SIEMENS

Data sheet

6ES7317-2EK14-0AB0



SIMATIC S7-300 CPU 317-2 PN/DP, Central processing unit with 1 MB work memory, 1st interface MPI/DP 12 Mbit/s, 2nd interface Ethernet PROFINET, with 2-port switch, Micro Memory Card required

General information	
HW functional status	01
Firmware version	V3.2
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
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
Input current	
Current consumption (rated value)	750 mA
Current consumption (in no-load operation), typ.	150 mA
Inrush current, typ.	4 A
² t	1 A ² ·s
Power loss	
Power loss, typ.	4.65 W
Memory	
Work memory	
 integrated 	1 024 kbyte
• expandable	No
Load memory	
 Plug-in (MMC) 	Yes
 Plug-in (MMC), max. 	8 Mbyte
 Data management on MMC (after last programming), min. 	10 у
Backup	
• present	Yes; Guaranteed by MMC (maintenance-free)
without battery	Yes; Program and data
CPU processing times	
for bit operations, typ.	0.025 μs
for word operations, typ.	0.03 µs
for fixed point arithmetic, typ.	0.04 µs

for floating point arithmetic, typ.	0.16 µs
CPU-blocks	0.10 μδ
	2.040: (DDa, ECa, EDa)) the maximum number of leadable blacks can
Number of blocks (total)	2 048; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
DB	,
 Number, max. 	2 048; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
Number, max.	2 048; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
• Number, max.	2 048; 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 isochronous mode OBs 	3; OB 55, 56, 57
	1; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously)
Number of startup 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 oper priority class	16
additional within an error OB	4
Counters, timers and their retentivity	7
S7 counter	
Number	512
Retentivity	012
— adjustable	Yes
— lower limit	0
— upper limit	511
— preset	Z 0 to Z 7
Counting range	
— adjustable	Yes
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Туре	SFB
Number	Unlimited (limited only by RAM capacity)
S7 times	
• Number	512
Retentivity	Ver
— adjustable — lower limit	Yes
— IOWER IIMIT	0
	0
— upper limit	511
— upper limit — preset	
— upper limit — preset Time range	511 No retentivity
— upper limit — preset Time range — lower limit	511 No retentivity 10 ms
— upper limit — preset Time range — lower limit — upper limit	511 No retentivity
 upper limit preset Time range lower limit upper limit IEC timer 	511 No retentivity 10 ms 9 990 s
 upper limit preset Time range lower limit upper limit IEC timer present 	511 No retentivity 10 ms 9 990 s Yes
 upper limit preset Time range lower limit upper limit IEC timer present Type 	511 No retentivity 10 ms 9 990 s Yes SFB
 upper limit preset Time range lower limit upper limit IEC timer present 	511 No retentivity 10 ms 9 990 s Yes

Retentive data area (incl. timers, counters, flags), max.	256 kbyte
Flag	200 10/10
• Size, max.	4 096 byte
Retentivity available	Yes; From MB 0 to MB 4 095
Retentivity preset	MB 0 to MB 15
Number of clock memories	8; 1 memory byte
Data blocks	o, Thenory byte
Retentivity adjustable	Yes; via non-retain property on DB
Retentivity preset	Yes
Local data	165
per priority class, max.	32 768 byte; Max. 2048 bytes per block
Address area	
I/O address area	
Inputs	8 192 byte
Outputs	8 192 byte
of which distributed	0 192 byte
	0 100 bits
— Inputs	8 192 byte
- Outputs	8 192 byte
Process image	9 102 hite
Inputs	8 192 byte
Outputs	8 192 byte
Inputs, adjustable	8 192 byte
Outputs, adjustable	8 192 byte
Inputs, default	256 byte
Outputs, default	256 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	0,00
Inputs	65 536
— of which central	1 024
Outputs	65 536
— of which central	1 024
Analog channels	
Inputs	4 096
— of which central	256
Outputs	4 096
— of which central	256
Hardware configuration	200
Number of expansion units, max.	3
Number of DP masters	5
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 Deviation per day, max	6 wk; At 40 °C ambient temperature
Deviation per day, max. Behavior of the clock following POW/EP ON	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	
oportung nouro ocuntor	

