



SIMATIC S7-1200, CPU 1212C, COMPACT CPU, DC/DC/RLY,  
ONBOARD I/O: 8 DI 24V DC; 6 DO RELAY 2A; 2 AI 0 - 10V DC,  
POWER SUPPLY: DC 20.4 - 28.8 V DC, PROGRAM/DATA  
MEMORY: 75 KB

### General information

|   |                          |
|---|--------------------------|
| 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               |
| 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>5 V<br>250 V |

### Input current

|                                   |  |
|-----------------------------------|--|
| Current consumption (rated value) | 400 mA; CPU only                         |
| Current consumption, max.         | 1 200 mA; CPU with all expansion modules |
| Inrush current, max.              | 12 A; at 28.8 V                          |

### Encoder supply

|  |                      |
|--|----------------------|
| 24 V encoder supply                                    |                      |
| <ul style="list-style-type: none"> <li>24 V</li> </ul> | L+ minus 4 V DC min. |

### Output current

|   |   |
|---|---|
| for backplane bus (5 V DC), max.                                  | 1 000 mA; Max. 5 V DC for SM and CM   |
| <b>Power losses</b>   |   |
| Power loss, typ.  | 9 W   |
| <b>Memory</b>   |   |
| <b>Work memory</b>  |   |
| • Integrated  | 75 kbyte  |
| • expandable  | No  |
| <b>Load memory</b>  |   |
| • Integrated  | 1 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.  | 4 kbyte; Size of bit memory address area  |
| <b>Local data</b>   |   |
| • per priority class, max.  | 16 kbyte  |
| <b>Process image</b>  |   |
| • Inputs, adjustable  | 1 kbyte   |
| • Outputs, adjustable   | 1 kbyte   |
| <b>Hardware configuration</b>                                     |   |
| Number of modules per system, max.                                | 3 comm. modules, 1 signal board, 2 signal modules   |
| <b>Time of day</b>  |   |
| <b>Clock</b>  |   |
| • Hardware clock (real-time clock)                                | Yes   |
| • Deviation per day, max.   | 60 s/month at 25 °C   |
| • Backup time   | 480 h; Typical  |

## Digital inputs

|   |  |
|---|--|
| Number of digital inputs                              | 8; Integrated  |
| • of which, inputs usable for technological functions | 4; HSC (High Speed Counting)   |
| integrated channels (DI)                              | 8  |
| m/p-reading   | Yes  |
| Number of simultaneously controllable inputs          |  |
| all mounting positions                                |  |
| — up to 40 °C, max.                                   | 8  |
| 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 & 1 @ 30 kHz, differential: 3 @ 80 kHz & 1 @ 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                         | 6; Relays  |
| integrated channels (DO)                          | 6  |
| 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.  |
| Switching frequency                               |  |
| • of the pulse outputs, with resistive load, max. | 1 Hz   |
| Relay outputs                                     |  |
| • Number of relay outputs                         | 6  |
| • 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                 |
| <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 |

### Analog value creation

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

### Encoder

|                             |     |
|-----------------------------|-----|
| <b>Connectable encoders</b> |     |
| • 2-wire sensor             | Yes |

### 1st interface

|   |   |
|---|---|
| Interface type                                      | PROFINET  |
| Physics   | Ethernet  |
| Isolated  | Yes   |
| Automatic detection of transmission speed           | Yes   |
| Autonegotiation                                     | Yes   |
| Autocrossing  | Yes   |
| <b>Functionality</b>                                |   |
| • PROFINET IO Device                                | Yes; Also simultaneously with IO-Device functionality |
| • PROFINET IO Controller                            | Yes   |
| <b>PROFINET IO Controller</b>                       |   |
| • Transmission rate, max.                           | 100 Mbit/s  |
| • 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   |

### Communication functions

|                  |  |
|------------------|--|
| S7 communication |  |
|------------------|--|

|   |  |
|---|--|
| • 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  | 4  |
| Counter frequency (counter) max.                              | 100 kHz  |
| Frequency meter   | Yes  |
| controlled positioning  | Yes  |
| Number of position-controlled positioning axes, max.          | 8  |
| PID controller  | Yes  |
| Number of alarm inputs  | 4  |
| <b>Potential separation</b>                                   |  |
| <b>Galvanic isolation 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                          | 2  |
| <b>EMC</b>  |  |
| 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  |
| <b>Interference immunity to cable-borne interference</b>                              |   |
| • Interference immunity on supply lines acc. to IEC 61000-4-4                         | Yes   |
| • Interference immunity on signal lines acc. to IEC 61000-4-4                         | Yes   |
| <b>Surge immunity</b>   |   |
| • on the supply lines acc. to IEC 61000-4-5   | Yes   |
| <b>Immunity against conducted interference induced by high-frequency fields</b>       |   |
| • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6        | Yes   |
| <b>Emission of radio interference acc. to EN 55 011</b>                               |   |
| • Limit class A, for use in industrial areas  | Yes; Group 1  |
| • Limit class B, for use in residential areas   | Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011  |
| <b>Degree and class of protection</b>   |   |
| Degree of protection to EN 60529  |   |
| • IP20  | 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>  |   |
| • Marine approval   | Yes   |
| <b>Ambient conditions</b>   |   |
| Free fall   |   |
| • Drop height, max. (in packaging)  | 0.3 m; five times, in dispatch package  |
| <b>Ambient temperature in operation</b>   |   |
| • Min.  | -20 °C  |
| • max.  | 60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 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   |
| <b>Ambient temperature during storage/transportation</b>                              |   |

|   |   |
|---|---|
| • Min.  | -40 °C  |
| • max.  | 70 °C   |
| <b>Air pressure acc. to IEC 60068-2-13</b>          |   |
| • Storage/transport, min.                           | 660 hPa   |
| • Storage/transport, max.                           | 1 080 hPa   |
| • Permissible operating height                      | -1000 to 2000 m   |
| <b>Relative humidity</b>                            |   |
| • Permissible range (without condensation) at 25 °C | 95 %  |
| <b>Vibrations</b>                                   |   |
| • Vibrations  | 2G wall mounting, 1G DIN rail   |
| • Operation, checked according to IEC 60068-2-6     | Yes   |
| <b>Shock test</b>                                   |   |
| • checked according to IEC 60068-2-27               | Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms |
| <b>Pollutant concentrations</b>                     |   |
| — SO2 at RH < 60% without condensation              | SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free                                |
| <b>programming</b>                                  |   |
| <b>Programming language</b>                         |   |
| — LAD   | Yes   |
| — FBD   | Yes   |
| — SCL   | Yes   |
| <b>Cycle time monitoring</b>                        |   |
| • can be set  | Yes   |
| <b>Dimensions</b>                                   |   |
| Width   | 90 mm   |
| Height  | 100 mm  |
| Depth   | 75 mm   |
| <b>Weights</b>                                      |   |
| Weight, approx.                                     | 385 g   |
| <b>last modified:</b>                               | 17.04.2015  |