

Siemens 6ES7313-5BE00-0AB0 Manual

Brand	Siemens
Product Series	Siemens
Product Type	SFB

Description

6ES7313-5BE00-0AB0

SIMATIC S7-300, CPU 313C COMPACT CPU WITH MPI, 24 DI/16

DO, 4AI, 2AO 1 PT100, 3 FAST COUNTERS (30 KHZ),

INTEGRATED 24V DC POWER SUPPLY, 32 KBYTE WORKING

MEMORY, MICRO MEMORY CARD REQUIRED

Supply voltage

Rated value (DC) 24 V

permissible range, lower limit (DC) 20.4 V

permissible range, upper limit (DC) 28.8 V

Load voltage L+

- Rated value (DC) 24 V

- permissible range, lower limit (DC) 20.4 V

- permissible range, upper limit (DC) 28.8 V

Input current

Current consumption (rated value) 700 mA

Inrush current, typ. 11 A

Power loss

Power loss, typ. 14 W

Memory

Work memory

- integrated 32 kbyte; For program and data

- expandable No

Load memory

- expandable FEPR0M Yes; with Micro Memory Card (MMC)

- expandable FEPR0M, max. 4 Mbyte

Backup

- present Yes; Guaranteed by MMC (maintenance-free)

- without battery Yes; Program and data

CPU processing times

for bit operations, typ. 0.1 μ s

for bit operations, max. 0.2 μ s

for word operations, typ. 0.5 μ s

for fixed point arithmetic, typ. 1 μ s

for floating point arithmetic, typ. 15 μ s

CPU-blocks

DB

- Number, max. 127; DB 0 reserved

- Size, max. 16 kbyte

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FB

- Number, max. 128
- Size, max. 16 kbyte

FC

- Number, max. 128
- Size, max. 16 kbyte

OB

- Size, max. 16 kbyte
- Number of time alarm OBs 1
- Number of delay alarm OBs 1
- Number of cyclic interrupt OBs 1
- Number of process alarm OBs 1

Nesting depth

- per priority class 8
- additional within an error OB 4

Counters, timers and their retentivity

S7 counter

- Number 256

Retentivity

- adjustable Yes
- lower limit 0
- upper limit 256

Counting range

- lower limit 1
- upper limit 999

IEC counter

- present Yes
- Type SFB

S7 times

- Number 256

Retentivity

- adjustable Yes
- lower limit 0
- upper limit 256

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. 256 byte

Address area

I/O address area

- Inputs 1 kbyte
- Outputs 1 kbyte

Process image

- Inputs 128 byte
- Outputs 128 byte

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Digital channels

- Inputs 992
- Outputs 992

Analog channels

- Inputs 248
- Outputs 124

Hardware configuration

Number of expansion units, max. 3

Number of DP masters

- via CP 1

Number of operable FMs and CPs (recommended)

- FM 8
- CP, PtP 4
- CP, LAN 2

Rack

- Modules per rack, max. 31

Time of day

Clock

- Hardware clock (real-time) Yes
- retentive and synchronizable Yes

Operating hours counter

- Number 1

Clock synchronization

- supported Yes

Digital inputs

Number of digital inputs 24

Input voltage

- Rated value (DC) 24 V
- for signal "0" -3 to +5V
- for signal "1" +15 to +30V

Input current

- for signal "1", typ. 8 mA

Input delay (for rated value of input voltage)

for standard inputs

— parameterizable Yes; 0.1 / 0.3 / 3 / 15 ms

— at "0" to "1", max. 15 ms

for technological functions

— at "0" to "1", max. 16 μ s

Cable length

- shielded, max. 1 000 m; 100 m for technological functions
- unshielded, max. 600 m

Digital outputs

Number of digital outputs 16

Short-circuit protection Yes; Clocked electronically

Limitation of inductive shutdown voltage to L+ (-48 V)

Output voltage

- for signal "1", min. L+ (-0.8 V)

Output current

- for signal "1" permissible range for 0 to 60 °C,
max.

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500 mA

- for signal "1" minimum load current 5 mA
- for signal "0" residual current, max. 0.5 mA

Switching frequency

- with resistive load, max. 100 Hz
- with inductive load, max. 0.5 Hz

Total current of the outputs (per group)

all mounting positions

- up to 40 °C, max. 8 A
- up to 60 °C, max. 4 A

Cable length

- shielded, max. 1 000 m
- unshielded, max. 600 m

Analog inputs

Number of analog inputs 4

- For voltage/current measurement 4
- For resistance/resistance thermometer measurement

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Input ranges

- Voltage Yes
- Current Yes
- Resistance thermometer Yes

- Resistance Yes

Input ranges (rated values), voltages

- 0 to +10 V Yes

Input ranges (rated values), currents

- 0 to 20 mA Yes
- -20 mA to +20 mA Yes
- 4 mA to 20 mA Yes

Input ranges (rated values), resistance thermometer

- Pt 100 Yes

Input ranges (rated values), resistors

- 0 to 600 ohms Yes

Analog outputs

Number of analog outputs 2

Output ranges, voltage

- 0 to 10 V Yes
- -10 V to +10 V Yes

Output ranges, current

- 0 to 20 mA Yes
- -20 mA to +20 mA Yes
- 4 mA to 20 mA Yes

Analog value generation for the inputs

Integration and conversion time/resolution per channel

- Resolution with overrange (bit including sign), max.

12 bit

- Integration time, parameterizable Yes; 2,5 / 16,6 / 20 ms

Analog value generation for the outputs

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Integration and conversion time/resolution per channel

- Resolution with overrange (bit including sign), max.

12 bit

- Conversion time (per channel) 1 ms

Encoder

Connectable encoders

- 2-wire sensor Yes

— permissible quiescent current (2-wire sensor), max.

1.5 mA

Errors/accuracies

Basic error limit (operational limit at 25 °C)

- Voltage, relative to input range, (+/-) 0.7 %
- Current, relative to input range, (+/-) 0.7 %
- Resistance, relative to input range, (+/-) 3 %

- Resistance thermometer, relative to input range, (+/-)

3 %

- Voltage, relative to output range, (+/-) 0.7 %
- Current, relative to output range, (+/-) 0.7 %

Interfaces

MPI

- Cable length, max. 50 m; without repeater

1. Interface

Isolated No

Protocols

- MPI Yes
- PROFIBUS DP master No
- PROFIBUS DP slave No

MPI

- Number of connections 8
- Transmission rate, max. 187.5 kbit/s

Services

- PG/OP communication Yes
- Global data communication Yes
- S7 communication Yes
- S7 communication, as client No
- S7 communication, as server Yes

Communication functions

PG/OP communication Yes

Global data communication

- Number of GD packets, transmitter, max. 4
- Number of GD packets, receiver, max. 4
- Size of GD packets, max. 22 byte

S7 basic communication

- supported Yes
- User data per job, max. 76 byte

S7 communication

- supported Yes

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- as server Yes
- as client No
- User data per job, max. 64 kbyte

Number of connections

- overall 8
- usable for PG communication 7
- reserved for PG communication 1
- adjustable for PG communication, max. 7

- usable for OP communication 7
- reserved for OP communication 1
- adjustable for OP communication, max. 7
- usable for S7 basic communication 4
- reserved for S7 basic communication 4
- adjustable for S7 basic communication, max.

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S7 message functions

Number of login stations for message functions, max. 5

Integrated Functions

Number of counters 3

Counting frequency (counter) max. 30 kHz

Frequency measurement Yes

PID controller Yes

Number of pulse outputs 3

Limit frequency (pulse) 2.5 kHz

Potential separation

Potential separation digital inputs

- Potential separation digital inputs Yes
- between the channels, in groups of 16; 16 and 8
- between the channels and backplane bus Yes

Potential separation digital outputs

- between the channels, in groups of 8
- between the channels and backplane bus Yes

Potential separation analog inputs

- Potential separation analog inputs Yes; common for analog I/O
- between the channels and backplane bus Yes

Potential separation analog outputs

- Potential separation analog outputs Yes

Configuration

Configuration software

- STEP 7 Yes; V5.1 SP2

Programming

- Nesting levels 8

Programming language

- LAD Yes
- FBD Yes
- STL Yes
- SCL Yes
- GRAPH Yes
- HiGraph® Yes

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Know-how protection

- User program protection/password protection Yes

Dimensions

Width 120 mm

Height 125 mm

Depth 130 mm

Weights

Weight, approx. 660 g

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