

SIMATIC S7-1200, CPU 1215C, COMPACT CPU, DC/DC/RELAY, 2 PROFINET PORT, ONBOARD I/O: 14 DI 24V DC; 10 DO RELAY 2A, 2 AI 0-10V DC, 2 AO 0-20MA 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 |
| Engineering with | |
| <ul style="list-style-type: none"> Programming package | STEP 7 V13 SP1 or higher |

Display

| | |
|--------------|----|
| with display | No |
|--------------|----|

Supply voltage

| | |
|---|--------|
| Rated value (DC) | |
| <ul style="list-style-type: none"> 24 V DC | Yes |
| permissible range, lower limit (DC) | 20.4 V |
| permissible range, upper limit (DC) | 28.8 V |
| Reverse polarity protection | Yes |
| Load voltage L+ | |
| <ul style="list-style-type: none"> Rated value (DC) | 24 V |
| <ul style="list-style-type: none"> permissible range, lower limit (DC) | 5 V |
| <ul style="list-style-type: none"> 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 | |
| Type of memory | RAM |
| 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. | 2.3 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 in total (incl. times, counters, flags), max. | 10 kbyte |
| Flag | |
| • Number, max. | 8 kbyte; Size of bit memory address area |
| Local data | |
| • per priority class, max. | 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB |
| Address area | |
| Process image | |

- Inputs, adjustable
- Outputs, adjustable

1 kbyte

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 clock) 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)

integrated channels (DI) 14

m/p-reading 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 VDC 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 counter/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

integrated channels (DO) 10

Switching capacity of the outputs

- with resistive load, max. 2 A

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| • 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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| Analog inputs | |
| Number of analog inputs | 2 |
| integrated channels (AI) | 2; 0 to 10V |
| 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 |

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| Analog outputs | |
| Number of analog outputs | 2 |
| integrated channels (AO) | 2; 0 to 20 mA |
| Output ranges, current | |
| • 0 to 20 mA | Yes |

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| Analog value generation | |
| 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 |

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

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| 1. Interface | |
| Interface type | PROFINET |
| Physics | Ethernet |
| Isolated | Yes |

| | |
|---|-------------------------|
| automatic detection of transmission rate | Yes |
| Autonegotiation | Yes |
| Autocrossing | Yes |
| Functionality | |
| • PROFINET IO Controller | Yes |
| • PROFINET IO Device | Yes |
| • Open IE communication | Yes |
| • Web server | Yes |
| 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 |
| Further protocols | |
| • MODBUS | Yes |
| Communication functions | |
| S7 communication | |
| • supported | Yes |
| • as server | Yes |
| • as client | Yes |
| Open IE communication | |
| • TCP/IP | Yes |
| • ISO-on-TCP (RFC1006) | Yes |
| • UDP | Yes |
| Web server | |
| • supported | Yes |
| • User-defined websites | Yes |
| Number of connections | |
| • overall | 16; dynamically |
| Test commissioning functions | |
| Status/control | |

| | |
|--|---|
| <ul style="list-style-type: none"> • Status/control variable • Variables | Yes Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters |
| Forcing | |
| <ul style="list-style-type: none"> • Forcing | Yes |
| Diagnostic buffer | |
| <ul style="list-style-type: none"> • present | Yes |
| Traces | |
| <ul style="list-style-type: none"> • 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 meter | 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 | |
| <ul style="list-style-type: none"> • Potential separation digital inputs • between the channels, in groups of | 500V AC for 1 minute 1 |
| Potential separation digital outputs | |
| <ul style="list-style-type: none"> • Potential separation digital outputs • between the channels • between the channels, in groups of | Relays No 2 |

| EMC | |
|---|---------------------|
| Interference immunity against discharge of static electricity | |
| <ul style="list-style-type: none"> • Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 <ul style="list-style-type: none"> — Test voltage at air discharge — Test voltage at contact discharge | Yes 8 kV 6 kV |
| Interference immunity to cable-borne interference | |
| <ul style="list-style-type: none"> • Interference immunity on supply lines acc. to IEC 61000-4-4 • Interference immunity on signal cables acc. to IEC 61000-4-4 | Yes Yes |
| Interference immunity against voltage surge | |
| <ul style="list-style-type: none"> • on the supply lines acc. to IEC 61000-4-5 | Yes |
| Interference immunity against conducted variable disturbance induced by high-frequency fields | |

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| • 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 |
| FM approval | Yes |
| RCM (formerly C-TICK) | Yes |
| Marine approval | |
| • Marine approval | Yes |
| Ambient conditions | |
| Free fall | |
| • Drop height, max. (in packaging) | 0.3 m; five times, in dispatch package |
| Ambient temperature during operation | |
| • min. | -20 °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 |
| • horizontal installation, min. | -20 °C |
| • horizontal installation, max. | 60 °C |
| • vertical installation, min. | -20 °C |
| • vertical installation, max. | 50 °C |
| Ambient temperature during storage/transportation | |
| • min. | -40 °C |
| • max. | 70 °C |
| Air pressure acc. to IEC 60068-2-13 | |
| • Storage/transport, min. | 660 hPa |
| • Storage/transport, max. | 1 080 hPa |
| • permissible operating height | -1000 to 2000 m |
| Relative humidity | |
| • permissible range (without condensation) at 25 °C | 95 % |
| Vibrations | |
| • Vibrations | 2G wall mounting, 1G DIN rail |
| • Operation, tested according to IEC 60068-2-6 | Yes |

| | |
|--|---|
| Shock test | |
| • 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 |
| Extended ambient conditions | |
| Pollutant concentrations | |
| — SO2 at RH < 60% without condensation | SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free |
| 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: | 13.01.2016 |