 to 16000 • Number, max. 64 kbyte • Size, max. 64 kbyte Local data • of dijustable, max. 32 kbyte • preset 16 kbyte • loputs 16 kbyte • Outputs 16 kbyte • Updits 16 kbyte • Outputs 16 kbyte • Outputs 16 kbyte • MPI/DP Interface, inputs 2 kbyte - MPI/DP Interface, outputs 8 kbyte - DP interface, inputs 8 kbyte - PN interface, outputs 8 kbyte - PN interface, outputs 8 kbyte - PN interface, outputs 8 kbyte • Number factant 512 byte • Outputs, default 512 byte<		Unlimited (limited only by RAM capacity)
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Flag 16 kbyte; Size of bit memory address area • Retentivity available Yes • Retentivity available With 0 to MB 15 • Number of clock memories 8; in 1 memory byte Data blocks 6 kbyte • Number, max. 10 000; Number range: 1 to 16000 • Size, max. 6 kbyte • adjustable, max. 32 kbyte • adjustable, max. 32 kbyte • preset 16 kbyte 10 0dress area 16 kbyte • Outputs 16 kbyte • Outputs 16 kbyte • Outputs 16 kbyte • DP interface, inputs 2 kbyte • DP interface, outputs 2 kbyte • DP interface, outputs 8 kbyte • DP interface, outputs 8 kbyte • DP interface, outputs 8 kbyte • PN interface, outputs 8 kbyte • PN interface, inputs 8 kbyte • DP interface, outputs 16 kbyte • Outputs, default <td< td=""><td></td><td>Total working and load memory (with backup battery)</td></td<>		Total working and load memory (with backup battery)
• Number, max.16 kbyte, Size of bit memory address area• Retentivity variableYes• Ratentivity presetMB 0 to MB 15• Number of clock memories8; in 1 memory byteData blocks• Number, max.10 000; Number range: 1 to 18000• Size, max.64 kbyteLocal data• of dijustable, max.32 kbyte• preset16 kbyte// O address area• Inputs16 kbyte• Outputs16 kbyte• Outputs16 kbyte• DPI interface, inputs2 kbyte- DPI interface, outputs2 kbyte- DPI interface, outputs8 kbyte- DPI interface, outputs8 kbyte- DPI interface, outputs8 kbyte- DPI interface, outputs8 kbyte- PN interface, outputs16 kbyte• Drocess image• Inputs, adjustable16 kbyte• DPI interface, outputs8 kbyte- DPI interface, outputs8 kbyte- DN interface, outputs8 kbyte- DN interface, outputs16 kbyte• Outputs, adjustable16 kbyte• Outputs, adjustable16 kbyte• Outputs, adjustable16 kbyte• Outputs, default512 byte• Outputs, default512 byte• Outputs, default512 byte• Outputs, default512 byte• Outputs, data max.131 072• Inputs, of which central131 072• Inputs, of which central131 072• Output		Total working and load memory (with backup battery)
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	Analog channels	



Inputs	8 192
 Inputs, of which central 	8 192
Outputs	8 192
— Outputs, of which central	8 192
Hardware configuration	
Expansion devices, max.	21
connectable OPs	95
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 IM 467	4
• Via CP	10; CP 443-5 Extended
 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	1; IF 964-DP
 Number of pluggable S5 modules (via adapter capsule in central device), max. 	6
Number of IO Controllers	
Integrated	1
	4; No mixed operation of CP443-1 EX40 and CP443-1 EX
• Via CP	41/EX20/GX20, max. 4 in central controller
• Via CP Number of operable FMs and CPs (recommended)	
Number of operable FMs and CPs (recommended)	41/EX20/GX20, max. 4 in central controller
Number of operable FMs and CPs (recommended) • FM	41/EX20/GX20, max. 4 in central controller Limited by number of slots or number of connections CP 440: Limited by number of slots; CP 441: Limited by number of
Number of operable FMs and CPs (recommended) • FM • CP, point-to-point	 41/EX20/GX20, max. 4 in central controller Limited by number of slots or number of connections CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections 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
Number of operable FMs and CPs (recommended) FM CP, point-to-point PROFIBUS and Ethernet CPs 	 41/EX20/GX20, max. 4 in central controller Limited by number of slots or number of connections CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections 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
Number of operable FMs and CPs (recommended) FM CP, point-to-point PROFIBUS and Ethernet CPs Slots	 41/EX20/GX20, max. 4 in central controller Limited by number of slots or number of connections CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections 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
Number of operable FMs and CPs (recommended) FM CP, point-to-point PROFIBUS and Ethernet CPs Slots Required slots Time of day Clock 	 41/EX20/GX20, max. 4 in central controller Limited by number of slots or number of connections CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections 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
Number of operable FMs and CPs (recommended) • FM • CP, point-to-point • PROFIBUS and Ethernet CPs Slots • Required slots Time of day Clock • Hardware clock (real-time clock)	 41/EX20/GX20, max. 4 in central controller Limited by number of slots or number of connections CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections 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 2
Number of operable FMs and CPs (recommended) FM CP, point-to-point PROFIBUS and Ethernet CPs Slots Required slots Time of day Clock 	 41/EX20/GX20, max. 4 in central controller Limited by number of slots or number of connections CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections 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 2
Number of operable FMs and CPs (recommended) • FM • CP, point-to-point • PROFIBUS and Ethernet CPs Slots • Required slots Time of day Clock • Hardware clock (real-time clock)	 41/EX20/GX20, max. 4 in central controller Limited by number of slots or number of connections CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections 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 2
Number of operable FMs and CPs (recommended) • FM • CP, point-to-point • PROFIBUS and Ethernet CPs Slots • Required slots Time of day Clock • Hardware clock (real-time clock) • battery-backed and synchronizable	 41/EX20/GX20, max. 4 in central controller Limited by number of slots or number of connections CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections 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 2
Number of operable FMs and CPs (recommended) • FM • CP, point-to-point • PROFIBUS and Ethernet CPs Slots • Required slots Time of day Clock • Hardware clock (real-time clock) • battery-backed and synchronizable • Resolution	41/EX20/GX20, max. 4 in central controller Limited by number of slots or number of connections CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections 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 2 Yes Yes 1 ms



• 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 hour
• 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
 on Ethernet via NTP 	Yes; As client
• to IF 964 DP	Yes
Time difference in system when synchronizing via	
• Ethernet, max.	10 ms
• MPI, max.	200 ms
Interfaces	
Interface/bus type	1 x MPI/PROFIBUS DP, 1 x PROFINET (2 ports), 1 x PROFIBUS
	DP (optionally pluggable)
Number of RS 485 interfaces	1
Number of other interfaces	0
1st interface	
Interface type	Integrated
Physics	RS 485 / PROFIBUS + MPI
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	150 mA
Number of connection resources	MPI: 44, DP: 32
Functionality	
• MPI	Yes
• DP master	Yes
• DP slave	Yes
MPI	
Number of connections	44; If a diagnostics repeater is used on the line, the number of
	connection resources on the line is reduced by 1 12 Mbit/s
Transmission rate, max.	
