SIMATIC S7-300, CPU 315F-2DP Fail-safe module with MPI Integr. power supply 24 V DC, Work memory 384 KB, 40 mm width, 2nd interface DP master/slave Micro Memory Card required



Figure similar

General information	
HW functional status	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 + Distributed Safety
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)	850 mA
Current consumption (in no-load operation), typ.	150 mA
Inrush current, typ.	3.5 A
l ² t	1 A ² ·s
Power loss	
Power loss, typ.	4.5 W
Memory	
Work memory	
• integrated	384 kbyte
expandable	No
Size of retentive memory for retentive data blocks	128 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.	0.05 µs
for word operations, typ.	0.09 µs
for fixed point arithmetic, typ.	0.12 µs
for floating point arithmetic, typ.	0.45 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.	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	
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
 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	256
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	255
— 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
— lower limit	0
— upper limit	255
— 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 in total	All, 128 KB max.
Flag	
Number, max.	2 048 byte
Retentivity available	Yes; MB 0 to MB 2 047
 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 kbyte; Max. 2 KB per block
Address area	
I/O address area	0.0401.4
• Inputs	2 048 byte
Outputs	2 048 byte
of which distributed	
— Inputs	2 048 byte
— Outputs	2 048 byte
Process image	
• Inputs	2 048 byte
Outputs	2 048 byte
Inputs, adjustable	2 048 byte
 Outputs, adjustable 	2 048 byte
Inputs, default	384 byte
Outputs, default	384 byte
Subprocess images	
Number of subprocess images, max.	1
Digital channels	
• Inputs	16 384
— of which central	1 024
Outputs	16 384
— of which central	1 024
Analog channels	
• Inputs	1 024
— of which central	256
Outputs	1 024
— of which central	256
Hardware configuration	
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	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; 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 	Clock continues to run with the time at which the power failure occurred
Operating hours counter	
• Number	1
 Number/Number range 	0
 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; With DP slave only slave clock
• to DP, slave	Yes
● in AS, master	Yes
• in AS, slave	No
Digital inputs	
Number of digital inputs	0
Digital outputs	
Number of digital outputs	0
Analog inputs	
Number of analog inputs	0
Analog outputs	
Number of analog outputs	0

Number of Industrial Ethernet Interfaces 0	Interfaces	
Number of RS 485 interfaces 2	Number of industrial Ethernet interfaces	0
Number of RS 422 interfaces 1. Interface Interface type Interface type RS 485 Interface Protocols Interface Interface Interface Interface Interface Interface type Interface type Interface (15 to 30 V DC), max. Protocols Interface type Interface Interface (15 to 30 V DC), max. Protocols In	Number of PROFINET interfaces	0
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Interface type	Number of RS 422 interfaces	0
Physics RS 485 Isolated No Power supply to interface (15 to 30 V DC), max. 200 mA Protocols • MPI Yes • PROFIBUS DP master No • PROFIBUS DP slave No • Point-to-point connection No MPI • Transmission rate, max. 187.5 kbit/s Services — PC/OP communication Yes — Routing Yes — Global data communication Yes — S7 basic communication Yes — S7 communication Yes; Only server, configured on one side — S7 communication, as client No — S7 communication, as server Yes 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 Protocols • MPI • PROFIBUS DP master Yes • PROFIBUS DP master Yes • PROFIBUS DP master • PROFIBUS DP master • PROFIBUS DP master • Transmission rate, max. 12 Mbit/s • Number of DP slaves, max. 124; Per station Services — PG/OP communication Yes	1. Interface	
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— PG/OP communication Yes		124; Per station
— Routing Yes	— PG/OP communication	
	— Routing	Yes

