Data sheet 6ES7317-7TK10-0AB0



SIMATIC S7-300, CPU 317T-3 PN/DP, Central processing unit for PLC and technology tasks, 1024 KB 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	
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 and S7-Technology option package V4.2 SP3
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)	1 050 mA
Current consumption (in no-load operation), typ.	230 mA
Inrush current, typ.	6.5 A
l²t	1 A ² ·s
Power loss	
Power loss, typ.	7.5 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 y
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	
Number, max.	2 048; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
Number, max.	see instruction list
Size, max. Number of free cycle OPs.	64 kbyte
Number of free cycle OBsNumber of time alarm OBs	1; OB 1 1; OB 10
Number of delay alarm OBsNumber of cyclic interrupt OBs	2; OB 20, 21 4; OB 32, 33, 34, 35
Number of cyclic interrupt OBs Number of process alarm OBs	4, OB 32, 33, 34, 35 1; OB 40
Number of process alarm OBs 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
- Hamber of Issumonous mode Obs	(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	W
— adjustable	Yes
— lower limit	0
— upper limit	511
— preset	Z 0 to Z 7
Counting range	Yes
— adjustable — lower limit	res 0
— lower limit — upper limit	999
— upper limit	
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
S7 times	, , , , , , , , , , , , , , , , , , , ,
Number	512
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	511
— preset	No retentivity
Time range	
— lower limit	10 ms
•	

Fig. Fig.	— upper limit	9 990 s
Present Pype Number Number Unlimited (limited only by RAM capacity) Data arcas and their retentivity Retentive data area (incl. times, counters, flags), max. Flag SEB SEB SEC max. Pacentivity available Secentivity preset Retentivity available Pacentivity adjustable Retentivity adjustable Retentivity adjustable Pacentivity adjustable Retentivity adjustable Pacentivity adjustable Pacent		
* Type		Yes
Data erass and their retentivity	• Type	SFB
Pate arreas and their retentivity	Number	Unlimited (limited only by RAM capacity)
Referritive data area (incl. timers, ounters, flags), max.	Data areas and their retentivity	
Filegraphic		256 kbyte
Retentivity available Yes; From MB 0 to MB 4 095		
Retentivity available Yes; From MB 0 to MB 4 095	• Size, max.	4 096 byte
Retentivity preset	Retentivity available	Yes; From MB 0 to MB 4 095
Data blocks Petentivity adjustable Yes; via non-retain property on DB	Retentivity preset	MB 0 to MB 15
Retentivity adjustable Retentivity preset Retentivity preset Per priority class, max. 3 2 768 byte; Max. 2048 bytes per block Address area I/O address	 Number of clock memories 	8; 1 memory byte
Retentivity preset Local data	Data blocks	
Local data • per priority class, max. 32 768 byte; Max. 2048 bytes per block	 Retentivity adjustable 	Yes; via non-retain property on DB
	Retentivity preset	Yes
Address area	Local data	
Inputs	 per priority class, max. 	32 768 byte; Max. 2048 bytes per block
	Address area	
Outputs of which distributed — Inputs — Outputs Process image • Inputs • Outputs • Inputs • Inputs • Inputs • Inputs • Outputs, adjustable • Outputs, adjustable • Inputs, default • Outputs, default • Outputs • Ofference of the integrated channels — Digital inputs • Ofference of the integrated channels • Number of subprocess images, max. • Inputs • Outputs • Ofference of the integrated channels • Inputs • Ofference of the integrated of the user data is limited to 1600 bytes Digital channels • Inputs • Ofference of the integrated of the user data is limited to 1600 bytes Digital channels • Inputs • Ofference of the integrated of the user data is limited to 1600 bytes Outputs • Ofference of the integrated of the user data is limited to 1600 bytes Proference of the user data is limited to 1600 bytes Digital channels • Inputs • Outputs • Ofference of the user data is limited to 1600 bytes Outputs • Ofference of the user data is limited to 1600 bytes Outputs • Ofference of the user data is limited to 1600 bytes Outputs • Ofference of the user data is limited to 1600 bytes Outputs • Outputs • Ofference of the user data is limited to 1600 bytes Outputs • Out	I/O address area	
of which distributed Inputs Outputs Outputs, adjustable Inputs, adjustable Inputs, default Outputs, default Digital inputs Digital inputs Digital inputs Digital outputs Digital outputs Outputs, default Digital outputs Outputs, default Digital outputs Outputs, default Digital outputs Outputs, default Digital outputs Outputs Outputs Of which central Outputs Outputs Of which central Outputs Outputs Of which central Outputs	• Inputs	8 192 byte
Inputs	Outputs	8 192 byte
Process image	of which distributed	
