## Data sheet 6ES7315-2EH14-0AB0



SIMATIC S7-300 CPU 315-2 PN/DP, Central processing unit with 384 KB work memory, 1st interface MPI/DP 12 Mbit/s, 2nd interface Ethernet PROFINET, with 2-port switch, Micro Memory Card required

General information	
Product type designation	CPU 315-2 PN/DP
HW functional status	01
Firmware version	V3.2
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
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
external protection for power supply lines (recommendation)	2 A min.
Mains buffering	
<ul> <li>Mains/voltage failure stored energy time</li> </ul>	5 ms
Repeat rate, min.	1 s
Input current	
Current consumption (rated value)	750 mA
Current consumption (in no-load operation), typ.	150 mA
Inrush current, typ.	4 A
l²t	1 A²-s
Power loss	
Power loss, typ.	4.65 W
Memory	
Work memory	
• integrated	384 kbyte
• expandable	No
Load memory	
<ul><li>Plug-in (MMC)</li></ul>	Yes
<ul><li>Plug-in (MMC), max.</li></ul>	8 Mbyte
<ul> <li>Data management on MMC (after last programming), min.</li> </ul>	10 a
Backup	
• present	Yes; Guaranteed by MMC (maintenance-free)
without battery	Yes; Program and data
CPU processing times	
for bit operations, typ.	0.05 μs
for word operations, typ.	0.09 µs
for fixed point arithmetic, typ.	0.12 µs
for floating point arithmetic, typ.	0.45 µs
for floating point antimictio, typ.	0.40 μ3

PU-blocks	
Number of blocks (total)	1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be
DB	reduced by the MMC used.
Number, max.	1 024; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
<ul><li>Number, max.</li></ul>	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
• Size, max.	64 kbyte
<ul> <li>Number of free cycle OBs</li> </ul>	1; OB 1
<ul> <li>Number of time alarm OBs</li> </ul>	1; OB 10
Number of delay alarm OBs	2; OB 20, 21
Number of cyclic interrupt OBs	4; OB 32, 33, 34, 35
Number of process alarm OBs	1; OB 40
Number of DPV1 alarm OBs	3; OB 55, 56, 57
Number of isochronous mode OBs	1; OB 61
Number of startup OBs     Number of savinghraneus error OBs	1; OB 100
Number of asynchronous error OBs	6; OB 80, 82, 83, 85, 86, 87 (OB83 only for PROFINET IO)
Number of synchronous error OBs  Nesting depth	2; OB 121, 122
per priority class	16
additional within an error OB	4
ounters, timers and their retentivity	
S7 counter	
Number	256
Retentivity	200
— adjustable	Yes
— preset	Z 0 to Z 7
Counting range	
— adjustable	Yes
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
S7 times	
Number	256
Retentivity	
— adjustable	Yes
— preset	No retentivity
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
ata areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	128 kbyte
Flag	
• Size, max.	2 048 byte
Retentivity available	Yes; MB 0 to MB 2 047
<ul> <li>Retentivity preset</li> </ul>	MB 0 to MB 15
<ul> <li>Number of clock memories</li> </ul>	8; 1 memory byte

Retentivity adjustable	Yes; via non-retain property on DB
Retentivity preset	Yes
Local data	
per priority class, max.	32 768 byte; Max. 2048 bytes per block
Address area	э
I/O address area	
• Inputs	2 048 byte
<ul><li>Outputs</li></ul>	2 048 byte
of which distributed	,
— Inputs	2 048 byte
— Outputs	2 048 byte
Process image	
<ul><li>Inputs</li></ul>	2 048 byte
<ul> <li>Outputs</li> </ul>	2 048 byte
<ul> <li>Inputs, adjustable</li> </ul>	2 048 byte
<ul> <li>Outputs, adjustable</li> </ul>	2 048 byte
<ul> <li>Inputs, default</li> </ul>	128 byte
Outputs, default	128 byte
Subprocess images	
Number of subprocess images, max.	1; With PROFINET IO, the length of the user data is limited to 1600 bytes
Digital channels	
• Inputs	16 384
— of which central	1 024
Outputs	16 384
— of which central	1 024
Analog channels	
• Inputs	1 024
— of which central	256
Outputs	1 024
— of which central	256
Hardware configuration	
Number of expansion units, max.	3
Number of DP masters  • integrated	1
• via CP	4
Number of operable FMs and CPs (recommended)	4
• FM	8
• CP, PtP	8
• CP, LAN	10
Rack	
• Racks, max.	4
Modules per rack, max.	8
Time of day	
Clock	
Hardware clock (real-time)	Yes
retentive and synchronizable	Yes
Backup time	6 wk; At 40 °C ambient temperature
Deviation per day, max.	10 s; Typ.: 2 s
Behavior of the clock following POWER-ON	Clock continues running after POWER OFF
Behavior of the clock following expiry of backup period	the clock continues at the time of day it had when power was switched off
Operating hours counter	
Number	1
Number/Number range	0
Range of values	0 to 2^31 hours (when using SFC 101)
Granularity	
•	1 h
• retentive	1 h  Yes; Must be restarted at each restart
•	
• retentive	
retentive  Clock synchronization	Yes; Must be restarted at each restart

• to DP, master	Yes; With DP slave only slave clock
<ul><li>to DP, master</li><li>on DP, device</li></ul>	Yes; With DP slave only slave clock Yes
• in AS, master	Yes
• in AS, device	Yes
on Ethernet via NTP	Yes; As client
Digital inputs	155, 76 onorth
Number of digital inputs	0
Digital outputs	
Number of digital outputs	0
Analog inputs	
Number of analog inputs	0
Interfaces	
Number of PROFINET interfaces	1; 2 ports (switch) RJ45
Number of RS 485 interfaces	1; Combined MPI / PROFIBUS DP
Number of RS 422 interfaces	0
1. Interface	
Interface type	Integrated RS 485 interface
Isolated	Yes
Interface types	
• RS 485	Yes
Output current of the interface, max.	200 mA
Protocols	
• MPI	Yes
PROFIBUS DP master	Yes
PROFIBUS DP device	Yes
Point-to-point connection	No
