

SIMATIC S7-1200, CPU 1214C, compact CPU, DC/DC/relay, onboard I/O:  
14 DI 24 V DC; 10 DO relay 2 A; 2 AI 0-10 V DC, Power supply: DC 20.4-  
28.8V DC, Program/data memory 100 KB

| General information                   |  |
|---------------------------------------|--|
| Product type designation              | CPU 1214C DC/DC/relay                    |
| Firmware version                      | V4.5                                     |
| Engineering with                      |  |
| • Programming package                 | STEP 7 V17 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                                   |
| Reverse polarity protection           | Yes                                      |
| Load voltage L+                       |  |
| • Rated value (DC)                    | 24 V                                     |
| • permissible range, lower limit (DC) | 20.4 V                                   |
| • permissible range, upper limit (DC) | 28.8 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                          |
| I <sup>2</sup> t                      | 0.8 A <sup>2</sup> ·s                    |
| Output current                        |  |
| for backplane bus (5 V DC), max.      | 1 600 mA; Max. 5 V DC for SM and CM      |
| 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                                |
| • expandable                          | No                                       |
| Load memory                           |  |
| • integrated                          | 4 Mbyte                                  |
| • Plug-in (SIMATIC Memory Card), max. | with SIMATIC memory card                 |
| Backup                                |  |
| • present                             | Yes                                      |
| • maintenance-free                    | Yes                                      |


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| • without battery   | Yes   |
| <b>CPU processing times</b>                               |   |
| for bit operations, typ.                                  | 0.08 µs; / instruction  |
| for word operations, typ.                                 | 1.7 µs; / instruction   |
| for floating point arithmetic, typ.                       | 2.3 µs; / instruction   |
| <b>CPU-blocks</b>   |   |
| 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 |
| <b>OB</b>   |   |
| • Number, max.  | Limited only by RAM for code  |
| <b>Data areas and their retentivity</b>                   |   |
| Retentive data area (incl. timers, counters, flags), max. | 14 kbyte  |
| <b>Flag</b>   |   |
| • Size, max.  | 8 kbyte; Size of bit memory address area  |
| <b>Local data</b>   |   |
| • per priority class, max.                                | 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB   |
| <b>Address area</b>                                       |   |
| <b>Process image</b>                                      |   |
| • 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>  |   |
| <b>Clock</b>  |   |
| • 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   |
| <b>Number of simultaneously controllable inputs</b>       |   |
| all mounting positions                                    |   |
| — up to 40 °C, max.                                       | 14  |
| <b>Input voltage</b>                                      |   |
| • Rated value (DC)  | 24 V  |
| • for signal "0"  | 5 V DC at 1 mA  |
| • for signal "1"  | 15 V DC at 2.5 mA   |
| <b>Input delay (for rated value of input voltage)</b>     |   |
| 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   | Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz   |
| <b>Cable length</b>                                       |   |
| • 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  |
| <b>Switching capacity of the outputs</b>                  |   |
| • 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.  |
| 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                               | 0  |
| Analog value generation for the inputs                 |  |
| Integration and conversion time/resolution per channel |  |
| • Resolution with overrange (bit including sign), max. | 10 bit   |
| • Integration time, parameterizable                    | Yes  |
| • Conversion time (per channel)                        | 625 µs   |
| Encoder  |  |
| Connectable encoders                                   |  |
| • 2-wire sensor  | Yes  |
| 1. Interface   |  |
| Interface type   | PROFINET   |
| Isolated   | Yes  |
| automatic detection of transmission rate               | Yes  |
| Autonegotiation  | Yes  |
| Autocrossing   | Yes  |
| Interface types  |  |
| • RJ 45 (Ethernet)                                     | Yes  |
| • Number of ports                                      | 1  |
| • integrated switch                                    | No   |
| Protocols  |  |
| • PROFINET IO Controller                               | Yes  |
| • PROFINET IO Device                                   | Yes  |
| • SIMATIC communication                                | Yes  |
| • Open IE communication                                | Yes; Optionally also encrypted                         |
| • Web server   | Yes  |
| • Media redundancy                                     | No   |
| PROFINET IO Controller                                 |  |
| • Transmission rate, max.                              | 100 Mbit/s   |
| Services   |  |
| — PG/OP communication                                  | Yes; encryption with TLS V1.3 pre-selected             |
| — Isochronous mode                                     | No   |
| — IRT  | No   |
| — PROFIenergy  | No   |
| — Prioritized startup                                  | Yes  |
| — Number of IO devices with prioritized startup, max.  | 16   |
| — Number of connectable IO Devices, max.               | 16   |
| — Number of connectable IO Devices for RT,             | 16   |

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| max.  |   |
| — of which in line, max.  | 16  |
| — Activation/deactivation of IO Devices                                       | Yes   |
| — Number of IO Devices that can be simultaneously activated/deactivated, max. | 8   |
| — Updating time   | The minimum value of the update time also depends on the communication component set for PROFINET IO, on the number of IO devices and the quantity of configured user data. |
| <b>PROFINET IO Device</b>   |   |
| <b>Services</b>   |   |
| — PG/OP communication   | Yes; encryption with TLS V1.3 pre-selected  |
| — Isochronous mode  | No  |
| — IRT   | No  |
| — PROFIenergy   | Yes   |
| — 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 (master) or CM 1242-5 (slave) required   |
| OPC UA  | Yes; OPC UA Server  |
| AS-Interface  | Yes; CM 1243-2 required   |
| <b>Protocols (Ethernet)</b>   |   |
| • TCP/IP  | Yes   |
| • DHCP  | No  |
| • SNMP  | Yes   |
| • DCP   | Yes   |
| • LLDP  | Yes   |
| <b>Redundancy mode</b>  |   |
| <b>Media redundancy</b>   |   |
| — MRP   | No  |
| — MRPD  | No  |
| <b>SIMATIC communication</b>  |   |
| • S7 routing  | Yes   |
| <b>Open IE communication</b>  |   |
| • TCP/IP  | Yes   |
| — Data length, max.   | 8 kbyte   |
| • ISO-on-TCP (RFC1006)  | Yes   |
| — Data length, max.   | 8 kbyte   |
| • UDP   | Yes   |
| — Data length, max.   | 1 472 byte  |
| <b>Web server</b>   |   |
| • supported   | Yes   |
| • User-defined websites   | Yes   |
| <b>OPC UA</b>   |   |
| • Runtime license required  | Yes; "Basic" license required   |
| • OPC UA Server   | Yes; data access (read, write, subscribe), method call, runtime license required  |
| — Application authentication  | Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256   |
| — User authentication   | "anonymous" or by user name & password  |
| — Number of sessions, max.  | 10  |
| — Number of subscriptions per session, max.                                   | 50  |
| — Sampling interval, min.   | 100 ms  |
| — Publishing interval, min.   | 200 ms  |
| — Number of server methods, max.  | 20  |
| — Number of monitored items, max.   | 1 000   |
| — Number of server interfaces, max.   | 2   |
| — Number of nodes for user-defined server interfaces, max.                    | 2 000   |

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| Further protocols   |  |
| • MODBUS  | Yes  |
| <b>Communication functions</b>  |  |
| S7 communication  |  |
| • supported   | Yes  |
| • as server   | Yes  |
| • as client   | Yes  |
| • User data per job, max.   | See online help (S7 communication, user data size)   |
| Number of connections   |  |
| • overall   | PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 64 max |
| <b>Test commissioning functions</b>   |  |
| 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  |
| • Memory size per trace, max.   | 512 kbyte  |
| <b>Interrupts/diagnostics/status information</b>                                      |  |
| Diagnostics indication LED  |  |
| • RUN/STOP LED  | Yes  |
| • ERROR LED   | Yes  |
| • MAINT LED   | Yes  |
| <b>Integrated Functions</b>   |  |
| Counter   |  |
| • Number of counters  | 6  |
| • Counting frequency, 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  |
| <b>Potential separation</b>   |  |
| 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  |
| <b>EMC</b>  |  |
| 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  |

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| Interference immunity against voltage surge   |   |
| • Interference immunity on 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  |   |
| IP degree of protection   | IP20  |
| Standards, approvals, certificates  |   |
| CE mark   | Yes   |
| UL approval   | Yes   |
| cULus   | Yes   |
| FM approval   | Yes   |
| RCM (formerly C-TICK)   | Yes   |
| KC approval   | Yes   |
| Marine approval   | Yes   |
| Ambient conditions  |   |
| Free fall   |   |
| • Fall height, max.   | 0.3 m; five times, in product 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   |   |
| • Operation, min.   | 795 hPa   |
| • Operation, max.   | 1 080 hPa   |
| • Storage/transport, min.   | 660 hPa   |
| • Storage/transport, max.   | 1 080 hPa   |
| Altitude during operation relating to sea level   |   |
| • Installation altitude, min.   | -1 000 m  |
| • Installation altitude, max.   | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  |
| Relative humidity   |   |
| • Operation, max.   | 95 %; no condensation   |
| Vibrations  |   |
| • 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   |
| 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   |
| Pollutant concentrations  |   |
| • SO <sub>2</sub> at RH < 60% without condensation  | SO <sub>2</sub> : < 0.5 ppm; H <sub>2</sub> S: < 0.1 ppm; RH < 60% condensation-free  |
| Configuration   |   |
| Programming   |   |
| Programming language  |   |
| — LAD   | Yes   |
| — FBD   | Yes   |

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|---|---|
| — SCL   | Yes   |
| Know-how protection                             |   |
| • User program protection/password protection   | Yes   |
| • Copy protection                               | Yes   |
| • Block protection                              | Yes   |
| Access protection                               |   |
| • protection of confidential configuration data | Yes   |
| • Protection level: Write protection            | Yes   |
| • Protection level: Read/write protection       | Yes   |
| • Protection level: Complete protection         | Yes   |
| Cycle time monitoring                           |   |
| • adjustable                                    | Yes   |
| Dimensions                                      |   |
| Width   | 110 mm  |
| Height  | 100 mm  |
| Depth   | 75 mm   |
| Weights   |   |
| Weight, approx.                                 | 435 g   |
| last modified:                                  | 4/12/2021  |