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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 Address area, max. 32 User data per address area, max. 32 Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S8 cover yes Direct data exchange (slave-to-slave communication) DPV1 No Transfer memory Inputs Outputs Sechronous mode Isochronous operation (application synchronized up	·	244 byte
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 Transmission rate, max. 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, as client S7 communication, as server Direct data exchange (slave-to-slave communication) DPV1 Transfer memory Isochronous mode Isochronous mode Isochronous operation (application synchronized up Yes Tyes; Only with active interface No Yes; Only server, configured on one side No Yes Use Use<!--</td--><td>● GSD file</td><td></td>	● GSD file	
automatic baud rate search Address area, max. User data per address area, max. 22 byte Services - PG/OP communication Routing - Global data communication No S7 basic communication S7 communication Yes; Only with active interface Ves; Only server, configured on one side S7 communication Ves; Only server, configured on one side S7 communication, as client S7 communication, as server Direct data exchange (slave-to-slave communication) DPV1 No Transfer memory Inputs Outputs Sechronous mode Isochronous operation (application synchronized up	Transmission rate may	
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 - S7 communication, as client - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 Transfer memory - Inputs - Outputs - Outputs - Ves - Outputs - S2 data exchange (slave-to-slave communication) - DPV1 - Inputs - Outputs - Ves - Outputs - S244 byte		
● User data per address area, max. Services - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication, as client - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs - Outputs Sochronous mode		
Services - PG/OP communication Yes - Routing Yes; Only with active interface - Global data communication No - S7 basic communication No - S7 communication Yes; Only server, configured on one side - S7 communication, as client No - S7 communication, as server Yes - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs 244 byte Isochronous mode Isochronous operation (application synchronized up Yes		
- PG/OP communication Yes - Routing Yes; Only with active interface - Global data communication No - S7 basic communication No - S7 communication Yes; Only server, configured on one side - S7 communication, as client No - S7 communication, as server Yes - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs 244 byte Isochronous mode Isochronous operation (application synchronized up Yes		
 Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication, as client S7 communication, as server S7 communication, as server Direct data exchange (slave-to-slave communication) DPV1 No Transfer memory Inputs Outputs Isochronous mode Isochronous operation (application synchronized up Yes Only with active interface No Yes; Only with active interface No Yes; Only with active interface No Yes; Only with active interface No Yes Only with active interface No Yes 		Yes
- Global data communication No - S7 basic communication No - S7 communication Yes; Only server, configured on one side - S7 communication, as client No - S7 communication, as server Yes - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs 244 byte - Outputs 244 byte Isochronous mode Isochronous operation (application synchronized up Yes		Yes; Only with active interface
- S7 communication Yes; Only server, configured on one side - S7 communication, as client No - S7 communication, as server Yes - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs 244 byte - Outputs 244 byte Isochronous mode Isochronous operation (application synchronized up Yes		
— S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs — Outputs Isochronous mode Isochronous operation (application synchronized up Yes	 S7 basic communication 	No
- S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs - Outputs Isochronous mode Isochronous operation (application synchronized up Yes	— S7 communication	Yes; Only server, configured on one side
- Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs - Outputs Isochronous mode Isochronous operation (application synchronized up Yes	 S7 communication, as client 	No
communication) — DPV1 No Transfer memory — Inputs — Outputs Isochronous mode Isochronous operation (application synchronized up Yes	 S7 communication, as server 	Yes
Transfer memory — Inputs — Outputs 244 byte 244 byte Isochronous mode Isochronous operation (application synchronized up Yes		Yes
 — Inputs — Outputs Isochronous mode Isochronous operation (application synchronized up Yes 	— DPV1	No
— Outputs 244 byte Isochronous mode Isochronous operation (application synchronized up Yes	Transfer memory	
Isochronous mode Isochronous operation (application synchronized up Yes	— Inputs	244 byte
Isochronous operation (application synchronized up	— Outputs	244 byte
Isochronous operation (application synchronized up	Isochronous mode	
to terminal)	Isochronous operation (application synchronized up	Yes
	to terminal)	

Communication functions	
PG/OP communication	Yes
Data record routing	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	
• 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. 	240 byte; as server
S5 compatible communication	
• supported	Yes; via CP and loadable FC
Number of connections	
• overall	16
 usable for PG communication 	15
 reserved for PG communication 	1
 adjustable for PG communication, min. 	1
 adjustable for PG communication, max. 	15
 usable for OP communication 	15
 reserved for OP communication 	1
— adjustable for OP communication, min.	1
— adjustable for OP communication, max.	15
 usable for S7 basic communication 	12
 reserved for S7 basic communication 	0
 adjustable for S7 basic communication, min. 	0
 adjustable for S7 basic communication, max. 	12

Number of login stations for message functions, max.	16; 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.	,,
— adjustable	Yes; From 10 to 499
•	10
— preset Service data	10
	Voc
● can be read out	Yes
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	60 °C
Configuration	
Configuration software	
• STEP 7	Yes; V5.2 SP1 or higher with HW update
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
osci program protestion/password protestion	
Block encryption	Yes; With S7 block Privacy
Block encryption	
Block encryption Dimensions	Yes; With S7 block Privacy
Block encryption Dimensions Width	Yes; With S7 block Privacy 40 mm
Block encryption Dimensions Width Height	Yes; With S7 block Privacy 40 mm 125 mm
Block encryption Dimensions Width Height Depth	Yes; With S7 block Privacy 40 mm 125 mm