

# SIEMENS

## Product data sheet

**6ES7211-1BD30-0XB0**


SIMATIC S7-1200, CPU 1211C,  
 COMPACT CPU, AC/DC/RELAY,  
 ONBOARD I/O: 6 DI 24V DC;  
 4 DO RELAY 2A;  
 2 AI 0 - 10V DC,  
 POWER SUPPLY: AC 85 - 264 V AC AT 47 - 63 HZ,  
 PROGRAM/DATA MEMORY: 25 KB

| General information                 |                                      |
|-------------------------------------|--------------------------------------|
| Engineering with                    |                                      |
| Programming package                 | STEP 7 V10.5 or higher               |
| Display                             |                                      |
| integrated                          | No                                   |
| Supply voltage                      |                                      |
| 120 V AC                            | Yes                                  |
| 230 V AC                            | Yes                                  |
| permissible range, lower limit (AC) | 85 V                                 |
| permissible range, upper limit (AC) | 264 V                                |
| Line frequency                      |                                      |
| Frequency of the supply voltage     | 47 Hz                                |
| Frequency of the supply voltage     | 63 Hz                                |
| Input current                       |                                      |
| Current consumption (rated value)   | 60 mA at 120 V AC; 30 mA at 240 V AC |

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|---|---|
| Current consumption, max.   | 180 mA at 120 V AC; 90 mA at 240 V AC   |
| Inrush current, max.  | 20 A ; at 264 V   |
| <b>Encoder supply</b>   |   |
| 24 V encoder supply   |   |
| 24 V  | Permissible range: 20.4 to 28.8 V   |
| <b>Output current</b>   |   |
| Current output to backplane bus (DC 5 V), max.                    | 750 mA ; Max. 5 V DC for SM and CM  |
| <b>Power losses</b>   |   |
| Power loss, typ.  | 10 W  |
| <b>Memory</b>   |   |
| Usable memory for user data                                       | 25 kbyte  |
| <b>Work memory</b>  |   |
| integrated  | 25 kbyte  |
| expandable  | No  |
| <b>Load memory</b>  |   |
| integrated  | 1 Mbyte   |
| expandable, max.  | 24 Mbyte ; with SIMATIC memory card   |
| <b>Backup</b>   |   |
| present   | Yes ; Entire project maintenance-free in the integral EEPROM  |
| without battery   | Yes   |
| <b>CPU processing times</b>                                       |   |
| for bit operations, min.  | 0.1 $\mu$ s ; / Operation   |
| for word operations, min.   | 12 $\mu$ s ; / Operation  |
| for floating point arithmetic, min.                               | 18 $\mu$ s ; / Operation  |
| <b>CPU-blocks</b>   |   |
| Number of blocks (total)  | DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used |
| <b>OB</b>   |   |
| Number, max.  | Limited only by RAM for code  |
| <b>Data areas and their retentivity</b>                           |   |
| retentive data area in total (incl. times, counters, flags), max. | 2048 byte   |

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| <b>Flag</b>   |   |
| Number, max.  | 4 kbyte ; Size of bit memory address area                         |
| <b>Address area</b>                                   |   |
| <b>I/O address area</b>                               |   |
| I/O address area, overall                             | 1024 bytes for inputs / 1024 bytes for outputs                    |
| Inputs  | 1024 byte   |
| Outputs   | 1024 byte   |
| <b>Process image</b>                                  |   |
| Inputs, adjustable                                    | 1 kbyte   |
| Outputs, adjustable                                   | 1 kbyte   |
| <b>Hardware configuration</b>                         |   |
| Number of modules per system, max.                    | 3 communication modules, 1 signal board                           |
| <b>Time of day</b>                                    |   |
| <b>Clock</b>  |   |
| Hardware clock (real-time clock)                      | Yes   |
| Deviation per day, max.                               | +/- 60 s/month at 25 °C   |
| Backup time   | 240 h ; Typical   |
| <b>Digital inputs</b>                                 |   |
| Number/binary inputs                                  | 6 ; integrated  |
| of which, inputs usable for technological functions   | 3 ; HSC (High Speed Counting)                                     |
| integrated channels (DI)                              | 6   |
| m/p-reading   | Yes   |
| <b>Input voltage</b>                                  |   |
| Rated value, DC                                       | 24 V  |
| for signal "0"  | 5 V DC at 1 mA  |
| for signal "1"  | 15 V DC at 2.5 mA   |
| <b>Input current</b>                                  |   |
| for signal "1", typ.                                  | 1 mA  |
| <b>Input delay (for rated value of input voltage)</b> |   |
| <b>for standard inputs</b>                            |   |
| Parameterizable                                       | 0.2, 0.4, 0.8, 1.6, 3.2, 6.4, and 12.8 ms, selectable in 4 groups |
| at "0" to "1", min.                                   | 0.2 ms  |
| at "0" to "1", max.                                   | 12.8 ms   |

