SIEMENS

Data sheet 6ES7318-2AJ00-0AB0

Spare part SIMATIC S7-300, CPU 318-2 DP, 512 KB work memory, (256 KB Code; 256 KB of data 1st interface MPI 12 Mbit/s; 2 interface PROFIBUS-DP/MPI

General information	
HW functional status	03
Firmware version	V3.0
Engineering with	
• Programming package	STEP 7 V5.1 SP2
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
external protection for power supply lines (recommendation)	Miniature circuit breaker; 2 A, type B or C
Input current	
Current consumption (in no-load operation), typ.	1.2 A
Inrush current, typ.	8 A
I^2t	0.4 $A^2 \cdot s$
Power loss	
Power loss, typ.	12 W

Memory	
Work memory	
• integrated	512 kbyte
Load memory	
• expandable FEPROM	Yes
• expandable FEPROM, max.	4 Mbyte
• integrated RAM, max.	64 kbyte
• expandable RAM	Yes
• expandable RAM, max.	2 Mbyte
Backup	
• present	Yes
• with battery	Yes; all blocks
• without battery	Yes; 11 KB

CPU processing times	
for bit operations, typ.	0.1 µs
for bit operations, max.	0.1 µs
for word operations, typ.	0.1 µs
for fixed point arithmetic, typ.	0.1 µs
for floating point arithmetic, typ.	0.6 µs
for timer/counter operations, typ.	0.1 µs

CPU-blocks	
DB	
• Number, max.	2 047; Number band: 1 to 2047
• Size, max.	64 kbyte
FB	
• Number, max.	1 024; Number band: 0 to 1023
• Size, max.	64 kbyte
FC	
• Number, max.	1 024; Number band: 0 to 1023
• Size, max.	64 kbyte
OB	
• Description	see instruction list
• Number, max.	see instruction list
• Size, max.	64 kbyte
• Number of time alarm OBs	2; OB 10, 11
• Number of delay alarm OBs	2; OB 20, 21
• Number of cyclic interrupt OBs	2; OB 32, 35
• Number of process alarm OBs	2; OB 40, 41
• Number of startup OBs	1; OB 100
• Number of asynchronous error OBs	5; OB 80, 81, 85, 86, 87
• Number of synchronous error OBs	2; OB 121, 122

Nesting depth	
• per priority class	16
• additional within an error OB	3
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
S7 times	
• Number	512
Retentivity	
— adjustable	Yes
— preset	No times retentive
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
• present	Yes
• Type	SFB
Data areas and their retentivity	
Flag	
• Number, max.	1 024 byte
• Retentivity available	Yes; MB 0 to MB 1 023
• Retentivity preset	MB 0 to MB 15
• Number of clock memories	8; 1 memory byte
Local data	
• adjustable, max.	8 192 byte
• preset	3 584 byte
• per priority class, max.	8 192 byte
Address area	
I/O address area	
• Inputs	8 kbyte
• Outputs	8 kbyte

of which distributed	
— Inputs	8 kbyte
— Outputs	8 kbyte
Process image	
• Inputs	2 048 byte
• Outputs	2 048 byte
• Inputs, default	256 byte
• Outputs, default	256 byte
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	128

Hardware configuration	
Number of expansion units, max.	3
Number of DP masters	
• integrated	2
• via CP	4; CP 342-5
Number of operable FMs and CPs (recommended)	
• FM	16
• CP, PtP	8
• CP, LAN	16
Rack	
• Racks, max.	4
• Modules per rack, max.	8

Time of day	
Clock	
• Hardware clock (real-time)	Yes
• retentive and synchronizable	Yes
• Deviation per day, max.	10 s
Operating hours counter	
• Number	8
• Number/Number range	0 to 7
• Range of values	0 to 32767 hours
• Granularity	1 h
• retentive	Yes

Clock synchronization	
• supported	Yes
• to MPI, master	Yes
• to MPI, slave	Yes
• in AS, master	Yes
• in AS, slave	Yes
1. Interface	
Interface type	Integrated RS 485 interface
Physics	RS 485
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	200 mA
Protocols	
• MPI	Yes
• PROFIBUS DP master	Yes
• PROFIBUS DP slave	Yes
• Point-to-point connection	No
MPI	
• Number of connections	32
• Number of nodes, max.	32
• Transmission rate, max.	12 Mbit/s
Services	
— PG/OP communication	Yes
— Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as server	Yes
PROFIBUS DP master	
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	125
Services	
— PG/OP communication	Yes
— Global data communication	No
— S7 basic communication	No
— S7 communication, as server	Yes
— Equidistance	Yes
— SYNC/FREEZE	Yes
— Activation/deactivation of DP slaves	Yes
— Direct data exchange (slave-to-slave communication)	Yes; Transmitter and receiver
Address area	
— Inputs, max.	2 kbyte

— Outputs, max.	2 kbyte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
PROFIBUS DP slave	
• Number of connections	12
• Transmission rate, max.	12 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte

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
Protocols	
• MPI	No
• PROFIBUS DP master	Yes
• PROFIBUS DP slave	Yes
• Point-to-point connection	No
PROFIBUS DP master	
• Number of connections, max.	16
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	125
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes
— Equidistance	Yes
— SYNC/FREEZE	Yes
— Activation/deactivation of DP slaves	Yes
Address area	
— Inputs, max.	244 byte
— Outputs, max.	244 byte

User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
PROFIBUS DP slave	
• GSD file	siem807f.gsg
• Transmission rate, max.	12 Mbit/s
Services	
— Routing	Yes
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte

Communication functions	
PG/OP communication	Yes
Global data communication	
• supported	Yes
• Number of GD packets, transmitter, max.	1
• Number of GD packets, receiver, max.	2
• Size of GD packets, max.	54 byte
• Size of GD packet (of which consistent), max.	32 byte
S7 basic communication	
• supported	Yes
• User data per job, max.	76 byte
• User data per job (of which consistent), max.	76 byte
S7 communication	
• supported	Yes
• as server	Yes
• User data per job, max.	160 byte
S5 compatible communication	
• supported	Yes; via CP and loadable FC
Standard communication (FMS)	
• supported	Yes; via CP and loadable FC
Number of connections	
• overall	32
• usable for PG communication	31
— reserved for PG communication	1
• usable for OP communication	31
— reserved for OP communication	1
• usable for S7 basic communication	30
• usable for S7 communication	30

S7 message functions	
Process diagnostic messages	Yes

simultaneously active Alarm-S blocks, max.	100
Test commissioning functions	
Status block	Yes
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.	70
Forcing	
• Forcing	Yes
• Forcing, variables	Inputs, outputs, bit memories, peripheral inputs, peripheral outputs
• Number of variables, max.	256
Diagnostic buffer	
• present	Yes
• Number of entries, max.	100
— adjustable	No
Configuration	
Configuration software	
• STEP 7	Yes; V5.0
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
— HiGraph®	Yes
Software libraries	
— Process diagnostics	Yes
— Software controller	Yes
Know-how protection	
• User program protection/password protection	Yes
Cycle time monitoring	
• lower limit	1 ms
• upper limit	6 000 ms
• adjustable	Yes

• preset	150 ms

Dimensions	
Width	160 mm
Height	125 mm
Depth	130 mm

Weights	
Weight, approx.	930 g

last modified: 05/29/2019