Data sheet

6ES7313-6CG04-0AB0



SIMATIC S7-300, CPU 313C-2 DP Compact CPU with MPI, 16 DI/16 DO, 3 high-speed counters (30 kHz), integrated DP interface, Integr. power supply 24 V DC, work memory 128 KB, Front connector (1x 40-pole) and Micro Memory Card required

General information		
Product type designation	CPU 313C-2	
HW functional status	01	
Firmware version	V3.3	
Engineering with		
Programming package	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203	
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)	Miniature circuit breaker, type C; min. 2 A; miniature circuit breaker type B, min. 4 A	
Mains buffering		
Mains/voltage failure stored energy time	5 ms	
Repeat rate, min.	1 s	
Load voltage L+		
Digital inputs		
— load voltage / at digital input / at DC / rated value	24 V	
 Reverse polarity protection 	Yes	
Digital outputs		
— Rated value (DC)	24 V	
 Reverse polarity protection 	No	
Input current		
Current consumption (rated value)	800 mA	
Current consumption (in no-load operation), typ.	110 mA	
Inrush current, typ.	5 A	
²t	0.7 A ² ·s	
Digital inputs		
 from load voltage L+ (without load), max. 	80 mA	
Digital outputs		
• from load voltage L+, max.	50 mA	
Power loss		
Power loss, typ.	9 W	
Memory		
Work memory		
• integrated	128 kbyte	
expandable	No	
Load memory		
Plug-in (MMC)	Yes	
• Plug-in (MMC), max.	8 Mbyte	

 Data management on MMC (after last programming), min. 	10 a
Backup	
• present	Yes; Guaranteed by MMC (maintenance-free)
without battery	Yes; Program and data
CPU processing times	
for bit operations, typ.	0.07 μs
for word operations, typ.	0.15 μs
for fixed point arithmetic, typ.	0.2 µs
for floating point arithmetic, typ.	0.72 μs
CPU-blocks	
Number of blocks (total)	1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
DB	reduced by the winto daed.
Number, max.	1 024; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
Number, max.	see instruction list
• Size, max.	64 kbyte
 Number of free cycle OBs 	1; OB 1
 Number of time alarm OBs 	1; OB 10
 Number of delay alarm OBs 	2; OB 20, 21
 Number of cyclic interrupt OBs 	4; OB 32, 33, 34, 35
 Number of process alarm OBs 	1; OB 40
 Number of DPV1 alarm OBs 	3; OB 55, 56, 57
 Number of startup OBs 	1; OB 100
 Number of asynchronous error OBs 	5; OB 80, 82, 85, 86, 87
 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	256
Retentivity	
— adjustable	Yes
— preset	Z 0 to Z 7
Counting range	
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
S7 times	
Number	256
Retentivity	
— adjustable	Yes
— 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.	64 kbyte	
Flag		
• Size, max.	256 byte	
Retentivity available	Yes; MB 0 to MB 255	
Retentivity available Retentivity preset	MB 0 to MB 15	
Number of clock memories	8; 1 memory byte	
Data blocks	o, i memory byte	
	Vegavia pen retain preperty en DD	
Retentivity adjustable	Yes; via non-retain property on DB	
Retentivity preset	Yes	
Local data		
per priority class, max.	32 kbyte; Max. 2048 bytes per block	
Address area		
I/O address area		
• Inputs	2 048 byte	
Outputs	2 048 byte	
of which distributed		
— Inputs	2 030 byte	
— Outputs	2 030 byte	
Process image		
• Inputs	2 048 byte	
Outputs	2 048 byte	
 Inputs, adjustable 	2 048 byte	
 Outputs, adjustable 	2 048 byte	
 Inputs, default 	128 byte	
Outputs, default	128 byte	
Default addresses of the integrated channels		
— Digital inputs	124.0 to 125.7	
— Digital outputs	124.0 to 125.7	
Digital channels		
• Inputs	16 256	
— of which central	1 008	
Outputs	16 256	
— of which central	1 008	
Analog channels		
• Inputs	1 015	
— of which central	248	
Outputs	1 015	
— of which central	248	
Hardware configuration	270	
	2	
Number of expansion units, max.	3	
Number of DP masters		
• integrated	1	
• via CP	4	
Number of operable FMs and CPs (recommended)		
• FM	8	
● CP, PtP	8	
• CP, LAN	6	
Rack		
• Racks, max.	4	
Modules per rack, max.	8; In rack 3 max. 7	
Time of day		
Clock		
Hardware clock (real-time)	Yes	
• retentive and synchronizable	Yes	
Backup time	6 wk; At 40 °C ambient temperature	
 Deviation per day, max. 	10 s; Typ.: 2 s	
Behavior of the clock following POWER-ON	Clock continues running after POWER OFF	
Behavior of the clock following expiry of backup period	the clock continues at the time of day it had when power was switched off	
	3,	

Operating house equat-		
Operating hours counter	4	
Number/Number range	1	
Number/Number range	0	
Range of values	0 to 2^31 hours (when using SFC 101)	
Granularity	1h	
• retentive	Yes; Must be restarted at each restart	
Clock synchronization	N.	