Services	Yes
— PG/OP communication	
— Routing	Yes
— Global data communication	Yes



— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
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
 Number of DP slaves, max. 	32
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
— Equidistance mode support	Yes
— Isochronous mode	Yes
- SYNC/FREEZE	Yes
 Activation/deactivation of DP slaves 	Yes
 — Direct data exchange (slave-to-slave communication) 	Yes
— DPV1	Yes
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
User data per DP slave	
— User data per DP slave, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
DP slave	
Number of connections	32
• GSD file	http://support.automation.siemens.com/WW/view/en/113652
• Transmission rate, max.	12 Mbit/s
Automatic baud rate search	No
Address area, max.	32; Virtual slots
• User data per address area, max.	32 byte
User data per address area, of which	32 byte
consistent, max.	



Services	
— PG/OP communication	Yes; with interface active
— S7 routing	Yes; with interface active
- Global data communication	No
- S7 basic communication	No
- S7 communication	Yes
- S7 communication	Yes
	Yes
— S7 communication, as server	No
 Direct data exchange (slave-to-slave communication) 	
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2nd interface	
Interface type	PROFINET
Physics	Ethernet RJ45
Isolated	Yes
Integrated switch	Yes
Number of ports	2
Automatic detection of transmission speed	Yes; Autosensing
Autonegotiation	Yes
Autocrossing	Yes
Change of IP address at runtime, supported	Yes; Assignment by higher-level IO-Controller or by the user program with SFB104 "IP_CONF"
Number of connection resources	96
Media redundancy	
 supported 	Yes
 Switchover time on line break, typically 	200 ms
 Number of stations in the ring, max. 	50
Functionality	
• DP master	No
• DP slave	No
 PROFINET IO Controller 	Yes
PROFINET IO Device	Yes
• PROFINET CBA	Yes
Open IE communication	Yes
• Web server	Yes
— Number of HTTP clients	5
 Point-to-point connection 	No
PROFINET IO Controller	
• Transmission rate, max.	100 Mbit/s



 Number of connectable IO devices, max. 	256
Max. number of connectable IO devices for RT	256
— of which in line, max.	256
 Number of IO devices with IRT and the option "high flexibility" 	256
— of which in line, max.	61
 Number of IO Devices with IRT and the option "high performance", max. 	64
— of which in line, max.	64
Shared device	Yes
Prioritized startup	Yes
— Number of IO Devices, max.	32
 Activation/deactivation of IO Devices 	Yes
 Maximum number of IO devices that can be activated/deactivated at the same time. 	8
 IO Devices changing during operation (partner ports), supported 	Yes
— Max. number of IO devices per tool	8; 8 parallel calls of the SFC 12 "D_ACT_DP" possible per line. Max. 32 IO Devices changing during operation (partner ports) are supported
 Device replacement without swap medium 	Yes
Send cycles	250 $\mu s,$ 500 $\mu s,$ 1 ms, 2 ms, 4 ms additionally with IRT with high performance: 250 μs to 4 ms in 125 μs frame
 Updating time 	250 µs to 512 ms; minimum value depends on preset communication share for PROFINET IO, on the number of IO Devices and on the amount of configured user data, see PROFINET system description
Services	
— PG/OP communication	Yes
— S7 routing	Yes
— S7 communication	Yes
— Isochronous mode	Yes; Only with IRT and the High Performance option
- Open IE communication	Yes
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
— User data consistency, max.	1 024 byte
OFINET IO Device	
Services	
— PG/OP communication	Yes
	Yes
— S7 routing	
— S7 routing — S7 communication	Yes



	Ver
— Open IE communication	Yes
— IRT	Yes
— Prioritized startup	Yes
— Shared device	Yes
 — Number of IO controllers with shared device, max. 	2
Transfer memory	
— Inputs, max.	1 440 byte; Per IO Controller with shared device
— Outputs, max.	1 440 byte; Per IO Controller with shared device
Submodules	
— Number, max.	64
— User data per submodule, max.	1 024 byte
PROFINET CBA	
acyclic transmission	Yes
Cyclic transmission	Yes
Open IE communication	
 Number of connections, max. 	94
 Local port numbers used at the system end 	0, 20, 21, 25, 80, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535
 Keep-alive function, supported 	Yes
3rd interface	
Interface type	Pluggable interface module (IF)
Interface type Plug-in interface modules	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0)
Interface type Plug-in interface modules Physics	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS
Interface type Plug-in interface modules Physics Isolated	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes
Interface type Plug-in interface modules Physics Isolated Power supply to interface (15 to 30 V DC), max.	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes 150 mA
Interface type Plug-in interface modules Physics Isolated Power supply to interface (15 to 30 V DC), max. Automatic detection of transmission speed	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes 150 mA No
Interface type Plug-in interface modules Physics Isolated Power supply to interface (15 to 30 V DC), max. Automatic detection of transmission speed Number of connection resources	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes 150 mA
Interface type Plug-in interface modules Physics Isolated Power supply to interface (15 to 30 V DC), max. Automatic detection of transmission speed Number of connection resources Functionality	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes 150 mA No 32
Interface type Plug-in interface modules Physics Isolated Power supply to interface (15 to 30 V DC), max. Automatic detection of transmission speed Number of connection resources Functionality • MPI	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes 150 mA No 32
Interface type Plug-in interface modules Physics Isolated Power supply to interface (15 to 30 V DC), max. Automatic detection of transmission speed Number of connection resources Functionality	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes 150 mA No 32 No Yes
Interface type Plug-in interface modules Physics Isolated Power supply to interface (15 to 30 V DC), max. Automatic detection of transmission speed Number of connection resources Functionality • MPI • DP master • DP slave	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes 150 mA No 32
Interface type Plug-in interface modules Physics Isolated Power supply to interface (15 to 30 V DC), max. Automatic detection of transmission speed Number of connection resources Functionality • MPI • DP master	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes 150 mA No 32 No Yes Yes
Interface type Plug-in interface modules Physics Isolated Power supply to interface (15 to 30 V DC), max. Automatic detection of transmission speed Number of connection resources Functionality • MPI • DP master • DP slave	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes 150 mA No 32 No Yes
Interface type Plug-in interface modules Physics Isolated Power supply to interface (15 to 30 V DC), max. Automatic detection of transmission speed Number of connection resources Functionality • MPI • DP master • DP slave DP master	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes 150 mA No 32 No Yes Yes
Interface type Plug-in interface modules Physics Isolated Power supply to interface (15 to 30 V DC), max. Automatic detection of transmission speed Number of connection resources Functionality • MPI • DP master • DP slave DP master • Number of connections, max.	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes 150 mA No 32 No Yes Yes 32
Interface type Plug-in interface modules Physics Isolated Power supply to interface (15 to 30 V DC), max. Automatic detection of transmission speed Number of connection resources Functionality • MPI • DP master • DP slave DP master • Number of connections, max. • Transmission rate, min.	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes 150 mA No 32 No Yes Yes 32 9.6 kbit/s
Interface type Plug-in interface modules Physics Isolated Power supply to interface (15 to 30 V DC), max. Automatic detection of transmission speed Number of connection resources Functionality • MPI • DP master • DP slave DP master • Number of connections, max. • Transmission rate, min. • Transmission rate, max.	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes 150 mA No 32 No Yes Yes 32 9.6 kbit/s 12 Mbit/s
Interface type Plug-in interface modules Physics Isolated Power supply to interface (15 to 30 V DC), max. Automatic detection of transmission speed Number of connection resources Functionality • MPI • DP master • DP slave DP master • Number of connections, max. • Transmission rate, min. • Transmission rate, max. • Number of DP slaves, max.	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes 150 mA No 32 No Yes Yes 32 9.6 kbit/s 12 Mbit/s
Interface type Plug-in interface modules Physics Isolated Power supply to interface (15 to 30 V DC), max. Automatic detection of transmission speed Number of connection resources Functionality • MPI • DP master • DP slave DP master • Number of connections, max. • Transmission rate, min. • Transmission rate, max. • Number of DP slaves, max. Services	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes 150 mA No 32 No Yes Yes 32 9.6 kbit/s 12 Mbit/s 125