MPI	40 MbW-
Transmission rate, max.  Sopriese	12 Mbit/s
Services PC/OP communication	Vac
— PG/OP communication — Routing	Yes Yes
<ul><li>— Routing</li><li>— Global data communication</li></ul>	Yes
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication  — S7 communication, as client	No; but via CP and loadable FB
— S7 communication, as server	Yes
PROFIBUS DP master	
Transmission rate, max.	12 Mbit/s
• max. number of DP devices	124
Services	
— PG/OP communication	Yes
— Routing	Yes
<ul> <li>Global data communication</li> </ul>	No
<ul> <li>S7 basic communication</li> </ul>	Yes; I blocks only
— S7 communication	Yes
<ul> <li>S7 communication, as client</li> </ul>	No
<ul> <li>S7 communication, as server</li> </ul>	Yes
— Equidistance	Yes
— Isochronous mode	Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO
— SYNC/FREEZE	Yes
activation/deactivation of DP devices	Yes
max. number of DP devices that can be activated/deactivated at the same time	8
Direct data exchange (slave-to-slave communication)	Yes; as subscriber
— DPV1	Yes
Address area	Ollhada
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
User data per DP device	

lanuta may	O44 byta
— Inputs, max.	244 byte
— Outputs, max.  1st interface / PROFIBUS DP device / header	244 byte
	12 Mbit/s
Transmission rate, max.      automatic bound rate control	
automatic baud rate search     Address area may	Yes; only with passive interface
Address area, max.	32
User data per address area, max.	32 byte
Services	V
— PG/OP communication	Yes
— Routing	Yes; Only with active interface
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes; Connection configured on one side only
<ul> <li>— Direct data exchange (slave-to-slave communication)</li> </ul>	Yes
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Imputs — Outputs	244 byte
·	244 byte
2. Interface	DDOCINET
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes; 10/100 Mbit/s
Autonegotiation	Yes
Autocrossing	Yes
Change of IP address at runtime, supported	Yes
Interface types	v.
• RJ 45 (Ethernet)	Yes
Number of ports	2
• integrated switch	Yes
Protocols	
• MPI	No
PROFINET IO Controller	Yes; Also simultaneously with IO-Device functionality
PROFINET IO Device	Yes; Also simultaneously with IO Controller functionality
PROFINET CBA	Yes
PROFIBUS DP master	No
PROFIBUS DP device	No
Open IE communication	Yes; Via TCP/IP, ISO on TCP, and UDP
Web server	Yes
Media redundancy	Yes
PROFINET IO Controller	
Transmission rate, max.	100 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
— S7 communication	Yes; With loadable FBs, max. configurable connections: 14, max. number of instances: 32
— Isochronous mode	Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO
— IRT	Yes
— Shared device	Yes
— Prioritized startup	Yes
<ul> <li>Number of IO devices with prioritized startup, max.</li> </ul>	32
— Number of connectable IO Devices, max.	128
— Of which IO devices with IRT, max.	64
— of which in line, max.	64
Number of IO Devices with IRT and the option "high flexibility"	128
— of which in line, max.	61
<ul> <li>Number of connectable IO Devices for RT, max.</li> </ul>	128

- Or Menth in rine, max Advisor/ordect/such of 10 Devices - Number of 10 Devices and can be simultaneously of substitution of 10 pointer of	affectively to the conservation	400
- Number of ICD process that can be simultaneously advisited decidential, max ICD bevoes changing during operation (partner ports), supported - Number of ICD beviese per tool, max Device replacement without away medium - Send cycles - Updating time	— of which in line, max.	128
activated/decidental max.  — IO Devices thaning during geration (partner ports), supported  Number of IO Devices per foot, max.  — Device replacement without swap medium  — Send cycles  — Updating time  — User data consistency, max.  — PROPIDE Device:  Services  — PROIDE Communication  — Routing  — S7 communication  — PROPIDE and time of Updating time of time time time time time time time time		
Ports), supported  - Number of IO Devices per tool, max.  - Device replacement without swap medium  - Send cycles  - Updating time  - Send cycles  - Updating time  - PGIOP communication  - Routing  - PGIOP communication  - Routing  - PROFIENTED Device  - PGIOP communication  - Routing  - PROFIEND TO Device  - PGIOP communication  - Routing  - PROFIEND TO Device  - PGIOP communication  - Routing  - PROFIEND TO Device  - PGIOP communication  - Routing  - PROFIEND TO Device  - PGIOP communication  - Incommons mode  - Incommons m	·	8
- Number of 10 Devices por tool, max Device reglacement without awap medium - Send cycles - Send cycles - Send cycles - Send cycles - Updating time - 260 µs, 500 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option) - Outputing time - 250 µs to 512 ms (depending on the operating mode, see Manual "57-300 CPU 31x and CPU 31x, technical Data* for more detailis) - Name of 10 Device - PROFIDE TID		Yes
- Device reglacement without away medium - Send cycles - Send cycles - Updating time - 230 us, 500 µs.1 ms; 2 ms. 4 ms (not in the case of IRT with "high fleubility" option) - 240 us to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31xC inchnical Data" for more details)  Address area - Inputs, max Outputs, max User data consistency, max PCGP communication - Routing - S7 communication - S7 communication - S7 communication - IRT - PROFlenergy - Yes, With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device - Shared device - Shared device - Shared device - Number of IO Controllers with shared device, max Outputs, max User data per submodule, max Outputs, max		