Inputs	— Inputs	8 192 byte
	— Outputs	8 192 byte
Outputs	Process image	
	• Inputs	
Outputs, adjustable Inputs, default Outputs, default Outputs, default Outputs, default Default addresses of the integrated channels — Digital inputs — Digital outputs 66 Subprocess images • Number of subprocess images, max. Digital channels • Inputs — of which central Outputs — of which central • Outputs — of which central • Inputs — of which central • Outputs — of which central • Outputs — of which central • Inputs — of which central • Outputs — of of which central • Outputs — of or which central • Outputs — of or perable fersion units, max. • Number of perable FMs and CPs (recommended) • via CP Number of operable FMs and CPs (recommended) • FM • CP, PIP 8 • CP, LAN 8 Rack • Racks, max. • Modules per rack, max.	Outputs	
Outputs, default 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 — of which central • Outputs — of which central • Number of expansion units, max. Number of DP masters • integrated • via CP Number of operable FMs and CPs (recommended) • FM • CP, PtP • CP, LAN 8 Rack • Racks, max. • Modules per rack, max. • Medules per rack, max. • Outputs •		
Default addresses of the integrated channels - Digital inputs - 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 - of which central 256 • Outputs - of which central 256 Analog channels • Inputs - of which central 4 096 - of which central 64 • Outputs - of which central 64 Number of operable FMs and CPs (recommended) • FM • CP, PtP 8 • CP, LAN 8 Rack • Racks, max. • Modules per rack, max. 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the user data is limited to 1600 bytes 1; With PROFINET IO, the length of the us		
Digital inputs Digital outputs Digital outputs Digital outputs Digital outputs Number of subprocess images, max. 1; With PROFINET IO, the length of the user data is limited to 1600 bytes Digital channels Inputs	·	256 byte
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 Outputs Outp		
Number of subprocess images, max. 1; With PROFINET IO, the length of the user data is limited to 1600 bytes Digital channels Inputs Outputs Outputs Outputs Of 5536 Outputs Outputs Of which central Outputs Outpu		66
Digital channels	-	4 ME BROCKET 10 11 1 11 11 11 11 11 11 11 11 11 11 1
□ Inputs 65 536 — of which central 256 ● Outputs 65 536 — of which central 256 Analog channels 4 096 ● Inputs 4 096 — of which central 64 ● Outputs 4 096 — of which central 64 Hardware configuration Number of expansion units, max. Number of DP masters 0 ● integrated 2; 1 DP and 1 DP (drive) ● via CP 2; for DP Number of operable FMs and CPs (recommended) 8 ● FM 8 ● CP, PtP 8 ● CP, LAN 8 Rack • Racks, max. 1 ● Modules per rack, max. 8	Number of subprocess images, max.	
	Digital channels	5)100
- 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 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. 1	•	65 536
Outputs — of which central 256 Analog channels Inputs — of which central Outputs — of which central Outputs — of which central Hardware configuration Number of expansion units, max. Number of DP masters integrated via CP Number of operable FMs and CPs (recommended) FM CP, PtP 8 CP, PtP 8 CP, LAN Rack Racks, max. Nodules per rack, max. 1 Modules per rack, max. 8		
Analog channels Inputs Of which central Outputs Of which central A 096 Outputs Of which central Outputs Outp		
	-	4 096
Outputs — of which central Hardware configuration Number of expansion units, max. Number of DP masters ● integrated ● via CP Number of operable FMs and CPs (recommended) ● FM ● CP, PtP ● CP, LAN Rack ● Racks, max. ● Modules per rack, max. ● Modules per rack, max. ● Modules per rack, max. ● 64 4 096 64 4 096 64 8 0 8 0 8 0 9 0 1 0 1 0 1 0 1 0 1 0 1 0 1	•	
Number of expansion units, max. Number of DP masters integrated via CP 2; 1 DP and 1 DP (drive) via CP 2; for DP Number of operable FMs and CPs (recommended) FM CP, PtP 8 CP, LAN 8 Rack Rack Nacks, max. Nack Nodules per rack, max.	Outputs	4 096
Number of expansion units, max. Number of DP masters integrated via CP via CP 2; for DP Number of operable FMs and CPs (recommended) FM CP, PtP 8 CP, LAN 8 Rack Rack Racks, max. Modules per rack, max. 8	•	
Number of expansion units, max. Number of DP masters integrated via CP via CP 2; for DP Number of operable FMs and CPs (recommended) FM CP, PtP 8 CP, LAN 8 Rack Rack Racks, max. Modules per rack, max. 8	Hardware configuration	
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 Rack Nacks, max. 1 Modules per rack, max. 8		0
integrated 2; 1 DP and 1 DP (drive) via CP 2; for DP Number of operable FMs and CPs (recommended)		
		2; 1 DP and 1 DP (drive)
Number of operable FMs and CPs (recommended) ● FM 8 ● CP, PtP 8 ● CP, LAN 8 Rack ● Racks, max. 1 ● Modules per rack, max. 8		