Interface type Plug-in interface modules Physics Isolated Power supply to interface (15 to 30 V DC), max. Automatic detection of transmission speed Number of connection resources Functionality MPI DP master DP slave DP master Number of connections, max. Transmission rate, min. Transmission rate, max. Number of DP slaves, max. Services — PG/OP communication	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes 150 mA No 32 No Yes Yes 32 9.6 kbit/s 12 Mbit/s 125 Yes
Interface type Plug-in interface modules Physics Isolated Power supply to interface (15 to 30 V DC), max. Automatic detection of transmission speed Number of connection resources Functionality • MPI • DP master • DP master • Number of connections, max. • Transmission rate, min. • Transmission rate, max. • Number of DP slaves, max. Services - PG/OP communication - Routing	IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) RS 485 / PROFIBUS Yes 150 mA No 32 No Yes Yes 32 32 32 32 9.6 kbit/s 12 Mbit/s 125 Yes Yes; S7 routing



— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
— Equidistance mode support	Yes
— Isochronous mode	Yes
- SYNC/FREEZE	Yes
 Activation/deactivation of DP slaves 	Yes
 — Direct data exchange (slave-to-slave communication) 	Yes
— DPV0	Yes
— DPV1	Yes
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
User data per DP slave	
— User data per DP slave, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
DP slave	
 Number of connections 	32
• GSD file	http://support.automation.siemens.com/WW/view/en/113652
• Transmission rate, max.	12 Mbit/s
 Automatic baud rate search 	No
• Address area, max.	32; Virtual slots
• User data per address area, max.	32 byte
 User data per address area, of which 	32 byte
consistent, max.	
Services	
— PG/OP communication	Yes
— S7 routing	Yes; with interface active
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
 — Direct data exchange (slave-to-slave communication) 	No
— DPV1	NI-
	No
Transfer memory	NO



— Outputs	244 byte
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	Yes; Via PROFIBUS DP or PROFINET interface
Number of DP masters with isochronous mode	2
User data per isochronous slave, max.	 244 byte
equidistance	Yes
shortest clock pulse	1 ms; 0.5 ms without use of SFC 126, 127
max. cycle	32 ms
Communication functions	
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 packets, receiver, max.	32
Size of GD packets, max.	54 byte
 Size of GD packet (of which consistent), max. 	1 variable
S7 basic communication	
supported	Yes
• User data per job, max.	76 byte
 User data per job (of which consistent), max. 	1 variable
S7 communication	
supported	Yes
• as server	Yes
As client	Yes
 User data per job, max. 	64 kbyte
 User data per job (of which consistent), max. 	462 byte; 1 variable
S5-compatible communication	
• supported	Yes; Via FC AG_SEND and AG_RECV, max. via 10 CP 443-1 or
	443-5
• User data per job, max.	8 kbyte
 User data per job (of which consistent), max. 	240 byte
 Number of simultaneous AG-SEND/AG-RECV 	64/64
orders per CPU, max.	
Standard communication (FMS)	
• supported	Yes; Via CP and loadable FB



TCP/IP Ves: via integrated PROFINET interface and loadable FBs Number of connections, max. 94 Oata length, max. 32 kbyle Several passive connections per port. supported Ves: Via integrated PROFINET interface or CP 443-1 and loadable FBs OAta length, max. 94 Oata length, max. 32 kbyte: 1452 bytes via CP 443-1 Adv. UDP Ves: via integrated PROFINET interface and loadable FBs OAta length, max. 94 Obta length of all norming connections 65 Outo byte master/slave, max. 94 Obta length of all outgoing connections 65 Outo byte master/slave, max. 94 Obta length of all outgoing connections 95 Obta length of all norming connections 95 Obta length of all norming connections 95 Obta length of all outgoing interconnections 95 Outo byte master/slave, max. 95 Obta length of all outgoing interconnections 95	Open IE communication	
Tuning - Data length, max.2k byte- Several passive connections per port, supportedYes- Several passive connections, per port, supportedYes: Via integrated PROFINET interface or CP 443-1 and loadable FBs- Number of connections, max.94- Data length, max.94- Data length of max.94- Data length of max.94- Data length of max.94- Number of thTTP clients5- Stepoint for the CPU communication load20 %- Number of functions, master/slave150- Number of functions gonnections65 000 byte- Total of all master/slave, max.100- Data length of all ologing connections60 00 byte- Interconnections100- Number of device-internal und PROFIBUS16 000 byte- Number of device-internal und PROFIBUS1600 byte- Sampling frequency: Sampling time, min.200 byte- Sampling frequency: Sampling time, min.100	• TCP/IP	Yes; via integrated PROFINET interface and loadable FBs
- Several passive connections per port, supportedYes Yes Via integrated PROFINET interface or CP 443-1 and loadable FBs- Number of connections, max.94- Data length, max.32 kbyte; 1452 bytes via CP 443-1 Adv.• UDPVes; via integrated PROFINET interface and loadable FBs- Number of connections, max.44- Data length, max.1472 bytes- Data length, max.1472 byte- Data length of thTTP Clents5- Setpoint for the CPU communication load20 %- Number of functions, master/slave6000- Number of functions, master/slave65000 byte- Total of all Master/Slave connections65 000 byte- Data length of all outgoing connections65 000 byte- Data length of all outgoing connections6000 byte- Data length of all outgoing connections100- Data length of device-internal und PROFIBUS1000 byte- Interconnections, max.200 byte- Data length of device-internal und PROFIBUS1000 byte- Sampling frequency: Sampling time, min,500- Sampling frequency: Sampling time, min,500- Number of incoming interconnections500- Number of outgoing interconnections, max.500- Number of outgoing interconnections, max.500<	— Number of connections, max.	94
suported super server s	— Data length, max.	32 kbyte
Ioadable FBs- Number of connections, max.94- Data length, max.32 kbyte; 1452 bytes via CP 443-1 Adv UDPVes; via integrated PROFINET interface and loadable FBs- Number of connections, max.94- Data length, max.1472 byte- Data length, max.94- Data length of max.94- Data length of max.94- SupportedVes- SupportedVes- Stepoint for HTPP clents5- User - defined websitesYes- Stepoint for the CPU communication load20 %- Number of functions, master/slave150- Total of all Master/slave connection65 000 byte- Total of all outgoing connections master/slave, max.65 000 byte- Data length of all incoming connections master/slave, max.1000- Data length of dil connection, max.200 byte- Data length of all outgoing connections interconnections, max.200 byte- Sampling frequency: Sampling time, min.200 byte- Number of incoming interconnections500- Number of incoming interconnections500- Number of all outgoing interconnections500- Number of incoming interconnections500- Number of incoming interconnections16 000 byte- Number of incoming interconnections500- Data length of all incoming interconnections, max. </td <td></td> <td>Yes</td>		Yes
Data length, max.2k kbyte; 1452 bytes via CP 443-1 Adv.• UDPYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.94- Data length, max.1472 byteWetwerVetworkVetworkVetworkVetworkVetworkVetworkVetworkVetworkVetworkVetworkVetworkVeto Communication loadNumber of HTTP clientsSetpoint for the CPU communication loadNumber of functions, master/slaveNumber of functions, master/slaveNumber of functions, master/slaveNumber of duicoing connectionsSetpoint for the CPU communication loadNumber of duicoing connectionsSetpoint for the CPU communicationSetpoint for the CPU communication loadNumber of functions, master/slaveSetpoint for the CPU communication loadNumber of functions, master/slaveSetpoint for the CPU communicationSetpoint for the CPU communic	 ISO-on-TCP (RFC1006) 	
• UDPYes; via integrated PROFINET interface and loadable FBs Number of connections, max.94 Data length, max.1472 byteWeb server	— Number of connections, max.	94
Number of connections, max.94Data length, max.1472 byteWeb server1472 byteSupportedYesNumber of HTTP clients5Data length of the CPU communication load20 %PROFINET CBA (at set setpoint communication load20 %Number of tructions, master/slave32Number of functions, master/slave6000Data length of all incoming connections65 000 byteNumber of device-internal and PROFIBUS interconnections, max.1000Data length of device-internal and PROFIBUS interconnections, max.1000 byteSampling frequency: Sampling time, min.200 ms; Depending on preset communication load, number of interconnections, maxNumber of outgoing interconnections500Data length of all incoming interconnections, max.200 ms; Depending on preset communication load, number of interconnections, maxData length of all incoming interconnections, max.500Data length of all incoming interconnections, max.500Data length of all incoming interconnections, max.500Data length of all outgoing interconnections, max.16 000 byteData length of all incoming interconnections, max.500Data length of all incoming interconnections, max.500Data length of all incoming interconnections, max.16 000 byteData length of all incoming interconnections, max.500Data length of all incoming interconnections, max.16 000 byteData length of all incomin	— Data length, max.	32 kbyte; 1452 bytes via CP 443-1 Adv.
- Data length, max. 1 472 byte Web server - • supported Yes • Number of HTTP clients 5 • User-defined websites Yes PROFINET CBA (as test setpoint communication load) 20 % • Number of truct communication partners 32 • Number of functions, master/slave 160 • Total of all Master/Slave connections 6000 byte • Data length of all incoming connections 65 000 byte • Data length of all outgoing connections 65 000 byte • master/slave, max. - • Number of device-internal and PROFIBUS interconnections, max. 16 000 byte • Data length of device-internal and PROFIBUS interconnections, max. 16 000 byte • Data length or device-internal and PROFIBUS interconnections max. 16 000 byte • Data length or device-internal and PROFIBUS interconnections, max. 2000 byte • Data length or device-internal and PROFIBUS interconnections with acyclic transmiseur 16 000 byte • Sampling frequency: Sampling time, min. 200 ms; Depending on preset communication load, number of interconnections with acyclic transmiseur • Number of outgoing interconnections 500	• UDP	Yes; via integrated PROFINET interface and loadable FBs
Web server Yes • supported Yes • Number of HTTP clients 5 • User-defined websites Yes PROFINET CBA (at set setpoint communication load) 20 % • Number of remote interconnection partners 32 • Number of functions, master/slave 150 • Total of all Master/Slave connections 6000 • Data length of all outgoing connections 65 000 byte master/slave, max. 65 000 byte • Number of device-internal and PROFIBUS interconnections 1000 • Data length of all outgoing connections 65 000 byte • Data length of device-internal and PROFIBUS interconnections 16 000 byte • Data length preconnection, max. 2 000 byte • Data length preconnection, max. 2 000 byte • Data length preconnections max. 2 000 byte • Data length preconnections 500 • Number of incoming interconnections 500 • Number of incoming interconnections 500 • Number of outgoing interconnections 500 • Data length of all incoming interconnections, max. 16 000 byte •	— Number of connections, max.	94
supportedYesNumber of HTTP clients5User-defined websitesYesPROFINET CBA (at set setpoint communication load)20 %Setpoint for the CPU communication load20 %Number of remote interconnection partners32Number of functions, master/slave150Total of all Master/Slave connections6000 0Data length of all outgoing connections65 000 bytemaster/slave, max.65 000 byteNumber of device-internal and PROFIBUS1 000interconnections, max.16 000 byteData length of device-internal und PROFIBUS1 6000 byteinterconnections, max.2 000 byteData length province interconnection, max.2 000 byteData length of device-internal und PROFIBUS16 000 byteinterconnections, max.2 000 byte- Data length of incoming interconnections500- Number of fincoming interconnections500- Number of incoming interconnections500- Data length of all incoming16 000 byte- Number of outgoing interconnections500- Data length of all incoming16 000 byte- Data length of all outgoing16 000 byte- Data length of all outgoing	— Data length, max.	1 472 byte
Number of HTTP clients5User-defined websitesYesPROFINET CBA (at set setpoint communication load20 %Number of remote interconnection partners32Number of functions, master/slave150Total of all Master/Slave connections6 000Data length of all incoming connections65 000 bytemaster/slave, max• Data length of all outgoing connections66 000 bytemaster/slave, max• Data length of di outgoing connections66 000 bytemaster/slave, max• Data length of di outgoing connections1000interconnections-• Data length of di outgoing connections1000interconnections-• Data length of divice-internal and PROFIBUS16 000 byteinterconnections-• Data length of divice-internal und PROFIBUS2000 byte• Data length of divice-internal und PROFIBUS16 000 byte• Data length per connection, max.2000 byte• Data length of outgoing interconnections500• Data length per connections with acyclic transmission Sampling frequency: Sampling time, min.200 ms; Depending on preset communication load, number of interconnections, max.• Data length of all incoming16 000 byte• Data length of all incoming16 000 byte• Data length of all outgoing16 000 byte• Data length of all outgoing16 000 byte• Data length of all outgoing16 000 byte• Interconnections, max <tr< td=""><td>Web server</td><td></td></tr<>	Web server	
Number of level websitesYesPROFINET CEA (at set setpoint communication load20 %• Setpoint for the CPU communication load20 %• Number of remote interconnection partners32• Number of functions, master/slave150• Total of all Master/Slave connections6 000• Data length of all incoming connections65 000 byte• Data length of all outgoing connections65 000 byte• Data length of all outgoing connections1000• Data length of all outgoing connections1000• Data length of evice-internal and PROFIBUS1000• Interconnections, max.2• Data length of device-internal und PROFIBUS16 000 byte• Data length of incoming interconnections2000 byte• Data length of incoming interconnections500• Data length of incoming interconnections500• Number of incoming interconnections500• Data length of all incoming500• Data length of all incoming6000 byte• Data length of all outgoing16 000 byte• Data le	• supported	Yes
PROFINET CBA (at set setpoint communication load 20 % • Setpoint for the CPU communication load 20 % • Number of remote interconnection partners 32 • Number of functions, master/slave 150 • Total of all Master/Slave connections 6 000 • Data length of all incoming connections 65 000 byte master/slave, max. 65 000 byte • Data length of all outgoing connections 65 000 byte master/slave, max. 1000 • Number of device-internal and PROFIBUS interconnections, max. 1 000 • Data length of device-internal und PROFIBUS interconnections, max. 2 000 byte • Data length per connection, max. 2 000 byte • Data length per connection, max. 2 000 byte • Data length of all incoming interconnections 500 • Data length of all incoming interconnections 2 000 byte • Data length of all incoming interconnections 500 • Number of incoming interconnections 500 • Number of outgoing interconnections 500 • Number of outgoing interconnections 500 • Data length of all incoming interconnections 16 000 byte • Data length of all outgoing interconnections, max	 Number of HTTP clients 	5
• Setpoint for the CPU communication load 20 % • Number of remote interconnection partners 32 • Number of functions, master/slave 150 • Total of all Master/Slave connections 6 000 • Data length of all incoming connections 65 000 byte master/slave, max. 65 000 byte • Data length of all outgoing connections 65 000 byte master/slave, max. 1000 • Number of device-internal and PROFIBUS interconnections, max. 1 000 • Data length of device-internal und PROFIBUS interconnections, max. 16 000 byte • Data length per connection, max. 2 000 byte • Data length per connection, max. 2 000 byte • Data length per of incoming interconnections 500 - Sampling frequency: Sampling time, min. 200 ms; Depending on preset communication load, number of interconnections and data length used - Number of outgoing interconnections 500 - Number of outgoing interconnections 500 - Data length of all incoming interconnections 500 - Data length of all outgoing interconnections 500 - Data length of all outgoing interconnections, max. 16 000 byte - Data length of all outgoing interconnections, max.	 User-defined websites 	Yes