- Send cycles - Updating time - 250 us to 512 ms (depending on the operating mode, see Manual "57-300 CPU 31xC and CPU 31x Lechnical Data" for more details)  Address area - Inputs, max Outputs, max User data consistency, max PROFENET ID Dewice - PROFO promunication - Routing - S7 communication - IRT - PROFIDenery - Shared device - Number of IO Controllers with shared device, max Outputs, max Outputs, max area with shared device, max IRT - PROFILER ID Outputs, max area with shared device, max Instances: 32 - Instances area with shared device, max Shared device - Number of IO Controllers with shared device, max Outputs, max - User data per submodule, max - User data per submodule, max - User data per submodule, max - Outputs, max - User data per submodule, max - User data per submodule, max - Submodules - Number, max - Oyelic transmission - Yes - Number of original of the system and - Shared device original of the system and - Shared device - Number, max - User data per submodule, max - User data per submodule, max - User data per submodule, max - Oyelic transmission - Yes - Number of connections, max - Solopen IE communication - Ves - Number of connections, max - Solopen IE communication - Number of connections, max - Solopen IE communication - Number of connections, max - Data length for connection sper port, supported - Yes, via integrated PROFINET interface and loadable FBs - Number of connections, max - Solopen IE communication - Ves, via integrated PROFINET interface and loadable FBs - Number of connections, max - Data length for connections per port, supported - Yes, via integrated PROFINET interface and loadable FBs - Number of connections, max - Data length, max - Data length, max - User data length, max - User data length, max - Solopended - Soloped - Number of connections, max - Data length, max - User data length of connections, max - Data length, max - Solopended - Soloped - Number of connections, max - Data length, max - Solopended - Soloped - Solopended - Soloped - Solope	•	
- Updating time 259 is to 512 ms (depending on the operating mode, see Manual "\$7.300 CPU 31x0 and CPU 31x, technical Data" for more details)  Address area  - Inputs, max. 2 ktyte 2 ktyte 1 024 byte PPERDINET LO Device 2 ktyte 1 024 byte PPERDINET LO Device 2 ktyte 3 kt	·	
Address area	— Send cycles	
- Inputs, max	— Updating time	
- Outputs, max - User data consistency, max. 1 024 byte  PROFINET ID Device  Services - PGIOP communication Yes - Routing Yes - St communication Yes - Routing Yes - St communication Yes With loadable FBs, max. configurable connections: 14, max. number of instances: 32 - Isochronous mode No - IRT Yes - PROFienergy Yes, With ISFB 73 / 74 prepared for loadable PROFienergy standard FB for I-Device Yes - Shared device Yes - Shared device Number of IO Controllers with shared device, max. 2  Transfer memory - Inputs, max. 1 440 byte; Per IO Controller with shared device - Number, max. 64 - Outputs, max. 1 440 byte; Per IO Controller with shared device - Number, max. 64 - User data per submodule, max. 1 1 024 byte - Number of connections, max. 8 - Output transmission Yes - Output transmission Yes - Output numbers used at the system end 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 85532, 65533, 65534, 65335 - Keep-allive function, supported Yes - Number of connections, max. 8 - No - Restundancy mode - Media redundancy - Self-tover time on line break, typ. 9 - Number of connections, max. 9 - Number of connection type 01H, max. 9 - Open IE communication - TOP/IP - Number of connection per port, supported - TOP/IP - Number of connection per port, supported - Self-tover time on line break, typ. 9 - Number of connection per port, supported - Self-tover time on line break, typ. 9 - Number of connection per port, supported - Self-tover time on line break, typ. 9 - Number of connection per port, supported - Self-tover time on line break, typ. 9 - Number of connection per port, supported - Self-tover time on line break, typ. 9 - Number of connection per port, supported - Self-tover time on line break, typ. 9 - Number of connections, max. 8 - Oata length for connections, max. 8 - Oata length max. 1472 byte	Address area	
PROFINET IO Desice Services  - PGIOP communication - Routing - S7 communication - Isochronous mode - IRT - Received and services with shared device, max Shared device - Number of IO Controllers with shared device, max Use data per submodule, max Several per submodule, max Use data per submodule, max Use submodule device	— Inputs, max.	2 kbyte
Services  - PG/OP communication - Routing - Strommunication - Routing - Strommunication - Routing - Strommunication - Yes - IRT - ROFfenergy - Precipient Yes - Shared device - Shared device - Number of IO Controllers with shared device, max Transfer memory - Inputs, max - Uputs, max - Uputs data per submodule, max - Uput data per submodule, max - Upu	— Outputs, max.	2 kbyte
Services	<ul> <li>User data consistency, max.</li> </ul>	1 024 byte
- PGIOP communication Yes Protocols PROFINST interface and loadable FBs Profins Profin	PROFINET IO Device	
Routing Yes SY communication SY communic	Services	
