

Spare part SIMATIC S7-1200, CPU 1212C, compact CPU, AC/DC/relay, onboard I/O: 8 DI 24 V DC; 6 DO relay 2 A; 2 AI 0-10 V DC, Power supply: AC 85-264 V AC at 47-63 Hz, Program/data memory 25 KB



| General information | |
|--|------------------------|
| Product type designation | CPU 1212C AC/DC/relay |
| Engineering with | |
| <ul style="list-style-type: none"> Programming package | STEP 7 V10.5 or higher |
| Supply voltage | |
| Rated value (AC) | |
| <ul style="list-style-type: none"> 120 V AC 230 V AC | Yes |
| permissible range, lower limit (AC) | 85 V |
| permissible range, upper limit (AC) | 264 V |
| Line frequency | |
| <ul style="list-style-type: none"> permissible range, lower limit permissible range, upper limit | 47 Hz 63 Hz |
| Load voltage L+ | |
| <ul style="list-style-type: none"> Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) | 24 V 5 V 250 V |
| Input current | |

| | |
|-----------------------------------|--|
| Current consumption (rated value) | 80 mA at 120 V AC; 40 mA at 240 V AC |
| Current consumption, max. | 240 mA at 120 V AC; 120 mA at 240 V AC |
| Inrush current, max. | 20 A; at 264 V |

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| Output current | |
| for backplane bus (5 V DC), max. | 1 000 mA; Max. 5 V DC for SM and CM |

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|--|-----------------------------------|
| Encoder supply | |
| 24 V encoder supply | |
| <ul style="list-style-type: none"> • 24 V | Permissible range: 20.4V to 28.8V |

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|-------------------|------|
| Power loss | |
| Power loss, typ. | 11 W |

| | |
|---|---|
| Memory | |
| Work memory | |
| <ul style="list-style-type: none"> • integrated | 25 kbyte |
| <ul style="list-style-type: none"> • expandable | No |
| Load memory | |
| <ul style="list-style-type: none"> • integrated | 1 Mbyte |
| <ul style="list-style-type: none"> • Plug-in (SIMATIC Memory Card), max. | 24 Mbyte; with SIMATIC memory card |
| Backup | |
| <ul style="list-style-type: none"> • present | Yes; Entire project maintenance-free in the integral EEPROM |
| <ul style="list-style-type: none"> • without battery | Yes |

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| CPU processing times | |
| for bit operations, typ. | 0.1 µs; / Operation |
| for word operations, typ. | 12 µs; / Operation |
| for floating point arithmetic, typ. | 18 µs; / Operation |

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| 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 | |
| <ul style="list-style-type: none"> • Number, max. | Limited only by RAM for code |

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| Data areas and their retentivity | |
| Retentive data area (incl. timers, counters, flags), max. | 2 048 byte |
| Flag | |
| <ul style="list-style-type: none"> • Number, max. | 4 kbyte; Size of bit memory address area |

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|---|------------|
| Address area | |
| I/O address area | |
| <ul style="list-style-type: none"> • Inputs | 1 024 byte |
| <ul style="list-style-type: none"> • Outputs | 1 024 byte |
| Process image | |

- Inputs, adjustable
- Outputs, adjustable

1 kbyte

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 240 h; Typical
- Deviation per day, max. ± 60 s/month at 25 °C

Digital inputs

Number of digital inputs

8; Integrated

- of which inputs usable for technological functions

4; HSC (High Speed Counting)

Source/sink input

Yes

Input voltage

- Rated value (DC)
- for signal "0"
- for signal "1"

24 V

5 V DC at 1 mA

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

for technological functions

— parameterizable

Single phase: 3 at 100 kHz & 1 at 30 kHz, differential: 3 at 80 kHz & 1 at 30 kHz

Cable length

- shielded, max.
- unshielded, max.

500 m; 50 m for technological functions

300 m; for technological functions: No

Digital outputs

Number of digital outputs

6; Relays

Short-circuit protection

No; to be provided externally

Switching capacity of the outputs

- with resistive load, max.
- on lamp load, max.

2 A

30 W with DC, 200 W with AC

Output delay with resistive load

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| • "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 |
| 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 | |
| Cable length | |
| • shielded, max. | 100 m; shielded, twisted pair |
| 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 |
| Physics | Ethernet |
| Isolated | Yes |
| automatic detection of transmission rate | Yes |
| Autonegotiation | Yes |
| Autocrossing | Yes |
| Protocols | |
| • PROFINET IO Controller | Yes |

| Protocols | |
|--|--|
| Supports protocol for PROFINET IO | No |
| PROFIBUS | No |
| AS-Interface | No |
| Protocols (Ethernet) | |
| • TCP/IP | Yes |
| Open IE communication | |
| • TCP/IP | Yes |
| • ISO-on-TCP (RFC1006) | Yes |
| Web server | |
| • supported | Yes |
| • User-defined websites | Yes |
| Further protocols | |
| • MODBUS | No |
| Communication functions | |
| S7 communication | |
| • supported | Yes |
| • as server | Yes |
| Number of connections | |
| • overall | 15; dynamically |
| Test commissioning functions | |
| Status/control | |
| • Status/control variable | Yes |
| • Variables | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters |
| Forcing | |
| • Forcing | Yes |
| Integrated Functions | |
| Number of counters | 4 |
| Counting frequency (counter) max. | 100 kHz |
| Frequency measurement | Yes |
| controlled positioning | Yes |
| PID controller | Yes |
| Number of alarm inputs | 4 |
| Potential separation | |
| Potential separation digital inputs | |
| • Potential separation digital inputs | No |
| • between the channels, in groups of | 1 |
| Potential separation digital outputs | |
| • Potential separation digital outputs | Yes; Relays |
| • between the channels | No |

- between the channels, in groups of 2

| 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 | |
| • 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 | |
| • Interference immunity on 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 | |
|--------------------------------|------|
| IP degree of protection | IP20 |

| Standards, approvals, certificates | |
|------------------------------------|-----|
| CE mark | Yes |
| cULus | Yes |
| FM approval | Yes |
| RCM (formerly C-TICK) | Yes |

| Ambient conditions | |
|--------------------------------------|---------------------------------------|
| Free fall | |
| • Fall height, max. | 0.3 m; five times, in product package |
| Ambient temperature during operation | |
| • min. | 0 °C |
| • max. | 55 °C |
| • horizontal installation, min. | 0 °C |
| • horizontal installation, max. | 55 °C |
| • vertical installation, min. | 0 °C |
| • vertical installation, max. | 45 °C |

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| • permissible temperature change | 5°C to 55°C, 3°C / minute |
| 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 |
| 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; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms |
| Pollutant concentrations | |
| • SO ₂ at RH < 60% without condensation | SO ₂ : < 0.5 ppm; H ₂ S: < 0.1 ppm; RH < 60% condensation-free |
| Configuration | |
| Programming | |
| Programming language | |
| — LAD | Yes |
| — FBD | Yes |
| — SCL | Yes |
| Cycle time monitoring | |
| • adjustable | Yes |
| Dimensions | |
| Width | 90 mm |
| Height | 100 mm |
| Depth | 75 mm |
| Weights | |
| Weight, approx. | 425 g |
| last modified: | 06/11/2020 |