



Figure similar

SIMATIC S7-1200 G2: compact CPU 1214C DC/DC/RLY; power supply: DC 20.4-28.8 V DC; onboard I/O: 14x DI 24 V DC; 10 DO relay 2 A; memory: program 250 KB data: 750 KB, retentivity: 20 KB

| General information                 |                                          |
|-------------------------------------|------------------------------------------|
| Product type designation            | CPU 1214C DC/DC/Relay                    |
| Firmware version                    | V4.1                                     |
| • FW update possible                | Yes                                      |
| Product function                    |                                          |
| • I&M data                          | Yes; I&M0 to I&M3                        |
| • Isochronous mode                  | Yes; For PROFINET only                   |
| • SysLog                            | Yes                                      |
| Engineering with                    |                                          |
| • Programming package               | STEP 7 V21 or higher                     |
| 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                                      |
| Input current                       |                                          |
| Current consumption (rated value)   | 245 mA; CPU only                         |
| Current consumption, max.           | 1 100 mA; CPU with all expansion modules |
| Inrush current, max.                | 12 A; at 28.8 V DC                       |
| I <sup>2</sup> t                    | 0.5 A <sup>2</sup> ·s                    |
| Output current                      |                                          |
| for backplane bus (5 V DC), max.    | 1 600 mA; Max. 5 V DC for SM and CM      |
| Encoder supply                      |                                          |
| 24 V encoder supply                 |                                          |
| • 24 V                              | Yes; L+ minus 4 V DC min.                |
| • Short-circuit protection          | Yes                                      |
| • Output current, max.              | 400 mA                                   |
| Power loss                          |                                          |
| Power loss, typ.                    | 3.5 W                                    |
| Storage                             |                                          |
| Work memory                         |                                          |
| • integrated                        | 1 000 kbyte                              |
| • integrated (for program)          | 250 kbyte                                |
| • integrated (for data)             | 750 kbyte                                |

|                                                           |                                               |
|-----------------------------------------------------------|-----------------------------------------------|
| <b>Load memory</b>                                        |                                               |
| • integrated                                              | 8 Mbyte                                       |
| • Plug-in (SIMATIC Memory Card), max.                     | 32 Gbyte; with SIMATIC memory card            |
| <b>Backup</b>                                             |                                               |
| • present                                                 | Yes                                           |
| • maintenance-free                                        | Yes                                           |
| • without battery                                         | Yes                                           |
| <b>CPU processing times</b>                               |                                               |
| for bit operations, typ.                                  | 37 ns; / instruction                          |
| for word operations, typ.                                 | 30 ns; / instruction                          |
| for floating point arithmetic, typ.                       | 74 ns; / instruction                          |
| <b>CPU-blocks</b>                                         |                                               |
| Number of elements (total)                                | 4 000; Blocks (OB, FB, FC, DB) and UDTs       |
| <b>OB</b>                                                 |                                               |
| • Number of free cycle OBs                                | 100                                           |
| • Number of time alarm OBs                                | 20                                            |
| • Number of delay alarm OBs                               | 20                                            |
| • Number of cyclic interrupt OBs                          | 20; with minimum OB 3x cycle of 1 ms          |
| • Number of process alarm OBs                             | 50                                            |
| • Number of DPV1 alarm OBs                                | 3                                             |
| • Number of isochronous mode OBs                          | 1                                             |
| • Number of startup OBs                                   | 100                                           |
| • Number of asynchronous error OBs                        | 4                                             |
| • Number of synchronous error OBs                         | 2                                             |
| • Number of diagnostic alarm OBs                          | 1                                             |
| <b>Data areas and their retentivity</b>                   |                                               |
| Retentive data area (incl. timers, counters, flags), max. | 20 kbyte                                      |
| <b>Flag</b>                                               |                                               |
| • Size, max.                                              | 8 kbyte; Size of bit memory address area      |
| <b>Local data</b>                                         |                                               |
| • per priority class, max.                                | 64 kbyte; max. 16 KB per block                |
| <b>Address area</b>                                       |                                               |
| <b>I/O address area</b>                                   |                                               |
| • Inputs                                                  | 1 kbyte; All inputs are in the process image  |
| • Outputs                                                 | 1 kbyte; All outputs are in the process image |
| <b>Process image</b>                                      |                                               |
| • Inputs, adjustable                                      | 1 kbyte                                       |
| • Outputs, adjustable                                     | 1 kbyte                                       |
| <b>Hardware configuration</b>                             |                                               |
| Number of modules per system, max.                        | 10                                            |
| • number of expansion boards (SB, CB, BB)                 | 2                                             |
| • number of signal modules (SM)                           | 10; depends on the number of CMs              |
| • number of communications modules (CM)                   | 3                                             |
| <b>Time of day</b>                                        |                                               |
| <b>Clock</b>                                              |                                               |
| • Hardware clock (real-time)                              | Yes                                           |
| • Backup time                                             | 480 h; Typical                                |
| • Deviation per day, max.                                 | 2 s; at 25 °C                                 |
| <b>Clock synchronization</b>                              |                                               |
| • on Ethernet via NTP                                     | Yes                                           |
| <b>Digital inputs</b>                                     |                                               |
| Number of digital inputs                                  | 14; Integrated                                |
| • of which inputs usable for technological functions      | 8; HSC (High Speed Counting)                  |
| Sourcing/sinking input                                    | Yes                                           |
| <b>Number of simultaneously controllable inputs</b>       |                                               |
| all mounting positions                                    |                                               |
| — up to 40 °C, max.                                       | 14                                            |
| <b>Input voltage</b>                                      |                                               |

|                                                                                                                          |                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Rated value (DC)</li> <li>• for signal "0"</li> <li>• for signal "1"</li> </ul> | 24 V<br>5 V DC or 0.5 mA<br>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.                                                                                                    | 0.1 µs                                                                                                                                  |
| — at "0" to "1", max.                                                                                                    | 20 µs                                                                                                                                   |
| for interrupt inputs                                                                                                     |                                                                                                                                         |
| — Parameterizable                                                                                                        | Yes                                                                                                                                     |
| for technological functions                                                                                              |                                                                                                                                         |
| — parameterizable                                                                                                        | single phase: 6 HSCs @ 100 kHz & 2 standard @ 30 kHz, quadrature phase: 6 HSCs @ 80 kHz & 2 standard @ 20 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; Relays                                                                                                                              |
| Switching capacity of the outputs                                                                                        |                                                                                                                                         |
| • with resistive load, max.                                                                                              | 2 A                                                                                                                                     |
| • on lamp load, max.                                                                                                     | 30 W with DC, 200 W with AC                                                                                                             |
| Output delay with resistive load                                                                                         |                                                                                                                                         |
| • "0" to "1", max.                                                                                                       | 10 ms; max.                                                                                                                             |
| • "1" to "0", max.                                                                                                       | 10 ms; max.                                                                                                                             |
| Switching frequency                                                                                                      |                                                                                                                                         |
| • of the pulse outputs, with resistive load, max.                                                                        | Not recommended                                                                                                                         |
| Relay outputs                                                                                                            |                                                                                                                                         |
| • Number of relay outputs                                                                                                | 10                                                                                                                                      |
| • Number of operating cycles, max.                                                                                       | mechanically 10 million, at rated load voltage 100 000                                                                                  |
| Cable length                                                                                                             |                                                                                                                                         |
| • shielded, max.                                                                                                         | 500 m                                                                                                                                   |
| • unshielded, max.                                                                                                       | 150 m                                                                                                                                   |
| Analog inputs                                                                                                            |                                                                                                                                         |
| Number of analog inputs                                                                                                  | 0                                                                                                                                       |
| Analog outputs                                                                                                           |                                                                                                                                         |
| Number of analog outputs                                                                                                 | 0                                                                                                                                       |
| 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                                                                                                                                     |
| Autonegotiation                                                                                                          | Yes                                                                                                                                     |
| Autocrossing                                                                                                             | Yes                                                                                                                                     |
| Interface types                                                                                                          |                                                                                                                                         |
| • RJ 45 (Ethernet)                                                                                                       | Yes; X1                                                                                                                                 |
| — Transmission rate, max.                                                                                                | 100 Mbit/s                                                                                                                              |
| • Number of ports                                                                                                        | 2                                                                                                                                       |
| • integrated switch                                                                                                      | Yes                                                                                                                                     |
| Protocols                                                                                                                |                                                                                                                                         |
| • IP protocol                                                                                                            | Yes; IPv4                                                                                                                               |
| • PROFINET IO Controller                                                                                                 | Yes                                                                                                                                     |
| • PROFINET IO Device                                                                                                     | Yes                                                                                                                                     |
| • SIMATIC communication                                                                                                  | Yes                                                                                                                                     |
| • Open IE communication                                                                                                  | Yes; Optionally also encrypted                                                                                                          |

|                                                                               |                                                                                                                                                                             |
|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| • Web server                                                                  | Yes                                                                                                                                                                         |
| • Media redundancy                                                            | Yes                                                                                                                                                                         |
| <b>PROFINET IO Controller</b>                                                 |                                                                                                                                                                             |
| • Transmission rate, max.                                                     | 100 Mbit/s                                                                                                                                                                  |
| <b>Services</b>                                                               |                                                                                                                                                                             |
| — PG/OP communication                                                         | Yes; encryption with TLS V1.3 pre-selected                                                                                                                                  |
| — Isochronous mode                                                            | Yes                                                                                                                                                                         |
| — IRT                                                                         | Yes                                                                                                                                                                         |
| — Dynamic Frame Packing (DFP)                                                 | Yes                                                                                                                                                                         |
| — PROFINergy                                                                  | Yes; per user program                                                                                                                                                       |
| — Prioritized startup                                                         | Yes                                                                                                                                                                         |
| — Number of IO devices with prioritized startup, max.                         | 16                                                                                                                                                                          |
| — Number of connectable IO Devices, max.                                      | 31                                                                                                                                                                          |
| — Of which IO devices with IRT, max.                                          | 31                                                                                                                                                                          |
| — Number of connectable IO Devices for RT, max.                               | 31                                                                                                                                                                          |
| — of which in line, max.                                                      | 31                                                                                                                                                                          |
| — 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. |
| <b>Update time for IRT</b>                                                    |                                                                                                                                                                             |
| — for send cycle of 1 ms                                                      | 1 ms to 16 ms                                                                                                                                                               |
| — for send cycle of 2 ms                                                      | 2 ms to 32 ms                                                                                                                                                               |
| — for send cycle of 4 ms                                                      | 4 ms to 64 ms                                                                                                                                                               |
| <b>Update time for RT</b>                                                     |                                                                                                                                                                             |
| — for send cycle of 1 ms                                                      | 1 ms to 512 ms                                                                                                                                                              |
| — for send cycle of 2 ms                                                      | 2 ms to 512 ms                                                                                                                                                              |
| — for send cycle of 4 ms                                                      | 4 ms to 512 ms                                                                                                                                                              |
| <b>PROFINET IO Device</b>                                                     |                                                                                                                                                                             |
| <b>Services</b>                                                               |                                                                                                                                                                             |
| — PG/OP communication                                                         | Yes; encryption with TLS V1.3 pre-selected                                                                                                                                  |
| — Isochronous mode                                                            | No                                                                                                                                                                          |
| — IRT                                                                         | Yes                                                                                                                                                                         |
| — Dynamic Frame Packing (DFP)                                                 | No                                                                                                                                                                          |
| — PROFINergy                                                                  | Yes; per user program                                                                                                                                                       |
| — Prioritized startup                                                         | Yes                                                                                                                                                                         |
| — Shared device                                                               | Yes                                                                                                                                                                         |
| — Number of IO Controllers with shared device, max.                           | 2                                                                                                                                                                           |
| — Asset management record                                                     | Yes                                                                                                                                                                         |
| <b>Protocols</b>                                                              |                                                                                                                                                                             |
| Supports protocol for PROFINET IO                                             | Yes                                                                                                                                                                         |
| PROFIsafe                                                                     | No                                                                                                                                                                          |
| PROFIBUS                                                                      | No                                                                                                                                                                          |
| OPC UA                                                                        | Yes; OPC UA Server                                                                                                                                                          |
| AS-Interface                                                                  | No                                                                                                                                                                          |
| <b>Protocols (Ethernet)</b>                                                   |                                                                                                                                                                             |
| • TCP/IP                                                                      | Yes                                                                                                                                                                         |
| • DHCP                                                                        | Yes                                                                                                                                                                         |
| • SNMP                                                                        | Yes                                                                                                                                                                         |
| • DCP                                                                         | Yes                                                                                                                                                                         |
| • LLDP                                                                        | Yes                                                                                                                                                                         |
| <b>Number of connections</b>                                                  |                                                                                                                                                                             |
| • Number of connections, max.                                                 | 128; via integrated interfaces of the CPU and connected CPs / CMs                                                                                                           |
| • Number of connections reserved for ES/HMI/web                               | 10                                                                                                                                                                          |
| • Number of connections via integrated interfaces                             | 88                                                                                                                                                                          |
| • Number of S7 routing paths                                                  | 16                                                                                                                                                                          |
| <b>Redundancy mode</b>                                                        |                                                                                                                                                                             |
| • PROFINET system redundancy (S2)                                             | No                                                                                                                                                                          |
| • PROFINET system redundancy (R1)                                             | No                                                                                                                                                                          |

|                                                            |                                                                                                                                                                                                        |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Media redundancy                                           |                                                                                                                                                                                                        |
| — MRP                                                      | Yes; as MRP redundancy manager and/or MRP client                                                                                                                                                       |
| — MRP interconnection, supported                           | Yes                                                                                                                                                                                                    |
| — MRPD                                                     | Yes; Requirement: IRT                                                                                                                                                                                  |
| — Number of stations in the ring, max.                     | 50                                                                                                                                                                                                     |
| SIMATIC communication                                      |                                                                                                                                                                                                        |
| • PG/OP communication                                      | Yes; encryption with TLS V1.3 pre-selected                                                                                                                                                             |
| • S7 routing                                               | Yes                                                                                                                                                                                                    |
| • S7 communication, as server                              | Yes                                                                                                                                                                                                    |
| • S7 communication, as client                              | Yes; only PUT/GET                                                                                                                                                                                      |
| • User data per job, max.                                  | See online help (S7 communication, user data size)                                                                                                                                                     |
| Open IE communication                                      |                                                                                                                                                                                                        |
| • TCP/IP                                                   | Yes                                                                                                                                                                                                    |
| — Data length, max.                                        | 64 kbyte                                                                                                                                                                                               |
| — several passive connections per port, supported          | Yes                                                                                                                                                                                                    |
| • ISO-on-TCP (RFC1006)                                     | Yes                                                                                                                                                                                                    |
| — Data length, max.                                        | 64 kbyte                                                                                                                                                                                               |
| • UDP                                                      | Yes                                                                                                                                                                                                    |
| — Data length, max.                                        | 2 kbyte; 1 472 bytes for UDP broadcast                                                                                                                                                                 |
| • DHCP                                                     | Yes                                                                                                                                                                                                    |
| • DNS                                                      | Yes                                                                                                                                                                                                    |
| • SNMP                                                     | Yes                                                                                                                                                                                                    |
| • DCP                                                      | Yes                                                                                                                                                                                                    |
| • LLDP                                                     | Yes                                                                                                                                                                                                    |
| • Encryption                                               | Yes; Optional                                                                                                                                                                                          |
| Web server                                                 |                                                                                                                                                                                                        |
| • supported                                                | Yes                                                                                                                                                                                                    |
| • HTTPS                                                    | Yes                                                                                                                                                                                                    |
| • web API                                                  | Yes                                                                                                                                                                                                    |
| — Number of sessions, max.                                 | 30                                                                                                                                                                                                     |
| — HTTP request body, max.                                  | 131 072 byte                                                                                                                                                                                           |
| • User-defined websites                                    | Yes                                                                                                                                                                                                    |
| OPC UA                                                     |                                                                                                                                                                                                        |
| • Runtime license required                                 | Yes; "Basic" license required                                                                                                                                                                          |
| • OPC UA Server                                            | Yes; data access (read, write, subscribe), method call, runtime license required                                                                                                                       |
| — Application authentication                               | Yes                                                                                                                                                                                                    |
| — Security policies                                        | available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256, Aes128Sha256RsaOaep, Aes256Sha256RsaPss                                                                               |
| — 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; MODBUS RTU/TCP                                                                                                                                                                                    |
| Communication functions                                    |                                                                                                                                                                                                        |
| S7 communication                                           |                                                                                                                                                                                                        |
| • supported                                                | Yes                                                                                                                                                                                                    |
| • as server                                                | Yes                                                                                                                                                                                                    |
| • as client                                                | Yes                                                                                                                                                                                                    |
| • User data per job, max.                                  | See online help (S7 communication, user data size)                                                                                                                                                     |
| Number of connections                                      |                                                                                                                                                                                                        |
| • overall                                                  | PG Connections: 4 reserved; HMI Connections: 4 reserved / 82 max; S7 Connections: 78 max; Open User Connections: 78 max; Web Connections: 2 reserved / 80 max; Total Connections: 10 reserved / 88 max |

|                                                                                |                                                                      |
|--------------------------------------------------------------------------------|----------------------------------------------------------------------|
| <b>S7 message functions</b>                                                    |                                                                      |
| Number of login stations for message functions, max.                           | 32                                                                   |
| number of subscriptions, max.                                                  | 250                                                                  |
| number of tags/attributes for subscriptions, max.                              | 2 000                                                                |
| Program alarms                                                                 | Yes                                                                  |
| Number of configurable program messages, max.                                  | 5 000                                                                |
| Number of loadable program messages in RUN, max.                               | 2 500                                                                |
| Number of simultaneously active program alarms                                 |                                                                      |
| • Number of program alarms                                                     | 600                                                                  |
| • Number of alarms for system diagnostics                                      | 100                                                                  |
| • Number of alarms for motion technology objects                               | 160                                                                  |
| <b>Test commissioning functions</b>                                            |                                                                      |
| Status block                                                                   | Yes; Up to 8 simultaneously (in total across all ES clients)         |
| Single step                                                                    | No                                                                   |
| Profiling                                                                      | Yes                                                                  |
| Status/control                                                                 |                                                                      |
| • Status/control variable                                                      | Yes                                                                  |
| • Variables                                                                    | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters |
| • Number of variables, max.                                                    |                                                                      |
| — of which status variables, max.                                              | 200; per job                                                         |
| — of which control variables, max.                                             | 200; per job                                                         |
| Forcing                                                                        |                                                                      |
| • Forcing                                                                      | Yes                                                                  |
| • Forcing, variables                                                           | Peripheral inputs/outputs                                            |
| • Number of variables, max.                                                    | 200                                                                  |
| Diagnostic buffer                                                              |                                                                      |
| • present                                                                      | Yes                                                                  |
| • Number of entries, max.                                                      | 500                                                                  |
| — of which powerfail-proof                                                     | 100                                                                  |
| Traces                                                                         |                                                                      |
| • Number of configurable Traces                                                | 4                                                                    |
| • Memory size per trace, max.                                                  | 512 kbyte                                                            |
| <b>Interrupts/diagnostics/status information</b>                               |                                                                      |
| Diagnostics indication LED                                                     |                                                                      |
| • RUN/STOP LED                                                                 | Yes                                                                  |
| • ERROR LED                                                                    | Yes                                                                  |
| • MAINT LED                                                                    | Yes                                                                  |
| <b>Supported technology objects</b>                                            |                                                                      |
| Motion Control                                                                 | Yes                                                                  |
| • Number of available Motion Control resources for technology objects          | 800                                                                  |
| • Required Motion Control resources                                            |                                                                      |
| — per speed-controlled axis                                                    | 40                                                                   |
| — per positioning axis                                                         | 80                                                                   |
| — per synchronous axis                                                         | 160                                                                  |
| — per external encoder                                                         | 80                                                                   |
| — per output cam                                                               | 20                                                                   |
| — per cam track                                                                | 160                                                                  |
| — per probe                                                                    | 40                                                                   |
| • Number of available Extended Motion Control resources for technology objects | 40                                                                   |
| • Required Extended Motion Control resources                                   |                                                                      |
| — per cam (1 000 points and 50 segments)                                       | 2                                                                    |
| — for each set of kinematics                                                   | 30                                                                   |
| • kinematics functions                                                         |                                                                      |
| — kinematics with up to 4 interpolating axes                                   | Yes                                                                  |
| — kinematics with 5 or more interpolating axes                                 | No                                                                   |
| — user-defined kinematics                                                      | No                                                                   |
| — SIMATIC Safe Kinematics                                                      | No                                                                   |

|                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Positioning axis <ul style="list-style-type: none"> <li>Number of positioning axes at motion control cycle of 4 ms (typical value)</li> <li>Number of positioning axes at motion control cycle of 8 ms (typical value)</li> </ul> </li> </ul>                                            | 10<br>10                                                                                                                       |
| <b>Integrated Functions</b>                                                                                                                                                                                                                                                                                                     |                                                                                                                                |
| Counter <ul style="list-style-type: none"> <li>Number of counters</li> <li>Counting frequency, max.</li> </ul>                                                                                                                                                                                                                  | Yes<br>8<br>100 kHz; Ia.0 to Ia.5: 100 kHz (80 kHz in quadrature mode), Ia.6 to Ib.5: 30 kHz (20 kHz in quadrature mode)       |
| Frequency measurement                                                                                                                                                                                                                                                                                                           | Yes                                                                                                                            |
| controlled positioning                                                                                                                                                                                                                                                                                                          | Yes                                                                                                                            |
| Number of position-controlled positioning axes, max.                                                                                                                                                                                                                                                                            | 8                                                                                                                              |
| Number of positioning axes via pulse-direction interface                                                                                                                                                                                                                                                                        | Up to 4 with SB 1222                                                                                                           |
| PID controller                                                                                                                                                                                                                                                                                                                  | Yes                                                                                                                            |
| Number of pulse outputs                                                                                                                                                                                                                                                                                                         | 8; individually assigned to CPU and Signal Board                                                                               |
| Limit frequency (pulse)                                                                                                                                                                                                                                                                                                         | 100 kHz                                                                                                                        |
| <b>Potential separation</b>                                                                                                                                                                                                                                                                                                     |                                                                                                                                |
| Potential separation digital inputs <ul style="list-style-type: none"> <li>Potential separation digital inputs</li> <li>between the channels</li> <li>Number of potential groups</li> </ul>                                                                                                                                     | Yes; field side to logic: 707 V DC (type test)<br>No<br>1                                                                      |
| Potential separation digital outputs <ul style="list-style-type: none"> <li>Potential separation digital outputs</li> <li>between the channels</li> <li>Number of potential groups</li> </ul>                                                                                                                                   | Relays<br>No<br>1                                                                                                              |
| <b>EMC</b>                                                                                                                                                                                                                                                                                                                      |                                                                                                                                |
| Interference immunity against discharge of static electricity <ul style="list-style-type: none"> <li>Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 <ul style="list-style-type: none"> <li>Test voltage at air discharge</li> <li>Test voltage at contact discharge</li> </ul> </li> </ul> | Yes<br>8 kV<br>6 kV                                                                                                            |
| Interference immunity to cable-borne interference <ul style="list-style-type: none"> <li>Interference immunity on supply lines acc. to IEC 61000-4-4</li> <li>Interference immunity on signal cables acc. to IEC 61000-4-4</li> </ul>                                                                                           | Yes<br>Yes                                                                                                                     |
| Interference immunity against voltage surge <ul style="list-style-type: none"> <li>Interference immunity on supply lines acc. to IEC 61000-4-5</li> </ul>                                                                                                                                                                       | Yes                                                                                                                            |
| Interference immunity against conducted variable disturbance induced by high-frequency fields <ul style="list-style-type: none"> <li>Interference immunity against high-frequency radiation acc. to IEC 61000-4-6</li> </ul>                                                                                                    | Yes                                                                                                                            |
| Emission of radio interference acc. to EN 55 011 <ul style="list-style-type: none"> <li>Limit class A, for use in industrial areas</li> <li>Limit class B, for use in residential areas</li> </ul>                                                                                                                              | Yes; Group 1<br>Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 |
| <b>Degree and class of protection</b>                                                                                                                                                                                                                                                                                           |                                                                                                                                |
| IP degree of protection                                                                                                                                                                                                                                                                                                         | IP20                                                                                                                           |
| <b>Standards, approvals, certificates</b>                                                                                                                                                                                                                                                                                       |                                                                                                                                |
| Siemens Eco Profile (SEP)                                                                                                                                                                                                                                                                                                       | Siemens EcoTech                                                                                                                |
| CE mark                                                                                                                                                                                                                                                                                                                         | Yes                                                                                                                            |
| UL approval                                                                                                                                                                                                                                                                                                                     | Yes                                                                                                                            |
| cULus                                                                                                                                                                                                                                                                                                                           | Yes                                                                                                                            |
| FM approval                                                                                                                                                                                                                                                                                                                     | No                                                                                                                             |
| RCM (formerly C-TICK)                                                                                                                                                                                                                                                                                                           | Yes                                                                                                                            |
| KC approval                                                                                                                                                                                                                                                                                                                     | Yes                                                                                                                            |
| Marine approval                                                                                                                                                                                                                                                                                                                 | Yes                                                                                                                            |
| Ecological footprint <ul style="list-style-type: none"> <li>environmental product declaration</li> </ul>                                                                                                                                                                                                                        | Yes; type 2 acc. to ISO 14021<br>Global warming potential                                                                      |

|                                                                |                                                                                           |
|----------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| — global warming potential, (total) [CO2 eq]                   | 68 kg                                                                                     |
| — global warming potential, (during production) [CO2 eq]       | 14.4 kg                                                                                   |
| — global warming potential, (during operation) [CO2 eq]        | 54.2 kg                                                                                   |
| — global warming potential, (after end of life cycle) [CO2 eq] | -0.72 kg                                                                                  |
| <b>Security</b>                                                |                                                                                           |
| PROFINET Security Class                                        | 1                                                                                         |
| signed firmware update                                         | Yes                                                                                       |
| Secure Boot                                                    | Yes                                                                                       |
| <b>Ambient conditions</b>                                      |                                                                                           |
| Free fall                                                      |                                                                                           |
| • Fall height, max.                                            | 0.3 m; five times, in product package                                                     |
| Ambient temperature during operation                           |                                                                                           |
| • min.                                                         | -20 °C; No condensation                                                                   |
| • max.                                                         | 40 °C; 40 °C horizontal or 30 °C vertical at max. voltages and max. specifications        |
| • horizontal installation, min.                                | -20 °C; No condensation                                                                   |
| • horizontal installation, max.                                | 60 °C; at rated voltages, 50 % of max. specification and alternate IO active              |
| • vertical installation, min.                                  | -20 °C; No condensation                                                                   |
| • vertical installation, max.                                  | 50 °C; at rated voltages, 50 % of max. specification and alternate IO active              |
| Ambient temperature during storage/transportation              |                                                                                           |
| • min.                                                         | -40 °C                                                                                    |
| • max.                                                         | 70 °C                                                                                     |
| Air pressure acc. to IEC 60068-2-13                            |                                                                                           |
| • Operation, min.                                              | 540 hPa                                                                                   |
| • Operation, max.                                              | 1 140 hPa                                                                                 |
| • Storage/transport, min.                                      | 540 hPa                                                                                   |
| • Storage/transport, max.                                      | 1 140 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  | 3.5 mm from 5 - 8.4 Hz, 1g from 8.4 - 150 Hz                                              |
| • 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                         | SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free                               |
| <b>Configuration</b>                                           |                                                                                           |
| Programming                                                    |                                                                                           |
| Programming language                                           |                                                                                           |
| — LAD                                                          | Yes                                                                                       |
| — FBD                                                          | Yes                                                                                       |
| — SCL                                                          | Yes                                                                                       |
| Know-how protection                                            |                                                                                           |
| • User program protection/password protection                  | Yes                                                                                       |
| • Copy protection                                              | No                                                                                        |
| • 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 and centralized                                                          |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     |                                |                                                                                              |                                                                                             |                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------------|
| <ul style="list-style-type: none"><li>• Number of users</li><li>• Number of groups</li><li>• Number of roles</li></ul>                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                     | 100                            | 100                                                                                          | 50                                                                                          |                        |
| Cycle time monitoring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                     |                                |                                                                                              |                                                                                             |                        |
| <ul style="list-style-type: none"><li>• adjustable</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                     | Yes                            |                                                                                              |                                                                                             |                        |
| Dimensions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                     |                                |                                                                                              |                                                                                             |                        |
| Width                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                     | 80 mm                          |                                                                                              |                                                                                             |                        |
| Height                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                     | 125 mm                         |                                                                                              |                                                                                             |                        |
| Depth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                     | 100 mm                         |                                                                                              |                                                                                             |                        |