• supported	Yes	
• to MPI, master	Yes	
• on MPI, device	Yes	
• to DP, master	Yes; With DP slave only slave clock	
• on DP, device	Yes	
• in AS, master	Yes	
• in AS, device	No	
Digital inputs		
Number of digital inputs	16	
of which inputs usable for technological functions	12	
integrated channels (DI)	16	
Input characteristic curve in accordance with IEC 61131, type 1	Yes	
Number of simultaneously controllable inputs		
horizontal installation		
— up to 40 °C, max.	16	
— up to 60 °C, max.	8	
vertical installation		
— up to 40 °C, max.	8	
Input voltage		
 Rated value (DC) 	24 V	
• for signal "0"	-3 to +5V	
• for signal "1"	+15 to +30 V	
Input current		
• for signal "1", typ.	8 mA	
·	8 mA	
• for signal "1", typ.		
for signal "1", typ. Input delay (for rated value of input voltage)	Yes; 0.1 / 0.3 / 3 / 15 ms (You can reconfigure the input delay of the standard inputs during program runtime. Please note that under certain circumstances your newly set filter time may not be effective until the next filter cycle.)	
for signal "1", typ. Input delay (for rated value of input voltage) for standard inputs	Yes; 0.1 / 0.3 / 3 / 15 ms (You can reconfigure the input delay of the standard inputs during program runtime. Please note that under certain circumstances	
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• for signal "1", typ. Input delay (for rated value of input voltage) for standard inputs — parameterizable — Rated value for technological functions — at "0" to "1", max.	Yes; 0.1 / 0.3 / 3 / 15 ms (You can reconfigure the input delay of the standard inputs during program runtime. Please note that under certain circumstances your newly set filter time may not be effective until the next filter cycle.)	
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for signal "1", typ. Input delay (for rated value of input voltage) for standard inputs — parameterizable — Rated value for technological functions — at "0" to "1", max. Cable length • shielded, max. • unshielded, max. for technological functions — shielded, max. — unshielded, max. — unshielded, max. — unshielded, max. — unshielded outputs Number of digital outputs • of which high-speed outputs integrated channels (DO) Short-circuit protection • Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input	Yes; 0.1 / 0.3 / 3 / 15 ms (You can reconfigure the input delay of the standard inputs during program runtime. Please note that under certain circumstances your newly set filter time may not be effective until the next filter cycle.) 3 ms 16 µs; Minimum pulse width/minimum pause between pulses at maximum counting frequency 1 000 m; 100 m for technological functions 600 m; for technological functions: No 100 m; at maximum count frequency not allowed 16 4; Notice: You cannot connect the fast outputs of your CPU in parallel 16 Yes; Clocked electronically 1 A L+ (-48 V)	
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for signal "1", typ. Input delay (for rated value of input voltage) for standard inputs — parameterizable — Rated value for technological functions — at "0" to "1", max. Cable length • shielded, max. • unshielded, max. for technological functions — shielded, max. — unshielded, max. Digital outputs Number of digital outputs • of which high-speed outputs integrated channels (DO) Short-circuit protection • Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Switching capacity of the outputs • on lamp load, max. Load resistance range • lower limit • upper limit	Yes; 0.1 / 0.3 / 3 / 15 ms (You can reconfigure the input delay of the standard inputs during program runtime. Please note that under certain circumstances your newly set filter time may not be effective until the next filter cycle.) 3 ms 16 μs; Minimum pulse width/minimum pause between pulses at maximum counting frequency 1 000 m; 100 m for technological functions 600 m; for technological functions: No 100 m; at maximum count frequency not allowed 16 4; Notice: You cannot connect the fast outputs of your CPU in parallel 16 Yes; Clocked electronically 1 A L+ (-48 V) Yes 5 W	

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Output current	500 4
• for signal "1" rated value	500 mA
• for signal "1" permissible range, min.	5 mA
• for signal "1" permissible range, max.	0.6 A
• for signal "1" minimum load current	5 mA
for signal "0" residual current, max.	0.5 mA
Parallel switching of two outputs	
for uprating	No
for redundant control of a load	Yes