	Number of operable FMs and CPs (recommended)	
● CP, LAN 8 Rack 1 ● Modules per rack, max. 8	• FM	8
Rack • Racks, max. • Modules per rack, max. 8	• CP, PtP	8
 Racks, max. Modules per rack, max. 8 	• CP, LAN	8
Modules per rack, max. 8	Rack	
	Racks, max.	1
Time of day	 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	the clock continues at the time of day it had when power was switched
period period	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
• to MPI, slave	Yes
• to DP, master	Yes
 to DP, slave 	Yes; Only time-of-day slave
• in AS, master	Yes
• in AS, slave	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,	Yes
type 1 Number of simultaneously controllable inputs	
horizontal installation	
— up to 40 °C, max.	4
— up to 40 °C, max. — up to 60 °C, max.	4
vertical installation	4
— 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	113 to 130 V
• 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
	48 V
Limitation of inductive shutdown voltage to	
Limitation of inductive shutdown voltage to Controlling a digital input	48 V No
Limitation of inductive shutdown voltage to Controlling a digital input Switching capacity of the outputs	
Limitation of inductive shutdown voltage to Controlling a digital input Switching capacity of the outputs • on lamp load, max.	No
Limitation of inductive shutdown voltage to Controlling a digital input Switching capacity of the outputs	No
Limitation of inductive shutdown voltage to Controlling a digital input Switching capacity of the outputs • on lamp load, max. Load resistance range	No 5 W

● for signal "0", max.	3 V; (2L+)
• for signal "1", min.	Rated voltage -2.5 V
Output current	Talos Vollago 2.0 V
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	0.5 IIIA
• for uprating	No
for redundant control of a load	No
Switching frequency	110
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)	100112
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	1 333 III
Number of analog inputs	0
	0
Analog outputs	
Number of analog outputs	0
Encoder	
Connectable encoders	
• 2-wire sensor	No
Interfaces	<u>, </u>
Number of industrial Ethernet interfaces	1
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
• •	Yes 200 mA
• RS 485	
RS 485Output current of the interface, max.	
RS 485 Output current of the interface, max. Protocols	200 mA
 RS 485 Output current of the interface, max. Protocols MPI 	200 mA Yes
 RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave 	Yes Yes
 RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master 	Yes Yes Yes Yes
 RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection 	Yes Yes Yes Yes
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection MPI	Yes Yes Yes Yes No
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection MPI Transmission rate, max.	Yes Yes Yes Yes No
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection MPI Transmission rate, max. Services	Yes Yes Yes Yes No 12 Mbit/s
 RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection MPI Transmission rate, max. Services PG/OP communication 	Yes Yes Yes No 12 Mbit/s Yes
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection MPI Transmission rate, max. Services — PG/OP communication — Routing	Yes Yes Yes Yes No 12 Mbit/s Yes Yes
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection MPI Transmission rate, max. Services — PG/OP communication — Routing — Global data communication	Yes Yes Yes Yes No 12 Mbit/s Yes Yes Yes
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection MPI Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication	Yes Yes Yes No 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Y
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection MPI Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication S7 communication, as client	Yes Yes Yes Yes No 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Y
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection MPI Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server	Yes Yes Yes No 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Y
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection MPI Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication S7 communication, as client	Yes Yes Yes Yes No 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Y

 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 — S7 communication, as client	No
	Yes
— S7 communication, as server	Yes
Equidistance Isochronous mode	Yes; OB 61; isochronous mode can only be used alternatively on
— isociiionous mode	PROFIBUS DP or PROFINET IO
— SYNC/FREEZE	Yes
 Activation/deactivation of DP slaves 	Yes
 Number of DP slaves that can be 	8
simultaneously activated/deactivated, max.	
