SIEMENS

Data sheet

6AG1315-2EH14-2AY0



spare part SIPLUS S7-300 CPU 315-2PN/DP based on 6ES7315-2EH14-0AB0 with conformal coating, -25...+60 °C, central processing unit with 384 KB work memory, 1st interface MPI/DP 12 Mbps, 2nd interface Ethernet PROFINET, with 2-port switch, Micro Memory Card required

General information	
Product type designation	CPU 315-2 PN/DP
Product function	
Isochronous mode	Yes; Via PROFIBUS DP or PROFINET interface
Engineering with	
Programming package	STEP 7 V5.5 or higher
Supply voltage	
Rated value (DC)	24 V; A power supply according to EN 50155 shall be used
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	
Mains/voltage failure stored energy time	5 ms
Repeat rate, min.	1 s
nput 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
integratedexpandable	384 kbyte No
• expandable	
expandable Load memory	
expandable	No
expandable Load memory Plug-in (MMC)	No Yes
expandable Load memory Plug-in (MMC) Plug-in (MMC), max. Data management on MMC (after last programming),	No Yes 8 Mbyte
expandable Load memory Plug-in (MMC) Plug-in (MMC), max. Data management on MMC (after last programming), min.	No Yes 8 Mbyte
expandable Load memory Plug-in (MMC) Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup	Yes 8 Mbyte 10 a
expandable Load memory Plug-in (MMC) Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup present without battery	Yes 8 Mbyte 10 a Yes; Guaranteed by MMC (maintenance-free)
expandable Load memory Plug-in (MMC) Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup present without battery	Yes 8 Mbyte 10 a Yes; Guaranteed by MMC (maintenance-free)
expandable Load memory Plug-in (MMC) Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup present without battery CPU processing times	Yes 8 Mbyte 10 a Yes; Guaranteed by MMC (maintenance-free) Yes; Program and data
expandable Load memory Plug-in (MMC) Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup present without battery CPU processing times for bit operations, typ. for word operations, typ.	Yes 8 Mbyte 10 a Yes; Guaranteed by MMC (maintenance-free) Yes; Program and data 0.05 µs
expandable Load memory Plug-in (MMC) Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup present without battery CPU processing times for bit operations, typ.	Yes 8 Mbyte 10 a Yes; Guaranteed by MMC (maintenance-free) Yes; Program and data 0.05 µs 0.09 µs
expandable Load memory Plug-in (MMC) Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup present without battery CPU processing times for bit operations, typ. for word operations, typ. for fixed point arithmetic, typ.	Yes 8 Mbyte 10 a Yes; Guaranteed by MMC (maintenance-free) Yes; Program and data 0.05 µs 0.09 µs 0.12 µs

	reduced by the MMC used.
DB	
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	
Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
• Size, max.	64 kbyte
Number of free cycle OBs	1; OB 1
Number of time alarm OBs	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 Number of isophysosus made OBs	3; OB 55, 56, 57
Number of isochronous mode OBs	1; OB 61
Number of startup OBs Number of soundbronous arres 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	2; OB 121, 122
Nesting depth	16
per priority class	16
additional within an error OB	4
Counters, timers and their retentivity	
S7 counter	
• Number	256
Retentivity	v.
— adjustable	Yes
— preset	Z 0 to Z 7
Counting range	V
— adjustable	Yes
— lower limit	0
— upper limit	999
IEC counter	Yes
• present	SFB
TypeNumber	Unlimited (limited only by RAM capacity)
S7 times	Offillfilled (liffilled offly by RAW capacity)
Number	256
	230
Retentivity — adjustable	Yes
— preset	No retentivity
— preser Time range	110 Totolitavity
— lower limit	10 ms
— upper limit	9 990 s
— upper infinit	0 000 0
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	Chiminto (minto City by the in capacity)
Retentive data area (incl. timers, counters, flags), max.	128 kbyte
Flag	120 ruyte
• Size, max.	2 048 byte
Size, max. Retentivity available	Yes; MB 0 to MB 2 047
•	MB 0 to MB 15
Retentivity presetNumber of clock memories	
Number of clock memories Data blocks	8; 1 memory byte
	Vec: via non retain property on DP
Retentivity adjustableRetentivity preset	Yes; via non-retain property on DB Yes
 Deferming hieser 	160

