SIEMENS

## Data sheet 6AG1212-1HD30-2XB0

***Spare part*** SIPLUS S7-1200 CPU 1212C DC/DC/relay -25...+70 °C with conformal coating based on 6ES7212-1HD30-0XB0 . compact CPU, DC/DC/relay, onboard I/O: 8 DI 24 V DC 6 DO relay 0.5 A 2 AI 0-10 V DC Power supply: 20.4-28.8V DC Program/data memory 25 KB

| | |
|---|---|
| **General information** | |
| Product type designation | CPU 1212C DC/DC/relay |
| Engineering with | |
| • Programming package | STEP 7 Basic V10.5 |
| **Supply voltage** | |
| Rated value (DC) | |
| • 24 V DC | Yes |
| permissible range, lower limit (DC) | 20.4 V |
| permissible range, upper limit (DC) | 28.8 V |
| Load voltage L+ | |
| • Rated value (DC) | 24 V |
| • permissible range, lower limit (DC) | 5 V |
| • permissible range, upper limit (DC) | 250 V |
| **Input current** | |
| Current consumption (rated value) | 175 mA; Typical |
| Current consumption, max. | 1.2 A; 24 V DC |
| Inrush current, max. | 12 A; at 28.8 V |
| **Output current** | |
| for backplane bus (5 V DC), max. | 1 000 mA; Max. 5 V DC for SM and CM |
| **Encoder supply** | |
| 24 V encoder supply | |
| • 24 V | Permissible range: 20.4V to 28.8V |
| **Power loss** | |
| Power loss, typ. | 9 W |
| **Memory** | |
| Work memory | |
| • integrated | 25 kbyte |
| • expandable | No |
| Load memory | |
| • integrated | 1 Mbyte |
| • Plug-in (SIMATIC Memory Card), max. | 24 Mbyte; with SIEMENS Memory Card |

| | |
|---|---|
| Backup | |
| • present | Yes; Entire project maintenance-free in the integral EEPROM |
| • without battery | Yes |
| **CPU processing times** | |
| for bit operations, typ. | 0.1 µs; / Operation |
| for word operations, typ. | 12 µs; / Operation |
| for floating point arithmetic, typ. | 18 µs; / Operation |
| **CPU-blocks** | |
| Number of blocks (total) | DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used |
| OB | |
| • Number, max. | Limited only by RAM for code |
| **Data areas and their retentivity** | |
| Retentive data area (incl. timers, counters, flags), max. | 2 048 byte |
| Flag | |
| • Number, max. | 4 kbyte; Size of bit memory address area |
| **Address area** | |
| I/O address area | |
| • Inputs | 1 024 byte |
| • Outputs | 1 024 byte |
| Process image | |
| • Inputs, adjustable | 1 kbyte |
| • Outputs, adjustable | 1 kbyte |
| **Hardware configuration** | |
| Number of modules per system, max. | 3 com. modules, no signal board can be used, 2 signal modules |
| **Time of day** | |
| Clock | |
| • Hardware clock (real-time) | Yes |
| • Backup time | 240 h; Typical |
| • Deviation per day, max. | ±60 s/month at 25 °C |
| **Digital inputs** | |
| Number of digital inputs | 8; Integrated; > +60 °C Number of simultaneously controllable inputs and outputs max. 50 % |
| • of which inputs usable for technological functions | 4; HSC (High Speed Counting) |
| Source/sink input | Yes |
| Input voltage | |
| • Rated value (DC) | 24 V |

| | |
|---|---|
| • for signal "0" | 5 V DC at 1 mA |
| • for signal "1" | 15 V DC at 2.5 mA |
| Input current | |
| • for signal "1", typ. | 1 mA |
| Input delay (for rated value of input voltage) | |
| for standard inputs | |
| — parameterizable | 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four |
| — at "0" to "1", min. | 0.2 ms |
| — at "0" to "1", max. | 12.8 ms |
| for interrupt inputs | |
| — parameterizable | Yes |
| for counter/technological functions | |
| — parameterizable | Single phase: 3 @ 100 kHz & 1 @ 30 kHz, differential: 3 @ 80 kHz & 1 @ 30 kHz |
| Cable length | |
| • shielded, max. | 500 m; 50 m for technological functions |
| • unshielded, max. | 300 m; For technological functions: No |

| Digital outputs | |
|---|---|
| Number of digital outputs | 6; Relay; > +60 °C Number of simultaneously controllable inputs and outputs max. 50% |
| Short-circuit protection | No; to be provided externally |
| Switching capacity of the outputs | |
| • with resistive load, max. | 2 A |
| • on lamp load, max. | 30 W with DC, 200 W with AC |
| Output delay with resistive load | |
| • "0" to "1", max. | 10 ms; max. |
| • "1" to "0", max. | 10 ms; max. |
| Switching frequency | |
| • of the pulse outputs, with resistive load, max. | 1 Hz |
| Relay outputs | |
| • Number of relay outputs | 6 |
| • Number of operating cycles, max. | mechanically 10 million, at rated load voltage 100 000 |
| Cable length | |
| • shielded, max. | 500 m |
| • unshielded, max. | 150 m |

| Analog inputs | |
|---|---|
| Number of analog inputs | 2; > +60 °C Number of simultaneously controllable inputs and outputs max. 50% |
| Input ranges | |
| • Voltage | Yes |
| Input ranges (rated values), voltages | |

| | |
|---|---|
| • 0 to +10 V | Yes |
| • Input resistance (0 to 10 V) | ≥100k ohms |
| Cable length | |
| • shielded, max. | 100 m; twisted and shielded |

| Analog outputs | |
|---|---|
| Number of analog outputs | 0 |
| Cable length | |
| • shielded, max. | 100 m; shielded, twisted pair |

| Analog value generation for the inputs | |
|---|---|
| Integration and conversion time/resolution per channel | |
| • Resolution with overrange (bit including sign), max. | 10 bit |
| • Integration time, parameterizable | Yes |
| • Conversion time (per channel) | 625 µs |

| Encoder | |
|---|---|
| Connectable encoders | |
| • 2-wire sensor | Yes |

| 1. Interface | |
|---|---|
| Interface type | PROFINET |
| Physics | Ethernet |
| Isolated | Yes |
| automatic detection of transmission rate | Yes |
| Autonegotiation | Yes |
| Autocrossing | Yes |
| Functionality | |
| • PROFINET IO Controller | Yes |

| Protocols | |
|---|---|
| Supports protocol for PROFINET IO | No |
| PROFIBUS | No |
| AS-Interface | No |
| Protocols (Ethernet) | |
| • TCP/IP | Yes |
| Open IE communication | |
| • TCP/IP | Yes |
| • ISO-on-TCP (RFC1006) | Yes |
| Web server | |
| • User-defined websites | Yes |
| Further protocols | |
| • MODBUS | No |

| Communication functions |
|---|

| | |
|---|---|
| S7 communication | |
| • supported | Yes |
| • as server | Yes |
| Web server | |
| • supported | Yes |
| Number of connections | |
| • overall | 15; dynamically |

| Test commissioning functions | |
|---|---|
| Status/control | |
| • Status/control variable | Yes |
| • Variables | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters |
| Forcing | |
| • Forcing | Yes |

| Integrated Functions | |
|---|---|
| Number of counters | 4 |
| Counting frequency (counter) max. | 100 kHz |
| Frequency measurement | Yes |
| controlled positioning | Yes |
| PID controller | Yes |
| Number of alarm inputs | 4 |

| Potential separation | |
|---|---|
| Potential separation digital inputs | |
| • Potential separation digital inputs | No |
| • between the channels, in groups of | 1 |
| Potential separation digital outputs | |
| • Potential separation digital outputs | Relays |
| • between the channels | No |
| • between the channels, in groups of | 1 |

| Permissible potential difference | |
|---|---|
| between different circuits | 500 V DC between 24 V DC and 5 V DC |

| EMC | |
|---|---|
| Interference immunity against discharge of static electricity | |
| • Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 | Yes |
| — Test voltage at air discharge | 8 kV |
| — Test voltage at contact discharge | 6 kV |
| Interference immunity to cable-borne interference | |
| • Interference immunity on supply lines acc. to IEC 61000-4-4 | Yes |

| | |
|---|---|
| • Interference immunity on signal cables acc. to IEC 61000-4-4 | Yes |
| Interference immunity against voltage surge | |
| • on the supply lines acc. to IEC 61000-4-5 | Yes |
| Interference immunity against conducted variable disturbance induced by high-frequency fields | |
| • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 | Yes |
| Emission of radio interference acc. to EN 55 011 | |
| • Limit class A, for use in industrial areas | Yes; Group 1 |
| • Limit class B, for use in residential areas | Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 |

| Degree and class of protection | |
|---|---|
| Degree of protection acc. to EN 60529 | |
| • IP20 | Yes |

| Standards, approvals, certificates | |
|---|---|
| CE mark | Yes |
| UL approval | Yes |
| cULus | Yes |

| Ambient conditions | |
|---|---|
| Free fall | |
| • Fall height, max. | 0.3 m; five times, in product package |
| Ambient temperature during operation | |
| • horizontal installation, min. | -25 °C; = Tmin |
| • horizontal installation, max. | 70 °C; = Tmax; > +60 °C Number of simultaneously controllable inputs and outputs max. 50%; no signal board can be used |
| • vertical installation, min. | -25 °C; = Tmin |
| • vertical installation, max. | 45 °C; = Tmax |
| Ambient temperature during storage/transportation | |
| • min. | -40 °C |
| • max. | 70 °C |
| Altitude during operation relating to sea level | |
| • Ambient air temperature-barometric pressure-altitude | Tmin ... Tmax at 1 080 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) |
| Relative humidity | |
| • With condensation, tested in accordance with IEC 60068-2-38, max. | 100 %; RH incl. condensation/frost permitted (no commissioning in bedewed state) |
| Vibrations | |
| • Vibration resistance during operation acc. to IEC 60068-2-6 | 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail |
| • Operation, tested according to IEC 60068-2-6 | Yes |
| Shock testing | |

| | |
|---|---|
| • tested according to IEC 60068-2-27 | Yes; 15 g (m/s²), 11 ms pulse, 6 shocks in each of 3 axes |
| 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 incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation! |
| — to mechanically active substances according to EN 60721-3-3 | Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation! |

| Configuration | |
|---|---|
| Programming | |
| Programming language | |
| — LAD | Yes |
| — FBD | Yes |
| — SCL | Yes |
| Cycle time monitoring | |
| • adjustable | Yes |

| Dimensions | |
|---|---|
| Width | 90 mm |
| Height | 100 mm |
| Depth | 75 mm |

| Weights | |
|---|---|
| Weight, approx. | 385 g |

**last modified:** 05/18/2018