SIEMENS

Product data sheet 6ES7317-2FK13-0AB0

SIMATIC S7-300 CPU317F-2 PN/DP,
CENTRAL PROCESSING UNIT WITH 1024 KBYTE WORKING MEMORY,
1. INTERFACE MPI/DP 12MBIT/S,
2. INTERFACE ETHERNET PROFINET,
MICRO MEMORY CARD NECESSARY FOR USE WITH SOFTWARE OPTION S7 DISTRIBUTED SAFETY V5.4 OR HIGHER

Product version	
Hardware product version	01
Firmware version	V2.6
General information	
associated programming package	STEP 7 V5.4 SP2 or higher, S7 Distributed Safety V5.4 or higher
Supply voltage	
24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
External protection for supply cables (recommendation)	2 A min.
Input current	
Current consumption (rated value)	650 mA
Current consumption (in no-load operation), typ.	100 mA
Inrush current, typ.	2.5 A

I^2t	1 $A^2 \cdot s$
Power losses	
Power loss, typ.	3.5 W
Memory	
Work memory	
integrated	1 Mbyte ; For program and data
expandable	No
Load memory	
pluggable (MMC)	Yes
pluggable (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-blocks	
Number of blocks (total)	2048 ; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
DB	
Number, max.	2047 ; Number band: 1 to 2047
Size, max.	64 Kibyte
FB	
Number, max.	2048 ; Number range: 0 to 2047
Size, max.	64 Kibyte
FC	
Number, max.	2048 ; Number range: 0 to 2047
Size, max.	64 Kibyte
OB	
Size, max.	64 Kibyte
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 time 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 isochronous mode OBs	1 ; OB 61
Number of startup OBs	1 ; OB 100
Number of asynchronous error OBs	6 ; OB 80, 82, 83, 85, 86, 87
Number of synchronous error OBs	2 ; OB 121, 122
Nesting depth	
per priority class	16
additional within an error OB	4
CPU processing times	
for bit operations, min.	0.05 µs
for bit operations, max.	0.05 µs
for word operations, min.	0.2 µs
for fixed point arithmetic, min.	0.2 µs
for floating point arithmetic, min.	1 µs
Counters, timers and their retentivity	
S7 counter	
Number	512
of which retentive without battery	
adjustable	Yes
lower limit	0
upper limit	511
preset	8
Retentivity	
adjustable	Yes
lower limit	0
upper limit	511
preset	8
Counting range	
adjustable	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	9990 s
IEC timer	
present	Yes
Type	SFB
Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
retentive data area, total	All, max. 256 KB
Flag	
Number, max.	4096 byte
Retentivity available	Yes ; MB 0 to MB 4095
Retentivity preset	MB 0 to MB 15
Number of clock memories	8 ; 1 memory byte
Data blocks	
Number, max.	2047 ; from DB 1 to DB 2047
Size, max.	64 Kibyte
Retentivity adjustable	Yes ; via non-retain property on DB
Retentivity preset	Yes
Local data	

per priority class, max.	1024 byte
Address area	
I/O address area	
Inputs	8 Kibyte
Outputs	8 Kibyte
of which, distributed	
Inputs	8 Kibyte
Outputs	8 Kibyte
Process image	
Inputs	2048 byte
Outputs	2048 byte
Inputs, adjustable	2048 byte
Outputs, adjustable	2048 byte
Inputs, default	1024 byte
Outputs, default	1024 byte
Digital channels	
integrated channels (DI)	0
integrated channels (DO)	0
Inputs	65536
Outputs	65536
Inputs, of which central	1024
Outputs, of which central	1024
Analog channels	
Integrated channels (AI)	0
Integrated channels (AO)	0
Inputs	4096
Outputs	4096
Inputs, of which central	256
Outputs, of which central	256
Hardware configuration	
Racks, max.	4
Modules per rack, max.	8
Expansion devices, max.	3

Number of DP masters	
integrated	1
via CP	4
Number of operable FMs and CPs (recommended)	
FM	8
CP, point-to-point	8
CP, LAN	10
Time of day	
Clock	
Hardware clock (real-time clock)	Yes
battery-backed and synchronizable	Yes
Deviation per day, max.	10 s
Backup time	6 wk ; At 40 °C ambient temperature
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
Interfaces	
Number of parallel interfaces	0
Number of 20 mA interfaces (TTY)	0
Number of RS 232 interfaces	0
Number of RS 422 interfaces	0
Number of other hardware interfaces	0