per priority class, max.	32 768 byte; Max. 2048 bytes per block
Address area	
I/O address area	
• Inputs	2 048 byte
Outputs	2 048 byte
of which distributed	
— Inputs	2 048 byte
— Outputs	2 048 byte
Process image	
Inputs	2 048 byte
Outputs	2 048 byte
 Inputs, adjustable 	2 048 byte
Outputs, adjustable	2 048 byte
Inputs, default	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	1 VLT
	1 024
Inputs of which control	256
— of which central	
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)	
● 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	The second secon
Number	1
Number/Number range	0
Range of values	0 to 2^31 hours (when using SFC 101)
Granularity Transitive	1 h
• retentive	Yes; Must be restarted at each restart
Clock synchronization	
• supported	Yes
• to MPI, master	Yes
• on MPI, device	Yes
 to DP, master 	Yes; With DP slave only slave clock

a in ∧S macter	Voc
in AS, masterin AS, device	Yes Yes
In AS, device on Ethernet via NTP	Yes; As client
Digital inputs	res, As client
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	
Transmission rate, max.	12 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
 Global data communication 	Yes
 S7 basic communication 	Yes
— S7 communication	Yes
— S7 communication, as client	No; but via CP and loadable FB
— S7 communication, as server	Yes
PROFIBUS DP master	40.1077
Transmission rate, max.	12 Mbit/s
max. number of DP devices	124
Services	Van
— PG/OP communication	Yes
— Routing	Yes
Global data communication S7 basis communication	No Vos: I blocks only
— S7 basic communication — S7 communication	Yes; I blocks only Yes
— S7 communication — S7 communication, as client	No
— S7 communication, as crient — S7 communication, as server	Yes
— S7 communication, as server — Equidistance	Yes
Equidistance 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	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
1st interface / DP master / payload data per DP Device / heade	er
— Inputs, max.	244 byte
— Outputs, max.	244 byte

