



SIMATIC S7-300, CPU 314 Central processing unit with MPI, Integr. power supply 24 V DC, work memory 128 KB, Micro Memory Card required

Figure similar

| General information | |
|---|---|
| HW functional status | 01 |
| Firmware version | V3.3 |
| Engineering with | |
| <ul style="list-style-type: none"> 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 | |
| <ul style="list-style-type: none"> Mains/voltage failure stored energy time | 5 ms |
| <ul style="list-style-type: none"> Repeat rate, min. | 1 s |
| Input current | |
| Current consumption (rated value) | 650 mA |
| Current consumption (in no-load operation), typ. | 140 mA |
| Inrush current, typ. | 3.5 A |
| I^2t | 1 A ² ·s |
| Power loss | |
| Power loss, typ. | 4 W |
| Memory | |
| Work memory | |
| <ul style="list-style-type: none"> integrated | 128 kbyte |
| <ul style="list-style-type: none"> expandable | No |
| Load memory | |
| <ul style="list-style-type: none"> Plug-in (MMC) | Yes |
| <ul style="list-style-type: none"> Plug-in (MMC), max. | 8 Mbyte |
| <ul style="list-style-type: none"> Data management on MMC (after last programming), min. | 10 a |
| Backup | |
| <ul style="list-style-type: none"> present | Yes; Guaranteed by MMC (maintenance-free) |
| <ul style="list-style-type: none"> without battery | Yes; Program and data |
| CPU processing times | |
| for bit operations, typ. | 0.06 μ s |
| for word operations, typ. | 0.12 μ s |
| for fixed point arithmetic, typ. | 0.16 μ s |
| for floating point arithmetic, typ. | 0.59 μ s |
| CPU-blocks | |

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| Number of blocks (total) | 1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used. |
| DB | |
| <ul style="list-style-type: none"> Number, max. Size, max. | 1 024; Number range: 1 to 16000 64 kbyte |
| FB | |
| <ul style="list-style-type: none"> Number, max. Size, max. | 1 024; Number range: 0 to 7999 64 kbyte |
| FC | |
| <ul style="list-style-type: none"> Number, max. Size, max. | 1 024; Number range: 0 to 7999 64 kbyte |
| OB | |
| <ul style="list-style-type: none"> Number, max. Size, max. Number of free cycle OBs Number of time alarm OBs Number of delay alarm OBs Number of cyclic interrupt OBs Number of process alarm OBs Number of startup OBs Number of asynchronous error OBs Number of synchronous error OBs | see instruction list 64 kbyte 1; OB 1 1; OB 10 2; OB 20, 21 4; OB 32, 33, 34, 35 1; OB 40 1; OB 100 4; OB 80, 82, 85, 87 2; OB 121, 122 |
| Nesting depth | |
| <ul style="list-style-type: none"> per priority class additional within an error OB | 16 4 |
| Counters, timers and their retentivity | |
| S7 counter | |
| <ul style="list-style-type: none"> Number | 256 |
| Retentivity | |
| <ul style="list-style-type: none"> adjustable lower limit upper limit preset | Yes 0 255 Z 0 to Z 7 |
| Counting range | |
| <ul style="list-style-type: none"> lower limit upper limit | 0 999 |
| IEC counter | |
| <ul style="list-style-type: none"> present Type Number | Yes SFB Unlimited (limited only by RAM capacity) |
| S7 times | |
| <ul style="list-style-type: none"> Number | 256 |
| Retentivity | |
| <ul style="list-style-type: none"> adjustable lower limit upper limit preset | Yes 0 255 No retentivity |
| Time range | |
| <ul style="list-style-type: none"> lower limit upper limit | 10 ms 9 990 s |
| IEC timer | |
| <ul style="list-style-type: none"> present Type Number | Yes SFB Unlimited (limited only by RAM capacity) |
| Data areas and their retentivity | |
| Retentive data area (incl. timers, counters, flags), max. | 64 kbyte |
| Flag | |
| <ul style="list-style-type: none"> Size, max. Retentivity available Retentivity preset Number of clock memories | 256 byte Yes; MB 0 to MB 255 MB 0 to MB 15 8; 1 memory byte |
| Data blocks | |
| <ul style="list-style-type: none"> Retentivity adjustable Retentivity preset | Yes; via non-retain property on DB Yes |

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| Local data | |
| • per priority class, max. | 32 kbyte; Max. 2 KB per block |
| Address area | |
| I/O address area | |
| • Inputs | 1 024 byte |
| • Outputs | 1 024 byte |
| Process image | |
| • Inputs | 1 024 byte |
| • Outputs | 1 024 byte |
| • Inputs, adjustable | 1 024 byte |
| • Outputs, adjustable | 1 024 byte |
| • Inputs, default | 128 byte |
| • Outputs, default | 128 byte |
| Digital channels | |
| • Inputs | 1 024 |
| — of which central | 1 024 |
| • Outputs | 1 024 |
| — of which central | 1 024 |
| Analog channels | |
| • Inputs | 256 |
| — of which central | 256 |
| • Outputs | 256 |
| — of which central | 256 |
| Hardware configuration | |
| Number of expansion units, max. | 3 |
| Number of DP masters | |
| • integrated | 0 |
| • 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 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 1; MPI
Number of RS 422 interfaces 0

1. Interface

Interface type Integrated RS 485 interface

Isolated No

Interface types

- RS 485 Yes
- Output current of the interface, 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 No
- 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

Protocols

PROFIsafe No

communication functions / header

PG/OP communication Yes

Data record routing No

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 12
- usable for PG communication 11
 - reserved for PG communication 1
 - adjustable for PG communication, min. 1
 - adjustable for PG communication, max. 11
- usable for OP communication 11
 - reserved for OP communication 1
 - adjustable for OP communication, min. 1

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| — adjustable for OP communication, max. | 11 |
| • usable for S7 basic communication | 8 |
| — reserved for S7 basic communication | 0 |
| — adjustable for S7 basic communication, min. | 0 |
| — adjustable for S7 basic communication, max. | 8 |
| S7 message functions | |
| Number of login stations for message functions, max. | 12; 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. | 499 |
| — 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 |
| • System functions (SFC) | see instruction list |
| • System function blocks (SFB) | see instruction blocks 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.

280 g

last modified:

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