SIEMENS

## Data sheet 6AG1215-1HG40-4XB0

SIPLUS S7-1200 CPU 1215C DC/DC/relay for medial exposure with conformal coating based on 6ES7215-1HG40-0XB0 . compact CPU, DC/DC/relay, 2 PROFINET ports, onboard I/O: 14 DI 24 V DC 10 DO relay 2 A, 2 AI 0-10 V DC 2 AO 0-20 mA DC, Power supply: DC 20.4-28.8V DC, Program/data memory 100 KB

| General information | |
|---|---|
| Product type designation | CPU 1215C DC/DC/relay |
| Firmware version | V4.1 |
| Engineering with | |
| • Programming package | STEP 7 V13 SP1 or higher |

| 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) | 500 mA; CPU only |
| Current consumption, max. | 1 500 mA; CPU with all expansion modules |
| Inrush current, max. | 12 A; at 28.8 V DC |

| | |
|---|---|
| **Encoder supply** | |
| 24 V encoder supply | |
| • 24 V | L+ minus 4 V DC min. |
| **Power loss** | |
| Power loss, typ. | 12 W |
| **Memory** | |
| Work memory | |
| • integrated | 125 kbyte |
| • expandable | No |
| Load memory | |
| • integrated | 4 Mbyte |
| • Plug-in (SIMATIC Memory Card), max. | with SIMATIC memory card |
| Backup | |
| • present | Yes; maintenance-free |
| • without battery | Yes |
| **CPU processing times** | |
| for bit operations, typ. | 0.085 µs; / instruction |
| for word operations, typ. | 1.7 µs; / instruction |
| for floating point arithmetic, typ. | 2.5 µs; / instruction |
| **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. | 10 kbyte |
| Flag | |
| • Number, max. | 8 kbyte; Size of bit memory address area |
| **Address area** | |
| Process image | |
| • Inputs, adjustable | 1 kbyte |
| • Outputs, adjustable | 1 kbyte |
| **Hardware configuration** | |
| Number of modules per system, max. | 3 comm. modules, 1 signal board, 8 signal modules |
| **Time of day** | |
| Clock | |
| • Hardware clock (real-time) | Yes |

| | |
|---|---|
| • Backup time | 480 h; Typical |
| • Deviation per day, max. | ±60 s/month at 25 °C |

| Digital inputs | |
|---|---|
| Number of digital inputs | 14; Integrated |
| • of which inputs usable for technological functions | 6; HSC (High Speed Counting) |
| Source/sink input | Yes |
| Number of simultaneously controllable inputs | |
| all mounting positions | |
| — up to 40 °C, max. | 14 |
| 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 technological functions | |
| — parameterizable | Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 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 | 10; Relays |
| 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 | 10 |

| | |
|---|---|
| • 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 |
| 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 | 2 |
| Output ranges, current | |
| • 0 to 20 mA | Yes |
| **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 |
| **Analog value generation for the outputs** | |
| Integration and conversion time/resolution per channel | |
| • Resolution with overrange (bit including sign), max. | 10 bit |
| **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 |
| Protocols | |
| • PROFINET IO Controller | Yes |
| • PROFINET IO Device | Yes; Also simultaneously with IO-Device functionality |

| | |
|---|---|
| PROFINET IO Controller | |
| • Transmission rate, max. | 100 Mbit/s |
| Services | |
| — Number of connectable IO Devices, max. | 16 |
| PROFINET IO Device | |
| Services | |
| — Shared device | Yes |
| — Number of IO Controllers with shared device, max. | 2 |

| Protocols | |
|---|---|
| Supports protocol for PROFINET IO | Yes |
| PROFIBUS | Yes; CM 1243-5 required |
| AS-Interface | Yes |
| Protocols (Ethernet) | |
| • TCP/IP | Yes |
| Open IE communication | |
| • TCP/IP | Yes |
| • ISO-on-TCP (RFC1006) | Yes |
| • UDP | Yes |
| Web server | |
| • supported | Yes |
| • User-defined websites | Yes |
| Further protocols | |
| • MODBUS | Yes |

| Communication functions | |
|---|---|
| S7 communication | |
| • supported | Yes |
| • as server | Yes |
| • as client | Yes |
| Number of connections | |
| • overall | 16; dynamically |

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

| | |
|---|---|
| • Number of configurable Traces | 2; Up to 512 KB of data per trace are possible |

| Integrated Functions | |
|---|---|
| Number of counters | 6 |
| Counting frequency (counter) max. | 100 kHz |
| Frequency measurement | Yes |
| controlled positioning | Yes |
| Number of position-controlled positioning axes, max. | 8 |
| Number of positioning axes via pulse-direction interface | Up to 4 with SB 1222 |
| PID controller | Yes |
| Number of alarm inputs | 4 |

| Potential separation | |
|---|---|
| Potential separation digital inputs | |
| • Potential separation digital inputs | 500V AC for 1 minute |
| • 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 | 2 |

| 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 |
| **Ambient conditions** | |
| Free fall | |
| • Fall height, max. | 0.3 m; five times, in product package |
| Ambient temperature during operation | |
| • min. | -20 °C; = Tmin; Startup @ 0 °C |
| • max. | 60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical |
| Ambient temperature during storage/transportation | |
| • min. | -40 °C |
| • max. | 70 °C |
| Altitude during operation relating to sea level | |
| • Installation altitude above sea level, max. | 2 000 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); above 2 000 m max. 132 V AC |
| Relative humidity | |
| • With condensation, tested in accordance with IEC 60068-2-38, max. | 100 %; RH incl. condensation/frost (no commissioning under condensation conditions) |
| 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; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms |
| Resistance | |
| Coolants and lubricants | |
| — Resistant to commercially available coolants and lubricants | Yes |
| 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 ships/at sea | |
| — to biologically active substances according to EN 60721-3-6 | Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request |

| | |
|---|---|
| — to chemically active substances according to EN 60721-3-6 | Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * |
| — to mechanically active substances according to EN 60721-3-6 | Yes; Class 6S3 incl. sand, dust; * |
| Remark | |
| — Note regarding classification of environmental conditions acc. to EN 60721 | * The supplied plug covers must remain in place over the unused interfaces during operation! |

## Configuration

### Programming

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

## Dimensions

| | |
|---|---|
| Width | 130 mm |
| Height | 100 mm |
| Depth | 75 mm |

## Weights

| | |
|---|---|
| Weight, approx. | 585 g |

**last modified:** 07/29/2018