n passive interface
h active interface
tion configured on one side only
Mbit/s
nultaneously with IO-Device functionality
nultaneously with IO Controller functionality
DUD ISO on TCD and LIDD
VIP, ISO on TCP, and UDP
V/IP, ISO on TCP, and UDP
VIP, ISO on TCP, and UDP
VIP, ISO on TCP, and UDP
VIP, ISO on TCP, and UDP
P/IP, ISO on TCP, and UDP
P/IP, ISO on TCP, and UDP
dable FBs, max. configurable connections: 14, max. number of
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dable FBs, max. configurable connections: 14, max. number of sochronous mode can only be used alternatively on PROFIBUS
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dable FBs, max. configurable connections: 14, max. number of sochronous mode can only be used alternatively on PROFIBUS
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- Number of IO Devices that can be simultaneously advivate/declevates draining during operation (partner ports), supported - Number of IO Devices per tool, max. - Device reducement without away medium - Send cycles - Updoing time - Send cycles - Updoing time - Send cycles - Updoing time - Address area - Injuds, max. - Updoing time - Address area - Injuds, max. - Updoing time - Send cycles - PROPER TIO Devices - PROPER TIO Devices - PROPER Communication - Routing - ST communication - Routing - ST communication - Insolution and the patient with shared device, max. - Transfer mensely - Injuds, max. - Updoing time - PROPER and the patient with shared device, max. - Transfer mensely - Injuds, max. - Updoing time - PROPER and the patient with shared device, max. - Transfer mensely - Injuds, max. - Updoing time - No - Routing - ST communication - Insolutions and the patient with shared device, max. - Transfer mensely - Injuds, max. - Updoing		
Ports, supported Nember of 10 Devices per tool, max. Device replacement without swap medium Send cycles Usdafing lime 250 us, 500 µs, 1 ms, 2 ms, 4 ms (not in the case of IRT with "high flexibility" option) Address area Inputs, max. Usgar, max. Liser data considency, max. PROFINET ID Device Services PROFINET ID Device Services PROFILE TO Device Services PROFILE TO Device Services PROFILE TO Device Services PROFILE TO Device To Service To		8
- Number of IO Devices per loot, max Device replacement without swap medium - Send cycles - Updating time - 250 us, 500 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option) - 250 us, 500 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option) - 250 us to 512 ms (depending on the operating mode, see Manual "\$7-300 CPU - State and CPU situs, technical Data" for more defails) - Updating time - Inputs, max Outputs, max User data consistency, max User data consistency, max PROP communication - Routing - ST communication - ROUTING - ST communication - Isochronous mode - IRT - PROP lenerty - Shared device - Sh		Yes
Device replacement without swap medium Send cycles Updating time Send cycles Updating time Send cycles Updating time Send cycles Updating time Send cycles Inputs, max Inputs, max Updating time		8
- Send cycles - Updating time - Updating time - 250 jus to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x (shorthold bota" for more details) - Iniputs, max - Updating time - Iniputs, max - Updating time -	•	Yes
Address area	·	250 μs, 500 μs,1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility"
Address area - Inputs, max Outputs, max Outputs, max User data consistency, max User data consistency, max PGOP communication - Routing - Ro	— Updating time	250 μs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU
	Address area	5 7 5 5 7 7 5 5 7 7 5 5 7 7 5 5 7 7 7 5 7
User data consistency, max. PGOPTO communication Routing S7 communication Instrances: 32 Isochronous mode Instrances: 32 Isochronous mode IRT PROFlenetry Shared device -	— Inputs, max.	2 kbyte
PROFINET IO Device Services Services PG/OP communication Yes	— Outputs, max.	2 kbyte
PGIOP communication	— User data consistency, max.	1 024 byte
- PGIOP communication - Routing - Routing - Sommunication - Isochronous mode - Isochronous mode - IRT - PROFlenergy - Yes: With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device - Shared device - Number of IO Controllers with shared device, max Shared device - Number of IO Controllers with shared device, max Cutputs, max - Outputs, max - Outputs, max - Outputs, max - Outputs, max - User data per submodule, max User data per submodule, max User data per submodule, max Outputs are submodule, max Outputs are submodule, max Outputs are submodule, max User data per submodule, max User data per submodule, max Outputs are submodule, max Outputs are submodule, max Outputs functions are data feet submodule, max Outputs functions are data feet submodule, max Outputs functions are data feet submodule, max Outputs functions are functions are functions are functions are functions are functions are functions COPIP - Number of connections, max Outputs functions functions functions functions functions functions functions functions functions COPIP - Number of connections per port, supported - SISO-on-TCP (RE-C108) - Number of connections, max Outputs functions functi	PROFINET IO Device	
- Routing - S7 communication	Services	
	— PG/OP communication	Yes
Instances: 32	— Routing	Yes
- IRT	— S7 communication	
- PROFlenergy Yes, With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for Inchice Standard device — Shared device — Number of IO Controllers with shared device, max. Transfer memory — Inputs, max.	 Isochronous mode 	No
Device - Shared device - Number of IO Controllers with shared device, max. Transfer memory - Inputs, max Outputs, max Outputs, max User data per submodule, max User data per submodule per per submodule, max User data per submodule per per submodule, max User data per submodule per per submodule, max User data per submodule per submodule, max User data per submodule, max User data per submodule, max User data per submodule per submodule, max User data per submodule, max User data per submodule, max.	— IRT	Yes
Transfer memory Inputs, max. Outputs, max. Outputs, max. Outputs, max. User data per submodule, max. PROFINET CBA a cyclic transmission Number of connections, max. Local port numbers used at the system end Expedition of connections, supported PROFIsale Redundancy mode Media redundancy Suthchover time on line break, typ. Number of connections, max. Data length for connection type 01H, max. Data length for connections, max. Data length, max. Data l	— PROFlenergy	
Transfer memory Inputs, max. In 1440 byte; Per IO Controller with shared device Jubus max. Inputs, max. Interpretation of the state	— Shared device	Yes
- Inputs, max. 1440 byte; Per IO Controller with shared device Outputs, max. 1440 byte; Per IO Controller with shared device 1440 byte 1440 byte; Per IO Controller with shared device 1440 byte 1440 byte 1440 byte 1440 byte 1440 byte 1440 byte 1440 byte; Per IO Controller with shared device 1440 byte; Per IO Controller with shared device 1440 byte 1440 byte 1440 byte; Per IO Controller with shared device 1440 byte; Per IO Controller with shared device 1440 byte 1440 byte; Per IO Controller with shared device 1440 byte; Per IO Controller with shared 1440 byte; Per IO Controller with	 Number of IO Controllers with shared device, max. 	2
- Outputs, max. Submodules - Number, max User data per submodule, max. - User data per submodule, max. 1 024 byte PROFINET CBA • acyclic transmission • cyclic transmission • Number of connections, max. • Local port numbers used at the system end • Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy - Switchover time on line break, typ Number of stations in the ring, max. Open IE communication • TCP/IP • TVP/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 Data length, max Data length, for connection type 7 the max Data length, for connections, max Data length, for connections, max Data length, for connections, per port, supported • ISO-on-TCP (RFC1006) - Number of connections, max Data length, max Data length or connections, max Data length or connections, max Data length, max Seepara length or connections, max Data	Transfer memory	
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- Number, max User data per submodule, max User data per submodule, max. PROFINET CBA • acyclic transmission • cyclic transmission • Number of connections, max. • Local port numbers used at the system end • Number of search of the system end • Number of search of the system end • Number of search of the system end • No Redundancy supported 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 stations in the ring, max. Data length for connection type 01H, max Data length for connection type 11H, max several passive connections, max Several passive connections, max Data length, max. - Data length of connections, max. - Data length, max. - Data length of connections, max. - Data length of connections, max. - Data length, max. - Data length of connections, max. - Data length of connections, max. - Dat	— Outputs, max.	1 440 byte; Per IO Controller with shared device
User data per submodule, max. PROFINET CBA a cyclic transmission cyclic transmission Yes Open IE communication Number of connections, max. Local port numbers used at the system end Execution of the profit of t	Submodules	