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| for interrupt inputs                                    |  |
| Parameterizable   | Yes  |
| for counter/technological functions                     |  |
| Parameterizable   | Single phase : 3 at 100 kHz, differential: 3 at 80 kHz |
| Cable length  |  |
| Cable length, shielded, max.                            | 500 m ; 50 m for technological functions               |
| Cable length unshielded, max.                           | 300 m ; For technological functions: No                |
| Digital outputs   |  |
| Number/binary outputs                                   | 4 ; Relay  |
| integrated channels (DO)                                | 4  |
| Functionality/short-circuit strength                    | No ; to be provided externally                         |
| Switching capacity of the outputs                       |  |
| with resistive load, max.                               | 2 A  |
| on lamp load, max.                                      | 30 W DC; 200 W AC                                      |
| Output delay with resistive load                        |  |
| "0" to "1", max.  | 10 ms ; max.   |
| "1" to "0", max.  | 10 ms ; max.   |
| Parallel switching of 2 outputs                         |  |
| for increased power                                     | No   |
| Switching frequency                                     |  |
| of the pulse outputs, with resistive load, max.         | 1 Hz   |
| Relay outputs   |  |
| Number of relay outputs                                 | 4  |
| Number of operating cycles, max.                        | mechanically 10 million, at rated load voltage 100,000 |
| Cable length  |  |
| Cable length, shielded, max.                            | 500 m  |
| Cable length unshielded, max.                           | 150 m  |
| Analog inputs   |  |
| Integrated channels (AI)                                | 2 ; 0 to 10 V  |
| Number of analog inputs                                 | 2  |
| Number of analog inputs for voltage/current measurement | 2  |
| Input ranges  |  |
| Voltage   | Yes  |

|  |                                     |
|--|-------------------------------------|
| Input ranges (rated values), voltages                    |                                     |
| 0 to +10 V   | Yes                                 |
| Input resistance (0 to 10 V)                             | ≥100k ohms                          |
| Cable length   |                                     |
| Cable length, shielded, max.                             | 100 m ; twisted and shielded        |
| Analog outputs   |                                     |
| Cable length   |                                     |
| Cable length, shielded, max.                             | 100 m ; Shielded, twisted wire pair |
| Analog value creation                                    |                                     |
| Integrations and conversion time/ resolution per channel |                                     |
| Resolution with overrange (bit including sign), max.     | 10 bit                              |
| Integration time, parameterizable                        | Yes                                 |
| Conversion time (per channel)                            | 625 μs                              |
| Encoder  |                                     |
| Connectable encoders                                     |                                     |
| 2-wire sensor  | Yes                                 |
| 1st interface  |                                     |
| Type of interface  | PROFINET                            |
| Physics  | Ethernet                            |
| Isolated   | Yes                                 |
| Automatic detection of transmission speed                | Yes                                 |
| Autonegotiation  | Yes                                 |
| Autocrossing   | Yes                                 |
| Functionality  |                                     |
| PROFINET IO Controller                                   | Yes                                 |
| Communication functions                                  |                                     |
| S7 communication   |                                     |
| supported  | Yes                                 |
| as server  | Yes                                 |
| Open IE communication                                    |                                     |
| TCP/IP   | Yes                                 |
| ISO-on-TCP (RFC1006)                                     | Yes                                 |
| Web server   |                                     |

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| supported   | Yes  |
| User-defined websites   | Yes  |
| <b>Number of connections</b>  |  |
| overall   | 15 ; dynamically   |
| <b>Test commissioning functions</b>   |  |
| <b>Status/control</b>   |  |
| Status/control variable   | Yes  |
| Variables   | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters |
| <b>Forcing</b>  |  |
| Forcing   | Yes  |
| <b>Integrated Functions</b>   |  |
| Number of counters  | 3  |
| Counter frequency (counter) max.  | 100 kHz  |
| Frequency meter   | Yes  |
| controlled positioning  | Yes  |
| PID controller  | Yes  |
| Number of alarm inputs  | 4  |
| <b>Galvanic isolation</b>   |  |
| <b>Galvanic isolation digital inputs</b>  |  |
| Galvanic isolation digital inputs   | No   |
| between the channels, in groups of  | 1  |
| <b>Galvanic isolation digital outputs</b>   |  |
| Galvanic isolation digital outputs  | Yes ; Relay  |
| between the channels  | No   |
| between the channels, in groups of  | 1  |
| <b>Permissible potential difference</b>   |  |
| between different circuits  | 500 V DC between 24 V DC and 5 V DC                                  |
| <b>EMC</b>  |  |
| <b>Interference immunity against discharge of static electricity</b>                |  |
| Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 | Yes  |
| Test voltage at air discharge   | 8 kV   |
| Test voltage at contact discharge   | 6 kV   |

