

SIMATIC S7-1200, CPU 1211C, COMPACT CPU, DC/DC/RELAY,  
ONBOARD I/O: 6 DI 24V DC; 4 DO RELAY 2A; 2 AI 0 - 10V DC,  
POWER SUPPLY: DC 20.4 - 28.8 V DC, PROGRAM/DATA  
MEMORY: 50 KB



### General information

|   |                          |
|---|--------------------------|
| Product type designation  | CPU 1211C DC/DC/Relay    |
| Firmware version  | V4.1                     |
| Engineering with  |                          |
| <ul style="list-style-type: none"> <li>Programming package</li> </ul> | STEP 7 V13 SP1 or higher |

### Display

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

### 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)                                 | 300 mA; CPU only  |
| Current consumption, max.   | 900 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.  |
| Output current  |   |
| for backplane bus (5 V DC), max.                                  | 750 mA; Max. 5 V DC for CM  |
| Power loss  |   |
| Power loss, typ.  | 8 W   |
| Memory  |   |
| Type of memory  | RAM   |
| Work memory   |   |
| • integrated  | 50 kbyte  |
| • expandable  | No  |
| Load memory   |   |
| • integrated  | 1 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.  | 4 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                                 | 1 kbyte  |
| • Outputs, adjustable                                | 1 kbyte  |
| Hardware configuration                               |  |
| Number of modules per system, max.                   | 3 communication modules, 1 signal board  |
| 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                             | 6; Integrated  |
| • of which inputs usable for technological functions | 3; HSC (High Speed Counting)   |
| integrated channels (DI)                             | 6  |
| m/p-reading  | Yes  |
| Number of simultaneously controllable inputs         |  |
| all mounting positions                               |  |
| — up to 40 °C, max.                                  | 6  |
| 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                                    | 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, differential: 3 @ 80 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                            | 4; Relays  |
| integrated channels (DO)                             | 4  |
| Switching capacity of the outputs                    |  |

|   |  |
|---|--|
| • 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>Switching frequency</b>                                    |  |
| • of the pulse outputs, with resistive load, max.             | 1 Hz   |
| <b>Relay outputs</b>  |  |
| • Number of relay outputs                                     | 4  |
| • 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  |
| • For voltage/current measurement                             | 2  |
| integrated channels (AI)                                      | 2; 0 to 10V  |
| <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</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>Functionality</b>                                |                         |
| • PROFINET IO Controller                            | Yes                     |
| • PROFINET IO Device                                | Yes                     |
| • Open IE communication                             | Yes                     |
| • Web server  | Yes                     |
| <b>PROFINET IO Controller</b>                       |                         |
| • Transmission rate, max.                           | 100 Mbit/s              |
| <b>Services</b>                                     |                         |
| — Number of connectable IO Devices, max.            | 16                      |
| <b>PROFINET IO Device</b>                           |                         |
| <b>Services</b>                                     |                         |
| — 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 required |
| AS-Interface  | Yes                     |
| <b>Protocols (Ethernet)</b>                         |                         |
| • TCP/IP  | Yes                     |
| <b>Further protocols</b>                            |                         |
| • MODBUS  | Yes                     |
| <b>Communication functions</b>                      |                         |
| <b>S7 communication</b>                             |                         |
| • supported   | Yes                     |
| • as server   | Yes                     |
| • as client   | Yes                     |
| <b>Open IE communication</b>                        |                         |
| • TCP/IP  | Yes                     |
| • ISO-on-TCP (RFC1006)                              | Yes                     |
| • UDP   | Yes                     |
| <b>Web server</b>                                   |                         |
| • supported   | Yes                     |
| • User-defined websites                             | 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; Up to 512 KB of data per trace are possible                       |
| <b>Integrated Functions</b>  |  |
| Number of counters   | 3  |
| 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  |
| <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   | 1  |
| <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>   |  |
| • on the 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>  |   |
| <ul style="list-style-type: none"> <li>• Limit class A, for use in industrial areas</li> <li>• Limit class B, for use in residential areas</li> </ul>  | <p>Yes; Group 1</p> <p>Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011</p> |
| <b>Degree and class of protection</b>  |   |
| Degree of protection acc. to EN 60529  |   |
| <ul style="list-style-type: none"> <li>• IP20</li> </ul>   | Yes   |
| <b>Standards, approvals, certificates</b>  |   |
| CE mark  | Yes   |
| UL approval  | Yes   |
| cULus  | Yes   |
| FM approval  | Yes   |
| RCM (formerly C-TICK)  | Yes   |
| <b>Marine approval</b>   |   |
| <ul style="list-style-type: none"> <li>• Marine approval</li> </ul>  | Yes   |
| <b>Ambient conditions</b>  |   |
| Free fall  |   |
| <ul style="list-style-type: none"> <li>• Drop height, max. (in packaging)</li> </ul>   | 0.3 m; five times, in dispatch package  |
| <b>Ambient temperature during operation</b>  |   |
| <ul style="list-style-type: none"> <li>• min.</li> <li>• max.</li> <li>• horizontal installation, min.</li> <li>• horizontal installation, max.</li> <li>• vertical installation, min.</li> <li>• vertical installation, max.</li> </ul> | <p>-20 °C</p> <p>60 °C</p> <p>-20 °C</p> <p>60 °C</p> <p>-20 °C</p> <p>50 °C</p>  |
| <b>Ambient temperature during storage/transportation</b>   |   |
| <ul style="list-style-type: none"> <li>• min.</li> <li>• max.</li> </ul>   | <p>-40 °C</p> <p>70 °C</p>  |
| <b>Air pressure acc. to IEC 60068-2-13</b>   |   |
| <ul style="list-style-type: none"> <li>• Storage/transport, min.</li> <li>• Storage/transport, max.</li> <li>• permissible operating height</li> </ul>   | <p>660 hPa</p> <p>1 080 hPa</p> <p>-1000 to 2000 m</p>  |
| <b>Relative humidity</b>   |   |
| <ul style="list-style-type: none"> <li>• permissible range (without condensation) at 25 °C</li> </ul>  | 95 %  |
| <b>Vibrations</b>  |   |
| <ul style="list-style-type: none"> <li>• Vibrations</li> <li>• Operation, tested according to IEC 60068-2-6</li> </ul>   | <p>2G wall mounting, 1G DIN rail</p> <p>Yes</p>   |
| <b>Shock test</b>  |   |
| <ul style="list-style-type: none"> <li>• tested according to IEC 60068-2-27</li> </ul>   | Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms   |
| <b>Extended ambient conditions</b>   |   |

|  |  |
|--|--|
| <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>                     |  |
| Programming language                   |  |
| — LAD                                  | Yes  |
| — FBD                                  | Yes  |
| — SCL                                  | Yes  |
| <b>Cycle time monitoring</b>           |  |
| • adjustable                           | Yes  |
| <b>Dimensions</b>                      |  |
| Width                                  | 90 mm  |
| Height                                 | 100 mm   |
| Depth                                  | 75 mm  |
| <b>Weights</b>                         |  |
| Weight, approx.                        | 380 g  |
| <b>last modified:</b>                  | 13.01.2016   |