

Siemens 6ES7313-6CG04-0AB0 Manual

Brand	Siemens
Product Series	Siemens
Product Type	C; min. 2 A; miniature circuit breaker type B, min

Description

6ES7313-6CG04-0AB0

SIMATIC S7-300, CPU 313C-2 DP Compact CPU with MPI, 16 DI/16 DO, 3 highspeed counters (30 kHz), integrated DP interface, Integr. power supply 24 V DC, work memory 128 KB, Front connector (1x 40-pole) and Micro Memory Card required

General information

HW functional status 01

Firmware version V3.3

Engineering with

- Programming package STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203

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) Miniature circuit breaker, type C; min. 2 A; miniature circuit breaker type B, min.

4 A

Mains buffering

- Mains/voltage failure stored energy time 5 ms
- Repeat rate, min. 1 s

Load voltage L+

Digital inputs

— load voltage / at digital input / at DC / rated value 24 V

— Reverse polarity protection Yes

Digital outputs

— Rated value (DC) 24 V

— Reverse polarity protection No

Input current

Current consumption (rated value) 800 mA

Current consumption (in no-load operation), typ. 110 mA

Inrush current, typ. 5 A

I^2t 0.7 A²·s

Digital inputs

- from load voltage L+ (without load), max. 80 mA

Digital outputs

- from load voltage L+, max. 50 mA

Power loss

Power loss, typ. 9 W

Memory

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Work memory

- integrated 128 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. 0.07 μ sfor word operations, typ. 0.15 μ sfor fixed point arithmetic, typ. 0.2 μ sfor floating point arithmetic, typ. 0.72 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: 1 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 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 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

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— 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

— 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)

Retentive data area (incl. timers, counters, flags), max. 64 kbyte

Flag

- Size, max. 256 byte
- Retentivity available Yes; MB 0 to MB 255
- 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. 2048 bytes per block

Address area

I/O address area

- Inputs 2 048 byte
- Outputs 2 048 byte

of which distributed

— Inputs 2 030 byte

— Outputs 2 030 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

Default addresses of the integrated channels

— Digital inputs 124.0 to 125.7

— Digital outputs 124.0 to 125.7

Digital channels

- Inputs 16 256
- of which central 1 008
- Outputs 16 256
- of which central 1 008

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Analog channels

- Inputs 1 015
- of which central 248
- Outputs 1 015
- of which central 248

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 6

Rack

- Racks, max. 4
- Modules per rack, max. 8; In rack 3 max. 7

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
- 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 16

- of which inputs usable for technological functions 12

integrated channels (DI) 16

Input characteristic curve in accordance with IEC 61131, type 1 Yes

Number of simultaneously controllable inputs

horizontal installation

- up to 40 °C, max. 16
- up to 60 °C, max. 8

vertical installation

- up to 40 °C, max. 8

Input voltage

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

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 (You can reconfigure the input delay of the standard inputs during program runtime. Please note that under certain circumstances your newly set filter time may not be effective until the next filter cycle.)

— Rated value 3 ms

for technological functions

— at "0" to "1", max. 16 μ s; Minimum pulse width/minimum pause between pulses at maximum counting frequency

Cable length

- shielded, max. 1 000 m; 100 m for technological functions
- unshielded, max. 600 m; for technological functions: No

for technological functions

— shielded, max. 100 m; at maximum count frequency

— unshielded, max. not allowed

Digital outputs

Number of digital outputs 16

- of which high-speed outputs 4; Notice: You cannot connect the fast outputs of your CPU in parallel integrated channels (DO) 16

Short-circuit protection Yes; Overcurrent electronically

- Response threshold, typ. 1 A

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

Controlling a digital input Yes

Switching capacity of the outputs

- on lamp load, max. 5 W

Load resistance range

- lower limit 48 Ω
- upper limit 4 k Ω

Output voltage

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

Output current

- for signal "1" rated value 500 mA

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