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PROFINET CBA a cyclic transmission Cpen IE communication Number of connections, max. Local port numbers used at the system end Keep-alive function, supported Protocols PROFISIA Media redundancy Switchover time on line break, typ. Number of stations in the ring, max. Data length for connection type 11H, max. Service plans ive connections per port, supported Sign-on-TCP (RFC1006) Negler of connections, max. Data length, max. Data length, max. Data length, max. Data length, max. Pubber of connections, max. Data length, max. A bata length, max. Data length, max. Data length, max. A bata length max. A	— User data per submodule, max.	1 024 byte
• yclic transmission Open IE communication • Number of connections, max. • Local port numbers used at the system end • Local port numbers used at the system end • Local port numbers used at the system end • Local port numbers used at the system end • Copen III (Septiment) PROFIsafe PROFIsafe Redundancy mode Media redundancy - Switchover time on line break, typ. - Number of stations in the ring, max. Open IE communication • TCP/IP		
Open IE communication Number of connections, max. Local port numbers used at the system end	acyclic transmission	Yes
Open IE communication Number of connections, max. Local port numbers used at the system end O, 20, 21, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 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 ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. Data length, max. UDP Number of connections, max. Data length, max. A great length, max. Sa 768 byte Yes; via integrated PROFINET interface and loadable FBs 1460 byte Yes Yes; via integrated PROFINET interface and loadable FBs Yes; via integrated PROFINET interface and loadable FBs 1472 byte Web server Supported Yes Number of HTTP clients Yes Number of HTTP clients	•	
Number of connections, max. Local port numbers used at the system end Neep-alive function, supported Protocols PROFisafe 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 Nees, via integrated PROFINET interface and loadable FBs PROFINET max. Sa 768 byte Yes; via integrated PROFINET interface and loadable FBs No Redundancy — Switchover time on line break, typ. — 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 Number of connections, max. Data length, max. Data length, max. Data length, max. Data length, max. 1472 byte Number of HTTP clients No Redundancy 74es No Redundancy 74es PROFINET MRP 200 ms; PROFINET MRP 200 ms; PROFINET MRP 40 byte yes; via integrated PROFINET interface and loadable FBs 8 yes; via integrated PROFINET interface and loadable FBs 1472 byte		
Local port numbers used at the system end O, 20, 21, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Keep-alive function, supported 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 connection type 11H, max. — several passive connections per port, supported • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max. — Number of connections, max. — Data length, max. — Number of connections, max. — Data length, max. — Number of connections, max. — Number of con	·	8
Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Data length for connection type 01H, max. — several passive connections, per port, supported ■ ISO-on-TCP (RFC1006) — Number of connections, max. Balance of connections, max. ■ Data length, max. Data length, max. Balance of connections, max. Balance of connections, per port, supported ■ ISO-on-TCP (RFC1006) — Number of connections, max. Balance of connections, max. Bal	•	0, 20, 21, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533,
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. — Data length, max. — Data length, max. — Data length, max. — Data length, 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. — 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. — 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. — 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. — Pata length, max. • UDP — Yes; via integrated PROFINET interface and loadable FBs — Number of connections, max. — Pata length, max. • UDP — Yes; via integrated PROFINET interface and loadable FBs — Number of connections, max. — Pata length, max. • UDP — Yes; via integrated PROFINET interface and loadable FBs — Number of connections, max. — Pata length, max. • UDP — Yes; via integrated PROFINET interface and loadable FBs — Number of connections, max. — Pata length of connections, max. —	Keep-alive function, supported	
PROFIsafe No Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Data length for connections, per port, supported ISO-on-TCP (RFC1006) — Number of connections, max. B (1SO-on-TCP (RFC1006) — Number of connections, max. Data length, max. Data length, max. Data length, max. 1 460 byte 1		
Redundancy		No
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. — Data length, max. — Data length, max. — Data length, max. — Data length, max. • UDP — Number of connections, max. — Data length, max. • UDP — Syes, via integrated PROFINET interface and loadable FBs **Yes*, via integrated PROFINET interface and loadable FBs **1 472 byte Web server • supported • User-defined websites • Number of HTTP clients **2 768 byte Yes • Number of HTTP clients **2 768 byte Yes • Number of HTTP clients		
- 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. Open IE communication ■ TCP/IP — Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. — Data length for connections per port, supported ■ ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max. — Data length, max. ■ UDP — Number of connections, max. — Data length, max. ■ UDP — Number of connections, max. — Data length, max. ■ UDP — Seyeral passive connections per port, supported ■ ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max. ■ UDP — Number of connections, max. — Data length, max. ■ User-defined websites ■ Supported ■ User-defined websites ■ Number of HTTP clients	·	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. Second TCP (RFC1006) Number of connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. Second TCP (RFC1006) Number of connections, max. Data length, max. Data length, max. Second TCP (RFC1006) Author of connections, max. Data length, max. Second TCP (RFC1006) Yes; via integrated PROFINET interface and loadable FBs Number of connections, max. Author of Connections, max. Data length, max. Second TCP (RFC1006) Yes; via integrated PROFINET interface and loadable FBs Author of Connections, max. Author of Connections, max. Second TCP (RFC1006) Yes; via integrated PROFINET interface and loadable FBs Author of Connections, max. Yes Supported Ves Ves Number of HTTP clients		
TCP/IP Wes; via integrated PROFINET interface and loadable FBs 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. Data length, max. UDP Number of connections, max. Data length, max. Web server supported User-defined websites Number of HTTP clients Yes; via integrated PROFINET interface and loadable FBs 4 1 472 byte		
 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. Data length, max. Web server Supported User-defined websites Number of HTTP clients 1 460 byte 1 460 byte Yes Ves Nuintegrated PROFINET interface and loadable FBs 1 472 byte 	·	Ves: via integrated PROFINET interface and loadable FRs
 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. Number of connections, max. Data length, max. Data length, max. Wes; via integrated PROFINET interface and loadable FBs Number of connections, max. Data length, max. 1 472 byte Web server supported User-defined websites Number of HTTP clients 5 		
- 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. • UDP - Number of connections, max Data length, max. - Data length		
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ISO-on-TCP (RFC1006) 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. Data length, max. Data length, max. Web server supported Yes User-defined websites Number of HTTP clients Yes		·
 Number of connections, max. Data length, max. UDP Yes; via integrated PROFINET interface and loadable FBs Number of connections, max. Data length, max. 1 472 byte Web server supported User-defined websites Number of HTTP clients 5 		
 — Data length, max. ■ UDP Yes; via integrated PROFINET interface and loadable FBs — Number of connections, max. — Data length, max. 1 472 byte Web server ■ supported ■ User-defined websites ■ Number of HTTP clients 5 Number of HTTP clients 5		•
VDP Yes; via integrated PROFINET interface and loadable FBs Number of connections, max. Data length, max. Web server supported Ves User-defined websites Number of HTTP clients Yes		
— Data length, max. 1 472 byte Web server ● supported ● User-defined websites ● Number of HTTP clients 1 472 byte	-	•
Web server	 Number of connections, max. 	8
 supported User-defined websites Number of HTTP clients 5 	— Data length, max.	1 472 byte
 User-defined websites Number of HTTP clients 5 	Web server	
Number of HTTP clients 5	• supported	Yes
	User-defined websites	Yes
communication functions / header	Number of HTTP clients	5
	communication functions / header	

