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
²t	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 a
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	

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	Of RDyle
	2 048; Number range: 0 to 7999
 Number, max. Size, max. 	64 kbyte
OB	04 KDyte
• 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	3; OB 55, 56, 57
 Number of isochronous mode OBs 	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	
 per priority class 	16
 additional within an error OB 	4
Counters, timers and their retentivity	
S7 counter	
Number	512
Retentivity	
— 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)
	Omminited (infinited only by RAIN capacity)
S7 times	E40
Number Retentivity	512
Retentivity	Van
— adjustable	Yes
— preset	No retentivity
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
• present	Yes
• Туре	SFB
Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	256 kbyte
Flag	
• 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	

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	
I/O address area	
• Inputs	8 192 byte
Outputs	8 192 byte
of which distributed	
— Inputs	8 192 byte
— Outputs	8 192 byte
Process image	· ··· · · · · · · · · · · · · · · · ·
• 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	
Inputs	65 536
— of which central	1 024
• Outputs	65 536
— of which central	1 024
Analog channels	1021
Inputs	4 096
— of which central	256
Outputs	4 096
— of which central	256
Hardware configuration	
Number of expansion units, max.	3
Number of DP masters	•
integrated	1
-	4
• via CP	
via CP Number of operable FMs and CPs (recommended)	
Number of operable FMs and CPs (recommended)	
Number of operable FMs and CPs (recommended) • FM	8
Number of operable FMs and CPs (recommended) • FM • CP, PtP	8 8
Number of operable FMs and CPs (recommended) • FM • CP, PtP • CP, LAN	8
Number of operable FMs and CPs (recommended) • FM • CP, PtP • CP, LAN Rack	8 8 10
Number of operable FMs and CPs (recommended) • FM • CP, PtP • CP, LAN Rack • Racks, max.	8 8 10 4
Number of operable FMs and CPs (recommended) • FM • CP, PtP • CP, LAN Rack • Racks, max. • Modules per rack, max.	8 8 10
Number of operable FMs and CPs (recommended) • FM • CP, PtP • CP, LAN Rack • Racks, max. • Modules per rack, max. Time of day	8 8 10 4
Number of operable FMs and CPs (recommended) • FM • CP, PtP • CP, LAN Rack • Racks, max. • Modules per rack, max. Time of day Clock	8 8 10 4
Number of operable FMs and CPs (recommended) • FM • CP, PtP • CP, LAN Rack • Racks, max. • Modules per rack, max. Time of day Clock • Hardware clock (real-time)	8 8 10 4 8
Number of operable FMs and CPs (recommended) • FM • CP, PtP • CP, LAN Rack • Racks, max. • Modules per rack, max. Time of day Clock • Hardware clock (real-time) • retentive and synchronizable	8 8 10 4 8 8
Number of operable FMs and CPs (recommended) FM CP, PtP CP, LAN Rack Racks, max. Modules per rack, max. Time of day Clock Hardware clock (real-time) retentive and synchronizable Backup time	8 8 10 4 8 8 7 Yes Yes 6 wk; At 40 °C ambient temperature
Number of operable FMs and CPs (recommended) FM CP, PtP CP, LAN Rack Racks, max. Modules per rack, max. Time of day Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max.	8 8 10 4 8 7 Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s
Number of operable FMs and CPs (recommended) FM CP, PtP CP, LAN Rack Racks, max. Modules per rack, max. Modules per rack, max. Time of day Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON	8 8 10 4 8 Yes Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF
Number of operable FMs and CPs (recommended) FM CP, PtP CP, LAN Rack Racks, max. Modules per rack, max. Modules per rack, max. Time of day Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period	8 8 10 4 8 Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s
Number of operable FMs and CPs (recommended) FM CP, PtP CP, LAN Rack Racks, max. Modules per rack, max. Modules per rack, max. Time of day Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON	8 8 10 4 8 Yes Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF
Number of operable FMs and CPs (recommended) FM CP, PtP CP, LAN Rack Racks, max. Modules per rack, max. Modules per rack, max. Time of day Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number	8 8 10 4 8 7 4 8 Ves Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off 4
Number of operable FMs and CPs (recommended) FM CP, PtP CP, LAN Rack Racks, max. Modules per rack, max. Modules per rack, max. Time of day Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number Number range	8 8 10 4 8 7 4 8 7 Ves 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off 4 0 to 3
Number of operable FMs and CPs (recommended) FM CP, PtP CP, LAN Rack Racks, max. Modules per rack, max. Modules per rack, max. Time of day Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number Range of values	8 8 10 4 8 Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off 4 0 to 3 0 to 2^31 hours (when using SFC 101)
Number of operable FMs and CPs (recommended) FM CP, PtP CP, LAN Rack Racks, max. Modules per rack, max. Modules per rack, max. Time of day Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number Range of values Granularity	8 8 10 4 8 Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off 4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 h
Number of operable FMs and CPs (recommended) FM CP, PtP CP, LAN Rack Racks, max. Modules per rack, max. Modules per rack, max. Time of day Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number Range of values Granularity retentive	8 8 10 4 8 7 Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off 4 0 to 3 0 to 2^31 hours (when using SFC 101)
Number of operable FMs and CPs (recommended) FM CP, PtP CP, LAN Rack Racks, max. Modules per rack, max. Modules per rack, max. Time of day Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number Range of values Granularity retentive Clock synchronization	8 8 9 10 4 8 8 Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off 4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart
Number of operable FMs and CPs (recommended) FM CP, PtP CP, LAN Rack Racks, max. Modules per rack, max. Modules per rack, max. Time of day Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number Number Range of values Granularity retentive supported	8 8 9 10 4 8 8 7 9 8 7 9 8 7 9 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off 4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart Yes
Number of operable FMs and CPs (recommended) FM CP, PtP CP, LAN Rack Racks, max. Modules per rack, max. Modules per rack, max. Time of day Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number Range of values Granularity retentive Clock synchronization	8 8 9 10 4 8 8 Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off 4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart

 to DP, master 	Yes; With DP slave only slave clock
• on DP, device	Yes
• in AS, master	Yes
• in AS, device	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	0
	4. O month (any that) D 145
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 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 client — S7 communication, as server 	
 — S7 communication, as client — S7 communication, as server PROFIBUS DP master 	No; but via CP and loadable FB Yes
 — S7 communication, as client — S7 communication, as server PROFIBUS DP master Transmission rate, max. 	No; but via CP and loadable FB Yes 12 Mbit/s
 S7 communication, as client S7 communication, as server PROFIBUS DP master Transmission rate, max. max. number of DP devices 	No; but via CP and loadable FB Yes
 S7 communication, as client S7 communication, as server PROFIBUS DP master Transmission rate, max. max. number of DP devices Services 	No; but via CP and loadable FB Yes 12 Mbit/s 124
 S7 communication, as client S7 communication, as server PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication 	No; but via CP and loadable FB Yes 12 Mbit/s 124 Yes
 S7 communication, as client S7 communication, as server PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing 	No; but via CP and loadable FB Yes 12 Mbit/s 124 Yes Yes
 S7 communication, as client S7 communication, as server PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication 	No; but via CP and loadable FB Yes 12 Mbit/s 124 Yes Yes Yes No
 S7 communication, as client S7 communication, as server PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication 	No; but via CP and loadable FB Yes 12 Mbit/s 124 Yes Yes No Yes; I blocks only
 S7 communication, as client S7 communication, as server PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 basic communication S7 communication 	No; but via CP and loadable FB Yes 12 Mbit/s 124 Yes Yes No Yes; I blocks only Yes
 S7 communication, as client S7 communication, as server PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication, as client 	No; but via CP and loadable FB Yes 12 Mbit/s 124 Yes Yes No Yes; I blocks only
 S7 communication, as client S7 communication, as server PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 basic communication S7 communication 	No; but via CP and loadable FB Yes 12 Mbit/s 124 Yes Yes No Yes; I blocks only Yes
 S7 communication, as client S7 communication, as server PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication, as client 	No; but via CP and loadable FB Yes 12 Mbit/s 124 Yes Yes Yes Yes Yes No Yes; I blocks only Yes No
 S7 communication, as client S7 communication, as server S7 communication, as server PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 basic communication S7 communication S7 communication, as client S7 communication, as server 	No; but via CP and loadable FB Yes 12 Mbit/s 124 Yes Yes Yes Yes No Yes; I blocks only Yes No Yes
 S7 communication, as client S7 communication, as server PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication, as client S7 communication, as server Equidistance 	No; but via CP and loadable FB Yes 12 Mbit/s 124 Yes Yes Yes No Yes; I blocks only Yes No Yes No Yes Yes Yes Yes Yes
 S7 communication, as client S7 communication, as server PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication, as client S7 communication, as server Equidistance Isochronous mode 	No; but via CP and loadable FB Yes 12 Mbit/s 124 Yes Yes Yes No Yes; I blocks only Yes; I blocks only Yes No Yes Solution Yes Yes Yes
 S7 communication, as client S7 communication, as server PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication, as client S7 communication, as server Equidistance Isochronous mode SYNC/FREEZE 	No; but via CP and loadable FB Yes 12 Mbit/s 124 Yes Yes Yes No Yes No Yes; I blocks only Yes No Yes Solution Yes Yes Yes Yes Yes Yes Yes
 S7 communication, as client S7 communication, as server PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 basic communication S7 communication S7 communication, as client S7 communication, as server Equidistance Isochronous mode SYNC/FREEZE activation/deactivation of DP devices max. number of DP devices that can be 	No; but via CP and loadable FB Yes 12 Mbit/s 124 Yes Yes Yes No Yes No Yes; I blocks only Yes No Yes Solution Yes Yes Yes Yes Yes Yes Yes Yes
 S7 communication, as client S7 communication, as server PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 basic communication S7 communication S7 communication, as client S7 communication, as server Equidistance Isochronous mode SYNC/FREEZE activation/deactivation of DP devices max. number of DP devices that can be activated/deactivated at the same time Direct data exchange (slave-to-slave 	No; but via CP and loadable FB Yes 12 Mbit/s 124 Yes Yes No Yes; I blocks only Yes; I blocks only Yes No Yes No Yes Xes No Yes S No Yes S No Yes S S S P or PROFINET IO Yes S S P or PROFINET IO Yes S S
 S7 communication, as client S7 communication, as server PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication, as client S7 communication, as server Equidistance Isochronous mode SYNC/FREEZE activation/deactivation of DP devices max. number of DP devices that can be activated/deactivated at the same time Direct data exchange (slave-to-slave communication) 	No; but via CP and loadable FB Yes 12 Mbit/s 124 Yes Yes Yes No Yes; I blocks only Yes No Yes No Yes No Yes Yes No Yes Yes Yes Yes Yes Yes Yes Yes