• Number	4
 Number/Number range 	0 to 3
 Range of values 	0 to 2^31 hours (when using SFC 101)
Granularity	1 h
retentive	Yes; Must be restarted at each restart
Clock synchronization	
• supported	Yes
• to MPI, master	Yes
• to MPI, slave	Yes
• to DP, master	Yes; With DP slave only slave clock
• to DP, slave	Yes
• in AS, master	Yes
• in AS, slave	Yes
on Ethernet via NTP	Yes; As client
Digital inputs	
Number of digital inputs	0
Digital outputs	
Number of digital outputs	0
Analog inputs	
Number of analog inputs	0
Analog outputs	
Number of analog outputs	0
Interfaces	
Number of industrial Ethernet interfaces	1; 2 ports (switch) RJ45
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 slave	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	
 Transmission rate, max. 	12 Mbit/s
Number of DP slaves, max.	124
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	Yes; I blocks only
— S7 communication	Yes
- S7 communication, as client	
	No
— S7 communication, as server	No Yes

	Yee
— 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 slaves 	Yes
 Number of DP slaves that can be simultaneously activated/deactivated, max. 	8
— Direct data exchange (slave-to-slave	Yes; as subscriber
communication)	
— DPV1	Yes
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
User data per DP slave	
— Inputs, max.	244 byte
- Outputs, max.	244 byte
PROFIBUS DP slave	244 0910
Transmission rate, max.	12 Mbit/s
automatic baud rate search	
	Yes; only with passive interface
Address area, max.	32
User data per address area, max.	32 byte
Services	N .
- 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
 — Direct data exchange (slave-to-slave 	Yes
communication)	
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2. Interface	
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes; 10/100 Mbit/s
automatic detection of transmission rate Autonegotiation	Yes; 10/100 Mbit/s Yes
Autonegotiation	
Autonegotiation Autocrossing	Yes
Autonegotiation Autocrossing Change of IP address at runtime, supported	Yes Yes
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types	Yes Yes
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet)	Yes Yes Yes
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports	Yes Yes Yes 2
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch	Yes Yes Yes
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols	Yes Yes Yes 2 Yes
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • MPI	Yes Yes Yes 2 Yes No
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • MPI • PROFINET IO Controller	Yes Yes Yes Yes 2 Yes No Yes; Also simultaneously with IO-Device functionality
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • MPI • PROFINET IO Controller • PROFINET IO Device	Yes Yes Yes Yes 2 Yes No Yes; Also simultaneously with IO-Device functionality Yes; Also simultaneously with IO Controller functionality
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • MPI • PROFINET IO Controller • PROFINET IO Device • PROFINET CBA	Yes Yes Yes Yes 2 Yes No Yes; Also simultaneously with IO-Device functionality Yes; Also simultaneously with IO Controller functionality Yes
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • MPI • PROFINET IO Controller • PROFINET IO Device • PROFINET CBA • PROFIBUS DP master	Yes Yes Yes Yes 2 Yes No Yes; Also simultaneously with IO-Device functionality Yes; Also simultaneously with IO Controller functionality Yes No
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • MPI • PROFINET IO Controller • PROFINET IO Device • PROFINET CBA • PROFIBUS DP master • PROFIBUS DP slave	Yes Yes Yes Yes Yes No Yes; Also simultaneously with IO-Device functionality Yes; Also simultaneously with IO Controller functionality Yes No No
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • MPI • PROFINET IO Controller • PROFINET IO Device • PROFINET CBA • PROFIBUS DP master • PROFIBUS DP slave • Open IE communication	Yes Yes Yes Yes Yes No Yes; Also simultaneously with IO-Device functionality Yes; Also simultaneously with IO Controller functionality Yes; No Simultaneously with IO Controller functionality Yes No No
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • MPI • PROFINET IO Controller • PROFINET IO Device • PROFINET IO Device • PROFINET CBA • PROFIBUS DP master • PROFIBUS DP slave • Open IE communication • Web server	Yes Yes Yes Yes 2 Yes No Yes; Also simultaneously with IO-Device functionality Yes; Also simultaneously with IO Controller functionality Yes No No No Yes; Via TCP/IP, ISO on TCP, and UDP Yes
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • MPI • PROFINET IO Controller • PROFINET IO Device • PROFINET IO Device • PROFINET CBA • PROFIBUS DP master • PROFIBUS DP slave • Open IE communication • Web server • Media redundancy	Yes Yes Yes Yes Yes No Yes; Also simultaneously with IO-Device functionality Yes; Also simultaneously with IO Controller functionality Yes; No Simultaneously with IO Controller functionality Yes No No
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • MPI • PROFINET IO Controller • PROFINET IO Device • PROFINET IO Device • PROFINET CBA • PROFIBUS DP master • PROFIBUS DP slave • Open IE communication • Web server	Yes Yes Yes Yes 2 Yes No Yes; Also simultaneously with IO-Device functionality Yes; Also simultaneously with IO Controller functionality Yes No No No Yes; Via TCP/IP, ISO on TCP, and UDP Yes
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • MPI • PROFINET IO Controller • PROFINET IO Device • PROFINET IO Device • PROFINET CBA • PROFIBUS DP master • PROFIBUS DP slave • Open IE communication • Web server • Media redundancy	Yes Yes Yes Yes 2 Yes No Yes; Also simultaneously with IO-Device functionality Yes; Also simultaneously with IO Controller functionality Yes No No No Yes; Via TCP/IP, ISO on TCP, and UDP Yes
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • MPI • PROFINET IO Controller • PROFINET IO Device • PROFINET CBA • PROFIBUS DP master • PROFIBUS DP slave • Open IE communication • Web server • Media redundancy PROFINET IO Controller	Yes Yes Yes Yes 2 Yes No No No No Yes; Also simultaneously with IO-Device functionality Yes; Also simultaneously with IO Controller functionality Yes No No Yes; Via TCP/IP, ISO on TCP, and UDP Yes Yes
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • MPI • PROFINET IO Controller • PROFINET IO Device • PROFINET IO Device • PROFINET CBA • PROFIBUS DP master • PROFIBUS DP slave • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max.	Yes Yes Yes Yes 2 Yes No No No No Yes; Also simultaneously with IO-Device functionality Yes; Also simultaneously with IO Controller functionality Yes No No Yes; Via TCP/IP, ISO on TCP, and UDP Yes Yes
Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • MPI • PROFINET IO Controller • PROFINET IO Device • PROFINET CBA • PROFIBUS DP master • PROFIBUS DP slave • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max. Services	Yes Yes Yes Yes 2 Yes No No Yes; Also simultaneously with IO-Device functionality Yes; Also simultaneously with IO Controller functionality Yes No No No Yes; Via TCP/IP, ISO on TCP, and UDP Yes Yes Yes

— S7 communication	Yes; with loadable FBs, max. configurable connections: 16, 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
 Number of IO devices with prioritized startup, 	32
max.	
 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
 — Number of connectable IO Devices for RT, 	128
max.	
— of which in line, max.	128
 Activation/deactivation of IO Devices 	Yes
 — Number of IO Devices that can be simultaneously activated/deactivated, max. 	8
— IO Devices changing during operation (partner	Yes
ports), supported	0
— Number of IO Devices per tool, max.	8
Device replacement without swap medium	Yes
— Send cycles	250 $\mu s,$ 500 $\mu s,$ 1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option)
— Updating time	250 μs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, technical Data" for more details)
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
— User data consistency, max.	1 024 byte
PROFINET IO Device	
PROFINET IO Device Services	
PROFINET IO Device Services — PG/OP communication	Yes
PROFINET IO Device Services — PG/OP communication — Routing	Yes Yes
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication	Yes Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32
PROFINET IO Device Services — PG/OP communication — Routing	Yes Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode — IRT	Yes Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode	Yes Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode — IRT	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFIenergy standard FB
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode — IRT — PROFIenergy	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFIenergy standard FB for I-Device
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode — IRT — PROFIenergy — Shared device	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device Yes
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode — IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device,	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device Yes
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode — IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device, max.	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device Yes
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode — IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device, max. Transfer memory	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFIenergy standard FB for I-Device Yes 2 1 440 byte; Per IO Controller with shared device
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode — IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device, max. Transfer memory — Inputs, max.	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFIenergy standard FB for I-Device Yes 2
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode — IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device, max. Transfer memory — Inputs, max. — Outputs, max. Submodules	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device Yes 2 1 440 byte; Per IO Controller with shared device 1 440 byte; Per IO Controller with shared device
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode — IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device, max. Transfer memory — Inputs, max. — Outputs, max. — Outputs, max.	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device Yes 2 1 440 byte; Per IO Controller with shared device 1 440 byte; Per IO Controller with shared device
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode — IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device, max. Transfer memory — Inputs, max. — Outputs, max. — Outputs, max. — User data per submodule, max.	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device Yes 2 1 440 byte; Per IO Controller with shared device 1 440 byte; Per IO Controller with shared device
PROFINET IO Device Services - PG/OP communication - Routing - S7 communication - Isochronous mode - IRT - PROFlenergy - Shared device - Number of IO Controllers with shared device, max. Transfer memory - Inputs, max. - Outputs, max. - Outputs, max. - User data per submodule, max. PROFINET CBA	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFIenergy standard FB for I-Device Yes 2 1 440 byte; Per IO Controller with shared device 1 440 byte; Per IO Controller with shared device 64 1 024 byte
PROFINET IO Device Services - PG/OP communication - Routing - S7 communication - Isochronous mode - IRT - PROFIenergy - Shared device - Number of IO Controllers with shared device, max. Transfer memory - Inputs, max. - Outputs, max. - Outputs, max. Submodules - Number, max. - User data per submodule, max. PROFINET CBA • acyclic transmission	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device Yes 2 1 440 byte; Per IO Controller with shared device 1 440 byte; Per IO Controller with shared device 64 1 024 byte Yes
