

SIMATIC S7-1200, CPU 1212C,  
 COMPACT CPU, DC/DC/DC,  
 ONBOARD I/O: 8 DI 24V DC;  
 6 DO 24 V DC;  
 2 AI 0 - 10V DC,  
 POWER SUPPLY: DC 20.4 - 28.8 V DC,  
 PROGRAM/DATA MEMORY: 50 KB

| Supply voltage                                 |                                     |
|--|-------------------------------------|
| 24 V DC  | Yes                                 |
| permissible range, lower limit (DC)            | 20.4 V                              |
| permissible range, upper limit (DC)            | 28.8 V                              |
| Load voltage L+                                |                                     |
| Rated value (DC)                               | 24 V                                |
| permissible range, lower limit (DC)            | 20.4 V                              |
| permissible range, upper limit (DC)            | 28.8 V                              |
| Input current                                  |                                     |
| Current consumption (rated value)              | 400 mA ; Typical                    |
| Inrush current, max.                           | 12 A ; at 28.8 V DC                 |
| Encoder supply                                 |                                     |
| 24 V encoder supply                            |                                     |
| 24 V   | Permissible range: 20.4 to 28.8 V   |
| Output current                                 |                                     |
| Current output to backplane bus (DC 5 V), max. | 1000 mA ; Max. 5 V DC for SM and CM |
| Power losses                                   |                                     |
| Power loss, typ.                               | 9 W                                 |
| Memory   |                                     |
| Usable memory for user data                    | 50 kbyte                            |
| Work memory                                    |                                     |
| integrated                                     | 50 kbyte                            |
| expandable                                     | No                                  |
| Load memory                                    |                                     |
| integrated                                     | 1 Mbyte                             |
| Plug-in (SIMATIC Memory Card), max.            | 2 Gbyte ; with SIMATIC memory card  |
| Backup   |                                     |
| present  | Yes ; maintenance-free              |

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| without battery   | Yes   |
| <b>CPU processing times</b>                                       |   |
| for bit operations, typ.  | 0.085 µs ; / Operation  |
| for word operations, typ.   | 1.7 µs ; / Operation  |
| for floating point arithmetic, typ.                               | 2.3 µs ; / Operation  |
| <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>Address area</b>   |   |
| <b>I/O address area</b>   |   |
| I/O address area, overall   | 1024 bytes for inputs / 1024 bytes for outputs  |
| <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   |
| <b>Digital inputs</b>   |   |
| Number of digital inputs  | 8 ; integrated  |
| of which, inputs usable for technological functions               | 6 ; HSC (High Speed Counting)   |
| integrated channels (DI)  | 8   |
| m/p-reading   | Yes   |
| <b>Number of simultaneously controllable inputs</b>               |   |
| <b>all mounting positions</b>                                     |   |
| up to 40 °C, max.   | 8   |
| <b>Input voltage</b>  |   |
| Rated value, DC   | 24 V  |
| for signal "0"  | 5 V DC at 1 mA  |

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| for signal "1"  | 15 VDC at 2.5 mA                         |
| <b>Input current</b>                                  |  |
| for signal "1", typ.                                  | 1 mA                                     |
| <b>Input delay (for rated value of input voltage)</b> |  |
| for standard inputs                                   |  |
| at "0" to "1", min.                                   | 0.1 $\mu$ s                              |
| at "0" to "1", max.                                   | 20 ms                                    |
| for interrupt inputs                                  |  |
| Parameterizable                                       | Yes                                      |
| <b>Cable length</b>                                   |  |
| Cable length, shielded, max.                          | 500 m ; 50 m for technological functions |
| Cable length unshielded, max.                         | 300 m ; For technological functions: No  |
| <b>Digital outputs</b>                                |  |
| Number of digital outputs                             | 6  |
| of which high-speed outputs                           | 4 ; 100 kHz Pulse Train Output           |
| integrated channels (DO)                              | 6  |
| Short-circuit protection                              | No ; to be provided externally           |
| Limitation of inductive shutdown voltage to           | L+ (-48 V)                               |
| <b>Switching capacity of the outputs</b>              |  |
| with resistive load, max.                             | 0.5 A                                    |
| on lamp load, max.                                    | 5 W                                      |
| <b>Output voltage</b>                                 |  |
| for signal "0", max.                                  | 0.1 V ; with 10 kOhm load                |
| for signal "1", min.                                  | 20 V                                     |
| <b>Output current</b>                                 |  |
| for signal "1" rated value                            | 0.5 A                                    |
| for signal "0" residual current, max.                 | 0.1 mA                                   |
| <b>Output delay with resistive load</b>               |  |
| "0" to "1", max.                                      | 1 $\mu$ s                                |
| "1" to "0", max.                                      | 3 $\mu$ s                                |
| <b>Switching frequency</b>                            |  |
| of the pulse outputs, with resistive load, max.       | 100 kHz                                  |
| <b>Cable length</b>                                   |  |
| Cable length, shielded, max.                          | 500 m                                    |
| Cable length unshielded, max.                         | 150 m                                    |
| <b>Analog inputs</b>                                  |  |
| Integrated channels (AI)                              | 2 ; 0 to 10 V                            |
| Number of analog inputs                               | 2  |

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| <b>Input ranges</b>  |                                     |
| <b>Voltage</b>   | Yes                                 |
| <b>Input ranges (rated values), voltages</b>                   |                                     |
| <b>0 to +10 V</b>  | Yes                                 |
| <b>Input resistance (0 to 10 V)</b>                            | ≥100k ohms                          |
| <b>Cable length</b>  |                                     |
| <b>Cable length, shielded, max.</b>                            | 100 m ; twisted and shielded        |
| <b>Analog outputs</b>  |                                     |
| <b>Cable length</b>  |                                     |
| <b>Cable length, shielded, max.</b>                            | 100 m ; Shielded, twisted wire pair |
| <b>Analog value creation</b>                                   |                                     |
| <b>Integrations and conversion time/resolution per channel</b> |                                     |
| <b>Resolution with overrange (bit including sign), max.</b>    | 10 bit                              |
| <b>Integration time, parameterizable</b>                       | Yes                                 |
| <b>Conversion time (per channel)</b>                           | 625 µs                              |
| <b>Encoder</b>   |                                     |
| <b>Connectable encoders</b>                                    |                                     |
| <b>2-wire sensor</b>   | Yes                                 |
| <b>1st interface</b>   |                                     |
| <b>Interface type</b>  | PROFINET                            |
| <b>Physics</b>   | Ethernet                            |
| <b>Isolated</b>  | Yes                                 |
| <b>Automatic detection of transmission speed</b>               | Yes                                 |
| <b>Autonegotiation</b>   | Yes                                 |
| <b>Autocrossing</b>  | Yes                                 |
| <b>Functionality</b>   |                                     |
| <b>PROFINET IO Device</b>                                      | Yes                                 |
| <b>PROFINET IO Controller</b>                                  | Yes                                 |
| <b>PROFINET IO Controller</b>                                  |                                     |
| <b>Prioritized startup supported</b>                           |                                     |
| <b>Number of IO Devices, max.</b>                              | 16                                  |
| <b>Communication functions</b>                                 |                                     |
| <b>S7 communication</b>  |                                     |
| <b>supported</b>   | Yes                                 |
| <b>as server</b>   | Yes                                 |
| <b>as client</b>   | Yes                                 |
| <b>Open IE communication</b>                                   |                                     |
| <b>TCP/IP</b>  | Yes                                 |

