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	
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 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 OBs Number 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
•	

— upper limit	9 990 s
IEC timer	
• present	Yes
• Type	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 	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	bytes
• 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	
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 POWER-ON Behavior of the clock following expiry of backup	the clock continues at the time of day it had when power was switched
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	4
— up to 40 °C, max.	4
— up to 60 °C, max.	4
vertical installation	
— up to 40 °C, max.	4
Input voltage	0414
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	10 us. Typical
— at "0" to "1", max.	10 µs; Typical
— at "1" to "0", max. Cable length	10 μs; Typical
	1 000 m
shielded, max. Digital outputs	1 000 m
Digital outputs	0
Number of digital outputs	8
of which high-speed outputs Functions	8 for technology functions, a g. high appeal composition signals
Functions Short circuit protection	for technology functions, e.g. high-speed cam switch signals
Short-circuit protection	Yes
Response threshold, typ. Limitation of industries about lawn valtages to	1 A
Limitation of inductive shutdown voltage to	48 V
Controlling a digital input	No
Switching capacity of the outputs	EW.
• on lamp load, max.	5 W
Load resistance range	
lower limit	48 Ω
upper limit Output voltage	4 kΩ

● 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	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	Yes Yes Yes Yes No 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Y

Services - PGOP communication - Routing - Global data communication - ST basic communication - ST basic communication - ST communication, as client - ST communication, as server - Equidistance - Isochronous mode can only be used alternatively on - PROFIBUS DP or PROFINET IO - SYNC/FREEZE - Activation/deactivation of DP slaves - Number of DP slaves that can be - simultaneously activate/discolarization, and - Isochronous server - Inputs, max - Direct data exchange (slave-to-slave - Inputs, max - Outputs, max - Outputs, max - Address area, max - Isochronous max - Isochronous mode can only be used alternatively on - PROFIBUS DP or PROFINET IO - Stave data part of slave in-slave - Inputs, max - Stave - Inputs, max - Stave - Inputs, max - Address area, max - Stave - PROFIBUS DP slave - PROFIBUS DP or munication - ST basic communication - ST basic communication - ST basic communication - ST basic communication - ST communication	 Number of DP slaves, max. 	124
- PGIOP communication - Reading - Reading - Reading - Reading - Clobal data communication - S7 basic communication - S7 basic communication - S7 basic communication - S7 communication, as client - S7 communication, as client - S7 communication, as server - Equidistance - S7 communication, as server - Equidistance - S7 communication - S7 basic communication - SYNCIFREEZE - Activation/deactivation of DP staves - Number of DP slaves that can be simultaneously activated/deactivated, max - Direct data exchange (slave-to-slave communication) - DPV1 - Address area - Inputs, max - Outputs, max - PGEPEUS DP slave - Inputs, max - Outputs, max - Outputs - Out	·	
Rouling Global data communication ST basic communication ST basic communication ST communication, as client ST communication, as client ST communication, as server Equilistance Isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO SYNC/FREEZE Activation/deactivation of DP slaves Number of DP slaves that can be simultaneously activated/deactivatient, max Direct data exchange (slave-to-slave communication) DPV1 Yes Inputs, max Direct data exchange (slave-to-slave communication) DPV1 Yes Address area Inputs, max Unjuts, max Unjuts, max Value data per DP slave Inputs, max Value data per DP slave Inputs, max Value data per DP slave		Ves
- Global data communication - S7 basic communication - S7 basic communication - S7 communication, as client - S7 communication, as client - S7 communication, as server - Equidistance - Isochronous mode - S7 NO/FREEZE - Activation/deactivation of DP slaves - Number of DP slaves that can be simultaneously activated/deactivated, max Direct data exchange (slave-to-slave communication) - DPV1 - Address area - Inputs, max - Outputs, ma		
- S7 basic communication - S7 communication - S7 communication, as client - S7 communication, as client - S7 communication, as client - S7 communication, as server - Equidistance - Isochronous mode - SYNC/FREEZE - Activation/deactivation of DP slaves - Number of DP slaves that can be simultaneously activate/deachivated, max Direct data exchange (slave-to-slave communication) - DPV1 - Yes - Address area - Inputs, max User data per DP slave - Inputs, max Outputs, max Outputs, max Outputs, max Outputs, max Outputs, max User data per address area, max User data per address area, max 244 byte - PROFIBUS DP slave - Inputs area, max User data per address area, max 25 cyclope communication - S7 communication - S7 communication, as client - S7		
S7 communication S7 communication, as client S7 communication, as server S7 communication, as server Yes Equidistance Isochronous mode Yes, OB 61; Isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO Yes Activation/deactivation of DP slaves Number of DP slaves that can be simultaneously activated/deactivated, max Direct date exchange (slave-to-slave communication) DPV1 Yes Address area Inputs, max Outputs, max Out		
- \$7 communication, as client - \$7 communication, as server - Equidistance - Isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO - SYNCIFREEZE - Activation/deachvated max Number of DP slaves that can be simultaneously activated/deachvated, max Direct data exchange (slave-to-slave communication) - DPV1 - DPV1 - Yes - Inputs, max - Outputs, max - Used data per DP slave - Inputs, max - Used data per DP slave - Inputs, max - User data per DP slave - Inputs, max - User data per address area, max - Italiansion rate, max - Italiansion rate, max - Italiansion rate, max - Italiansion rate, max - User data per address area, max - Societate		
- S7 communication, as server - Equidistance - Isochronous mode - Isochronous mode - SYNO/FREEZE - Activation/deactivation of DP slaves - Number of DP slaves that can be simultaneously activated/deactivated, max Direct data exchange (slave-to-slave communication) - DPV1 - Address area - Inputs, max Outputs, max		
Figuridation Yes CB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO Yes CB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO Yes CB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO Yes CB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO Yes CB 61; isochronous mode can only be used alternatively on PROFIBUS DP slaves CB 61; isochronous mode can only be used alternatively on PROFIBUS DP slave CB 61; isochronous mode can only be used alternatively on PROFIBUS DP slave CB 61; isochronous mode can only be used alternatively on PROFIBUS DP slave CB 61; isochronous mode can only be used alternatively on PROFIBUS DP slave CB 61; isochronous mode can only be used alternatively on PROFIBUS DP slave CB 61; isochronous mode can only be used alternatively on PROFIBUS DP slave Salves used in CB 61; isochronous mode can only be used alternatively on PROFIBUS DP slave Salves used in CB 61; isochronous mode can only be used alternatively on PROFIBUS DP master Yes CD in PROFIBUS DP is slave Yes CB 61; isochronous mode can only be used alternatively on PROFIBUS DP master Yes in PROFIBUS		
Isochronous mode		
PROFIBUS DP or PROFINET IO	•	
- Activation/descrivation of DP slaves - Number of DP slaves that can be simultaneously activated/descrivated, max Direct data exchange (slave-to-slave communication) - DPV1 - Yes Address area - Inputs, max Outputs, max Outputs - Outputs - Outputs - Outputs - Output ourner of the interface, max Output ourner of the interface, max Output ourner of the interface, max Output ourner of De slaves, max	— isocnronous mode	
	— SYNC/FREEZE	Yes
simultaneously activated/deactivated, max. — Direct date exchange (slave-to-slave communication) — DPV1 Yes Address area — Inputs, max. — Outputs, max. — Outputs — Outputs — Outputs — PC/OP communication — PC/OP slaves, max. — PC/OP communication — PC/OP communication — PROFIBUS DP master — PC/OP communication — Transmission rate, max. — PC/OP communication — PC/OP communication — PROFIDUS DP master — Transmission rate, max. — PC/OP communication — PC/OP communication — PROFIDUS DP master — Transmission rate, max. — PC/OP communication — PC/OP communi	 Activation/deactivation of DP slaves 	Yes
communication) - DPV1 Address area - Inputs, max Outputs, max Outputs, max User data per DP slave - Inputs, max Outputs, max		8
Address area - Inputs, max User data per DP slave - Inputs, max Outputs, max Outputs		Yes; as subscriber
Inputs, max Outputs, max Outp	— DPV1	Yes
Outputs, max. User data per DP slave Inputs, max Outputs, max.	Address area	
Outputs, max. User data per DP slave Inputs, max Outputs, max.	— Inputs, max.	8 kbyte
User data per DP slave		
Inputs, max. 244 byte Outputs, max. 244 byte Outputs and production of the interface Outputs and production of the interface Output outputs Output output of the interface, max. 32 byte Output output of the interface Output output of the interface, max. 200 mA Output output on one store Output output on one store Output output of the interface, max. 200 mA Output output on one store Output output on one store Output output of the interface, max. 200 mA Output output on one store Output out	·	·
— Outputs, max. 244 byte	·	244 byte
PROFIBUS DP slave		
Transmission rate, max. automatic baud rate search Address area, max. 32 User data per address area, max. 32 Peroverses PG/OP communication Rolling Rollin		
automatic baud rate search Address area, max. 32 User data per address area, max. 32 byte Services		12 Mbit/s
Address area, max. User data per address area, max. Services - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication - S7 communication - S7 communication, as client - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 Transfer memory - Inputs - Outputs 2.44 byte - Outputs 2. Interface Interface type Isolated Interface type • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection PROFIBUS DP master • Transmission rate, max. • Number of DP slaves, max. Services - PG/OP communication No Yes 12 Mbil/s 64 Services - PG/OP communication No	· · · · · · · · · · · · · · · · · · ·	
User data per address area, max. Services - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication - S7 communication, as client - S7 communication, as server - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 Transfer memory - Inputs - Outputs 244 byte 2. Interface type Interface type Interface type Interface type SRS 485 - Output current of the interface, max. PROFIBUS DP master - PROFIBUS DP master - PROFIBUS DP master - PROFIBUS DP master - Transmission rate, max Number of DP slaves, max Services - PG/OP communication - S2 byte very control on the interface process of the control of the control on the control on the control of the control on th		
Services - PG/OP communication Yes - Routing Yes; Only with active interface - Global data communication No - S7 basic communication No - S7 basic communication Yes - 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) - DPV1 No Transfer memory - Inputs 244 byte - Outputs 244 byte 2. Interface Interface type Integrated RS 485 interface Interface types • RS 485 • Output current of the interface, max. 200 mA Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection No PROFIBUS DP master • Transmission rate, max. 12 Mbit/s • Number of DP slaves, max. 58rvices - PG/OP communication No	·	
- PG/OP communication Yes; Only with active interface - Routing Yes; Only with active interface - Global data communication No - S7 basic communication Yes - S7 communication Yes - S7 communication, as client No - S7 communication, as client No - S7 communication, as server Yes; Connection configured on one side only - Direct data exchange (slave-to-slave 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 - Output current of the interface, max. Protocols - MPI - PROFIBUS DP master - PROFIBUS DP slave - Point-to-point connection No PROFIBUS DP master - Transmission rate, max Number of DP slaves, max Services - PG/OP communication - No - PG/OP communication - No - PG/OP communication - No		52 byte
- Routing Yes; Only with active interface - Global data communication No - S7 basic communication Yes - S7 communication, as client No - S7 communication, as client No - S7 communication, as server Yes; Connection configured on one side only - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs 244 byte - Outputs 244 byte 2. Interface Interface type Interface type Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP master • PROFIBUS DP master • PROFIBUS DP master • Profice type No • Point-to-point connection PROFIBUS DP master • Transmission rate, max. • Number of DP slaves, max. • Number of DP slaves, max. • Services - PG/OP communication No		Von
- Global data communication - S7 basic communication - S7 communication - S7 communication - S7 communication - S7 communication, as client - S7 communication, as server - Percent Part Part Part Part Part Part Part Par		
- S7 basic communication	<u> </u>	
- S7 communication , as client		
- S7 communication, as client - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs - Outputs 244 byte 2. Interface Interface type Isolated PRS 485 Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP master • Transmission rate, max. • Number of DP slaves, max. • Number of DP slaves, max. • Residence of the interface of the		
- S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs - Outputs 244 byte 2. Interface Interface type Isolated Interface type Interface types • RS 485 • Output current of the interface, max. PROFIBUS DP master • PROFIBUS DP master • PROFIBUS DP master • Transmission rate, max. • Number of DP slaves, max. 12 Mbit/s • Nu Services - PG/OP communication Yes Yes; Connection configured on one side only Yes Yes Yes Yes Ves 10 Interface type Integrated RS 485 interface Yes 10 Integrated RS 485 interface Yes Pes 10 Integrated RS 485 interface Yes 10 Integrated RS		
— Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs 244 byte — Outputs 244 byte 2. Interface Interface type Interface type Isolated Yes Interface types • RS 485 • Output current of the interface, max. 200 mA Protocols • MPI No • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection PROFIBUS DP master • Transmission rate, max. 12 Mbit/s • Number of DP slaves, max. 64 Services — PG/OP communication No		
communication)	·	
Transfer memory - Inputs - Outputs 244 byte 2. Interface Interface type Interface types Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Proint-to-point connection PROFIBUS DP master • Transmission rate, max. 12 Mbit/s • Number of DP slaves, max. 64 Services - PG/OP communication No		Yes
Inputs Outputs 244 byte 2. Interface Interface type Interface types Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection PROFIBUS DP master • Transmission rate, max. • Number of DP slaves, max. • PG/OP communication No PG/OP communication	— DPV1	No
- Outputs 2. Interface Interface type Interface type Interface types Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection PROFIBUS DP master • Transmission rate, max. • Number of DP slaves, max. Services - PG/OP communication No Integrated RS 485 interface Yes Integrated RS 485 Yes Integrated RS 485 interface Yes Integrated RS 485 Yes Integrated RS	Transfer memory	
Interface type	— Inputs	244 byte
Interface type Isolated Yes Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection No PROFIBUS DP master Transmission rate, max. No No PROFIBUS DP slaves, max. Services — PG/OP communication No	— Outputs	244 byte
Isolated Yes Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. No No PROFIBUS DP slaves, max. Services — PG/OP communication No	2. Interface	
Isolated Yes Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. No No PROFIBUS DP slaves, max. Services — PG/OP communication No	Interface type	Integrated RS 485 interface
Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. No No Profibus DP slaves, max. Services PROFOP communication No		-
 RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services PG/OP communication Yes 200 mA No No PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. No No 		
Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services — PG/OP communication No 200 mA No No No No 10 Miles (1) Miles (1		Yes
Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection PROFIBUS DP master • Transmission rate, max. • Number of DP slaves, max. Services — PG/OP communication No No No No No No No No No		
 MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services PG/OP communication No 	·	
 PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services PG/OP communication 		No
 PROFIBUS DP slave Point-to-point connection No PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services PG/OP communication No 		
 Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services PG/OP communication No 		
PROFIBUS DP master • Transmission rate, max. • Number of DP slaves, max. Services — PG/OP communication No		
 Transmission rate, max. Number of DP slaves, max. Services PG/OP communication No 		INU
Number of DP slaves, max. Services — PG/OP communication No		12 Mhit/o
Services — PG/OP communication No		
— PG/OP communication No		04
— Routing No		
	— Routing	No

	A I
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	12 116.00
	DDOEINET
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
 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	TOO WINTES
— PG/OP communication	Yes
— Routing— S7 communication	Yes
	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	0.14.4-
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
— User data consistency, max.	1 024 byte
PROFINET IO Device Services	
— PG/OP communication	Yes
— PG/OP communication — Routing	Yes
— S7 communication	
— 57 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
Keep-alive function, supported	Yes
Keep-alive function, supported Protocols	Yes
Protocols PROFIsafe	Yes Yes
Protocols PROFIsafe Redundancy mode	
Protocols PROFIsafe Redundancy mode Media redundancy	
Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ.	
Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max.	Yes
Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication	Yes 200 ms; PROFINET MRP 50
Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication • TCP/IP	Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs
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.	Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16
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.	Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte
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.	Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16
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.	Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte
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,	Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte
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	Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes
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)	Yes 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
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.	Yes 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
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.	Yes 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
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	Yes 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
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.	Yes 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
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.	Yes 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
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	Yes 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 1 472 byte
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	Yes 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 1472 byte
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	Yes 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 1472 byte Yes Yes
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	Yes 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 1472 byte Yes Yes
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	Yes: 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 1472 byte Yes Yes Yes Yes
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	Yes 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 1472 byte Yes Yes Yes Yes Yes
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 Data record routing	Yes 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 1472 byte Yes Yes Yes Yes Yes

 Number of GD loops, max. 	8
 Number of GD packets, max. 	8
 Number of GD packets, transmitter, max. 	8
 Number of GD packets, receiver, max. 	8
 Size of GD packets, max. 	22 byte
Size of GD packet (of which consistent), max.	22 byte
S7 basic communication	
supported	Yes
 User data per job, max. 	76 byte
 User data per job (of which consistent), max. 	76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or
07	X_GET as server)
S7 communication	v
• supported	Yes
• as server	Yes
• as client	Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB
a Lloor data pariah may	
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
	0
— adjustable for S7 basic communication, min.	
— 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 maccage functions	(delive). IIIdx. 14, AZ dS PROFINET. 24 IIIdx.
S7 message functions	22. Depending on the configured connections for DC/OD and C7 hasis
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	i, maiour continuation
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	Voc
• Forcing	Yes
• Forcing, variables	Inputs, outputs
Number of variables, max. Diagraphic buffers	10
Diagnostic buffer	

• present	Yes
 Number of entries, max. 	500
— adjustable	No
— of which powerfail-proof	100; Only the last 100 entries are retained
 Number of entries readable in RUN, max. 	499
— adjustable	Yes; From 10 to 499
— preset	10
Service data	
can be read out	Yes
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	
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
• STEP 7	
STEP 7 configuration / programming / header	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5
STEP 7 configuration / programming / header Command set	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list
 STEP 7 configuration / programming / header Command set Nesting levels 	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8
 STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) 	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list
 STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) 	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8
 STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language 	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list see instruction list
 STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language LAD 	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list see instruction list
 STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language LAD FBD 	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list see instruction list Yes Yes
 STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL 	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list see instruction list Yes Yes Yes
 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, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list see instruction list Yes Yes Yes Yes
 STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC 	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list see instruction list Yes Yes Yes Yes Yes
 STEP 7 configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language LAD FBD STL SCL CFC GRAPH 	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes
 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® 	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list see instruction list Yes Yes Yes Yes Yes
● 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, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes
 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, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes
	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list Yes
	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list Yes
	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list Yes
	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list Yes
	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list Yes
 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 	V4.2 SP3, S7 F Configuration Pack V5.5 SP10, S7 Distributed Safety Option Package V5.4 SP5 see instruction list 8 see instruction list Yes