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode — IRT — PROFIenergy — Shared device — Number of IO Controllers with shared device, max. Transfer memory — Inputs, max. — Outputs, max. — User data per submodule, max. PROFINET CBA • cyclic transmission	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFIenergy standard FB for I-Device Yes 2 1 440 byte; Per IO Controller with shared device 1 440 byte; Per IO Controller with shared device 64 1 024 byte
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode — IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device, max. Transfer memory — Inputs, max. — Outputs, max. — User data per submodule, max. PROFINET CBA • acyclic transmission • cyclic transmission Open IE communication	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFIenergy standard FB for I-Device Yes 2 1 440 byte; Per IO Controller with shared device 1 440 byte; Per IO Controller with shared device 64 1 024 byte Yes Yes
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode — IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device, max. Transfer memory — Inputs, max. — Outputs, max. — Outputs, max. — User data per submodule, max. PROFINET CBA • acyclic transmission • cyclic transmission • Cyclic transmission • Number of connections, max.	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFIenergy standard FB for I-Device Yes 2 1 440 byte; Per IO Controller with shared device 1 440 byte; Per IO Controller with shared device 64 1 024 byte Yes Yes Yes
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode — IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device, max. Transfer memory — Inputs, max. — Outputs, max. — User data per submodule, max. PROFINET CBA • acyclic transmission • cyclic transmission Open IE communication	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device Yes 2 1 440 byte; Per IO Controller with shared device 1 440 byte; Per IO Controller with shared device 64 1 024 byte Yes Yes
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode — IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device, max. Transfer memory — Inputs, max. — Outputs, max. — Outputs, max. — User data per submodule, max. PROFINET CBA • acyclic transmission • cyclic transmission • Cyclic transmission • Number of connections, max.	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFIenergy standard FB for I-Device Yes 2 1 440 byte; Per IO Controller with shared device 1 440 byte; Per IO Controller with shared device 64 1 024 byte Yes Yes Yes
PROFINET IO Device Services — PG/OP communication — Routing — S7 communication — Isochronous mode — IRT — PROFIenergy — Shared device — Number of IO Controllers with shared device, max. Transfer memory — Inputs, max. — Outputs, max. — Outputs, max. — User data per submodule, max. PROFINET CBA • acyclic transmission • cyclic transmission • cyclic transmission • Local port numbers used at the system end	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device Yes 2 1 440 byte; Per IO Controller with shared device 1 440 byte; Per IO Controller with shared device 64 1 024 byte Yes Yes Yes 16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535
PROFINET IO Device Services - PG/OP communication - Routing - S7 communication - Isochronous mode - IRT - PROFlenergy - Shared device - Number of IO Controllers with shared device, max. Transfer memory - Inputs, max. - Outputs, max. - User data per submodule, max. PROFINET CBA • acyclic transmission • cyclic transmission • Could port numbers used at the system end • Keep-alive function, supported	Yes Yes vith loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device Yes 2 1 440 byte; Per IO Controller with shared device 1 440 byte; Per IO Controller with shared device 64 1 024 byte Yes Yes 16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes
PROFINET IO Device Services - PG/OP communication - Routing - S7 communication - Isochronous mode - IRT - PROFlenergy - Shared device - Number of IO Controllers with shared device, max. Transfer memory - Inputs, max. - Outputs, max. - Outputs, max. - User data per submodule, max. PROFINET CBA • acyclic transmission • cyclic transmission • cyclic transmission • Local port numbers used at the system end • Keep-alive function, supported	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device Yes 2 1 440 byte; Per IO Controller with shared device 1 440 byte; Per IO Controller with shared device 64 1 024 byte Yes Yes Yes 16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535