Number of remote interconnection partners32Number of functions, master/slave150Total of all Master/Slave connections6 000Data length of all incoming connections65 000 bytemaster/slave, max.65 000 byteData length of all outgoing connections65 000 bytemaster/slave, max.100Number of device-internal and PROFIBUS1 000interconnections, max.16 000 byteData length of device-internal und PROFIBUS16 000 byteinterconnections, max.2 000 byteData length per connection, max.2 000 byte- Sampling frequency: Sampling time, min.200 ms; Depending on preset communication load, number of interconnections and data length used- Number of outgoing interconnections500- Number of outgoing interconnections500- Data length of all incoming interconnections16 000 byte- Data length of all incoming interconnections500- Data length of all outgoing interconnections500- Data length of all outgoing16 000 byte- Data length of all outgoing16 000 byte- Data length of all outgoing2 000 byte- Data length per connection, max.2 000 byte	PROFINET CBA (at set setpoint communication load)	
Number of functions, master/slave150• Total of all Master/Slave connections6 000• Data length of all incoming connections65 000 byte• master/slave, max.65 000 byte• Data length of all outgoing connections65 000 byte• Number of device-internal and PROFIBUS1 000• Interconnections, max.16 000 byte• Data length of device-internal und PROFIBUS16 000 byte• Data length per connection, max.2 000 byte• Data length per connection, max.2 000 byte• Data length per connections with acyclic transmission200 ms; Depending on preset communication load, number of interconnections and data length used- Number of incoming interconnections500- Number of outgoing interconnections500- Data length of all incoming interconnections16 000 byte- Data length of all incoming interconnections500- Data length of all outgoing interconnections16 000 byte- Data length of all outgoing interconnections, max.16 000 byte- Data length of all outgoing interconnections, max.2 000 byte- Data length of all outgoing interconnections, max.2 000 byte- Data length per connection, max.2 000 byte	 Setpoint for the CPU communication load 	20 %
InstrumentInstrument6 000Instrument65 000 byteInstrument65 000 byteInstrument65 000 byteInstrument65 000 byteInstrument65 000 byteInstrument65 000 byteInstrument1 000Interconnections1 000Interconnections, max.1 6 000 byteInterconnections, max.2 000 byteInterconnections with acyclic transmission1000Interconnections with acyclic transmission200 ms; Depending on preset communication load, number of interconnectionsInterconnections interconnections500Interconnections, max.500Interconnections, max.16 000 byteInterconnections, max.16 000 byteInterconnections interconnections500Interconnections, max.16 000 byteInterconnections, max.16 000 byte	 Number of remote interconnection partners 	32
 Data length of all incoming connections master/slave, max. Data length of all outgoing connections master/slave, max. Data length of all outgoing connections master/slave, max. Number of device-internal and PROFIBUS interconnections Data length of device-internal und PROFIBUS interconnections, max. Data length per connection, max. 2000 byte Remote interconnections with acyclic transmission Solo ms; Depending on preset communication load, number of interconnections and data length used Number of outgoing interconnections Solo byte Solo byte Remote interconnections Solo byte Solo b	 Number of functions, master/slave 	150
master/slave, max.65 000 byte• Data length of all outgoing connections master/slave, max.65 000 byte• Number of device-internal and PROFIBUS interconnections1 000• Data length of device-internal und PROFIBUS interconnections, max.16 000 byte• Data length per connection, max.2 000 byte• Data length per connections with acyclic transmission2 000 byte• Comparison2 000 byte• Data length per connections with acyclic transmission500• Number of incoming interconnections500• Number of outgoing interconnections500• Number of outgoing interconnections500• Data length of all incoming interconnections, max.16 000 byte• Data length of all incoming interconnections, max.16 000 byte• Data length of all outgoing interconnections, max.500• Data length of all incoming interconnections, max.16 000 byte• Data length of all outgoing interconnections, max.16 000 byte• Data length of all outgoing interconnections, max.2 000 byte	 Total of all Master/Slave connections 	6 000
master/slave, max.I 000• Number of device-internal and PROFIBUS interconnections16 000 byte• Data length of device-internal und PROFIBUS interconnections, max.16 000 byte• Data length per connection, max.2 000 byte• Data length per connection, max.2 000 byte• Data length per connection, max.200 ms; Depending on preset communication load, number of interconnections and data length used- Sampling frequency: Sampling time, min.200 ms; Depending on preset communication load, number of interconnections and data length used- Number of incoming interconnections500- Number of outgoing interconnections500- Data length of all incoming interconnections, max.16 000 byte- Data length of all outgoing interconnections, max.16 000 byte- Data length of all outgoing interconnections, max.2 000 byte- Data length of all outgoing interconnections, max.2 000 byte- Data length of all outgoing interconnections, max.2 000 byte		65 000 byte
interconnections16 000 byte• Data length of device-internal und PROFIBUS interconnections, max.16 000 byte• Data length per connection, max.2 000 byte• Data length per connection, max.2 000 byte- Sampling frequency: Sampling time, min.200 ms; Depending on preset communication load, number of interconnections and data length used- Number of incoming interconnections500- Number of outgoing interconnections500- Data length of all incoming interconnections, max.16 000 byte- Data length of all outgoing interconnections, max.16 000 byte- Data length of all outgoing interconnections, max.16 000 byte- Data length of all outgoing interconnections, max.2 000 byte- Data length of all outgoing interconnections, max.2 000 byte		65 000 byte
interconnections, max.2 000 byte• Data length per connection, max.2 000 byteRemote interconnections with acyclic transmission- Sampling frequency: Sampling time, min.200 ms; Depending on preset communication load, number of interconnections and data length used- Number of incoming interconnections500- Number of outgoing interconnections500- Data length of all incoming interconnections500- Data length of all outgoing interconnections16 000 byte- Data length of all outgoing interconnections, max.16 000 byte- Data length of all outgoing interconnection, max.2 000 byte		1 000
Remote interconnections with acyclic transmission — Sampling frequency: Sampling time, min. 200 ms; Depending on preset communication load, number of interconnections and data length used — Number of incoming interconnections 500 — Number of outgoing interconnections 500 — Data length of all incoming interconnections, max. 16 000 byte — Data length of all outgoing interconnection, max. 16 000 byte — Data length per connection, max. 2 000 byte	-	16 000 byte
 Sampling frequency: Sampling time, min. Number of incoming interconnections Number of outgoing interconnections Number of outgoing interconnections Data length of all incoming interconnections Data length of all outgoing interconnections Data length of all outgoing interconnections, max. Data length of all outgoing max. Data length per connection, max. 200 ms; Depending on preset communication load, number of interconnections and data length used 	 Data length per connection, max. 	2 000 byte
Interconnectionsinterconnections and data length used Number of incoming interconnections500 Number of outgoing interconnections500 Data length of all incoming interconnections, max.16 000 byte Data length of all outgoing interconnections, max.16 000 byte Data length of all outgoing interconnections, max.2 000 byte	Remote interconnections with acyclic transmission	
Number of outgoing interconnections 500 Data length of all incoming interconnections, max. 16 000 byte Data length of all outgoing interconnections, max. 16 000 byte Data length of all outgoing interconnections, max. 16 000 byte Data length of all outgoing interconnection, max. 2 000 byte	— Sampling frequency: Sampling time, min.	
