



SIMATIC S7-1200, CPU 1212FC, compact CPU, DC/DC/relay, onboard I/O: 8 DI 24 V DC; 6 DO relay 2 A; 2 AI 0-10 V DC, Power supply: DC 20.4-28.8V DC, Program/data memory 100 KB

| General information | |
|--|-------------------------------------|
| Product type designation | CPU 1212FC DC/DC/relay |
| Firmware version | V4.2 |
| Engineering with | |
| <ul style="list-style-type: none"> Programming package | STEP 7 V14 or higher |
| Supply voltage | |
| Rated value (DC) | |
| <ul style="list-style-type: none"> 24 V DC | 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"> Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) | 24 V 20.4 V 28.8 V |
| Input current | |
| Current consumption (rated value) | 400 mA |
| Inrush current, max. | 12 A; at 28.8 V DC |
| I^2t | 0.5 A ² ·s |
| Output current | |
| for backplane bus (5 V DC), max. | 1 000 mA; Max. 5 V DC for SM and CM |
| Encoder supply | |
| 24 V encoder supply | |
| <ul style="list-style-type: none"> 24 V | Permissible range: 20.4V to 28.8V |
| Power loss | |
| Power loss, typ. | 9 W |
| Memory | |
| Work memory | |
| <ul style="list-style-type: none"> integrated expandable | 100 kbyte No |
| Load memory | |
| <ul style="list-style-type: none"> integrated Plug-in (SIMATIC Memory Card), max. | 2 Mbyte with SIMATIC memory card |
| Backup | |
| <ul style="list-style-type: none"> present maintenance-free without battery | Yes Yes Yes |
| CPU processing times | |

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| for bit operations, typ. | 0.08 µs; / instruction |
| for word operations, typ. | 1.7 µs; / instruction |
| for floating point arithmetic, typ. | 2.5 µs; / instruction |
| CPU-blocks | |
| Number of blocks (total) | DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used |
| OB | |
| • Number, max. | Limited only by RAM for code |
| Data areas and their retentivity | |
| Retentive data area (incl. timers, counters, flags), max. | 10 kbyte |
| Flag | |
| • Number, max. | 4 kbyte; Size of bit memory address area |
| Local data | |
| • per priority class, max. | 16 kbyte |
| Address area | |
| I/O address area | |
| • Inputs | 1 024 byte |
| • Outputs | 1 024 byte |
| Process image | |
| • Inputs, adjustable | 1 kbyte |
| • Outputs, adjustable | 1 kbyte |
| Hardware configuration | |
| Number of modules per system, max. | 3 comm. modules, 1 signal board, 2 signal modules |
| Time of day | |
| Clock | |
| • Hardware clock (real-time) | Yes |
| • Backup time | 480 h; Typical |
| Digital inputs | |
| Number of digital inputs | 8; Integrated |
| • of which inputs usable for technological functions | 6; HSC (High Speed Counting) |
| Source/sink input | 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 V DC at 2.5 mA |
| Input current | |
| • for signal "1", typ. | 1 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 |
| Digital outputs | |
| Number of digital outputs | 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 | |


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| • of the pulse outputs, with resistive load, max. | 1 Hz |
| Relay outputs | |
| • Number of relay outputs | 6 |
| Cable length | |
| • shielded, max. | 500 m |
| • unshielded, max. | 150 m |
| Analog inputs | |
| Number of analog inputs | 2 |
| Input ranges | |
| • Voltage | Yes |
| Input ranges (rated values), voltages | |
| • 0 to +10 V — Input resistance (0 to 10 V) | Yes ≥100k ohms |
| Cable length | |
| • shielded, max. | 100 m; twisted and shielded |
| Analog outputs | |
| Number of analog outputs | 0 |
| Analog value generation for the inputs | |
| 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 |
| Isolated | Yes |
| automatic detection of transmission rate | Yes |
| Autonegotiation | Yes |
| Autocrossing | Yes |
| Interface types | |
| • RJ 45 (Ethernet) | Yes |
| • Number of ports | 1 |
| • integrated switch | Yes |
| Protocols | |
| • PROFINET IO Controller | Yes |
| • PROFINET IO Device | Yes |
| • SIMATIC communication | Yes |
| • Open IE communication | Yes |
| • Web server | Yes |
| PROFINET IO Controller | |
| • Transmission rate, max. | 100 Mbit/s |
| Services | |
| — PG/OP communication | Yes |
| — Isochronous mode | No |
| — IRT | No |
| — PROFIenergy | 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.

| PROFINET IO Device | |
|---|--|
| Services | |
| — PG/OP communication | Yes |
| — Isochronous mode | No |
| — IRT | No |
| — PROFIenergy | Yes |
| — Shared device | Yes |
| — Number of IO Controllers with shared device, max. | 2 |
| Protocols | |
| Supports protocol for PROFINET IO | Yes |
| PROFIBUS | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required |
| AS-Interface | Yes; CM 1243-2 required |
| Protocols (Ethernet) | |
| • TCP/IP | Yes |
| • DHCP | No |
| • SNMP | Yes |
| • DCP | Yes |
| • LLDP | Yes |
| Redundancy mode | |
| Media redundancy | |
| — MRP | No |
| — MRPD | No |
| SIMATIC communication | |
| • S7 routing | Yes |
| Open IE communication | |
| • TCP/IP | Yes |
| — Data length, max. | 8 kbyte |
| • ISO-on-TCP (RFC1006) | Yes |
| — Data length, max. | 8 kbyte |
| • UDP | Yes |
| — Data length, max. | 1 472 byte |
| Web server | |
| • supported | Yes |
| • User-defined websites | Yes |
| Further protocols | |
| • MODBUS | Yes |
| Communication functions | |
| S7 communication | |
| • supported | Yes |
| • as server | Yes |
| • as client | Yes |
| • User data per job, max. | See online help (S7 communication, user data size) |
| 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 |
| • Memory size per trace, max. | 512 kbyte |
| Integrated Functions | |

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| Number of counters | 4 |
| Counting frequency (counter) max. | 100 kHz |
| Frequency measurement | 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 pulse outputs | 4 |
| Potential separation | |
| Potential separation digital inputs | |
| <ul style="list-style-type: none"> Potential separation digital inputs between the channels, in groups of | 500V AC for 1 minute 1 |
| Potential separation digital outputs | |
| <ul style="list-style-type: none"> Potential separation digital outputs between the channels between the channels, in groups of | Relays No 1 |
| Permissible potential difference | |
| between different circuits | 500 V DC between 24 V DC and 5 V DC |
| EMC | |
| Interference immunity against discharge of static electricity | |
| <ul style="list-style-type: none"> Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 <ul style="list-style-type: none"> Test voltage at air discharge Test voltage at contact discharge | Yes 8 kV 6 kV |
| Interference immunity to cable-borne interference | |
| <ul style="list-style-type: none"> Interference immunity on supply lines acc. to IEC 61000-4-4 Interference immunity on signal cables acc. to IEC 61000-4-4 | Yes Yes |
| Interference immunity against voltage surge | |
| <ul style="list-style-type: none"> Interference immunity on supply lines acc. to IEC 61000-4-5 | Yes |
| Interference immunity against conducted variable disturbance induced by high-frequency fields | |
| <ul style="list-style-type: none"> Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 | Yes |
| Emission of radio interference acc. to EN 55 011 | |
| <ul style="list-style-type: none"> Limit class A, for use in industrial areas Limit class B, for use in residential areas | Yes; Group 1 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 |
| Degree and class of protection | |
| IP degree of protection | IP20 |
| Standards, approvals, certificates | |
| CE mark | Yes |
| UL approval | Yes |
| cULus | Yes |
| FM approval | Yes |
| RCM (formerly C-TICK) | Yes |
| KC approval | Yes |
| Marine approval | Yes |
| Highest safety class achievable in safety mode | |
| <ul style="list-style-type: none"> Performance level according to ISO 13849-1 SIL acc. to IEC 61508 | PLe SIL 3 |
| Ambient conditions | |
| Free fall | |
| <ul style="list-style-type: none"> Fall height, max. | 0.3 m |
| Ambient temperature during operation | |
| <ul style="list-style-type: none"> min. max. horizontal installation, min. | 0 °C 55 °C 0 °C |

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| • horizontal installation, max. | 55 °C |
| • vertical installation, min. | 0 °C |
| • vertical installation, max. | 45 °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. | 1 139 hPa |
| Altitude during operation relating to sea level | |
| • Installation altitude, min. | -1 000 m |
| • Installation altitude, max. | 2 000 m |
| Relative humidity | |
| • Operation, max. | 95 %; no condensation |
| Vibrations | |
| • Vibration resistance during operation acc. to IEC 60068-2-6 | 2 g (m/s ²) wall mounting, 1 g (m/s ²) DIN rail |
| • Operation, tested according to IEC 60068-2-6 | Yes |
| Shock testing | |
| • tested according to IEC 60068-2-27 | Yes |
| Configuration | |
| Programming | |
| Programming language | |
| — LAD | Yes; incl. failsafe |
| — FBD | Yes; incl. failsafe |
| — SCL | Yes |
| Know-how protection | |
| • User program protection/password protection | Yes |
| • Copy protection | Yes |
| • Block protection | Yes |
| Cycle time monitoring | |
| • adjustable | Yes |
| Dimensions | |
| Width | 90 mm |
| Height | 100 mm |
| Depth | 75 mm |
| Weights | |
| Weight, approx. | 385 g |
| last modified: | 1/16/2021  |