



Figure similar

SIPLUS S7-1200 CPU 1212C DC/DC/relay based on 6ES7212-1HE40-0XB0 with conformal coating, -20...+60 °C, compact CPU, DC/DC/relay, onboard I/O: 8 DI 24 V DC 6 DQ relay 2 A 2 AI 0-10 V DC power supply: 20.4-28.8 V D program/data memory 75 KB

| General information | |
|--|--|
| Product type designation | CPU 1212C DC/DC/relay |
| Engineering with | |
| <ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated from version | see entry ID: 109746275 |
| 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 |
| Reverse polarity protection | Yes |
| 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) | 400 mA; Typical |
| Current consumption, max. | 1 200 mA; CPU with all expansion modules |
| Inrush current, max. | 12 A; at 28.8 V |
| 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 | L+ minus 4 V DC min. |
| Power loss | |
| Power loss, typ. | 9 W |
| Memory | |
| Work memory | |
| <ul style="list-style-type: none"> integrated expandable | 75 kbyte No |
| Load memory | |
| <ul style="list-style-type: none"> integrated Plug-in (SIMATIC Memory Card), max. | 1 Mbyte with SIMATIC memory card |
| Backup | |
| <ul style="list-style-type: none"> present without battery | Yes; maintenance-free Yes |
| CPU processing times | |
| 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

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

- Size, max. 4 kbyte; Size of bit memory address area

Local data

- 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, 2 signal modules

Time of day

Clock

- Hardware clock (real-time) Yes
- Backup time 480 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

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 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 @ 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

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 |
| 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 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 |
| Protocols | |
| • PROFINET IO Controller | Yes |
| • PROFINET IO Device | Yes |
| • Open IE communication | Yes |
| • Web server | Yes |
| PROFINET IO Controller | |
| • Transmission rate, max. | 100 Mbit/s |
| Services | |
| — Number of connectable IO Devices, max. | 16 |
| PROFINET IO Device | |
| Services | |
| — Shared device | Yes |
| — Number of IO Controllers with shared device, max. | 2 |
| Protocols | |
| Supports protocol for PROFINET IO | Yes |
| PROFIsafe | No |
| PROFIBUS | Yes; CM 1243-5 required |
| AS-Interface | Yes |
| Protocols (Ethernet) | |
| • TCP/IP | Yes |
| Open IE communication | |
| • TCP/IP | Yes |
| • ISO-on-TCP (RFC1006) | Yes |
| • UDP | Yes |
| Web server | |
| • supported | Yes |
| • User-defined websites | Yes |
| Further protocols | |
| • MODBUS | Yes |
| communication functions / header | |
| S7 communication | |

| | |
|---|---|
| <ul style="list-style-type: none"> • supported | Yes |
| <ul style="list-style-type: none"> • as server | Yes |
| <ul style="list-style-type: none"> • as client | Yes |
| Number of connections | |
| <ul style="list-style-type: none"> • overall | 16; dynamically |
| Test commissioning functions | |
| Status/control | |
| <ul style="list-style-type: none"> • Status/control variable | Yes |
| <ul style="list-style-type: none"> • Variables | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters |
| Forcing | |
| <ul style="list-style-type: none"> • Forcing | Yes |
| Diagnostic buffer | |
| <ul style="list-style-type: none"> • present | Yes |
| Traces | |
| <ul style="list-style-type: none"> • Number of configurable Traces | 2; Up to 512 KB of data per trace are possible |
| Integrated Functions | |
| 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 alarm inputs | 4 |
| Potential separation | |
| Potential separation digital inputs | |
| <ul style="list-style-type: none"> • Potential separation digital inputs | 500V AC for 1 minute |
| <ul style="list-style-type: none"> • between the channels, in groups of | 1 |
| Potential separation digital outputs | |
| <ul style="list-style-type: none"> • Potential separation digital outputs | Relays |
| <ul style="list-style-type: none"> • between the channels | No |
| <ul style="list-style-type: none"> • between the channels, in groups of | 2 |
| 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 | Yes |
| <ul style="list-style-type: none"> — Test voltage at air discharge | 8 kV |
| <ul style="list-style-type: none"> — Test voltage at contact discharge | 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 | Yes |
| <ul style="list-style-type: none"> • Interference immunity on signal cables acc. to IEC 61000-4-4 | 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 | Yes; Group 1 |
| <ul style="list-style-type: none"> • 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 |
| Ambient conditions | |
| Free fall | |
| <ul style="list-style-type: none"> • Fall height, max. | 0.3 m; five times, in product package |
| Ambient temperature during operation | |
| <ul style="list-style-type: none"> • min. | -20 °C; = Tmin; Startup @ 0 °C |
| <ul style="list-style-type: none"> • 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 |
| <ul style="list-style-type: none"> • horizontal installation, min. | -20 °C; = Tmin (incl. condensation/frost); start-up @ 0 °C |
| <ul style="list-style-type: none"> • horizontal installation, max. | 60 °C; = Tmax |
| <ul style="list-style-type: none"> • vertical installation, min. | -20 °C; = Tmin; Startup @ 0 °C |

| | |
|---|--|
| <ul style="list-style-type: none"> vertical installation, max. At cold restart, min. | 50 °C; = Tmax 0 °C |
| Ambient temperature during storage/transportation | |
| <ul style="list-style-type: none"> min. max. | -40 °C 70 °C |
| Altitude during operation relating to sea level | |
| <ul style="list-style-type: none"> Installation altitude above sea level, max. Ambient air temperature-barometric pressure-altitude | 2 000 m Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax - 20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m); above 2 000 m max. 132 V AC |
| Relative humidity | |
| <ul style="list-style-type: none"> With condensation, tested in accordance with IEC 60068-2-38, max. | 100 %; RH incl. condensation/frost (no commissioning under condensation conditions) |
| Vibrations | |
| <ul style="list-style-type: none"> Vibration resistance during operation acc. to IEC 60068-2-6 Operation, tested according to IEC 60068-2-6 | 2 g (m/s ²) wall mounting, 1 g (m/s ²) DIN rail Yes |
| Shock testing | |
| <ul style="list-style-type: none"> 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 |
| Resistance | |
| Coolants and lubricants | |
| <ul style="list-style-type: none"> Resistant to commercially available coolants and lubricants | Yes; Incl. diesel and oil droplets in the air |
| Use in stationary industrial systems | |
| <ul style="list-style-type: none"> to biologically active substances according to EN 60721-3-3 to chemically active substances according to EN 60721-3-3 to mechanically active substances according to EN 60721-3-3 | Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * Yes; Class 3S4 incl. sand, dust, * |
| Use on ships/at sea | |
| <ul style="list-style-type: none"> to biologically active substances according to EN 60721-3-6 to chemically active substances according to EN 60721-3-6 to mechanically active substances according to EN 60721-3-6 | Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * Yes; Class 6S3 incl. sand, dust; * |
| Usage in industrial process technology | |
| <ul style="list-style-type: none"> Against chemically active substances acc. to EN 60654-4 Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04 | Yes; Class 3 (excluding trichlorethylene) Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil) |
| Remark | |
| <ul style="list-style-type: none"> Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04 | * The supplied plug covers must remain in place over the unused interfaces during operation! |
| Conformal coating | |
| <ul style="list-style-type: none"> Coatings for printed circuit board assemblies acc. to EN 61086 Protection against fouling acc. to EN 60664-3 Military testing according to MIL-I-46058C, Amendment 7 Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A | Yes; Class 2 for high reliability Yes; Type 1 protection Yes; Discoloration of coating possible during service life Yes; Conformal coating, Class A |
| configuration / header | |
| configuration / programming / header | |
| Programming language | |
| <ul style="list-style-type: none"> LAD FBD SCL | Yes Yes Yes |
| programming / cycle time monitoring / header | |
| <ul style="list-style-type: none"> adjustable | Yes |
| Dimensions | |
| Width | 90 mm |

| | |
|-----------------------|--|
| Height | 100 mm |
| Depth | 75 mm |
| Weights | |
| Weight, approx. | 385 g |
| last modified: | 4/1/2022  |