SIMATIC S7-300, CPU 312 CPU WITH MPI INTERFACE, INTEGRATED 24 V DC POWER SUPPLY 32 KBYTE WORKING MEMORY, MICRO MEMORY CARD NECESSARY



Figure similar

General information	
Hardware product version	01
Firmware version	V3.3
Engineering with	
Programming package	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.2 + SP1 or higher with HSP 218
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
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.
Mains buffering	
Mains/voltage failure stored energy time	5 ms
• Repeat rate, min.	1 s
Input current	

Current consumption (rated value)	650 mA
Current consumption (in no-load operation), typ.	140 mA
Inrush current, typ.	3.5 A
l²t	1 A²·s
Dawar laga	
Power loss Power loss, typ.	4 W
1 Ower 1035, typ.	4 00
Memory	
Work memory	
• integrated	32 kbyte
• expandable	No
 Size of retentive memory for retentive data blocks 	32 kbyte
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.	0.1 μs
for word operations, typ.	0.24 µs
for fixed point arithmetic, typ.	0.32 µs
for floating point arithmetic, typ.	1.1 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	
Number, max.	1 024; Number range: 1 to 16000
• Size, max.	32 kbyte
FB	
Number, max.	1 024; Number range: 0 to 7999
• Size, max.	32 kbyte
FC	
Number, max.	1 024; Number range: 0 to 7999
• Size, max.	32 kbyte
OB	
Description	see instruction list
• Size, max.	32 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 startup OBs	1; OB 100
 Number of asynchronous error OBs 	4; OB 80, 82, 85, 87
 Number of synchronous error OBs 	2; OB 121, 122
Nesting depth	
per priority class	16
 additional within an error OB 	4
0	

mited only by RAM capacity)
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mited only by RAM capacity)

Data areas and their retentivity	
retentive data area in total	All (incl. memory bits, times, counters)
Flag	
• Number, max.	256 byte

	V ND 04 ND 055
Retentivity available	Yes; MB 0 to MB 255
Retentivity preset	MB 0 to MB 15
Number of clock memories	8; 1 memory byte
Data blocks	
Number, max.	1 024; Number range: 1 to 16000
• Size, max.	32 kbyte
Retentivity adjustable	Yes; via non-retain property on DB
Retentivity preset	Yes
Local data	
per priority class, max.	32 kbyte; Max. 2 KB per block
Address area	
I/O address area	
• Inputs	1 024 byte
Outputs	1 024 byte
Process image	
• Inputs	1 024 byte
• Outputs	1 024 byte
• Inputs, adjustable	1 024 byte
Outputs, adjustable	1 024 byte
• Inputs, default	128 byte
Outputs, default	128 byte
Digital channels	
• Inputs	256
— of which central	256
Outputs	256
— of which central	256
Analog channels	
• Inputs	64
— of which central	64
Outputs	64
— of which central	64
Hardware configuration	
Number of expansion units, max.	0
Number of DP masters	
• integrated	0
• via CP	4
Number of operable FMs and CPs (recommended)	
• FM	8
• CP, PtP	8
• CP, LAN	4
Rack	

Clock Software clock Petentive and synchronizable Deviation per day, max. Behavior of the clock following POWER-ON The clock continues at the time of day it had when power was switched off Operating hours counter Number Number Number Number of day it had when power was switched off Operating hours counter Number Number of digital outputs Number of digital inputs Number of digital outputs Number of day it had when power was switched off No; Buffered: No, Can be synchronized: Yes 10 s; Typ: 2 s The clock continues at the time of day it had when power was switched off Operating hours counter 1	Modules per rack, max.	8
Clock Software clock retentive and synchronizable Deviation per day, max. Behavior of the clock following POWER-ON The clock continues at the time of day it had when power was switched off Operating hours counter Number Number Number I Number/Number range O Range of values Granularity retentive Pestimate Numbrand Ves; Must be restarted at each restart Clock synchronization Supported No MPI, slave No No Digital inputs Number of digital outputs Number of digital outputs Number of analog inputs Number of analog outputs O Interfaces	Time of day	
retentive and synchronizable Deviation per day, max. Behavior of the clock following POWER-ON The clock continues at the time of day it had when power was switched off Operating hours counter Number Number Number		
Deviation per day, max. Behavior of the clock following POWER-ON The clock continues at the time of day it had when power was switched off Operating hours counter Number Number Number	Software clock	Yes
Deviation per day, max. Behavior of the clock following POWER-ON The clock continues at the time of day it had when power was switched off Derating hours counter Number Number Number	 retentive and synchronizable 	No; Buffered: No, Can be synchronized: Yes
switched off Operating hours counter Number Number Number 1 Number/Number range 0 Range of values 0 to 2^31 hours (when using SFC 101) Granularity 1 hour retentive Yes; Must be restarted at each restart Clock synchronization supported Yes to MPI, master Yes in AS, master Yes in AS, slave No Digital inputs Number of digital outputs Number of analog inputs Number of analog outputs O Interfaces	 Deviation per day, max. 	10 s; Typ.: 2 s
Number Number	Behavior of the clock following POWER-ON	
Number/Number range Range of values Range of values O to 2^31 hours (when using SFC 101) I hour Fretentive Pres; Must be restarted at each restart Clock synchronization Supported For MPI, master For MPI, slave For	Operating hours counter	
Range of values Granularity Fretentive Granularity Fretentive Fretentive Clock synchronization Supported From MPI, master From MPI, slave F	Number	1
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Clock synchronization • supported • to MPI, master • to MPI, slave • in AS, master • in AS, slave Digital inputs Number of digital inputs Number of digital outputs Number of analog inputs Number of analog outputs Number of analog outputs O Interfaces	Granularity	1 hour
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	realiber of analog outputs	U .
Number of industrial Ethernet interfaces 0		
Number of RS 485 interfaces 1; MPI		1; MPI
Number of RS 422 interfaces 0	Number of RS 422 interfaces	0
1. Interface	1. Interface	
Interface type Integrated RS 485 interface	Interface type	Integrated RS 485 interface
Physics RS 485	Physics	RS 485
Isolated No	Isolated	No
Power supply to interface (15 to 30 V DC), max. 200 mA	Power supply to interface (15 to 30 V DC), max.	200 mA
Functionality	Functionality	
• MPI Yes	• MPI	Yes

