SIEMENS

Data sheet

6AG1315-2AH14-7AB0

SIPLUS S7-300 CPU 315-2DP -25...+70°C with conformal coating based on 6ES7315-2AH14-0AB0 . Central processing unit with MPI Integr. power supply 24 V DC Work memory 256 KB 2nd interface DP master/ slave Micro Memory Card required



Figure similar

General information	
Engineering with	
 Programming package 	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.2 + SP1 or higher with HSP 218
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
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.
Mains buffering	
 Mains/voltage failure stored energy time 	5 ms
• Repeat rate, min.	1 s
Input current	
Current consumption (rated value)	850 mA
Current consumption (in no-load operation), typ.	150 mA

Inrush current, typ.	3.5 A
² t	1 A ² ·s
	17.5
Power loss	
Power loss, typ.	4.5 W
Memory	
Work memory	
• integrated	256 kbyte
• expandable	No
 Size of retentive memory for retentive data blocks 	128 kbyte
Load memory	
● Plug-in (MMC)	Yes
● Plug-in (MMC), max.	8 Mbyte
 Data management on MMC (after last programming), min. 	10 у
Backup	
● present	Yes; Guaranteed by MMC (maintenance-free)
 without battery 	Yes; Program and data
CPU processing times	
for bit operations, typ.	0.05 µs
for word operations, typ.	0.09 µs
for fixed point arithmetic, typ.	0.12 µs
for floating point arithmetic, typ.	0.45 µs
CPU-blocks	
Number of blocks (total)	1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
DB	
• Number, max.	1 024; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
• Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
 Number, max. 	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
Description	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 alarn OBs 1: OB 40 • Number of IDPV1 alarn OBs 3: OB 55, 56, 57 • Number of achtronous mode OBs 1: OB 61 • Number of asynchronous error OBs 5: OB 80, 82, 85, 86, 87 • Number of asynchronous error OBs 2: OB 121, 122 Number of asynchronous error OBs 2: OB 121, 122 Number of asynchronous error OBs 4 Counters, timers and their retentivity 57 Gounter • Number of asynchronous error OBs 4 Counters, timers and their retentivity 56 S7 counter 256 Retentivity - - adjustable Yes - lower limit 0 - upper limit 255 - preset 2 to to 2 7 Counting range - - lower limit 0 - upper limit 9 Present Yes • Type SFB • Number 255 - preset No retentivity - adjustable Yes																																																																																																																				
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lower limit 10 ms - upper limit 9 990 s IEC timer • present Yes • Type SFB</td><td>— upper limit</td><td>255</td></tr> <tr><td>- lower limit10 ms- upper limit9 990 sIEC timerYes• presentYes• TypeSFB</td><td>— preset</td><td>No retentivity</td></tr> <tr><td>- upper limit 9 990 s IEC timer Yes • present Yes • Type SFB</td><td>Time range</td><td></td></tr> <tr><td>IEC timer • present Yes • Type SFB</td><td>— lower limit</td><td>10 ms</td></tr> <tr><td>presentTypeYesSFB</td><td>— upper limit</td><td>9 990 s</td></tr> <tr><td>• Type SFB</td><td>IEC timer</td><td></td></tr> <tr><td></td><td>● present</td><td></td></tr> <tr><td></td><td>• Туре</td><td>SFB</td></tr> <tr><td>Number Unlimited (limited only by RAM capacity)</td><td>Number</td><td>Unlimited (limited only by RAM capacity)</td></tr> <tr><td>Data areas and their retentivity</td><td></td><td></td></tr> <tr><td>retentive data area in total all, 128 KB max.</td><td>retentive data area in total</td><td>all, 128 KB max.</td></tr>	 Number of DPV1 alarm OBs 	3; OB 55, 56, 57	• Number of asynchronous error OBs5: OB 80, 82, 85, 86, 87• Number of synchronous error OBs2: OB 121, 122Nesting depth• per priority class16• additional within an error OB4Counters, timers and their retentivity\$7 counter256Retentivity256• Number256Retentivity0- adjustableYes- lower limit0- upper limit255- preset2 to to Z 7Counting range0- lower limit0999IEC counterYes• NumberSFB• NumberUnlimited (limited only by RAM capacity)\$7 times256Retentivity256• number256• number255• number255• newer limit0• lower limit0• upper limit255• presetNo retentivityTime range- lower limit• lower limit10 ms• upper limit9990 sIEC timerYes• presentYes• TypeSFB	 Number of isochronous mode OBs 	1; OB 61	• Number of synchronous error OBs2: OB 121, 122Nesting depth• per priority class16• additional within an error OB4Counters, timers and their retentivityS7 counter256• Number256Retentivity0- adjustableYes- lower limit0- upper limit255- preset2 0 to Z 7Counting range0- lower limit999IEC counter• presentYes• TypeSFB• Number256Retentivity• presentYes• presentYes• TypeSFB• Number256Retentivity• presentYes• presentYes• presentYes• presentYes• number256Retentivity• presetNo retentivityTime range0- lower limit0- upper limit255- presetNo retentivityTime range lower limit999 s- lower limit999 s- lower limit999 s- lower limit999 s	 Number of startup OBs 	1; OB 100	Nesting depth • per priority class 16 • additional within an error OB 4 Counters, timers and their retentivity 57 S7 counter 256 Retentivity 256 Retentivity - 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 Number of DPV1 alarm OBs 	3; OB 55, 56, 57																																																																																																																			
• Number of asynchronous error OBs5: OB 80, 82, 85, 86, 87• Number of synchronous error OBs2: OB 121, 122Nesting depth• per priority class16• additional within an error OB4Counters, timers and their retentivity\$7 counter256Retentivity256• Number256Retentivity0- adjustableYes- lower limit0- upper limit255- preset2 to to Z 7Counting range0- lower limit0999IEC counterYes• NumberSFB• NumberUnlimited (limited only by RAM capacity)\$7 times256Retentivity256• number256• number255• number255• newer limit0• lower limit0• upper limit255• presetNo retentivityTime range- lower limit• lower limit10 ms• upper limit9990 sIEC timerYes• presentYes• TypeSFB	 Number of isochronous mode OBs 	1; OB 61																																																																																																																		
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retentive data area in total all, 128 KB max.	retentive data area in total	all, 128 KB max.																																																																																																																		

