SIEMENS

Data sheet

6ES7315-2AH14-0AB0

SIMATIC S7-300, CPU 315-2DP Central processing unit with MPI Integr. power supply 24 V DC Work memory 256 KB 2nd interface DP master/slave Micro Memory Card required



General information	
HW functional status	01
Firmware version	V3.3
Product function	
• Isochronous mode	Yes
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
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 (in no-load operation), byp. Inrush current, typ. 150 mA Inrush current, typ. 174 m. 187 m. 18	Current consumption (rated value)	850 mA
Inrush current, typ. Power loss Power loss, typ. 4.5 W Memory Work memory • integrated		150 mA
Process Power loss Power		
Power loss, typ. Memory Work memory • Integrated • expandable • Size of retentive memory for retentive data blocks Load memory • Plug-in (MMC) • Plug-in (MMC), max. • Data management on MMC (after last programming), min. Backup • present • without battery CPU processing times for bit operations, typ. for word operations, typ. for fixed point arithmetic, typ. for fixed point arithmetic, typ. 1024; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used. PB • Number, max. • Size, max. FB • Number, max. • Size, max. • Size, max. • Size, max. • Size, max. • Size, max. • Size, max. • Size, max. • Size, max. • Size, max. • Size, max. • Size, max. • Size, max. • Size, max. • Size, max. • Size, max. • Size, max. • Size, max. • Size, max. • Secription • Size, max. • Size, max. • Secription • Size, max. • Secription • Size, max. • Size, max. • Size, max. • Secription • Size, max. • Size, max. • Secription • Size, max. • Size, max. • Size, max.		
Work memory Integrated Expandable Expandable Size of retentive memory for retentive data blocks Load memory I plug-in (MMC) Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup I present Exprogramming, min. Backup Or but operations, typ. For word operations, typ. For fixed point arithmetic, typ. For fixed point arithmetic, typ. On 12 µs For fixed point arithmetic, typ. On 15 µs CPU-blocks Number of blocks (total) Number, max. Size, max. I 1024; Number range: 1 to 16000 Size, max. FC Number, max. Size, max. I 1024; Number range: 0 to 7999 Size, max. I 1024; Number range: 0 to 7999 Size, max. FC Number, max. Size, max. I 1024; Number range: 0 to 7999 Size, max. FC Number, max. Size, max. I 1024; Number range: 0 to 7999 Size, max. FC Number, max. Size, max. I 1024; Number range: 0 to 7999 Size, max. FC Number, max. Size, max. I 1024; Number range: 0 to 7999 Size, max. FC Number, max. Size, max. Si	Power loss	
Nork memory • Integrated 256 kbyte • expandable 128 kbyte • Size of retentive memory for retentive data blocks Load memory • Plug-in (MMC) Yes • Plug-in (MMC) MMC	Power loss, typ.	4.5 W
integrated expandable Size of retentive memory for retentive data blocks Load memory Plug-in (MMC) Plug-in (MMC) Data management on MMC (after last programming), min. Backup present vithout battery Processing times for bit operations, typ. for fixed point arithmetic, typ.	Memory	
expandable Size of retentive memory for retentive data blocks Load memory Plug-in (MMC) Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup Prosent veithout battery processing times For bit operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. for floating point arithmetic, typ. Number of blocks (total) Number, max. Size, max. Plumber, max. Size, max. Size, max. OB Number, max. Size, max. OB Description Size, max. OB Description Size, max. OB Description Size, max. OB Description Size, max. OR Plug-in (MMC) Yes Abyte Abyte 128 kbyte 1028 kbyte 8 Mbyte 10 y 9 Wes 4 Mbyte 10 y 9 Wes 4 Mbyte 10 y 9 Wes; Guaranteed by MMC (maintenance-free) 10 y 9 Wes; Program and data 10 y 9 Wes; Guaranteed by MMC (maintenance-free) 10 y 9 Wes; Ousparate despired by MMC (maintenance-free) 10 y 9 Wes; Program and data 10 y 9 Wes; Guaranteed by MMC (maintenance-free) 10 y	Work memory	