Routing Yes SY communication SY communic	— PG/OP communication	Yes
- S7 communication Yes, With badable FBs, max, configurable connections: 14, max. number of instances: 32 - Isochronous mode No - IRT Yes - PROFlenergy Yes, With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device - 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 - Number, max. 94 - User data per submodule, max. 1 024 byte - Number, max. 1 024 byte - Several passive controllers, max. 8 - Local port numbers used at the system end 9, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 - No - Redundancy mode - Media redundancy - Switchover time on line break, typ. 200 ms; PROFINET MRP - Number of connections, max. 50 - Open IE communication - TOP/P - Number of connections, max. 9 - Number of connections, max. 1 460 byte - Number of connections, pax. 1 460 byte - Switchover time on line break, typ. 201 ms; PROFINET interface and loadable FBs - Number of connections, max. 1 460 byte - Switchover time on line break, typ. 2768 byte - Number of connections, max. 1 460 byte - Switchover time on line break, typ. 2768 byte - Number of connections, max. 1 460 byte - Number of connections, max. 8 - Data length for connections, par. 140 byte - Number of connections, max. 9 - Number of connections, max. 1 460 byte - Number of connections, max. 1 460 byte - Number of connections, max. 9 - Number of connections, max. 1 460 byte - Number of connections, max. 1 472 byte		Yes
Instances: 32  Instances: 32  IRT  PROFlenergy  PROFlenergy  Pres: With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device  — Shared device  — Number of IO Controllers with shared device, max.  2  Transfer memory  — Inputs, max. — Unputs, max. — Unputs, max. — User data per submodule, max.  — User data per submodule, max.  — User data per submodule, max. — Ves  • cyclic transmission • ves  - cyclic transmission • Ves  - Count port numbers used at the system end • Number of connections, max. • Local port numbers used at the system end • Number of connections, supported  PROFISE  PROFISE  Redundancy mode  Media redundancy  — Switchover time on line break, typ. — Number of stations in the ring, max.  Open IE communication • TCP/IP  — Number of connections, max. — Data length for connection type 01H, max. — Data length for connections per port, supported  • Yes, via integrated PROFINET interface and loadable FBs  • Residency on the post of the post of the presence of the post of the	Ü	
IRT PROFlenergy Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device Shared device Shared device Number of IO Controllers with shared device, max Inputs, max Inputs, max Inputs, max User data per submodule, max Ves eyclic transmission eyclic transmission (yes eyclic transmission (ye		
PROFlenergy Shared device Shared device Number of Io Controllers with shared device, max.  Protocols  PROFlanergy  Press  Augusta function, supported  PROFINET MRP  PROFINET Base No Redundancy mode Media redundancy Switchover time on line break, typ. Number of connections, max.  Data length for connections, max.  Pata length for connections, max.  Augusta functions per port, supported  Prosi vai and prospersed Profine Is interface and loadable FBs Profine Is and prospersed Profine Is interface and loadable FBs Profine Is and profine Is interface and loadable FBs Profine Is and profine Is interface and loadable FBs Profine Is and profine Is interface and loadable FBs Profine Is and profine Is interface and loadable FBs Profine Is and profine Is interface and loadable FBs Profine Is and profine Is interface and loadable FBs Profine Is and profine Is interface and loadable FBs Profine Is and profine Is and profine Is interface and loadable FBs Profine Is and profine	— Isochronous mode	No
— Shared device — Number of IO Controllers with shared device, max.  Transfer memory — Inputs, max. — Outputs, max. — Outputs, max. — Outputs, max. — Outputs, max. — User data per submodule, max. — User data per submodule, max. — User data per submodule, max. — Output samission — Yes — oyolic transmission —	— IRT	Yes
- Shared device - 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 - Outputs, max. 1 440 byte; Per IO Controller with shared device - Outputs, max. 1 440 byte; Per IO Controller with shared device - Number, max. 64  - Number, max. 64  - User data per submodule, max. 94  - acyclic transmission Yes - Oyclic transmission	— PROFlenergy	
Transfer memory  - Inputs, max Outputs, max	— Shared device	
Transfer memory  Inputs, max. In 1440 byte; Per IO Controller with shared device  Outputs, max. In 1440 byte; Per IO Controller with shared device  Submodules  In Number, max. In 1024 byte  PROFINET CBA  acyclic transmission Ves  over Copen IE communication  Number of connections, max. In 1024 byte  Protocols  Protocols  Protocols  PROFISafe No Redundancy mode  Media redundancy Switchover time on line break, typ. Number of stations in the ring, max. Data length for connection type 01H, max. Data length for connections per port, supported  Nes; via integrated PROFINET interface and loadable FBs Ves; via integrated PROFINET interface and loadable FBs No No Redundancy Syes; via integrated PROFINET interface and loadable FBs No Syes; via integrated PROFINET interface and loadable		
- 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 1 024 byte PROFINET CBA 1 025 byte PROFINE		-
