



Figure similar

SIMATIC S7-1200, CPU 1214C, compact CPU, AC/DC/relay, onboard I/O: 14 DI 24 V DC; 10 DO relay 2 A; 2 AI 0-10 V DC, power supply: AC 85-264 V AC at 47-63 Hz, program/data memory 150 KB

| General information                   |  |
|---------------------------------------|--|
| Product type designation              | CPU 1214C AC/DC/relay                  |
| Firmware version                      | V4.6                                   |
| Engineering with                      |  |
| • Programming package                 | STEP 7 V18 or higher                   |
| Supply voltage                        |  |
| Rated value (AC)                      |  |
| • 120 V AC                            | Yes                                    |
| • 230 V AC                            | Yes                                    |
| permissible range, lower limit (AC)   | 85 V                                   |
| permissible range, upper limit (AC)   | 264 V                                  |
| Line frequency                        |  |
| • permissible range, lower limit      | 47 Hz                                  |
| • permissible range, upper limit      | 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                         |
| $I^2t$                                | 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                                | 20.4 to 28.8V                          |
| Power loss                            |  |
| Power loss, typ.                      | 14 W                                   |
| Memory                                |  |
| Work memory                           |  |
| • integrated                          | 150 kbyte                              |
| Load memory                           |  |
| • integrated                          | 4 Mbyte                                |
| • Plug-in (SIMATIC Memory Card), max. | with SIMATIC memory card               |
| Backup                                |  |
| • present                             | Yes                                    |
| • maintenance-free                    | Yes                                    |
| • without battery                     | Yes                                    |
| CPU processing times                  |  |
| 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   |
| • on lamp load, max.                                      | 30 W with DC, 200 W with AC   |
| <b>Output delay with resistive load</b>                   |   |
| • "0" to "1", max.  | 10 ms; max.   |
| • "1" to "0", max.  | 10 ms; max.   |
| <b>Relay outputs</b>                                      |   |
| • Number of relay outputs                                 | 10  |
| • Number of operating cycles, max.                        | mechanically 10 million, at rated load voltage 100 000  |
| <b>Cable length</b>                                       |   |

|   |   |
|---|---|
| • shielded, max.  | 500 m   |
| • unshielded, max.  | 150 m   |
| <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  | 0   |
| <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>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   |
| • Number of ports   | 1   |
| • integrated switch   | No  |
| <b>Protocols</b>  |   |
| • PROFINET IO Controller  | Yes   |
| • PROFINET IO Device  | Yes   |
| • SIMATIC communication   | Yes   |
| • Open IE communication   | Yes; Optionally also encrypted  |
| • Web server  | Yes   |
| • Media redundancy  | No  |
| <b>PROFINET IO Controller</b>   |   |
| • Transmission rate, max.   | 100 Mbit/s  |
| <b>Services</b>   |   |
| — PG/OP communication   | Yes; encryption with TLS V1.3 pre-selected  |
| — Isochronous mode  | No  |
| — IRT   | No  |
| — PROFinergy  | 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, max.                               | 16  |
| — 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  |

|   |     |
|---|-----|
| — PROFINergy  | Yes |
| — Shared device                                     | Yes |
| — Number of IO Controllers with shared device, max. | 2   |

#### Protocols

|                                   |   |
|-----------------------------------|---|
| Supports protocol for PROFINET IO | Yes   |
| PROFIsafe                         | No  |
| 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                               |

#### Protocols (Ethernet)

|          |     |
|----------|-----|
| • TCP/IP | Yes |
| • DHCP   | No  |
| • SNMP   | Yes |
| • DCP    | Yes |
| • LLDP   | Yes |

#### Redundancy mode

|                  |    |
|------------------|----|
| Media redundancy |    |
| — MRP            | No |
| — MRPD           | No |

#### SIMATIC communication

|              |     |
|--------------|-----|
| • S7 routing | Yes |
|--------------|-----|

#### Open IE communication

|                        |            |
|------------------------|------------|
| • 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 |

#### Web server

|                         |     |
|-------------------------|-----|
| • supported             | Yes |
| • User-defined websites | Yes |

#### OPC UA

|  |  |
|--|--|
| • 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.                | 5  |
| — Sampling interval, min.                                  | 100 ms   |
| — Publishing interval, min.                                | 200 ms   |
| — Number of server methods, max.                           | 20   |
| — Number of monitored items, recommended max.              | 1 000  |
| — Number of server interfaces, max.                        | 2  |
| — Number of nodes for user-defined server interfaces, max. | 2 000  |

#### Further protocols

|          |     |
|----------|-----|
| • MODBUS | Yes |
|----------|-----|

#### communication functions / header

|                           |  |
|---------------------------|--|
| 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 |
|-----------|--|

#### Test commissioning functions

|                           |     |
|---------------------------|-----|
| Status/control            |     |
| • 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  |
| • Memory size per trace, max.  | 512 kbyte  |
| <b>Interrupts/diagnostics/status information</b>   |  |
| <b>Diagnostics indication LED</b>  |  |
| • RUN/STOP LED   | Yes  |
| • ERROR LED  | Yes  |
| • MAINT LED  | Yes  |
| <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>Standards, approvals, certificates</b>  |  |
| CE mark  | Yes  |
| UL approval  | Yes  |
| cULus  | Yes  |
| FM approval  | Yes  |
| RCM (formerly C-TICK)  | Yes  |
| KC approval  | Yes  |
| Marine approval  | Yes  |
| <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.  | -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   |
| <b>Ambient temperature during storage/transportation</b>      |   |
| • min.  | -40 °C  |
| • max.  | 70 °C   |
| <b>Air pressure acc. to IEC 60068-2-13</b>                    |   |
| • Operation, min.   | 795 hPa   |
| • Operation, max.   | 1 080 hPa   |
| • Storage/transport, min.                                     | 660 hPa   |
| • Storage/transport, max.                                     | 1 080 hPa   |
| <b>Altitude during operation relating to sea level</b>        |   |
| • Installation altitude, min.                                 | -1 000 m  |
| • Installation altitude, max.                                 | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  |
| <b>Relative humidity</b>                                      |   |
| • Operation, max.   | 95 %; no condensation   |
| <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>Pollutant concentrations</b>                               |   |
| • 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  |
| <b>configuration / header</b>                                 |   |
| configuration / programming / header                          |   |
| Programming language  |   |
| — LAD   | Yes   |
| — FBD   | Yes   |
| — SCL   | Yes   |
| <b>Know-how protection</b>                                    |   |
| • User program protection/password protection                 | Yes   |
| • Copy protection   | Yes   |
| • Block protection  | Yes   |
| <b>Access protection</b>                                      |   |
| • protection of confidential configuration data               | Yes   |
| • Protection level: Write protection                          | Yes   |
| • Protection level: Read/write protection                     | Yes   |
| • Protection level: Complete protection                       | Yes   |
| <b>programming / cycle time monitoring / header</b>           |   |
| • adjustable  | Yes   |
| <b>Dimensions</b>   |   |
| Width   | 110 mm  |
| Height  | 100 mm  |
| Depth   | 75 mm   |
| <b>Weights</b>  |   |
| Weight, approx.   | 455 g   |

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