PC/OP communication	Vac
PG/OP communication	Yes
Data record routing Global data communication	Yes
	Voc
Supported Number of CD loops, may	Yes 8
Number of GD loops, max.Number of GD packets, max.	8
Number of GD packets, max. Number of GD packets, transmitter, max.	8
Number of GD packets, transmitter, max. Number of GD packets, receiver, max.	8
Size of GD packets, max.	22 byte
Size of GD packet (of which consistent), max.	22 byte
S7 basic communication	
• supported	Yes
User data per job, max.	76 byte
User data per job (of which consistent), max.	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	
 Setpoint for the CPU communication load 	50 %
Number of remote interconnection partners	32
number of master/device functions	30
total of all master/device connections	1 000
data length of all incoming master/device connections, max.	4 000 byte
data length of all outgoing master/device connections, max.	4 000 byte
Number of device-internal and PROFIBUS interconnections Data leastly of device internal and PROFIBUS	500
Data length of device-internal und PROFIBUS interconnections, max. Pate length or a consection group.	4 000 byte
Data length per connection, max. PROFINET CRA / remarks interconnection /	1 400 byte
performance data / PROFINET CBA / remote interconnection / — Sampling interval, min.	500 ms
	100
— Number of incoming interconnections— Number of outgoing interconnections	100
— Data length of all incoming interconnections, max.	2 000 byte
Data length of all outgoing interconnections, max.	2 000 byte 2 000 byte
— data volume / as user data for remote	1 400 byte
interconnections / in the case of acyclic transmission / with PROFINET CBA / per connection / maximum	
performance data / PROFINET CBA / remote interconnection /	with cyclic transfer / header
— 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 volume / as user data for remote interconnections / with cyclical transfer / with PROFINET CBA / per connection / maximum 	450 byte
performance data / PROFINET CBA / HMI variables via PROF	INET / acyclic / header
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	onality / header
— supported	Yes

