

Spare part SIMATIC S7-300, CPU 315-2DP Central processing unit with MPI Integr. power supply 24 V DC Work memory 128 KB 2nd interface DP master/slave Micro Memory Card required



| General information | |
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| HW functional status | 01 |
| Firmware version | V2.6 |
| Engineering with | |
| <ul style="list-style-type: none"> Programming package | STEP 7 V5.2 + SP1 or higher with HW update |
| Supply voltage | |
| Rated value (DC) | Yes |
| <ul style="list-style-type: none"> 24 V DC | |
| permissible range, lower limit (DC) | 20.4 V |
| permissible range, upper limit (DC) | 28.8 V |
| external protection for power supply lines (recommendation) | 2 A min. |
| Input current | |
| Current consumption (rated value) | 0.8 A |
| Current consumption (in no-load operation), typ. | 60 mA |
| Inrush current, typ. | 2.5 A |
| I^2t | 0.5 A ² ·s |
| Power loss | |

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| Power loss, typ. | 2.5 W |
| Memory | |
| Work memory | |
| <ul style="list-style-type: none"> integrated | 128 kbyte; For program and data |
| <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 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 |
| CPU processing times | |
| for bit operations, typ. | 0.1 μ s |
| for word operations, typ. | 0.2 μ s |
| for fixed point arithmetic, typ. | 2 μ s |
| for floating point arithmetic, typ. | 3 μ s |
| CPU-blocks | |
| Number of blocks (total) | 1 024; (DBs, FCs, FBs OBs, SDBs); the maximum number of loadable blocks can be reduced by the MMC being used. |
| DB | |
| <ul style="list-style-type: none"> Number, max. | 1 023; Number band: 1 to 1023 |
| <ul style="list-style-type: none"> Size, max. | 16 kbyte |
| FB | |
| <ul style="list-style-type: none"> Number, max. | 1 024; Number range: 0 to 2047 |
| <ul style="list-style-type: none"> Size, max. | 16 kbyte |
| FC | |
| <ul style="list-style-type: none"> Number, max. | 1 024; Number range: 0 to 2047 |
| <ul style="list-style-type: none"> Size, max. | 16 kbyte |
| OB | |
| <ul style="list-style-type: none"> Size, max. | 16 kbyte |
| <ul style="list-style-type: none"> Number of free cycle OBs | 1; OB 1 |
| <ul style="list-style-type: none"> Number of time alarm OBs | 1; OB 10 |
| <ul style="list-style-type: none"> Number of delay alarm OBs | 1; OB 20 |
| <ul style="list-style-type: none"> Number of cyclic interrupt OBs | 1; OB 35 |
| <ul style="list-style-type: none"> Number of process alarm OBs | 1; OB 40 |
| <ul style="list-style-type: none"> Number of DPV1 alarm OBs | 3; OB 55, 56, 57 |
| <ul style="list-style-type: none"> Number of startup OBs | 1; OB 100 |
| <ul style="list-style-type: none"> Number of asynchronous error OBs | 1; OB 80 |
| <ul style="list-style-type: none"> Number of synchronous error OBs | 2; OB 121, 122 |

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| 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 | 255 |
| — preset | 8 |
| Counting range | |
| — adjustable | Yes |
| — 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 |
| Flag | |
| • Number, max. | 2 048 byte |
| • 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 |

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| • Retentivity preset | Yes |
| Address area | |
| I/O address area | |
| • Inputs | 2 kbyte |
| • Outputs | 2 kbyte |
| Process image | |
| • Inputs | 128 byte |
| • Outputs | 128 byte |
| 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 |
| 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 |
| Operating hours counter | |
| • Number | 1 |
| • Number/Number range | 0 |
| • Range of values | 0 to 2 ³¹ hours (when using SFC 101) |

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| • 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 | |
| integrated channels (DI) | 0 |
| Digital outputs | |
| integrated channels (DO) | 0 |
| Analog inputs | |
| integrated channels (AI) | 0 |
| Analog outputs | |
| integrated channels (AO) | 0 |
| Interfaces | |
| Number of industrial Ethernet interfaces | 0 |
| Number of PROFINET interfaces | 0 |
| Number of RS 485 interfaces | 1 |
| 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 |
| Protocols | |
| • MPI | Yes |
| • PROFIBUS DP master | No |
| • PROFIBUS DP slave | No |
| • Point-to-point connection | No |
| MPI | |
| • Number of connections | 16 |
| • 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 |

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| — S7 communication, as client | No |
| — S7 communication, as server | Yes |

2. Interface

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|---|---|
| Interface type | Integrated RS 485 interface |
| Physics | RS 485 |
| Isolated | Yes |
| Power supply to interface (15 to 30 V DC), max. | 200 mA |
| Protocols | |
| • MPI | No |
| • PROFIBUS DP master | Yes |
| • PROFIBUS DP slave | Yes |
| • Point-to-point connection | No |
| PROFIBUS DP master | |
| • Number of connections, max. | 16 |
| • Transmission rate, max. | 12 Mbit/s |
| • Number of DP slaves, max. | 124; Per station |
| Services | |
| — PG/OP communication | Yes |
| — Routing | Yes |
| — Global data communication | No |
| — S7 basic communication | Yes; I blocks only |
| — S7 communication | Yes |
| — S7 communication, as client | No |
| — S7 communication, as server | Yes |
| — Equidistance | Yes |
| — Isochronous mode | No |
| — SYNC/FREEZE | Yes |
| — DPV1 | Yes |
| Address area | |
| — Inputs, max. | 2 048 byte |
| — Outputs, max. | 2 048 byte |
| User data per DP slave | |
| — Inputs, max. | 244 byte |
| — Outputs, max. | 244 byte |
| PROFIBUS DP slave | |
| • Number of connections | 16 |
| • GSD file | The latest GSD file is available at: http://www.siemens.com/profibus-gsd |
| • Transmission rate, max. | 12 Mbit/s |
| • automatic baud rate search | Yes; only with passive interface |
| • Address area, max. | 32 |

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| • User data per address area, max. | 32 byte |
| Services | |
| — PG/OP communication | Yes |
| — Routing | Yes; with interface active |
| — Global data communication | No |
| — S7 basic communication | No |
| — S7 communication | Yes |
| — 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 |
| Communication functions | |
| PG/OP communication | 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. | 64 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 |
| • usable for routing | 4 |

S7 message functions

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| 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. | 40 |

Test commissioning functions

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| Status block | Yes |
| Single step | Yes |
| Number of breakpoints | 2 |
| 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. | 100 |
| — adjustable | No |

Configuration

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| 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

Dimensions

| | |
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| Width | 40 mm |
| Height | 125 mm |
| Depth | 130 mm |

Weights

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| Weight, approx. | 290 g |
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