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| <b>Interference immunity to cable-borne interference</b>                        |   |
| on the supply lines acc. to IEC 61000-4-4                                       | Yes   |
| Interference immunity on signal lines acc. to IEC 61000-4-4                     | Yes   |
| <b>Surge immunity</b>   |   |
| on the supply lines acc. to IEC 61000-4-5                                       | Yes   |
| <b>Immunity against conducted interference induced by high-frequency fields</b> |   |
| Interference immunity against high-frequency radiation acc. to IEC 61000-4-6    | Yes   |
| <b>Emission of radio interference acc. to EN 55 011</b>                         |   |
| Emission of radio interferences acc. to EN 55 011 (limit class A)               | Yes ; Group 1   |
| Emission of radio interference acc. to EN 55 011 (limit class B)                | 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>   |   |
| IP20  | Yes   |
| <b>Standards, approvals, certificates</b>                                       |   |
| CE mark   | Yes   |
| cULus   | Yes   |
| C-TICK  | Yes   |
| FM approval   | Yes   |
| <b>Ambient conditions</b>   |   |
| <b>Operating temperature</b>  |   |
| Min.  | 0 °C  |
| max.  | 55 °C   |
| vertical installation, min.   | 0 °C  |
| vertical installation, max.   | 45 °C   |
| horizontal installation, min.   | 0 °C  |
| horizontal installation, max.   | 55 °C   |
| <b>Storage/transport temperature</b>  |   |
| Min.  | -40 °C  |
| max.  | 70 °C   |
| <b>Air pressure</b>   |   |
| Operation, min.   | 795 hPa   |

|   |  |
|---|--|
| Operation, max.   | 1080 hPa   |
| Storage/transport, min.   | 660 hPa  |
| Storage/transport, max.   | 1080 hPa   |
| <b>Relative humidity</b>  |  |
| Operation, max.   | 95 % ; no condensation   |
| <b>Vibrations</b>   |  |
| Vibrations  | 2G wall mounting, 1G DIN rail  |
| Operation, checked according to IEC 60068-2-6                       | Yes  |
| <b>Shock test</b>   |  |
| checked 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 |
| <b>Climatic and mechanical conditions for storage and transport</b> |  |
| <b>Climatic conditions for storage and transport</b>                |  |
| <b>Free fall</b>  |  |
| Drop height, max. (in packaging)                                    | 0.3 m ; five times, in dispatch package  |
| <b>Temperature</b>  |  |
| Permissible temperature range                                       | -40 °C to +70 °C   |
| <b>Mechanical and climatic conditions during operation</b>          |  |
| <b>Climatic conditions in operation</b>                             |  |
| <b>Temperature</b>  |  |
| Permissible temperature range                                       | 0 °C to 55 °C horizontal installation<br>0 °C to 45 °C vertical installation               |
| Permissible temperature change                                      | 5°C to 55°C, 3°C / minute  |
| <b>Air pressure acc. to IEC 60068-2-13</b>                          |  |
| Permissible air pressure  | 1080 to 795 hPa  |
| Permissible operating height  | -1000 to 2000 m  |
| <b>Pollutant concentrations</b>                                     |  |
| SO2 at RH < 60% without condensation                                | SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free                                 |
| <b>Configuration</b>  |  |
| <b>programming</b>  |  |
| <b>Programming language</b>   |  |
| LAD   | Yes  |
| FBD   | Yes  |



|                                  |              |
|----------------------------------|--------------|
| SCL                              | Yes          |
| Cycle time monitoring adjustable | Yes          |
| Dimensions                       |              |
| Width                            | 90 mm        |
| Height                           | 100 mm       |
| Depth                            | 75 mm        |
| Weight                           |              |
| Weight, approx.                  | 420 g        |
| Status                           | Jul 17, 2012 |