 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	
 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 	Yes
communication)	
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2. Interface	
Interface type	Integrated RS 485 interface
Isolated	Yes
Interface types	
• RS 485	Yes
Output current of the interface, max.	200 mA
Protocols	
• MPI	No
 PROFIBUS DP master 	Yes; DP(DRIVE)-Master
 PROFIBUS DP slave 	No
Point-to-point connection	No
PROFIBUS DP master	
 Transmission rate, max. 	12 Mbit/s
 Number of DP slaves, max. 	64
Services	
— PG/OP communication	No
— Routing	No

 Global data communication 	No
 S7 basic communication 	No
— S7 communication	No
— Equidistance	Yes
— Isochronous mode	Yes
— SYNC/FREEZE	No
 Activation/deactivation of DP slaves 	Yes
— DPV1	No
Address area	
— Inputs, max.	1 024 byte
— Outputs, max.	1 024 byte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
PROFIBUS DP slave	
• 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
Autoregoliation Autocrossing	Yes
Change of IP address at runtime, supported	Yes
Interface types	Van
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
 PROFIBUS DP master 	No
 PROFIBUS DP slave 	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, 	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 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 ports), supported 	Yes

 Number of IO Devices per tool, max. 	8
 Device replacement without swap medium 	Yes
— Send cycles	250 μs, 500 μs, 1 ms, 2 ms, 4 ms
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, 	2
max.	
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
Open IE communication	
 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
Local port numbers used at the system endKeep-alive function, supported	
	65532, 65533, 65534, 65535
Keep-alive function, supported	65532, 65533, 65534, 65535
Keep-alive function, supported Protocols	65532, 65533, 65534, 65535 Yes
Keep-alive function, supported Protocols PROFIsafe	65532, 65533, 65534, 65535 Yes
Keep-alive function, supported Protocols PROFIsafe Redundancy mode	65532, 65533, 65534, 65535 Yes
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy	65532, 65533, 65534, 65535 Yes
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ.	65532, 65533, 65534, 65535 Yes No 200 ms; PROFINET MRP
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max.	65532, 65533, 65534, 65535 Yes No 200 ms; PROFINET MRP 50
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication	65532, 65533, 65534, 65535 Yes No 200 ms; PROFINET MRP
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication • TCP/IP	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication TCP/IP — Number of connections, max. — Data length for connection type 01H, max.	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication • TCP/IP — Number of connections, max.	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16
New York Protocols Protocols 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	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy Switchover time on line break, typ. Number of stations in the ring, max. Open IE communication TCP/IP 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)	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte
New York Protocols Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication 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.	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes Yes; via integrated PROFINET interface and loadable FBs 16
New Frotocols Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication 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.	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte
New York Protocols Protocols 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, max. UDP	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs
New York Protocols Protocols 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, max. UDP — Number of connections, max.	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16
New Frotocols Protocols 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, max. • UDP — Number of connections, max. — Data length, max.	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs
New York Protocols Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. — several passive connections per port, supported Number of connections, max. — Data length, max. UDP — Number of connections, max. — Data length, max. UDP — Number of connections, max. — Data length, max. Web server	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 1472 byte
New York Protocols Protocols 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, max. • UDP — Number of connections, max. — Data length, max. Web server • supported	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes Yes; via integrated PROFINET interface and loadable FBs 16 12 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 1472 byte
Neceptable Function, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication TCP/IP — Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. — several passive connections per port, supported ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max. UDP — Number of connections, max. — Data length, max. Web server supported user-defined websites	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 1472 byte Yes Yes
New York Server Number of connections per port, supported New York Supported Number of connections, max. Data length for connection type 01H, max. Data length for connection type 11H, max. Data length for connections per port, supported Number of connections, max. Data length, max. UDP Number of connections, max. Data length, max. UDP Number of connections, max. Data length, max. Veb server supported User-defined websites Number of HTTP clients	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes Yes; via integrated PROFINET interface and loadable FBs 16 12 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 1472 byte
New York Protocols Protocols 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, max. • UDP — Number of connections, max. — Data length, max. Web server • supported • User-defined websites • Number of HTTP clients communication functions / header	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 1 472 byte Yes Yes Yes Yes
New York Protocols Protocols 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, max. • UDP — Number of connections, max. — Data length, max. Web server • supported • User-defined websites • Number of HTTP clients communication functions / header PG/OP communication	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 1472 byte Yes Yes Yes