Submodules  - Number, max User data per submodule, max Open IE communication - Oycilic transmission	·	1.440 byte: Per IO Controller with shared device
Submodules  - Number, max User data per submodule, max.  PROFINET CBA  • acyclic transmission • cyclic transmission • cyclic transmission • Number of connections, max. • Local port numbers used at the system end • Local port numbers used at the system end • Keep-alive function, supported • Keep-alive function, supported  PROFISER  PROFISER  Redundancy mode  Media redundancy - Switchover time on line break, typ Number of stations in the ring, max.  Open IE communication • TCP/IP  Nonumber of connections, max Data length for connection type 01H, max Data length for connection type 11H, max several passive connections per port, supported • ISO-on-TCP (RFC1006) - Number of connections, max Data length, max.  Data length, max.  - Data length, max.  - Data length, max Data length, max.	•	•
- Number, max User data per submodule, max.  - User data per submodule, max.  1 024 byte  PROFINET CBA  • acyclic transmission • Cyclic transmission • Cyclic transmission • Number of connections, max. • Local port numbers used at the system end • 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 • Keep-alive function, supported  PROFIsafe No Redundancy mode  Media redundancy - Switchover time on line break, typ Number of stations in the ring, max.  Open IE communication • TCP/IP - Number of stations in the ring, max.  Data length for connection type 01H, max Data length for connection type 11H, max several passive connections per port, supported • ISO-on-TCP (RFC1006) - Number of connections, max Data length, max.  32 768 byte  Yes; via integrated PROFINET interface and loadable FBs  **Yes  **Ves** (via integrated PROFINET interface and loadable FBs  **Ves** (via integrated		1 440 byte, Fel 10 Contitoller with Shared device
- User data per submodule, max. 1 024 byte  PROFINET CBA  • acyclic transmission Yes  Open IE communication  • Number of connections, max. 8 • Local port numbers used at the system end 65533, 65534, 65535 • Keep-alive function, supported Yes  Protocois  PROFIsafe No Redundancy mode  Media redundancy - Switchover time on line break, typ. 200 ms; PROFINET MRP - Number of stations in the ring, max. 50  Open IE communication  • TCP/IP - Number of connections, max. 8 - Data length for connection type 01H, max. 32 768 byte - Several passive connections, max. 8 - Data length for connections, max. 8 - Data length for connections, max. 32 768 byte - Number of connections, max. 8 - Data length, max. 32 768 byte - Ves; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte - Ves; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte - Ves; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte - Ves; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte - Ves; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 42 76 byte		64
PROFINET CBA	,	
<ul> <li>acyclic transmission</li> <li>cyclic transmission</li> <li>cyclic transmission</li> <li>Open IE communication</li> <li>Number of connections, max.</li> <li>Local port numbers used at the system end</li> <li>d. Exemplies function, supported</li> <li>Yes</li> <li>Keep-alive function, supported</li> <li>Protocols</li> <li>PROFIsafe</li> <li>No</li> <li>Redundancy mode</li> <li>Media redundancy</li> <li>Switchover time on line break, typ.</li> <li>Number of stations in the ring, max.</li> <li>Open IE communication</li> <li>TCP/IP</li> <li>Number of connections, max.</li> <li>Data length for connection type 01H, max.</li> <li>Data length for connection type 11H, max.</li> <li>several passive connections per port, supported</li> <li>ISO-on-TCP (RFC1006)</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>UDP</li> <li>Number of connections, max.</li> <li>UDP</li> <li>Number of connections, max.</li> <li>UDP</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>472 byte</li> </ul> Web server <ul> <li>supported</li> <li>Yes</li> </ul>	·	1 024 byte
• cyclic transmission     Open IE communication     • Number of connections, max.     • Keep-alive function, supported     Protocols PROFIsate Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max.      Open IE communication      **TCP/IP** — Number of connections, max. — Data length for connection type 01H, max. — Several passive connections per port, supported  **Yes*  **Ye		V
Open IE communication  Number of connections, max. Local port numbers used at the system end September 1, 20, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Keep-alive function, supported Yes  Protocols  PROFIsafe No Redundancy mode Media redundancy Switchover time on line break, typ. Number of stations in the ring, max.  Open IE communication  TCP/IP Number of connections, max. Data length for connection type 01H, max. Several passive connections per port, supported SISO-on-TCP (RFC1006) Number of connections, max. Data length, max. Several passive connections, max. Data length, max. Several passive connections, max. Several passive connections, max. Several passive connections per port, supported Several passive connections, max.	•	
