SIEMENS

Data sheet

6ES7315-6FF04-0AB0

SIMATIC S7-300, CPU 315F-2DP FAILSAFE CPU WITH MPI INTERFACE INTEGRATED 24V DC POWER SUPPLY, 384 KB WORKING MEMORY, 40MM WIDE, 2. INTERFACE DP-MASTER/SLAVE MICRO MEMORY CARD REQUIRED



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 + 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
2 _t	1 A ² ·s
Dawar laga	
Power loss Power loss, typ.	4.5 W
1 Ower 1035, typ.	7.0 11
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
Countary timers and their retentivity	

additional within an end ob	
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 2047
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.	64 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	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 	Clock continues to run with the time at which the power failure
period	occurred
Operating hours counter	
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
● 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

Number of analog outputs 0	Analog outputs	
Number of Industrial Ethernet interfaces 0 Number of RS 485 interfaces 2 Number of RS 422 interfaces 0 Interface type	Number of analog outputs	0
Number of Industrial Ethernet interfaces 0 Number of RS 485 interfaces 2 Number of RS 422 interfaces 0 Interface type	Interfaces	
Number of RS 422 interfaces		0
Interface Interface type Integrated RS 485 interface Physics RS 485 isolated Power supply to interface (15 to 30 V DC), max. 200 mA Functionality Yes PROFIBUS DP master No Point-to-point connection No Point-to-point connection Yes PG/OP communication Yes PG/OP communication Yes PS accommunication Yes PS accommunication Yes PS communication As server Yes PS communication As server Yes PS communication Yes PS communication As server Yes PS communication Yes PS contraction Yes PS communication Yes PS communication Yes PS contraction	Number of RS 485 interfaces	2
Integrated RS 485 interface Physics RS 485 RS 485	Number of RS 422 interfaces	0
Integrated RS 485 interface Physics RS 485 RS 485	1. Interface	
Isolated No Power supply to interface (15 to 30 V DC), max. 200 mA Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection No MPI • Transmission rate, max. 187.5 kbit/s Services - PG/OP communication 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 Pinterface Interface type Integrated RS 485 interface Power supply to interface (15 to 30 V DC), max. 200 mA Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection P MSI • PROFIBUS DP slave • Point-to-point connection No DP master • Transmission rate, max. 12 Mbit/s • Number of DP slaves, max. 12 Mbit/s • Number of DP slaves, max. 12 Mbit/s • Services		Integrated RS 485 interface
Fower supply to interface (15 to 30 V DC), max. Functionality MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection No MPI Transmission rate, max. Services PG/OP communication Routing Global data communication S7 communication S7 communication S7 communication, as client S7 communication, as server Physics RS 485 Isolated Power supply to interface (15 to 30 V DC), max. Functionality MPI PROFIBUS DP master PROFIBUS DP master PROFIBUS DP master PROFIBUS DP master PROFIBUS DP slave Point-to-point connection P master Transmission rate, max. Punctionality Pmaster Transmission rate, max. Promission rate, max. Promission rate, max. Punction DP slaves, max. Punction Services 20 mA Per station 200 mA Per station 200 mA Point-to-point connection No PD master Transmission rate, max. Punction DP slaves, max. Punction Services	Physics	RS 485
Functionality • 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, as client - S7 communication, as server 2. Interface type Physics Isolated Power supply to interface (15 to 30 V DC), max. Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection No DP master • Transmission rate, max. • 12 Mbit/s • Number of DP slaves, max. Services	Isolated	No
MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection No MPI Transmission rate, max. 187.5 kbit/s Services PG/OP communication Routing Global data communication Sf basic communication Sf communication, as client Sf communication, as server Physics Interface type Interface type Interface type Interface type Physics RS 485 Isolated Power supply to interface (15 to 30 V DC), max. Functionality MPI PROFIBUS DP master PROFIBUS DP master PROFIBUS DP slave Point-to-point connection No PP master Transmission rate, max. Point-to-point connection No PP master Transmission rate, max. Number of DP slaves, max. Services	Power supply to interface (15 to 30 V DC), max.	200 mA
PROFIBUS DP master PROFIBUS DP slave Point-to-point connection No MPI Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 basic communication S7 communication, as client S7 communication, as server No S8 description S9 communication, as server Physics RS 485 Solated Physics RS 485 Solated Yes Power supply to interface (15 to 30 V DC), max. Punctionality MPI PROFIBUS DP master PROFIBUS DP master PROFIBUS DP slave Point-to-point connection No PM description PROFIBUS DP slave Point-to-point connection No PM master Transmission rate, max. Pumble of DP slaves, max. Pumble of DP slaves, max. Services	Functionality	
PROFIBUS DP slave Point-to-point connection No MPI Transmission rate, max. Services PG/OP communication Routing Ps sic communication Ps space communication	• MPI	Yes
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, as client — S7 communication, as server 2. Interface Interface type Interface type Interface type Power supply to interface (15 to 30 V DC), max. Power supply to interface (15 to 30 V DC), max. PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PD master Transmission rate, max. Number of DP slaves, max. Services 1825. 187.5 kbit/s 187.5 kbit/	 PROFIBUS DP master 	No
● Transmission rate, max. Services - PG/OP communication Yes - Routing Yes - Global data communication Yes - S7 basic 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. Power supply to interface (15 to 30 V DC), max. Functionality ● MPI No - PROFIBUS DP master - PROFIBUS DP slave - Point-to-point connection No DP master ● Transmission rate, max Number of DP slaves, max. 12 Mbit/s - Number of DP slaves, max. 124; Per station Services	 PROFIBUS DP slave 	No
● Transmission rate, max. Services	Point-to-point connection	No
Services - PG/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 Functionality • MPI No - PROFIBUS DP master Yes - PROFIBUS DP slave Yes - Point-to-point connection No DP master • Transmission rate, max. 12 Mbit/s - Number of DP slaves, max. Services	MPI	
PG/OP communication Pes Routing Pes Global data communication Pes S7 basic communication Pes S7 communication Pes; Only server, configured on one side S7 communication, as client Pes S7 communication, as server Pes Interface Interface type Interface type RS 485 Isolated Power supply to interface (15 to 30 V DC), max. Penctionality MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection Praster Transmission rate, max. Name Name Power station Per station Per station Per station Per station Services	Transmission rate, max.	187.5 kbit/s
- Routing Yes - Global data communication Yes - S7 basic 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 Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection No DP master • Transmission rate, max. • Number of DP slaves, max. Services	Services	
- Global data communication Yes - S7 basic 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 Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection No DP master • Transmission rate, max. 12 Mbit/s • Number of DP slaves, max. 124; Per station Services	— PG/OP communication	Yes
— S7 basic 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 Functionality • MPI No • PROFIBUS DP master Yes • PROFIBUS DP slave Yes • Point-to-point connection No DP master • Transmission rate, max. 12 Mbit/s • Number of DP slaves, max. 124; Per station Services	— Routing	Yes
— S7 communication Yes; Only server, configured on one side — S7 communication, as client No — S7 communication, as server Yes 2. Interface 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 • Transmission rate, max. 12 Mbit/s • Number of DP slaves, max. 124; Per station Services	 Global data communication 	Yes
— S7 communication, as client — S7 communication, as server 2. Interface Interface type Interface type Physics RS 485 Isolated Power supply to interface (15 to 30 V DC), max. Power supply to interface (15 to 30 V DC), max. Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection DP master • Transmission rate, max. • Number of DP slaves, max. • Number of DP slaves, max. Services	 — S7 basic communication 	Yes
— S7 communication, as server 2. Interface Interface type Physics Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. 200 mA Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection DP master • Transmission rate, max. • Number of DP slaves, max. Services Yes Yes 124; Per station	— S7 communication	Yes; Only server, configured on one side
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 • Transmission rate, max. 12 Mbit/s • Number of DP slaves, max. Services	 S7 communication, as client 	No
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 • Transmission rate, max. 12 Mbit/s • Number of DP slaves, max. 124; Per station Services	— S7 communication, as server	Yes
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 • Transmission rate, max. 12 Mbit/s • Number of DP slaves, max. 124; Per station Services	2. Interface	
Isolated Yes Power supply to interface (15 to 30 V DC), max. Functionality MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection DP master Transmission rate, max. No 12 Mbit/s Number of DP slaves, max. Services		Integrated RS 485 interface
Power supply to interface (15 to 30 V DC), max. Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection DP master • Transmission rate, max. • Number of DP slaves, max. Services	Physics	RS 485
Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection DP master • Transmission rate, max. • Number of DP slaves, max. Services	Isolated	Yes
 MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection No DP master Transmission rate, max. Number of DP slaves, max. Services 12 Mbit/s 124; Per station 	Power supply to interface (15 to 30 V DC), max.	200 mA
 PROFIBUS DP master PROFIBUS DP slave Point-to-point connection No DP master Transmission rate, max. Number of DP slaves, max. Services Yes Yes Yes No 12 Mbit/s 124; Per station Services	Functionality	
PROFIBUS DP slave Point-to-point connection No DP master Transmission rate, max. Number of DP slaves, max. 12 Mbit/s 124; Per station Services	• MPI	No
Point-to-point connection No DP master Transmission rate, max. Number of DP slaves, max. Services No 12 Mbit/s 124; Per station	 PROFIBUS DP master 	Yes
DP master • Transmission rate, max. • Number of DP slaves, max. Services 12 Mbit/s 124; Per station	 PROFIBUS DP slave 	Yes
 Transmission rate, max. Number of DP slaves, max. Services 	 Point-to-point connection 	No
• Number of DP slaves, max. 124; Per station Services	DP master	
Services	Transmission rate, max.	12 Mbit/s
	 Number of DP slaves, max. 	124; Per station
— PG/OP communication Yes	Services	
	— PG/OP communication	Yes