— Data length of all incoming 16 000 byte interconnections, max. — Data length of all outgoing interconnections, max. 16 000 byte — Data length of all outgoing 16 000 byte interconnections, max. 2 000 byte	- Number of incoming interconnections	500
interconnections, max. 16 000 byte — Data length of all outgoing interconnections, max. 16 000 byte — Data length per connection, max. 2 000 byte	- Number of outgoing interconnections	500
interconnections, max. 2 000 byte		16 000 byte
		16 000 byte
Remote interconnections with cyclic transmission	— Data length per connection, max.	2 000 byte
	Remote interconnections with cyclic transmission	



er of
max. 8 g. WinCC)



Process diagnostic messages Yes simultaneously active Alarm-S blocks, max. 1000; Simultaneously active alarm_S/SQ blocks or alarm_D//Q blocks Alarm 8-blocks Yes • Number of instances for alarm 8 and S7 communication blocks, max. 600 • preset, max. 1024 • overall, max. 128 • in 100 ms grid, max. 124 • in 100 ms grid, max. 1024 • in 100 ms grid, max. 10 • with 500, 1000 ms grid, max. 1 • with 500, 1000 ms grid, max. 1 • with 500, 1000 ms grid, max. 10 Test commissioning functions 18 Status block Yes; Up to 16 simultaneously Single step Yes • Number of variables, max. 70; Status/control • Present Yes 10			
blocks Alarns - blocks Yes Aumber of instances for alarn 8 and S7 communication blocks, max. 4000 • presest, max. 600 Process control messages Yes Number of instances to algon o simultaneously (SFB 37 AR, SEND) 22 Number of messages 1024 • not 00 mg din, max. 128 • in 100 mg din, max. 128 • in 100 mg grid, max. 1024 • with 500, 1000 mg grid, max. 1024 • with 500, 1000 mg grid, max. 1024 • with 500, 1000 mg grid, max. 10 Status block Yes: Up to 16 simultaneously Single step Yes • Status/control variable Yes • Status/control variable Yes • Status/control variables, max. 512 • Number of variables, max. 512 • Number of variables, max. 512			
Alarm 8-blocks Yes • Number of instances for alarm 8 and S7 communication blocks, max. 4000 • proset, max. 600 Process control messages Yes Number of archives that can log on simultaneously (SFB 37 AR, SEND) 32 Number of messages 1024 • overall, max. 1024 • in 100 ms grid, max. 1024 • in 100 ms grid, max. 1024 • in 100 ms grid, max. 1024 • with 100 ms grid, max. 1 • with 100 ms grid, max. 1 • with 500, 1000 ms grid, max. 10 Test commissioning functions 10 Status block Yes: Up to 16 simultaneously Single step Yes Number of variables, max. 16 • Status/control 16 Status/control 10 Forcing Yes • Number of variables, max. 70; Status/control • Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, contrets • Number of variables, max. 512 • Forcing Yes • Forcing Yes • Forcing Yes • Number of variables, max. 512 • Jagnostic buffer Yes • Number of anation, max. </td <td>simultaneously active Alarm-S blocks, max.</td> <td>-</td>	simultaneously active Alarm-S blocks, max.	-	
• Number of instances for alarm 8 and S7 communication blocks, max.4000• Process control messagesYesNumber of archives that can log on simultaneously (SFB 37 AR, SEND)32Number of messages1024• overall, max.1024• in 100 ms grid, max.123• in 100 ms grid, max.1024• in 100 ms grid, max.10• with 500, 1000 ms grid, max.10• with 500, 1000 ms grid, max.10• with 500, 1000 ms grid, max.10• status/control serverVes• Status/control variables16• Status/control variables16• Status/controlYes, Up to 16 variable tables• Variables10, Status/control• ForcingYes, Up to 16 variable tables• Number of variables, max.70; Status/control• ForcingYes• ForcingYes• ForcingYes• ForcingYes• Prosent3200• Number of variables, max.3200• Can be read outYes• EndoutYes• Limit class A, for use in industrial areasYes• Status/control <td>Alorm 9 blocks</td> <td></td>	Alorm 9 blocks		
communication blocks, max. 600 Process control messages Yes Number of archives that can log on simultaneously (SFB 37 AR, SEND) 32 Number of messages 1024 • in 100 ms grid, max. 128 • in 100 ms grid, max. 122 • in 100 ms grid, max. 1024 • in 100 ms grid, max. 1024 • in 100 ms grid, max. 1024 • with 100 ms grid, max. 1024 • with 500, 1000 ms grid, max. 1024 • with 500, 1000 ms grid, max. 10 • with 500, 1000 ms grid, max. 1 • with 500, 1000 ms grid, max. 1 • Status block Yes; Up to 16 simultaneously Single step Yes • Status/control variable Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters • Number of variables, max. 512 • Forcing Yes • Forcing Yes • Forcing Yes • Prosent Yes • Group erad variables, max. 3200 • Can be reed out Yes			
• preset, max.600Process control messagesYesNumber of archives that can log on simultaneously22Number of messages1024• overall, max.1024• in 100 ms grid, max.1024• in 100 ms grid, max.1024• in 100 ms grid, max.1024• with 100 ms grid, max.1024• with 100 ms grid, max.1024• with 100 ms grid, max.1• 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• status blockYesStatus blockYesNumber of breakpoints16Status blockYes• Number of variables, max.Yes• Number of variables, max.Yes• Number of variables, max.Yes• Status/control variableYes• Number of variables, max.Status/control• ForcingYes• ForcingYes• ForcingYes• presentYes• Number of variables, max.3200• Number of entries, max.3200• Can be read outYes• Starice dataYes• Can be read outYes• Can be read outYes• Ensein on farido interference acc. to EN 55 011• Limit class A, for use in industrial areasYes		4 000	
Process Ves Number of archives that can log on simultaneously (SFB 37 AR.SEND) 32 Number of messages 1024 • overall, max. 1024 • in 100 ms grid, max. 512 • in 500 ms grid, max. 512 • in 100 ms grid, max. 1024 • in 100 ms grid, max. 1024 • in 100 ms grid, max. 1024 • with 500, ng grid, max. 10 • with 500, ng grid, max. 1 • with 500, ng grid, max. 10 • with 500, ng grid, max. 10 Status block Yes; Up to 16 simultaneously Single step Yes Number of breakpoints 16 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 • Forcing Yes • Corde set Yes		600	
Number of archives that can log on simultaneously (SFB 37 AR_SEND) 32 Number of messages 1024 • overall, max. 1024 • in 100 ms grid, max. 128 • in 500 ms grid, max. 1024 • in 100 ms grid, max. 1024 • in 100 ms grid, max. 1024 • in 100 ms grid, max. 1024 Number of additional values 1 • with 100 ms grid, max. 1 • with 500, 1000 ms grid, max. 10 Test commissioning functions 1 Status block Yes; Up to 16 simultaneously Single step Yes Number of breakpoints 16 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 Forcing Yes • Forcing Yes • Forcing Yes • Forcing Yes • Prosent Yes • Jagnostic buffer Yes • Can be set Yes </td <td></td> <td></td>			