<ul> <li>Number of connections, max.</li> <li>Local port numbers used at the system end</li> <li>Q. 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535</li> <li>Keep-alive function, supported</li> <li>Yes</li> </ul> Protocots PROFIsafe <ul> <li>No</li> <li>Redundancy mode</li> <li>Media redundancy</li> <li>— Switchover time on line break, typ.</li> <li>— Number of stations in the ring, max.</li> <li>50</li> </ul> Open IE communication <ul> <li>TCP/IP</li> <li>— Number of connections, max.</li> <li>— Data length for connection type 01H, max.</li> <li>— Data length for connection type 11H, max.</li> <li>— several passive connections per port, supported</li> <li>ISO-on-TCP (RFC1006)</li> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>UDP</li> <li>— Number of connections, max.</li> <li>Base of the system of the system end</li> <li>Sast of the system of the system end</li> <li>Sast of the system end of the system end</li> <li>Sast of the system end of the system end</li> <li>Sast of the system end of the system end</li> <li>Sast of the system end of the system end</li> <li>Sast of the system end of the system end</li> <li>Sast of the system end of the s</li></ul>		res
Local port numbers used at the system end     (		
Keep-alive function, supported     Yes  Protocols  PROFIsafe     No  Redundancy mode  Media redundancy      Switchover time on line break, typ.     Number of stations in the ring, max.  Open IE communication      TCP/IP     Number of connections, max.      Data length for connection type 01H, max.      Data length for connections per port, supported      ISO-on-TCP (RFC1006)     Number of connections, max.      Data length, max.      Tyes      Ves  Web server      *supported  Yes	•	
PROFIsafe No  Redundancy mode  Media redundancy  — Switchover time on line break, typ. — Number of stations in the ring, max.  Open IE communication  • TCP/IP — Number of connections, max. — Data length for connection type 01H, max. — Data length for connections per port, supported  • ISO-on-TCP (RFC1006) — Number of connections, max.  — Data length, max.  Sa 2768 byte  Yes; via integrated PROFINET interface and loadable FBs  • ISO-on-TCP (RFC1006) — Number of connections, max.  — Data length, max.  • UDP — Yes; via integrated PROFINET interface and loadable FBs  • Number of connections, max.  — Data length, max.  • UDP — Yes; via integrated PROFINET interface and loadable FBs  — Number of connections, max.  • UDP — Yes; via integrated PROFINET interface and loadable FBs  • UDP — Yes; via integrated PROFINET interface and loadable FBs  • UDP — Yes; via integrated PROFINET interface and loadable FBs  • UDP — Yes; via integrated PROFINET interface and loadable FBs  • UDP — Yes; via integrated PROFINET interface and loadable FBs  • UDP — Yes; via integrated PROFINET interface and loadable FBs  • UDP — Yes; via integrated PROFINET interface and loadable FBs  • UDP — Yes; via integrated PROFINET interface and loadable FBs  • UDP — Supported  • Supported	Local port numbers used at the system end	
PROFIsafe Redundancy mode  Media redundancy  — Switchover time on line break, typ. — Number of stations in the ring, max.  Open IE communication  • TCP/IP  — Number of connections, max. — Data length for connection type 01H, max. — Data length for connections per port, supported  • ISO-on-TCP (RFC1006) — Number of connections, max.  — Data length, max.  — Data length, max.  Sequence of connections, max.  A 1460 byte  • ISO-on-TCP (RFC1006) — Number of connections per port, supported  • UDP — Yes; via integrated PROFINET interface and loadable FBs  — Number of connections, max.  B 2768 byte  • UDP — Yes; via integrated PROFINET interface and loadable FBs  — Number of connections, max.  B 32 768 byte  • UDP — Yes; via integrated PROFINET interface and loadable FBs  — Number of connections, max.  1 472 byte  Web server  • supported	Keep-alive function, supported	Yes
Redundancy  — Switchover time on line break, typ. — Number of stations in the ring, max.  Open IE communication  • TCP/IP  — Number of connections, max. — Data length for connection type 01H, max. — Data length for connections per port, supported  • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  • UDP — Number of connections, max. — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Supported  Yes	Protocols	
Media redundancy  — Switchover time on line break, typ. — Number of stations in the ring, max.  Open IE communication  • TCP/IP  — Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. — several passive connections per port, supported  • ISO-on-TCP (RFC1006) — Number of connections, max.  — Data length, max.  • UDP — Number of connections, max. — Data length, max.  — Data length, max.  • UDP — Ves; via integrated PROFINET interface and loadable FBs — Number of connections, max. — Data length, max.  8  — Data length, max.  4  472 byte  Web server  • supported  Yes	PROFIsafe	No
- Switchover time on line break, typ Number of stations in the ring, max.  Open IE communication  TCP/IP - Number of connections, max Data length for connection type 01H, max Data length for connections per port, supported  ISO-on-TCP (RFC1006) - Number of connections, max Data length, max Security interface and loadable FBs - Number of connections, max Data length, max Data length, max Data length, max Yes	Redundancy mode	