— Routing	Yes
 Global data communication 	No
 S7 basic communication 	Yes; I blocks only
— S7 communication	Yes; Only server, configured on one side
 S7 communication, as client 	No
 S7 communication, as server 	Yes
— Equidistance	Yes
— Isochronous mode	Yes; OB 61
— SYNC/FREEZE	Yes
 Activation/deactivation of DP slaves 	Yes
 Number of DP slaves that can be simultaneously activated/deactivated, max. 	8
— DPV1	Yes
Address area	
— Inputs, max.	2 048 byte
— Outputs, max.	2 048 byte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
DP slave	
• 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	V
— PG/OP communication	Yes
— Routing	Yes; Only with active interface
— Global data communication	No No
— S7 basic communication	No
— S7 communication	Yes; Only server, configured on one side No
— S7 communication, as client	Yes
— S7 communication, as server	Yes
 — Direct data exchange (slave-to-slave communication) 	165
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
Isochronous mode	

Isochronous operation (application synchronized up to terminal)	Yes
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

7 message functions	
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
est 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.	
— can be set	Yes; From 10 to 499
— preset	10
Service data	
• 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	
 Block encryption 	Yes; With S7 block Privacy	
Dimensions		
Width	40 mm	
Height	125 mm	
Depth	130 mm	
Weights		
Weight, approx.	290 g	
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