land to man	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
1st interface / DP master / payload data per DP Device / head	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
PROFIBUS DP slave	
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	
— 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 communication) 	Yes
— 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
Autonegotiation	Yes
Autocrossing	Yes
Change of IP address at runtime, supported	Yes
Interface types	
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
	Yes
Media redundancy PROFINET IO Controller	
PROFINET IO Controller	100 Mbit/s
Transmission rate, max.	100 Mbit/s
Services	Vaa
— PG/OP communication	Yes
- Routing	Yes
— S7 communication	Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32
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— Isochronous mode	Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO
— IRT	DP or PROFINET IO Yes
— IRT — Shared device	DP or PROFINET IO Yes Yes
— IRT — Shared device — Prioritized startup	DP or PROFINET IO Yes Yes Yes
— IRT — Shared device	DP or PROFINET IO Yes Yes
 IRT Shared device Prioritized startup Number of IO devices with prioritized startup, max. Number of connectable IO Devices, max. 	DP or PROFINET IO Yes Yes Yes
 IRT Shared device Prioritized startup Number of IO devices with prioritized startup, max. 	DP or PROFINET IO Yes Yes 32
 IRT Shared device Prioritized startup Number of IO devices with prioritized startup, max. Number of connectable IO Devices, max. 	DP or PROFINET IO Yes Yes 32 128

flexibility"	
— of which in line, max.	61
 — Number of connectable IO Devices for RT, max. 	128
— 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 ports), supported 	Yes
- 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	
Services	
- PG/OP communication	Yes
— Routing	Yes
— S7 communication	Yes; with loadable FBs, max. configurable connections: 16, 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
Submodules	
— Number, max.	64
— User data per submodule, max.	1 024 byte
PROFINET CBA	
acyclic transmission	Yes
• cyclic transmission	Yes
Open IE communication	40
Number of connections, max.	16
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 Protocols	Yes
Protocols PROFIsafe	No
	No
Redundancy mode	
Media redundancy	
— Switchover time on line break, typ.	200 ms; PROFINET MRP
— Number of stations in the ring, max. Open IE communication	50
TCP/IP	Vec. via integrated PROFINET interface and loadable EPs
Number of connections, max.	Yes; via integrated PROFINET interface and loadable FBs 16
 Data length for connection type 01H, max. Data length for connection type 11H, max. 	1 460 byte 32 768 byte
— Data length for connection type TTH, max. — several passive connections per port, supported	Yes
 Several passive connections per port, supported ISO-on-TCP (RFC1006) 	
Number of connections, max.	Yes; via integrated PROFINET interface and loadable FBs 16
 Data length, max. UDP 	32 768 byte
	Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.	
— Data length, max.	1 472 byte