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	Yes; via integrated PROFINET interface and loadable FBs
 — Number of connections, max. 	16
 — Data length for connection type 01H, max. 	1 460 byte
 — Data length for connection type 11H, max. 	32 768 byte
 — several passive connections per port, supported 	Yes
 ISO-on-TCP (RFC1006) 	Yes; via integrated PROFINET interface and loadable FBs
 — Number of connections, max. 	16
— Data length, max.	32 768 byte
• UDP	Yes; via integrated PROFINET interface and loadable FBs
 Number of connections, max. 	16
— Data length, max.	1 472 byte
Web server	
• 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
 Number of GD packets, transmitter, max. 	8
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 of	communication load) / header
 Setpoint for the CPU communication load 	50 %
 number of remote connection partners / with PROFINET CBA 	32
 number of technological functions / with PROFINET CBA / for master or slave 	30
 number of connections / with PROFINET CBA / for master or slave / total 	1 000
 data volume / of the input variables / with PROFINET CBA / for master or slave 	4 000 byte
 data volume / of the output variables / with PROFINET CBA / for master or slave 	4 000 byte
 number of internal and PROFIBUS interconnections / with PROFINET CBA / maximum 	500
 data volume / of internal and PROFIBUS interconnections / with PROFINET CBA / for master or slave 	4 000 byte
data volume / with PROFINET CBA / per connection	1 400 byte
· · · ·	· · · · · · · · · · · · · · · · · · ·

