

SIMATIC S7-1200, CPU 1214C, COMPACT CPU, DC/DC/DC,  
ONBOARD I/O: 14 DI 24V DC; 10 DO 24 V DC; 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/DC       |
| Firmware version         | V4.1                     |
| Engineering with         |                          |
| • Programming package    | STEP 7 V13 SP1 or higher |

### Display

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

### 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 |

|                                                                   |                                                                                                                                                                     |
|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Input current</b>                                              |                                                                                                                                                                     |
| 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                                                                                                                                                     |
| <b>Encoder supply</b>                                             |                                                                                                                                                                     |
| 24 V encoder supply                                               |                                                                                                                                                                     |
| • 24 V                                                            | L+ minus 4 V DC min.                                                                                                                                                |
| <b>Output current</b>                                             |                                                                                                                                                                     |
| for backplane bus (5 V DC), max.                                  | 1 600 mA; Max. 5 V DC for SM and CM                                                                                                                                 |
| <b>Power loss</b>                                                 |                                                                                                                                                                     |
| Power loss, typ.                                                  | 12 W                                                                                                                                                                |
| <b>Memory</b>                                                     |                                                                                                                                                                     |
| Type of memory                                                    | RAM                                                                                                                                                                 |
| <b>Work memory</b>                                                |                                                                                                                                                                     |
| • integrated                                                      | 100 kbyte                                                                                                                                                           |
| • expandable                                                      | No                                                                                                                                                                  |
| <b>Load memory</b>                                                |                                                                                                                                                                     |
| • integrated                                                      | 4 Mbyte                                                                                                                                                             |
| • Plug-in (SIMATIC Memory Card), max.                             | with SIMATIC memory card                                                                                                                                            |
| <b>Backup</b>                                                     |                                                                                                                                                                     |
| • present                                                         | Yes; maintenance-free                                                                                                                                               |
| • 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.                                                    | 8 kbyte; Size of bit memory address area                                                                                                                            |
| <b>Local data</b>                                                 |                                                                                                                                                                     |
| • per priority class, max.                                        | 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB                                                                                     |

|                                                      |                                                                                          |
|------------------------------------------------------|------------------------------------------------------------------------------------------|
| Address area                                         |                                                                                          |
| Process image                                        |                                                                                          |
| • Inputs, adjustable                                 | 1 kbyte                                                                                  |
| • Outputs, adjustable                                | 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 clock)                   | Yes                                                                                      |
| • Backup time                                        | 480 h; Typical                                                                           |
| • Deviation per day, max.                            | 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)                                                             |
| integrated channels (DI)                             | 14                                                                                       |
| m/p-reading                                          | 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 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 & 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                                                                                       |
| • of which high-speed outputs                        | 4; 100 kHz Pulse Train Output                                                            |

|                                                        |                             |
|--------------------------------------------------------|-----------------------------|
| integrated channels (DO)                               | 10                          |
| Limitation of inductive shutdown voltage to            | L+ (-48 V)                  |
| Switching capacity of the outputs                      |                             |
| • with resistive load, max.                            | 0.5 A                       |
| • on lamp load, max.                                   | 5 W                         |
| Output voltage                                         |                             |
| • 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                     |
| 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                         |

|                                                     |                         |
|-----------------------------------------------------|-------------------------|
| <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                     |

|                                                                                       |                                                                      |
|---------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| 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 |
| Forcing                                                                               |                                                                      |
| • Forcing                                                                             | Yes                                                                  |
| Diagnostic buffer                                                                     |                                                                      |
| • present                                                                             | Yes                                                                  |
| Traces                                                                                |                                                                      |
| • Number of configurable Traces                                                       | 2; Up to 512 KB of data per trace are possible                       |
| Integrated Functions                                                                  |                                                                      |
| Number of counters                                                                    | 6                                                                    |
| 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                              | 4; With integrated DO                                                |
| PID controller                                                                        | Yes                                                                  |
| Number of alarm inputs                                                                | 4                                                                    |
| Number of pulse outputs                                                               | 4                                                                    |
| Limit frequency (pulse)                                                               | 100 kHz                                                              |
| 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                                                | Yes                                                                  |
| • between the channels                                                                | No                                                                   |
| • between the channels, in groups of                                                  | 1                                                                    |
| 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                                                  | 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                                                                                                                                                                           |
| Marine approval                                                                               |                                                                                                                                                                               |
| • Marine approval                                                                             | Yes                                                                                                                                                                           |
| Ambient conditions                                                                            |                                                                                                                                                                               |
| Free fall                                                                                     |                                                                                                                                                                               |
| • Drop height, max. (in packaging)                                                            | 0.3 m; five times, in dispatch 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                                                           |                                                                                                                                                                               |
| • 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 %                                                                                      |
| Vibrations                                          |                                                                                           |
| • Vibrations                                        | 2G wall mounting, 1G DIN rail                                                             |
| • Operation, tested according to IEC 60068-2-6      | Yes                                                                                       |
| Shock test                                          |                                                                                           |
| • 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 |
| Extended ambient conditions                         |                                                                                           |
| 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                                                                                       |
| Cycle time monitoring                               |                                                                                           |
| • adjustable                                        | Yes                                                                                       |
| Dimensions                                          |                                                                                           |
| Width                                               | 110 mm                                                                                    |
| Height                                              | 100 mm                                                                                    |
| Depth                                               | 75 mm                                                                                     |
| Weights                                             |                                                                                           |
| Weight, approx.                                     | 415 g                                                                                     |
| <b>last modified:</b>                               | 13.01.2016                                                                                |