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| ISO-on-TCP (RFC1006)  | Yes  |
| UDP   | Yes  |
| <b>Web server</b>   |  |
| supported   | Yes  |
| User-defined websites   | Yes  |
| <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>Integrated Functions</b>   |  |
| Number of counters  | 6  |
| Counter frequency (counter) max.  | 100 kHz  |
| Frequency meter   | Yes  |
| controlled positioning  | Yes  |
| PID controller  | Yes  |
| Number of alarm inputs  | 4  |
| Number of pulse outputs   | 4  |
| Limit frequency (pulse)   | 100 kHz  |
| <b>Galvanic isolation</b>   |  |
| <b>Galvanic isolation digital inputs</b>  |  |
| Galvanic isolation digital inputs   | 500 V AC for 1 minute  |
| between the channels, in groups of  | 1  |
| <b>Galvanic isolation digital outputs</b>   |  |
| between the channels, in groups of  | 1  |
| <b>Permissible potential difference</b>   |  |
| between different circuits  | 500 V DC between 24 V DC and 5 V DC                                  |
| <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>                            |  |
| on the supply lines acc. to IEC 61000-4-4   | Yes  |

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| 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>                         |   |
| Emission of radio interferences acc. to EN 55 011 (limit class A)               | Yes ; Group 1   |
| Emission of radio interference acc. to EN 55 011 (limit class B)                | 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>   |   |
| IP20  | Yes   |
| <b>Standards, approvals, certificates</b>                                       |   |
| CE mark   | Yes   |
| UL approval   | Yes   |
| cULus   | Yes   |
| RCM (former C-TICK)   | Yes   |
| FM approval   | Yes   |
| <b>Marine approval</b>  |   |
| Marine approval   | Yes   |
| <b>Ambient conditions</b>   |   |
| <b>Operating temperature</b>  |   |
| 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   |
| <b>Storage/transport temperature</b>  |   |
| Min.  | -40 °C  |
| max.  | 70 °C   |
| <b>Air pressure</b>   |   |
| Operation, min.   | 795 hPa   |
| Operation, max.   | 1080 hPa  |
| Storage/transport, min.   | 660 hPa   |
| Storage/transport, max.   | 1080 hPa  |
| <b>Relative humidity</b>  |   |
| Operation, max.   | 95 % ; no condensation  |

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| <b>Vibrations</b>   |  |
| <b>Vibrations</b>   | 2G wall mounting, 1G DIN rail  |
| <b>Operation, checked according to IEC 60068-2-6</b>                | Yes  |
| <b>Shock test</b>   |  |
| <b>checked according to IEC 60068-2-27</b>                          | Yes ; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms |
| <b>Climatic and mechanical conditions for storage and transport</b> |  |
| <b>Climatic conditions for storage and transport</b>                |  |
| <b>Free fall</b>  |  |
| <b>Drop height, max. (in packaging)</b>                             | 0.3 m ; five times, in dispatch package  |
| <b>Temperature</b>  |  |
| <b>Permissible temperature range</b>                                | -40 °C to +70 °C   |
| <b>Relative humidity</b>  |  |
| <b>Permissible range (without condensation) at 25 °C</b>            | 95 %   |
| <b>Mechanical and climatic conditions during operation</b>          |  |
| <b>Climatic conditions in operation</b>                             |  |
| <b>Temperature</b>  |  |
| <b>Min.</b>   | -20 °C   |
| <b>max.</b>   | 60 °C  |
| <b>Air pressure acc. to IEC 60068-2-13</b>                          |  |
| <b>Permissible air pressure</b>                                     | 1080 to 795 hPa  |
| <b>Permissible operating height</b>                                 | -1000 to 2000 m  |
| <b>Pollutant concentrations</b>                                     |  |
| <b>SO2 at RH &lt; 60% without condensation</b>                      | SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free                                 |
| <b>Configuration</b>  |  |
| <b>programming</b>  |  |
| <b>Programming language</b>   |  |
| <b>LAD</b>  | Yes  |
| <b>FBD</b>  | Yes  |
| <b>SCL</b>  | Yes  |
| <b>Cycle time monitoring</b>  |  |
| <b>adjustable</b>   | Yes  |
| <b>Dimensions</b>   |  |
| <b>Width</b>  | 90 mm  |
| <b>Height</b>   | 100 mm   |
| <b>Depth</b>  | 75 mm  |
| <b>Weights</b>  |  |
| <b>Weight, approx.</b>  | 370 g  |

