

Siemens 6ES7315-2AH14-0AB0 Manual

Brand	Siemens
Product Series	Siemens
Product Type	SFB

Description

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 V5.6 or SP1 or higher or STEP 7 V5.2 or 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 (rated value) 850 mA

Current consumption (in no-load operation), typ. 150 mA

Inrush current, typ. 3.5 A

I^2t 1 A²·s

Power loss

Power loss, typ. 4.5 W

Memory

Work memory

- integrated 256 kbyte
- expandable No

Load memory

- Plug-in (MMC) Yes
- Plug-in (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, typ. 0.05 μ s

for word operations, typ. 0.09 μ s

for fixed point arithmetic, typ. 0.12 μ s

for floating point arithmetic, typ. 0.45 μ s

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

- Number, max. see instruction list
- Size, max. 64 kbyte
- Number of free cycle OBs 1; OB 1
- Number of time alarm OBs 1; OB 11
- 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

Counters, timers and their retentivity

S7 counter

- Number 256

Retentivity

- adjustable Yes
- 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

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Retentivity

- adjustable Yes
- 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 (incl. timers, counters, flags), max. 128 kbyte

Flag

- Size, 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

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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 the clock continues at the time of day it had when power was switched off

Operating hours counter

- Number 1
- Number/Number range 0
- Range of values 0 to 2³¹ hours (when using SFC 101)
- Granularity 1 h
- retentive Yes; Must be restarted at each restart

Clock synchronization

- supported Yes
- to MPI, master Yes
- on MPI, device Yes
- to DP, master Yes; With DP slave only slave clock

on DP, device Yes

- in AS, master Yes
- in AS, device 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

Interface types

- RS 485 Yes

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- Output current of the interface, max. 200 mA

Protocols

- MPI Yes
- PROFIBUS DP master No
- PROFIBUS DP device 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 RS 485 interface

Isolated Yes

Interface types

- RS 485 Yes
- Output current of the interface, max. 200 mA

Protocols

- MPI No
- PROFIBUS DP master Yes
- PROFIBUS DP device Yes
- Point-to-point connection No

PROFIBUS DP master

- Transmission rate, max. 12 Mbit/s
- max. number of DP devices 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 devices Yes

— max. number of DP devices that can be activated/deactivated at the same time

8

— DPV1 Yes

Address area

- Inputs, max. 2 048 byte
- Outputs, max. 2 048 byte

User data per DP slave

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— Inputs, max. 244 byte

— Outputs, max. 244 byte

PROFIBUS DP slave

- 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

— Inputs 244 byte

— Outputs 244 byte

Protocols

PROFIsafe No

communication functions / header

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

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- 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

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

Service data

- can be read out Yes

Ambient conditions

Ambient temperature during operation

- min. 0 °C
- max. 60 °C

configuration / header

Configuration software

- STEP 7 Yes; V5.2 SP1 or higher with HW update

configuration / programming / header

- Command set see instruction list
- Nesting levels 8

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- 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
- Block encryption Yes; With S7 block Privacy

Dimensions

Width 40 mm

Height 125 mm

Depth 130 mm

Weights

Weight, approx. 290 g

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