SIEMENS

Data sheet

6ES7317-6FF04-0AB0



SIMATIC S7-300, CPU 317F-2DP, Central processing unit with 1.5 MB work memory, 1st interface MPI/DP 12 Mbit/s, 2nd interface DP master/slave Micro Memory Card required Can be used with software package S7 Distributed Safety V5.2 SP1 or higher

General information	
Product type designation	CPU 317F-2 DP
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 202 + Distributed Safety
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)	2 A min.
Input current	
Current consumption (rated value)	870 mA
Current consumption (in no-load operation), typ.	120 mA
Inrush current, typ.	4 A
I²t	1 A ² ·s
Power loss	
Power loss, typ.	4.5 W
Memory	
Work memory	
• integrated	1 536 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.	0.025 μs
for word operations, typ.	0.03 µs
for fixed point arithmetic, typ.	0.04 µs
for floating point arithmetic, typ.	0.16 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.	2 048; Number range: 1 to 16000

• Size, max.	64 kbyte
FB	OF ROSE
Number, max.	2 048; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
Number, max.	2 048; Number range: 0 to 7999
• Size, max.	64 kbyte
ОВ	
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 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
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	512
Retentivity	
— adjustable	Yes
— preset	No retentivity
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	Ver
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	256 khyta
Retentive data area (incl. timers, counters, flags), max.	256 kbyte
Flag ◆ Size, max.	4 096 byte
Retentivity available	Yes; From MB 0 to MB 4 095
Retentivity available Retentivity preset	MB 0 to MB 15
Number of clock memories	8; 1 memory byte
Number of clock memories Data blocks	o, i illellioly byte
Retentivity adjustable	Yes; via non-retain property on DB
Retentivity adjustable Retentivity preset	Yes
Local data	
 per priority class, max. 	32 768 byte; Max. 2048 bytes per block

Address area	
I/O address area	
• Inputs	8 192 byte
Outputs	8 192 byte
of which distributed	·
— Inputs	8 192 byte
— Outputs	8 192 byte
Process image	
• Inputs	8 192 byte
Outputs	8 192 byte
Inputs, adjustable	8 192 byte
Outputs, adjustable	8 192 byte
Inputs, default	1 024 byte
Outputs, default	1 024 byte
Subprocess images	1 024 byte
Number of subprocess images, max.	1
	<u>'</u>
Digital channels • Inputs	65 536
Inputs — 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	
• 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
Fime 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. Rehavior of the clock following POWER ON	10 s; Typ.: 2 s
Behavior of the clock following POWER-ON Pohavior of the clock following expire of healtyn period	Clock continues running after POWER OFF
Behavior of the clock following expiry of backup period Operating hours counter.	the clock continues at the time of day it had when power was switched off
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 h
retentive	Yes; Must be restarted at each restart
Clock synchronization	
supported	Yes
	Yes Yes
• supported	
supportedto MPI, master	Yes
supportedto MPI, masteron MPI, device	Yes Yes
 supported to MPI, master on MPI, device to DP, master 	Yes Yes; With DP slave only slave clock

on Ethernet via NTP	No
Digital inputs	
Number of digital inputs	0
Digital outputs	
Number of digital outputs	0
Analog inputs	•
Number of analog inputs	0
Interfaces	
Number of PROFINET interfaces	0
Number of RS 485 interfaces	2
Number of RS 422 interfaces	0
1. Interface	•
Interface type	Integrated RS 485 interface
Isolated	Yes
Interface types	
• RS 485	Yes
Output current of the interface, max.	200 mA
Protocols	
• MPI	Yes
PROFIBUS DP master	Yes
PROFIBUS DP device	Yes; A DP slave at both interfaces simultaneously is not possible
Point-to-point connection	No
MPI	
Transmission rate, max.	12 Mbit/s
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; but via CP and loadable FB
— S7 communication, as server	Yes
PROFIBUS DP master	
Transmission rate, max.	12 Mbit/s
max. number of DP devices	124
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	No
— 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.	8 kbyte
— Outputs, max.	8 kbyte
User data per DP device	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
1st interface / PROFIBUS DP device / header	
Transmission rate, max.	12 Mbit/s
automatic baud rate search	Yes; only with passive interface

• Used data per address area. max. Services P-C/CP Communication Routing Global data communication ST basic communication No ST basic communication No ST basic communication ST organization. as cleant ST communication, as cleant ST communication, as cleant ST communication, as cleant No Direct data exchange (slave-to-slave communication) — DIPV1 No Transfer memory — Inputs Q-Upture State State - Coupture State - Co	Address area, max.	32
Services - PGICP communication - Routing - Clobed data communication - ST communication - DIV1 - Injust - Liputs - Li		
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Routing Circle data communication No No No ST basic communication No ST basic communication No ST communication satient No ST communication, as actient No Drevi Direct data exchange (slave-lo-slave communication) No Drevi No Drevi No Transfer memory Impus 244 byte Couputs 244 byte 244		Yes
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	-	
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communication)		Yes; Connection configured on one side only
Transfer memory - Inputs - Outputs 244 byte - Outputs 244 byte 244 byte 244 byte 245 byte 246 byte 246 byte 247 byte 248 byte 248 byte 248 byte 248 byte 248 byte 248 byte 25 blooted 26 blooted 27 blooted 28 blooted 38 blooted 39 blooted 30 b	— Direct data exchange (slave-to-slave	Yes
Transfer memory - Inputs - Outputs 244 byte 2-Interface Interface byte Isolated Yes Interface byte Interface		
Injusts		No
- Outputs 2 Interface Interface type Interface type Isolated Pres RS 485 RS 485 - Output current of the interface, max. 200 mA Protocols - MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master PROFIBUS DP device Point-to-point connection PROFIBUS DP master Transmission rate, max Transmission rate, max Transmission rate, max PROFIBUS DP master Transmission rate, max Transmission rate, max PROFIBUS DP master Transmission rate, max Transmission rate, max PROFIBUS DP master Transmission rate, max PROFIBUS DP master Transmission rate, max Transmission rate, max PROFIBUS DP master Transmission rate, max PROFIBUS DP devices that can be a calvated/decadvated at the same time Profice data exchange (slave-to-slave communication) DPV1 Tyes Transmission rate, max Address area Profibus max PROFIBUS DP device / header Transmission rate, max Address area, max Uper data per address area, max Services		044 h. 4-
Interface Interface Integrated RS 485 interface Interface Yes	·	
Interface type Interface types • RS 485 • Output current of the interface, max. • PROFIBUS DP master • PROFIBUS DP master • PROFIBUS DP device • Point-to-point connection • PROFIBUS DP master • PROFIBUS DP device • Point-to-point connection • PROFIBUS DP master • PROFIBUS DP master • PROFIBUS DP device • Point-to-point connection • No PROFIBUS DP device • Point-to-point connection • No PROFIBUS DP master • Transmission rate, max. • max. number of DP devices - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication - S7 communication, as client - S7 communication, as client - S7 communication, as server - Equidistance - S7 communication, as server - Equidistance - SNOF/FREEZE - activation/deactivation of DP devices - snort/PROFIBUS DP device - Inputs, max Outputs, max Outputs, max Outputs, max Outputs, max Outputs, max Address area - Inputs, max Address area - GSD file - Transmission rate, max Address area, max Address area, max User data per OP device / header - Address area, max Outputs, max Outputs, max Outputs, max Address area, max User data per address area, max Outputs area User data per address area, max Outputs area User data per address area, max Outputs,	·	244 byte
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- S7 communication, as server - Equidistance - Isochronous mode - SYNC/FREZE - activation/deactivation of DP devices - max, number of DP devices that can be activated/deactivated at the same time - Direct data exchange (slave-to-slave communication) - DPV1 - Yes Address area - Inputs, max Outputs, max Osp file - Fransmission rate, max Address area - Inputs area - Inputs, max Outputs, max Outputs	— S7 communication	Yes; Only server, configured on one side
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- Inputs, max Outputs, max. 244 byte 2nd interface / PROFIBUS DP device / header • GSD file The latest GSD file is available on the Internet (http://www.siemens.com/profibus-gsd) • Transmission rate, max. 12 Mbit/s • automatic baud rate search Address area, max. • Address area, max. • User data per address area, max. Services	— Outputs, max.	8 192 byte
- Outputs, max. 244 byte 2nd interface / PROFIBUS DP device / header • GSD file The latest GSD file is available on the Internet (http://www.siemens.com/profibus-gsd) • Transmission rate, max. 12 Mbit/s • automatic baud rate search • Address area, max. • User data per address area, max. 32 byte Services	User data per DP device	
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 Address area, max. User data per address area, max. Services 	 Transmission rate, max. 	12 Mbit/s
User data per address area, max. Services 32 byte	automatic baud rate search	Yes; only with passive interface
Services	 Address area, max. 	32
	User data per address area, max.	32 byte
— PG/OP communication Yes		
	— PG/OP communication	Yes

Doubles	Voca Only with active interfere
— 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; but via CP and loadable FB
— S7 communication, as server	Yes
 — Direct data exchange (slave-to-slave communication) 	Yes
— DPV1	No
Transfer memory	NO
— Inputs	244 byte
— Outputs	244 byte
Protocols	244 byte
PROFIsafe	No
communication functions / header	NO
	Von
PG/OP communication	Yes
Data record routing	Yes
Global data communication	Von
Supported Alumber of CD leave may	Yes
Number of GD loops, max. Number of GD module, 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	40 001 (01)
• supported	Yes
as server	Yes
• as client	Yes; Via CP and loadable FB
User data per job, max.	See online help of STEP 7 (shared parameters of the SFBs/FBs and of the
- Cost data por jos, max	SFCs/FCs of S7 Communication)
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	X1 as a MPI, max. 10; X1 as DP Master max. 24; X1 as DP Slave (active) max.
	14; X2 as DP Master max. 24; X2 as DP Slave (active) max. 14
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
Process diagnostic messages simultaneously active Alarm-S blocks, max.	300
Test commissioning functions	
Status block	Vac. Un to 2 simultaneously
Single step	Yes; Up to 2 simultaneously Yes

Number of breeks sinte	4
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
— adjustable	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 / header	
Configuration software	
• STEP 7	Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP
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STEP 7 Lite	No
configuration / programming / header	
 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
•	130 mm
Depth	150 Hill
Woights	
Weights Weight, approx.	360 g

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