SIEMENS

*** SPARE PART*** SIMATIC S7-300, CPU 317F-2DP, CENTRAL PROCESSING UNIT WITH 1024 KBYTE WORKING MEMORY, 1. INTERFACE MPI/DP 12MBIT/S, 2. INTERFACE DP-MASTER/SLAVE, MICRO MEMORY CARD NECESSARY FOR USE WITH SOFTWARE OPTION S7 DISTRIBUTED SAFETY V5.2 SP1 AND HIGHER

Figure similar

General information	
Hardware product version	01
Firmware version	V2.6
Engineering with	
• Programming package	STEP 7 V5.2 SP1 or higher with hardware update; S7 Distributed Safety V5.2 SP1 or higher

Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
external protection for power supply lines (recommendation)	2 A min.

Input current	
Current consumption (in no-load operation), typ.	100 mA
Inrush current, typ.	2.5 A
I²t	1 A²·s

Power loss	
Power loss, typ.	4 W

Memory	
Work memory	
• integrated	1 024 kbyte
• expandable	No
Load memory	
• Plug-in (MMC)	Yes
• Plug-in (MMC), max.	8 Mbyte
• Data management on MMC (after last programming), min.	10 y
Backup	
• present	Yes; Guaranteed by MMC (maintenance-free)
• without battery	Yes; Program and data

CPU processing times	
for bit operations, typ.	0.05 μs
for bit operations, max.	0.05 μs
for word operations, typ.	0.2 μs
for fixed point arithmetic, typ.	0.2 μs
for floating point arithmetic, typ.	1 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.	2 047; Number band: 1 to 2047
• Size, max.	64 kbyte
FB	
• Number, max.	2 048; Number range: 0 to 2047
• Size, max.	64 kbyte
FC	
• Number, max.	2 048; Number range: 0 to 2047
• Size, max.	64 kbyte
OB	
• Description	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

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● Number of isochronous mode OBs	1; OB 61
● 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	512
of which retentive without battery	
— can be set	Yes
— preset	8
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	511
— preset	8
Counting range	
— can be set	Yes
— lower limit	0
— upper limit	999
IEC counter	
● present	Yes
● Type	SFB
● Number	Unlimited (limited only by RAM capacity)
S7 times	
● Number	512
of which retentive without battery	
— adjustable	Yes
— lower limit	0
— upper limit	511
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	

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• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)

Data areas and their retentivity

retentive data area in total	All, max. 256 KB

Flag

• Number, max.	4 096 byte
• Retentivity available	Yes; From MB 0 to MB 4095
• Retentivity preset	MB 0 to MB 15
• Number of clock memories	8; 1 memory byte

Data blocks

• Number, max.	2 047; from DB 1 to DB 2047
• Size, max.	64 kbyte
• Retentivity adjustable	Yes; via non-retain property on DB
• Retentivity preset	Yes

Local data

• per priority class, max.	1 024 byte

Address area

I/O address area

• Inputs	8 kbyte
• Outputs	8 kbyte

of which distributed

— Inputs	8 kbyte
— Outputs	8 kbyte

Process image

• Inputs	1 024 byte
• Outputs	1 024 byte

Digital channels

• Inputs	65 536
— of which central	1 024
• Outputs	65 536
— of which central	1 024

Analog channels

• Inputs	4 096
— of which central	256
• Outputs	4 096
— of which central	256

Hardware configuration

Number of expansion units, max.	3
Number of DP masters	

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• integrated	2
• via CP	4
Number of operable FMs and CPs (recommended)	
• FM	8
• CP, PtP	8
• CP, LAN	10
Rack	
• Racks, max.	4
• 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
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 hour
• retentive	Yes; Must be restarted at each restart
Clock synchronization	
• supported	Yes
• to MPI, master	Yes
• to MPI, slave	Yes
• to DP, master	Yes; With DP slave only slave clock
• to DP, slave	Yes
• in AS, master	Yes
• in AS, slave	Yes