/ maximum	
performance data / PROFINET CBA / remote interconnect	ction / with acyclic transfer / header
 update time / of the remote interconnections / in the case of acyclic transmission / with PROFINET CBA 	500 ms
 number of remote connections to input variables / in the case of acyclic transmission / with PROFINET CBA / maximum 	100
 — number of remote connections to output variables / in the case of acyclic transmission / with PROFINET CBA / maximum 	100
 data volume / as user data for remote interconnections with input variables / in the case of acyclic transmission / with PROFINET CBA 	2 000 byte
 data volume / as user data for remote interconnections with output variables / in the case of acyclic transmission / with PROFINET CBA 	2 000 byte
 — data volume / as user data for remote interconnections / in the case of acyclic transmission / with PROFINET CBA / per connection / maximum 	1 400 byte
performance data / PROFINET CBA / remote interconnect	ction / with cyclic transfer / header
— update time / of the remote interconnections / with cyclical transfer / with PROFINET CBA	10 ms
 — number of remote connections to input variables / with PROFINET CBA / with cyclic transfer / maximum 	200
 — number of remote connections to output variables / with cyclical transfer / with PROFINET CBA / maximum 	200
 — data volume / as user data for remote interconnections with input variables / with cyclical transfer / with PROFINET CBA / maximum 	2 000 byte
 — data volume / as user data for remote interconnections with output variables / with cyclical transfer / with PROFINET CBA / maximum 	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 F	PROFINET / acyclic / header
 — number of connectable HMI stations / for HMI variables / in the case of acyclic transmission / with PROFINET CBA 	3; 2x PN OPC/1x iMap
 update time / of the HMI variables / in the case of acyclic transmission / with PROFINET CBA number of HMI variables / in the case of acyclic 	500 ms
transmission / with PROFINET CBA / maximum — data volume / as user data for HMI variables /	2 000 byte
in the case of acyclic transmission / with PROFINET CBA / maximum performance data / PROFINET CBA / PROFIBUS proxy	functionality / header
— product function / with PROFINET CBA / PROFIBUS proxy functionality	Yes
— number of coupled PROFIBUS devices / with PROFIBUS functionality data values (with PROFIBUS assure)	16 210 bits Slave decendent
 data volume / with PROFIBUS proxy functionality / with PROFINET CBA / per connection / maximum 	240 byte; Slave-dependent
Number of connections	
overall	32
 usable for PG communication 	31
 reserved for PG communication 	1
 — adjustable for PG communication, min. 	1
 — adjustable for PG communication, max. 	31
usable for OP communication	31
- reserved for OP communication	1
 adjustable for OP communication, min. 	1