(SFB 37 AR_SEND)Number of messages• overall, max.1024• in 100 ms grid, max.128• in 100 ms grid, max.1024Number of additional values1024• with 100 ms grid, max.1• with 100 ms grid, max.10Testcommissioning functions10Status blockYes; Up to 16 simultaneouslySingle stepYesNumber of breakpoints16Status/control16Status/control variableInputs/outputs, memory bits, DBs, distributed I/Os, timers, counters• Number of variables, max.70; Status/control• ForcingYes• ForcingYes• ForcingYes• Number of variables, max.512Diagnostic bufferStatus/control• Number of variables, max.70; Status/control• Number of variables, max.512Diagnostic bufferYes• presentYes• presentYes• Number of entries, max.3200• can be setYes• Can be read outYesEmceseYesEmission of radio interference acc. to EN 55 011• Limit class A, for use in industrial areasYes	•		
Number of messages • overall, max. 1 024 • in 100 ms grid, max. 128 • in 500 ms grid, max. 512 • in 1000 ms grid, max. 10 Number of additional values ************************************		02	
in 100 ms grid, max. 512 in 1000 ms grid, max. 1024 Number of additional values i with 100 ms grid, max. 1 i with 500, 1000 ms grid, max. 1 i with 500, 1000 ms grid, max. 1 i with 500, 1000 ms grid, max. 10 Test commissioning functions Status block Yes; Up to 16 simultaneously Single step Yes Number of breakpoints 5 Status/control i Status/control variable i Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Number of variables, max. 70, Status/control Forcing Yes Number of variables, max. 512 Diagnostic buffer i Forcie, variables, max. 512 Diagnostic buffer i present Yes i nputs/outputs, bit memories, distributed I/Os i npresent Yes i nputs/outputs, bit memories, distributed I/Os i nputs/outputs, bit memories, distributed I/Os i nputs/outputs, bit memories, distributed I/Os i npresent Yes i npresent Yes Emote test Yes Emote test Yes Emote test Yes i nputs/outputs, bit memories, distributed i nputs/outputs, bit memories, distributed i nputs/outputs, bit memories, distributed I/Os i npresent Yes i n			
in 500 ms grid, max. 512 in 1000 ms grid, max. 1024 Number of additional values 1 • with 100 ms grid, max. 10 Test commissioning functions 10 Status block Yes; Up to 16 simultaneously Single step Yes Number of breakpoints 16 Status/control 16 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 Yes • Forcing Yes • Forcing Status/control • Forcing Yes • Forcing Yes • Forcing Yes • Number of variables, max. 512 Diagnostic buffer Yes • present Yes • Number of entries, max. 3 200 - can be set Yes - preset Yes • Can be read out Yes Emission of radio interference acc. to EN 55 011 Yes	● overall, max.	1 024	
• in 500 mg grid, max.512• in 1000 mg grid, max.1 024Number of additional values1• with 100 mg grid, max.1• with 500, 1000 mg grid, max.10Test commissioning functionsStatus blockYes; Up to 16 simultaneouslySingle stepNumber of breakpoints6Status/control variable• Status/control variablesInputs/outputs, memory bits, DBs, distributed I/Os, timers, contrets• Number of variables, max.70• ForcingYes• ForcingYes• ForcingYes• ForcingYes• Number of variables, max.512Diagnostic buffer• presentYes• Number of entries, max.3 200• Can be set120• Derived dataYesEnvice data• Can be read outYesEmvice dataEnvice data• Limit class A, for use in industrial areasYesYes	● in 100 ms grid, max.	128	
• in 1000 ms grid, max.1 024Number of additional values• with 100 ms grid, max.1• with 500, 1000 ms grid, max.10Test commissioning functionsStatus blockYes; Up to 16 simultaneouslySingle stepYesNumber of breakpoints16Status/controlInputs/outputs, memory bits, DBs, distributed I/Os, timers, counters• Number of variables, max.70; Status/controlForcingYes• ForcingYes• ForcingYes• ForcingYes• Number of variables, max.512Diagnostic buffer1903/00000000000000000000000000000000000	-	512	
Number of additional values • with 100 ms grid, max. 1 • with 500, 1000 ms grid, max. 10 Test commissioning functions Status block Yes; Up to 16 simultaneously Single step Yes Number of breakpoints 16 Status/control • • Status/control variable Yes; Up to 16 variable tables • Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters • Number of variables, max. 70; Status/control Forcing Yes • Force, variables Inputs/outputs, bit memories, distributed I/Os, timers, counters • Number of variables, max. 512 Diagnostic buffer Yes • present Yes • Number of entries, max. 3 200 - can be set Yes - preset 120 Service data Yes • Can be read out Yes Emission of radio interference acc. to EN 55 011 Yes		1 024	
• with 100 ms grid, max. 1 • with 500, 1000 ms grid, max. 10 Test commissioning functions 10 Status blook Yes; Up to 16 simultaneously Single step Yes Number of breakpoints 16 Status/control 16 • 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 Yes • Forcing Yes • Force, variables, max. 512 Diagnostic buffer Yes • present Yes • Number of entries, max. 3 200 - can be set Yes - preset 120 Service data Yes • Can be read out Yes			
• with 500, 1000 ms grid, max. 10 Test commissioning functions Status block Yes; Up to 16 simultaneously Single step Yes Number of breakpoints 16 Status/control Status/control variable • Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters • Number of variables, max. 70; Status/control Forcing Yes • Forcing Yes • Forcing Inputs/outputs, bit memories, distributed I/Os, timers, counters • Number of variables, max. 512 Diagnostic buffer Yes • present Yes • Number of entries, max. 3 200 — can be set Yes — preset 120 Service data Yes • Can be read out Yes Emission of radio interference acc. to EN 55 011 Yes • Limit class A, for use in industrial areas Yes	• with 100 ms grid, max.	1	
Status block Yes; Up to 16 simultaneously Single step Yes Number of breakpoints 16 Status/control 16 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 Yes • Forcing Yes • Forcing Yes • Number of variables, max. 512 Diagnostic buffer Yes • number of entries, max. 512 Diagnostic buffer Yes • number of entries, max. 3 200 - can be set Yes - preset 120 Service data Yes • Can be read out Yes Emission of radio interference acc. to EN 55 011 Yes		10	
Status block Yes; Up to 16 simultaneously Single step Yes Number of breakpoints 16 Status/control 16 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 Yes • Forcing Yes • Forcing Yes • Number of variables, max. 512 Diagnostic buffer Yes • present Yes • Number of entries, max. 3 200 — can be set Yes — preset 120 Service data Yes • Can be read out Yes Emission of radio interference acc. to EN 55 011 Yes			
