



SIPLUS S7-1200 CPU 1215C DC/DC/relay based on 6ES7215-1HG40-0XB0 with conformal coating, -40...+60 °C, start up -25 °C, compact CPU, DC/DC/relay, 2 PROFINET ports, onboard I/O: 14 DI 24 V DC; 10 DQ relay 2 A; 2 AI 0-10 V DC, power supply: DC 20.4-28.8 V DC, program/data memory 125 KB

| General information                                      |                                                                                                                                                  |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Product type designation                                 | CPU 1215C DC/DC/relay                                                                                                                            |
| Firmware version                                         | V4.1                                                                                                                                             |
| based on                                                 | <a href="#">6ES7215-1HG40-0XB0</a>                                                                                                               |
| Engineering with                                         |                                                                                                                                                  |
| • STEP 7 TIA Portal configurable/integrated from version | see entry ID: 109746275                                                                                                                          |
| 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                                             | 100 kbyte                                                                                                                                        |
| 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 |

|                                                           |                                                                                          |
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|                                                           | memory can be used                                                                       |
| OB                                                        |                                                                                          |
| • Number, max.                                            | Limited only by RAM for code                                                             |
| <b>Data areas and their retentivity</b>                   |                                                                                          |
| Retentive data area (incl. timers, counters, flags), max. | 10 kbyte                                                                                 |
| Flag                                                      |                                                                                          |
| • Size, max.                                              | 8 kbyte; Size of bit memory address area                                                 |
| <b>Address area</b>                                       |                                                                                          |
| Process image                                             |                                                                                          |
| • Inputs, adjustable                                      | 1 kbyte                                                                                  |
| • Outputs, adjustable                                     | 1 kbyte                                                                                  |
| <b>Hardware configuration</b>                             |                                                                                          |
| Number of modules per system, max.                        | 3 comm. modules, 1 signal board, 8 signal modules                                        |
| <b>Time of day</b>                                        |                                                                                          |
| Clock                                                     |                                                                                          |
| • Hardware clock (real-time)                              | Yes                                                                                      |
| • Backup time                                             | 480 h; Typical                                                                           |
| • Deviation per day, max.                                 | ±60 s/month at 25 °C                                                                     |
| <b>Digital inputs</b>                                     |                                                                                          |
| 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                                                   |
| <b>Digital outputs</b>                                    |                                                                                          |
| 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                                                                                    |