Web server • supported Yes • User-defined websites Yes • Number of HTTP clients 5 communication functions / header PC/OP communication PC/OP communication Yes Global data communication Yes Supported Yes • Number of GD pockets, max. 8 • Number of GD packets, twasmitter, max. 8 • Number of GD packets, twasmitter, max. 8 • Number of GD packets, receiver, max. 8 • Size of GD packet (or which consistent), max. 22 byte S7 basic communication Yes • User data per job (of which consistent), max. 76 byte; 76 byte; 8 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_d as server) S7 communication Yes • supported 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 th SFC/FCs of S7 Communication • supported Yes; via CP and loadable FC communication functions / PROFINET CDA (with set target communication load) / header • Suported Yes; via CP and load	
 User-defined websites Yes Number of HTP clients 5 communication / header PGOP communication Yes Data record routing Yes Global data communication supported Yes Number of GD packets, max. Number of GD packets, transmitter, max. Number of GD packets, transmitter, max. Size of GD packets, receiver, max. Size of GD packets, max. Size of GD packets,	
• Number of HTTP clients 5 communication functions / header PG/OP communication PG/OP communication Yes Bdar secord routing Yes Global data communication 8 • Number of GD packets, max. 8 • Number of GD packets, max. 8 • Number of GD packets, max. 8 • Size of GD packets, max. 22 byte • Size of GD packets, max. 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_f as server) • User data per job, max. 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_f as server) S7 communication Yes • supported 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 • 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 • Supported Yes; via CP and loadable FC communication functions / PROFINET CBA (with set target communication lo	
communication functions / header PG/OP communication Data record routing 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, reserver, max. 8 • Size of GD packets, reserver, max. 8 • Size of GD packets, functionsistent), max. 22 byte Size of GD packet (which consistent), max. 26 byte Size of GD packet (which consistent), max. 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_C Sypported Yes • 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_C • supported Yes • as server 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 • supported Yes; via CP and loadable FC communication functions / PROFINET CBA (with set target communication load / header	
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• 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 Solution 57 Static communication 76 byte • User data per job, max. 76 byte, 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_C or X_RCV); 64 bytes (with X_RCV); 64 bytes (
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• Size of GD packet (of which consistent), max. 22 byte S7 basic communication	
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• 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_das server)S7 communication• supportedYes• as serverYes• as clientYes; 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 communicationYes; via CP and loadable FC• supportedYes; via CP and loadable FCcommunication functions / PROFINET CBA (with set target communication load) / header• Setpoint for the CPU communication load50 %• Number of remote interconnection partners32• number of master/device functions1000• data length of all incoming master/device connections, max.4000 byte• Data length of device-internal and PROFIBUS4000 byte• Data length of device-internal und PROFIBUS4000 byte	
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• supportedYes• as serverYes• as clientYes; 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 th SFCs/FCs of S7 Communication)S5 compatible communicationYes; via CP and loadable FC• supportedYes; via CP and loadable FC• supportedYes; via CP and loadable FCcommunication functions / PROFINET CBA (with set target communication load) / header• Setpoint for the CPU communication load50 %• Number of remote interconnection partners32• number of master/device functions1000• 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 interconnections500• Data length of device-internal und PROFIBUS4 000 byte	έΕΤ
ArrowsYes• as clientYes; 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 th SFCs/FCs of S7 Communication)S5 compatible communicationYes; via CP and loadable FC• supportedYes; via CP and loadable FC• Setpoint for the CPU communication load50 %• Number of remote interconnection partners32• number of master/device functions30• total of all master/device connections, max.1 000• data length of all outgoing master/device connections, max.4 000 byte• Number of device-internal and PROFIBUS500• Data length of device-internal und PROFIBUS4 000 byte	
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communication functions / PROFINET CBA (with set target communication load) / header • 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. 500 • Number of device-internal and PROFIBUS 500 • Data length of device-internal und PROFIBUS 4 000 byte	
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max. • Number of device-internal and PROFIBUS 500 interconnections • Data length of device-internal und PROFIBUS 4 000 byte	
interconnections • Data length of device-internal und PROFIBUS 4 000 byte	
Data length per connection, max. 1 400 byte	
performance data / PROFINET CBA / remote interconnection / with acyclic transfer / header	
— Sampling interval, min. 500 ms	
 — Number of incoming interconnections 100 	
— 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	
 — 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 450 byte 	
interconnections / with cyclical transfer / with PROFINET CBA / per connection / maximum	
performance data / PROFINET CBA / HMI variables via PROFINET / acyclic / header	
— Number of stations that can log on for HMI variables 3; 2x PN OPC/1x iMap (PN OPC/iMap)	