Number of linked PROFIBUS devices	16
Data length per connection, max.	240 byte; Slave-dependent
Number of connections	240 byte, olave dependent
• 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 usable for S7 communication	14
reserved for S7 communication	0
	0
adjustable for S7 communication, min.	14
adjustable for S7 communication, max.	14 32
total number of instances, max. usable for routing.	
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	
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
— adjustable	No
of which powerfail-proof	100; Only the last 100 entries are retained
 Number of entries readable in RUN, max. 	499
— adjustable	Yes; From 10 to 499
— preset	10
Service data	
• can be read out	Yes
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes; File E239877
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
Use in hazardous areas	Von
ATEX Railway application	Yes

● EN 50155	Yes; Sections 4, 5 and 12; no further agreements apply; T1, Category 1, Class A/B, EN 50155:2007
Ambient conditions	
Ambient temperature during operation	
• min.	-25 °C; = Tmin
• max.	60 °C; = Tmax; the rated temperature range of -25 +55 °C (T1) applies for the use on railway vehicles according to EN50155
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	
Installation altitude above sea level, max.	5 000 m
Ambient air temperature-barometric pressure-altitude	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax -20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
Use in stationary industrial systems	
 to biologically active substances according to EN 60721-3-3 	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
 to chemically active substances according to EN 60721-3-3 	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
 to mechanically active substances according to EN 60721-3-3 	Yes; Class 3S4 incl. sand, dust, *
Use on land craft, rail vehicles and special-purpose vehicles	
 to biologically active substances according to EN 60721-3-5 	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request
 to chemically active substances according to EN 60721-3-5 	Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *
 to mechanically active substances according to EN 60721-3-5 	Yes; Class 5S3 incl. sand, dust; *
Remark	
 Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04 	* The supplied plug covers must remain in place over the unused interfaces during operation!
configuration / header	
Configuration software	
• STEP 7	Yes; V5.5 or higher
configuration / programming / header	
Command set	see instruction list
 Nesting levels 	8
 System functions (SFC) 	see instruction list
System function blocks (SFB)	see instruction list
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
Know-how protection	
User program protection/password protection	Yes
Block encryption	Yes; With S7 block Privacy
Dimensions	
Width	40 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	340 g
last modified:	5/13/2024 🖸
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