Data sheet

6ES7317-7UL10-0AB0



SIMATIC S7-300, CPU 317TF-3 PN/DP, Central processing unit for PLC, Technology and safety tasks, 1.5 MB work memory, 1st interface MPI/DP 12 Mbit/s, 2nd interface DP (drive), 3rd interface Ethernet PROFINET with 2-port switch, Integr. I/O for technology, Front connector (1x 40-pole) and Micro Memory Card min. 8 MB required

General information	
Product type designation	CPU 317TF-3 PN/DP
HW functional status	01
Firmware version	CPU: V3.2; integrated technology V4.1.5
Product function	
 Isochronous mode 	Yes; Via PROFIBUS DP or PROFINET interface
Engineering with	
Programming package	STEP 7 V5.5 SP2 or higher; S7-Technology option package V4.2 SP3 or higher, Distributed Safety V5.4 SP5 or higher, S7-F Configuration Pack V5.5 SP10 or higher
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
external protection for power supply lines (recommendation)	2 A min.
Load voltage L+	
 Rated value (DC) 	24 V
 Reverse polarity protection 	Yes
Digital outputs	
— Rated value (DC)	24 V; 2L+
 Reverse polarity protection 	No; 2L+
Input current	
Current consumption (rated value)	1 100 mA
Current consumption (in no-load operation), typ.	270 mA
Inrush current, typ.	6.5 A
l²t	1 A ² ·s
Power loss	
Power loss, typ.	8.5 W
Memory	
Work memory	
• integrated	1 536 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. for word operations, typ.	0.005
ioi word operations, typ.	0.025 µs
for fixed point crithmetic typ	0.03 µs
for fixed point arithmetic, typ.	0.04 μs
for floating point arithmetic, typ. CPU-blocks	0.16 µs
	0.040 (DD - F0 - FD) #
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	
Number, max.	see instruction list
• 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 technology synchronous alarm OBs 	1; OB 65
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	V.
— adjustable	Yes
— preset	Z 0 to Z 7
Counting range	W
— adjustable	Yes
— lower limit	0
— upper limit	999
IEC counter	Van
• present	Yes
• Type	SFB
Number 77 times	Unlimited (limited only by RAM capacity)
S7 times	E10
Number Petentivity	512
Retentivity	Von
— adjustable	Yes
— preset	No retentivity
Time range	40
1 1 1 1	10 ms
— lower limit	9 990 s
— upper limit	
— upper limit IEC timer	
— upper limit IEC timer • present	Yes
— upper limit IEC timer	

Retentive data area (incl. timers, counters, flags), max.	256 kbyte
Flag	200.00,00
• 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	s, r.momory syste
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	1 024 byte
Outputs, default	1 024 byte
Default addresses of the integrated channels	
— Digital inputs	66
— Digital outputs	66
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	256
 Outputs 	65 536
— of which central	256
Analog channels	
• Inputs	4 096
— of which central	64
Outputs	4 096
— of which central	64
Hardware configuration	<u>_</u>
Number of expansion units, max.	0
Number of DP masters	
• integrated	2; 1 DP and 1 DP (drive)
• via CP	2; for DP
Number of operable FMs and CPs (recommended)	
● FM	8
• CP, PtP	8
• CP, LAN	8
Rack	
• Racks, max.	1
Modules per rack, max.	8
Time of day	
Clock	
Hardware clock (real-time)	Yes
 retentive and synchronizable 	Yes
Backup time	6 wk; At 40 °C ambient temperature
 Deviation per day, max. 	10 s; Typ.: 2 s
 Behavior of the clock following POWER-ON 	Clock continues running after POWER OFF
 Behavior of the clock following expiry of backup period 	the clock continues at the time of day it had when power was switched off

Operating hours counter	
• Number	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
• on MPI, device	Yes
to DP, master	Yes
• on DP, device	Yes; Only time-of-day slave
• in AS, master	Yes
• in AS, device	Yes
on Ethernet via NTP	Yes; As client
Digital inputs	
Number of digital inputs	4
of which inputs usable for technological functions	4
Input characteristic curve in accordance with IEC 61131, type 1	Yes
Number of simultaneously controllable inputs	
horizontal installation	
— up to 40 °C, max.	4
— up to 60 °C, max.	4
vertical installation	
— up to 40 °C, max.	4
Input voltage	
Rated value (DC)	24 V
● for signal "0"	-3 to +5V
• for signal "1"	+15 to +30 V
Input current	
for signal "1", typ.	7 mA
Input delay (for rated value of input voltage)	
for technological functions	
— at "0" to "1", max.	10 μs; Typical
— at "1" to "0", max.	10 μs; Typical
Cable length	
• shielded, max.	1 000 m
Digital outputs	
Number of digital outputs	8
of which high-speed outputs	8
Functions	for technology functions, e.g. high-speed cam switch signals
Short-circuit protection	Yes
Response threshold, typ.	1 A
Limitation of inductive shutdown voltage to	48 V
Controlling a digital input	No
Switching capacity of the outputs	
• on lamp load, max.	5 W
Load resistance range	
• lower limit	48 Ω
• upper limit	4 kΩ
Output voltage	
• for signal "0", max.	3 V; (2L+)
● for signal "1", min.	Rated voltage -2.5 V
Output current	
• for signal "1" rated value	0.5 A
• for signal "1" permissible range for 0 to 60 °C, min.	5 mA
• for signal "1" permissible range for 0 to 60 °C, max.	0.6 A
• for signal "0" residual current, max.	0.3 mA
Parallel switching of two outputs	
• for uprating	No
for redundant control of a load	No

Switching frequency	
 with resistive load, max. 	100 Hz
 with inductive load, max. 	0.2 Hz; According to IEC 60947-5-1, DC-13
• on lamp load, max.	100 Hz
Total current of the outputs (per group)	
horizontal installation	
— up to 40 °C, max.	4 A
— up to 60 °C, max.	3 A
all other mounting positions	
— up to 40 °C, max.	4 A
Integrated high-speed cams	
Switching accuracy (+/-)	70 μs
Cable length	
• shielded, max.	1 000 m
Analog inputs	
Number of analog inputs	0
Encoder	
Connectable encoders	
2-wire sensor	No
Interfaces	
Number of PROFINET interfaces	1
Number of RS 485 interfaces	2
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	255
• 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	
Transmission rate, max.	12 Mbit/s
max. number of DP devices	124
Services	
— PG/OP communication	Yes
— Routing	Yes
Global data communication	No
— S7 basic communication	Yes; I blocks only
— S7 communication	Yes
S7 communication S7 communication, as client	No
— S7 communication, as server	Yes
— 57 confindingation, as server — Equidistance	Yes
Equidistance Isochronous mode	Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS
— ISOUTIONOUS ITIOUS	DP or PROFINET IO
— SYNC/FREEZE	Yes
 activation/deactivation of DP devices 	Yes
— max. number of DP devices that can be	8

activated/deactivated at the same time	Vaca on subserviber
 — Direct data exchange (slave-to-slave communication) 	Yes; as subscriber
— DPV1	Yes
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
User data per DP device	- 1.2,12
— Inputs, max.	244 byte
— Outputs, max.	244 byte
1st interface / PROFIBUS DP device / header	- · · · · · · · · · · · · · · · · · · ·
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	02.53(0
— PG/OP communication	Yes
— Routing	Yes; Only with active interface
Global data communication	No
S7 basic communication	No
— S7 communication	Yes
— S7 communication — S7 communication, as client	No
— S7 communication, as circle — S7 communication, as server	Yes; Connection configured on one side only
Direct data exchange (slave-to-slave)	Yes
communication)	165
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2. Interface	
Interface type	Integrated RS 485 interface
••	
Isolated	Yes
Isolated	
Isolated Interface types	Yes
Isolated Interface types • RS 485	Yes
Isolated Interface types • RS 485 • Output current of the interface, max.	Yes
Isolated Interface types RS 485 Output current of the interface, max. Protocols	Yes Yes 200 mA
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI	Yes Yes 200 mA
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master	Yes Yes 200 mA No Yes; DP(DRIVE)-Master
Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max.	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No No
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max. max. number of DP devices	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No No
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max. max. number of DP devices Services	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No 12 Mbit/s 64
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max. max. number of DP devices Services — PG/OP communication	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No 12 Mbit/s 64
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max. max. number of DP devices Services — PG/OP communication — Routing	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No No 12 Mbit/s 64 No No
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No 12 Mbit/s 64 No No No
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No No 12 Mbit/s 64 No No No No No No No No No N
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 communication	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No No No No No No No No N
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 communication Equidistance	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No No No No No No No No N
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 communication Equidistance Isochronous mode	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No No No No No No No No N
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 communication Equidistance Isochronous mode SYNC/FREEZE	Yes 200 mA No Yes; DP(DRIVE)-Master No No No 12 Mbit/s 64 No
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 communication Equidistance Isochronous mode SYNC/FREEZE activation/deactivation of DP devices	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No 12 Mbit/s 64 No
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 communication Equidistance Isochronous mode SYNC/FREEZE activation/deactivation of DP devices DPV1	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No 12 Mbit/s 64 No
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication S7 basic communication S7 communication DS7 communication Equidistance Isochronous mode SYNC/FREEZE activation/deactivation of DP devices DPV1 Address area	Yes Yes 200 mA No No Yes; DP(DRIVE)-Master No No No No No No No No No N
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication PROFIBUS DE maxer 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 PS7 communication S7 communication PS7 communication PS7 communication PS7 communication PS7 communication ACT COMMUNICATION PROFIBE SERVICE ACT COMMUNICATION	Yes Yes 200 mA No No Yes; DP(DRIVE)-Master No No No No No No No No No N
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection 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 S7 communication S7 communication PROFIBUS DP master Transmission rate, max.	Yes Yes 200 mA No No Yes; DP(DRIVE)-Master No No No No No No No No No N
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication Routing Global data communication S7 basic communication S7 communication Equidistance Isochronous mode SYNC/FREEZE activation/deactivation of DP devices DPV1 Address area Inputs, max. Outputs, max. User data per DP device	Yes Yes 200 mA No No Yes; DP(DRIVE)-Master No No 12 Mbit/s 64 No
Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max. max. number of DP devices Services PG/OP communication Routing Global data communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication Equidistance Isochronous mode SYNC/FREEZE activation/deactivation of DP devices DPV1 Address area Inputs, max. Outputs, max. User data per DP device Inputs, max.	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No No 12 Mbit/s 64 No Yes Yes Yes No Yes No 1 024 byte 1 024 byte

• GSD file	http://support.automation.siemens.com in Product Support area
Transmission rate, max.	12 Mbit/s
3. 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	v
• RJ 45 (Ethernet)	Yes
Number of ports	2
• integrated switch	Yes
Protocols	No
MPI PROFINET IO Controller	No Yes; Also simultaneously with IO-Device functionality
PROFINET TO Controller PROFINET TO Device	
PROFINE I TO Device PROFIBUS DP master	Yes; Also simultaneously with IO Controller functionality No
PROFIBUS DF Illuster PROFIBUS DP device	No
Open IE communication	Yes; Via TCP/IP, ISO on TCP, and UDP
Web server	Yes
Media redundancy	Yes
PROFINET IO Controller	
Transmission rate, max.	100 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
— S7 communication	Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32
— Isochronous mode	Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO
— Shared device	Yes
 Prioritized startup 	Yes
 Number of IO devices with prioritized startup, max. 	32
 Number of connectable IO Devices, max. 	128
Of which IO devices with IRT, max.	64
— of which in line, max.	64
 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— Updating time	250 μs, 500 μs, 1 ms, 2 ms, 4 ms 250 μs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU
Address area	31xC and CPU 31x, technical Data" for more details)
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
— User data consistency, max.	1 024 byte
PROFINET IO Device	
Services	
— PG/OP communication	Yes
Dti	Yes
— Routing	
— S7 communication	Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32
•	

Transfer memory Inputs, max. — Outputs, max. — Outputs, max. — Outputs, max. — Outputs, max. — Number, max. — Number, max. — Number of connections, max. — Local port numbers used at the system end — Number of connections, max. — Number of connections, max. — Local port numbers used at the system end — Number of connections, max. — Local port numbers used at the system end — Switchover time on line break, typ. — Number of connections, max. — Switchover time on line break, typ. — Number of connections, max. — Oats length for connection by o 114, max. — Data length for connection by po 114, max. — Oats length for connection by po 114, max. — Switchover time on line break, typ. — Number of connections, max. — Oats length for connection by po 114, max. — Data length for connection per port, supported — ISC-on-TCP (RPC1008) — Number of connections per port, supported — ISC-on-TCP (RPC1008) — Number of connections, max. — Oats length, max.		
Transfer memory - Imputs, max - Outputs, max - Out	— Shared device	Yes
Inputs, max	Number of IO Controllers with shared device, max.	2
Submodules - Number, max. - User data per submodule, max. 1024 byte 102	Transfer memory	
Number of connections, max	— Inputs, max.	1 440 byte; Per IO Controller with shared device
- Number, max User data per submodule, max. User data per submodule, max. 1 (24 byte	— Outputs, max.	1 440 byte; Per IO Controller with shared device
User data per submodule, max. Open IE communication Number of connections, max. Local port numbers used at the system end O, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 85532, 65533, 65534, 65533 **Reep-alive function, supported PROCPisate PROCPisate PROCPisate Media redundancy mode Medi	Submodules	
Open IE communication Number of connections, max. Local port numbers used at the system end O, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65534, 65535 * Keep-alive function, supported * Yes 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. — Several passive connections per port, supported * ISO on-TCP (RFC1008) — Number of connections, max. — Data length, max. **UDP** Number of connections, max. — Data length, max. **UDP** Number of connections, max. — Data length, max. **UDP** Number of connections, max. — Data length, max. **UPP** **Pes; via integrated PROFINET interface and loadable FBs 16 12 788 byte Yes; via integrated PROFINET interface and loadable FBs 16 17 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	— Number, max.	64
Number of connections, max. Local port numbers used at the system end Society of Protectis PROFIsafe Redundancy mode Media redundancy Switchover time on line break, typ. Number of connections, max. Data length for connection by e 01H, max. Data length for connection by e 11H, max. Several passive connections, max. Data length, max. Data length for connection by e 11H, max. Society of length of connections, max. Data length, max. Society data length of connections, max. Data length, max. Society data length, max. Data length, max. Society da	 User data per submodule, max. 	1 024 byte
Local port numbers used at the system end Keep-alive function, supported Yes Protoccis Protoccis PROFisafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Data length for 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 for connections per port, supported ISO-on-TCP (RFC1006) — Number of connections, max. — Data length max. Data length max. Several passive connections per oft, supported ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max. UDP — Number of connections, max. — Data length, max. Several passive connections, max. — Several passive connections, max. — Several passive connections, max. — Several passive connections, max. Several passive connections,	Open IE communication	
65533, 65534, 65535 Yes	 Number of connections, max. 	16
Yes	 Local port numbers used at the system end 	0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532,
PROFIsafe Yes 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. — 16 — Number of connections, max. — Data length, max. — Data length, max. — Data length, max. — 142 byte Web server • supported • User-defined websites • Number of HTTP clients • Supported • Ves • Number of GTP clients • Supported • Number of GD loops, max. • Number of GD packets, max. • Size of GD packets, max. • User data per job, of which consistent), max. • Size of GD packets of which consistent), max. • Size of GD packets of which consistent), max. • Size of GD packets of which consistent), max. • Size of GD packets of which consistent), max. • Size of GD packets of which consistent), max. • Size of GD packets of which consistent), max. • Size of GD packets of which consistent), max. • Size of GD packets of which consistent), max. • Size of GD packets of which consistent), max. • Size of GD packets of which consist	·	65533, 65534, 65535
PROFisafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication • TCP/IP — Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. — several passive connections per port, supported • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, for connections per port, supported • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max. • UDP — Number of connections, max. • UDP — Number of connections, max. • UDP — Number of connections, max. • UDP — Switchow of the proper of the properties of t	Keep-alive function, supported	Yes
Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication **TCP/IP **TOP/IP **Data length for connection type 11H, max. — Data length for connection type 11H, max. — several passive connections per port, supported **ISCO-nTCP (RFC1006) — Number of connections, max. — Data length, max. — UDP — Yes, via integrated PROFINET interface and loadable FBs **I Afab byte **Ves. **UDP **Number of connections, max. — 16 — Number of connections, max. — 16 — Number of connections, max. — 16 — Number of connections, max. — 16 — Ves, via integrated PROFINET interface and loadable FBs **Yes, via integrated PROFINET interface and loadable FBs **Yes **UDP **Yes **UDP **Yes **UDP **Yes **UDP **Yes **UDP **UDP **Yes **UDP **UDP **UDP **Yes **UDP	Protocols	
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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 • 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 (of which consistent), 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-defined websites 	Yes
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• as client Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB		
loadable FB		
User data per job may See online help of STEP 7 (chared parameters of the SERc/EPs and of the		
	 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)		SFCs/FCs of S7 Communication)
S5 compatible communication	•	
• supported Yes; via CP and loadable FC		Yes; via CP and loadable FC
Number of connections	Number of connections	
• overall 32	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
adjustable for OP communication, max.	31
usable for S7 basic communication, max.	30
reserved for S7 basic communication	0
	0
adjustable for S7 basic communication, min.	30
 — adjustable for S7 basic communication, max. • 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.	300
Test commissioning functions	
Status block	Yes; Up to 2 simultaneously
Single step	Yes
Number of breakpoints	4; without continuation
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	17
• Forcing	Yes
Forcing, variables	Inputs, outputs
Number of variables, max.	10
Diagnostic buffer	10
	Yes
• present	
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
Interrupts/diagnostics/status information	
Alarms	No
Diagnostics function	No
Diagnostics indication LED	
 Status indicator digital input (green) 	Yes
Status indicator digital output (green)	Yes
Potential separation	
Potential separation digital inputs	
between the channels and backplane bus	Yes
Potential separation digital outputs	
between the channels and backplane bus	Yes
Isolation	
Isolation tested with	500 V DC

Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	60 °C
configuration / header	
Configuration software	
• STEP 7	Yes; STEP 7 V5.5 SP2 or higher and S7-Technology Option Package V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5
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	120 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	640 g

last modified: 12/8/2024 **C**