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| <b>Analog inputs</b>                                          |                                                       |
| Number of analog inputs                                       | 2                                                     |
| <b>Input ranges</b>                                           |                                                       |
| • Voltage                                                     | Yes                                                   |
| <b>Input ranges (rated values), voltages</b>                  |                                                       |
| • 0 to +10 V                                                  | Yes                                                   |
| — Input resistance (0 to 10 V)                                | ≥100k ohms                                            |
| <b>Cable length</b>                                           |                                                       |
| • shielded, max.                                              | 100 m; twisted and shielded                           |
| <b>Analog outputs</b>                                         |                                                       |
| Number of analog outputs                                      | 2                                                     |
| <b>Output ranges, current</b>                                 |                                                       |
| • 0 to 20 mA                                                  | Yes                                                   |
| <b>Analog value generation for the inputs</b>                 |                                                       |
| <b>Integration and conversion time/resolution per channel</b> |                                                       |
| • Resolution with overrange (bit including sign), max.        | 10 bit                                                |
| • Integration time, parameterizable                           | Yes                                                   |
| • Conversion time (per channel)                               | 625 µs                                                |
| <b>Analog value generation for the outputs</b>                |                                                       |
| <b>Integration and conversion time/resolution per channel</b> |                                                       |
| • Resolution with overrange (bit including sign), max.        | 10 bit                                                |
| <b>Encoder</b>                                                |                                                       |
| <b>Connectable encoders</b>                                   |                                                       |
| • 2-wire sensor                                               | Yes                                                   |
| <b>1. Interface</b>                                           |                                                       |
| Interface type                                                | PROFINET                                              |
| Isolated                                                      | Yes                                                   |
| automatic detection of transmission rate                      | Yes                                                   |
| Autonegotiation                                               | Yes                                                   |
| Autocrossing                                                  | Yes                                                   |
| <b>Interface types</b>                                        |                                                       |
| • RJ 45 (Ethernet)                                            | Yes                                                   |
| <b>Protocols</b>                                              |                                                       |
| • PROFINET IO Controller                                      | Yes                                                   |
| • PROFINET IO Device                                          | Yes; Also simultaneously with IO-Device functionality |
| <b>PROFINET IO Controller</b>                                 |                                                       |
| • Transmission rate, max.                                     | 100 Mbit/s                                            |
| <b>Services</b>                                               |                                                       |
| — Number of connectable IO Devices, max.                      | 16                                                    |
| <b>PROFINET IO Device</b>                                     |                                                       |
| <b>Services</b>                                               |                                                       |
| — Shared device                                               | Yes                                                   |
| — Number of IO Controllers with shared device, max.           | 2                                                     |
| <b>Protocols</b>                                              |                                                       |
| Supports protocol for PROFINET IO                             | Yes                                                   |
| PROFIsafe                                                     | No                                                    |
| PROFIBUS                                                      | Yes; CM 1243-5 required                               |
| AS-Interface                                                  | Yes                                                   |
| <b>Protocols (Ethernet)</b>                                   |                                                       |
| • TCP/IP                                                      | Yes                                                   |
| <b>Open IE communication</b>                                  |                                                       |
| • TCP/IP                                                      | Yes                                                   |
| • ISO-on-TCP (RFC1006)                                        | Yes                                                   |
| • UDP                                                         | Yes                                                   |
| <b>Web server</b>                                             |                                                       |
| • supported                                                   | Yes                                                   |
| • User-defined websites                                       | Yes                                                   |
| <b>Further protocols</b>                                      |                                                       |
| • MODBUS                                                      | Yes                                                   |
| <b>communication functions / header</b>                       |                                                       |

|                                                                                                      |                                                                                                                                                                                                 |
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| <b>S7 communication</b>                                                                              |                                                                                                                                                                                                 |
| • supported                                                                                          | Yes                                                                                                                                                                                             |
| • as server                                                                                          | Yes                                                                                                                                                                                             |
| • as client                                                                                          | Yes                                                                                                                                                                                             |
| <b>Number of connections</b>                                                                         |                                                                                                                                                                                                 |
| • overall                                                                                            | 16; dynamically                                                                                                                                                                                 |
| <b>Test commissioning functions</b>                                                                  |                                                                                                                                                                                                 |
| <b>Status/control</b>                                                                                |                                                                                                                                                                                                 |
| • Status/control variable                                                                            | Yes                                                                                                                                                                                             |
| • Variables                                                                                          | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters                                                                                                                            |
| <b>Forcing</b>                                                                                       |                                                                                                                                                                                                 |
| • Forcing                                                                                            | Yes                                                                                                                                                                                             |
| <b>Diagnostic buffer</b>                                                                             |                                                                                                                                                                                                 |
| • present                                                                                            | Yes                                                                                                                                                                                             |
| <b>Traces</b>                                                                                        |                                                                                                                                                                                                 |
| • Number of configurable Traces                                                                      | 2; Up to 512 KB of data per trace are possible                                                                                                                                                  |
| <b>Integrated Functions</b>                                                                          |                                                                                                                                                                                                 |
| 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                                                                                                                                                                                               |
| <b>Potential separation</b>                                                                          |                                                                                                                                                                                                 |
| <b>Potential separation digital inputs</b>                                                           |                                                                                                                                                                                                 |
| • Potential separation digital inputs                                                                | 500V AC for 1 minute                                                                                                                                                                            |
| • between the channels, in groups of                                                                 | 1                                                                                                                                                                                               |
| <b>Potential separation digital outputs</b>                                                          |                                                                                                                                                                                                 |
| • Potential separation digital outputs                                                               | Relays                                                                                                                                                                                          |
| • between the channels                                                                               | No                                                                                                                                                                                              |
| • between the channels, in groups of                                                                 | 2                                                                                                                                                                                               |
| <b>EMC</b>                                                                                           |                                                                                                                                                                                                 |
| <b>Interference immunity against discharge of static electricity</b>                                 |                                                                                                                                                                                                 |
| • 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                                                                                                                                                                                            |
| <b>Interference immunity to cable-borne interference</b>                                             |                                                                                                                                                                                                 |
| • Interference immunity on supply lines acc. to IEC 61000-4-4                                        | Yes                                                                                                                                                                                             |
| • Interference immunity on signal cables acc. to IEC 61000-4-4                                       | Yes                                                                                                                                                                                             |
| <b>Interference immunity against voltage surge</b>                                                   |                                                                                                                                                                                                 |
| • Interference immunity on supply lines acc. to IEC 61000-4-5                                        | Yes                                                                                                                                                                                             |
| <b>Interference immunity against conducted variable disturbance induced by high-frequency fields</b> |                                                                                                                                                                                                 |
| • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6                       | Yes                                                                                                                                                                                             |
| <b>Emission of radio interference acc. to EN 55 011</b>                                              |                                                                                                                                                                                                 |
| • 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                                                                                  |
| <b>Degree and class of protection</b>                                                                |                                                                                                                                                                                                 |
| IP degree of protection                                                                              | IP20                                                                                                                                                                                            |
| <b>Ambient conditions</b>                                                                            |                                                                                                                                                                                                 |
| <b>Free fall</b>                                                                                     |                                                                                                                                                                                                 |
| • Fall height, max.                                                                                  | 0.3 m; five times, in product package                                                                                                                                                           |
| <b>Ambient temperature during operation</b>                                                          |                                                                                                                                                                                                 |
| • min.                                                                                               | -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C                                                                                                                                    |
| • max.                                                                                               | 60 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position |
| • At cold restart, min.                                                                              | -25 °C                                                                                                                                                                                          |