New York Server 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. Data length, max. Data length, max. Data length for connections per port, supported ISO-on-TCP (RFC1006) Number of connections, max. Data length, max. UDP Number of connections, max. Data length, max. UDP Number of connections, max. Data length, max. Outper Number of connections, max. Data length, max. Outper Number of connections, max. Data length, max. Web server Supported User-defined websites Number of HTTP clients Communication functions / header PG/OP communication Data record routing	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 1472 byte Yes Yes Yes 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. • UDP — Number of connections, max. — Data length, max. Web server • supported • User-defined websites • Number of HTTP clients communication functions / header PG/OP communication	No 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 1472 byte Yes Yes Yes

N 1 (OD)	
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
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
adjustable for OP communication, max.	31
usable for S7 basic communication	30
reserved for S7 basic communication	0
adjustable for S7 basic communication, min.	0
	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
· · · · · · · · · · · · · · · · · · ·	30
— of which status variables, max.	14
— of which control variables, max.	17
Forcing	Voc
• Forcing	Yes
Forcing, variables	Inputs, outputs
Number of variables, max.	10
Diagnostic buffer	

- mraaant	Vac
• 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 Vac: From 40 to 400
— adjustable	Yes; From 10 to 499
— preset Service data	10
• can be read out	Yes
Interrupts/diagnostics/status information	165
Alarms	No
Diagnostics function	No
Diagnostics indication LED	INU
Status indicator digital input (green)	Yes
Status indicator digital input (green) Status indicator digital output (green)	Yes
Potential separation	165
Potential separation digital inputs	Yes
between the channels and backplane bus Potential separation digital outputs	160
between the channels and backplane bus	Yes
Isolation	165
Isolation tested with	500 V DC
	300 V DC
Ambient conditions	
Ambient temperature during operation	0.00
• min.	0 °C
• max.	60 °C
configuration / header	
Configuration software	Vest CTED 7 VE 5 CD2 or higher and C7 Technology entire poolsage
	Yes; STEP 7 V5.5 SP2 or higher and S7-Technology option package V4.2 SP3
Configuration software	
Configuration software • STEP 7	
Configuration software • STEP 7 configuration / programming / header	V4.2 SP3
Configuration software • STEP 7 configuration / programming / header • Command set	V4.2 SP3 see instruction list
Configuration software • STEP 7 configuration / programming / header • Command set • Nesting levels	V4.2 SP3 see instruction list 8
Configuration software • STEP 7 configuration / programming / header • Command set • Nesting levels • System functions (SFC)	V4.2 SP3 see instruction list 8 see instruction list
Configuration software • STEP 7 configuration / programming / header • Command set • Nesting levels • System functions (SFC) • System function blocks (SFB)	V4.2 SP3 see instruction list 8 see instruction list
Configuration software • STEP 7 configuration / programming / header • Command set • Nesting levels • System functions (SFC) • System function blocks (SFB) Programming language	v4.2 SP3 see instruction list 8 see instruction list see instruction list
Configuration software • STEP 7 configuration / programming / header • Command set • Nesting levels • System functions (SFC) • System function blocks (SFB) Programming language — LAD	v4.2 SP3 see instruction list 8 see instruction list see instruction list
Configuration software • STEP 7 configuration / programming / header • Command set • Nesting levels • System functions (SFC) • System function blocks (SFB) Programming language — LAD — FBD	v4.2 SP3 see instruction list 8 see instruction list see instruction list Yes Yes
Configuration software STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL	v4.2 SP3 see instruction list 8 see instruction list see instruction list Yes Yes Yes
Configuration software STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL	v4.2 SP3 see instruction list 8 see instruction list see instruction list Yes Yes Yes Yes Yes
Configuration software STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC	see instruction list 8 see instruction list see instruction list Yes Yes Yes Yes Yes Yes
Configuration software STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® Know-how protection	v4.2 SP3 see instruction list 8 see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes
Configuration software STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® Know-how protection User program protection/password protection	v4.2 SP3 see instruction list 8 see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Configuration software STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® Know-how protection User program protection/password protection Block encryption	see instruction list 8 see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Configuration software STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® Know-how protection User program protection/password protection	v4.2 SP3 see instruction list 8 see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Configuration software STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® Know-how protection User program protection/password protection Block encryption	see instruction list 8 see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Configuration software STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® Know-how protection User program protection/password protection Block encryption	see instruction list 8 see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Configuration software STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® Know-how protection User program protection/password protection Block encryption Dimensions Width Height Depth	see instruction list 8 see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Configuration software STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® Know-how protection User program protection/password protection Block encryption Dimensions Width Height	see instruction list 8 see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Configuration software STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH HiGraph® Know-how protection User program protection/password protection Block encryption Dimensions Width Height Depth	see instruction list 8 see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye