# SIEMENS

**Data sheet**                                                    **6ES7211-1BE40-0XB0**



Figure similar

SIMATIC S7-1200, CPU 1211C, compact CPU, AC/DC/relay, onboard I/O:
6 DI 24 V DC; 4 DO relay 2A; 2 AI 0-10 V DC, Power supply: AC 85-264 V
AC at 47-63 Hz, Program/data memory 50 KB

| General information | |
|---|---|
| Product type designation | CPU 1211C AC/DC/relay |
| Firmware version | V4.5 |
| Engineering with | |
| ● Programming package | STEP 7 V17 or higher |
| **Supply voltage** | |
| Rated value (AC) | |
| ● 120 V AC | Yes |
| ● 230 V AC | Yes |
| permissible range, lower limit (AC) | 85 V |
| permissible range, upper limit (AC) | 264 V |
| Line frequency | |
| ● permissible range, lower limit | 47 Hz |
| ● permissible range, upper limit | 63 Hz |
| **Input current** | |
| Current consumption (rated value) | 60 mA at 120 V AC; 30 mA at 240 V AC |
| Current consumption, max. | 180 mA at 120 V AC; 90 mA at 240 V AC |
| Inrush current, max. | 20 A; at 264 V |
| I²t | 0.8 A²·s |
| **Output current** | |
| for backplane bus (5 V DC), max. | 750 mA; Max. 5 V DC for CM |
| **Encoder supply** | |
| 24 V encoder supply | |
| ● 24 V | 20.4 to 28.8V |
| **Power loss** | |
| Power loss, typ. | 10 W |
| **Memory** | |
| Work memory | |
| ● integrated | 50 kbyte |
| ● expandable | No |
| Load memory | |
| ● integrated | 1 Mbyte |
| ● Plug-in (SIMATIC Memory Card), max. | with SIMATIC memory card |
| Backup | |
| ● present | Yes |
| ● maintenance-free | Yes |
| ● without battery | Yes |
| **CPU processing times** | |
| for bit operations, typ. | 0.08 µs; / instruction |

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| | |
|---|---|
| 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. | 14 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 communication modules, 1 signal board |

## 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 | 6; 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. | 6 |
| 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. | 4 mA; nominal |
| 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, differential: 3 @ 80 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 | 4; 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. |
| Relay outputs | |
| ● Number of relay outputs | 4 |
| ● Number of operating cycles, max. | mechanically 10 million, at rated load voltage 100 000 |

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| 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 |
| ● Number of ports | 1 |
| ● integrated switch | No |
| Protocols | |
| ● PROFINET IO Controller | Yes |
| ● PROFINET IO Device | Yes |
| ● SIMATIC communication | Yes |
| ● Open IE communication | Yes; Optionally also encrypted |
| ● Web server | Yes |
| ● Media redundancy | No |
| PROFINET IO Controller | |
| ● Transmission rate, max. | 100 Mbit/s |
| Services | |
| — PG/OP communication | Yes; encryption with TLS V1.3 pre-selected |
| — 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; encryption with TLS V1.3 pre-selected |
| — Isochronous mode | No |
| — IRT | No |

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| | |
|---|---|
| — PROFIenergy | Yes |
| — 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 (master) or CM 1242-5 (slave) required |
| OPC UA | Yes; OPC UA Server |
| 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 |
| — several passive connections per port, supported | Yes |
| ● 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 |

### OPC UA

| | |
|---|---|
| ● Runtime license required | Yes; "Basic" license required |
| ● OPC UA Server | Yes; data access (read, write, subscribe), method call, runtime license required |
| — Application authentication | Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 |
| — User authentication | "anonymous" or by user name & password |
| — Number of sessions, max. | 10 |
| — Number of subscriptions per session, max. | 5 |
| — Sampling interval, min. | 100 ms |
| — Publishing interval, min. | 200 ms |
| — Number of server methods, max. | 20 |
| — Number of monitored items, recommended max. | 1 000 |
| — Number of server interfaces, max. | 2 |
| — Number of nodes for user-defined server interfaces, max. | 2 000 |

### Further protocols

| | |
|---|---|
| ● MODBUS | Yes |

## communication functions / header

### S7 communication

| | |
|---|---|
| ● supported | Yes |
| ● as server | Yes |
| ● as client | Yes |
| ● User data per job, max. | See online help (S7 communication, user data size) |

### Number of connections

| | |
|---|---|
| ● overall | PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 64 max |

| 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 |

| Interrupts/diagnostics/status information | |
|---|---|
| **Diagnostics indication LED** | |
| ● RUN/STOP LED | Yes |
| ● ERROR LED | Yes |
| ● MAINT LED | Yes |

| 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** | |
| ● Potential separation digital inputs | 500V AC for 1 minute |
| ● between the channels, in groups of | 1 |
| **Potential separation digital outputs** | |
| ● Potential separation digital outputs | Relays |
| ● between the channels | No |
| ● between the channels, in groups of | 1 |

| 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 |
| UL approval | Yes |
| cULus | Yes |
| FM approval | Yes |
| RCM (formerly C-TICK) | Yes |
| KC approval | Yes |
| Marine approval | Yes |

| Ambient conditions | |
|---|---|

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| Free fall | |
|---|---|
| ● Fall height, max. | 0.3 m; five times, in product package |
| **Ambient temperature during operation** | |
| ● 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 |
| **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. | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual |
| **Relative humidity** | |
| ● Operation, max. | 95 %; no condensation |
| **Vibrations** | |
| ● Vibration resistance during operation acc. to IEC 60068-2-6 | 2 g (m/s²) wall mounting, 1 g (m/s²) 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** | |
| ● SO2 at RH < 60% without condensation | S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free |
| **configuration / header** | |
| configuration / programming / header | |
| Programming language | |
| — LAD | Yes |
| — FBD | Yes |
| — SCL | Yes |
| **Know-how protection** | |
| ● User program protection/password protection | Yes |
| ● Copy protection | Yes |
| ● Block protection | Yes |
| **Access protection** | |
| ● protection of confidential configuration data | Yes |
| ● Protection level: Write protection | Yes |
| ● Protection level: Read/write protection | Yes |
| ● Protection level: Complete protection | Yes |
| programming / cycle time monitoring / header | |
| ● adjustable | Yes |
| **Dimensions** | |
| Width | 90 mm |
| Height | 100 mm |
| Depth | 75 mm |
| **Weights** | |
| Weight, approx. | 420 g |

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