| Weights                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                     |                                |                                                                                              |                                                                                             |                        |
| Weight, approx.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     | 376 g                          |                                                                                              |                                                                                             |                        |
| Classifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     |                                |                                                                                              |                                                                                             |                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     |                                | Version                                                                                      | Classification                                                                              |                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     | eClass                         | 16                                                                                           | 27-24-22-07                                                                                 |                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     | eClass                         | 14                                                                                           | 27-24-22-07                                                                                 |                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     | eClass                         | 12                                                                                           | 27-24-22-07                                                                                 |                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     | eClass                         | 9.1                                                                                          | 27-24-22-07                                                                                 |                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     | eClass                         | 9                                                                                            | 27-24-22-07                                                                                 |                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     | eClass                         | 8                                                                                            | 27-24-22-07                                                                                 |                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     | eClass                         | 7.1                                                                                          | 27-24-22-07                                                                                 |                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     | eClass                         | 6                                                                                            | 27-24-22-07                                                                                 |                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     | ETIM                           | 10                                                                                           | EC000236                                                                                    |                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     | ETIM                           | 9                                                                                            | EC000236                                                                                    |                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     | ETIM                           | 8                                                                                            | EC000236                                                                                    |                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     | ETIM                           | 7                                                                                            | EC000236                                                                                    |                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     | IDEA                           | 4                                                                                            | 3565                                                                                        |                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                     | UNSPSC                         | 15                                                                                           | 32-15-17-05                                                                                 |                        |
| Approvals / Certificates                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                     |                                |                                                                                              |                                                                                             |                        |
| General Product Approval                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                     |                                |                                                                                              |                                                                                             |                        |
| <div><div><br/>EG-Konf.</div><div></div><div></div><div><a href="#">Miscellaneous</a></div><div><a href="#">Manufacturer Declaration</a></div><div><br/>UL</div></div> |                                                                                     |                                |                                                                                              |                                                                                             |                        |
| General Product Approval                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                     |                                |                                                                                              |                                                                                             |                        |
| <div><div><br/>RCM</div><div></div><div><a href="#">TUEV</a></div><div><br/>EG-Konf.</div><div></div><div><a href="#">China RoHS</a></div></div>                       |                                                                                     |                                |                                                                                              |                                                                                             |                        |
| General Product Approval                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | EMV                                                                                 | For use in hazardous locations |                                                                                              |                                                                                             |                        |
| <a href="#">Manufacturer Declaration</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  | <a href="#">Miscellaneous</a>  | <br>IECEX | <br>UL | <a href="#">CCC-Ex</a> |
| For use in hazardous locations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Test Certificates                                                                   | Maritime application           |                                                                                              |                                                                                             |                        |

[CCC-Ex](#)

[Type Test Certificates/Test Report](#)



| Maritime application | Environment | Industrial Communication |
|----------------------|-------------|--------------------------|
|----------------------|-------------|--------------------------|

[NK / Nippon Kaiji Kyokai](#)



[KR \(Korean Register of Shipping\)](#)



Siemens  
EcoTech



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5/21/2026 