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| 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; Incl. diesel and oil droplets in the air                                                                                                                                                                                                 |
| 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; *                                                                                                                                                                                                            |
| Usage in industrial process technology                                                                                  |                                                                                                                                                                                                                                               |
| — Against chemically active substances acc. to EN 60654-4                                                               | Yes; Class 3 (excluding trichlorethylene)                                                                                                                                                                                                     |
| — Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04                            | Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)                                                           |
| 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!                                                                                                                                                  |
| Conformal coating                                                                                                       |                                                                                                                                                                                                                                               |
| • Coatings for printed circuit board assemblies acc. to EN 61086                                                        | Yes; Class 2 for high reliability                                                                                                                                                                                                             |
| • Protection against fouling acc. to EN 60664-3                                                                         | Yes; Type 1 protection                                                                                                                                                                                                                        |
| • Military testing according to MIL-I-46058C, Amendment 7                                                               | Yes; Discoloration of coating possible during service life                                                                                                                                                                                    |
| • Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A | Yes; Conformal coating, Class A                                                                                                                                                                                                               |
| configuration / header                                                                                                  |                                                                                                                                                                                                                                               |
| configuration / programming / header                                                                                    |                                                                                                                                                                                                                                               |
| Programming language                                                                                                    |                                                                                                                                                                                                                                               |
| — LAD                                                                                                                   | Yes                                                                                                                                                                                                                                           |
| — FBD                                                                                                                   | Yes                                                                                                                                                                                                                                           |
| — SCL                                                                                                                   | Yes                                                                                                                                                                                                                                           |
| programming / cycle time monitoring / header                                                                            |                                                                                                                                                                                                                                               |
| • adjustable                                                                                                            | Yes                                                                                                                                                                                                                                           |
| Dimensions                                                                                                              |                                                                                                                                                                                                                                               |
| Width                                                                                                                   | 130 mm                                                                                                                                                                                                                                        |
| Height                                                                                                                  | 100 mm                                                                                                                                                                                                                                        |
| Depth                                                                                                                   | 75 mm                                                                                                                                                                                                                                         |

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

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