• Racks, max.

PROFIBUS DP master PROFIBUS DP slave Profit-to-point connection No MPI Transmission rate, max. Services PG/OP communication S7 basic communication S7 communication S7 communication S7 communication S7 communication S8 consecue S8 communication S9 communica		
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, as client — S7 communication, as server PG/OP communication functions PC/OP communication Possipported Possipported No Size of GD packets, max. Number of SD		
MPI	PROFIBUS DP slave	
Transmission rate, 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 — S8 communication — S7 communication, as server — S8 communication — S8 communication — S9 communication	<u> </u>	No
Services		
- PCi/OP communication - Routing - Routing - Global data communication - S7 basic communication - S7 communication - S7 communication - S7 communication, as client - S7 communication, as server Communication functions PG/OP communication - S7 communication - S8 communication - S8 communication - S9 communication -	Transmission rate, max.	187.5 kbit/s
Routing No Global data communication Yes S7 basic communication Yes S7 communication Yes S7 communication Yes S7 communication, as client No S7 communication Yes PG/OP communication S7 communication No S8 client No S8 compatible communication S8 compatible communication S7 compatible communication S7 communication S7 compatible communication S9 compatible communication S9 compatible communication S9 compatible communication S9 communication S9 communication S9 communication S9 compatible communication S9 compatible communication S9 compatible communication S9 compatible communication S9 communication	Services	
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— S7 communication Yes; Only server, configured on one side — S7 communication, as client No — S7 communication Yes Communication functions PG/OP communication PG/OP communication • supported • Number of GD loops, max. • Number of GD packets, max. • Number of GD packets, transmitter, max. • Number of GD packets, receiver, max. • Size of GD packets, max. • Size of GD packets, function (Size of GD) packets, max. • Size of GD packets, max. • Size of GD packet (of which consistent), max. S7 basic communication • supported • User data per job, max. • User data per job (of which consistent), max. S7 communication • supported • as server • as client • User data per job, max. • User data per job, max. • User data per job (of which consistent), max. S5 compatible communication • supported • Yes • as client • User data per job (of which consistent), max. S5 compatible communication • supported • Yes • as client • User data per job (of which consistent), max. S5 compatible communication • supported • Yes; via CP and loadable FC Number of connections • overall • usable for PG communication • overall • usable for PG communication	 Global data communication 	Yes
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Number of GD packets, receiver, max. Size of GD packets, max. Size of GD packet (of which consistent), max. Size of GD packet (of which consistent), max. Stassic communication Supported Supported Supported Super data per job, max. Super data per job (of which consistent), max. Supported Suppor	 Number of GD packets, max. 	8
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S5 compatible communication • supported Yes; via CP and loadable FC Number of connections • overall • usable for PG communication 5	 User data per job, max. 	180 byte; With PUT/GET
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Number of connections • overall 6 • usable for PG communication 5	S5 compatible communication	
 overall usable for PG communication 5 	• supported	Yes; via CP and loadable FC
• usable for PG communication 5	Number of connections	
	• overall	6
— reserved for PG communication 1	 usable for PG communication 	5
	 reserved for PG communication 	1

1
5
5
1
1
5
2
0
0
2

 adjustable for S7 basic communication, 	2	
max.		
S7 message functions		
Number of login stations for message functions, max.	6; 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 control variables, max.	14	
Forcing		
• Forcing	Yes	
• Forcing, variables	Inputs, outputs	
 Number of variables, max. 	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	
— can be set	Yes; From 10 to 499	
— preset	10	
Service data		

• can be read out

Yes

Ambient temperature during operation 0°C • min. 60 °C • max. Configuration Configuration software Yes; V5.2 SP1 or higher with HW update • STEP 7 Programming see instruction list • Command set 8 Nesting levels see instruction list • System functions (SFC) • System function blocks (SFB) see instruction list Programming language — LAD Yes Yes — FBD Yes -STLYes - SCL Yes — GRAPH Yes - HiGraph® Know-how protection Yes • User program protection/password protection Yes; With S7 block Privacy • Block encryption Width 40 mm Height 125 mm Depth 130 mm Weights Weight, approx. 270 g 08/12/2017

last modified: