

SIMATIC S7-300, CPU 314 CPU WITH MPI INTERFACE, INTEGRATED 24V DC POWER SUPPLY, 128 KBYTE WORKING MEMORY, MICRO MEMORY CARD NECESSARY



Figure similar

| General information | |
|--|---|
| Hardware product version | 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) | |
| <ul style="list-style-type: none"> 24 V DC | Yes |
| 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 | |
|---------------|--|

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|--|-----------|
| Work memory | |
| <ul style="list-style-type: none"> integrated | 128 kbyte |
| <ul style="list-style-type: none"> expandable | No |
| <ul style="list-style-type: none"> Size of retentive memory for retentive data blocks | 64 kbyte |

| | |
|---|---------|
| 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 y |

| | |
|---|---|
| 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 |

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| CPU processing times | |
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| | |
|-------------------------------------|---------|
| for bit operations, typ. | 0.06 μs |
| for word operations, typ. | 0.12 μs |
| for fixed point arithmetic, typ. | 0.16 μs |
| for floating point arithmetic, typ. | 0.59 μs |

| | |
|-------------------|--|
| 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 | |
| <ul style="list-style-type: none"> Number, max. | 1 024; Number range: 1 to 16000 |
| <ul style="list-style-type: none"> Size, max. | 64 kbyte |

| | |
|--|--------------------------------|
| FB | |
| <ul style="list-style-type: none"> Number, max. | 1 024; Number range: 0 to 7999 |
| <ul style="list-style-type: none"> Size, max. | 64 kbyte |

| | |
|--|--------------------------------|
| FC | |
| <ul style="list-style-type: none"> Number, max. | 1 024; Number range: 0 to 7999 |
| <ul style="list-style-type: none"> Size, max. | 64 kbyte |

| | |
|--|----------------------|
| OB | |
| <ul style="list-style-type: none"> Description | see instruction list |
| <ul style="list-style-type: none"> Size, max. | 64 kbyte |
| <ul style="list-style-type: none"> 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 startup OBs 1; OB 100
- Number of asynchronous error OBs 4; OB 80, 82, 85, 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
- 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, max. 64 KB

| Flag | |
|--|------------------------------------|
| • Number, 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 | |
| • Number, max. | 1 024; Number range: 1 to 16000 |
| • Size, max. | 64 kbyte |
| • 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 | 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 | 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 hour |
| • 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 RS 485 interfaces | 1; MPI |
| Number of RS 422 interfaces | 0 |
| 1. Interface | |
| Interface type | Integrated RS 485 interface |

| | |
|---|--|
| Physics | RS 485 |
| Isolated | No |
| Power supply to interface (15 to 30 V DC), max. | 200 mA |
| Functionality | |
| • 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 |
| Communication functions | |
| 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 |
| — 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 |

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| — can be set | 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 | |
| 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 | |
| • 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: | 03/23/2017 |