Single step Yes Number of breakpoints 16 Status/control 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 Yes • Force, variables, max. 70; Status/control • Force, variables, max. 512 Diagnostic buffer Yes • number of entries, max. 3 200 - can be set Yes - preset 120 Service data Yes • Can be read out Yes Emission of radio interference acc. to EN 55 011 Yes • Limit class A, for use in industrial areas Yes			
Number of breakpoints 16 Status/control 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 Yes • Force, variables, max. 512 Diagnostic buffer Status/control • present Yes • Number of entries, max. 3 200 • can be set Yes • can be set 120 Service data Yes etcan be read out Yes Emission of radio interference acc. to EN 55 011 Yes			
Status/control 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 Yes • Forcing Inputs/outputs, bit memories, distributed I/Os • Forcing Yes • Force, variables Inputs/outputs, bit memories, distributed I/Os • Force, variables, max. 512 Diagnostic buffer Yes • present Yes • Number of entries, max. 3 200 - can be set Yes - preset 120 Service data Yes • Can be read out Yes Emission of radio interference acc. to EN 55 011 Yes • Limit class A, for use in industrial areas Yes			
• 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 Yes • Forcing Inputs/outputs, bit memories, distributed I/Os • Force, variables Inputs/outputs, bit memories, distributed I/Os • Force, variables, max. 512 Dlagnostic buffer Yes • present Yes • number of entries, max. 3 200 - can be set Yes - preset Yes • Can be read out Yes Embed cata Yes • Can be read out Yes Emission of radio interference acc. to EN 55 011 Yes • Limit class A, for use in industrial areas Yes		16	
• VariablesInputs/outputs, memory bits, DBs, distributed I/Os, timers, counters• Number of variables, max.0; Status/control• ForcingYes• Force, variablesInputs/outputs, bit memories, distributed I/Os• Force, variables, max.512• Diagnostic bufferYes• number of entries, max.3 200• number of entries, max.3200• number of entries, max.120• number of entries, max.120• number of entries, max.120• number of entries, max.Yes• Can be sedYes• Can be read outYes• Emter dettion of radio interference acc. to EN 55 011Yes• Limit class A, for use in industrial areasYes		Ves: Up to 16 variable tables	
counters• Number of variables, max.70; Status/controlForcingYes• Force, variablesInputs/outputs, bit memories, distributed I/Os• Force, variables, max.512• Diagnostic bufferYes• presentYes• Number of entries, max.3 200- can be setYes- preset120Service dataYes• Can be read outYes• EMCYes• Emission of radio interference acc. to EN 55 011Yes• Limit class A, for use in industrial areasYes			
• Number of variables, max.70; Status/controlForcing70; Status/control• ForcingYes• Force, variablesInputs/outputs, bit memories, distributed I/Os• Force, variables, max.512Diagnostic bufferYes• presentYes• Number of entries, max.3 200- can be set - presetYes• Can be read outYesEmission of radio interference acc. to EN 55 011Yes• Limit class A, for use in industrial areasYes	• Variables	· · · · · · · · · · · · · · · · · · ·	
ForcingYes• Force, variablesInputs/outputs, bit memories, distributed I/Os• Force, variables, max.512Diagnostic bufferYes• presentYes• Number of entries, max.3 200- can be set - presetYes120Service dataYes• Can be read outYesEMCEmission of radio interference acc. to EN 55 011Yes• Limit class A, for use in industrial areasYes	 Number of variables, max. 		
• ForcingYes• Force, variablesInputs/outputs, bit memories, distributed I/Os• Number of variables, max.512Diagnostic bufferYes• presentYes• Number of entries, max.3 200- can be setYes- preset120Service dataYes• Can be read outYesEmission of radio interference acc. to EN 55 011• Limit class A, for use in industrial areasYes			
• Force, variablesInputs/outputs, bit memories, distributed I/Os• Number of variables, max.512Diagnostic bufferYes• presentYes• Number of entries, max.3 200- can be setYes- preset120Service dataYes• Can be read outYesEMCEmission of radio interference acc. to EN 55 011• Limit class A, for use in industrial areasYes		Yes	
• Number of variables, max. 512 Diagnostic buffer Yes • present Yes • Number of entries, max. 3 200 — can be set Yes — preset 120 Service data Yes • Can be read out Yes Emission of radio interference acc. to EN 55 011 • Limit class A, for use in industrial areas Yes	-	Inputs/outputs, bit memories, distributed I/Os	
Diagnostic buffer Yes • present Yes • Number of entries, max. 3 200 - can be set Yes - preset 120 Service data Yes • Can be read out Yes EMC Yes Emission of radio interference acc. to EN 55 011 Yes			
• presentYes• Number of entries, max.3 200- can be setYes- preset120Service dataYes• Can be read outYesEMCEmission of radio interference acc. to EN 55 011• Limit class A, for use in industrial areasYes			
 Number of entries, max. - can be set - preset Yes - preset 120 Service data Can be read out Yes EMC Emission of radio interference acc. to EN 55 011 Limit class A, for use in industrial areas Yes 		Yes	
- can be set Yes - preset 120 Service data Yes • Can be read out Yes EMC Emission of radio interference acc. to EN 55 011 • Limit class A, for use in industrial areas Yes			
preset 120 Service data · Can be read out • Can be read out Yes EMC · Limit class A, for use in industrial areas Yes			
Service data • Can be read out Yes EMC Emission of radio interference acc. to EN 55 011 Limit class A, for use in industrial areas Yes 			
Can be read out Yes EMC Emission of radio interference acc. to EN 55 011 Limit class A, for use in industrial areas Yes	•		
EMC Emission of radio interference acc. to EN 55 011 • Limit class A, for use in industrial areas Yes		Yes	
Emission of radio interference acc. to EN 55 011 • Limit class A, for use in industrial areas Yes			
Limit class A, for use in industrial areas Yes			
Limit class B, for use in residential areas No			
	 Limit class B, for use in residential areas 	No	



Configuration	
Configuration software	
• STEP 7	Yes
programming	
Command set	see instruction list
Nesting levels	7
 Access to consistent data in process image 	Yes
 System functions (SFC) 	see instruction list
 System function blocks (SFB) 	see instruction list
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
Number of simultaneously active SFCs	
— DPSYC_FR	2
— D_ACT_DP	8
	8
— WR_REC	8
— WR_PARM	8
— PARM_MOD	1
— WR_DPARM	2
— DPNRM_DG	8
— RDSYSST	8
- DP_TOPOL	1
Number of simultaneously active SFBs	
- RDREC	8
— WRREC	8
Know-how protection	
 User program protection/password protection 	Yes
 Block encryption 	Yes; With S7 block Privacy
Dimensions	
Width	50 mm
Height	290 mm
Depth	219 mm
Weights	
Weight, approx.	900 g



last modified:

