## **SIEMENS**

## **Data sheet**

6ES7416-3FS07-0AB0



SIMATIC S7-400, CPU416F-3 PN/DP Central processing unit with: Work memory 16 MB, (8 MB code, 8 MB data), interfaces 1st interface MPI/DP 12 Mbit/s, (X1), 2nd interface Ethernet/PROFINET (X5) 3rd interface IF 964-DP plug-in (IF1)

General information	
Product type designation	CPU 416F-3 PN/DP
Firmware version	V7.0
Product function	
Isochronous mode	Yes; Via PROFIBUS DP or PROFINET interface
Engineering with	
<ul> <li>Programming package</li> </ul>	STEP 7 V5.5 or higher with HSP 262
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.	1.3 A
from backplane bus 5 V DC, max.	1.6 A
from backplane bus 24 V DC, max.	300 mA; 150 mA per DP interface
from interface 5 V DC, max.	90 mA; At each DP interface
Power loss	
Power loss, typ.	6.5 W
Power loss, max.	8 W
Memory	
Type of memory	RAM
Work memory	
<ul><li>integrated</li></ul>	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
expandable RAM	Yes; with Memory Card (RAM)
expandable RAM, max.	64 Mbyte
Backup	
<ul><li>present</li></ul>	Yes
<ul><li>with battery</li></ul>	Yes; all data
<ul><li>without battery</li></ul>	No

attery	
Backup battery	
<ul> <li>Backup current, typ.</li> </ul>	180 μA; up to 40 °C
<ul> <li>Backup current, max.</li> </ul>	850 μΑ
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	
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 cyclic interrupt OBs	9; OB 30-38 (shortest cycle that can be set = 500 μs)
Number of process alarm OBs	8; OB 40-47
Number of DPV1 alarm OBs	3; OB 55-57
Number of 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	2; OB 100, 102
Number of asynchronous error OBs	9; OB 80-88
Number of synchronous error OBs	2; OB 121, 122
Nesting depth	2, 00 121, 122
per priority class	24
additional within an error OB	2
ounters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	2 040
— adjustable	Yes
— lower limit	0
— lower limit — upper limit	2 047
— upper iimit — preset	Z 0 to Z 7
— preset  Counting range	L V W L I
— lower limit	0
	0 999
— upper limit	
IEC counter	Voc
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
S7 times	0.040
Number	2 048

	v.
— adjustable	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	
<ul><li>present</li></ul>	Yes
<ul><li>Type</li></ul>	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
<ul> <li>Retentivity available</li> </ul>	Yes
<ul> <li>Retentivity preset</li> </ul>	MB 0 to MB 15
<ul> <li>Number of clock memories</li> </ul>	8; in 1 memory byte
Local data	
<ul> <li>adjustable, max.</li> </ul>	32 kbyte
• preset	16 kbyte
Address area	
I/O address area	
• Inputs	16 kbyte
<ul><li>Outputs</li></ul>	16 kbyte
Process image	
Inputs, adjustable	16 kbyte
<ul> <li>Outputs, adjustable</li> </ul>	16 kbyte
<ul> <li>Inputs, default</li> </ul>	512 byte
Outputs, default	512 byte
consistent data, max.	244 byte
<ul> <li>Access to consistent data in process image</li> </ul>	Yes
Subprocess images	
Number of subprocess images, max.	15
Digital channels	
• Inputs	131 072
— of which central	131 072
Outputs	131 072
— of which central	131 072
Analog channels	
• Inputs	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	
Number of connectable IMs (total), max.	6
<ul> <li>Number of connectable IM 460s, max.</li> </ul>	6
<ul> <li>Number of connectable IM 463s, max.</li> </ul>	4; IM 463-2
Number of DP masters	
integrated	1
• via CP	10; CP 443-5 Extended
• via IM 467	4
Mixed mode IM + CP permitted	No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in
•	PROFINET IO mode

via interface module     Number of pluggable SE modules (via adapter)	1; IF 964-DP
<ul> <li>Number of pluggable S5 modules (via adapter capsule in central device), max.</li> </ul>	6
Number of IO Controllers	
• integrated	1
• via CP	4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode
Number of operable FMs and CPs (recommended)	
• FM	Limited by number of slots or number of connections
• CP, PtP	CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections
PROFIBUS and Ethernet CPs	14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller
Slots	
required slots	2
ime of day	
Clock	
<ul> <li>Hardware clock (real-time)</li> </ul>	Yes
<ul> <li>retentive and synchronizable</li> </ul>	Yes
<ul><li>Resolution</li></ul>	1 ms
<ul> <li>Deviation per day (buffered), max.</li> </ul>	1.7 s; Power off
Deviation per day (unbuffered), max.	8.6 s; For power On
Operating hours counter	
Number	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	
<ul><li>supported</li></ul>	Yes
• to MPI, master	Yes
<ul><li>to MPI, slave</li></ul>	Yes
• to DP, master	Yes
<ul><li>to DP, slave</li></ul>	Yes
• in AS, master	Yes
• in AS, slave	Yes
<ul> <li>on Ethernet via NTP</li> </ul>	Yes; As client
• to IF 964 DP	Yes
Time difference in system when synchronizing via	
• Ethernet, max.	10 ms
• MPI, max.	200 ms
nterfaces	
Interfaces/bus type	1 x MPI/PROFIBUS DP, 1 x PROFINET (2 ports), 1 x PROFIBUS DP
Number of RS 485 interfaces	(optionally pluggable)  1; Combined MPI / PROFIBUS DP
Number of other interfaces	1; PROFIBUS DP with IF 964-DP (plug-in option; MLFB: 6ES7964-
Trained of other interfaces	2AA04-0AB0)
. Interface	
Interface type	MPI/PROFIBUS DP
Isolated	Yes
Interface types	
• RS 485	Yes
Output current of the interface, max.	150 mA
Protocols	
• MPI	Yes
<ul> <li>PROFIBUS DP master</li> </ul>	Yes
PROFIBUS DP slave	Yes

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- Transmission vata vasy	connection resources on the line is reduced by 1
Transmission rate, max.  Services	12 Mbit/s
— PG/OP communication	Yes
— Routing	Yes
3	Yes
Global data communication     S7 basic communication	Yes
— S7 basic communication  — S7 communication	Yes
— S7 communication, as client	Yes Yes
— S7 communication, as server  PROFIBUS DP master	Tes
	20. If a diagnostica reporter is used on the line, the number of
<ul> <li>Number of connections, max.</li> </ul>	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
<ul> <li>Number of DP slaves, max.</li> </ul>	32
Services Services	<u>-</u>
— PG/OP communication	Yes
— 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
Activation/deactivation of DP slaves	Yes
Direct data exchange (slave-to-slave)	Yes
communication)	163
— 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
PROFIBUS 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
— of which consistent, max.	32 byte
Services	
— PG/OP communication	Yes; with interface active
— Routing	Yes; with interface active
Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
— S7 communication, as client	Yes
— S7 communication, as server	Yes
Direct data exchange (slave-to-slave)	No
communication)	
— DPV1	No
Transfer memory	

- Inputs	
Interface type	
Interface type Isolated Isolated Ves Autornospitiation Autornospitiation Change of IP address at runtime, supported Press, Autornospitiation Autornospitiation Autornospitiation Change of IP address at runtime, supported Press, Assignment by higher-level IO-Controller or by the user prowith SFB104**IP_CONF**  Interface types  R. 14.5 (Ethernet) Number of ports Integrated switch Protocols PROFINET IO Controller PROFINET IO Device PROFINET IO Device PROFINET IO Device PROFINET OB A PROFIBUS DP master PROFIBUS DP slave No Open IE communication Web server Point-point connection Media redundancy PROFINET IO Controller Transmission rate, max. 100 Mbit/s  Services PCO'NET IO Controller Transmission rate, max. 100 Mbit/s  Services PCO'NET IO Controller Transmission rate, max. 100 Mbit/s  Services PCO'NET IO Controller Transmission rate, max. 100 Mbit/s  Services PCO'NET IO Controller Transmission rate, max. 256 Do'Nethic In line, max. Autoriosion Point In Integrated Search Autoriosion Pression Research Profile Profile Research Profile R	
Solated   Yes   Autosensing   Yes   Autosensing	
automatic detection of transmission rate  Autoreposition  Autoreposition  Change of IP address at runtime, supported  Pres  Autoressing  Change of IP address at runtime, supported  With SFB104 "IP_CONF"  Interface types  RJ 45 (Ethemet)  Number of ports  Interface types  PROFINET IO Controller  PROFINET IO Device  PROFINET IO Device  PROFINET OB Paster  PROFINET O	
Autocrossing Autocrossing Yes Change of IP address at runtime, supported  Ness Assignment by higher-level IO-Controller or by the user prowith SFB104 "IP_CONF"  Interface types  RJ 46 (Ethernet) Number of ports Number of Londroller PROFINET IO Controller PROFINET IO Controller PROFINET IO Device PROFINET IO Device PROFINET OBA PROFIBUS DP master PROFIBUS DP slave Open IE communication Web server Point-to-point connection No Media redundancy PROFINET IO Controller Transmission rate, max. Services PGOP communication Services PGOP communication Pess Open IE Controller Transmission rate, max. Services PGOP communication Pess Open IE O	
Autocrossing Change of IP address at runtime, supported Wes. Assignment by higher-level IO-Controller or by the user prowith SFB104 *IP_CONF**  Interface types  R J 45 (Ethernet) Number of ports Integrated switch Protocols PROFINET IO Controller PROFINET IO Device PROFINET IO Device PROFINET OBA PROFIBUS DP master PROFIBUS DP master PROFIBUS DP slave PROFINET OC controller Propint-Opoint connection Web server Point-Opoint connection Media redundancy PROFINET IO Controller Transmission rate, max.  Services PGIOP communication SF z communication SF z communication SF z communication PGIOP communication SF z communication PGIOP communication PGIOP communication SF z communication PGIOP communication PGIOP communication PGIOP communication SF z communication PGIOP communication P	
Change of IP address at runtime, supported with SFB 104 "IP_CONF" wi	
Interface types  RJ 45 (Ethernet) Number of ports Integrated switch Protocols  PROFINET IO Controller PROFINET IO Bevice PROFINET OB master PROFIBUS DP master PROFIBUS DP slave Open IE communication Web server Point-to-point connection Media redundancy PROFINET IO Controller Transmission rate, max. 100 Mbit/s  Services PGIOP communication Yes PROFINET IO Controller Transmission rate, max. 100 Mbit/s  Services PROFINET IO Controller Transmission rate, max. 100 Mbit/s  Services PGIOP communication Yes PROFINET IO Controller Transmission rate, max. Services PGIOP communication Yes PROFINET IO Controller Transmission rate, max. 100 Mbit/s  Services PGIOP communication Yes PROFINET IO Controller Transmission rate, max. 100 Mbit/s  Services PGIOP communication Yes Point-to-point connection Yes POINT IN TRANSMISSION TABLE TO TRANSMISSION TABLE	rogram
RJ 45 (Ethernet) Number of ports Number of ports Number of ports New Yes Number of Dorts Protocols  PROFINET IO Controller PROFINET IO Device PROFINET CBA PROFIBUS DP master PROFIBUS DP master No Open IE communication Web server Point-to-point connection No Media redundancy PROFINET IO Controller Transmission rate, max. 100 Mbit/s  Services PROFINET IO Controller Transmission rate, max. 100 Mbit/s  Services PROFINET IO Controller Transmission rate, max. 100 Mbit/s  Services PROFINET OF Controller Transmission rate, max. 100 Mbit/s  Services Provintized startup Services Prioritized startup Number of IO devices with prioritized startup, max. Number of IO devices with IRT, max. Of which II devices with IRT, max. Of which in line, max. Number of IO Devices with IRT and the option high flexibility Of which in line, max. Number of IO Devices with IRT and the option high flexibility Of which in line, max. Activation/deactivation of IO Devices Number of IO Devices hat can be simultaneously activated/deactivated, max. Of which in line, max. Activation/deactivation of IO Devices Number of IO Devices per tool, max. Dio Devices changing during operation (partner ports), supported Number of IO Devices per tool, max. Devices replacement without swap medium Services	ogram
Number of ports integrated switch Protocols  PROFINET IO Controller PROFINET IO Device PROFINET CD Device PROFINET SPA PROFIBUS DP master PROFIBUS DP slave PROFIBUS DP slave PROFIBUS DP slave Point-to-point connection Web server Point-to-point connection No Media redundancy Pes PROFINET IO Controller  Transmission rate, max.  PROFINET IO Controller Transmission r	
integrated switch     Protocols     PROFINET IO Controller     PROFINET CBA     PROFIBUS DP master     PROFIBUS DP master     PROFIBUS DP slave     Open IE communication     Web server     Point-to-point connection     No     Media redundancy     PROFINET IO Controller     Transmission rate, max.  Services     PG/OP communication     Ser communication     Services     PG/OP communication     Services     Services     PG/OP communication     Services     Services     PG/OP communication     Yes     Services     Servi	
PROFINET IO Controller PROFINET IO Device PROFINET CBA PROFIBUS DP master PROFIBUS DP master Open IE communication Proficial Sp slave Open IE communication Media redundancy Profine To Controller Transmission rate, max. Services PROFINET IO Controller Transmission rate, max. Services PROFINET IO Controller Transmission rate, max. Services PROFINET OC Controller Profitized startup Shared device Prioritized startup Number of IO devices with prioritized startup, max. Number of IO devices with IRT, max. Of which in line, max. Number of lo Devices with IRT and the option high flexibility" Of which in line, max. Number of IO Devices that can be simultaneously activated (reactivated, max. Number of IO Devices changing during operation (partner ports), supported Number of IO Devices per tool, max. Device replacement without swap medium Send Cycles PROFINET IO Controller Yes PROFINET IO Controller Yes Ves PROFINET IO Controller Yes Ves Opin Whith Sex Services  100 Mbit/s  Yes Ves Only with IRT and the High Performance option Yes Opin Whith IRT and the High Performance option Yes Opin Whith IRT and the High Performance option Yes Opin Whith IRT and the High Performance option Yes Opin Whith IRT and the High Performance option Yes Opin Whith IRT and the High Performance option Yes Opin Whith IRT and the High Performance option Yes Opin Whith IRT and the High Performance option Yes Opin Whith IRT and the High Performance option Yes Opin Whith IRT and the High Performance option Yes Opin Whith IRT and the High Performance option Yes Opin Whith IRT and the High Performance option Yes Opin Whith IRT and the High Performance option Opin Whith IRT and the High	
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PROFINET IO Device PROFINET CBA PROFIBUS DP master PROFIBUS DP slave Open IE communication Web server Point-to-point connection Mo Media redundancy PROFINET IO Controller  Transmission rate, max. Services  - PG/OP communication - S7 communication - Shared device - Prioritized startup - Number of IO devices with prioritized startup, max Number of Connectable IO Devices, max Of which IO devices with IRT, max of which in line, max Of which In Ine, max Number of IO Devices with IRT and the option high flexibility' - of which in line, max Activation/deactivation of IO Devices - Number of IO Devices that can be simultaneously activated/deactivated, max IO Devices changing during operation (partner ports), supported - Number of IO Devices per tool, max Device replacement without swap medium - Send cycles - Updating time  Yes - Ves - Ves - SOD μs. 1 ms. 2 ms. 4 ms additionally with IRT with high performance: 250 μs to 4 ms in 125 μs frame - 250 μs. 500 μs. 1 ms. 2 ms. 4 ms additionally with IRT with high performance: 250 μs to 4 ms in 125 μs frame - Updating time - Send cycles	
<ul> <li>PROFIBUS DP master</li> <li>PROFIBUS DP slave</li> <li>Open IE communication</li> <li>Web server</li> <li>Point-to-point connection</li> <li>Media redundancy</li> <li>Prosimission rate, max.</li> <li>Services</li> <li>— PG/OP communication</li> <li>— S7 communication</li> <li>— S7 communication</li> <li>— S7 communication</li> <li>— Snared device</li> <li>— Prioritized startup</li> <li>— Number of IO devices with prioritized startup, max.</li> <li>— Number of connectable IO Devices, max.</li> <li>— Of which IO devices with IRT, max.</li> <li>— of which in line, max.</li> <li>— Number of OD Devices with IRT and the option "high flexibility"</li> <li>— of which in line, max.</li> <li>— Activation/deactivation of IO Devices for RT, max.</li> <li>— Activation/deactivation of IO Devices</li> <li>— Number of IO Devices that can be simultaneously activated/deactivated, max.</li> <li>— IO Devices changing during operation (partner ports), supported</li> <li>— Number of IO Devices per tool, max.</li> <li>— Device replacement without swap medium</li> <li>— Send cycles</li> <li>— Updating time</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>— Sup order</li> <li>Yes</li> <li>250 µs 100 12 ms, 2 ms, 4 ms additionally with IRT with high performance: 250 µs to 4 ms in 125 µs frame</li> <li>— Updating time</li> <li>250 µs 100 12 ms, 2 ms, 4 ms additionally with IRT with high performance: 250 µs to 4 ms in 125 µs frame</li> <li>— Updating time</li> </ul>	
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<ul> <li>PROFIBUS DP slave</li> <li>Open IE communication</li> <li>Web server</li> <li>Point-to-point connection</li> <li>No</li> <li>Media redundancy</li> <li>Yes</li> <li>PROFINET IO Controller</li> <li>Transmission rate, max.</li> <li>Services</li> <li>— PG/OP communication</li> <li>— S7 communication</li> <li>— S7 communication</li> <li>— S rocommunication</li> <li>— Yes</li> <li>— Number of lO devices with prioritized startup, max.</li> <li>— Of which IO devices with prioritized startup, max.</li> <li>— Of which IO devices with IRT, max.</li> <li>— Of which IO devices with IRT, max.</li> <li>— Of which In line, max.</li> <li>— Number of IO Devices with IRT and the option "high flexibility"</li> <li>— of which in line, max.</li> <li>— S end cycles that can be simultaneously activated/deactivated, max.</li> <li>— Number of IO Devices that can be simultaneously activated/deactivated, max.</li> <li>— Number of IO Devices per tool, max.</li> <li>— Number of IO Devices per tool, max.</li> <li>— Devices changing during operation (partner ports) are support to ports), supported</li> <li>— Number of IO Devices per tool, max.</li> <li>— Devices changing during operation (partner ports) are support to pove to support to the simultaneously activated/deactivated, max.</li> <li>— Devices changing during operation (partner ports) a</li></ul>	
Open IE communication  Web server Point-to-point connection Media redundancy Pres  PROFINET IO Controller  Transmission rate, max.  Services  PG/OP communication Sizervices  PG/OP communication Sizervices  PG/OP communication Sizervices  PG/OP communication Yes Services  PG/OP communication Yes Services  PG/OP communication Yes Services  PG/OP communication Yes Sizervices  PG/OP communication Yes Sizervices  PG/OP communication Yes Sizervices  PG/OP communication Yes Only with IRT and the High Performance option Yes Only with IRT and the High Performance option Yes Only with IRT and the High Performance option Yes Only with IRT and the High Performance option Yes Only with IRT and the High Performance option Yes Of which IO devices with IRT, max. Of which IO devices with IRT, max. Of which In line, max.  Number of IO Devices with IRT and the option "high flexibility" Of which in line, max.  Number of Connectable IO Devices for RT, max.  Of which in line, max.  Of which in line, max.  Number of IO Devices that can be simultaneously activated/deactivated, max.  Number of IO Devices that can be simultaneously activated/deactivated, max.  OD Devices changing during operation (partner ports), supported  Number of IO Devices per tool, max.  Device replacement without swap medium Send cycles  Peg/OP communication Yes Sizer valuation Yes Sizer valuati	
<ul> <li>• Web server</li> <li>• Point-to-point connection</li> <li>• Media redundancy</li> <li>PROFINET IO Controller</li> <li>• Transmission rate, max.</li> <li>Services</li> <li>— PG/OP communication</li> <li>— S7 communication</li> <li>— S7 communication</li> <li>— Sared device</li> <li>— Prioritized startup</li> <li>— Number of IO devices with prioritized startup, max.</li> <li>— Number of connectable IO Devices, max.</li> <li>— Of which IO devices with IRT, max.</li> <li>— of which in line, max.</li> <li>— Number of IO Devices with IRT and the option "high flexibility"</li> <li>— of which in line, max.</li> <li>— Number of connectable IO Devices for RT, max.</li> <li>— of which in line, max.</li> <li>— of which in line, max.</li> <li>— Activation/deactivation of IO Devices</li> <li>— Number of IO Devices that can be simultaneously activated/deactivated, max.</li> <li>— IO Devices changing during operation (partner ports), supported</li> <li>— Number of IO Devices per tool, max.</li> <li>— Device replacement without swap medium</li> <li>— Send cycles</li> <li>— Updating time</li> <li>Yes</li> <li>100 Mbit/s</li> <li>100 Mibit/s</li> <li>100 Mibit/s</li> <li>256</li> <li>256</li> <li>256</li> <li>256</li> <li>256</li> <li>256</li> <li>30 parallel calls of the SFC 12 "D_ACT_DP" possible per line. Not 10 per ports) are support of 10 per ports and 125 per frame</li> <li>100 per ports of 100 per ports on preset communication</li> <li>101 per ports of 100 per ports on 125 per frame</li> <li>102 per ports in 125 per frame</li> <li>103 per ports in 125 per frame</li> <li>104 per ports in 125 per frame</li> <li>105 per frame</li> <li>105 per frame</li> <li>106 per ports in 125 per frame</li> <li>107 per ports in 125 per frame</li> <li>108 per formance 250 per to 4 ms in 125 per frame</li> </ul>	
Point-to-point connection  Mo  Media redundancy  PROFINET IO Controller  ▼ Transmission rate, max.  Services  PG/OP communication  Starce device  Prioritized startup  Number of IO devices with prioritized startup, max.  Number of Connectable IO Devices, max.  Of which Io line, max.  Number of IO Devices with IRT and the option "high flexibility"  of which in line, max.  Number of connectable IO Devices for RT, max.  Number of Connectable IO Devices for RT, max.  Number of Devices with IRT and the option "high flexibility"  of which in line, max.  Number of Connectable IO Devices for RT, max.  Number of Connectable IO Devices for RT, max.  Number of Connectable IO Devices for RT, max.  Number of IO Devices that can be simultaneously activated/deactivated, max.  IO Devices changing during operation (partner ports), supported  Number of IO Devices per tool, max.  Device replacement without swap medium  Send cycles  Number of Updating time  No Mbit/s  Yes  100 Mbit/s  Yes  Nes  Yes  Nol Mbit/s  Yes  100 Mbit/s  Yes  Nol Mbit/s  Yes  100 Mbit/s  Yes  Nol Mbit/s  100 Mbit/s  Yes  Nol Mbit/s  100 Mbit/s  Yes  Nol Mbit/s  100 Mith IRT with high performance: 250 µs to 4 ms in 125 µs frame  100 Mbit/s  100 Mith IRT with high performance: 250 µs to 4 ms in 125 µs frame  100 Mbit/s  100 Mith IRT with high performance: 250 µs to 4 ms in 125 µs frame  100 Mith IRT with high performance: 250 µs to 512 ms; minimum value depends on preset communic.	
• Media redundancy  PROFINET IO Controller  • Transmission rate, max.  Services  - PG/OP communication - S7 communication - S7 communication - Isochronous mode - Shared device - Prioritized startup - Number of IO devices with prioritized startup, max Number of Connectable IO Devices, max Of which IO devices with IRT, max of which in line, max Number of IO Devices with IRT and the option "high flexibility" - of which in line, max Number of connectable IO Devices for RT, max Of which in line, max Number of IO Devices for RT, max Of which in line, max Number of lone vices for RT, max Of which in line, max Number of lone vices for RT, was additionally with IRT with high performance: 250 µs to 512 ms; minimum value depends on preset communication.	
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<ul> <li>Transmission rate, max.</li> <li>Services</li> <li>— PG/OP communication</li> <li>— S7 communication</li> <li>— Isochronous mode</li> <li>— Shared device</li> <li>— Prioritized startup</li> <li>— Number of IO devices with prioritized startup, max.</li> <li>— Number of connectable IO Devices, max.</li> <li>— Of which IO devices with IRT, max.</li> <li>— of which in line, max.</li> <li>— Number of IO Devices with IRT and the option "high flexibility"</li> <li>— of which in line, max.</li> <li>— Number of connectable IO Devices for RT, max.</li> <li>— of which in line, max.</li> <li>— of which in line, max.</li> <li>— of which in line, max.</li> <li>— Activation/deactivation of IO Devices</li> <li>— Number of IO Devices that can be simultaneously activated/deactivated, max.</li> <li>— IO Devices changing during operation (partner ports), supported</li> <li>— Number of IO Devices per tool, max.</li> <li>— Device replacement without swap medium</li> <li>— Send cycles</li> <li>— Updating time</li> <li>100 Mbit/s</li> <li>Yes</li> <li>256</li> <li>46</li> <li>46</li> <li>46</li> <li>46</li> <li>46</li> <li>46</li> <li>46</li> <li>47</li> <li>48</li> <li>49</li> <li>40</li> <li>40</li></ul>	
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share for PROFINET IO, on the number of IO Devices and on the amount of configured user data, see PROFINET system descript	the
Address area	
— Inputs, max. 8 kbyte	
— Outputs, max. 8 kbyte	
— User data consistency, max. 1 024 byte	
PROFINET IO Device	

65533,
,

<ul><li>User data per DP slave, max.</li></ul>	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
PROFIBUS 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
<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
— 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 communication)</li> </ul>	No
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
Protocols	
Redundancy mode	
Media redundancy	
<ul> <li>Switchover time on line break, typ.</li> </ul>	200 ms
— Number of stations in the ring, max.	50
SIMATIC communication	
S7 routing	Yes
Open IE communication	
• TCP/IP	Yes; via integrated PROFINET interface and loadable FBs
<ul> <li>Number of connections, max.</li> </ul>	94
<ul><li>— Data length, max.</li></ul>	32 kbyte
<ul> <li>several passive connections per port, supported</li> </ul>	Yes
• ISO-on-TCP (RFC1006)	Yes; Via integrated PROFINET interface or CP 443-1 and loadable FBs
<ul><li>Number of connections, max.</li></ul>	94
<ul><li>— Data length, max.</li></ul>	32 kbyte; 1 452 bytes via CP 443-1 Adv.
• UDP	Yes; via integrated PROFINET interface and loadable FBs
<ul> <li>Number of connections, max.</li> </ul>	94
— Data length, max.	1 472 byte
Web server	
• supported	Yes
User-defined websites	Yes
Number of HTTP clients	5
Isochronous mode	
Equidistance	Yes
Number of DP masters with isochronous mode	2
User data per isochronous slave, max.	244 byte
shortest clock pulse	1 ms; 0.5 ms without use of SFC 126, 127
max. cycle	32 ms
Communication functions	
PG/OP communication	Yes

Number of connectable ODs without massages	05
<ul> <li>Number of connectable OPs without message processing</li> </ul>	95
Number of connectable OPs with message	95; When using Alarm S/SQ and Alarm D/DQ
processing	
Data record routing	Yes
Global data communication	
<ul><li>supported</li></ul>	Yes
<ul> <li>Number of GD loops, max.</li> </ul>	16
<ul> <li>Number of GD packets, transmitter, max.</li> </ul>	16
<ul> <li>Number of GD packets, receiver, max.</li> </ul>	32
<ul> <li>Size of GD packets, max.</li> </ul>	54 byte
<ul> <li>Size of GD packet (of which consistent), max.</li> </ul>	1 variable
S7 basic communication	
<ul><li>supported</li></ul>	Yes
<ul> <li>User data per job, max.</li> </ul>	76 byte
<ul> <li>User data per job (of which consistent), max.</li> </ul>	1 variable
S7 communication	
<ul><li>supported</li></ul>	Yes
• as server	Yes
• as client	Yes
User data per job, max.	64 kbyte
<ul> <li>User data per job (of which consistent), max.</li> </ul>	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
<ul> <li>User data per job (of which consistent), max.</li> </ul>	240 byte
<ul> <li>Number of simultaneous AG-SEND/AG-RECV</li> </ul>	64/64
orders per CPU, max.	
Standard communication (FMS)	
• supported	Yes; Via CP and loadable FB
PROFINET CBA (at set setpoint communication load)	
<ul> <li>Setpoint for the CPU communication load</li> </ul>	20 %
<ul> <li>Number of remote interconnection partners</li> </ul>	32
<ul> <li>Number of functions, master/slave</li> </ul>	150
<ul> <li>Total of all master/slave connections</li> </ul>	6 000
<ul> <li>Data length of all incoming connections master/slave, max.</li> </ul>	65 000 byte
<ul> <li>Data length of all outgoing connections master/slave, max.</li> </ul>	65 000 byte
<ul> <li>Number of device-internal and PROFIBUS interconnections</li> </ul>	1 000
<ul> <li>Data length of device-internal und PROFIBUS interconnections, max.</li> </ul>	16 000 byte
<ul> <li>Data length per connection, max.</li> </ul>	2 000 byte
Remote interconnections with acyclic transmission	
— Sampling interval, min.	200 ms; Depending on preset communication load, number of interconnections and data length used
<ul> <li>Number of incoming interconnections</li> </ul>	500
<ul> <li>Number of outgoing interconnections</li> </ul>	500
<ul> <li>Data length of all incoming interconnections, max.</li> </ul>	16 000 byte
<ul> <li>Data length of all outgoing interconnections, max.</li> </ul>	16 000 byte
<ul> <li>Data length per connection, max.</li> </ul>	2 000 byte
Remote interconnections with cyclic transmission	
<ul> <li>Transmission frequency: Transmission interval, min.</li> </ul>	1 ms; Depending on preset communication load, number of interconnections and data length used
<ul> <li>Number of incoming interconnections</li> </ul>	300
<ul> <li>Number of outgoing interconnections</li> </ul>	300
<ul> <li>Data length of all incoming interconnections, max.</li> </ul>	4 800 byte

<ul> <li>Data length of all outgoing interconnections,</li> </ul>	4 800 byte
max.	4501.4
— Data length per connection, max.	450 byte
HMI variables via PROFINET (acyclic)	
<ul> <li>Number of stations that can log on for HMI variables (PN OPC/iMap)</li> </ul>	2x PN OPC/1x iMap
<ul> <li>HMI variable updating</li> </ul>	500 ms
<ul> <li>Number of HMI variables</li> </ul>	1 500
<ul> <li>Data length of all HMI variables, max.</li> </ul>	48 000 byte
PROFIBUS proxy functionality	
— supported	Yes; 32 PROFIBUS slaves max. connectable
<ul> <li>Data length per connection, max.</li> </ul>	240 byte; Slave-dependent
Number of connections	
overall	96
<ul> <li>usable for PG communication</li> </ul>	95
<ul> <li>reserved for PG communication</li> </ul>	1
<ul> <li>adjustable for PG communication, max.</li> </ul>	0
usable for OP communication	95
— reserved for OP communication	1
adjustable for OP communication, max.	0
usable for S7 basic communication	94
reserved for S7 basic communication	0
adjustable for S7 basic communication, max.	0
augustable for 37 basic communication, max.      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, 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)
	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes
Number of login stations for message functions, max.	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC)
Number of login stations for message functions, max.  Symbol-related messages	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes
Number of login stations for message functions, max.  Symbol-related messages  SCAN procedure	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes
Number of login stations for message functions, max.  Symbol-related messages  SCAN procedure  Program alarms	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes
Number of login stations for message functions, max.  Symbol-related messages  SCAN procedure  Program alarms  Process diagnostic messages	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes
Number of login stations for message functions, max.  Symbol-related messages  SCAN procedure  Program alarms  Process diagnostic messages simultaneously active Alarm-S blocks, max.	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks
Number of login stations for message functions, max.  Symbol-related messages  SCAN procedure  Program alarms  Process diagnostic messages  simultaneously active Alarm-S blocks, max.  Alarm 8-blocks  • Number of instances for alarm 8 and S7	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes
Number of login stations for message functions, max.  Symbol-related messages  SCAN procedure  Program alarms  Process diagnostic messages simultaneously active Alarm-S blocks, max.  Alarm 8-blocks  Number of instances for alarm 8 and S7 communication blocks, max.	Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 4 000
Number of login stations for message functions, max.  Symbol-related messages  SCAN procedure  Program alarms  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	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 4 000
Number of login stations for message functions, max.  Symbol-related messages SCAN procedure Program alarms 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.  Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND)	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 4 000 600 Yes
Number of login stations for message functions, max.  Symbol-related messages  SCAN procedure  Program alarms  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	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 4 000 600 Yes
Number of login stations for message functions, max.  Symbol-related messages SCAN procedure Program alarms 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.  Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND)  Number of messages  overall, max.	Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 4 000 600 Yes 32
Number of login stations for message functions, max.  Symbol-related messages  SCAN procedure  Program alarms  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.  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.	Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 4 000 600 Yes 32
Number of login stations for message functions, max.  Symbol-related messages  SCAN procedure  Program alarms  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.  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.	Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 4 000 600 Yes 32
Number of login stations for message functions, max.  Symbol-related messages SCAN procedure Program alarms 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.  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.	Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 4 000 600 Yes 32
Number of login stations for message functions, max.  Symbol-related messages SCAN procedure Program alarms 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.  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.	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 4 000 600 Yes 32
Number of login stations for message functions, max.  Symbol-related messages SCAN procedure Program alarms 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.  Process control messages Number of archives that can log on simultaneously (SFB 37 AR_SEND)  Number of messages  overall, max.  in 100 ms grid, max.  in 500 ms grid, max.  in 1000 ms grid, max.  with 100 ms grid, max.	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 4 000 600 Yes 32 1 024 128 512 1 024
Number of login stations for message functions, max.  Symbol-related messages SCAN procedure Program alarms 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.  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.  win 1000 ms grid, max.  with 100 ms grid, max.  with 100 ms grid, max.  with 500, 1000 ms grid, max.	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 4 000 600 Yes 32
Number of login stations for message functions, max.  Symbol-related messages SCAN procedure Program alarms 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.  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.  with 100 ms grid, max.  with 500, 1000 ms grid, max.  with 500, 1000 ms grid, max.  Test commissioning functions	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 4 000 600 Yes 32  1 024 128 512 1 024
Number of login stations for message functions, max.  Symbol-related messages SCAN procedure Program alarms 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.  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.  win 500 ms grid, max.  with 100 ms grid, max.  with 500, 1000 ms grid, max.  with 500, 1000 ms grid, max.  Test commissioning functions  Status block	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 4 000 600 Yes 32  1 024 128 512 1 024  1 10  Yes; Up to 16 simultaneously
Number of login stations for message functions, max.  Symbol-related messages SCAN procedure Program alarms 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.  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.  win 500 ms grid, max.  with 100 ms grid, max.  with 500, 1000 ms grid, max.  with 500, 1000 ms grid, max.  Test commissioning functions  Status block Single step	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 4 000 600 Yes 32  1 024 128 512 1 024  1 10  Yes; Up to 16 simultaneously Yes
Number of login stations for message functions, max.  Symbol-related messages SCAN procedure Program alarms 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.  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 100 ms grid, max.  Status block Single step Number of breakpoints	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 4 000 600 Yes 32  1 024 128 512 1 024  1 10  Yes; Up to 16 simultaneously
Number of login stations for message functions, max.  Symbol-related messages  SCAN procedure  Program alarms  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.  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.  with 100 ms grid, max.  with 100 ms grid, max.  with 500, 1000 ms grid, max.  Test commissioning functions  Status block  Single step  Number of breakpoints  Status/control	Alarm_ 8, Alarm_ 8P, Notify and Notify_ 8 (e.g. WinCC) Yes Yes Yes Yes 1 000; Simultaneously active alarm_ S/SQ blocks or alarm_ D/DQ blocks Yes 4 000 600 Yes 32  1 024 128 512 1 024  1 100  Yes; Up to 16 simultaneously Yes 16
Number of login stations for message functions, max.  Symbol-related messages SCAN procedure Program alarms 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.  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 100 ms grid, max.  Status block Single step Number of breakpoints	Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 4 000 600 Yes 32  1 024 128 512 1 024  1 10  Yes; Up to 16 simultaneously Yes

<ul> <li>Number of variables, max.</li> </ul>	70; Status/control
Forcing	
• Forcing	Yes
• Forcing, variables	Inputs/outputs, bit memories, distributed I/Os
Number of variables, max.	512
Diagnostic buffer	012
• present	Yes
<ul><li>Number of entries, max.</li></ul>	3 200
— adjustable	Yes
— preset	120
Service data	120
• can be read out	Yes
Standards, approvals, certificates	
CE mark	Yes
CSA approval	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
Use in hazardous areas	163
ATEX	ATEX II 3G Ex nA IIC T4 Gc
Ambient conditions	ATEX II OO EXTIN IIO 14 OC
Ambient temperature during operation	0 °C
• min.	60 °C
• max.	60 C
Configuration	
Configuration software	
OTED 7	\/
• STEP 7	Yes
Programming	
Programming  • Command set	see instruction list
Programming  Command set  Nesting levels	see instruction list
Programming	see instruction list 7 Yes
Programming	see instruction list 7 Yes see instruction list
Programming	see instruction list 7 Yes
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language	see instruction list 7 Yes see instruction list see instruction list
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD	see instruction list 7 Yes see instruction list see instruction list
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD	see instruction list 7 Yes see instruction list see instruction list Yes Yes
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL	see instruction list 7 Yes see instruction list see instruction list Yes Yes Yes
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL	see instruction list 7 Yes see instruction list see instruction list Yes Yes Yes Yes Yes
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  CFC	see instruction list 7 Yes see instruction list see instruction list  Yes Yes Yes Yes Yes Yes Yes
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  CFC  GRAPH	see instruction list 7 Yes see instruction list see instruction list  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  CFC  GRAPH  HiGraph®	see instruction list 7 Yes see instruction list see instruction list  Yes Yes Yes Yes Yes Yes Yes
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  CFC  GRAPH  HiGraph®  Number of simultaneously active SFCs	see instruction list 7 Yes see instruction list see instruction list  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  CFC  GRAPH  HiGraph®  Number of simultaneously active SFCs  DPSYC_FR	see instruction list 7 Yes see instruction list see instruction list  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  CFC  GRAPH  HiGraph®  Number of simultaneously active SFCs  DPSYC_FR  D_ACT_DP	see instruction list 7 Yes see instruction list see instruction list  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  CFC  GRAPH  HiGraph®  Number of simultaneously active SFCs  DPSYC_FR  D_ACT_DP  RD_REC	see instruction list 7 Yes see instruction list see instruction list  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  CFC  GRAPH  HiGraph®  Number of simultaneously active SFCs  DPSYC_FR  D_ACT_DP  RD_REC  WR_REC	see instruction list 7 Yes see instruction list see instruction list  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  CFC  GRAPH  HiGraph®  Number of simultaneously active SFCs  DPSYC_FR  D_ACT_DP  RD_REC  WR_PARM	see instruction list 7 Yes see instruction list see instruction list  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  CFC  GRAPH  HiGraph®  Number of simultaneously active SFCs  DPSYC_FR  D_ACT_DP  RD_REC  WR_REC  WR_PARM  PARM_MOD	see instruction list 7 Yes see instruction list see instruction list  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  CFC  GRAPH  HiGraph®  Number of simultaneously active SFCs  DPSYC_FR  D_ACT_DP  RD_REC  WR_REC  WR_PARM  PARM_MOD  WR_DPARM	see instruction list 7 Yes see instruction list see instruction list  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  CFC  GRAPH  HiGraph®  Number of simultaneously active SFCs  DPSYC_FR  D_ACT_DP  RD_REC  WR_REC  WR_PARM  PARM_MOD  WR_DPARM  DPNRM_DG	see instruction list 7 Yes see instruction list see instruction list  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  CFC  GRAPH  HiGraph®  Number of simultaneously active SFCs  DPSYC_FR  D_ACT_DP  RD_REC  WR_REC  WR_PARM  PARM_MOD  WR_DPARM  DPNRM_DG  RDSYSST	see instruction list 7 Yes see instruction list see instruction list  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  CFC  GRAPH  HiGraph®  Number of simultaneously active SFCs  DPSYC_FR  D_ACT_DP  RD_REC  WR_REC  WR_PARM  PARM_MOD  WR_DPARM  DPNRM_DG  RDSYSST  DP_TOPOL	see instruction list 7 Yes see instruction list see instruction list  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  CFC  GRAPH  HiGraph®  Number of simultaneously active SFCs  DPSYC_FR  D_ACT_DP  RD_REC  WR_REC  WR_PARM  PARM_MOD  WR_DPARM  DPNRM_DG  RDSYSST  DP_TOPOL  Number of simultaneously active SFBs	see instruction list 7 Yes see instruction list see instruction list  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Programming  Command set  Nesting levels  Access to consistent data in process image  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  CFC  GRAPH  HiGraph®  Number of simultaneously active SFCs  DPSYC_FR  D_ACT_DP  RD_REC  WR_REC  WR_PARM  PARM_MOD  WR_DPARM  DPNRM_DG  RDSYSST  DP_TOPOL	see instruction list 7 Yes see instruction list see instruction list  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye

— WRREC	8; SFB 53; per interface, but not more than 32 across all external interfaces
Know-how protection	
<ul> <li>User program protection/password protection</li> </ul>	Yes
<ul> <li>Block encryption</li> </ul>	Yes; With S7 block Privacy
Dimensions	
Width	50 mm
Height	290 mm
Depth	219 mm
Weights	
Weight, approx.	900 g

last modified: 3/25/2021 🖸