



spare part SIMATIC S7-300, CPU 317F-2DP, central processing unit with 1.5 MB work memory, 1st interface MPI/DP 12 Mbps, 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	
<ul style="list-style-type: none"> 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
I ² t	1 A ² ·s
Power loss	
Power loss, typ.	4.5 W
Storage	
Work memory	
<ul style="list-style-type: none"> integrated 	1 536 kbyte
<ul style="list-style-type: none"> expandable 	No
Load memory	
<ul style="list-style-type: none"> Plug-in (MMC) 	Yes
<ul style="list-style-type: none"> Plug-in (MMC), max. 	8 Mbyte
<ul style="list-style-type: none"> Data management on MMC (after last programming), min. 	10 a
Backup	
<ul style="list-style-type: none"> present 	Yes; Guaranteed by MMC (maintenance-free)
<ul style="list-style-type: none"> 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	

<ul style="list-style-type: none"> • Number, max. • Size, max. 	2 048; Number range: 1 to 16000 64 kbyte
FB	
<ul style="list-style-type: none"> • Number, max. • Size, max. 	2 048; Number range: 0 to 7999 64 kbyte
FC	
<ul style="list-style-type: none"> • Number, max. • Size, max. 	2 048; Number range: 0 to 7999 64 kbyte
OB	
<ul style="list-style-type: none"> • Number, max. • Size, max. • Number of free cycle OBs • Number of time alarm OBs • Number of delay alarm OBs • Number of cyclic interrupt OBs • Number of process alarm OBs • Number of DPV1 alarm OBs • Number of isochronous mode OBs • Number of startup OBs • Number of asynchronous error OBs • Number of synchronous error OBs 	see instruction list 64 kbyte 1; OB 1 1; OB 10 2; OB 20, 21 4; OB 32, 33, 34, 35 1; OB 40 3; OB 55, 56, 57 1; OB 61 1; OB 100 5; OB 80, 82, 85, 86, 87 2; OB 121, 122
Nesting depth	
<ul style="list-style-type: none"> • per priority class • additional within an error OB 	16 4
Counters, timers and their retentivity	
S7 counter	
<ul style="list-style-type: none"> • Number 	512
Retentivity	
<ul style="list-style-type: none"> — can be set — preset 	Yes Z 0 to Z 7
Counting range	
<ul style="list-style-type: none"> — lower limit — upper limit 	0 999
IEC counter	
<ul style="list-style-type: none"> • present • Type • Number 	Yes SFB Unlimited (limited only by RAM capacity)
S7 timer	
<ul style="list-style-type: none"> • Number 	512
Retentivity	
<ul style="list-style-type: none"> — adjustable — preset 	Yes No retentivity
Time range	
<ul style="list-style-type: none"> — lower limit — upper limit 	10 ms 9 990 s
IEC timer	
<ul style="list-style-type: none"> • present • Type • Number 	Yes SFB Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	256 kbyte
Flag	
<ul style="list-style-type: none"> • Size, max. • Retentivity available • Retentivity preset • Number of clock memories 	4 096 byte Yes; From MB 0 to MB 4 095 MB 0 to MB 15 8; 1 memory byte
Data blocks	
<ul style="list-style-type: none"> • Retentivity adjustable • Retentivity preset 	Yes; via non-retain property on DB 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	
• Number of subprocess images, max.	1
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	
• 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; 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	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
• to MPI, master	Yes
• on MPI, device	Yes
• to DP, master	Yes; With DP slave only slave clock

• on DP, device	Yes
• in AS, master	Yes
• in AS, device	Yes
• 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
PROFIBUS DP device	
• 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; 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; Connection configured on one side only
— 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
Isolated	Yes
Interface types	
• RS 485	Yes
• Output current of the interface, max.	200 mA
Protocols	
• MPI	No
• PROFIBUS DP master	Yes
• PROFIBUS DP device	Yes; A DP slave at both interfaces simultaneously is not possible
• Point-to-point connection	No
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; but via CP and loadable FB
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	Yes; OB 61
— 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.	8 192 byte
— Outputs, max.	8 192 byte
User data per DP device	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
PROFIBUS DP device	
• 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 Yes; only with passive interface
- Address area, max. 32
- User data per address area, max. 32 byte

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; but via CP and loadable FB
- S7 communication, as server Yes
- Direct data exchange (slave-to-slave communication) Yes
- DPV1 No

Transfer memory

- Inputs 244 byte
- Outputs 244 byte

Protocols

- PROFIsafe No

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. See online help of STEP 7 (shared parameters of the SFBs/FBs and of the 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
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
— can be set	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 conditions

Ambient temperature during operation	
• min.	0 °C
• max.	60 °C

Configuration

Configuration software	
• STEP 7	Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203
• STEP 7 Lite	No

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.

360 g

Classifications

	Version	Classification
eClass	14	27-24-22-07
eClass	12	27-24-22-07
eClass	9.1	27-24-22-07
eClass	9	27-24-22-07
eClass	8	27-24-22-07
eClass	7.1	27-24-22-07
eClass	6	27-24-22-07
ETIM	10	EC000236
ETIM	9	EC000236
ETIM	8	EC000236
ETIM	7	EC000236
IDEA	4	3565
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval

[Manufacturer Declaration](#)



[Miscellaneous](#)



General Product Approval

EMV

For use in hazardous locations



[China RoHS](#)

[Manufacturer Declaration](#)



[FM](#)

For use in hazardous locations

Functional Safety



[Miscellaneous](#)

[CCC-Ex](#)

[TUEV](#)

Functional Safety

Maritime application

[Type Examination Certificate](#)



[NK / Nippon Kaiji Kyokai](#)

Maritime application

other

Industrial Communication



[CCS \(China Classification Society\)](#)



last modified:

4/7/2025