The modular SIMATIC S7-1200 Controller forms the core of our current range for basic but very precise automation tasks. The S7-1200 CPUs with Safety Integrated perform both standard and safety-oriented tasks.
5 Standard controllers with graded performances in different versions:

| **Characteristics** | **CPU 1211C** | **CPU 1212C** | **CPU 1214C** | **CPU 1215C** | **CPU 1217C** |
|---|---|---|---|---|---|
| Variants | DC/DC/DC, AC/DC/relay, DC/DC/relay | DC/DC/DC, AC/DC/relay, DC/DC/relay | DC/DC/DC, AC/DC/relay, DC/DC/relay | DC/DC/DC, AC/DC/relay, DC/DC/relay | DC/DC/DC |
| Work memory, integrated | 75 KB | 100 KB | 150 KB | 200 KB | 250 KB |
| Load memory, integrated | 1 MB | 2 MB | 4 MB | 4 MB | 4 MB |
| Memory card | SIMATIC Memory Card (optional) | | | | |
| Digital inputs/outputs, integrated | 6/4 | 8/6 | 14/10 | 14/10 | 14/10 |
| Analog inputs, integrated | 2 | 2 | 2 | 2 | 2 |
| Analog outputs, integrated | 0 | 0 | 0 | 2 | 2 |

| Characteristics | CPU 1211C | CPU 1212C | CPU 1214C | CPU 1215C | CPU 1217C |
|---|---|---|---|---|---|
| Process image | 1024 bytes for inputs, 1024 bytes for outputs | | | | |
| Expansion by signal board | Max. 1 | Max. 1 | Max. 1 | Max. 1 | Max. 1 |
| Expansion by signal modules | No | Max. 2 | Max. 8 | Max. 8 | Max. 8 |
| Expansion by communications modules | Max. 3 | Max. 3 | Max. 3 | Max. 3 | Max. 3 |

3 fail-safe controllers with graded performances in different versions:

| Characteristics | CPU 1212 FC | CPU 1214 FC | CPU 1215 FC |
|---|---|---|---|
| Variants | DC/DC/DC, DC/DC/relay | DC/DC/DC, DC/DC/relay | DC/DC/DC, DC/DC/relay |
| Work memory, integrated | 150 KB | 200 KB | 250 KB |
| Load memory, integrated | 2 MB | 4 MB | 4 MB |
| Memory card | SIMATIC Memory Card (optional) | SIMATIC Memory Card (optional) | SIMATIC Memory Card (optional) |
| Standard digital inputs/outputs, integrated | 8/6 | 14/10 | 14/10 |
| Standard analog inputs, integrated | 2 | 2 | 2 |
| Standard analog outputs, integrated | - | - | 2 |

| Characteristics | CPU 1212 FC | CPU 1214 FC | CPU 1215 FC |
|---|---|---|---|
| Process image | 1024 bytes for inputs, 1024 bytes for outputs | 1024 bytes for inputs, 1024 bytes for outputs | 1024 bytes for inputs, 1024 bytes for outputs |
| Expansion by signal board | Max. 1 | Max. 1 | Max. 1 |
| Expansion by signal modules | Max. 2 | Max. 8 | Max. 8 |
| Expansion by communications modules | Max. 3 | Max. 3 | Max. 3 |

## Application

## Design

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## Technical specifications

| Article number | 6ES7211-1BE40-0XB0<br><br>CPU 1211C, AC/DC/Relay, 6DI/4DO/2AI | 6ES7211-1AE40-0XB0<br><br>CPU 1211C, DC/DC/DC, 6DI/4DO/2AI | 6ES7211-1HE40-0XB0<br><br>CPU 1211C, DC/DC/Relay, 6DI/4DO/2AI |
|---|---|---|---|
| **General information** | | | |
| Product type designation | CPU 1211C AC/DC/relay | CPU 1211C DC/DC/DC | CPU 1211C DC/DC/relay |
| Firmware version | V4.7 | V4.7 | V4.7 |
| **Engineering with** | | | |
| • ● Programming package | STEP 7 V20 or higher | STEP 7 V20 or higher | STEP 7 V20 or higher |

| Article number | 6ES7211-1BE40-0XB0<br><br>CPU 1211C, AC/DC/Relay, 6DI/4DO/2AI | 6ES7211-1AE40-0XB0<br><br>CPU 1211C, DC/DC/DC, 6DI/4DO/2AI | 6ES7211-1HE40-0XB0<br><br>CPU 1211C, DC/DC/Relay, 6DI/4DO/2AI |
|---|---|---|---|
| **Supply voltage** | | | |
| Rated value (DC) | | | |
| • ● 24 V DC | | Yes | Yes |
| permissible range, lower limit (DC) | | 20.4 V | 20.4 V |
| permissible range, upper limit (DC) | | 28.8 V | 28.8 V |
| 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 | | |
| Reverse polarity protection | | Yes | Yes |
| **Line frequency** | | | |
| • ● permissible range, lower limit | 47 Hz | | |
| • ● permissible range, upper limit | 63 Hz | | |
| **Load voltage L+** | | | |

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|---|---|---|---|
| • ● Rated value (DC) | | 24 V | 24 V |
| • ● permissible range, lower limit (DC) | | 20.4 V | 20.4 V |
| • ● permissible range, upper limit (DC) | | 28.8 V | 28.8 V |
| **Input current** | | | |
| Current consumption (rated value) | 60 mA at 120 V AC; 30 mA at 240 V AC | 300 mA; CPU only | 300 mA; CPU only |
| Current consumption, max. | 180 mA at 120 V AC; 90 mA at 240 V AC | 900 mA; CPU with all expansion modules | 900 mA; CPU with all expansion modules |
| Inrush current, max. | 20 A; at 264 V | 12 A; at 28.8 V DC | 12 A; at 28.8 V DC |
| $I^2t$ | 0.8 $A^2 \cdot s$ | 0.5 $A^2 \cdot s$ | 0.8 $A^2 \cdot s$ |
| **Output current** | | | |
| for backplane bus (5 V DC), max. | 750 mA; Max. 5 V DC for CM | 750 mA; Max. 5 V DC for CM | 750 mA; Max. 5 V DC for CM |
| **Encoder supply** | | | |
| **24 V encoder supply** | | | |
| • ● 24 V | 20.4 to 28.8V | L+ minus 4 V DC min. | L+ minus 4 V DC min. |

| Article number | 6ES7211-1BE40-0XB0<br><br>CPU 1211C, AC/DC/Relay, 6DI/4DO/2AI | 6ES7211-1AE40-0XB0<br><br>CPU 1211C, DC/DC/DC, 6DI/4DO/2AI | 6ES7211-1HE40-0XB0<br><br>CPU 1211C, DC/DC/Relay, 6DI/4DO/2AI |
|---|---|---|---|
| **Power loss** | | | |
| Power loss, typ. | 10 W | 8 W | 8 W |
| **Memory** | | | |
| **Work memory** | | | |
| • ● integrated | 75 kbyte | 75 kbyte | 75 kbyte |
| **Load memory** | | | |
| • ● integrated | 1 Mbyte | 1 Mbyte | 1 Mbyte |
| • ● Plug-in (SIMATIC Memory Card), max. | with SIMATIC memory card | with SIMATIC memory card | with SIMATIC memory card |
| **Backup** | | | |
| • ● present | Yes | Yes | Yes |
| • ● maintenance-free | Yes | Yes | Yes |
| • ● without battery | Yes | Yes | Yes |
| **CPU processing times** | | | |
| for bit operations, typ. | 0.08 µs; / instruction | 0.08 µs; / instruction | 0.08 µs; / instruction |
| for word operations, typ. | 1.7 µs; / instruction | 1.7 µs; / instruction | 1.7 µs; / instruction |
| for floating point arithmetic, typ. | 2.3 µs; / instruction | 2.3 µs; / instruction | 2.3 µs; / instruction |

| Article number | 6ES7211-1BE40-0XB0<br><br>CPU 1211C, AC/DC/Relay, 6DI/4DO/2AI | 6ES7211-1AE40-0XB0<br><br>CPU 1211C, DC/DC/DC, 6DI/4DO/2AI | 6ES7211-1HE40-0XB0<br><br>CPU 1211C, DC/DC/Relay, 6DI/4DO/2AI |
|---|---|---|---|
| **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 | 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 | 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 | Limited only by RAM for code | Limited only by RAM for code |
| **Data areas and their retentivity** | | | |
| Retentive data area (incl. timers, counters, flags), max. | 14 kbyte | 14 kbyte | 14 kbyte |
| **Flag** | | | |
| • ● Size, max. | 4 kbyte; Size of bit memory address area | 4 kbyte; Size of bit memory address area | 4 kbyte; Size of bit memory address area |
| **Local data** | | | |

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|---|---|---|---|
| • ● per priority class, max. | 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB | 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB | 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB |
| **Address area** | | | |
| **Process image** | | | |
| • ● Inputs, adjustable | 1 kbyte | 1 kbyte | 1 kbyte |
| • ● Outputs, adjustable | 1 kbyte | 1 kbyte | 1 kbyte |
| **Hardware configuration** | | | |
| Number of modules per system, max. | 3 communication modules, 1 signal board | 3 communication modules, 1 signal board | 3 communication modules, 1 signal board |
| • ● number of expansion boards (SB, CB, BB) | 1 | 1 | 1 |
| • ● number of signal modules (SM) | 0 | 0 | 0 |
| • ● number of communications modules (CM) | 3 | 3 | 3 |
| **Time of day** | | | |
| **Clock** | | | |

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|---|---|---|---|
| • ● Hardware clock (real-time) | Yes | Yes | Yes |
| • ● Backup time | 480 h; Typical | 480 h; Typical | 480 h; Typical |
| • ● Deviation per day, max. | ±60 s/month at 25 °C | ±60 s/month at 25 °C | ±60 s/month at 25 °C |
| **Digital inputs** | | | |
| Number of digital inputs | 6; Integrated | 6; Integrated | 6; Integrated |
| • ● of which inputs usable for technological functions | 6; HSC (High Speed Counting) | 6; HSC (High Speed Counting) | 6; HSC (High Speed Counting) |
| Sourcing/sinking input | Yes | Yes | Yes |
| **Number of simultaneously controllable inputs**<br><br>**all mounting positions** | | | |
| • — up to 40 °C, max. | 6 | 6 | 6 |
| **Input voltage** | | | |
| • ● Rated value (DC) | 24 V | 24 V | 24 V |
| • ● for signal "0" | 5 V DC at 1 mA | 5 V DC at 1 mA | 5 V DC at 1 mA |
| • ● for signal "1" | 15 V DC at 2.5 mA | 15 V DC at 2.5 mA | 15 V DC at 2.5 mA |
| **Input current** | | | |

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|---|---|---|---|
| • ● for signal "1", typ. | 4 mA; nominal | 4 mA; nominal | 4 mA; nominal |
| **Input delay (for rated value of input voltage)** | | | |
| **for standard inputs** | | | |
| • — parameterizable | 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms | 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms | 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms |
| • — at "0" to "1", min. | 0.2 ms | 0.2 ms | 0.2 ms |
| • — at "0" to "1", max. | 12.8 ms | 12.8 ms | 12.8 ms |
| **for interrupt inputs** | | | |
| • — parameterizable | Yes | Yes | Yes |
| **for technological functions** | | | |
| • — parameterizable | Single phase : 3 @ 100 kHz, differential: 3 @ 80 kHz | Single phase : 3 @ 100 kHz, differential: 3 @ 80 kHz | Single phase : 3 @ 100 kHz, differential: 3 @ 80 kHz |
| **Cable length** | | | |

| Article number | 6ES7211-1BE40-0XB0<br><br>CPU 1211C, AC/DC/Relay, 6DI/4DO/2AI | 6ES7211-1AE40-0XB0<br><br>CPU 1211C, DC/DC/DC, 6DI/4DO/2AI | 6ES7211-1HE40-0XB0<br><br>CPU 1211C, DC/DC/Relay, 6DI/4DO/2AI |
|---|---|---|---|
| • ● shielded, max. | 500 m; 50 m for technological functions | 500 m; 50 m for technological functions | 500 m; 50 m for technological functions |
| • ● unshielded, max. | 300 m; for technological functions: No | 300 m; for technological functions: No | 300 m; for technological functions: No |
| **Digital outputs** | | | |
| Number of digital outputs | 4; Relays | 4 | 4; Relays |
| • ● of which high-speed outputs | | 4; 100 kHz Pulse Train Output | |
| Limitation of inductive shutdown voltage to | | L+ (-48 V) | |
| **Switching capacity of the outputs** | | | |
| • ● with resistive load, max. | 2 A | 0.5 A | 2 A |
| • ● on lamp load, max. | 30 W with DC, 200 W with AC | 5 W | 30 W with DC, 200 W with AC |
| **Output voltage** | | | |
| • ● for signal "0", max. | | 0.1 V; with 10 kOhm load | |
| • ● for signal "1", min. | | 20 V | |

| Article number | 6ES7211-1BE40-0XB0<br><br>CPU 1211C, AC/DC/Relay, 6DI/4DO/2AI | 6ES7211-1AE40-0XB0<br><br>CPU 1211C, DC/DC/DC, 6DI/4DO/2AI | 6ES7211-1HE40-0XB0<br><br>CPU 1211C, DC/DC/Relay, 6DI/4DO/2AI |
|---|---|---|---|
| **Output current** | | | |
| • ● for signal "1" rated value | | 0.5 A | |
| • ● for signal "0" residual current, max. | | 0.1 mA | |
| **Output delay with resistive load** | | | |
| • ● "0" to "1", max. | 10 ms; max. | 1 µs | 10 ms; max. |
| • ● "1" to "0", max. | 10 ms; max. | 5 µs | 10 ms; max. |
| **Switching frequency** | | | |
| • ● of the pulse outputs, with resistive load, max. | | 100 kHz | |
| **Relay outputs** | | | |
| • ● Number of relay outputs | 4 | 0 | 4 |
| • ● Number of operating cycles, max. | mechanically 10 million, at rated load voltage 100 000 | | mechanically 10 million, at rated load voltage 100 000 |
| **Cable length** | | | |
| • ● shielded, max. | 500 m | 500 m | 500 m |
| • ● unshielded, max. | 150 m | 150 m | 150 m |

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|---|---|---|---|
| **Analog inputs** | | | |
| Number of analog inputs | 2 | 2 | 2 |
| **Input ranges** | | | |
| • ● Voltage | Yes | Yes | Yes |
| **Input ranges (rated values), voltages** | | | |
| • ● 0 to +10 V | Yes | Yes | Yes |
| • — Input resistance (0 to 10 V) | ≥100k ohms | ≥100k ohms | ≥100k ohms |
| **Cable length** | | | |
| • ● shielded, max. | 100 m; twisted and shielded | 100 m; twisted and shielded | 100 m; twisted and shielded |
| **Analog outputs** | | | |
| Number of analog outputs | 0 | 0 | 0 |
| **Analog value generation for the inputs** | | | |
| **Integration and conversion time/resolution per channel** | | | |
| • ● Resolution with overrange (bit including sign), max. | 10 bit | 10 bit | 10 bit |

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|---|---|---|---|
| • ● Integration time, parameterizable | Yes | Yes | Yes |
| • ● Conversion time (per channel) | 625 µs | 625 µs | 625 µs |
| **Encoder** | | | |
| **Connectable encoders** | | | |
| • ● 2-wire sensor | Yes | Yes | Yes |
| **Interfaces** | | | |
| Number of PROFINET interfaces | 1 | 1 | 1 |
| **1. Interface** | | | |
| Interface type | PROFINET | PROFINET | PROFINET |
| Isolated | Yes | Yes | Yes |
| automatic detection of transmission rate | Yes | Yes | Yes |
| Autonegotiation | Yes | Yes | Yes |
| Autocrossing | Yes | Yes | Yes |
| **Interface types** | | | |
| • ● RJ 45 (Ethernet) | Yes | Yes | Yes |
| • ● Number of ports | 1 | 1 | 1 |

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

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|---|---|---|---|
| • — Prioritized startup | Yes | Yes | Yes |
| • — Number of IO devices with prioritized startup, max. | 16 | 16 | 16 |
| • — Number of connectable IO Devices, max. | 16 | 16 | 16 |
| • — Number of connectable IO Devices for RT, max. | 16 | 16 | 16 |
| • — of which in line, max. | 16 | 16 | 16 |
| • — Activation/deactivation of IO Devices | Yes | Yes | Yes |
| • — Number of IO Devices that can be simultaneously activated/deactivated, max. | 8 | 8 | 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. | 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. | 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. |

| Article number | 6ES7211-1BE40-0XB0<br><br>CPU 1211C, AC/DC/Relay, 6DI/4DO/2AI | 6ES7211-1AE40-0XB0<br><br>CPU 1211C, DC/DC/DC, 6DI/4DO/2AI | 6ES7211-1HE40-0XB0<br><br>CPU 1211C, DC/DC/Relay, 6DI/4DO/2AI |
|---|---|---|---|
| **PROFINET IO Device** | | | |
| **Services** | | | |
| • — PG/OP communication | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected |
| • — Isochronous mode | No | No | No |
| • — IRT | No | No | No |
| • — PROFIenergy | Yes | Yes | Yes |
| • — Shared device | Yes | Yes | Yes |
| • — Number of IO Controllers with shared device, max. | 2 | 2 | 2 |
| **Protocols** | | | |
| Supports protocol for PROFINET IO | Yes | Yes | Yes |
| PROFIsafe | No | No | No |
| PROFIBUS | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required |
| OPC UA | Yes; OPC UA Server | Yes; OPC UA Server | Yes; OPC UA Server |

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|---|---|---|---|
| AS-Interface | Yes; CM 1243-2 required | Yes; CM 1243-2 required | Yes; CM 1243-2 required |
| **Protocols (Ethernet)** | | | |
| • ● TCP/IP | Yes | Yes | Yes |
| • ● DHCP | No | No | No |
| • ● SNMP | Yes | Yes | Yes |
| • ● DCP | Yes | Yes | Yes |
| • ● LLDP | Yes | Yes | Yes |
| **Redundancy mode** | | | |
| **Media redundancy** | | | |
| • — MRP | No | No | No |
| • — MRPD | No | No | No |
| **SIMATIC communication** | | | |
| • ● S7 routing | Yes | Yes | Yes |
| **Open IE communication** | | | |
| • ● TCP/IP | Yes | Yes | Yes |
| • — Data length, max. | 8 kbyte | 8 kbyte | 8 kbyte |

| Article number | 6ES7211-1BE40-0XB0<br><br>CPU 1211C, AC/DC/Relay, 6DI/4DO/2AI | 6ES7211-1AE40-0XB0<br><br>CPU 1211C, DC/DC/DC, 6DI/4DO/2AI | 6ES7211-1HE40-0XB0<br><br>CPU 1211C, DC/DC/Relay, 6DI/4DO/2AI |
|---|---|---|---|
| • — several passive connections per port, supported | Yes | Yes | Yes |
| • ● ISO-on-TCP (RFC1006) | Yes | Yes | Yes |
| • — Data length, max. | 8 kbyte | 8 kbyte | 8 kbyte |
| • ● UDP | Yes | Yes | Yes |
| • — Data length, max. | 1 472 byte | 1 472 byte | 1 472 byte |
| **Web server** | | | |
| • ● supported | Yes | Yes | Yes |
| • ● User-defined websites | Yes | Yes | Yes |
| **OPC UA** | | | |
| • ● Runtime license required | Yes; "Basic" license required | Yes; "Basic" license required | Yes; "Basic" license required |
| • ● OPC UA Server | Yes; data access (read, write, subscribe), method call, runtime license required | Yes; Data access (read, write, subscribe), runtime license required | Yes; data access (read, write, subscribe), method call, runtime license required |
| • — Application authentication | Available security policies: None, Basic128Rsa15, | Available security policies: None, Basic128Rsa15, | Available security policies: None, Basic128Rsa15, |

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|---|---|---|---|
| | Basic256Rsa15, Basic256Sha256 | Basic256Rsa15, Basic256Sha256 | Basic256Rsa15, Basic256Sha256 |
| • — User authentication | "anonymous" or by user name & password | "anonymous" or by user name & password | "anonymous" or by user name & password |
| • — Number of sessions, max. | 10 | 10 | 10 |
| • — Number of subscriptions per session, max. | 5 | 5 | 5 |
| • — Sampling interval, min. | 100 ms | 100 ms | 100 ms |
| • — Publishing interval, min. | 200 ms | 200 ms | 200 ms |
| • — Number of server methods, max. | 20 | 20 | 20 |
| • — Number of monitored items, recommended max. | 1 000 | 1 000 | 1 000 |
| • — Number of server interfaces, max. | 2 | 2 | 2 |
| • — Number of nodes for user-defined server interfaces, max. | 2 000 | 2 000 | 2 000 |
| **Further protocols** | | | |

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

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|---|---|---|---|
| | Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 68 max | Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 68 max | Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 68 max |
| **Test commissioning functions** | | | |
| **Status/control** | | | |
| • ● Status/control variable | Yes | Yes | Yes |
| • ● Variables | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters |
| **Forcing** | | | |
| • ● Forcing | Yes | Yes | Yes |
| **Diagnostic buffer** | | | |
| • ● present | Yes | Yes | Yes |
| **Traces** | | | |
| • ● Number of configurable Traces | 2 | 2 | 2 |
| • ● Memory size per trace, max. | 512 kbyte | 512 kbyte | 512 kbyte |

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|---|---|---|---|
| **Interrupts/diagnostics/status information** | | | |
| **Diagnostics indication LED** | | | |
| • ● RUN/STOP LED | Yes | Yes | Yes |
| • ● ERROR LED | Yes | Yes | Yes |
| • ● MAINT LED | Yes | Yes | Yes |
| **Integrated Functions** | | | |
| Counter | | | |
| • ● Number of counters | 6 | 6 | 6 |
| • ● Counting frequency, max. | 100 kHz | 100 kHz | 100 kHz |
| Frequency measurement | Yes | Yes | Yes |
| controlled positioning | Yes | Yes | Yes |
| Number of position-controlled positioning axes, max. | 8 | 8 | 8 |
| Number of positioning axes via pulse-direction interface | Up to 4 with SB 1222 | 4; With integrated outputs | Up to 4 with SB 1222 |
| PID controller | Yes | Yes | Yes |
| Number of alarm inputs | 4 | 4 | 4 |

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|---|---|---|---|
| Number of pulse outputs | | 4 | |
| Limit frequency (pulse) | | 100 kHz | |
| **Potential separation** | | | |
| **Potential separation digital inputs** | | | |
| • ● Potential separation digital inputs | 500 V AC for 1 minute | No | 500 V AC for 1 minute |
| • ● between the channels, in groups of | 1 | 1 | 1 |
| **Potential separation digital outputs** | | | |
| • ● Potential separation digital outputs | Relays | Yes | Relays |
| • ● between the channels | No | No | No |
| • ● between the channels, in groups of | 1 | 1 | 1 |
| **EMC** | | | |
| **Interference immunity against discharge of static electricity** | | | |
| • ● Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 | Yes | Yes | Yes |

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|---|---|---|---|
| • — Test voltage at air discharge | 8 kV | 8 kV | 8 kV |
| • — Test voltage at contact discharge | 6 kV | 6 kV | 6 kV |
| **Interference immunity to cable-borne interference** | | | |
| • ● Interference immunity on supply lines acc. to IEC 61000-4-4 | Yes | Yes | Yes |
| • ● Interference immunity on signal cables acc. to IEC 61000-4-4 | Yes | Yes | Yes |
| **Interference immunity against voltage surge** | | | |
| • ● Interference immunity on supply lines acc. to IEC 61000-4-5 | Yes | Yes | 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 | Yes | Yes |

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|---|---|---|---|
| **Emission of radio interference acc. to EN 55 011** | | | |
| • ● Limit class A, for use in industrial areas | Yes; Group 1 | Yes; Group 1 | 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 | Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 | 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 | IP20 | IP20 |
| **Standards, approvals, certificates** | | | |
| Siemens Eco Profile (SEP) | Siemens EcoTech | Siemens EcoTech | Siemens EcoTech |
| CE mark | Yes | Yes | Yes |
| UL approval | Yes | Yes | Yes |
| cULus | Yes | Yes | Yes |
| FM approval | Yes | Yes | Yes |
| RCM (formerly C-TICK) | Yes | Yes | Yes |

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|---|---|---|---|
| KC approval | Yes | Yes | Yes |
| Marine approval | Yes | Yes | Yes |
| **Ecological footprint** | | | |
| • ● environmental product declaration | Yes; type II acc. to ISO 14021 | Yes; type II acc. to ISO 14021 | Yes; type II acc. to ISO 14021 |
| **Global warming potential** | | | |
| • — global warming potential, (total) [CO2 eq] | 69.5 kg | 69.5 kg | 69.5 kg |
| • — global warming potential, (during production) [CO2 eq] | 12.6 kg | 12.6 kg | 12.6 kg |
| • — global warming potential, (during operation) [CO2 eq] | 57.9 kg | 57.9 kg | 57.9 kg |
| • — global warming potential, (after end of life cycle) [CO2 eq] | -1 kg | -1 kg | -1 kg |
| **Ambient conditions** | | | |
| **Free fall** | | | |
| • ● Fall height, max. | 0.3 m; five times, in product package | 0.3 m; five times, in product package | 0.3 m; five times, in product package |

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|---|---|---|---|
| **Ambient temperature during operation** | | | |
| • ● min. | -20 °C | -20 °C | -20 °C |
| • ● max. | 60 °C | 60 °C | 60 °C |
| • ● horizontal installation, min. | -20 °C | -20 °C | -20 °C |
| • ● horizontal installation, max. | 60 °C | 60 °C | 60 °C |
| • ● vertical installation, min. | -20 °C | -20 °C | -20 °C |
| • ● vertical installation, max. | 50 °C | 50 °C | 50 °C |
| **Ambient temperature during storage/transportation** | | | |
| • ● min. | -40 °C | -40 °C | -40 °C |
| • ● max. | 70 °C | 70 °C | 70 °C |
| **Air pressure acc. to IEC 60068-2-13** | | | |
| • ● Operation, min. | 795 hPa | 795 hPa | 795 hPa |
| • ● Operation, max. | 1 080 hPa | 1 080 hPa | 1 080 hPa |
| • ● Storage/transport, min. | 660 hPa | 660 hPa | 660 hPa |

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|---|---|---|---|
| • ● Storage/transport, max. | 1 080 hPa | 1 080 hPa | 1 080 hPa |
| **Altitude during operation relating to sea level** | | | |
| • ● Installation altitude, min. | -1 000 m | -1 000 m | -1 000 m |
| • ● Installation altitude, max. | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual |
| **Relative humidity** | | | |
| • ● Operation, max. | 95 %; no condensation | 95 %; no condensation | 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 | 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail | 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail |
| • ● Operation, tested according to IEC 60068-2-6 | Yes | Yes | Yes |
| **Shock testing** | | | |
| • ● tested according to IEC 60068-2-27 | Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g | Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g | Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g |

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|---|---|---|---|
| | (peak value), duration 11 ms | (peak value), duration 11 ms | (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 | S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free | S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free |
| **Configuration** | | | |
| **Programming** | | | |
| **Programming language** | | | |
| • — LAD | Yes | Yes | Yes |
| • — FBD | Yes | Yes | Yes |
| • — SCL | Yes | Yes | Yes |
| **Know-how protection** | | | |
| • ● User program protection/password protection | Yes | Yes | Yes |
| • ● Copy protection | Yes | Yes | Yes |
| • ● Block protection | Yes | Yes | Yes |
| **Access protection** | | | |

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|---|---|---|---|
| • ● protection of confidential configuration data | Yes | Yes | Yes |
| • ● Protection level: Write protection | Yes | Yes | Yes |
| • ● Protection level: Read/write protection | Yes | Yes | Yes |
| • ● Protection level: Complete protection | Yes | Yes | Yes |
| • ● User administration | Yes; device-wide | Yes; device-wide | Yes; device-wide |
| • ● Number of users | 42 | 42 | 42 |
| • ● Number of groups | 14 | 14 | 14 |
| • ● Number of roles | 20 | 20 | 20 |
| **Cycle time monitoring** | | | |
| • ● adjustable | Yes | Yes | Yes |
| **Dimensions** | | | |
| Width | 90 mm | 90 mm | 90 mm |
| Height | 100 mm | 100 mm | 100 mm |
| Depth | 75 mm | 75 mm | 75 mm |
| **Weights** | | | |

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|---|---|---|---|
| Weight, approx. | 420 g | 370 g | 380 g |

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|---|---|---|---|
| **General information** | | | |
| Product type designation | CPU 1212C AC/DC/relay | CPU 1212C DC/DC/DC | CPU 1212C DC/DC/relay |
| Firmware version | V4.7 | V4.7 | V4.7 |
| **Engineering with** | | | |
| • ● Programming package | STEP 7 V20 or higher | STEP 7 V20 or higher | STEP 7 V20 or higher |
| **Supply voltage** | | | |
| Rated value (DC) | | | |
| • ● 24 V DC | | Yes | Yes |
| permissible range, lower limit (DC) | | 20.4 V | 20.4 V |
| permissible range, upper limit (DC) | | 28.8 V | 28.8 V |
| Rated value (AC) | | | |

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|---|---|---|---|
| • ● 120 V AC | Yes | | |
| • ● 230 V AC | Yes | | |
| permissible range, lower limit (AC) | 85 V | | |
| permissible range, upper limit (AC) | 264 V | | |
| Reverse polarity protection | | Yes | Yes |
| **Line frequency** | | | |
| • ● permissible range, lower limit | 47 Hz | | |
| • ● permissible range, upper limit | 63 Hz | | |
| **Load voltage L+** | | | |
| • ● Rated value (DC) | | 24 V | 24 V |
| • ● permissible range, lower limit (DC) | | 20.4 V | 20.4 V |
| • ● permissible range, upper limit (DC) | | 28.8 V | 28.8 V |
| **Input current** | | | |
| Current consumption (rated value) | 80 mA at 120 V AC; 40 mA at 240 V AC | 400 mA; CPU only | 400 mA; CPU only |

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|---|---|---|---|
| Current consumption, max. | 240 mA at 120 V AC; 120 mA at 240 V AC | 1 200 mA; CPU with all expansion modules | 1 200 mA; CPU with all expansion modules |
| Inrush current, max. | 20 A; at 264 V | 12 A; at 28.8 V DC | 12 A; at 28.8 V |
| $I^2t$ | 0.8 $A^2 \cdot s$ | 0.5 $A^2 \cdot s$ | 0.8 $A^2 \cdot s$ |
| **Output current** | | | |
| for backplane bus (5 V DC), max. | 1 000 mA; Max. 5 V DC for SM and CM | 1 000 mA; Max. 5 V DC for SM and CM | 1 000 mA; Max. 5 V DC for SM and CM |
| **Encoder supply** | | | |
| **24 V encoder supply** | | | |
| • ● 24 V | 20.4 to 28.8V | L+ minus 4 V DC min. | L+ minus 4 V DC min. |
| **Power loss** | | | |
| Power loss, typ. | 11 W | 9 W | 9 W |
| **Memory** | | | |
| **Work memory** | | | |
| • ● integrated | 100 kbyte | 100 kbyte | 100 kbyte |
| **Load memory** | | | |

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|---|---|---|---|
| • ● integrated | 2 Mbyte | 2 Mbyte | 2 Mbyte |
| • ● Plug-in (SIMATIC Memory Card), max. | with SIMATIC memory card | with SIMATIC memory card | with SIMATIC memory card |
| **Backup** | | | |
| • ● present | Yes | Yes | Yes |
| • ● maintenance-free | Yes | Yes | Yes |
| • ● without battery | Yes | Yes | Yes |
| **CPU processing times** | | | |
| for bit operations, typ. | 0.08 µs; / instruction | 0.08 µs; / instruction | 0.08 µs; / instruction |
| for word operations, typ. | 1.7 µs; / instruction | 1.7 µs; / instruction | 1.7 µs; / instruction |
| for floating point arithmetic, typ. | 2.3 µs; / instruction | 2.3 µs; / instruction | 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 | DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is | DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is |

| Article number | 6ES7212-1BE40-0XB0<br><br>CPU 1212C, AC/DC/Relay, 8DI/6DO/2AI | 6ES7212-1AE40-0XB0<br><br>CPU 1212C ,DC/DC/DC, 8DI/6DO/2AI | 6ES7212-1HE40-0XB0<br><br>CPU 1212C, DC/DC/Relay, 8DI/6DO/2AI |
|---|---|---|---|
| | no restriction, the entire working memory can be used | no restriction, the entire working memory can be used | no restriction, the entire working memory can be used |
| **OB** | | | |
| • ● Number, max. | Limited only by RAM for code | Limited only by RAM for code | Limited only by RAM for code |
| **Data areas and their retentivity** | | | |
| Retentive data area (incl. timers, counters, flags), max. | 14 kbyte | 14 kbyte | 14 kbyte |
| **Flag** | | | |
| • ● Size, max. | 4 kbyte; Size of bit memory address area | 4 kbyte; Size of bit memory address area | 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 | 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB | 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB |
| **Address area** | | | |
| **Process image** | | | |

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|---|---|---|---|
| • ● Inputs, adjustable | 1 kbyte | 1 kbyte | 1 kbyte |
| • ● Outputs, adjustable | 1 kbyte | 1 kbyte | 1 kbyte |
| **Hardware configuration** | | | |
| Number of modules per system, max. | 3 comm. modules, 1 signal board, 2 signal modules | 3 comm. modules, 1 signal board, 2 signal modules | 3 comm. modules, 1 signal board, 2 signal modules |
| • ● number of expansion boards (SB, CB, BB) | 1 | 1 | 1 |
| • ● number of signal modules (SM) | 2 | 2 | 2 |
| • ● number of communications modules (CM) | 3 | 3 | 3 |
| **Time of day** | | | |
| **Clock** | | | |
| • ● Hardware clock (real-time) | Yes | Yes | Yes |
| • ● Backup time | 480 h; Typical | 480 h; Typical | 480 h; Typical |
| • ● Deviation per day, max. | ±60 s/month at 25 °C | ±60 s/month at 25 °C | ±60 s/month at 25 °C |
| **Digital inputs** | | | |

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|---|---|---|---|
| Number of digital inputs | 8; Integrated | 8; Integrated | 8; Integrated |
| • ● of which inputs usable for technological functions | 6; HSC (High Speed Counting) | 6; HSC (High Speed Counting) | 6; HSC (High Speed Counting) |
| Sourcing/sinking input | Yes | Yes | Yes |
| **Number of simultaneously controllable inputs** | | | |
| **all mounting positions** | | | |
| • — up to 40 °C, max. | 8 | 8 | 8 |
| **Input voltage** | | | |
| • ● Rated value (DC) | 24 V | 24 V | 24 V |
| • ● for signal "0" | 5 V DC at 1 mA | 5 V DC at 1 mA | 5 V DC at 1 mA |
| • ● for signal "1" | 15 V DC at 2.5 mA | 15 V DC at 2.5 mA | 15 V DC at 2.5 mA |
| **Input delay (for rated value of input voltage)** | | | |
| **for standard inputs** | | | |
| • — parameterizable | 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / | 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / | 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / |

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|---|---|---|---|
| | 6.4 / 10.0 / 12.8 / 20.0 ms | 6.4 / 10.0 / 12.8 / 20.0 ms | 6.4 / 10.0 / 12.8 / 20.0 ms |
| • — at "0" to "1", min. | 0.2 ms | 0.2 ms | 0.2 ms |
| • — at "0" to "1", max. | 12.8 ms | 12.8 ms | 12.8 ms |
| **for interrupt inputs** | | | |
| • — parameterizable | Yes | Yes | Yes |
| **for technological functions** | | | |
| • — parameterizable | Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz | Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz | Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz |
| **Cable length** | | | |
| • ● shielded, max. | 500 m; 50 m for technological functions | 500 m; 50 m for technological functions | 500 m; 50 m for technological functions |
| • ● unshielded, max. | 300 m; for technological functions: No | 300 m; for technological functions: No | 300 m; for technological functions: No |
| **Digital outputs** | | | |
| Number of digital outputs | 6; Relays | 6 | 6; Relays |

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|---|---|---|---|
| • ● of which high-speed outputs | | 4; 100 kHz Pulse Train Output | |
| Limitation of inductive shutdown voltage to | | L+ (-48 V) | |
| **Switching capacity of the outputs** | | | |
| • ● with resistive load, max. | 2 A | 0.5 A | 2 A |
| • ● on lamp load, max. | 30 W with DC, 200 W with AC | 5 W | 30 W with DC, 200 W with AC |
| **Output voltage** | | | |
| • ● for signal "0", max. | | 0.1 V; with 10 kOhm load | |
| • ● for signal "1", min. | | 20 V | |
| **Output current** | | | |
| • ● for signal "1" rated value | | 0.5 A | |
| • ● for signal "0" residual current, max. | | 0.1 mA | |
| **Output delay with resistive load** | | | |
| • ● "0" to "1", max. | 10 ms; max. | 1 µs | 10 ms; max. |

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|---|---|---|---|
| • ● "1" to "0", max. | 10 ms; max. | 5 µs | 10 ms; max. |
| **Switching frequency** | | | |
| • ● of the pulse outputs, with resistive load, max. | | 100 kHz | |
| **Relay outputs** | | | |
| • ● Number of relay outputs | 6 | 0 | 6 |
| • ● Number of operating cycles, max. | mechanically 10 million, at rated load voltage 100 000 | | mechanically 10 million, at rated load voltage 100 000 |
| **Cable length** | | | |
| • ● shielded, max. | 500 m | 500 m | 500 m |
| • ● unshielded, max. | 150 m | 150 m | 150 m |
| **Analog inputs** | | | |
| Number of analog inputs | 2 | 2 | 2 |
| **Input ranges** | | | |
| • ● Voltage | Yes | Yes | Yes |
| **Input ranges (rated values), voltages** | | | |
| • ● 0 to +10 V | Yes | Yes | Yes |

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|---|---|---|---|
| • — Input resistance (0 to 10 V) | ≥100k ohms | ≥100k ohms | ≥100k ohms |
| **Cable length** | | | |
| • ● shielded, max. | 100 m; twisted and shielded | 100 m; twisted and shielded | 100 m; twisted and shielded |
| **Analog outputs** | | | |
| Number of analog outputs | 0 | 0 | 0 |
| **Analog value generation for the inputs** | | | |
| **Integration and conversion time/resolution per channel** | | | |
| • ● Resolution with overrange (bit including sign), max. | 10 bit | 10 bit | 10 bit |
| • ● Integration time, parameterizable | Yes | Yes | Yes |
| • ● Conversion time (per channel) | 625 µs | 625 µs | 625 µs |
| **Encoder** | | | |
| **Connectable encoders** | | | |
| • ● 2-wire sensor | Yes | Yes | Yes |
| **Interfaces** | | | |

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|---|---|---|---|
| Number of PROFINET interfaces | 1 | 1 | 1 |
| **1. Interface** | | | |
| Interface type | PROFINET | PROFINET | PROFINET |
| Isolated | Yes | Yes | Yes |
| automatic detection of transmission rate | Yes | Yes | Yes |
| Autonegotiation | Yes | Yes | Yes |
| Autocrossing | Yes | Yes | Yes |
| **Interface types** | | | |
| • ● RJ 45 (Ethernet) | Yes | Yes | Yes |
| • ● Number of ports | 1 | 1 | 1 |
| • ● integrated switch | No | No | No |
| **Protocols** | | | |
| • ● PROFINET IO Controller | Yes | Yes | Yes |
| • ● PROFINET IO Device | Yes | Yes | Yes |
| • ● SIMATIC communication | Yes | Yes | Yes |
| • ● Open IE communication | Yes; Optionally also encrypted | Yes; Optionally also encrypted | Yes; Optionally also encrypted |

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|---|---|---|---|
| • ● Web server | Yes | Yes | Yes |
| • ● Media redundancy | No | No | No |
| **PROFINET IO Controller** | | | |
| • ● Transmission rate, max. | 100 Mbit/s | 100 Mbit/s | 100 Mbit/s |
| **Services** | | | |
| • — PG/OP communication | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected |
| • — Isochronous mode | No | No | No |
| • — IRT | No | No | No |
| • — PROFIenergy | No | No | No |
| • — Prioritized startup | Yes | Yes | Yes |
| • — Number of IO devices with prioritized startup, max. | 16 | 16 | 16 |
| • — Number of connectable IO Devices, max. | 16 | 16 | 16 |
| • — Number of connectable IO Devices for RT, max. | 16 | 16 | 16 |
| • — of which in line, max. | 16 | 16 | 16 |

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|---|---|---|---|
| • — Activation/deactivation of IO Devices | Yes | Yes | Yes |
| • — Number of IO Devices that can be simultaneously activated/deactivated, max. | 8 | 8 | 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. | 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. | 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 | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected |
| • — Isochronous mode | No | No | No |
| • — IRT | No | No | No |
| • — PROFIenergy | Yes | Yes | Yes |

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|---|---|---|---|
| • — Shared device | Yes | Yes | Yes |
| • — Number of IO Controllers with shared device, max. | 2 | 2 | 2 |
| **Protocols** | | | |
| Supports protocol for PROFINET IO | Yes | Yes | Yes |
| PROFIsafe | No | No | No |
| PROFIBUS | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required |
| OPC UA | Yes; OPC UA Server | Yes; OPC UA Server | Yes; OPC UA Server |
| AS-Interface | Yes; CM 1243-2 required | Yes; CM 1243-2 required | Yes; CM 1243-2 required |
| **Protocols (Ethernet)** | | | |
| • ● TCP/IP | Yes | Yes | Yes |
| • ● DHCP | No | No | No |
| • ● SNMP | Yes | Yes | Yes |
| • ● DCP | Yes | Yes | Yes |
| • ● LLDP | Yes | Yes | Yes |

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|---|---|---|---|
| **Redundancy mode** | | | |
| **Media redundancy** | | | |
| • — MRP | No | No | No |
| • — MRPD | No | No | No |
| **SIMATIC communication** | | | |
| • ● S7 routing | Yes | Yes | Yes |
| **Open IE communication** | | | |
| • ● TCP/IP | Yes | Yes | Yes |
| • — Data length, max. | 8 kbyte | 8 kbyte | 8 kbyte |
| • — several passive connections per port, supported | | Yes | |
| • ● ISO-on-TCP (RFC1006) | Yes | Yes | Yes |
| • — Data length, max. | 8 kbyte | 8 kbyte | 8 kbyte |
| • ● UDP | Yes | Yes | Yes |
| • — Data length, max. | 1 472 byte | 1 472 byte | 1 472 byte |
| **Web server** | | | |
| • ● supported | Yes | Yes | Yes |

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|---|---|---|---|
| • ● User-defined websites | Yes | Yes | Yes |
| **OPC UA** | | | |
| • ● Runtime license required | Yes; "Basic" license required | Yes; "Basic" license required | Yes; "Basic" license required |
| • ● OPC UA Server | Yes; data access (read, write, subscribe), method call, runtime license required | Yes; data access (read, write, subscribe), method call, runtime license required | Yes; data access (read, write, subscribe), method call, runtime license required |
| • — Application authentication | Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 | Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 | Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 |
| • — User authentication | "anonymous" or by user name & password | "anonymous" or by user name & password | "anonymous" or by user name & password |
| • — Number of sessions, max. | 10 | 10 | 10 |
| • — Number of subscriptions per session, max. | 5 | 5 | 5 |
| • — Sampling interval, min. | 100 ms | 100 ms | 100 ms |

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|---|---|---|---|
| • — Publishing interval, min. | 200 ms | 200 ms | 200 ms |
| • — Number of server methods, max. | 20 | 20 | 20 |
| • — Number of monitored items, recommended max. | 1 000 | 1 000 | 1 000 |
| • — Number of server interfaces, max. | 2 | 2 | 2 |
| • — Number of nodes for user-defined server interfaces, max. | 2 000 | 2 000 | 2 000 |
| **Further protocols** | | | |
| • ● MODBUS | Yes | Yes | Yes |
| **Communication functions** | | | |
| **S7 communication** | | | |
| • ● supported | Yes | Yes | Yes |
| • ● as server | Yes | Yes | Yes |
| • ● as client | Yes | Yes | Yes |
| • ● User data per job, max. | See online help (S7 communication, user data size) | See online help (S7 communication, user data size) | See online help (S7 communication, user data size) |

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|---|---|---|---|
| **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 / 68 max | 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 / 68 max | 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 / 68 max |
| **Test commissioning functions** | | | |
| **Status/control** | | | |
| • ● Status/control variable | Yes | Yes | Yes |
| • ● Variables | Inputs/outputs, memory bits, DBs, distributed | Inputs/outputs, memory bits, DBs, distributed | Inputs/outputs, memory bits, DBs, distributed |

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|---|---|---|---|
| | I/Os, timers, counters | I/Os, timers, counters | I/Os, timers, counters |
| **Forcing** | | | |
| • ● Forcing | Yes | Yes | Yes |
| **Diagnostic buffer** | | | |
| • ● present | Yes | Yes | Yes |
| **Traces** | | | |
| • ● Number of configurable Traces | 2 | 2 | 2 |
| • ● Memory size per trace, max. | 512 kbyte | 512 kbyte | 512 kbyte |
| **Interrupts/diagnostics/status information** | | | |
| **Diagnostics indication LED** | | | |
| • ● RUN/STOP LED | Yes | Yes | Yes |
| • ● ERROR LED | Yes | Yes | Yes |
| • ● MAINT LED | Yes | Yes | Yes |
| **Integrated Functions** | | | |
| Counter | | | |
| • ● Number of counters | 6 | 6 | 6 |

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|---|---|---|---|
| • ● Counting frequency, max. | 100 kHz | 100 kHz | 100 kHz |
| Frequency measurement | Yes | Yes | Yes |
| controlled positioning | Yes | Yes | Yes |
| Number of position-controlled positioning axes, max. | 8 | 8 | 8 |
| Number of positioning axes via pulse-direction interface | Up to 4 with SB 1222 | 4; With integrated outputs | Up to 4 with SB 1222 |
| PID controller | Yes | Yes | Yes |
| Number of alarm inputs | 4 | 4 | 4 |
| Number of pulse outputs | | 4 | |
| Limit frequency (pulse) | | 100 kHz | |
| **Potential separation** | | | |
| **Potential separation digital inputs** | | | |
| • ● Potential separation digital inputs | 500 V AC for 1 minute | No | 500 V AC for 1 minute |
| • ● between the channels, in groups of | 1 | 1 | 1 |
| **Potential separation digital outputs** | | | |

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|---|---|---|---|
| • ● Potential separation digital outputs | Relays | Yes | Relays |
| • ● between the channels | No | No | No |
| • ● between the channels, in groups of | 2 | 1 | 2 |
| **EMC** | | | |
| **Interference immunity against discharge of static electricity** | | | |
| • ● Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 | Yes | Yes | Yes |
| • — Test voltage at air discharge | 8 kV | 8 kV | 8 kV |
| • — Test voltage at contact discharge | 6 kV | 6 kV | 6 kV |
| **Interference immunity to cable-borne interference** | | | |
| • ● Interference immunity on supply lines acc. to IEC 61000-4-4 | Yes | Yes | Yes |
| • ● Interference immunity on signal cables acc. to IEC 61000-4-4 | Yes | Yes | Yes |

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|---|---|---|---|
| **Interference immunity against voltage surge** | | | |
| • ● Interference immunity on supply lines acc. to IEC 61000-4-5 | Yes | Yes | 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 | Yes | Yes |
| **Emission of radio interference acc. to EN 55 011** | | | |
| • ● Limit class A, for use in industrial areas | Yes; Group 1 | Yes; Group 1 | 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 | Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 | Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 |
| **Degree and class of protection** | | | |

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|---|---|---|---|
| IP degree of protection | IP20 | IP20 | IP20 |
| **Standards, approvals, certificates** | | | |
| Siemens Eco Profile (SEP) | Siemens EcoTech | Siemens EcoTech | Siemens EcoTech |
| CE mark | Yes | Yes | Yes |
| UL approval | Yes | Yes | Yes |
| cULus | Yes | Yes | Yes |
| FM approval | Yes | Yes | Yes |
| RCM (formerly C-TICK) | Yes | Yes | Yes |
| KC approval | Yes | Yes | Yes |
| Marine approval | Yes | Yes | Yes |
| **Ecological footprint** | | | |
| • ● environmental product declaration | Yes; type II acc. to ISO 14021 | Yes; type II acc. to ISO 14021 | Yes; type II acc. to ISO 14021 |
| **Global warming potential** | | | |
| • — global warming potential, (total) [CO2 eq] | 76.4 kg | 76.4 kg | 76.4 kg |
| • — global warming potential, (during production) [CO2 eq] | 13.8 kg | 13.8 kg | 13.8 kg |

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|---|---|---|---|
| • — global warming potential, (during operation) [CO2 eq] | 63.4 kg | 63.4 kg | 63.4 kg |
| • — global warming potential, (after end of life cycle) [CO2 eq] | -0.89 kg | -0.89 kg | -0.89 kg |
| **Ambient conditions** | | | |
| **Free fall** | | | |
| • ● Fall height, max. | 0.3 m; five times, in product package | 0.3 m; five times, in product package | 0.3 m; five times, in product package |
| **Ambient temperature during operation** | | | |
| • ● min. | -20 °C | -20 °C | -20 °C |
| • ● 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 | 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 | 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 |

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|---|---|---|---|
| • ● horizontal installation, min. | -20 °C | -20 °C | -20 °C |
| • ● horizontal installation, max. | 60 °C | 60 °C | 60 °C |
| • ● vertical installation, min. | -20 °C | -20 °C | -20 °C |
| • ● vertical installation, max. | 50 °C | 50 °C | 50 °C |
| **Ambient temperature during storage/transportation** | | | |
| • ● min. | -40 °C | -40 °C | -40 °C |
| • ● max. | 70 °C | 70 °C | 70 °C |
| **Air pressure acc. to IEC 60068-2-13** | | | |
| • ● Operation, min. | 795 hPa | 795 hPa | 795 hPa |
| • ● Operation, max. | 1 080 hPa | 1 080 hPa | 1 080 hPa |
| • ● Storage/transport, min. | 660 hPa | 660 hPa | 660 hPa |
| • ● Storage/transport, max. | 1 080 hPa | 1 080 hPa | 1 080 hPa |
| **Altitude during operation relating to sea level** | | | |
| • ● Installation altitude, min. | -1 000 m | -1 000 m | -1 000 m |

| Article number | 6ES7212-1BE40-0XB0<br><br>CPU 1212C, AC/DC/Relay, 8DI/6DO/2AI | 6ES7212-1AE40-0XB0<br><br>CPU 1212C ,DC/DC/DC, 8DI/6DO/2AI | 6ES7212-1HE40-0XB0<br><br>CPU 1212C, DC/DC/Relay, 8DI/6DO/2AI |
|---|---|---|---|
| • ● Installation altitude, max. | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual |
| **Relative humidity** | | | |
| • ● Operation, max. | 95 %; no condensation | 95 %; no condensation | 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 | 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail | 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail |
| • ● Operation, tested according to IEC 60068-2-6 | Yes | Yes | 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 | Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms | 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 % | S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % | S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % |

| Article number | 6ES7212-1BE40-0XB0<br><br>CPU 1212C, AC/DC/Relay, 8DI/6DO/2AI | 6ES7212-1AE40-0XB0<br><br>CPU 1212C ,DC/DC/DC, 8DI/6DO/2AI | 6ES7212-1HE40-0XB0<br><br>CPU 1212C, DC/DC/Relay, 8DI/6DO/2AI |
|---|---|---|---|
| | condensation-free | condensation-free | condensation-free |
| **Configuration** | | | |
| **Programming** | | | |
| **Programming language** | | | |
| • — LAD | Yes | Yes | Yes |
| • — FBD | Yes | Yes | Yes |
| • — SCL | Yes | Yes | Yes |
| **Know-how protection** | | | |
| • ● User program protection/password protection | Yes | Yes | Yes |
| • ● Copy protection | Yes | Yes | Yes |
| • ● Block protection | Yes | Yes | Yes |
| **Access protection** | | | |
| • ● protection of confidential configuration data | Yes | Yes | Yes |
| • ● Protection level: Write protection | Yes | Yes | Yes |

| Article number | 6ES7212-1BE40-0XB0<br><br>CPU 1212C, AC/DC/Relay, 8DI/6DO/2AI | 6ES7212-1AE40-0XB0<br><br>CPU 1212C ,DC/DC/DC, 8DI/6DO/2AI | 6ES7212-1HE40-0XB0<br><br>CPU 1212C, DC/DC/Relay, 8DI/6DO/2AI |
|---|---|---|---|
| • ● Protection level: Read/write protection | Yes | Yes | Yes |
| • ● Protection level: Complete protection | Yes | Yes | Yes |
| • ● User administration | Yes; device-wide | Yes; device-wide | Yes; device-wide |
| • ● Number of users | 42 | 42 | 42 |
| • ● Number of groups | 14 | 14 | 14 |
| • ● Number of roles | 20 | 20 | 20 |
| **Cycle time monitoring** | | | |
| • ● adjustable | Yes | Yes | Yes |
| **Dimensions** | | | |
| Width | 90 mm | 90 mm | 90 mm |
| Height | 100 mm | 100 mm | 100 mm |
| Depth | 75 mm | 75 mm | 75 mm |
| **Weights** | | | |
| Weight, approx. | 425 g | 370 g | 385 g |

| Article number | 6ES7214-1BG40-0XB0<br><br>CPU 1214C, AC/DC/Relay, 14DI/10DO/2AI | 6ES7214-1AG40-0XB0<br><br>CPU 1214C, DC/DC/DC, 14DI/10DO/2AI | 6ES7214-1HG40-0XB0<br><br>CPU 1214C, DC/DC/Relay, 14DI/10DO/2AI |
|---|---|---|---|
| **General information** | | | |
| Product type designation | CPU 1214C AC/DC/relay | CPU 1214C DC/DC/DC | CPU 1214C DC/DC/relay |
| Firmware version | V4.7 | V4.7 | V4.7 |
| **Engineering with** | | | |
| • ● Programming package | STEP 7 V20 or higher | STEP 7 V20 or higher | STEP 7 V20 or higher |
| **Supply voltage** | | | |
| Rated value (DC) | | | |
| • ● 24 V DC | | Yes | Yes |
| permissible range, lower limit (DC) | | 20.4 V | 20.4 V |
| permissible range, upper limit (DC) | | 28.8 V | 28.8 V |
| Rated value (AC) | | | |
| • ● 120 V AC | Yes | | |
| • ● 230 V AC | Yes | | |
| permissible range, lower limit (AC) | 85 V | | |

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|---|---|---|---|
| permissible range, upper limit (AC) | 264 V | | |
| Reverse polarity protection | | Yes | Yes |
| **Line frequency** | | | |
| • ● permissible range, lower limit | 47 Hz | | |
| • ● permissible range, upper limit | 63 Hz | | |
| **Load voltage L+** | | | |
| • ● Rated value (DC) | | 24 V | 24 V |
| • ● permissible range, lower limit (DC) | | 20.4 V | 20.4 V |
| • ● permissible range, upper limit (DC) | | 28.8 V | 28.8 V |
| **Input current** | | | |
| Current consumption (rated value) | 100 mA at 120 V AC; 50 mA at 240 V AC | 500 mA; CPU only | 500 mA; CPU only |
| Current consumption, max. | 300 mA at 120 V AC; 150 mA at 240 V AC | 1 500 mA; CPU with all expansion modules | 1 500 mA; CPU with all expansion modules |

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|---|---|---|---|
| Inrush current, max. | 20 A; at 264 V | 12 A; at 28.8 V | 12 A; at 28.8 V |
| $I^2t$ | 0.8 $A^2 \cdot s$ | 0.5 $A^2 \cdot s$ | 0.8 $A^2 \cdot s$ |
| **Output current** | | | |
| for backplane bus (5 V DC), max. | 1 600 mA; Max. 5 V DC for SM and CM | 1 600 mA; Max. 5 V DC for SM and CM | 1 600 mA; Max. 5 V DC for SM and CM |
| **Encoder supply** | | | |
| **24 V encoder supply** | | | |
| • ● 24 V | 20.4 to 28.8V | L+ minus 4 V DC min. | L+ minus 4 V DC min. |
| **Power loss** | | | |
| Power loss, typ. | 14 W | 12 W | 12 W |
| **Memory** | | | |
| **Work memory** | | | |
| • ● integrated | 150 kbyte | 150 kbyte | 150 kbyte |
| **Load memory** | | | |
| • ● integrated | 4 Mbyte | 4 Mbyte | 4 Mbyte |
| • ● Plug-in (SIMATIC Memory Card), max. | with SIMATIC memory card | with SIMATIC memory card | with SIMATIC memory card |

| Article number | 6ES7214-1BG40-0XB0<br><br>CPU 1214C, AC/DC/Relay, 14DI/10DO/2AI | 6ES7214-1AG40-0XB0<br><br>CPU 1214C, DC/DC/DC, 14DI/10DO/2AI | 6ES7214-1HG40-0XB0<br><br>CPU 1214C, DC/DC/Relay, 14DI/10DO/2AI |
|---|---|---|---|
| **Backup** | | | |
| • ● present | Yes | Yes | Yes |
| • ● maintenance-free | Yes | Yes | Yes |
| • ● without battery | Yes | Yes | Yes |
| **CPU processing times** | | | |
| for bit operations, typ. | 0.08 µs; / instruction | 0.08 µs; / instruction | 0.08 µs; / instruction |
| for word operations, typ. | 1.7 µs; / instruction | 1.7 µs; / instruction | 1.7 µs; / instruction |
| for floating point arithmetic, typ. | 2.3 µs; / instruction | 2.3 µs; / instruction | 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 | 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 | 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 |

| Article number | 6ES7214-1BG40-0XB0<br><br>CPU 1214C, AC/DC/Relay, 14DI/10DO/2AI | 6ES7214-1AG40-0XB0<br><br>CPU 1214C, DC/DC/DC, 14DI/10DO/2AI | 6ES7214-1HG40-0XB0<br><br>CPU 1214C, DC/DC/Relay, 14DI/10DO/2AI |
|---|---|---|---|
| **OB** | | | |
| • ● Number, max. | Limited only by RAM for code | Limited only by RAM for code | Limited only by RAM for code |
| **Data areas and their retentivity** | | | |
| Retentive data area (incl. timers, counters, flags), max. | 14 kbyte | 14 kbyte | 14 kbyte |
| **Flag** | | | |
| • ● Size, max. | 8 kbyte; Size of bit memory address area | 8 kbyte; Size of bit memory address area | 8 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 | 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB | 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB |
| **Address area** | | | |
| **Process image** | | | |
| • ● Inputs, adjustable | 1 kbyte | 1 kbyte | 1 kbyte |
| • ● Outputs, adjustable | 1 kbyte | 1 kbyte | 1 kbyte |
| **Hardware configuration** | | | |

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|---|---|---|---|
| Number of modules per system, max. | 3 comm. modules, 1 signal board, 8 signal modules | 3 comm. modules, 1 signal board, 8 signal modules | 3 comm. modules, 1 signal board, 8 signal modules |
| • ● number of expansion boards (SB, CB, BB) | 1 | 1 | 1 |
| • ● number of signal modules (SM) | 8 | 8 | 8 |
| • ● number of communications modules (CM) | 3 | 3 | 3 |
| **Time of day** | | | |
| **Clock** | | | |
| • ● Hardware clock (real-time) | Yes | Yes | Yes |
| • ● Backup time | 480 h; Typical | 480 h; Typical | 480 h; Typical |
| • ● Deviation per day, max. | ±60 s/month at 25 °C | ±60 s/month at 25 °C | ±60 s/month at 25 °C |
| **Digital inputs** | | | |
| Number of digital inputs | 14; Integrated | 14; Integrated | 14; Integrated |
| • ● of which inputs usable for technological functions | 6; HSC (High Speed Counting) | 6; HSC (High Speed Counting) | 6; HSC (High Speed Counting) |

| Article number | 6ES7214-1BG40-0XB0<br><br>CPU 1214C, AC/DC/Relay, 14DI/10DO/2AI | 6ES7214-1AG40-0XB0<br><br>CPU 1214C, DC/DC/DC, 14DI/10DO/2AI | 6ES7214-1HG40-0XB0<br><br>CPU 1214C, DC/DC/Relay, 14DI/10DO/2AI |
|---|---|---|---|
| Sourcing/sinking input | Yes | Yes | Yes |
| **Number of simultaneously controllable inputs** | | | |
| **all mounting positions** | | | |
| • — up to 40 °C, max. | 14 | 14 | 14 |
| **Input voltage** | | | |
| • ● Rated value (DC) | 24 V | 24 V | 24 V |
| • ● for signal "0" | 5 V DC at 1 mA | 5 V DC at 1 mA | 5 V DC at 1 mA |
| • ● for signal "1" | 15 V DC at 2.5 mA | 15 V DC at 2.5 mA | 15 V DC at 2.5 mA |
| **Input delay (for rated value of input voltage)** | | | |
| **for standard inputs** | | | |
| • — parameterizable | 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms | 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms | 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms |
| • — at "0" to "1", min. | 0.2 ms | 0.2 ms | 0.2 ms |

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|---|---|---|---|
| • — at "0" to "1", max. | 12.8 ms | 12.8 ms | 12.8 ms |
| **for interrupt inputs** | | | |
| • — parameterizable | Yes | Yes | Yes |
| **for technological functions** | | | |
| • — parameterizable | Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz | Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz | Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz |
| **Cable length** | | | |
| • ● shielded, max. | 500 m; 50 m for technological functions | 500 m; 50 m for technological functions | 500 m; 50 m for technological functions |
| • ● unshielded, max. | 300 m; for technological functions: No | 300 m; for technological functions: No | 300 m; for technological functions: No |
| **Digital outputs** | | | |
| Number of digital outputs | 10; Relays | 10 | 10; Relays |
| • ● of which high-speed outputs | | 4; 100 kHz Pulse Train Output | |

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|---|---|---|---|
| Limitation of inductive shutdown voltage to | | L+ (-48 V) | |
| **Switching capacity of the outputs** | | | |
| • ● with resistive load, max. | 2 A | 0.5 A | 2 A |
| • ● on lamp load, max. | 30 W with DC, 200 W with AC | 5 W | 30 W with DC, 200 W with AC |
| **Output voltage** | | | |
| • ● for signal "0", max. | | 0.1 V; with 10 kOhm load | |
| • ● for signal "1", min. | | 20 V | |
| **Output current** | | | |
| • ● for signal "1" rated value | | 0.5 A | |
| • ● for signal "0" residual current, max. | | 0.1 mA | |
| **Output delay with resistive load** | | | |
| • ● "0" to "1", max. | 10 ms; max. | 1 µs | 10 ms; max. |
| • ● "1" to "0", max. | 10 ms; max. | 5 µs | 10 ms; max. |

| Article number | 6ES7214-1BG40-0XB0<br><br>CPU 1214C, AC/DC/Relay, 14DI/10DO/2AI | 6ES7214-1AG40-0XB0<br><br>CPU 1214C, DC/DC/DC, 14DI/10DO/2AI | 6ES7214-1HG40-0XB0<br><br>CPU 1214C, DC/DC/Relay, 14DI/10DO/2AI |
|---|---|---|---|
| **Switching frequency** | | | |
| • ● of the pulse outputs, with resistive load, max. | | 100 kHz | |
| **Relay outputs** | | | |
| • ● Number of relay outputs | 10 | 0 | 10 |
| • ● Number of operating cycles, max. | mechanically 10 million, at rated load voltage 100 000 | | mechanically 10 million, at rated load voltage 100 000 |
| **Cable length** | | | |
| • ● shielded, max. | 500 m | 500 m | 500 m |
| • ● unshielded, max. | 150 m | 150 m | 150 m |
| **Analog inputs** | | | |
| Number of analog inputs | 2 | 2 | 2 |
| **Input ranges** | | | |
| • ● Voltage | Yes | Yes | Yes |
| **Input ranges (rated values), voltages** | | | |
| • ● 0 to +10 V | Yes | Yes | Yes |

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|---|---|---|---|
| • — Input resistance (0 to 10 V) | ≥100k ohms | ≥100k ohms | ≥100k ohms |
| **Cable length** | | | |
| • ● shielded, max. | 100 m; twisted and shielded | 100 m; twisted and shielded | 100 m; twisted and shielded |
| **Analog outputs** | | | |
| Number of analog outputs | 0 | 0 | 0 |
| **Analog value generation for the inputs** | | | |
| **Integration and conversion time/resolution per channel** | | | |
| • ● Resolution with overrange (bit including sign), max. | 10 bit | 10 bit | 10 bit |
| • ● Integration time, parameterizable | Yes | Yes | Yes |
| • ● Conversion time (per channel) | 625 µs | 625 µs | 625 µs |
| **Encoder** | | | |
| **Connectable encoders** | | | |
| • ● 2-wire sensor | Yes | Yes | Yes |

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|---|---|---|---|
| **Interfaces** | | | |
| Number of PROFINET interfaces | 1 | 1 | 1 |
| **1. Interface** | | | |
| Interface type | PROFINET | PROFINET | PROFINET |
| Isolated | Yes | Yes | Yes |
| automatic detection of transmission rate | Yes | Yes | Yes |
| Autonegotiation | Yes | Yes | Yes |
| Autocrossing | Yes | Yes | Yes |
| **Interface types** | | | |
| • ● RJ 45 (Ethernet) | Yes | Yes | Yes |
| • ● Number of ports | 1 | 1 | 1 |
| • ● integrated switch | No | No | No |
| **Protocols** | | | |
| • ● PROFINET IO Controller | Yes | Yes | Yes |
| • ● PROFINET IO Device | Yes | Yes | Yes |
| • ● SIMATIC communication | Yes | Yes | Yes |

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|---|---|---|---|
| • ● Open IE communication | Yes; Optionally also encrypted | Yes; Optionally also encrypted | Yes; Optionally also encrypted |
| • ● Web server | Yes | Yes | Yes |
| • ● Media redundancy | No | No | No |
| **PROFINET IO Controller** | | | |
| • ● Transmission rate, max. | 100 Mbit/s | 100 Mbit/s | 100 Mbit/s |
| **Services** | | | |
| • — PG/OP communication | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected |
| • — Isochronous mode | No | No | No |
| • — IRT | No | No | No |
| • — PROFIenergy | No | No | No |
| • — Prioritized startup | Yes | Yes | Yes |
| • — Number of IO devices with prioritized startup, max. | 16 | 16 | 16 |
| • — Number of connectable IO Devices, max. | 16 | 16 | 16 |

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|---|---|---|---|
| • — Number of connectable IO Devices for RT, max. | 16 | 16 | 16 |
| • — of which in line, max. | 16 | 16 | 16 |
| • — Activation/deactivation of IO Devices | Yes | Yes | Yes |
| • — Number of IO Devices that can be simultaneously activated/deactivated, max. | 8 | 8 | 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. | 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. | 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** | | | |

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|---|---|---|---|
| • — PG/OP communication | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected |
| • — Isochronous mode | No | No | No |
| • — IRT | No | No | No |
| • — PROFIenergy | Yes | Yes | Yes |
| • — Shared device | Yes | Yes | Yes |
| • — Number of IO Controllers with shared device, max. | 2 | 2 | 2 |
| **Protocols** | | | |
| Supports protocol for PROFINET IO | Yes | Yes | Yes |
| PROFIsafe | No | No | No |
| PROFIBUS | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required |
| OPC UA | Yes; OPC UA Server | Yes; OPC UA Server | Yes; OPC UA Server |
| AS-Interface | Yes; CM 1243-2 required | Yes; CM 1243-2 required | Yes; CM 1243-2 required |

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|---|---|---|---|
| **Protocols (Ethernet)** | | | |
| • ● TCP/IP | Yes | Yes | Yes |
| • ● DHCP | No | No | No |
| • ● SNMP | Yes | Yes | Yes |
| • ● DCP | Yes | Yes | Yes |
| • ● LLDP | Yes | Yes | Yes |
| **Redundancy mode** | | | |
| **Media redundancy** | | | |
| • — MRP | No | No | No |
| • — MRPD | No | No | No |
| **SIMATIC communication** | | | |
| • ● S7 routing | Yes | Yes | Yes |
| **Open IE communication** | | | |
| • ● TCP/IP | Yes | Yes | Yes |
| • — Data length, max. | 8 kbyte | 8 kbyte | 8 kbyte |
| • ● ISO-on-TCP (RFC1006) | Yes | Yes | Yes |
| • — Data length, max. | 8 kbyte | 8 kbyte | 8 kbyte |

| Article number | 6ES7214-1BG40-0XB0<br><br>CPU 1214C, AC/DC/Relay, 14DI/10DO/2AI | 6ES7214-1AG40-0XB0<br><br>CPU 1214C, DC/DC/DC, 14DI/10DO/2AI | 6ES7214-1HG40-0XB0<br><br>CPU 1214C, DC/DC/Relay, 14DI/10DO/2AI |
|---|---|---|---|
| • ● UDP | Yes | Yes | Yes |
| • — Data length, max. | 1 472 byte | 1 472 byte | 1 472 byte |
| **Web server** | | | |
| • ● supported | Yes | Yes | Yes |
| • ● User-defined websites | Yes | Yes | Yes |
| **OPC UA** | | | |
| • ● Runtime license required | Yes; "Basic" license required | Yes; "Basic" license required | Yes; "Basic" license required |
| • ● OPC UA Server | Yes; data access (read, write, subscribe), method call, runtime license required | Yes; data access (read, write, subscribe), method call, runtime license required | Yes; data access (read, write, subscribe), method call, runtime license required |
| • — Application authentication | Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 | Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 | Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 |
| • — User authentication | "anonymous" or by user name & password | "anonymous" or by user name & password | "anonymous" or by user name & password |

| Article number | 6ES7214-1BG40-0XB0<br><br>CPU 1214C, AC/DC/Relay, 14DI/10DO/2AI | 6ES7214-1AG40-0XB0<br><br>CPU 1214C, DC/DC/DC, 14DI/10DO/2AI | 6ES7214-1HG40-0XB0<br><br>CPU 1214C, DC/DC/Relay, 14DI/10DO/2AI |
|---|---|---|---|
| • — Number of sessions, max. | 10 | 10 | 10 |
| • — Number of subscriptions per session, max. | 5 | 5 | 5 |
| • — Sampling interval, min. | 100 ms | 100 ms | 100 ms |
| • — Publishing interval, min. | 200 ms | 200 ms | 200 ms |
| • — Number of server methods, max. | 20 | 20 | 20 |
| • — Number of monitored items, recommended max. | 1 000 | 1 000 | 1 000 |
| • — Number of server interfaces, max. | 2 | 2 | 2 |
| • — Number of nodes for user-defined server interfaces, max. | 2 000 | 2 000 | 2 000 |
| **Further protocols** | | | |
| • ● MODBUS | Yes | Yes | Yes |
| **Communication functions** | | | |
| **S7 communication** | | | |

| Article number | 6ES7214-1BG40-0XB0<br><br>CPU 1214C, AC/DC/Relay, 14DI/10DO/2AI | 6ES7214-1AG40-0XB0<br><br>CPU 1214C, DC/DC/DC, 14DI/10DO/2AI | 6ES7214-1HG40-0XB0<br><br>CPU 1214C, DC/DC/Relay, 14DI/10DO/2AI |
|---|---|---|---|
| • ● supported | Yes | Yes | Yes |
| • ● as server | Yes | Yes | Yes |
| • ● as client | Yes | Yes | Yes |
| • ● User data per job, max. | See online help (S7 communication, user data size) | See online help (S7 communication, user data size) | 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 | 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 | 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 |

| Article number | 6ES7214-1BG40-0XB0<br><br>CPU 1214C, AC/DC/Relay, 14DI/10DO/2AI | 6ES7214-1AG40-0XB0<br><br>CPU 1214C, DC/DC/DC, 14DI/10DO/2AI | 6ES7214-1HG40-0XB0<br><br>CPU 1214C, DC/DC/Relay, 14DI/10DO/2AI |
|---|---|---|---|
| | reserved / 68 max | reserved / 68 max | reserved / 68 max |
| **Test commissioning functions** | | | |
| **Status/control** | | | |
| • ● Status/control variable | Yes | Yes | Yes |
| • ● Variables | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters |
| **Forcing** | | | |
| • ● Forcing | Yes | Yes | Yes |
| **Diagnostic buffer** | | | |
| • ● present | Yes | Yes | Yes |
| **Traces** | | | |
| • ● Number of configurable Traces | 2 | 2 | 2 |
| • ● Memory size per trace, max. | 512 kbyte | 512 kbyte | 512 kbyte |
| **Interrupts/diagnostics/status information** | | | |

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|---|---|---|---|
| **Diagnostics indication LED** | | | |
| • ● RUN/STOP LED | Yes | Yes | Yes |
| • ● ERROR LED | Yes | Yes | Yes |
| • ● MAINT LED | Yes | Yes | Yes |
| **Integrated Functions** | | | |
| Counter | | | |
| • ● Number of counters | 6 | 6 | 6 |
| • ● Counting frequency, max. | 100 kHz | 100 kHz | 100 kHz |
| Frequency measurement | Yes | Yes | Yes |
| controlled positioning | Yes | Yes | Yes |
| Number of position-controlled positioning axes, max. | 8 | 8 | 8 |
| Number of positioning axes via pulse-direction interface | Up to 4 with SB 1222 | 4; With integrated outputs | Up to 4 with SB 1222 |
| PID controller | Yes | Yes | Yes |
| Number of alarm inputs | 4 | 4 | 4 |
| Number of pulse outputs | | 4 | |

| Article number | 6ES7214-1BG40-0XB0<br><br>CPU 1214C, AC/DC/Relay, 14DI/10DO/2AI | 6ES7214-1AG40-0XB0<br><br>CPU 1214C, DC/DC/DC, 14DI/10DO/2AI | 6ES7214-1HG40-0XB0<br><br>CPU 1214C, DC/DC/Relay, 14DI/10DO/2AI |
|---|---|---|---|
| Limit frequency (pulse) | | 100 kHz | |
| **Potential separation** | | | |
| **Potential separation digital inputs** | | | |
| • ● Potential separation digital inputs | 500 V AC for 1 minute | No | 500 V AC for 1 minute |
| • ● between the channels, in groups of | 1 | 1 | 1 |
| **Potential separation digital outputs** | | | |
| • ● Potential separation digital outputs | Relays | Yes | Relays |
| • ● between the channels | No | No | No |
| • ● between the channels, in groups of | 2 | 1 | 2 |
| **EMC** | | | |
| **Interference immunity against discharge of static electricity** | | | |
| • ● Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 | Yes | Yes | Yes |

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|---|---|---|---|
| • — Test voltage at air discharge | 8 kV | 8 kV | 8 kV |
| • — Test voltage at contact discharge | 6 kV | 6 kV | 6 kV |
| **Interference immunity to cable-borne interference** | | | |
| • ● Interference immunity on supply lines acc. to IEC 61000-4-4 | Yes | Yes | Yes |
| • ● Interference immunity on signal cables acc. to IEC 61000-4-4 | Yes | Yes | Yes |
| **Interference immunity against voltage surge** | | | |
| • ● Interference immunity on supply lines acc. to IEC 61000-4-5 | Yes | Yes | 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 | Yes | Yes |

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|---|---|---|---|
| **Emission of radio interference acc. to EN 55 011** | | | |
| • ● Limit class A, for use in industrial areas | Yes; Group 1 | Yes; Group 1 | 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 | Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 | 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 | IP20 | IP20 |
| **Standards, approvals, certificates** | | | |
| Siemens Eco Profile (SEP) | Siemens EcoTech | Siemens EcoTech | Siemens EcoTech |
| CE mark | Yes | Yes | Yes |
| UL approval | Yes | Yes | Yes |
| cULus | Yes | Yes | Yes |
| FM approval | Yes | Yes | Yes |

| Article number | 6ES7214-1BG40-0XB0<br><br>CPU 1214C, AC/DC/Relay, 14DI/10DO/2AI | 6ES7214-1AG40-0XB0<br><br>CPU 1214C, DC/DC/DC, 14DI/10DO/2AI | 6ES7214-1HG40-0XB0<br><br>CPU 1214C, DC/DC/Relay, 14DI/10DO/2AI |
|---|---|---|---|
| RCM (formerly C-TICK) | Yes | Yes | Yes |
| KC approval | Yes | Yes | Yes |
| Marine approval | Yes | Yes | Yes |
| **Ecological footprint** | | | |
| • ● environmental product declaration | Yes; type II acc. to ISO 14021 | Yes; type II acc. to ISO 14021 | Yes; type II acc. to ISO 14021 |
| **Global warming potential** | | | |
| • — global warming potential, (total) [CO2 eq] | 111 kg | 111 kg | 111 kg |
| • — global warming potential, (during production) [CO2 eq] | 20.1 kg | 20.1 kg | 20.1 kg |
| • — global warming potential, (during operation) [CO2 eq] | 91.5 kg | 91.5 kg | 91.5 kg |
| • — global warming potential, (after end of life cycle) [CO2 eq] | -0.9 kg | -0.9 kg | -0.9 kg |
| **Ambient conditions** | | | |
| **Free fall** | | | |

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|---|---|---|---|
| • ● Fall height, max. | 0.3 m; five times, in product package | 0.3 m; five times, in product package | 0.3 m; five times, in product package |
| **Ambient temperature during operation** | | | |
| • ● min. | -20 °C | -20 °C | -20 °C |
| • ● max. | 60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical | 60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical | 60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical |
| • ● horizontal installation, min. | -20 °C | -20 °C | -20 °C |
| • ● horizontal installation, max. | 60 °C | 60 °C | 60 °C |
| • ● vertical installation, min. | -20 °C | -20 °C | -20 °C |
| • ● vertical installation, max. | 50 °C | 50 °C | 50 °C |

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|---|---|---|---|
| **Ambient temperature during storage/transportation** | | | |
| • ● min. | -40 °C | -40 °C | -40 °C |
| • ● max. | 70 °C | 70 °C | 70 °C |
| **Air pressure acc. to IEC 60068-2-13** | | | |
| • ● Operation, min. | 795 hPa | 795 hPa | 795 hPa |
| • ● Operation, max. | 1 080 hPa | 1 080 hPa | 1 080 hPa |
| • ● Storage/transport, min. | 660 hPa | 660 hPa | 660 hPa |
| • ● Storage/transport, max. | 1 080 hPa | 1 080 hPa | 1 080 hPa |
| **Altitude during operation relating to sea level** | | | |
| • ● Installation altitude, min. | -1 000 m | -1 000 m | -1 000 m |
| • ● Installation altitude, max. | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual |
| **Relative humidity** | | | |
| • ● Operation, max. | 95 %; no condensation | 95 %; no condensation | 95 %; no condensation |

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|---|---|---|---|
| **Vibrations** | | | |
| • ● Vibration resistance during operation acc. to IEC 60068-2-6 | 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail | 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail | 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail |
| • ● Operation, tested according to IEC 60068-2-6 | Yes | Yes | 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 | Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms | 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 | S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free | S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free |
| **Configuration** | | | |
| **Programming** | | | |
| **Programming language** | | | |
| • — LAD | Yes | Yes | Yes |

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|---|---|---|---|
| • — FBD | Yes | Yes | Yes |
| • — SCL | Yes | Yes | Yes |
| **Know-how protection** | | | |
| • ● User program protection/password protection | Yes | Yes | Yes |
| • ● Copy protection | Yes | Yes | Yes |
| • ● Block protection | Yes | Yes | Yes |
| **Access protection** | | | |
| • ● protection of confidential configuration data | Yes | Yes | Yes |
| • ● Protection level: Write protection | Yes | Yes | Yes |
| • ● Protection level: Read/write protection | Yes | Yes | Yes |
| • ● Protection level: Complete protection | Yes | Yes | Yes |
| • ● User administration | Yes; device-wide | Yes; device-wide | Yes; device-wide |
| • ● Number of users | 42 | 42 | 42 |

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|---|---|---|---|
| • ● Number of groups | 14 | 14 | 14 |
| • ● Number of roles | 20 | 20 | 20 |
| **Cycle time monitoring** | | | |
| • ● adjustable | Yes | Yes | Yes |
| **Dimensions** | | | |
| Width | 110 mm | 110 mm | 110 mm |
| Height | 100 mm | 100 mm | 100 mm |
| Depth | 75 mm | 75 mm | 75 mm |
| **Weights** | | | |
| Weight, approx. | 455 g | 415 g | 435 g |

| Article number | 6ES7215-1BG40-0XB0<br><br>CPU 1215C, AC/DC/RLY, 14DI/10DO/2AI/2AO | 6ES7215-1AG40-0XB0<br><br>CPU 1215C, DC/DC/DC, 14DI/10DO/2AI/2AO | 6ES7215-1HG40-0XB0<br><br>CPU 1215C, DC/DC/RLY, 14DI/10DO/2AI/2AO |
|---|---|---|---|
| **General information** | | | |
| Product type designation | CPU 1215C AC/DC/relay | CPU 1215C DC/DC/DC | CPU 1215C DC/DC/relay |

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|---|---|---|---|
| Firmware version | V4.7 | V4.7 | V4.7 |
| **Engineering with** | | | |
| • ● Programming package | STEP 7 V20 or higher | STEP 7 V20 or higher | STEP 7 V20 or higher |
| **Supply voltage** | | | |
| Rated value (DC) | | | |
| • ● 24 V DC | | Yes | Yes |
| permissible range, lower limit (DC) | | 20.4 V | 20.4 V |
| permissible range, upper limit (DC) | | 28.8 V | 28.8 V |
| Rated value (AC) | | | |
| • ● 120 V AC | Yes | | |
| • ● 230 V AC | Yes | | |
| permissible range, lower limit (AC) | 85 V | | |
| permissible range, upper limit (AC) | 265 V | | |
| Reverse polarity protection | | Yes | Yes |
| **Line frequency** | | | |

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|---|---|---|---|
| • ● permissible range, lower limit | 47 Hz | | |
| • ● permissible range, upper limit | 63 Hz | | |
| **Load voltage L+** | | | |
| • ● Rated value (DC) | | 24 V | 24 V |
| • ● permissible range, lower limit (DC) | | 20.4 V | 20.4 V |
| • ● permissible range, upper limit (DC) | | 28.8 V | 28.8 V |
| **Input current** | | | |
| Current consumption (rated value) | 100 mA at 120 V AC; 50 mA at 240 V AC | 500 mA; CPU only | 500 mA; CPU only |
| Current consumption, max. | 300 mA at 120 V AC; 150 mA at 240 V AC | 1 500 mA; CPU with all expansion modules | 1 500 mA; CPU with all expansion modules |
| Inrush current, max. | 20 A; at 264 V | 12 A; at 28.8 V DC | 12 A; at 28.8 V DC |
| $I^2t$ | 0.8 $A^2 \cdot s$ | 0.5 $A^2 \cdot s$ | 0.8 $A^2 \cdot s$ |
| **Output current** | | | |

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|---|---|---|---|
| for backplane bus (5 V DC), max. | 1 600 mA; Max. 5 V DC for SM and CM | 1 600 mA; Max. 5 V DC for SM and CM | 1 600 mA; Max. 5 V DC for SM and CM |
| **Encoder supply** | | | |
| **24 V encoder supply** | | | |
| • ● 24 V | 20.4 to 28.8V | L+ minus 4 V DC min. | L+ minus 4 V DC min. |
| **Power loss** | | | |
| Power loss, typ. | 14 W | 12 W | 12 W |
| **Memory** | | | |
| **Work memory** | | | |
| • ● integrated | 200 kbyte | 200 kbyte | 200 kbyte |
| **Load memory** | | | |
| • ● integrated | 4 Mbyte | 4 Mbyte | 4 Mbyte |
| • ● Plug-in (SIMATIC Memory Card), max. | with SIMATIC memory card | with SIMATIC memory card | with SIMATIC memory card |
| **Backup** | | | |
| • ● present | Yes | Yes | Yes |
| • ● maintenance-free | Yes | Yes | Yes |

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|---|---|---|---|
| • ● without battery | Yes | Yes | Yes |
| **CPU processing times** | | | |
| for bit operations, typ. | 0.08 µs; / instruction | 0.08 µs; / instruction | 0.08 µs; / instruction |
| for word operations, typ. | 1.7 µs; / instruction | 1.7 µs; / instruction | 1.7 µs; / instruction |
| for floating point arithmetic, typ. | 2.3 µs; / instruction | 2.3 µs; / instruction | 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 | 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 | 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 | Limited only by RAM for code | Limited only by RAM for code |

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|---|---|---|---|
| **Data areas and their retentivity** | | | |
| Retentive data area (incl. timers, counters, flags), max. | 14 kbyte | 14 kbyte | 14 kbyte |
| **Flag** | | | |
| • ● Size, max. | 8 kbyte; Size of bit memory address area | 8 kbyte; Size of bit memory address area | 8 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 | 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB | 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB |
| **Address area** | | | |
| **Process image** | | | |
| • ● Inputs, adjustable | 1 kbyte | 1 kbyte | 1 kbyte |
| • ● Outputs, adjustable | 1 kbyte | 1 kbyte | 1 kbyte |
| **Hardware configuration** | | | |

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|---|---|---|---|
| Number of modules per system, max. | 3 comm. modules, 1 signal board, 8 signal modules | 3 comm. modules, 1 signal board, 8 signal modules | 3 comm. modules, 1 signal board, 8 signal modules |
| • ● number of expansion boards (SB, CB, BB) | 1 | 1 | 1 |
| • ● number of signal modules (SM) | 8 | 8 | 8 |
| • ● number of communications modules (CM) | 3 | 3 | 3 |
| **Time of day** | | | |
| **Clock** | | | |
| • ● Hardware clock (real-time) | Yes | Yes | Yes |
| • ● Backup time | 480 h; Typical | 480 h; Typical | 480 h; Typical |
| • ● Deviation per day, max. | ±60 s/month at 25 °C | ±60 s/month at 25 °C | ±60 s/month at 25 °C |
| **Digital inputs** | | | |
| Number of digital inputs | 14; Integrated | 14; Integrated | 14; Integrated |
| • ● of which inputs usable for | 6; HSC (High Speed Counting) | 6; HSC (High Speed Counting) | 6; HSC (High Speed Counting) |

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|---|---|---|---|
| technological functions | | | |
| Sourcing/sinking input | Yes | Yes | Yes |
| **Number of simultaneously controllable inputs** | | | |
| **all mounting positions** | | | |
| • — up to 40 °C, max. | 14 | 14 | 14 |
| **Input voltage** | | | |
| • ● Rated value (DC) | 24 V | 24 V | 24 V |
| • ● for signal "0" | 5 V DC at 1 mA | 5 V DC at 1 mA | 5 V DC at 1 mA |
| • ● for signal "1" | 15 V DC at 2.5 mA | 15 V DC at 2.5 mA | 15 V DC at 2.5 mA |
| **Input delay (for rated value of input voltage)** | | | |
| **for standard inputs** | | | |
| • — parameterizable | Yes; 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / | 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms | Yes; 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / |

| Article number | 6ES7215-1BG40-0XB0<br><br>CPU 1215C, AC/DC/RLY, 14DI/10DO/2AI/2AO | 6ES7215-1AG40-0XB0<br><br>CPU 1215C, DC/DC/DC, 14DI/10DO/2AI/2AO | 6ES7215-1HG40-0XB0<br><br>CPU 1215C, DC/DC/RLY, 14DI/10DO/2AI/2AO |
|---|---|---|---|
| | 10.0 / 12.8 / 20.0 ms | | 10.0 / 12.8 / 20.0 ms |
| • — at "0" to "1", min. | 0.2 ms | 0.2 ms | 0.2 ms |
| • — at "0" to "1", max. | 12.8 ms | 12.8 ms | 12.8 ms |
| **for interrupt inputs** | | | |
| • — parameterizable | Yes | Yes | Yes |
| **for technological functions** | | | |
| • — parameterizable | Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz | Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz | Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz |
| **Cable length** | | | |
| • ● shielded, max. | 500 m; 50 m for technological functions | 500 m; 50 m for technological functions | 500 m; 50 m for technological functions |
| • ● unshielded, max. | 300 m; for technological functions: No | 300 m; for technological functions: No | 300 m; for technological functions: No |
| **Digital outputs** | | | |

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|---|---|---|---|
| Number of digital outputs | 10; Relays | 10 | 10; Relays |
| • ● of which high-speed outputs | | 4; 100 kHz Pulse Train Output | |
| Limitation of inductive shutdown voltage to | | L+ (-48 V) | |
| **Switching capacity of the outputs** | | | |
| • ● with resistive load, max. | 2 A | 0.5 A | 2 A |
| • ● on lamp load, max. | 30 W with DC, 200 W with AC | 5 W | 30 W with DC, 200 W with AC |
| **Output voltage** | | | |
| • ● for signal "0", max. | | 0.1 V; with 10 kOhm load | |
| • ● for signal "1", min. | | 20 V | |
| **Output current** | | | |
| • ● for signal "1" rated value | | 0.5 A | |
| • ● for signal "0" residual current, max. | | 0.1 mA | |

| Article number | 6ES7215-1BG40-0XB0<br><br>CPU 1215C, AC/DC/RLY, 14DI/10DO/2AI/2AO | 6ES7215-1AG40-0XB0<br><br>CPU 1215C, DC/DC/DC, 14DI/10DO/2AI/2AO | 6ES7215-1HG40-0XB0<br><br>CPU 1215C, DC/DC/RLY, 14DI/10DO/2AI/2AO |
|---|---|---|---|
| **Output delay with resistive load** | | | |
| • ● "0" to "1", max. | 10 ms; max. | 1 µs | 10 ms; max. |
| • ● "1" to "0", max. | 10 ms; max. | 5 µs | 10 ms; max. |
| **Switching frequency** | | | |
| • ● of the pulse outputs, with resistive load, max. | | 100 kHz | |
| **Relay outputs** | | | |
| • ● Number of relay outputs | 10 | 0 | 10 |
| • ● Number of operating cycles, max. | mechanically 10 million, at rated load voltage 100 000 | | mechanically 10 million, at rated load voltage 100 000 |
| **Cable length** | | | |
| • ● shielded, max. | 500 m | 500 m | 500 m |
| • ● unshielded, max. | 150 m | 150 m | 150 m |
| **Analog inputs** | | | |
| Number of analog inputs | 2 | 2 | 2 |
| **Input ranges** | | | |

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|---|---|---|---|
| • ● Voltage | Yes | Yes | Yes |
| **Input ranges (rated values), voltages** | | | |
| • ● 0 to +10 V | Yes | Yes | Yes |
| • — Input resistance (0 to 10 V) | ≥100k ohms | ≥100k ohms | ≥100k ohms |
| **Cable length** | | | |
| • ● shielded, max. | 100 m; twisted and shielded | 100 m; twisted and shielded | 100 m; twisted and shielded |
| **Analog outputs** | | | |
| Number of analog outputs | 2 | 2 | 2 |
| **Output ranges, current** | | | |
| • ● 0 to 20 mA | Yes | Yes | Yes |
| **Analog value generation for the inputs** | | | |
| **Integration and conversion time/resolution per channel** | | | |
| • ● Resolution with overrange (bit | 10 bit | 10 bit | 10 bit |

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|---|---|---|---|
| including sign), max. | | | |
| • ● Integration time, parameterizable | Yes | Yes | Yes |
| • ● Conversion time (per channel) | 625 µs | 625 µs | 625 µs |
| **Analog value generation for the outputs** | | | |
| **Integration and conversion time/resolution per channel** | | | |
| • ● Resolution with overrange (bit including sign), max. | | 10 bit | 10 bit |
| **Encoder** | | | |
| **Connectable encoders** | | | |
| • ● 2-wire sensor | Yes | Yes | Yes |
| **Interfaces** | | | |
| Number of PROFINET interfaces | 1 | 1 | 1 |
| **1. Interface** | | | |

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|---|---|---|---|
| Interface type | PROFINET | PROFINET | PROFINET |
| Isolated | Yes | Yes | Yes |
| automatic detection of transmission rate | Yes | Yes | Yes |
| Autonegotiation | Yes | Yes | Yes |
| Autocrossing | Yes | Yes | Yes |
| **Interface types** | | | |
| • ● RJ 45 (Ethernet) | Yes | Yes | Yes |
| • ● Number of ports | 2 | 2 | 2 |
| • ● integrated switch | Yes | Yes | Yes |
| **Protocols** | | | |
| • ● PROFINET IO Controller | Yes | Yes | Yes |
| • ● PROFINET IO Device | Yes | Yes | Yes |
| • ● SIMATIC communication | Yes | Yes | Yes |
| • ● Open IE communication | Yes; Optionally also encrypted | Yes; Optionally also encrypted | Yes; Optionally also encrypted |
| • ● Web server | Yes | Yes | Yes |

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|---|---|---|---|
| • ● Media redundancy | Yes | Yes | Yes |
| **PROFINET IO Controller** | | | |
| • ● Transmission rate, max. | 100 Mbit/s | 100 Mbit/s | 100 Mbit/s |
| **Services** | | | |
| • — PG/OP communication | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected |
| • — Isochronous mode | No | No | No |
| • — IRT | No | No | No |
| • — PROFIenergy | No | No | No |
| • — Prioritized startup | Yes | Yes | Yes |
| • — Number of IO devices with prioritized startup, max. | 16 | 16 | 16 |
| • — Number of connectable IO Devices, max. | 16 | 16 | 16 |

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|---|---|---|---|
| • — Number of connectable IO Devices for RT, max. | 16 | 16 | 16 |
| • — of which in line, max. | 16 | 16 | 16 |
| • — Activation/deactivation of IO Devices | Yes | Yes | Yes |
| • — Number of IO Devices that can be simultaneously activated/deactivated, max. | 8 | 8 | 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. | 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. | 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** | | | |

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|---|---|---|---|
| • — PG/OP communication | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected |
| • — Isochronous mode | No | No | No |
| • — IRT | No | No | No |
| • — PROFIenergy | Yes | Yes | Yes |
| • — Shared device | Yes | Yes | Yes |
| • — Number of IO Controllers with shared device, max. | 2 | 2 | 2 |
| **Protocols** | | | |
| Supports protocol for PROFINET IO | Yes | Yes | Yes |
| PROFIsafe | No | No | No |
| PROFIBUS | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required |
| OPC UA | Yes; OPC UA Server | Yes; OPC UA Server | Yes; OPC UA Server |
| AS-Interface | Yes; CM 1243-2 required | Yes; CM 1243-2 required | Yes; CM 1243-2 required |

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|---|---|---|---|
| **Protocols (Ethernet)** | | | |
| • ● TCP/IP | Yes | Yes | Yes |
| • ● DHCP | No | No | No |
| • ● SNMP | Yes | Yes | Yes |
| • ● DCP | Yes | Yes | Yes |
| • ● LLDP | Yes | Yes | Yes |
| **Redundancy mode** | | | |
| **Media redundancy** | | | |
| • — MRP | Yes; as MRP redundancy manager and/or MRP client | Yes; as MRP redundancy manager and/or MRP client | Yes; as MRP redundancy manager and/or MRP client |
| • — MRPD | No | No | No |
| **SIMATIC communication** | | | |
| • ● S7 routing | Yes | Yes | Yes |
| **Open IE communication** | | | |
| • ● TCP/IP | Yes | Yes | Yes |
| • — Data length, max. | 8 kbyte | 8 kbyte | 8 kbyte |

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|---|---|---|---|
| • ● ISO-on-TCP (RFC1006) | Yes | Yes | Yes |
| • — Data length, max. | 8 kbyte | 8 kbyte | 8 kbyte |
| • ● UDP | Yes | Yes | Yes |
| • — Data length, max. | 1 472 byte | 1 472 byte | 1 472 byte |
| **Web server** | | | |
| • ● supported | Yes | Yes | Yes |
| • ● User-defined websites | Yes | Yes | Yes |
| **OPC UA** | | | |
| • ● Runtime license required | Yes; "Basic" license required | Yes; "Basic" license required | Yes; "Basic" license required |
| • ● OPC UA Server | Yes; data access (read, write, subscribe), method call, runtime license required | Yes; data access (read, write, subscribe), method call, runtime license required | Yes; data access (read, write, subscribe), method call, runtime license required |
| • — Application authentication | Available security policies: None, Basic128Rsa15, | Available security policies: None, Basic128Rsa15, | Available security policies: None, Basic128Rsa15, |

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|---|---|---|---|
| | Basic256Rsa15, Basic256Sha256 | Basic256Rsa15, Basic256Sha256 | Basic256Rsa15, Basic256Sha256 |
| • — User authentication | "anonymous" or by user name & password | "anonymous" or by user name & password | "anonymous" or by user name & password |
| • — Number of sessions, max. | 10 | 10 | 10 |
| • — Number of subscriptions per session, max. | 5 | 5 | 5 |
| • — Sampling interval, min. | 100 ms | 100 ms | 100 ms |
| • — Publishing interval, min. | 200 ms | 200 ms | 200 ms |
| • — Number of server methods, max. | 20 | 20 | 20 |
| • — Number of monitored items, recommended max. | 1 000 | 1 000 | 1 000 |
| • — Number of server interfaces, max. | 2 | 2 | 2 |
| • — Number of nodes for user-defined | 2 000 | 2 000 | 2 000 |

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|---|---|---|---|
| server interfaces, max. | | | |
| **Further protocols** | | | |
| • ● MODBUS | Yes | Yes | Yes |
| **Communication functions** | | | |
| **S7 communication** | | | |
| • ● supported | Yes | Yes | Yes |
| • ● as server | Yes | Yes | Yes |
| • ● as client | Yes | Yes | Yes |
| • ● User data per job, max. | See online help (S7 communication, user data size) | See online help (S7 communication, user data size) | 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; | 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; | 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; |

| Article number | 6ES7215-1BG40-0XB0<br><br>CPU 1215C, AC/DC/RLY, 14DI/10DO/2AI/2AO | 6ES7215-1AG40-0XB0<br><br>CPU 1215C, DC/DC/DC, 14DI/10DO/2AI/2AO | 6ES7215-1HG40-0XB0<br><br>CPU 1215C, DC/DC/RLY, 14DI/10DO/2AI/2AO |
|---|---|---|---|
| | Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 68 max | Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 68 max | Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 68 max |
| **Test commissioning functions** | | | |
| **Status/control** | | | |
| • ● Status/control variable | Yes | Yes | Yes |
| • ● Variables | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters |
| **Forcing** | | | |
| • ● Forcing | Yes | Yes | Yes |
| **Diagnostic buffer** | | | |
| • ● present | Yes | Yes | Yes |
| **Traces** | | | |

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|---|---|---|---|
| • ● Number of configurable Traces | 2 | 2 | 2 |
| • ● Memory size per trace, max. | 512 kbyte | 512 kbyte | 512 kbyte |
| **Interrupts/diagnostics/status information** | | | |
| **Diagnostics indication LED** | | | |
| • ● RUN/STOP LED | Yes | Yes | Yes |
| • ● ERROR LED | Yes | Yes | Yes |
| • ● MAINT LED | Yes | Yes | Yes |
| **Integrated Functions** | | | |
| Counter | | | |
| • ● Number of counters | 6 | 6 | 6 |
| • ● Counting frequency, max. | 100 kHz | 100 kHz | 100 kHz |
| Frequency measurement | Yes | Yes | Yes |
| controlled positioning | Yes | Yes | Yes |

| Article number | 6ES7215-1BG40-0XB0<br><br>CPU 1215C, AC/DC/RLY, 14DI/10DO/2AI/2AO | 6ES7215-1AG40-0XB0<br><br>CPU 1215C, DC/DC/DC, 14DI/10DO/2AI/2AO | 6ES7215-1HG40-0XB0<br><br>CPU 1215C, DC/DC/RLY, 14DI/10DO/2AI/2AO |
|---|---|---|---|
| Number of position-controlled positioning axes, max. | 8 | 8 | 8 |
| Number of positioning axes via pulse-direction interface | Up to 4 with SB 1222 | 4; With integrated outputs | Up to 4 with SB 1222 |
| PID controller | Yes | Yes | Yes |
| Number of alarm inputs | 4 | 4 | 4 |
| Number of pulse outputs | | 4 | |
| Limit frequency (pulse) | | 100 kHz | |
| **Potential separation** | | | |
| **Potential separation digital inputs** | | | |
| • ● Potential separation digital inputs | 500 V AC for 1 minute | No | 500 V AC for 1 minute |
| • ● between the channels, in groups of | 1 | 1 | 1 |
| **Potential separation digital outputs** | | | |
| • ● Potential separation digital outputs | Relays | Yes | Relays |

| Article number | 6ES7215-1BG40-0XB0<br><br>CPU 1215C, AC/DC/RLY, 14DI/10DO/2AI/2AO | 6ES7215-1AG40-0XB0<br><br>CPU 1215C, DC/DC/DC, 14DI/10DO/2AI/2AO | 6ES7215-1HG40-0XB0<br><br>CPU 1215C, DC/DC/RLY, 14DI/10DO/2AI/2AO |
|---|---|---|---|
| • ● between the channels | No | No | No |
| • ● between the channels, in groups of | 2 | 1 | 2 |
| **EMC** | | | |
| **Interference immunity against discharge of static electricity** | | | |
| • ● Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 | Yes | Yes | Yes |
| • — Test voltage at air discharge | 8 kV | 8 kV | 8 kV |
| • — Test voltage at contact discharge | 6 kV | 6 kV | 6 kV |
| **Interference immunity to cable-borne interference** | | | |
| • ● Interference immunity on supply lines acc. to IEC 61000-4-4 | Yes | Yes | Yes |

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|---|---|---|---|
| • ● Interference immunity on signal cables acc. to IEC 61000-4-4 | Yes | Yes | Yes |
| **Interference immunity against voltage surge** | | | |
| • ● Interference immunity on supply lines acc. to IEC 61000-4-5 | Yes | Yes | 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 | Yes | Yes |
| **Emission of radio interference acc. to EN 55 011** | | | |
| • ● Limit class A, for use in industrial areas | Yes; Group 1 | Yes; Group 1 | Yes; Group 1 |

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|---|---|---|---|
| • ● 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 | Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 | 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 | IP20 | IP20 |
| **Standards, approvals, certificates** | | | |
| Siemens Eco Profile (SEP) | Siemens EcoTech | Siemens EcoTech | Siemens EcoTech |
| CE mark | Yes | Yes | Yes |
| UL approval | Yes | Yes | Yes |
| cULus | Yes | Yes | Yes |
| FM approval | Yes | Yes | Yes |
| RCM (formerly C-TICK) | Yes | Yes | Yes |
| KC approval | Yes | Yes | Yes |
| Marine approval | Yes | Yes | Yes |
| **Ecological footprint** | | | |

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|---|---|---|---|
| • ● environmental product declaration | Yes; type II acc. to ISO 14021 | Yes; type II acc. to ISO 14021 | Yes; type II acc. to ISO 14021 |
| **Global warming potential** | | | |
| • — global warming potential, (total) [CO2 eq] | 106 kg | 106 kg | 106 kg |
| • — global warming potential, (during production) [CO2 eq] | 18.5 kg | 18.5 kg | 18.5 kg |
| • — global warming potential, (during operation) [CO2 eq] | 88.2 kg | 88.2 kg | 88.2 kg |
| • — global warming potential, (after end of life cycle) [CO2 eq] | -1.1 kg | -1.1 kg | -1.1 kg |
| **Ambient conditions** | | | |
| **Free fall** | | | |
| • ● Fall height, max. | 0.3 m; five times, in product package | 0.3 m; five times, in product package | 0.3 m; five times, in product package |
| **Ambient temperature during operation** | | | |

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|---|---|---|---|
| • ● min. | -20 °C | -20 °C | -20 °C |
| • ● max. | 60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical | 60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical | 60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical |
| • ● horizontal installation, min. | -20 °C | -20 °C | -20 °C |
| • ● horizontal installation, max. | 60 °C | 60 °C | 60 °C |
| • ● vertical installation, min. | -20 °C | -20 °C | -20 °C |
| • ● vertical installation, max. | 50 °C | 50 °C | 50 °C |
| **Ambient temperature during storage/transportation** | | | |
| • ● min. | -40 °C | -40 °C | -40 °C |
| • ● max. | 70 °C | 70 °C | 70 °C |

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|---|---|---|---|
| **Air pressure acc. to IEC 60068-2-13** | | | |
| • ● Operation, min. | 795 hPa | 795 hPa | 795 hPa |
| • ● Operation, max. | 1 080 hPa | 1 080 hPa | 1 080 hPa |
| • ● Storage/transport, min. | 660 hPa | 660 hPa | 660 hPa |
| • ● Storage/transport, max. | 1 080 hPa | 1 080 hPa | 1 080 hPa |
| **Altitude during operation relating to sea level** | | | |
| • ● Installation altitude, min. | -1 000 m | -1 000 m | -1 000 m |
| • ● Installation altitude, max. | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual |
| **Relative humidity** | | | |
| • ● Operation, max. | 95 %; no condensation | 95 %; no condensation | 95 %; no condensation |
| **Vibrations** | | | |

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|---|---|---|---|
| • ● Vibration resistance during operation acc. to IEC 60068-2-6 | 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail | 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail | 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail |
| • ● Operation, tested according to IEC 60068-2-6 | Yes | Yes | 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 | Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms | 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 | S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free | S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free |
| **Configuration** | | | |
| **Programming** | | | |
| **Programming language** | | | |
| • — LAD | Yes | Yes | Yes |
| • — FBD | Yes | Yes | Yes |

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|---|---|---|---|
| • — SCL | Yes | Yes | Yes |
| **Know-how protection** | | | |
| • ● User program protection/password protection | Yes | Yes | Yes |
| • ● Copy protection | Yes | Yes | Yes |
| • ● Block protection | Yes | Yes | Yes |
| **Access protection** | | | |
| • ● protection of confidential configuration data | Yes | Yes | Yes |
| • ● Protection level: Write protection | Yes | Yes | Yes |
| • ● Protection level: Read/write protection | Yes | Yes | Yes |
| • ● Protection level: Complete protection | Yes | Yes | Yes |
| • ● User administration | Yes; device-wide | Yes; device-wide | Yes; device-wide |
| • ● Number of users | 42 | 42 | 42 |
| • ● Number of groups | 14 | 14 | 14 |

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|---|---|---|---|
| • ● Number of roles | 20 | 20 | 20 |
| **Cycle time monitoring** | | | |
| • ● adjustable | Yes | Yes | Yes |
| **Dimensions** | | | |
| Width | 130 mm | 130 mm | 130 mm |
| Height | 100 mm | 100 mm | 100 mm |
| Depth | 75 mm | 75 mm | 75 mm |
| **Weights** | | | |
| Weight, approx. | 550 g | 500 g | 585 g |

| Article number | 6ES7217-1AG40-0XB0<br><br>CPU 1217C, DC/DC/DC, 14DI/10DQ/2AI/2AQ |
|---|---|
| **General information** | |
| Product type designation | CPU 1217C DC/DC/DC |
| Firmware version | V4.7 |
| **Engineering with** | |
| • ● Programming package | STEP 7 V20 or higher |

| Article number | 6ES7217-1AG40-0XB0<br><br>CPU 1217C, DC/DC/DC, 14DI/10DQ/2AI/2AQ |
|---|---|
| **Supply voltage** | |
| Rated value (DC) | |
| • ● 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+** | |
| • ● 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) | 600 mA; CPU only |
| Current consumption, max. | 1 600 mA; CPU with all expansion modules |
| Inrush current, max. | 12 A; at 28.8 V DC |
| $I^2t$ | 0.5 $A^2 \cdot s$ |
| **Output current** | |
| for backplane bus (5 V DC), max. | 1 600 mA; Max. 5 V DC for SM and CM |
| **Encoder supply** | |

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|---|---|
| **24 V encoder supply** | |
| • ● 24 V | L+ minus 4 V DC min. |
| **Power loss** | |
| Power loss, typ. | 12 W |
| **Memory** | |
| **Work memory** | |
| • ● integrated | 250 kbyte |
| **Load memory** | |
| • ● integrated | 4 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 |
| for word operations, typ. | 1.7 µs; / instruction |
| for floating point arithmetic, typ. | 2.3 µs; / Operation |

| Article number | 6ES7217-1AG40-0XB0<br><br>CPU 1217C, DC/DC/DC, 14DI/10DQ/2AI/2AQ |
|---|---|
| **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. | 8 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, 8 signal modules |

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|---|---|
| • ● number of expansion boards (SB, CB, BB) | 1 |
| • ● number of signal modules (SM) | 8 |
| • ● number of communications modules (CM) | 3 |
| **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 | 14; Integrated |
| • ● of which inputs usable for technological functions | 6; HSC (High Speed Counting) |
| Sourcing/sinking input | Yes |
| **Number of simultaneously controllable inputs** | |
| **all mounting positions** | |
| • — up to 40 °C, max. | 14 |
| **Input voltage** | |

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|---|---|
| • ● 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 | 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms |
| • — 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 & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 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 | 10 |

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|---|---|
| • ● of which high-speed outputs | 4; 100 kHz Pulse Train Output |
| Limitation of inductive shutdown voltage to | L+ (-48 V) |
| **Switching capacity of the outputs** | |
| • ● with resistive load, max. | 0.5 A |
| • ● on lamp load, max. | 5 W |
| **Output voltage** | |
| • ● for signal "0", max. | 0.1 V; with 10 kOhm load |
| • ● for signal "1", min. | 20 V |
| **Output current** | |
| • ● for signal "1" rated value | 0.5 A |
| • ● for signal "0" residual current, max. | 0.1 mA |
| **Output delay with resistive load** | |
| • ● "0" to "1", max. | 1 µs |
| • ● "1" to "0", max. | 5 µs |
| **Switching frequency** | |
| • ● of the pulse outputs, with resistive load, max. | 100 kHz |
| **Relay outputs** | |

| Article number | 6ES7217-1AG40-0XB0<br><br>CPU 1217C, DC/DC/DC, 14DI/10DQ/2AI/2AQ |
|---|---|
| • ● Number of relay outputs | 0 |
| **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 | 2 |
| **Output ranges, current** | |
| • ● 0 to 20 mA | Yes |
| **Analog value generation for the inputs** | |

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|---|---|
| **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 |
| **Analog value generation for the outputs** | |
| **Integration and conversion time/resolution per channel** | |
| • ● Resolution with overrange (bit including sign), max. | 10 bit |
| **Encoder** | |
| **Connectable encoders** | |
| • ● 2-wire sensor | Yes |
| **Interfaces** | |
| Number of PROFINET interfaces | 1 |
| **1. Interface** | |
| Interface type | PROFINET |
| Isolated | Yes |
| automatic detection of transmission rate | Yes |

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|---|---|
| Autonegotiation | Yes |
| Autocrossing | Yes |
| **Interface types** | |
| • ● RJ 45 (Ethernet) | Yes |
| • ● Number of ports | 2 |
| • ● integrated switch | Yes |
| **Protocols** | |
| • ● PROFINET IO Controller | Yes |
| • ● PROFINET IO Device | Yes |
| • ● SIMATIC communication | Yes |
| • ● Open IE communication | Yes; Optionally also encrypted |
| • ● Web server | Yes |
| • ● Media redundancy | Yes |
| **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 |

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|---|---|
| • — 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** | |

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|---|---|
| • — MRP | Yes; as MRP redundancy manager and/or MRP client |
| • — 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 |
| **OPC UA** | |
| • ● Runtime license required | Yes; "Basic" license required |
| • ● OPC UA Server | Yes; data access (read, write, subscribe), method call, runtime license required |

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|---|---|
| • — 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** | |
| **S7 communication** | |
| • ● supported | Yes |

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|---|---|
| • ● 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 / 68 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** | |

| Article number | 6ES7217-1AG40-0XB0<br><br>CPU 1217C, DC/DC/DC, 14DI/10DQ/2AI/2AQ |
|---|---|
| • ● 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** | |
| Counter | |
| • ● Number of counters | 6 |
| • ● Counting frequency, max. | 1 MHz |
| Frequency measurement | Yes |
| controlled positioning | Yes |
| Number of position-controlled positioning axes, max. | 8 |
| Number of positioning axes via pulse-direction interface | 4; With integrated outputs |
| PID controller | Yes |
| Number of alarm inputs | 4 |

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|---|---|
| Number of pulse outputs | 4 |
| Limit frequency (pulse) | 1 MHz |
| **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 |
| • ● 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 |

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|---|---|
| **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** | |

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|---|---|
| IP degree of protection | IP20 |
| **Standards, approvals, certificates** | |
| Siemens Eco Profile (SEP) | Siemens EcoTech |
| CE mark | Yes |
| UL approval | Yes |
| cULus | Yes |
| FM approval | Yes |
| RCM (formerly C-TICK) | Yes |
| KC approval | Yes |
| Marine approval | Yes |
| **Ecological footprint** | |
| • ● environmental product declaration | Yes; type II acc. to ISO 14021 |
| **Global warming potential** | |
| • — global warming potential, (total) [CO2 eq] | 143 kg |
| • — global warming potential, (during production) [CO2 eq] | 22 kg |
| • — global warming potential, (during operation) [CO2 eq] | 123 kg |

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|---|---|
| • — global warming potential, (after end of life cycle) [CO2 eq] | -1.5 kg |
| **Ambient conditions** | |
| **Free fall** | |
| • ● Fall height, max. | 0.3 m; five times, in product package |
| **Ambient temperature during operation** | |
| • ● min. | -20 °C |
| • ● max. | 60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical |
| • ● 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 |

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|---|---|
| • ● 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** | |

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|---|---|
| **Programming** | |
| **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 |
| • ● User administration | Yes; device-wide |
| • ● Number of users | 42 |

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|---|---|
| • ● Number of groups | 14 |
| • ● Number of roles | 20 |
| **Cycle time monitoring** | |
| • ● adjustable | Yes |
| **Dimensions** | |
| Width | 150 mm |
| Height | 100 mm |
| Depth | 75 mm |
| **Weights** | |
| Weight, approx. | 530 g |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| **General information** | | | | | | |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2 AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2 AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14 DI/10DO/2AI/2 AO** |
| Product type designation | CPU 1212FC DC/DC/DC | CPU 1212FC DC/DC/relay | CPU 1214FC DC/DC/DC | CPU 1214FC DC/DC/Relay | CPU 1215FC DC/DC/DC | CPU 1215FC DC/DC/relay |
| Firmware version | V4.7 | V4.7 | V4.7 | V4.7 | V4.7 | V4.7 |
| **Engineering with** | | | | | | |
| • ● Programming package | STEP 7 V20 or higher | STEP 7 V20 or higher | STEP 7 V20 or higher | STEP 7 V20 or higher | STEP 7 V20 or higher | STEP 7 V20 or higher |
| **Supply voltage** | | | | | | |
| Rated value (DC) | | | | | | |
| • ● 24 V DC | Yes | Yes | Yes | Yes | Yes | Yes |
| permissible range, lower limit (DC) | 20.4 V | 20.4 V | 20.4 V | 20.4 V | 20.4 V | 20.4 V |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| permissible range, upper limit (DC) | 28.8 V | 28.8 V | 28.8 V | 28.8 V | 28.8 V | 28.8 V |
| Reverse polarity protection | Yes | Yes | Yes | Yes | Yes | Yes |
| **Load voltage L+** | | | | | | |
| • ● Rated value (DC) | 24 V | 24 V | 24 V | 24 V | 24 V | 24 V |
| • ● permissible range, lower limit (DC) | 20.4 V | 20.4 V | 20.4 V | 20.4 V | 20.4 V | 20.4 V |
| • ● permissible range, upper limit (DC) | 28.8 V | 28.8 V | 28.8 V | 28.8 V | 28.8 V | 28.8 V |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| **Input current** | | | | | | |
| Current consumption (rated value) | 400 mA; CPU only | 400 mA; CPU only | 500 mA; CPU only | 500 mA; CPU only | 500 mA; CPU only | 500 mA; CPU only |
| Current consumption, max. | 1 200 mA; CPU with all expansion modules | 1 200 mA; CPU with all expansion modules | 1 500 mA; CPU with all expansion modules | 1 500 mA; CPU with all expansion modules | 1 500 mA; CPU with all expansion modules | 1 500 mA; CPU with all expansion modules |
| Inrush current, max. | 12 A; at 28.8 V DC | 12 A; at 28.8 V | 12 A; at 28.8 V | 12 A; at 28.8 V | 12 A; at 28.8 V DC | 12 A; at 28.8 V DC |
| $I^2t$ | 0.5 $A^2 \cdot s$ | 0.8 $A^2 \cdot s$ | 0.5 $A^2 \cdot s$ | 0.8 $A^2 \cdot s$ | 0.5 $A^2 \cdot s$ | 0.5 $A^2 \cdot s$ |
| **Output current** | | | | | | |
| for backplane bus (5 V DC), max. | 1 000 mA; Max. 5 | 1 000 mA; Max. 5 | 1 600 mA; Max. 5 | 1 600 mA; Max. 5 | 1 600 mA; Max. 5 V DC for | 1 600 mA; Max. 5 V DC for SM and CM |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| | V DC for SM and CM | V DC for SM and CM | V DC for SM and CM | V DC for SM and CM | SM and CM | |
| **Encoder supply** | | | | | | |
| **24 V encoder supply** | | | | | | |
| • ● 24 V | L+ minus 4 V DC min. | L+ minus 4 V DC min. | L+ minus 4 V DC min. | L+ minus 4 V DC min. | L+ minus 4 V DC min. | L+ minus 4 V DC min. |
| **Power loss** | | | | | | |
| Power loss, typ. | 9 W | 9 W | 12 W | 12 W | 12 W | 12 W |
| **Memory** | | | | | | |
| **Work memory** | | | | | | |
| • ● integrated | 150 kbyte | 150 kbyte | 200 kbyte | 200 kbyte | 250 kbyte | 250 kbyte |
| **Load memory** | | | | | | |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| • ● integrated | 2 Mbyte | 2 Mbyte | 4 Mbyte | 4 Mbyte | 4 Mbyte | 4 Mbyte |
| • ● Plug-in (SIMATIC Memory Card), max. | with SIMATIC memory card | with SIMATIC memory card | with SIMATIC memory card | with SIMATIC memory card | with SIMATIC memory card | with SIMATIC memory card |
| **Backup** | | | | | | |
| • ● present | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● maintenance-free | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● without battery | Yes | Yes | Yes | Yes | Yes | Yes |
| **CPU processing times** | | | | | | |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| for bit operations, typ. | 0.08 µs; / instruction | 0.08 µs; / instruction | 0.08 µs; / instruction | 0.08 µs; / instruction | 0.08 µs; / instruction | 0.08 µs; / instruction |
| for word operations, typ. | 1.7 µs; / instruction | 1.7 µs; / instruction | 1.7 µs; / instruction | 1.7 µs; / instruction | 1.7 µs; / instruction | 1.7 µs; / instruction |
| for floating point arithmetic, typ. | 2.3 µs; / instruction | 2.3 µs; / instruction | 2.3 µs; / instruction | 2.3 µs; / instruction | 2.3 µs; / instruction | 2.3 µs; / instruction |
| **CPU-blocks** | | | | | | |
| Number of blocks (total) | DBs, FCs, FBs, counters and timers. The maximum number of | DBs, FCs, FBs, counters and timers. The maximum number of | DBs, FCs, FBs, counters and timers. The maximum number of | DBs, FCs, FBs, counters and timers. The maximum number of | DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges | DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| | addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used | addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used | addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used | addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used | from 1 to 65535. There is no restriction, the entire working memory can be used | memory can be used |
| **OB** | | | | | | |
| • ● Number, max. | Limited only by RAM for code | Limited only by RAM for code | Limited only by RAM for code | Limited only by RAM for code | Limited only by RAM for code | Limited only by RAM for code |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| **Data areas and their retentivity** | | | | | | |
| Retentive data area (incl. timers, counters, flags), max. | 14 kbyte | 14 kbyte | 14 kbyte | 14 kbyte | 14 kbyte | 14 kbyte |
| **Flag** | | | | | | |
| • ● Size, max. | 4 kbyte ; Size of bit memory address area | 4 kbyte ; Size of bit memory address area | 8 kbyte ; Size of bit memory address area | 8 kbyte ; Size of bit memory address area | 8 kbyte; Size of bit memory address area | 8 kbyte; Size of bit memory address area |
| **Local data** | | | | | | |
| • ● per priority class, max. | 16 kbyte; Priority class 1 (program | 16 kbyte; Priority class 1 (program | 16 kbyte; Priority class 1 (program | 16 kbyte; Priority class 1 (program | 16 kbyte; Priority class 1 (program cycle): 16 KB, | 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| | cycle): 16 KB, priority class 2 to 26: 6 KB | cycle): 16 KB, priority class 2 to 26: 6 KB | cycle): 16 KB, priority class 2 to 26: 6 KB | cycle): 16 KB, priority class 2 to 26: 6 KB | priority class 2 to 26: 6 KB | |
| **Address area** | | | | | | |
| **Process image** | | | | | | |
| • ● Inputs, adjustable | 1 kbyte | 1 kbyte | 1 kbyte | 1 kbyte | 1 kbyte | 1 kbyte |
| • ● Outputs, adjustable | 1 kbyte | 1 kbyte | 1 kbyte | 1 kbyte | 1 kbyte | 1 kbyte |
| **Hardware configuration** | | | | | | |
| Number of modules per system, max. | 3 comm. modules, 1 | 3 comm. modules, 1 | 3 comm. modules, 1 | 3 comm. modules, 1 | 3 comm. modules, 1 signal board, 8 | 3 comm. modules, 1 signal board, 8 signal modules |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| | signal board, 2 signal modules | signal board, 2 signal modules | signal board, 8 signal modules | signal board, 8 signal modules | signal modules | |
| • ● number of expansion boards (SB, CB, BB) | 1 | 1 | 1 | 1 | 1 | 1 |
| • ● number of signal modules (SM) | 2 | 2 | 8 | 8 | 8 | 8 |
| • ● number of communications modules (CM) | 3 | 3 | 3 | 3 | 3 | 3 |
| **Time of day** | | | | | | |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| **Clock** | | | | | | |
| • ● Hardware clock (real-time) | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● Backup time | 480 h; Typical | 480 h; Typical | 480 h; Typical | 480 h; Typical | 480 h; Typical | 480 h; Typical |
| • ● Deviation per day, max. | 60 s/month at 25 °C | ±60 s/month at 25 °C | ±60 s/month at 25 °C | ±60 s/month at 25 °C | ±60 s/month at 25 °C | ±60 s/month at 25 °C |
| **Digital inputs** | | | | | | |
| Number of digital inputs | 8; Integrated | 8; Integrated | 14; Integrated | 14; Integrated | 14; Integrated | 14; Integrated |
| • ● of which inputs usable for technolo | 6; HSC (High Speed Counting) | 6; HSC (High Speed Counting) | 6; HSC (High Speed Counting) | 6; HSC (High Speed Counting) | 6; HSC (High Speed Counting) | 6; HSC (High Speed Counting) |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| gical functions | | | | | | |
| Sourcing/sinking input | Yes | Yes | Yes | Yes | Yes | Yes |
| **Number of simultaneously controllable inputs** | | | | | | |
| **all mounting positions** | | | | | | |
| • — up to 40 °C, max. | 8 | 8 | 14 | 14 | 14 | 14 |
| **Input voltage** | | | | | | |
| • ● Rated value (DC) | 24 V | 24 V | 24 V | 24 V | 24 V | 24 V |
| • ● for signal "0" | 5 V DC at 1 mA | 5 V DC at 1 mA | 5 V DC at 1 mA | 5 V DC at 1 mA | 5 V DC at 1 mA | 5 V DC at 1 mA |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| • ● for signal "1" | 15 V DC at 2.5 mA | 15 V DC at 2.5 mA | 15 V DC at 2.5 mA | 15 V DC at 2.5 mA | 15 V DC at 2.5 mA | 15 V DC at 2.5 mA |
| **Input delay (for rated value of input voltage)** | | | | | | |
| **for standard inputs** | | | | | | |
| • — parameterizable | 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / | 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / | 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / | 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / | 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms | Yes; 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| | 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms | 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms | 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms | 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms | | |
| • — at "0" to "1", min. | 0.2 ms | 0.2 ms | 0.2 ms | 0.2 ms | 0.2 ms | 0.2 ms |
| • — at "0" to "1", max. | 12.8 ms | 12.8 ms | 12.8 ms | 12.8 ms | 12.8 ms | 12.8 ms |
| **for interrupt inputs** | | | | | | |
| • — parameterizable | Yes | Yes | Yes | Yes | Yes | Yes |
| **for technological functions** | | | | | | |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| • — parameterizable | Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz | Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz | Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz | Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz | Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz | Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz |
| **Cable length** | | | | | | |
| • ● shielded, max. | 500 m; 50 m for technological functions | 500 m; 50 m for technological functions | 500 m; 50 m for technological functions | 500 m; 50 m for technological functions | 500 m; 50 m for technological functions | 500 m; 50 m for technological functions |
| • ● unshielded, max. | 300 m; for technological | 300 m; for technological | 300 m; for technological | 300 m; for technological | 300 m; for technological | 300 m; for technological functions: No |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| | functions: No | functions: No | functions: No | functions: No | functions: No | |
| **Digital outputs** | | | | | | |
| Number of digital outputs | 6 | 6; Relays | 10 | 10; Relays | 10 | 10; Relays |
| • ● of which high-speed outputs | 4; 100 kHz Pulse Train Output | | 4; 100 kHz Pulse Train Output | | 4; 100 kHz Pulse Train Output | |
| Limitation of inductive shutdown voltage to | L+ (-48 V) | | L+ (-48 V) | | L+ (-48 V) | |
| **Switching capacity of the outputs** | | | | | | |
| • ● with resistive load, max. | 0.5 A | 2 A | 0.5 A | 2 A | 0.5 A | 2 A |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| • ● on lamp load, max. | 5 W | 30 W with DC, 200 W with AC | 5 W | 30 W with DC, 200 W with AC | 5 W | 30 W with DC, 200 W with AC |
| **Output voltage** | | | | | | |
| • ● for signal "0", max. | 0.1 V; with 10 kOhm load | | 0.1 V; with 10 kOhm load | | 0.1 V; with 10 kOhm load | |
| • ● for signal "1", min. | 20 V | | 20 V | | 20 V | |
| **Output current** | | | | | | |
| • ● for signal "1" rated value | 0.5 A | | 0.5 A | | 0.5 A | |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| • ● for signal "0" residual current, max. | 0.1 mA | | 0.1 mA | | 0.1 mA | |
| **Output delay with resistive load** | | | | | | |
| • ● "0" to "1", max. | 1 µs | 10 ms; max. | 1 µs | 10 ms; max. | 1 µs | 10 ms; max. |
| • ● "1" to "0", max. | 5 µs | 10 ms; max. | 5 µs | 10 ms; max. | 5 µs | 10 ms; max. |
| **Switching frequency** | | | | | | |
| • ● of the pulse outputs, with resistive | 100 kHz | | 100 kHz | | 100 kHz | |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| load, max. | | | | | | |
| **Relay outputs** | | | | | | |
| • ● Number of relay outputs | 0 | 6 | 0 | 10 | 0 | 10 |
| • ● Number of operating cycles, max. | | mechanically 10 million, at rated load voltage 100 000 | | mechanically 10 million, at rated load voltage 100 000 | | mechanically 10 million, at rated load voltage 100 000 |
| **Cable length** | | | | | | |
| • ● shielded, max. | 500 m | 500 m | 500 m | 500 m | 500 m | 500 m |
| • ● unshielded, max. | 150 m | 150 m | 150 m | 150 m | 150 m | 150 m |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| **Analog inputs** | | | | | | |
| Number of analog inputs | 2 | 2 | 2 | 2 | 2 | 2 |
| **Input ranges** | | | | | | |
| • ● Voltage | Yes | Yes | Yes | Yes | Yes | Yes |
| **Input ranges (rated values), voltages** | | | | | | |
| • ● 0 to +10 V | Yes | Yes | Yes | Yes | Yes | Yes |
| • — Input resistance (0 to 10 V) | ≥100k ohms | ≥100k ohms | ≥100k ohms | ≥100k ohms | ≥100k ohms | ≥100k ohms |
| **Cable length** | | | | | | |
| • ● shielded, max. | 100 m; twisted and | 100 m; twisted and | 100 m; twisted and | 100 m; twisted and | 100 m; twisted and shielded | 100 m; twisted and shielded |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| | shielded | shielded | shielded | shielded | | |
| **Analog outputs** | | | | | | |
| Number of analog outputs | 0 | 0 | 0 | 0 | 2 | 2 |
| **Output ranges, current** | | | | | | |
| • ● 0 to 20 mA | | | | | Yes | Yes |
| **Analog value generation for the inputs** | | | | | | |
| **Integration and conversion time/resolution per channel** | | | | | | |
| • ● Resolution with overran | 10 bit | 10 bit | 10 bit | 10 bit | 10 bit | 10 bit |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| ge (bit including sign), max. | | | | | | |
| • ● Integration time, parameterizable | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● Conversion time (per channel) | 625 µs | 625 µs | 625 µs | 625 µs | 625 µs | 625 µs |
| **Analog value generation for the outputs** | | | | | | |
| **Integration and conversion time/resolution per channel** | | | | | | |
| • ● Resolution | | | | | 10 bit | 10 bit |

| Article number | 6ES7212-1AF40-0XB0 | 6ES7212-1HF40-0XB0 | 6ES7214-1AF40-0XB0 | 6ES7214-1HF40-0XB0 | 6ES7215-1AF40-0XB0 | 6ES7215-1HF40-0XB0 |
|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| with overrange (bit including sign), max. | | | | | | |
| **Encoder** | | | | | | |
| **Connectable encoders** | | | | | | |
| • ● 2-wire sensor | Yes | Yes | Yes | Yes | Yes | Yes |
| **Interfaces** | | | | | | |
| Number of PROFINET interfaces | 1 | 1 | 1 | 1 | 1 | 1 |
| **1. Interface** | | | | | | |
| Interface type | PROFINET | PROFINET | PROFINET | PROFINET | PROFINET | PROFINET |
| Isolated | Yes | Yes | Yes | Yes | Yes | Yes |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| automatic detection of transmission rate | Yes | Yes | Yes | Yes | Yes | Yes |
| Autonegotiation | Yes | Yes | Yes | Yes | Yes | Yes |
| Autocrossing | Yes | Yes | Yes | Yes | Yes | Yes |
| **Interface types** | | | | | | |
| • ● RJ 45 (Ethernet) | Yes | | Yes | Yes | Yes | Yes |
| • ● Number of ports | 1 | 1 | 1 | 1 | 2 | 2 |
| • ● integrated switch | No | No | No | No | Yes | Yes |
| **Protocols** | | | | | | |
| • ● PROFINET IO | Yes | Yes | Yes | Yes | Yes | Yes |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| Controller | | | | | | |
| • ● PROFINET IO Device | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● SIMATIC communication | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● Open IE communication | Yes; Optionally also encrypted | Yes; Optionally also encrypted | Yes; Optionally also encrypted | Yes; Optionally also encrypted | Yes; Optionally also encrypted | Yes; Optionally also encrypted |
| • ● Web server | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● Media redundancy | No | No | No | No | Yes; as MRP client | Yes |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| **PROFINET IO Controller** | | | | | | |
| • ● Transmission rate, max. | 100 Mbit/s | 100 Mbit/s | 100 Mbit/s | 100 Mbit/s | 100 Mbit/s | 100 Mbit/s |
| **Services** | | | | | | |
| • — PG/OP communication | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected |
| • — Isochronous mode | No | No | No | No | No | No |
| • — IRT | No | No | No | No | No | No |

| Article number | 6ES7212-1AF40-0XB0 | 6ES7212-1HF40-0XB0 | 6ES7214-1AF40-0XB0 | 6ES7214-1HF40-0XB0 | 6ES7215-1AF40-0XB0 | 6ES7215-1HF40-0XB0 |
|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| • — PROFIenergy | No | No | No | No | No | No |
| • — Prioritized startup | Yes | Yes | Yes | Yes | Yes | Yes |
| • — Number of IO devices with prioritized startup, max. | 16 | 16 | 16 | 16 | 16 | 16 |
| • — Number of connectable IO Devices, max. | 16 | 16 | 16 | 16 | 16 | 16 |
| • — Number of connect | 16 | 16 | 16 | 16 | 16 | 16 |

| Article number | 6ES7212-1AF40-0XB0 | 6ES7212-1HF40-0XB0 | 6ES7214-1AF40-0XB0 | 6ES7214-1HF40-0XB0 | 6ES7215-1AF40-0XB0 | 6ES7215-1HF40-0XB0 |
|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| able IO Devices for RT, max. | | | | | | |
| • — of which in line, max. | 16 | 16 | 16 | 16 | 16 | 16 |
| • — Activation/deactivation of IO Devices | Yes | Yes | Yes | Yes | Yes | Yes |
| • — Number of IO Devices that can be simultaneously activated/deactivated, max. | 8 | 8 | 8 | 8 | 8 | 8 |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| • — 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. | 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. | 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. | 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. | 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. | 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. |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| **PROFINET IO Device** | | | | | | |
| **Services** | | | | | | |
| • — PG/OP communication | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected | Yes; encryption with TLS V1.3 pre-selected |
| • — Isochronous mode | No | No | No | No | No | No |
| • — IRT | No | No | No | No | No | No |
| • — PROFIenergy | Yes | Yes | Yes | Yes | Yes | Yes |
| • — Shared device | Yes | Yes | Yes | Yes | Yes | Yes |