Flag	
• Number, max.	2 048 byte
Retentivity preset	MB 0 to MB 15
Number of clock memories	8; 1 memory byte
Data blocks	
Retentivity adjustable	Yes; via non-retain property on DB
Retentivity preset	Yes
Address area	
I/O address area	
Inputs	2 048 byte
Outputs	2 048 byte
Process image	
Inputs	2 048 byte
Outputs	2 048 byte
 Inputs, adjustable 	2 048 byte
Outputs, adjustable	2 048 byte
 Inputs, default 	128 byte
• Outputs, default	128 byte
Subprocess images	
 Number of subprocess images, max. 	1
Digital channels	
Inputs	16 384
— of which central	1 024
Outputs	16 384
— of which central	1 024
Analog channels	
Inputs	1 024
— of which central	256
Outputs	1 024
— of which central	256
Hardware configuration	
Number of expansion units, max.	3
Number of DP masters	
• integrated	1
• 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 	Clock continues to run with the time at which the power failure occurred
Operating hours counter	
• Number	1
Number/Number range	0
 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
• to MPI, slave	Yes
• in AS, master	Yes
● in AS, slave	No
Digital inputs	
Number of digital inputs	0
Digital outputs	
Number of digital outputs	0
Analog inputs	
Number of analog inputs	0
Analog outputs	
Number of analog outputs	0
Interfaces	
Number of industrial Ethernet interfaces	0
Number of PROFINET interfaces	0
Number of RS 485 interfaces	2; MPI and PROFIBUS DP
Number of RS 422 interfaces	0
1. Interface	
Interface type	Integrated RS 485 interface
Physics	RS 485
Isolated	No
Power supply to interface (15 to 30 V DC), max.	200 mA

Protocols	
• MPI	Yes
PROFIBUS DP master	No
PROFIBUS DP slave	No
 Point-to-point connection 	No
MPI	
 Transmission rate, max. 	187.5 kbit/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
— S7 communication, as server	Yes
2. Interface	
Interface type	Integrated PS 185 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. 	124; Per station
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	Yes; OB 61
- SYNC/FREEZE	Yes
— Activation/deactivation of DP slaves	Yes

	0
— Number of DP slaves that can be	8
simultaneously activated/deactivated, max.	Yes
— DPV1	
Address area	0.040 h. t.
— Inputs, max.	2 048 byte
— Outputs, max.	2 048 byte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
PROFIBUS DP slave	
• GSD file	The latest GSD file is available at:
	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
— S7 communication, as client	No
— S7 communication, as server	Yes
Direct data exchange (slave-to-slave	Yes
communication)	
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
Isochronous mode	Yes
Isochronous operation (application synchronized up to terminal)	res
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

	0
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. 	240 byte; as server
S5 compatible communication	
• supported	Yes; via CP and loadable FC
Number of connections	
• overall	16
 usable for PG communication 	15
— reserved for PG communication	1
— adjustable for PG communication, min.	1
— adjustable for PG communication, max.	15
 usable for OP communication 	15
— reserved for OP communication	1
— adjustable for OP communication, min.	1
— adjustable for OP communication, max.	15
 usable for S7 basic communication 	12
- reserved for S7 basic communication	0
— adjustable for S7 basic communication,	0
min.	
 — adjustable for S7 basic communication, max. 	12
S7 message functions	
Number of login stations for message functions, max.	16; 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
— adjustable	No
— of which powerfail-proof	100; Only the last 100 entries are retained
 Number of entries readable in RUN, max. 	
— adjustable	Yes; From 10 to 499
— preset	10
Standards, approvals, certificates CE mark	Yes
UL approval	Yes; File E239877
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
Use in hazardous areas	
• ATEX	Yes
Ambient conditions	
Ambient temperature during operation	-25 °C; = Tmin
• min.	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use
max. Ambient temperature during storage/transportation	70°C, - Thiax, 00°C @ OL/COL, ATEX and Fivi use
	-40 °C
• min.	70 °C
 max. Altitude during operation relating to sea level 	
Installation altitude above sea level, max.	5 000 m
	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) //
 Ambient air temperature-barometric pressure- altitude 	Tmin (Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax -20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m)
Relative humidity	
 With condensation, tested in accordance with IEC 60068-2-38, max. 	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	

Use in stationary industrial systems	
 — to biologically active substances according to EN 60721-3-3 	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
 — to chemically active substances according to EN 60721-3-3 	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2- 52 (severity degree 3); *
 — to mechanically active substances according to EN 60721-3-3 	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
 — to biologically active substances according to EN 60721-3-6 	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
 — to chemically active substances according to EN 60721-3-6 	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2- 52 (severity degree 3); *
 — to mechanically active substances according to EN 60721-3-6 	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
 Against chemically active substances acc. to EN 60654-4 	Yes; Class 3 (excluding trichlorethylene)
 Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04 	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
— Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!
Configuration	
Configuration software	
• STEP 7	Yes; V5.2 SP1 or higher with HW update
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
Dimensions	

Width	40 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	290 g
last modified:	05/15/2020