

SIMATIC S7-1200, CPU 1211C, COMPACT CPU, AC/DC/RELAY,  
ONBOARD I/O: 6 DI 24V DC; 4 DO RELAY 2A; 2 AI 0 - 10V DC,  
POWER SUPPLY: AC 85 - 264 V AC AT 47 - 63 HZ,  
PROGRAM/DATA MEMORY: 50 KB



### General information

|                          |                       |
|--------------------------|-----------------------|
| Product type designation | CPU 1211C AC/DC/Relay |
| Firmware version         | V4.2                  |
| Engineering with         |                       |
| • Programming package    | STEP 7 V14 or higher  |

### Display

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

### 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) | 60 mA at 120 V AC; 30 mA at 240 V AC  |
| Current consumption, max.         | 180 mA at 120 V AC; 90 mA at 240 V AC |
| Inrush current, max.              | 20 A; at 264 V                        |
| $I^2t$                            | 0.8 A <sup>2</sup> ·s                 |

|                                  |                            |
|----------------------------------|----------------------------|
| <b>Output current</b>            |                            |
| for backplane bus (5 V DC), max. | 750 mA; Max. 5 V DC for CM |

|                       |               |
|-----------------------|---------------|
| <b>Encoder supply</b> |               |
| 24 V encoder supply   |               |
| • 24 V                | 20.4 to 28.8V |

|                   |      |
|-------------------|------|
| <b>Power loss</b> |      |
| Power loss, typ.  | 10 W |

|                                       |                          |
|---------------------------------------|--------------------------|
| <b>Memory</b>                         |                          |
| 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                    | Yes                      |
| • without battery                     | Yes                      |

|                                     |                         |
|-------------------------------------|-------------------------|
| <b>CPU processing times</b>         |                         |
| 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   |

|                          |                                                                                                                                                                     |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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 in total (incl. times, counters, flags), max. | 10 kbyte                                                                        |
| <b>Flag</b>                                                       |                                                                                 |
| • Number, max.                                                    | 4 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 |

|                                                      |                                                                                          |
|------------------------------------------------------|------------------------------------------------------------------------------------------|
| 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)                         | 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                                                                                        |
| Source/sink input                                    | 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 V DC at 2.5 mA                                                                        |
| Input current                                        |                                                                                          |
| • for signal "1", typ.                               | 4 mA; nominal                                                                            |
| 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                            |
| Output delay with resistive load                       |                                                        |
| • "0" to "1", max.                                     | 10 ms; max.                                            |
| • "1" to "0", max.                                     | 10 ms; max.                                            |
| Relay outputs                                          |                                                        |
| • 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                                                      |
| integrated channels (AI)                               | 2; 0 to 10V                                            |
| 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                                |                                                        |
| 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                                                    |
| Interface types                                        |                                                        |

|                                                                               |                                                                                                                                                                             |
|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| • 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
- Shared device
- Number of IO Controllers with shared device, max.

Yes

Yes

2

## Protocols

Supports protocol for PROFINET IO

Yes

PROFIBUS

Yes; CM 1243-5 required

AS-Interface

Yes; CM 1243-2 required

## Protocols (Ethernet)

- TCP/IP
- DHCP
- SNMP
- DCP
- LLDP

Yes

No

Yes

Yes

Yes

## Further protocols

- MODBUS

Yes

## Communication functions

### S7 communication

- supported
- as server
- as client
- User data per job, max.

Yes

Yes

Yes

See online help (S7 communication, user data size)

### Open IE communication

- TCP/IP
  - Data length, max.
  - several passive connections per port, supported
- ISO-on-TCP (RFC1006)
  - Data length, max.
- UDP
  - Data length, max.

Yes

8 kbyte

Yes

Yes

8 kbyte

Yes

1 472 byte

### Web server

- supported
- User-defined websites

Yes

Yes

### Number of connections

- overall

16; dynamically

## Test commissioning functions

### Status/control

- Status/control variable
- Variables

Yes

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                                                                    | 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                  |

|                                                                                               |                                                                                                                |
|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| 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                                                  | 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                                                                               |                                                                                                                |
| • 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                                                                                                          |
| • 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                                                                                                      |
| • permissible operating height                                                                | -1000 to 2000 m                                                                                                |
| Relative humidity                                                                             |                                                                                                                |



|                                                     |                                                                                           |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------|
| • permissible range (without condensation) at 25 °C | 95 %                                                                                      |
| <b>Vibrations</b>                                   |                                                                                           |
| • Vibrations                                        | 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 test</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>Extended ambient conditions</b>                  |                                                                                           |
| <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</b>                                |                                                                                           |
| <b>Programming</b>                                  |                                                                                           |
| <b>Programming language</b>                         |                                                                                           |
| — LAD                                               | Yes                                                                                       |
| — FBD                                               | Yes                                                                                       |
| — SCL                                               | Yes                                                                                       |
| <b>Know-how protection</b>                          |                                                                                           |
| • User program 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                                               | 90 mm                                                                                     |
| Height                                              | 100 mm                                                                                    |
| Depth                                               | 75 mm                                                                                     |
| <b>Weights</b>                                      |                                                                                           |
| Weight, approx.                                     | 420 g                                                                                     |
| <b>last modified:</b>                               | 10/28/2016                                                                                |