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blocks Load memory Plug-in (MMC) Yes Plug-in (MMC), max. 8 Mbyte Data management on MMC (after last programming), min. Backup present Yes; Guaranteed by MMC (maintenance-free) without battery Yes; Program and data PPU processing times for bit operations, typ. 0.05 µs for fived point arithmetic, typ. 0.12 µs for floating point arithmetic, typ. 0.45 µs PU-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. 1 024; Number range: 0 to 7999 Size, max. 1 024; Number range: 0 to 7999 Number, max. 64 kbyte FC Number, max. 1 024; Number range: 0 to 7999 Size, max. 1 024; Number range: 0 to 7999 Size, max. 5 size, max. 64 kbyte OB Description See instruction list Size, max. 64 kbyte	• expandable	No
Plug-in (MMC) Yes Plug-in (MMC), max. 8 Mbyte Data management on MMC (after last programming), min. Backup present programming), min. Present without battery Yes; Guaranteed by MMC (maintenance-free) Yes; Program and data Programming, min. Processing times for bit operations, typ. 0.05 µs for fixed point arithmetic, typ. 0.09 µs for fixed point arithmetic, typ. 0.45 µs Pumber of blocks (total) 1024; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used. DB Number, max. Size, max. 1024; Number range: 1 to 16000 46 kbyte FB Number, max. Size, max. 1024; Number range: 0 to 7999 46 kbyte PNumber, max. Size, max. 46 kbyte Poscription See instruction list Size, max. Best instruction list Size, max. 66 kbyte		128 kbyte
Plug-in (MMC), max. Plata management on MMC (after last programming), min. Peckup Present Presen	Load memory	
Data management on MMC (after last programming), min. Backup present without battery Pes; Program and data CPU processing times for bit operations, typ. 0.05 µs for fixed point arithmetic, typ. 0.12 µs for floating point arithmetic, typ. 0.45 µs CPU-blocks Number of blocks (total) Number, max. Size, max. Number, max. Size, max. 1 024; Number range: 1 to 16000 Number, max. Size, max. 1 024; Number range: 0 to 7999 A kbyte FC Number, max. Size, max. 1 024; Number range: 0 to 7999 A kbyte Poscription See instruction list Size, max. OB Description Seize, max. OB Description Size, max. A kbyte	• Plug-in (MMC)	Yes
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for floating point arithmetic, typ. 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. • Size, max. 1 024; Number range: 1 to 16000 64 kbyte FB • Number, max. • Size, max. 1 024; Number range: 0 to 7999 64 kbyte FC • Number, max. • Size, max. 1 024; Number range: 0 to 7999 64 kbyte FC • Number, max. • Size, max. 64 kbyte OB • Description • Size, max. 64 kbyte	for word operations, typ.	0.09 µs
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 5 Size, max. 64 kbyte FB Number, max. 1 024; Number range: 0 to 7999 64 kbyte FC Number, max. 1 024; Number range: 0 to 7999 64 kbyte FC Number, max. 1 024; Number range: 0 to 7999 64 kbyte FC Number, max. 5 Size, max. 64 kbyte OB Description See instruction list 64 kbyte	for fixed point arithmetic, typ.	0.12 µs
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 64 kbyte FB Number, max. 1 024; Number range: 0 to 7999 64 kbyte FC Number, max. 1 024; Number range: 0 to 7999 64 kbyte FC Number, max. 1 024; Number range: 0 to 7999 64 kbyte FC Number, max. 64 kbyte OB Description See instruction list 64 kbyte	for floating point arithmetic, typ.	0.45 µs
can be reduced by the MMC used. DB Number, max. 1 024; Number range: 1 to 16000 64 kbyte FB Number, max. 1 024; Number range: 0 to 7999 Size, max. 1 024; Number range: 0 to 7999 64 kbyte FC Number, max. 1 024; Number range: 0 to 7999 64 kbyte FC Number, max. 1 024; Number range: 0 to 7999 64 kbyte OB Description Size, max. 64 kbyte	CPU-blocks	
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 Size, max. FC Number, max. Size, max. OB Description Size, max. Size, max. 64 kbyte 	FB	
FC	Number, max.	1 024; Number range: 0 to 7999
 Number, max. Size, max. 64 kbyte OB Description Size, max. 64 kbyte Size, max. 64 kbyte 	• Size, max.	64 kbyte
 Size, max. OB Description Size, max. 64 kbyte 64 kbyte 	FC	
OB	Number, max.	1 024; Number range: 0 to 7999
 Description Size, max. See instruction list 64 kbyte 	• Size, max.	64 kbyte
• Size, max. 64 kbyte	ОВ	
	Description	see instruction list
	• Size, max.	64 kbyte
		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 alarm OBs 	1; OB 40
 Number of DPV1 alarm OBs 	3; OB 55, 56, 57
 Number of 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
Countary timere and their retentivity	

Counters, timers and their retentivity	
S7 counter	
• Number	256
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	255
— preset	Z 0 to Z 7
Counting range	
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
● Type	SFB
• Number	Unlimited (limited only by RAM capacity)
S7 times	
• Number	256
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	255
— preset	No retentivity
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
• present	Yes
● Type	SFB
• Number	Unlimited (limited only by RAM capacity)

Data areas and their retentivity	
retentive data area in total	all, 128 KB max.
Flag	
• Number, max.	2 048 byte
Retentivity available	Yes; MB 0 to MB 2 047
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
Local data	
• per priority class, max.	32 kbyte; Max. 2 KB per block
Address area	
I/O address area	
• Inputs	2 048 byte
Outputs	2 048 byte
of which distributed	
— 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
• to DP, master	Yes; With DP slave only slave clock
• to DP, 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
Isolated	No
Power supply to interface (15 to 30 V DC), max.	200 mA
Interface types	
• RS 485	Yes
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	Integrated DC 405 interface
Interface type Isolated	Integrated RS 485 interface Yes
Power supply to interface (15 to 30 V DC), max.	200 mA
Interface types	200 IIIA
• RS 485	Yes
Protocols	
• MPI	No
PROFIBUS DP master	Yes
PROFIBUS DP slave	Yes
Point-to-point connection	No
♥ FOILIT-TO-DOILIT COLLIGIT	IVO
·	
PROFIBUS DP master	12 Mhit/s
PROFIBUS DP master • Transmission rate, max.	12 Mbit/s
PROFIBUS DP master	12 Mbit/s 124; Per station

— 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
 Number of DP slaves that can be 	8
simultaneously activated/deactivated, max.	
— DPV1	Yes
Address area	
— 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	TI 14 4000 SI : 3111 4
• 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; Only server, configured on one side
— S7 communication, as client	No
 — S7 communication, as server 	Yes
 — Direct data exchange (slave-to-slave communication) 	Yes
— DPV1	No
Transfer memory	
Transfer memory — Inputs	244 byte
	244 byte 244 byte

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. 	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, min.	0
 adjustable for S7 basic communication, max. 	12

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
	10
— preset Service data	10
• can be read out	Yes
Can be read out	163
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	0°C
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	
• Hear was arrest sation/second sustantion	Yes
 User program protection/password protection 	165
Block encryption	Yes; With S7 block Privacy
Block encryption	
Block encryption Dimensions	Yes; With S7 block Privacy
Block encryption Dimensions Width	Yes; With S7 block Privacy 40 mm
Block encryption Dimensions Width Height Depth	Yes; With S7 block Privacy 40 mm 125 mm
Block encryption Dimensions Width Height	Yes; With S7 block Privacy 40 mm 125 mm