<ul> <li>Number of stations in the ring, max.</li> <li>Open IE communication</li> <li>TCP/IP</li> <li>Yes; via integrated PROFINET interface and loadable FBs</li> <li>Number of connections, max.</li> <li>Data length for connection type 01H, max.</li> <li>Data length for connection type 11H, max.</li> <li>several passive connections per port, supported</li> <li>ISO-on-TCP (RFC1006)</li> <li>Yes; via integrated PROFINET interface and loadable FBs</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>UDP</li> <li>Yes; via integrated PROFINET interface and loadable FBs</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>UDP</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>1 472 byte</li> </ul> Web server <ul> <li>supported</li> <li>Yes</li> </ul>	Media redundancy	
Open IE communication  TCP/IP  Number of connections, max.  Data length for connection type 01H, max.  Second Indiana.  Data length for connection type 11H, max.  Second Indiana.  Second Indiana.  Second Interface and loadable FBs  Yes; via integrated PROFINET interface and loadable FBs  Yes  Several passive connections per port, supported  Yes  ISO-on-TCP (RFC1006)  Number of connections, max.  Data length, max.  Second Interface and loadable FBs  Yes; via integrated PROFINET interface and loadable FBs  Yes; via integrated PROFINET interface and loadable FBs  Number of connections, max.  Data length, max.  Second Interface and loadable FBs  1 472 byte  Web server  Supported  Yes	— Switchover time on line break, typ.	200 ms; PROFINET MRP
Open IE communication  TCP/IP  Number of connections, max.  Data length for connection type 01H, max.  Data length for connection type 11H, max.  Sequence of connections per port, supported of the sequence of the sequ	•	50
TCP/IP  Number of connections, max.  Data length for connection type 01H, max.  Data length for connection type 11H, max.  Several passive connections per port, supported  ISO-on-TCP (RFC1006)  Number of connections, max.  Data length, max.  UDP  Number of connections, max.  Data length, max.  Data length, max.  Ves; via integrated PROFINET interface and loadable FBs  Yes; via integrated PROFINET interface and loadable FBs  1 472 byte  Web server  Supported  Yes		
<ul> <li>Number of connections, max.</li> <li>Data length for connection type 01H, max.</li> <li>Data length for connection type 11H, max.</li> <li>Several passive connections per port, supported</li> <li>ISO-on-TCP (RFC1006)</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>UDP</li> <li>Number of connections, max.</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>Data length, max.</li> <li>Number of connections, max.</li> <li>Number of conne</li></ul>	·	Yes; via integrated PROFINET interface and loadable FBs
<ul> <li>Data length for connection type 01H, max.</li> <li>Data length for connection type 11H, max.</li> <li>several passive connections per port, supported</li> <li>ISO-on-TCP (RFC1006)</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>UDP</li> <li>Number of connections, max.</li> <li>UDP</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>UDP</li> <li>Wes; via integrated PROFINET interface and loadable FBs</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>1 472 byte</li> </ul> Web server <ul> <li>supported</li> <li>Yes</li> </ul>		•
<ul> <li>— Data length for connection type 11H, max.</li> <li>— several passive connections per port, supported</li> <li>• ISO-on-TCP (RFC1006)</li> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>• UDP</li> <li>— Number of connections, max.</li> <li>• UDP</li> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>8</li> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>8</li> <li>— Data length, max.</li> <li>8</li> <li>— Data length, max.</li> <li>1 472 byte</li> </ul> Web server <ul> <li>• supported</li> <li>Yes</li> </ul>		
<ul> <li>— several passive connections per port, supported</li> <li>• ISO-on-TCP (RFC1006)</li> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>• UDP</li> <li>— Number of connections, max.</li> <li>• UDP</li> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>Base of the proof of the</li></ul>		•
ISO-on-TCP (RFC1006)		
<ul> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>◆ UDP</li> <li>— Ves; via integrated PROFINET interface and loadable FBs</li> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>Web server</li> <li>◆ supported</li> <li>Yes</li> </ul>		
<ul> <li>— Data length, max.</li> <li>■ UDP</li> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>Meb server</li> <li>■ supported</li> <li>Yes</li> <li>32 768 byte</li> <li>Yes; via integrated PROFINET interface and loadable FBs</li> <li>8</li> <li>1 472 byte</li> <li>Yes</li> </ul>	,	-
VDP     Yes; via integrated PROFINET interface and loadable FBs     Number of connections, max.     Data length, max.  1 472 byte  Web server  supported  Yes		
<ul> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>1 472 byte</li> </ul> Web server <ul> <li>• supported</li> <li>Yes</li> </ul>	-	•
— Data length, max.  1 472 byte  Web server  ● supported  Yes		
Web server  ◆ supported Yes		
• supported Yes	— Data length, max.	1 472 byte
··	Web server	
◆ User-defined websites     Yes	• supported	Yes
	User-defined websites	Yes

Number of HTTP clients	5
communication functions / header	
PG/OP communication	Yes
Data record routing	Yes
Global data communication	
• supported	Yes
Number of GD loops, max.	8
Number of GD packets, max.	8
	8
Number of GD packets, transmitter, max.      Number of GD packets, receiver, max.	8
Number of GD packets, receiver, max.      Circ of CD packets, may.	
