SIEMENS

Product data sheet 6ES7317-2AJ10-0AB0

SIMATIC S7-300, CPU 317-2DP,
CENTRAL PROCESSING UNIT WITH 512 KBYTE WORKING MEMORY,
1. INTERFACE MPI/DP 12MBIT/S,
2. INTERFACE DP-MASTER/SLAVE,
MICRO MEMORY CARD NECESSARY

General information	
Hardware product version	01
Firmware version	V2.6
Engineering with	
Programming package	STEP 7 V5.2 + SP1 or higher with HW update
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)	850 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.	4 W
Memory	
Work memory	
integrated	512 kbyte
expandable	No
Size of retentive memory for retentive data blocks	256 kbyte
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 processing times	
for bit operations, min.	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
CPU-blocks	
Number of blocks (total)	2048 ; (DBs, FCs, FBs OBs, SDBs); the maximum number of loadable blocks can be reduced by the MMC being used.
DB	
Number, max.	2047 ; Number band: 1 to 2047
Size, max.	64 kbyte
FB	
Number, max.	2048 ; Number range: 0 to 2047
Size, max.	64 kbyte
FC	
Number, max.	2048 ; Number range: 0 to 2047
Size, max.	64 kbyte
OB	

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 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	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
lower limit	0
upper limit	511
preset	Z 0 to Z 7
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
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 ; Number band: 1 to 2047
Size, max.	64 kbyte
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	8192 byte
Outputs	8192 byte
of which, distributed	
Inputs	8192 byte
Outputs	8192 byte
Process image	

Inputs	2048 byte
Outputs	2048 byte
Inputs, adjustable	2048 byte
Outputs, adjustable	2048 byte
Inputs, default	256 byte
Outputs, default	256 byte
Subprocess images	
Number of subprocess images, max.	1
Digital channels	
Inputs	65536
Outputs	65536
Inputs, of which central	1024
Outputs, of which central	1024
Analog channels	
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	2
via CP	4
Configuration / Number of FMs and CPs that can be operated (recommendation)	
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
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	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
on Ethernet via NTP	No
Digital inputs	
integrated channels (DI)	0
Digital outputs	
integrated channels (DO)	0
Analog inputs	
Integrated channels (AI)	0
Analog outputs	
Integrated channels (AO)	0
Interfaces	
Number of USB interfaces	0
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 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	32
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 ; I blocks only
S7 communication	Yes
S7 communication, as client	No
S7 communication, as server	Yes
Equidistance mode support	Yes
Isochronous mode	No

SYNC/FREEZE	Yes
Activation/deactivation of DP slaves	Yes
Number of DP slaves that can be simultaneously activated/deactivated, max.	4
DPV1	Yes
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	124
Address area	
Inputs, max.	8096 byte
Outputs, max.	8096 byte
User data per DP slave	
Inputs, max.	244 byte
Outputs, max.	244 byte
DP slave	
Services	
PG/OP communication	Yes
Routing	Yes ; Only with active interface
Global data communication	No
S7 basic communication	No
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	Integrated RS 485 interface

Physics	RS 485
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	200 mA
Functionality	
MPI	No
DP master	Yes
DP slave	Yes
Local Operating Network	No
DP master	
Number of connections, max.	32
Services	
PG/OP communication	Yes
Routing	Yes
Global data communication	No
S7 basic communication	Yes ; I blocks only
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
Address area	
Inputs, max.	8096 byte
Outputs, max.	8096 byte
User data per DP slave	
Inputs, max.	244 byte
Outputs, max.	244 byte
DP slave	
Number of connections	32

Services	
PG/OP communication	Yes
Routing	Yes ; with interface active
Global data communication	No
S7 basic communication	No
S7 communication	Yes
S7 communication, as client	No
S7 communication, as server	Yes
Direct data exchange (slave-to-slave communication)	Yes
DPV1	No
GSD file	The latest GSD file is available at: http://www.siemens.de/profibus-gsd
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
Communication functions	
PG/OP communication	Yes
Data record routing	No
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.	160 byte ; as server
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	8
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
Of which powerfail-proof	100
Configuration	
Configuration software	
STEP 7	Yes ; V5.2 SP1 or higher with 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	Jul 13, 2012