

SIMATIC S7-1200, CPU 1214C, compact CPU, DC/DC/DC, onboard  
I/O: 14 DI 24 V DC; 10 DO 24 V DC; 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/DC                       |
| Firmware version                      | V4.2                                     |
| Engineering with                      |  |
| • Programming package                 | STEP 7 V14 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   |
| $I^2t$  | 0.5 A <sup>2</sup> ·s   |
| <b>Output current</b>                                     |   |
| for backplane bus (5 V DC), max.                          | 1 600 mA; Max. 5 V DC for SM and CM   |
| <b>Encoder supply</b>                                     |   |
| 24 V encoder supply                                       |   |
| • 24 V  | L+ minus 4 V DC min.  |
| <b>Power loss</b>   |   |
| Power loss, typ.  | 12 W  |
| <b>Memory</b>   |   |
| 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   |
| • 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 |
| 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  |   |
| • Number, 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>                                    |  |
| <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   |
| • of which high-speed outputs                         | 4; 100 kHz Pulse Train Output  |
| Limitation of inductive shutdown voltage to           | L+ (-48 V)   |
| <b>Switching capacity of the outputs</b>              |  |
| • with resistive load, max.                           | 0.5 A  |
| • on lamp load, max.                                  | 5 W  |
| <b>Output voltage</b>                                 |  |

|  |                             |
|--|-----------------------------|
| • for signal "0", max.                                 | 0.1 V; with 10 kOhm load    |
| • for signal "1", min.                                 | 20 V                        |
| Output current   |                             |
| • for signal "1" rated value                           | 0.5 A                       |
| • for signal "0" residual current, max.                | 0.1 mA                      |
| Output delay with resistive load                       |                             |
| • "0" to "1", max.                                     | 1 µs                        |
| • "1" to "0", max.                                     | 5 µs                        |
| Switching frequency                                    |                             |
| • of the pulse outputs, with resistive load, max.      | 100 kHz                     |
| Relay outputs  |                             |
| • Number of relay outputs                              | 0                           |
| 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                    |
| Physics  | Ethernet                    |
| Isolated   | Yes                         |
| automatic detection of transmission rate               | Yes                         |

|   |   |
|---|---|
| Autonegotiation   | Yes   |
| Autocrossing  | Yes   |
| <b>Interface types</b>  |   |
| • 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   |
| • Web server  | Yes   |
| • Media redundancy  | No  |
| <b>PROFINET IO Controller</b>   |   |
| • Transmission rate, max.   | 100 Mbit/s  |
| <b>Services</b>   |   |
| — PG/OP communication   | Yes   |
| — S7 routing  | Yes   |
| — Isochronous mode  | No  |
| — Open IE communication   | Yes   |
| — IRT   | No  |
| — MRP   | No  |
| — MRPD  | 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   |
| — S7 routing  | Yes   |
| — Isochronous mode  | No  |
| — Open IE communication   | Yes   |

- IRT
- MRP
- MRPD
- PROFINergy
- Shared device
- Number of IO Controllers with shared device, max.

No  
No  
No  
Yes  
Yes  
2

## Protocols

|                                   |   |
|-----------------------------------|---|
| Supports protocol for PROFINET IO | Yes   |
| PROFIBUS                          | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required |
| AS-Interface                      | Yes; CM 1243-2 required                               |

### Protocols (Ethernet)

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

### Further protocols

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

## Communication functions

### 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 | 16; dynamically |
|-----------|-----------------|

## 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>  |  |
| Number of counters   | 6  |
| Counting frequency (counter) 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   | 4; With integrated outputs   |
| PID controller   | Yes  |
| Number of alarm inputs   | 4  |
| Number of pulse outputs  | 4  |
| Limit frequency (pulse)  | 100 kHz  |
| <b>Potential separation</b>  |  |
| <b>Potential separation digital inputs</b>   |  |
| • Potential separation digital inputs  | No   |
| • between the channels, in groups of   | 1  |
| <b>Potential separation digital outputs</b>  |  |
| • Potential separation digital outputs   | Yes  |
| • between the channels   | No   |
| • between the channels, in groups of   | 1  |
| <b>EMC</b>   |  |
| <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

## 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

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.

2 000 m

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                      |   |
| • 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   |
| Know-how protection                           |   |
| • User program protection/password protection | Yes   |
| • Copy protection                             | Yes   |
| • Block protection                            | Yes   |
| Access protection                             |   |
| • 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.                               | 415 g   |
| last modified:                                | 12/14/2019  |