1st interface	
Type of interface	Integrated RS 485 interface
Physics	RS 485
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	200 mA
Functionality	
MPI	Yes
DP master	Yes
DP slave	Yes
Point-to-point connection	No
MPI	
Number of connections	16
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
Transmission rate, max.	12 Mbit/s
DP master	
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 mode support	Yes
Isochronous mode	Yes ; OB 61
SYNC/FREEZE	Yes

Activation/deactivation of DP slaves	Yes
DPV1	Yes
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	124
DP slave	
Services	
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
Transmission rate, max.	12 Mbit/s
Automatic baud rate search	Yes ; only with passive interface
Transfer memory	
Inputs	244 byte
Outputs	244 byte
Address area, max.	32
User data per address area, max.	32 byte
2nd interface	
Type of interface	PROFINET
Physics	Ethernet
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	0 mA
Automatic detection of transmission speed	Yes ; 10/100 Mbit/s
Functionality	
MPI	No
DP master	No
DP slave	No
PROFINET IO Controller	Yes ; Firmware Status V2.3 or higher
PROFINET CBA	Yes

Local Operating Network	No
PROFINET IO Controller	
Services	
PG/OP communication	Yes
Routing	Yes
S7 communication	Yes ; with loadable FBs, max. configurable connections: 16, max. number of instances: 32
Open IE communication	Yes ; via TCP/IP
Transmission rate, max.	100 Mbit/s
Number of connectable IO devices, max.	128
Updating time	1 to 512 ms (minimum value depends on communication share set for PROFINET I/O, on the number of I/O devices, and on the volume of configured user data)
Address area	
Inputs, max.	8 Kibyte
Outputs, max.	8 Kibyte
User data consistency, max.	256 byte
PROFINET CBA	
acyclic transmission	Yes
Cyclic transmission	Yes
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	
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 integrated PROFINET interface and loadable FB or 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
Open IE communication	
TCP/IP	Yes ; via integrated PROFINET interface and loadable FBs
Number of connections, max.	8
Data length, max.	1460 byte
PROFINET CBA (at set setpoint communication load)	
Setpoint for the CPU communication load	50 %
Number of remote interconnection partners	32
Number of functions, master/slave	17
Total of all Master/Slave connections	1000
Data length of all incoming connections master/slave, max.	4000 byte
Data length of all outgoing connections master/slave, max.	4000 byte
Number of device-internal and PROFIBUS interconnections	500
Data length of device-internal und PROFIBUS interconnections, max.	4000 byte
Data length per connection, max.	1400 byte
Remote interconnections with acyclic transmission	
Sampling frequency: Sampling time, min.	500 ms
Number of incoming interconnections	100
Number of outgoing interconnections	100
Data length of all incoming interconnections, max.	2000 byte

Data length of all outgoing interconnections, max.	2000 byte
Data length per connection, max.	1400 byte
Remote interconnections with cyclic transmission	
Transmission frequency: Transmission interval, min.	10 ms
Number of incoming interconnections	200
Number of outgoing interconnections	200
Data length of all incoming interconnections, max.	2000 byte
Data length of all outgoing interconnections, max.	2000 byte
Data length per connection, max.	450 byte
HMI variables via PROFINET (acyclic)	
Number of stations that can log on for HMI variables (PN OPC/iMap)	3 ; 2x PN OPC/1x iMap
HMI variable updating	500 ms
Number of HMI variables	200
Data length of all HMI variables, max.	2000 byte
PROFIBUS proxy functionality	
supported	Yes
Number of linked PROFIBUS devices	16
Data length per connection, max.	240 byte ; Slave-dependent
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
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/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
Force, variables	Inputs, outputs
Number of variables, max.	10
Status block	Yes
Single step	Yes
Number of breakpoints	2
Diagnostic buffer	
present	Yes
Number of entries, max.	100
adjustable	No
Configuration	
Configuration software	
STEP 7	Yes ; V5.3 SP3 and higher + HW update
programming	
Programming language	
LAD	Yes
FBD	Yes
STL	Yes
SCL	Yes

CFC	Yes
GRAPH	Yes
HiGraph®	Yes
Command set	see instruction list
Nesting levels	8
Software libraries	
System functions (SFC)	see instruction list
System function blocks (SFB)	see instruction list
Know-how protection	
User program protection/password protection	Yes
Dimensions	
Width	80 mm
Height	125 mm
Depth	130 mm
Weight	
Weight, approx.	460 g
Status	Sep 14, 2011