Digital inputs

integrated channels (DI)	0

Digital outputs

integrated channels (DO)	0

Analog inputs

integrated channels (AI)	0

Analog outputs

integrated channels (AO)	0

Interfaces

Number of industrial Ethernet interfaces	0

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Number of RS 485 interfaces	2
Number of RS 422 interfaces	0

1. Interface	
Interface type	Integrated RS 485 interface
Physics	RS 485
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	200 mA
Functionality	
• MPI	Yes
• PROFIBUS DP master	Yes
• PROFIBUS DP slave	Yes
• Point-to-point connection	No
MPI	
• Number of connections	32
• Transmission rate, max.	12 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes
DP master	
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	124
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	No
— SYNC/FREEZE	Yes
— Activation/deactivation of DP slaves	Yes
— DPV1	Yes
Address area	
— Inputs, max.	244 byte

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— Outputs, max.	244 byte
DP slave	
• Transmission rate, max.	12 Mbit/s
• automatic baud rate search	Yes; only with passive interface
• Address area, max.	32
• User data per address area, max.	32 byte
Services	
— 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 server	Yes
— Direct data exchange (slave-to-slave communication)	Yes
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2. Interface	
Interface type	Integrated RS 485 interface
Physics	RS 485
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	200 mA
Functionality	
• MPI	No
• PROFIBUS DP master	Yes
• PROFIBUS DP slave	Yes
• Point-to-point connection	No
DP master	
• Number of connections, max.	32
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	124
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes

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— Equidistance	Yes
— Isochronous mode	Yes; OB 61
— SYNC/FREEZE	Yes
— Activation/deactivation of DP slaves	Yes
— DPV1	Yes
Address area	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
DP slave	
• Number of connections	32
• GSD file	The latest GSD file is available at: http://www.siemens.com/profibus-gsd
• Transmission rate, max.	12 Mbit/s
• automatic baud rate search	Yes; only with passive interface
• Address area, max.	32
• User data per address area, max.	32 byte
Services	
— PG/OP communication	Yes
— Routing	Yes; with interface active
— Global data communication	No
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes
— Direct data exchange (slave-to-slave communication)	Yes
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
Communication functions	
PG/OP communication	Yes
Global data communication	
• supported	Yes
• Number of GD loops, max.	8
• Number of GD packets, max.	8
• Number of GD packets, transmitter, max.	8
• Number of GD packets, receiver, max.	8
• Size of GD packets, max.	22 byte
• Size of GD packet (of which consistent), max.	22 byte
S7 basic communication	

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● supported	Yes
● User data per job, max.	76 byte
● User data per job (of which consistent), max.	76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)
S7 communication	
● supported	Yes
● as server	Yes
● as client	Yes; Via CP and loadable FB
● User data per job, max.	180 byte; With PUT/GET
● User data per job (of which consistent), max.	160 byte; as server
S5 compatible communication	
● supported	Yes; via CP and loadable FC
Number of connections	
● overall	32
● usable for PG communication	31
— reserved for PG communication	1
— adjustable for PG communication, min.	1
— adjustable for PG communication, max.	31
● usable for OP communication	31
— reserved for OP communication	1
— adjustable for OP communication, min.	1
— adjustable for OP communication, max.	31
● usable for S7 basic communication	30
— reserved for S7 basic communication	0
— adjustable for S7 basic communication, min.	0
— adjustable for S7 basic communication, max.	30
● usable for routing	8
S7 message functions	
Number of login stations for message functions, max.	32; Depending on the configured connections for PG/OP and S7 basic communication
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	60
Test commissioning functions	
Status block	Yes
Single step	Yes
Number of breakpoints	2
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.	100
— adjustable	No
Configuration	
Configuration software	
● STEP 7	Yes; V5.2 SP1 or higher
Programming	
● Command set	see instruction list
● Nesting levels	8
● System functions (SFC)	see instruction list
● System function blocks (SFB)	see instruction list
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
Know-how protection	
● User program protection/password protection	Yes
Dimensions	
Width	80 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	460 g
last modified:	03/23/2017