Switching frequency	
 with resistive load, max. 	100 Hz
 with inductive load, max. 	0.5 Hz
 on lamp load, max. 	100 Hz
of the pulse outputs, with resistive load, max.	2.5 kHz
Total current of the outputs (per group)	
horizontal installation	
— up to 40 °C, max.	3 A
— up to 60 °C, max.	2 A
vertical installation	
— up to 40 °C, max.	2 A
Cable length	
• shielded, max.	1 000 m
• unshielded, max.	600 m
Analog inputs	
Number of analog inputs	0
integrated channels (AI)	0
Analog outputs	
integrated channels (AO)	0
Encoder	
Connectable encoders	
2-wire sensor	Yes
 2-wire sensor permissible quiescent current (2-wire sensor), max. 	Yes 1.5 mA
— permissible quiescent current (2-wire sensor), max.	
— permissible quiescent current (2-wire sensor), max.	1.5 mA
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces	1.5 mA 0
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces	1.5 mA 0 2; MPI and PROFIBUS DP
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface	1.5 mA 0 2; MPI and PROFIBUS DP 0
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— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types • RS 485	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max.	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes 200 mA
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces 1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes 200 mA
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes 200 mA Yes No
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes 200 mA Yes No No
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device • Point-to-point connection MPI	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes 200 mA Yes No No
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device • Point-to-point connection	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes 200 mA Yes No No No
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device • Point-to-point connection MPI • Transmission rate, max.	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes 200 mA Yes No No No
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection MPI Transmission rate, max. Services — PG/OP communication	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes 200 mA Yes No No No No
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device • Point-to-point connection MPI • Transmission rate, max. Services — PG/OP communication — Routing	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes 200 mA Yes No No No No Yes Yes
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device • Point-to-point connection MPI • Transmission rate, max. Services — PG/OP communication — Routing — Global data communication	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes 200 mA Yes No
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device • Point-to-point connection MPI • Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes 200 mA Yes No No No No Yes Yes Yes Yes Yes Yes Yes Yes
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection MPI Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes 200 mA Yes No No No No Yes
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device 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	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes 200 mA Yes No No No No No No So 187.5 kbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Y
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device 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	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes 200 mA Yes No No No No Yes
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device 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 2. Interface	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes 200 mA Yes No No No No Ves Yes Yes Yes Yes Yes Yes Yes Yes Yes Y
— permissible quiescent current (2-wire sensor), max. Interfaces Number of PROFINET interfaces Number of RS 485 interfaces Number of RS 422 interfaces 1. Interface Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device 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	1.5 mA 0 2; MPI and PROFIBUS DP 0 Integrated RS 485 interface No Yes 200 mA Yes No No No No No No So 187.5 kbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Y

Interfere to the co	
Interface types	Voc
RS 485 Output gurrent of the interface may	Yes
Output current of the interface, max.	200 mA
Protocols	N.
MPI DROFINET IO Controller	No No
PROFINET IO Controller	No .
PROFINET IO Device	No
PROFINET CBA	No V
PROFIBUS DP master	Yes
PROFIBUS DP device	Yes
PROFIBUS DP master	40 Mb:W-
Transmission rate, max.	12 Mbit/s
max. number of DP devices	124
Services	Vec
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No Voc: I blocks only
— S7 basic communication	Yes; I blocks only
— S7 communication	Yes; Yes (only server; connection configured at one end)
— S7 communication, as client	No Yes
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	No V
— SYNC/FREEZE	Yes
— activation/deactivation of DP devices	Yes
max. number of DP devices that can be activated/deactivated at the same time	8
Direct data exchange (slave-to-slave communication)	Yes; as subscriber
— DPV1	Yes
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
User data per DP device	- ,
— Inputs, max.	244 byte
— Outputs, max.	244 byte
2nd interface / PROFIBUS DP device / header	
GSD file	The latest GSD file is available on the Internet
3 6 6 5 1110	(http://www.siemens.com/profibus-gsd)
 Transmission rate, max. 	12 Mbit/s
Transmission rate, max.automatic baud rate search	12 Mbit/s Yes; only with passive interface
automatic baud rate search	Yes; only with passive interface
automatic baud rate searchAddress area, max.	Yes; only with passive interface 32
automatic baud rate searchAddress area, max.User data per address area, max.	Yes; only with passive interface 32
 automatic baud rate search Address area, max. User data per address area, max. Services	Yes; only with passive interface 32 32 byte
 automatic baud rate search Address area, max. User data per address area, max. Services — PG/OP communication 	Yes; only with passive interface 32 32 byte Yes
 automatic baud rate search Address area, max. User data per address area, max. Services — PG/OP communication — Routing 	Yes; only with passive interface 32 32 byte Yes Yes; Only with active interface
 automatic baud rate search Address area, max. User data per address area, max. Services — PG/OP communication — Routing — Global data communication 	Yes; only with passive interface 32 32 byte Yes Yes; Only with active interface No
 automatic baud rate search Address area, max. User data per address area, max. Services PG/OP communication Routing Global data communication S7 basic communication 	Yes; only with passive interface 32 32 byte Yes Yes; Only with active interface No No
 automatic baud rate search Address area, max. User data per address area, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication 	Yes; only with passive interface 32 32 byte Yes Yes; Only with active interface No No No Yes; Yes (only server; connection configured at one end)
 automatic baud rate search 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) 	Yes; only with passive interface 32 32 byte Yes Yes; Only with active interface No No Yes; Yes (only server; connection configured at one end) No
 automatic baud rate search 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) 	Yes; only with passive interface 32 32 byte Yes Yes; Only with active interface No No Yes; Yes (only server; connection configured at one end) No Yes Yes
 automatic baud rate search 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 	Yes; only with passive interface 32 32 byte Yes Yes; Only with active interface No No Yes; Yes (only server; connection configured at one end) No Yes
 automatic baud rate search 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	Yes; only with passive interface 32 32 byte Yes Yes; Only with active interface No No Yes; Yes (only server; connection configured at one end) No Yes Yes No No
 automatic baud rate search 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 	Yes; only with passive interface 32 32 byte Yes Yes; Only with active interface No No Yes; Yes (only server; connection configured at one end) No Yes Yes Yes Yes
 automatic baud rate search 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 	Yes; only with passive interface 32 32 byte Yes Yes; Only with active interface No No Yes; Yes (only server; connection configured at one end) No Yes Yes No No
 automatic baud rate search 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 	Yes; only with passive interface 32 32 byte Yes Yes; Only with active interface No No Yes; Yes (only server; connection configured at one end) No Yes Yes Yes Yes
 automatic baud rate search 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 Protocols PROFIsafe 	Yes; only with passive interface 32 32 byte Yes Yes; Only with active interface No No Yes; Yes (only server; connection configured at one end) No Yes Yes Yes Yes
automatic baud rate search Address area, max. User data per address area, max. 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 Protocols PROFIsafe communication functions / header	Yes; only with passive interface 32 32 byte Yes Yes; Only with active interface No No Yes; Yes (only server; connection configured at one end) No Yes Yes Yes No No 244 byte 244 byte
 automatic baud rate search 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 Protocols PROFIsafe 	Yes; only with passive interface 32 32 byte Yes Yes; Only with active interface No No Yes; Yes (only server; connection configured at one end) No Yes Yes Yes No 244 byte 244 byte

Clabal data companies tier		
Global data communication	V.	
• supported	Yes	
Number of GD loops, max.	8	
Number of GD packets, max.	8	
Number of GD packets, transmitter, max.	8	
 Number of GD packets, receiver, max. 	8	
 Size of GD packets, max. 	22 byte	
Size of GD packet (of which consistent), max.	22 byte	
S7 basic communication		
• supported	Yes	
 User data per job, max. 	76 byte	
 User data per job (of which consistent), max. 	76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)	
S7 communication	us server)	
• supported	Yes	
as server	Yes	
as client	Yes; Via CP and loadable FB	
User data per job, max.	180 kbyte; With PUT/GET	
User data per job (of which consistent), max.	240 byte; as server	
S5 compatible communication	2 10 0/10, 40 001101	
• supported	Yes; via CP and loadable FC	
Number of connections	1.00, 1.0 OF UNA IDUCULUIO FO	
• overall	8	
usable for PG communication	7	
- reserved for PG communication	1	
adjustable for PG communication, min.	1	
•	7	
 adjustable for PG communication, max. usable for OP communication 	7	
reserved for OP communication		
	1	
— adjustable for OP communication, min.	1	
— adjustable for OP communication, max.	7	
usable for S7 basic communication	4	
— reserved for S7 basic communication	0	
 adjustable for S7 basic communication, min. 	0	
 adjustable for S7 basic communication, max. 	4	
usable for routing	4; max.	
S7 message functions		
Number of login stations for message functions, max.	8; 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	
Status/control		
Status/control variable	Yes	
Variables	Inputs, outputs, memory bits, DB, times, counters	
Number of variables, max.	30	
of which status variables, max.	30	
of which status variables, max. — of which control variables, max.	14	
Forcing		
• Forcing	Yes	
Forcing, variables	Inputs, outputs	
Number of variables, max.	10	
Diagnostic buffer		
-	Yes	
Plumber of entries, may		
Number of entries, max.	500 No.	
— 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
•	10
— preset Service data	10
• can be read out	Yes
Interrupts/diagnostics/status information	165
Diagnostics indication LED	
Status indicator digital input (green)	Yes
Status indicator digital imput (green) Status indicator digital output (green)	Yes
Integrated Functions	Tes
Counter	
Number of counters	3; See "Technological Functions" manual
	30 kHz
Counting frequency, max. Frequency massurament	Yes
Frequency measurement • Number of frequency meters	3; up to 30 kHz (see "Technological Functions" manual)
controlled positioning	No
	Yes; PID controller (see "Technological Functions" manual)
integrated function blocks (closed-loop control) PID controller	Yes
Number of pulse outputs	3; Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual)
Limit frequency (pulse)	2.5 kHz
Potential separation	
Potential separation digital inputs	
Potential separation digital inputs	Yes
between the channels	No
 between the channels and backplane bus 	Yes
Potential separation digital outputs	
Potential separation digital outputs	Yes
 between the channels 	Yes
	0
 between the channels, in groups of 	8
between the channels, in groups ofbetween the channels and backplane bus	Yes
between the channels and backplane bus	
between the channels and backplane bus Isolation	Yes
between the channels and backplane bus Isolation Isolation tested with	Yes
between the channels and backplane bus Isolation Isolation tested with Ambient conditions	Yes
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation	Yes 600 V DC
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation min.	Yes 600 V DC 0 °C
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation min. max.	Yes 600 V DC 0 °C
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation min. max. configuration / header	Yes 600 V DC 0 °C
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation min. max. configuration / header Configuration software STEP 7	Yes 600 V DC 0 °C 60 °C Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation min. max. configuration / header Configuration software STEP 7 STEP 7 Lite	Yes 600 V DC 0 °C 60 °C Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation min. max. configuration / header Configuration software STEP 7	Yes 600 V DC 0 °C 60 °C Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation min. max. configuration / header Configuration software STEP 7 STEP 7 Lite configuration / programming / header Command set	Yes 600 V DC 0 °C 600 °C Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No see instruction list
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation min. max. configuration / header Configuration software STEP 7 STEP 7 Lite configuration / programming / header Command set Nesting levels	Yes 600 V DC 0 °C 60 °C Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation min. max. configuration / header Configuration software STEP 7 STEP 7 Lite configuration / programming / header Command set	Yes 600 V DC 0 °C 600 °C Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No see instruction list
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation • min. • max. configuration / header Configuration software • STEP 7 • STEP 7 Lite configuration / programming / header • Command set • Nesting levels • System functions (SFC) • System function blocks (SFB)	Yes 600 V DC 0 °C 60 °C Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No see instruction list 8
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation min. max. configuration / header Configuration software STEP 7 STEP 7 Lite configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language	Yes 600 V DC 0 °C 60 °C Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No see instruction list 8 see instruction list
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation min. max. configuration / header Configuration software STEP 7 STEP 7 Lite configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language — LAD	Yes 600 V DC 0 °C 60 °C Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No see instruction list 8 see instruction list see instruction list
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation min. max. configuration / header Configuration software STEP 7 STEP 7 Lite configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language — LAD — FBD	Yes 600 V DC 0 °C 60 °C Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No see instruction list 8 see instruction list see instruction list Yes Yes
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation • min. • max. configuration / header Configuration software • STEP 7 • STEP 7 Lite configuration / programming / header • Command set • Nesting levels • System functions (SFC) • System function blocks (SFB) Programming language — LAD — FBD — STL	Yes 600 V DC 0 °C 60 °C Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No see instruction list 8 see instruction list 9 see instruction list Yes Yes Yes
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation • min. • max. configuration / header Configuration software • STEP 7 • STEP 7 Lite configuration / programming / header • Command set • Nesting levels • System functions (SFC) • System function blocks (SFB) Programming language — LAD — FBD — STL — SCL	Yes 600 V DC 0 °C 60 °C Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No see instruction list 8 see instruction list see instruction list Yes Yes Yes Yes
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation min. max. configuration / header Configuration software STEP 7 STEP 7 Lite configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language — LAD — FBD — STL — SCL — CFC	Yes 600 V DC 0 °C 60 °C Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No see instruction list 8 see instruction list 9 Yes Yes Yes Yes Yes Yes
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation min. max. Configuration / header Configuration software STEP 7 STEP 7 Lite configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language — LAD — FBD — STL — SCL — CFC — GRAPH	Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No see instruction list 8 see instruction list 9 Yes Yes Yes Yes Yes Yes Yes
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation min. max. configuration / header Configuration software STEP 7 STEP 7 Lite configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language — LAD — FBD — STL — SCL — CFC — GRAPH — HiGraph®	Yes 600 V DC 0 °C 60 °C Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No see instruction list 8 see instruction list 9 Yes Yes Yes Yes Yes Yes
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation min. max. Configuration / header Configuration software STEP 7 STEP 7 Lite configuration / programming / header Command set Nesting levels System functions (SFC) System function blocks (SFB) Programming language — LAD — FBD — STL — SCL — CFC — GRAPH	Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No see instruction list 8 see instruction list 9 Yes Yes Yes Yes Yes Yes Yes
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation • min. • max. Configuration / header Configuration software • STEP 7 • STEP 7 Lite 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	Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No see instruction list 8 see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation • min. • max. Configuration / header Configuration software • STEP 7 • STEP 7 • STEP 7 Lite 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 • Block encryption	Yes 0°C 0°C 0°C Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No see instruction list 8 see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation • min. • max. Configuration / header Configuration software • STEP 7 • STEP 7 Lite 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	Yes 600 V DC 0 °C 60 °C Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No see instruction list 8 see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation • min. • max. Configuration / header Configuration software • STEP 7 • STEP 7 • STEP 7 Lite 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 • Block encryption	Yes 600 V DC 0 °C 60 °C Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No see instruction list 8 see instruction list see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
between the channels and backplane bus Isolation Isolation tested with Ambient conditions Ambient temperature during operation min. max. configuration / header Configuration software STEP 7 STEP 7 Lite 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	Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No see instruction list 8 see instruction list Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye

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