

SIPLUS S7-1200 CPU 1215C AC/DC/relay -40...+70 °C with conformal coating based on 6ES7215-1BG40-0XB0 . compact CPU, AC/DC/relay, 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: 85-264V AC @ 47-63 Hz, Program/data memory 100 KB



### General information

|   |                          |
|---|--------------------------|
| Product type designation  | CPU 1215C AC/DC/relay    |
| Firmware version  | V4.1                     |
| Engineering with  |                          |
| <ul style="list-style-type: none"> <li>Programming package</li> </ul> | STEP 7 V13 SP1 or higher |

### Supply voltage

|  |                |
|--|----------------|
| Rated value (AC)   |                |
| <ul style="list-style-type: none"> <li>120 V AC</li> <li>230 V AC</li> </ul>   | Yes            |
| permissible range, lower limit (AC)  | 85 V           |
| permissible range, upper limit (AC)  | 265 V          |
| Line frequency   |                |
| <ul style="list-style-type: none"> <li>permissible range, lower limit</li> <li>permissible range, upper limit</li> </ul> | 47 Hz<br>63 Hz |

### Input current

|                                   |  |
|-----------------------------------|--|
| Current consumption (rated value) | 100 mA at 120 V AC; 50 mA at 240 V AC  |
| Current consumption, max.         | 300 mA at 120 V AC; 150 mA at 240 V AC |
| Inrush current, max.              | 20 A; at 264 V                         |

| Encoder supply  |   |
|---|---|
| 24 V encoder supply                                       |   |
| • 24 V  | 20.4 to 28.8V   |
| Power loss  |   |
| Power loss, typ.  |   |
|   | 12 W  |
| Memory  |   |
| Work memory   |   |
| • integrated  | 100 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 communication modules, no signal board can be used, 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  |
| <ul style="list-style-type: none"> <li>• of which inputs usable for technological functions</li> </ul> | 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  |   |
| <ul style="list-style-type: none"> <li>• Rated value (DC)</li> </ul>                                   | 24 V  |
| <ul style="list-style-type: none"> <li>• for signal "0"</li> </ul>                                     | 5 V DC at 1 mA  |
| <ul style="list-style-type: none"> <li>• for signal "1"</li> </ul>                                     | 15 V DC at 2.5 mA   |
| Input delay (for rated value of input voltage)   |   |
| for standard inputs  |   |
| — parameterizable  | Yes; 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   |   |
| <ul style="list-style-type: none"> <li>• shielded, max.</li> </ul>                                     | 500 m; 50 m for technological functions   |
| <ul style="list-style-type: none"> <li>• unshielded, max.</li> </ul>                                   | 300 m; For technological functions: No  |

### Digital outputs

|   |  |
|---|--|
| Number of digital outputs   | 10; Relays   |
| Switching capacity of the outputs   |  |
| <ul style="list-style-type: none"> <li>• with resistive load, max.</li> </ul>                       | 2 A  |
| <ul style="list-style-type: none"> <li>• on lamp load, max.</li> </ul>                              | 30 W with DC, 200 W with AC                            |
| Output delay with resistive load  |  |
| <ul style="list-style-type: none"> <li>• "0" to "1", max.</li> </ul>                                | 10 ms; max.  |
| <ul style="list-style-type: none"> <li>• "1" to "0", max.</li> </ul>                                | 10 ms; max.  |
| Switching frequency   |  |
| <ul style="list-style-type: none"> <li>• of the pulse outputs, with resistive load, max.</li> </ul> | 1 Hz   |
| Relay outputs   |  |
| <ul style="list-style-type: none"> <li>• Number of relay outputs</li> </ul>                         | 10   |
| <ul style="list-style-type: none"> <li>• Number of operating cycles, max.</li> </ul>                | 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)  $\geq 100k$  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  $\mu$ s

### 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

|   |  |
|---|--|
| <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  |
| 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</b>                      |  |
| <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>                         |  |

|  |         |
|--|---------|
| Number of counters                                   | 6       |
| Counting frequency (counter) max.                    | 100 kHz |
| Frequency measurement                                | Yes     |
| controlled positioning                               | Yes     |
| Number of position-controlled positioning axes, max. | 8       |
| 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

|   |   |
|---|---|
| <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; Startup @ -25 °C  |
| • max.  | 70 °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; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position |
| <b>Ambient temperature during storage/transportation</b>            |   |
| • min.  | -40 °C  |
| • max.  | 70 °C   |
| <b>Altitude during operation relating to sea level</b>              |   |
| • 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   |
| <b>Relative humidity</b>  |   |
| • With condensation, tested in accordance with IEC 60068-2-38, max. | 100 %; RH incl. condensation/frost (no commissioning under condensation conditions)   |
| <b>Vibrations</b>   |   |
| • Vibration resistance during operation acc. to IEC 60068-2-6       | 2 g (m/s <sup>2</sup> ) wall mounting, 1 g (m/s <sup>2</sup> ) DIN rail   |
| • Operation, tested according to IEC 60068-2-6                      | Yes   |
| <b>Shock testing</b>  |   |
| • 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   |
| <b>Resistance</b>   |   |
| <b>Coolants and lubricants</b>                                      |   |
| — Resistant to commercially available coolants and lubricants       | Yes   |
| <b>Use in stationary industrial systems</b>                         |   |
| — 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, *  |
| <b>Use on ships/at sea</b>  |   |
| — 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.

550 g

**last modified:**

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