Size of GD packets, max.  Size of GD packet (of which consistent), may	22 byte
Size of GD packet (of which consistent), max.	22 byte
S7 basic communication	V
• supported	Yes
User data per job, max.	76 byte
<ul> <li>User data per job (of which consistent), max.</li> </ul>	76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB
User data per job, max.	See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication)
S5 compatible communication	
• supported	Yes; via CP and loadable FC
communication functions / PROFINET CBA (with set target commu	nication load) / header
<ul> <li>Setpoint for the CPU communication load</li> </ul>	50 %
<ul> <li>Number of remote interconnection partners</li> </ul>	32
<ul> <li>number of master/device functions</li> </ul>	30
<ul> <li>total of all master/device connections</li> </ul>	1 000
<ul> <li>data length of all incoming master/device connections, max.</li> </ul>	4 000 byte
<ul> <li>data length of all outgoing master/device connections, max.</li> </ul>	4 000 byte
<ul> <li>Number of device-internal and PROFIBUS interconnections</li> </ul>	500
<ul> <li>Data length of device-internal und PROFIBUS interconnections, max.</li> </ul>	4 000 byte
Data length per connection, max.	1 400 byte
performance data / PROFINET CBA / remote interconnection /	with acyclic transfer / header
<ul><li>— Sampling interval, min.</li></ul>	500 ms
<ul> <li>Number of incoming interconnections</li> </ul>	100
<ul> <li>Number of outgoing interconnections</li> </ul>	100
<ul> <li>Data length of all incoming interconnections, max.</li> </ul>	2 000 byte
<ul> <li>Data length of all outgoing interconnections, max.</li> </ul>	2 000 byte
Data length per connection, max.	1 400 byte
performance data / PROFINET CBA / remote interconnection /	·
Transmission frequency: Transmission interval, min.	10 ms
Number of incoming interconnections	200
Number of outgoing interconnections	200
Data length of all incoming interconnections, max.	2 000 byte
Data length of all outgoing interconnections, max.	2 000 byte
Data length per connection, max.	450 byte
performance data / PROFINET CBA / HMI variables via PROF	•
Number of stations that can log on for HMI variables (PN OPC/iMap)	3; 2x PN OPC/1x iMap
— HMI variable updating	500 ms
Number of HMI variables	200
Data length of all HMI variables, max.	2 000 byte
performance data / PROFINET CBA / PROFIBUS proxy function	·
— supported	Yes
Supported      Number of linked PROFIBUS devices	16
- Number of littled FROFIDUS devices	10

<ul> <li>Data length per connection, max.</li> </ul>	240 byte; Slave-dependent
Number of connections	
• overall	16
usable for PG communication	15
reserved for PG communication	1
adjustable for PG communication, min.	1
adjustable for PG communication, max.	15
usable for OP communication	15
reserved for OP communication	1
adjustable for OP communication, min.	1
adjustable for OP communication, max.	15
usable for S7 basic communication	14
reserved for S7 basic communication	0
adjustable for S7 basic communication, min.	0
adjustable for S7 basic communication, min.      adjustable for S7 basic communication, max.	14
usable for S7 communication	14
	0
— reserved for S7 communication	
adjustable for S7 communication, min.	0
— adjustable for S7 communication, max.	14
total number of instances, max.	32
usable for routing	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.
S7 message functions	14, AZ GOT NOT INCT. 24 IIIGA.
Number of login stations for message functions, max.	16; Depending on the configured connections for PG/OP and S7 basic
	communication
Process diagnostic messages	Yes
simultaneously active Alarm_S blocks, max.	300
Test commissioning functions	
Status block	Yes; Up to 2 simultaneously
Single step	Yes
Number of breakpoints	4
Status/control	
Status/control variable	Yes
• Variables	Inputs, outputs, memory bits, DB, times, counters
Number of variables, max.	30
— of which status variables, max.	30
— of which control variables, max.	14
Forcing	
• Forcing	Yes
Forcing, variables	Inputs, outputs
Number of variables, max.	10
Diagnostic buffer	
• present	Yes
Number of entries, max.	500
,	No
— adjustable — of which powerfail proof	
— of which powerfail-proof	100; Only the last 100 entries are retained
Number of entries readable in RUN, max.  adjustable.	499 Voc: From 10 to 400
— adjustable	Yes; From 10 to 499
— preset	10
Service data	Vac
• can be read out	Yes
Ambient conditions	
Ambient temperature during operation	2.00
• min.	0 °C
• max.	60 °C
configuration / header	
Configuration software	
• STEP 7	Yes; V5.5 or higher
configuration / programming / header	
<ul> <li>Command set</li> </ul>	see instruction list
Nesting levels	8

<ul> <li>System functions (SFC)</li> </ul>	see instruction list
<ul> <li>System function blocks (SFB)</li> </ul>	see instruction list
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
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	40 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	340 g

last modified:

12/8/2024