| Article number | 6ES7212-1AF40-0XB0 | 6ES7212-1HF40-0XB0 | 6ES7214-1AF40-0XB0 | 6ES7214-1HF40-0XB0 | 6ES7215-1AF40-0XB0 | 6ES7215-1HF40-0XB0 |
|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| • — Number of IO Controllers with shared device, max. | 2 | 2 | 2 | 2 | 2 | 2 |
| **Protocols** | | | | | | |
| Supports protocol for PROFINET IO | Yes | Yes | Yes | Yes | Yes | Yes |
| PROFIsafe | Yes | Yes | Yes | Yes | Yes | Yes |
| PROFIBUS | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| OPC UA | Yes; OPC UA Server | Yes; OPC UA Server | Yes; OPC UA Server | Yes; OPC UA Server | Yes; OPC UA Server | Yes; OPC UA Server |
| AS-Interface | Yes; CM 1243-2 required | Yes; CM 1243-2 required | Yes; CM 1243-2 required | Yes; CM 1243-2 required | Yes; CM 1243-2 required | Yes; CM 1243-2 required |
| **Protocols (Ethernet)** | | | | | | |
| • ● TCP/IP | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● DHCP | No | No | No | No | No | No |
| • ● SNMP | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● DCP | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● LLDP | Yes | Yes | Yes | Yes | Yes | Yes |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| **Redundancy mode** | | | | | | |
| **Media redundancy** | | | | | | |
| • — MRP | No | No | No | No | Yes; as MRP redundancy manager and/or MRP client | Yes; as MRP redundancy manager and/or MRP client |
| • — MRPD | No | No | No | No | No | No |
| **SIMATIC communication** | | | | | | |
| • ● S7 routing | Yes | Yes | Yes | Yes | Yes | Yes |
| **Open IE communication** | | | | | | |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| • ● TCP/IP | Yes | Yes | Yes | Yes | Yes | Yes |
| • — Data length, max. | 8 kbyte | 8 kbyte | 8 kbyte | 8 kbyte | 8 kbyte | 8 kbyte |
| • ● ISO-on-TCP (RFC1006) | Yes | Yes | Yes | Yes | Yes | Yes |
| • — Data length, max. | 8 kbyte | 8 kbyte | 8 kbyte | 8 kbyte | 8 kbyte | 8 kbyte |
| • ● UDP | Yes | Yes | Yes | Yes | Yes | Yes |
| • — Data length, max. | 1 472 byte | 1 472 byte | 1 472 byte | 1 472 byte | 1 472 byte | 1 472 byte |
| **Web server** | | | | | | |
| • ● supported | Yes | Yes | Yes | Yes | Yes | Yes |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| • ● User-defined websites | Yes | Yes | Yes | Yes | Yes | Yes |
| **OPC UA** | | | | | | |
| • ● Runtime license required | Yes; "Basic" license required | Yes; "Basic" license required | Yes; "Basic" license required | Yes; "Basic" license required | Yes; "Basic" license required | Yes; "Basic" license required |
| • ● OPC UA Server | Yes; data access (read, write, subscribe), method call, runtime license required | Yes; data access (read, write, subscribe), method call, runtime license required | Yes; data access (read, write, subscribe), method call, runtime license required | Yes; data access (read, write, subscribe), method call, runtime license required | Yes; data access (read, write, subscribe), method call, runtime license required | Yes; data access (read, write, subscribe), method call, runtime license required |
| • — Application | Available | Available | Available | Available | Available security | Available security policies: |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| authentication | security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 | security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 | security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 | security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 | policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 | None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 |
| • — User authentication | "anonymous" or by user name & password | "anonymous" or by user name & password | "anonymous" or by user name & password | "anonymous" or by user name & password | "anonymous" or by user name & password | "anonymous" or by user name & password |
| • — Number of sessions, max. | 10 | 10 | 10 | 10 | 10 | 10 |
| • — Number of | 5 | 5 | 5 | 5 | 5 | 5 |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| subscriptions per session, max. | | | | | | |
| • — Sampling interval, min. | 100 ms | 100 ms | 100 ms | 100 ms | 100 ms | 100 ms |
| • — Publishing interval, min. | 200 ms | 200 ms | 200 ms | 200 ms | 200 ms | 200 ms |
| • — Number of server methods, max. | 20 | 20 | 20 | 20 | 20 | 20 |
| • — Number of monitored items, recomm | 1 000 | 1 000 | 1 000 | 1 000 | 1 000 | 1 000 |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| ended max. | | | | | | |
| • — Number of server interfaces, max. | 2 | 2 | 2 | 2 | 2 | 2 |
| • — Number of nodes for user-defined server interfaces, max. | 2 000 | 2 000 | 2 000 | 2 000 | 2 000 | 2 000 |
| **Further protocols** | | | | | | |
| • ● MODBUS | Yes | Yes | Yes | Yes | Yes | Yes |
| **Communication functions** | | | | | | |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| **S7 communication** | | | | | | |
| • ● supported | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● as server | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● as client | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● User data per job, max. | See online help (S7 communication, user data size) | See online help (S7 communication, user data size) | See online help (S7 communication, user data size) | See online help (S7 communication, user data size) | See online help (S7 communication, user data size) | See online help (S7 communication, user data size) |
| **Number of connections** | | | | | | |
| • ● overall | PG Connec | PG Connec | PG Connec | PG Connec | PG Connectio | PG Connections: 4 reserved / 4 |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| | tions: 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 | tions: 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 | tions: 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 | tions: 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 | ns: 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 | 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 / 68 max |

| Article number | 6ES7212-1AF40-0XB0 | 6ES7212-1HF40-0XB0 | 6ES7214-1AF40-0XB0 | 6ES7214-1HF40-0XB0 | 6ES7215-1AF40-0XB0 | 6ES7215-1HF40-0XB0 |
|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2 AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2 AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14 DI/10DO/2AI/2 AO** |
| | max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 68 max | max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 68 max | max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 68 max | max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 68 max | Connections: 34 reserved / 68 max | |
| **Test commissioning functions** | | | | | | |
| **Status/control** | | | | | | |
| • ● Status /control variable | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● Variables | inputs/ outputs, | inputs/ outputs, | inputs/outputs, | inputs/outputs, | inputs/outputs, bit | inputs/outputs, bit memories, |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| | bit memories, DBs, peripheral I/Os (without fail-safe), times, counters | bit memories, DBs, peripheral I/Os (without fail-safe), times, counters | bit memories, DBs, peripheral I/Os (without fail-safe), times, counters | bit memories, DBs, peripheral I/Os (without fail-safe), times, counters | memories, DBs, peripheral I/Os (without fail-safe), times, counters | DBs, peripheral I/Os (without fail-safe), times, counters |
| **Forcing** | | | | | | |
| • ● Forcing | Yes; peripheral inputs/ outputs (without fail-safe) | Yes; peripheral inputs/ outputs (without fail-safe) | Yes; peripheral inputs/outputs (without fail-safe) | Yes; peripheral inputs/outputs (without fail-safe) | Yes; peripheral inputs/outputs (without fail-safe) | Yes; peripheral inputs/outputs (without fail-safe) |
| **Diagnostic buffer** | | | | | | |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| • ● present | Yes | Yes | Yes | Yes | Yes | Yes |
| **Traces** | | | | | | |
| • ● Number of configurable Traces | 2 | 2 | 2 | 2 | 2 | 2 |
| • ● Memory size per trace, max. | 512 kbyte | 512 kbyte | 512 kbyte | 512 kbyte | 512 kbyte | 512 kbyte |
| **Interrupts/diagnostics/status information** | | | | | | |
| **Diagnostics indication LED** | | | | | | |
| • ● RUN/STOP LED | Yes | Yes | Yes | Yes | Yes | Yes |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| • ● ERROR LED | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● MAINT LED | Yes | Yes | Yes | Yes | Yes | Yes |
| **Integrated Functions** | | | | | | |
| Counter | | | | | | |
| • ● Number of counters | 6 | 6 | 6 | 6 | 6 | 6 |
| • ● Counting frequency, max. | 100 kHz | 100 kHz | 100 kHz | 100 kHz | 100 kHz | 100 kHz |
| Frequency measurement | Yes | Yes | Yes | Yes | Yes | Yes |
| controlled positioning | Yes | Yes | Yes | Yes | Yes | Yes |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| Number of position-controlled positioning axes, max. | 8 | 8 | 8 | 8 | 8 | 8 |
| Number of positioning axes via pulse-direction interface | Up to 4 with SB 1222 | Up to 4 with SB 1222 | 4; With integrated outputs | Up to 4 with SB 1222 | 4; With integrated outputs | Up to 4 with SB 1222 |
| PID controller | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of alarm inputs | 4 | 4 | 4 | 4 | 4 | 4 |
| Number of pulse outputs | 4 | | 4 | | 4 | |
| Limit frequency (pulse) | 100 kHz | | 100 kHz | | 100 kHz | |
| **Potential separation** | | | | | | |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| **Potential separation digital inputs** | | | | | | |
| • ● Potential separation digital inputs | No | 500 V AC for 1 minute | No | 500 V AC for 1 minute | No | 500 V AC for 1 minute |
| • ● between the channels, in groups of | 1 | 1 | 1 | 1 | 1 | 1 |
| **Potential separation digital outputs** | | | | | | |
| • ● Potential separation digital outputs | Yes | Relays | Yes | Relays | Yes | Relays |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| • ● between the channels | No | No | No | No | No | No |
| • ● between the channels, in groups of | 1 | 2 | 1 | 2 | 1 | 2 |
| **EMC** | | | | | | |
| **Interference immunity against discharge of static electricity** | | | | | | |
| • ● Interference immunity against discharge of static | Yes | Yes | Yes | Yes | Yes | Yes |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| electricity acc. to IEC 61000-4-2 | | | | | | |
| • — Test voltage at air discharge | 8 kV | 8 kV | 8 kV | 8 kV | 8 kV | 8 kV |
| • — Test voltage at contact discharge | 6 kV | 6 kV | 6 kV | 6 kV | 6 kV | 6 kV |
| **Interference immunity to cable-borne interference** | | | | | | |
| • ● Interference immunity on | Yes | Yes | Yes | Yes | Yes | Yes |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| supply lines acc. to IEC 61000-4-4 | | | | | | |
| • ● Interference immunity on signal cables acc. to IEC 61000-4-4 | Yes | Yes | Yes | Yes | Yes | Yes |
| **Interference immunity against voltage surge** | | | | | | |
| • ● Interference immunity on supply | Yes | Yes | Yes | Yes | Yes | Yes |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| lines acc. to IEC 61000-4-5 | | | | | | |
| **Interference immunity against conducted variable disturbance induced by high-frequency fields** | | | | | | |
| • ● Interference immunity against high-frequency radiation acc. to IEC | Yes | Yes | Yes | Yes | Yes | Yes |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| 61000-4-6 | | | | | | |
| **Emission of radio interference acc. to EN 55 011** | | | | | | |
| • ● Limit class A, for use in industrial areas | Yes; Group 1 | Yes; Group 1 | Yes; Group 1 | Yes; Group 1 | Yes; Group 1 | Yes; Group 1 |
| • ● Limit class B, for use in residential areas | Yes; When appropriate measures are used to ensure compliance with the | Yes; When appropriate measures are used to ensure compliance with the | Yes; When appropriate measures are used to ensure compliance with the | Yes; When appropriate measures are used to ensure compliance with the | Yes; When appropriate measures are used to ensure compliance with the limits for Class B according | Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| | limits for Class B according to EN 55011 | limits for Class B according to EN 55011 | limits for Class B according to EN 55011 | limits for Class B according to EN 55011 | to EN 55011 | |
| **Degree and class of protection** | | | | | | |
| IP degree of protection | IP20 | IP20 | IP20 | IP20 | IP20 | IP20 |
| **Standards, approvals, certificates** | | | | | | |
| Siemens Eco Profile (SEP) | Siemens EcoTech | Siemens EcoTech | Siemens EcoTech | Siemens EcoTech | Siemens EcoTech | Siemens EcoTech |
| CE mark | Yes | Yes | Yes | Yes | Yes | Yes |
| UL approval | Yes | Yes | Yes | Yes | Yes | Yes |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| cULus | Yes | Yes | Yes | Yes | Yes | Yes |
| FM approval | Yes | Yes | Yes | Yes | Yes | Yes |
| RCM (formerly C-TICK) | Yes | Yes | Yes | Yes | Yes | Yes |
| KC approval | Yes | Yes | Yes | Yes | Yes | Yes |
| Marine approval | Yes | Yes | Yes | Yes | Yes | Yes |
| **Ecological footprint** | | | | | | |
| • ● environmental product declaration | Yes; type II acc. to ISO 14021 | Yes; type II acc. to ISO 14021 | Yes; type II acc. to ISO 14021 | Yes; type II acc. to ISO 14021 | Yes; type II acc. to ISO 14021 | Yes; type II acc. to ISO 14021 |
| **Global warming potential** | | | | | | |
| • — global warmin | 76.4 kg | 76.4 kg | 111 kg | 111 kg | 106 kg | 106 kg |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| g potential, (total) [CO2 eq] | | | | | | |
| • — global warming potential, (during production) [CO2 eq] | 13.8 kg | 13.8 kg | 20.1 kg | 20.1 kg | 18.5 kg | 18.5 kg |
| • — global warming potential, (during operation) [CO2 eq] | 63.4 kg | 63.4 kg | 91.5 kg | 91.5 kg | 88.2 kg | 88.2 kg |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| • — global warming potential, (after end of life cycle) [CO2 eq] | -0.89 kg | -0.89 kg | -0.9 kg | -0.9 kg | -1.1 kg | -1.1 kg |
| **Highest safety class achievable in safety mode** | | | | | | |
| • ● Performance level according to ISO 13849-1 | PLe | PLe | PLe | PLe | PLe | PLe |
| • ● SIL acc. to IEC 61508 | SIL 3 | SIL 3 | SIL 3 | SIL 3 | SIL 3 | SIL 3 |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| **Ambient conditions** | | | | | | |
| **Free fall** | | | | | | |
| • ● Fall height, max. | 0.3 m; five times, in product package | 0.3 m; five times, in product package | 0.3 m; five times, in product package | 0.3 m; five times, in product package | 0.3 m; five times, in product package | 0.3 m; five times, in product package |
| **Ambient temperature during operation** | | | | | | |
| • ● min. | 0 °C | 0 °C | 0 °C | 0 °C | 0 °C | 0 °C |
| • ● max. | 55 °C; Number of simultaneously activated inputs or | 55 °C; Number of simultaneously activated inputs or | 55 °C; Number of simultaneously activated inputs or | 55 °C; Number of simultaneously activated inputs or | 55 °C; Number of simultaneously activated inputs or outputs 4 | 55 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| | 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 | 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 | 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 | 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 | or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal or 45 °C vertical | °C vertical, 8 or 6 at 55 °C horizontal or 45 °C vertical |
| • ● horizontal installation, min. | 0 °C | 0 °C | 0 °C | 0 °C | 0 °C | 0 °C |
| • ● horizontal | 55 °C | 55 °C | 55 °C | 55 °C | 55 °C | 55 °C |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| installation, max. | | | | | | |
| • ● vertical installation, min. | 0 °C | 0 °C | 0 °C | 0 °C | 0 °C | 0 °C |
| • ● vertical installation, max. | 45 °C | 45 °C | 45 °C | 45 °C | 45 °C | 45 °C |
| **Ambient temperature during storage/transportation** | | | | | | |
| • ● min. | -40 °C | -40 °C | -40 °C | -40 °C | -40 °C | -40 °C |
| • ● max. | 70 °C | 70 °C | 70 °C | 70 °C | 70 °C | 70 °C |
| **Air pressure acc. to IEC 60068-2-13** | | | | | | |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| • ● Operation, min. | 795 hPa | 795 hPa | 795 hPa | 795 hPa | 795 hPa | 795 hPa |
| • ● Operation, max. | 1 080 hPa | 1 080 hPa | 1 080 hPa | 1 080 hPa | 1 080 hPa | 1 080 hPa |
| • ● Storage/transport, min. | 660 hPa | 660 hPa | 660 hPa | 660 hPa | 660 hPa | 660 hPa |
| • ● Storage/transport, max. | 1 080 hPa | 1 080 hPa | 1 080 hPa | 1 080 hPa | 1 080 hPa | 1 080 hPa |
| **Altitude during operation relating to sea level** | | | | | | |
| • ● Installation altitude, min. | -1 000 m | -1 000 m | -1 000 m | -1 000 m | -1 000 m | -1 000 m |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| • ● Installation altitude, max. | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual |
| **Relative humidity** | | | | | | |
| • ● Operation, max. | 95 %; no condensation | 95 %; no condensation | 95 %; no condensation | 95 %; no condensation | 95 %; no condensation | 95 %; no condensation |
| **Vibrations** | | | | | | |
| • ● Vibration resistance during operation acc. to | 2 g ($m/s^2$) wall mounting, 1 g ($m/s^2$) | 2 g ($m/s^2$) wall mounting, 1 g ($m/s^2$) | 2 g ($m/s^2$) wall mounting, 1 g ($m/s^2$) | 2 g ($m/s^2$) wall mounting, 1 g ($m/s^2$) | 2 g ($m/s^2$) wall mounting, 1 g ($m/s^2$) DIN rail | 2 g ($m/s^2$) wall mounting, 1 g ($m/s^2$) DIN rail |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| IEC 60068-2-6 | DIN rail | DIN rail | DIN rail | DIN rail | | |
| • ● Operation, tested according to IEC 60068-2-6 | Yes | Yes | Yes | Yes | Yes | 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 | Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms | Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms | Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms | Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms | Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms |

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|---|---|---|---|---|---|---|
| | **CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI** | **CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI** | **CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI** | **CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI** | **CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO** | **CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO** |
| **Pollutant concentrations** | | | | | | |
| • ● SO2 at RH < 60% without condensation | S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free | S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free | S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free | S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free | S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free | S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free |
| **Configuration** | | | | | | |
| **Programming** | | | | | | |
| **Programming language** | | | | | | |
| • — LAD | Yes; incl. failsafe | Yes; incl. failsafe | Yes; incl. failsafe | Yes; incl. failsafe | Yes; incl. failsafe | Yes; incl. failsafe |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| • — FBD | Yes; incl. failsafe | Yes; incl. failsafe | Yes; incl. failsafe | Yes; incl. failsafe | Yes; incl. failsafe | Yes; incl. failsafe |
| • — SCL | Yes | Yes | Yes | Yes | Yes | Yes |
| **Know-how protection** | | | | | | |
| • ● User program protection/password protection | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● Copy protection | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● Block protection | Yes | Yes | Yes | Yes | Yes | Yes |
| **Access protection** | | | | | | |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| • ● protection of confidential configuration data | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● Protection level: Write protection | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● Protection level: Read/write protection | Yes | Yes | Yes | Yes | Yes | Yes |
| • ● Protection level: Complete | Yes | Yes | Yes | Yes | Yes | Yes |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| protection | | | | | | |
| • ● User administration | Yes; device-wide | Yes; device-wide | Yes; device-wide | Yes; device-wide | Yes; device-wide | Yes; device-wide |
| • ● Number of users | 42 | 42 | 42 | 42 | 42 | 42 |
| • ● Number of groups | 14 | 14 | 14 | 14 | 14 | 14 |
| • ● Number of roles | 20 | 20 | 20 | 20 | 20 | 20 |
| **Cycle time monitoring** | | | | | | |
| • ● adjustable | Yes | Yes | Yes | Yes | Yes | Yes |
| **Dimensions** | | | | | | |

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|---|---|---|---|---|---|---|
| | CPU 1212FC ,DC/DC/DC, 8DI/6DO/2AI | CPU 1212FC, DC/DC/Relay, 8DI/6DO/2AI | CPU 1214 FC, DC/DC/DC, 14DI/10DO/2AI | CPU 1214 FC, DC/DC/Relay, 14DI/10DO/2AI | CPU 1215 FC, DC/DC/DC, 14DI/10DO/2AI/2AO | CPU 1215 FC, DC/DC/RLY,14DI/10DO/2AI/2AO |
| Width | 90 mm | 90 mm | 110 mm | 110 mm | 130 mm | 130 mm |
| Height | 100 mm | 100 mm | 100 mm | 100 mm | 100 mm | 100 mm |
| Depth | 75 mm | 75 mm | 75 mm | 75 mm | 75 mm | 75 mm |
| **Weights** | | | | | | |
| Weight, approx. | 370 g | 385 g | 415 g | 435 g | 500 g | 585 g |