SIEMENS

## Data sheet 6AG1314-1AG14-2AY0




Figure similar

***spare part*** SIPLUS S7-300 CPU 314 based on 6ES7314-1AG14-0AB0 with conformal coating, -25…+60 °C, central processing unit with MPI, integrated power supply 24 V DC, work memory 128 KB, Micro Memory Card required

| | |
|---|---|
| **General information** | |
| Product type designation | CPU 314 |
| Engineering with | |
| ● 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; A power supply according to EN 50155 shall be used |
| 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 | |
| ● Mains/voltage failure stored energy time | 5 ms |
| ● 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 $A^2 \cdot s$ |
| **Power loss** | |
| Power loss, typ. | 4 W |
| **Storage** | |
| 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. | 0.06 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 |


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| | 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: 0 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 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 | |
| — can be set | Yes |
| — preset | Z 0 to Z 7 |
| Counting range | |
| — can be set | Yes |
| — lower limit | 0 |
| — upper limit | 999 |
| IEC counter | |
| ● present | Yes |
| ● Type | SFB |
| ● Number | Unlimited (limited only by RAM capacity) |
| S7 timer | |
| ● 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) |
| **Data areas and their retentivity** | |
| 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 |


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| ● 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 | 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 |
| ● on MPI, device | Yes |
| ● in AS, master | Yes |
| ● in AS, device | No |
| **Digital inputs** | |
| Number of digital inputs | 0 |
| **Digital outputs** | |


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| Number of digital outputs | 0 |
| **Analog inputs** | |
| Number of analog inputs | 0 |
| **Interfaces** | |
| 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 device | 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** | |
| 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 |


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| — 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 |
| — can be set | No |
| — of which powerfail-proof | 100; Only the last 100 entries are retained |
| ● Number of entries readable in RUN, max. | |
| — can be set | Yes; From 10 to 499 |
| — preset | 10 |
| **Standards, approvals, certificates** | |
| CE mark | Yes |
| UL approval | Yes |
| RCM (formerly C-TICK) | Yes |
| KC approval | Yes |
| EAC (formerly Gost-R) | Yes |
| Use in hazardous areas | |
| ● ATEX | Yes |
| Railway application | |
| ● EN 50155 | Yes; Sections 4, 5 and 12; no further agreements apply; T1, Category 1, Class A/B, EN 50155:2007 |
| **Ambient conditions** | |
| Ambient temperature during operation | |
| ● min. | -25 °C; = Tmin |
| ● max. | 60 °C; = Tmax; the rated temperature range of -25 ... +55 °C (T1) applies for the use on railway vehicles according to EN50155 |
| Ambient temperature during storage/transportation | |
| ● min. | -40 °C |
| ● max. | 70 °C |
| Altitude during operation relating to sea level | |
| ● Installation altitude above sea level, max. | 5 000 m |
| ● Ambient air temperature-barometric pressure-altitude | Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m) |


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| Relative humidity | |
| ● With condensation, tested in accordance with IEC 60068-2-38, max. | 100 %; RH incl. condensation/frost (no commissioning under condensation conditions) |
| Resistance | |
| Use in stationary industrial systems | |
| — to biologically active substances according to EN 60721-3-3 | Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request |
| — to chemically active substances according to EN 60721-3-3 | Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * |
| — to mechanically active substances according to EN 60721-3-3 | Yes; Class 3S4 incl. sand, dust, * |
| Use on land craft, rail vehicles and special-purpose vehicles | |
| — to biologically active substances according to EN 60721-3-5 | Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request |
| — to chemically active substances according to EN 60721-3-5 | Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); * |
| — to mechanically active substances according to EN 60721-3-5 | Yes; Class 5S3 incl. sand, dust; * |
| Remark | |
| — Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04 | * The supplied plug covers must remain in place over the unused interfaces during operation! |
| **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 |
| **Classifications** | |

| | Version | Classification |
|---|---|---|
| eClass | 16 | 27-24-22-07 |
| eClass | 14 | 27-24-22-07 |
| eClass | 12 | 27-24-22-07 |
| eClass | 9.1 | 27-24-22-07 |
| eClass | 9 | 27-24-22-07 |
| eClass | 8 | 27-24-22-07 |
| eClass | 7.1 | 27-24-22-07 |
| eClass | 6 | 27-24-22-07 |
| ETIM | 10 | EC000236 |
| ETIM | 9 | EC000236 |


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|---|---|---|
| ETIM | 8 | EC000236 |
| ETIM | 7 | EC000236 |
| IDEA | 4 | 3565 |
| UNSPSC | 15 | 32-15-17-05 |

## Approvals / Certificates

### General Product Approval




Manufacturer Declaration

Declaration of Conformity




China RoHS




| General Product Approval | EMV | For use in hazardous locations |
|---|---|---|
|  |  | CCC-Ex |



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