HMI veriable updating	500 mg
 — HMI variable updating — Number of HMI variables 	500 ms 200
 — Data length of all HMI variables, max. performance data / PROFINET CBA / PROFIBUS proxy function 	2 000 byte
	Yes
supported	16
— Number of linked PROFIBUS devices Data longth per connection max	
— Data length per connection, max. Number of connections	240 byte; Slave-dependent
overall	32
usable for PG communication	31
usable for PG communication — reserved for PG communication	1
— adjustable for PG communication, min.	1
— adjustable for PG communication, min. — adjustable for PG communication, max.	31
usable for OP communication	31
- reserved for OP communication	1
— adjustable for OP communication, min.	
 adjustable for OP communication, max. usable for S7 basic communication 	31 30
— reserved for S7 basic communication	0
 adjustable for S7 basic communication, min. 	0
— adjustable for S7 basic communication, max.	30
usable for S7 communication	16
- reserved for S7 communication	0
— adjustable for S7 communication, min.	0
— adjustable for S7 communication, max.	16
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	
Number of login stations for message functions, max.	32; Depending on the configured connections for PG/OP and S7 basic
	communication
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	
simultaneously active Alarm-S blocks, max. Test commissioning functions	Yes 300
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block	Yes 300 Yes; Up to 2 simultaneously
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step	Yes 300 Yes; Up to 2 simultaneously Yes
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints	Yes 300 Yes; Up to 2 simultaneously
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control	Yes 300 Yes; Up to 2 simultaneously Yes 4
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max.	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max.	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max.	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. Forcing	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. Forcing • Forcing	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14 Yes
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. Forcing • Forcing • Forcing, variables	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14 Yes Inputs, outputs
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. Forcing • Forcing • Forcing, variables • Number of variables, max.	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14 Yes
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. Forcing • Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14 Yes Inputs, outputs 10
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. Forcing • Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14 Yes Inputs, outputs 10 Yes
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. Forcing • Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max.	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14 Yes Inputs, outputs 10 Yes 500
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. Forcing • Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. — adjustable	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 30 14 Yes Inputs, outputs 10 Yes 500 No
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. Forcing • Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. — adjustable — of which powerfail-proof	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14 Yes Inputs, outputs 10 Yes 500 No 100; Only the last 100 entries are retained
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. Forcing • Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. — adjustable — of which powerfail-proof • Number of entries readable in RUN, max.	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14 Yes Inputs, outputs 10 Yes 500 No 100; Only the last 100 entries are retained 499
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. Forcing • Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. — adjustable — of which powerfail-proof • Number of entries readable in RUN, max. — adjustable	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14 Yes Inputs, outputs 10 Yes 500 No 100; Only the last 100 entries are retained 499 Yes; From 10 to 499
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. — of which control variables, max. Forcing • Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. — adjustable — of which powerfail-proof • Number of entries readable in RUN, max. — adjustable — preset	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14 Yes Inputs, outputs 10 Yes 500 No 100; Only the last 100 entries are retained 499
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. Forcing • Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. — adjustable — of which powerfail-proof • Number of entries readable in RUN, max. — adjustable — preset Service data	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14 Yes Inputs, outputs 10 Yes 500 No 100; Only the last 100 entries are retained 499 Yes; From 10 to 499 10
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. — of which control variables, max. Forcing • Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. — adjustable — of which powerfail-proof • Number of entries readable in RUN, max. — adjustable — preset Service data • can be read out	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14 Yes Inputs, outputs 10 Yes 500 No 100; Only the last 100 entries are retained 499 Yes; From 10 to 499
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. Forcing • Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. — adjustable — of which powerfail-proof • Number of entries readable in RUN, max. — adjustable — preset Service data • can be read out Ambient conditions	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14 Yes Inputs, outputs 10 Yes 500 No 100; Only the last 100 entries are retained 499 Yes; From 10 to 499 10
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. Forcing • Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. — adjustable — of which powerfail-proof • Number of entries readable in RUN, max. — adjustable — preset Service data • can be read out Ambient conditions Ambient temperature during operation	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14 Yes Inputs, outputs 10 Yes 500 No 100; Only the last 100 entries are retained 499 Yes; From 10 to 499 10 Yes
simultaneously active Alarm-S blocks, max. Test commissioning functions Status block Single step Number of breakpoints Status/control • Status/control variable • Variables • Number of variables, max. — of which status variables, max. — of which control variables, max. Forcing • Forcing • Forcing, variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. — adjustable — of which powerfail-proof • Number of entries readable in RUN, max. — adjustable — preset Service data • can be read out Ambient conditions	Yes 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14 Yes Inputs, outputs 10 Yes 500 No 100; Only the last 100 entries are retained 499 Yes; From 10 to 499 10

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.	4/25/2024

last modified:

4/25/2024 🖸