Number of login stations for message functions, max. 22: Depending on the configured connections for PG/OP and S7 basic communication. Process diagnostic messages Yes simultaneously active Alarm-S blocks, max. 300 Fact commiscionation Yes Status block Yes Status block Yes Status/control variables 4 Status/control variables, max. 30 - of which status variables, max. 14 Forcing, Yes Number of variables, max. 10 Diagnostic buffer • • present Yes • wumber 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 - preset 10 Status/control variables, max. 60 °C configuration / header 60 °C confi	 adjustable for OP communication, max. usable for S7 basic communication reserved for S7 basic communication adjustable for S7 basic communication, min. adjustable for S7 basic communication, max. usable for S7 communication reserved for S7 communication adjustable for S7 communication, min. adjustable for S7 communication, min. adjustable for S7 communication, max. total number of instances, max. usable for routing 	31 30 0 0 30 16 0 0 16 32 X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.
Process diagnostic messages Yes simultaneously active Alarm-S blocks, max. 300 Status block Yes: Up to 2 simultaneously Single step Yes Number of brackpoints 4 Status/control variables, max. 30 - of which status variables, max. 10 Forcing Inputs, outputs • Number of variables, max. 10 Diagnostic buffer Yes • present Yes • number of variables, max. 10 Diagnostic buffer Yes • present Yes • number of entries, max. 500 - of which powerfait-proof 100: Only the last 100 entries are retained • Number of entries readable in RUN, max. 499 - preset 10 Stenzice data * • can be read out Yes • and be read out Yes • Ster P 7 Yes V5.5 or higher Configuration software see instruction list • Ster P 7 <td></td> <td></td>		
simulaneously active Alam-S blocks, max. 300 Test commissioning functions 4 Status block Yes; Up to 2 simultaneously Number of breakpoints 4 Status slock Yes Number of breakpoints 4 Status/control Yes • Variables Inputs, outputs, memory bits, DB, times, counters • Variables 300 of which status variables, max. 30 of which status variables, max. 30 of which status variables, max. 14 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 preset 10 • Ambient conditions - Ambient conditions - Ambient conditions </td <td>Process diagnostic messages</td> <td></td>	Process diagnostic messages	
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Status block Yes Single step Yes Number of breakpoints 4 Status/control		
Single step Yes Number of breakpoints 4 Status/control variables Yes • Status/control variables, max. 30 of which status variables, max. 14 Forcing Yes • Forcing (or incide) Inputs, outputs • Number of variables, max. 10 Diagnostic buffer Yes • Present Yes • Number of variables in RUN, max. 500 adjustable No adjustable Yes; From 10 to 499 preset 10 Service data Service data adjustable Yes orbit conditions		Ves: Un to 2 simultaneously
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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. 30 - of which control variables, max. 14 Forcing Yes • Forcing, variables, max. 10 Diagnostic buffer Yes • Number of variables, max. 10 Diagnostic buffer 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 Yes • anbe read out Yes Amblent conditions O°C Configuration / header See instruction list • min. 0 °C configuration / programming / header See instruction list • Command set see instruction list • System function s(SFC) see instruction list		
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• Variables Inputs, outputs, memory bits, DB, times, counters • Or which status variables, max. 30 - of which status variables, max. 14 Forcing ves • Forcing, variables, max. 10 Diagnostic buffer ves • present 500 - adjustable No - adjustable Yes - Ambient conditions Yes Anbient conditions 0°C - max. 60°C configuration / header See instruction list • StEP 7 Yes, V5.5 or higher Configuration / loggamming / header See instruction list • Nesting levels 8 • System function s(SFC) see instruction list • System function blocks (SFB) see instruction list •		Yes
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• 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 No - adjustable Yes; From 10 to 499 - preset 10 Service data 10 • can be read out Yes Ambient conditions Yes Ambient conditions 0 °C • max. 60 °C configuration / header Configuration software • STEP 7 Yes; V5.5 or higher configuration software see instruction list • Nesting levels 8 • System function locks (SFC) see instruction list • Nesting levels 8 • System function bocks (SFC) see instruction list • System function bocks (SFC) see instruction list • System function blocks (SFB) see instruction list • System function blocks (SFB) see instruction list • FBD Yes - FBD		
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Ambient conditions Ambient temperature during operation • min. 0 °C • max. 60 °C 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	Service data	
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• Command setsee instruction list• Nesting levels8• System functions (SFC)see instruction list• System function blocks (SFB)see instruction list• Programming language- LADYes- FBDYes- STLYes- SCLYes- CFCYes	-	Yes; V5.5 or higher
Nesting levels8• System functions (SFC)see instruction list• System function blocks (SFB)see instruction listProgramming language- LADYes- FBDYes- STLYes- SCLYes- CFCYes	configuration / programming / header	
• System functions (SFC)see instruction list• System function blocks (SFB)see instruction listProgramming language- LADYes- FBDYes- STLYes- SCLYes- CFCYes	Command set	see instruction list
• System function blocks (SFB)see instruction listProgramming language- LADYes- FBDYes- STLYes- SCLYes- CFCYes	Nesting levels	8
Programming language — LAD Yes — FBD Yes — STL Yes — SCL Yes — CFC Yes	 System functions (SFC) 	see instruction list
LADYes FBDYes STLYes SCLYes CFCYes	 System function blocks (SFB) 	see instruction list
FBDYes STLYes SCLYes CFCYes	Programming language	
STLYes SCLYes CFCYes	— LAD	Yes
SCL Yes CFC Yes	— FBD	Yes
- CFC Yes	— STL	Yes
	— SCL	Yes
— GRAPH 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:

4/1/2022 🖸