

SIMATIC S7-1200, CPU 1214C, COMPACT CPU, DC/DC/RELAY,  
ONBOARD I/O: 14 DI 24V DC; 10 DO RELAY 2A; 2 AI 0 - 10V DC,  
POWER SUPPLY: DC 20.4 - 28.8 V DC, PROGRAM/DATA  
MEMORY: 100 KB



### General information

|   |                       |
|---|-----------------------|
| Product type designation  | CPU 1214C DC/DC/relay |
| Firmware version  | V4.2                  |
| Engineering with  |                       |
| <ul style="list-style-type: none"> <li>Programming package</li> </ul> | STEP 7 V14 or higher  |

### Supply voltage

|  |                          |
|--|--------------------------|
| Rated value (DC)   |                          |
| <ul style="list-style-type: none"> <li>24 V DC</li> </ul>  | 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"> <li>Rated value (DC)</li> <li>permissible range, lower limit (DC)</li> <li>permissible range, upper limit (DC)</li> </ul> | 24 V<br>20.4 V<br>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   |
| $I^2t$  | 0.8 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  |
| Local data  |   |
| • per priority class, max.                                | 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB   |
| <b>Address area</b>                                       |   |
| 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) Yes
- Backup time 480 h; Typical
- Deviation per day, max.  $\pm 60$  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)

Source/sink input 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 V DC at 2.5 mA

#### Input delay (for rated value of input voltage)

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 counter/technological functions

— parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 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

#### Switching capacity of the outputs

- with resistive load, max. 2 A
- 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.  |
| <b>Relay outputs</b>  |  |
| • 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   |
| 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>Functionality</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   | No  |
| — MRP   | No  |
| — MRPD  | No  |
| — PROFINergy  | Yes   |
| — 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; CM 1243-2 required  |
| <b>Protocols (Ethernet)</b>         |  |
| • TCP/IP                            | Yes  |
| • DHCP                              | No   |
| • SNMP                              | Yes  |
| • DCP                               | Yes  |
| • LLDP                              | 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>                   |  |
| • 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  |
| • User data per job, max.           | See online help (S7 communication, user data size)                   |
| <b>Web server</b>                   |  |
| • supported                         | 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  |

- Memory size per trace, max. 512 kbyte

### Interrupts/diagnostics/status information

#### Diagnostics indication LED

- RUN/STOP LED Yes
- ERROR LED Yes
- MAINT LED Yes

### Integrated Functions

|  |                      |
|--|----------------------|
| 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 | Up to 4 with SB 1222 |
| 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
- Limit class B, for use in residential areas

Yes; Group 1

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

- 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



|   |   |
|---|---|
| <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>               |   |
| • SO2 at RH < 60% without condensation        | SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free                                |
| <b>Configuration</b>                          |   |
| <b>Programming</b>                            |   |
| <b>Programming language</b>                   |   |
| — 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 level: Write protection          | Yes   |
| • Protection level: Read/write protection     | Yes   |
| • Protection level: Complete protection       | Yes   |
| <b>Cycle time monitoring</b>                  |   |
| • adjustable                                  | Yes   |
| <b>Dimensions</b>                             |   |
| Width   | 110 mm  |
| Height  | 100 mm  |
| Depth   | 75 mm   |
| <b>Weights</b>                                |   |
| Weight, approx.                               | 435 g   |
| <b>last modified:</b>                         | 11/28/2017  |

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