# **SIEMENS**

## Data sheet

## 6ES7214-1HG40-0XB0

SIMATIC S7-1200, CPU 1214C, compact CPU, DC/DC/relay, onboard I/O: 14 DI 24 V DC; 10 DO relay 2 A; 2 AI 0-10 V DC, Power supply: DC 20.4-28.8V DC, Program/data memory 100 KB



| General information                                     |  |
|---|--|
| Product type designation                                | CPU 1214C DC/DC/relay                    |
| Firmware version  | V4.4                                     |
| Engineering with  |  |
| <ul> <li>Programming package</li> </ul>                 | STEP 7 V16 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                                      |
| Load voltage L+   |  |
| <ul> <li>Rated value (DC)</li> </ul>                    | 24 V                                     |
| <ul> <li>permissible range, lower limit (DC)</li> </ul> | 20.4 V                                   |
| • permissible range, upper limit (DC)                   | 28.8 V                                   |
| Input current   |  |
| Current consumption (rated value)                       | 500 mA; CPU only                         |
| Current consumption, max.                               | 1 500 mA; CPU with all expansion modules |

| Inrush current, max.                                    | 12 A; at 28.8 V   |
|---|---|
| l²t   | 0.8 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<br>24 V encoder supply                   |   |
| • 24 V  | L+ minus 4 V DC min.  |
| • Z4 V  |   |
| Power loss  |   |
| Power loss, typ.  | 12 W  |
| Memory  |   |
| Work memory   |   |
| • integrated  | 100 kbyte   |
| • expandable  | No  |
| Load memory   |   |
| • integrated  | 4 Mbyte   |
| <ul> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul> | with SIMATIC memory card  |
| Backup  |   |
| • present   | Yes   |
| maintenance-free  | Yes   |
| • without battery                                       | Yes   |
| CPU processing times                                    |   |
| for bit operations, typ.                                | 0.08 μs; / instruction  |
| for word operations, typ.                               | 1.7 μs; / instruction   |
| for floating point arithmetic, typ.                     | 2.3 µs; / instruction   |
| CPU-blocks  |   |
| Number of blocks (total)                                | DBs, FCs, FBs, counters and timers. The maximum number of           |
|   | addressable blocks ranges from 1 to 65535. There is no              |
|   | restriction, the entire working memory can be used                  |
| OB  | Limited only by DAM for code  |
| • Number, max.  | Limited only by RAM for code  |
| Data areas and their retentivity                        |   |
| Retentive data area (incl. timers, counters, flags),    | 10 kbyte  |
| max.  |   |
| Flag  | 9 khuta: Siza of hit moment address area                            |
| Number, max.  | 8 kbyte; Size of bit memory address area                            |
| Local data  | 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 |
| <ul> <li>per priority class, max.</li> </ul>            | to 26: 6 KB   |
| Address area  |   |
| Process image   |   |
|   |   |

| • Outputs, adjustable       1 kbyte         Hardware configuration       3 comm. modules, 1 signal board, 8 signal modules         Time of day       3 comm. modules, 1 signal board, 8 signal modules         Clock       •         • Hardware clock (real-time)       Yes         • Backup time       480 h; Typical         • Deviation per day, max.       ±60 s/month at 25 °C         Digital inputs       14; Integrated         • of which inputs usable for technological functions       6; HSC (High Speed Counting)         Source/sink input       Yes         Number of simultaneously controllable inputs       14         Input voltage       •         • Rated value (DC)       24 V         • for signal "0"       5 V DC at 1 mA         • for signal "1"       15 V DC at 2.5 mA         Input delay (for rated value of input voltage)       0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four         - parameterizable       0.2 ms       2 ms         - at "0" to "1", max.       12.8 ms         for interrupt inputs       - at "0" to "1", max.         - parameterizable       Yes  | <ul> <li>Inputs, adjustable</li> </ul>         | 1 kbyte   |
|--|--|---|
| Hardware configuration         Number of modules per system, max.         3 comm. modules, 1 signal board, 8 signal modules         Time of day         Clock         • Hardware clock (real-time)       Yes         • Backup time       480 h; Typical         • Deviation per day, max.       ±60 s/month at 25 °C         Digital inputs         • Of which inputs usable for technological functions         • of which inputs usable for technological functions       14; Integrated         Source/sink input       Yes         Number of simultaneously controllable inputs       14         Input voltage       • exted value (DC)       24 V         • for signal "0"       5 V DC at 1 mA         • for signal "0"       5 V DC at 2.5 mA         Input delay (for rated value of input voltage)       0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four         - at "0" to "1", max.       12.8 ms         for interrupt inputs       12.8 ms  |  |   |
| Number of modules per system, max.       3 comm. modules, 1 signal board, 8 signal modules         Time of day         Clock       • Hardware clock (real-time)         • Backup time       480 h; Typical         • Deviation per day, max.       ±60 s/month at 25 °C         Digital inputs       14; Integrated         • of which inputs usable for technological functions       6; HSC (High Speed Counting)         Source/sink input       Yes         Number of simultaneously controllable inputs       all mounting positions         - up to 40 °C, max.       14         Input voltage       § V DC at 1 mA         • for signal "0"       5 V DC at 2.5 mA         Input delay (for rated value of input voltage)       0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four         - at "0" to "1", max.       12.8 ms  |  |   |
| Time of day         Clock <ul> <li>Hardware clock (real-time)</li> <li>Yes</li> <li>Backup time</li> <li>480 h; Typical</li> <li>Deviation per day, max.</li> <li>±60 s/month at 25 °C</li> </ul> Digital inputs <ul> <li>140 s/month at 25 °C</li> </ul> Digital inputs <li>141 inputs usable for technological functions</li> <li>of which inputs usable for technological functions</li> <li>Source/sink input</li> <li>Yes</li> Number of signultaneously controllable inputs <ul> <li>142 input voltage</li> <li>- up to 40 °C, max.</li> <li>143 input voltage</li> <li>Rated value (DC)</li> <li>24 V</li> <li>for signal "0"</li> <li>5 V DC at 1 mA</li> <li>5 V DC at 2.5 mA</li> </ul> Input delay (for rated value of input voltage) <ul> <li>for signal "1"</li> <li>15 V DC at 2.5 mA</li> </ul> Input delay (for rated value of input voltage) <li>for standard inputs</li> <li>- parameterizable</li> <li>0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four</li> <li>- at "0" to "1", max.</li> <li>12.8 ms</li>  |  |   |
| Clock <ul> <li>Hardware clock (real-time)</li> <li>Backup time</li> <li>Backup time</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>for stigital inputs</li> <li>of which inputs usable for technological functions</li> <li>Source/sink input</li> <li>Yes</li> <li>Number of simultaneously controllable inputs</li> <li>all mounting positions</li> <li>— up to 40 °C, max.</li> <li>14</li> <li>Input voltage</li> <li>Rated value (DC)</li> <li>24 V</li> <li>for signal "0"</li> <li>5 V DC at 1 mA</li> <li>for signal "1"</li> <li>15 V DC at 2.5 mA</li> <li>Input delay (for rated value of input voltage)</li> <li>for standard inputs</li> <li>— at "0" to "1", min.</li> <li>— at "0" to "1", max.</li> <li>12.8 ms</li> <li>for interrupt inputs</li> <li>Yes</li> <li>Yes</li></ul>   | Number of modules per system, max.             | 3 comm. modules, 1 signal board, 8 signal modules |
| Hardware clock (real-time)       Yes         Backup time       480 h; Typical         • Deviation per day, max.       460 s/month at 25 °C         Digital inputs       14; Integrated         • of which inputs usable for technological functions       6; HSC (High Speed Counting)         Source/sink input       Yes         Number of simultaneously controllable inputs       14         all mounting positions       -         - up to 40 °C, max.       14         Input voltage       -         • Rated value (DC)       24 V         • for signal "0"       5 V DC at 1 mA         • for signal "1"       15 V DC at 2.5 mA         Input delay (for rated value of input voltage)       -         for standard inputs       0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four         - at "0" to "1", min.       0.2 ms         - at "0" to "1", max.       12.8 ms   | Time of day                                    |   |
| <ul> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Backup time</li> <li>Also h; Typical</li> <li>to be visual to be visual</li></ul>   | Clock  |   |
| • Deviation per day, max.       ±60 s/month at 25 °C         Digital inputs       14; Integrated         • of which inputs usable for technological functions       6; HSC (High Speed Counting)         Source/sink input       Yes         Number of simultaneously controllable inputs       all mounting positions         - up to 40 °C, max.       14         Input voltage       24 V         • for signal "0"       5 V DC at 1 mA         • for signal "1"       15 V DC at 2.5 mA         Input delay (for rated value of input voltage)       0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four         - at "0" to "1", min.       0.2 ms         - at "0" to "1", max.       12.8 ms         for interrupt inputs       12.8 ms  | <ul> <li>Hardware clock (real-time)</li> </ul> | Yes   |
| Digital inputs       14; Integrated         • of which inputs usable for technological functions       6; HSC (High Speed Counting)         Source/sink input       Yes         Number of simultaneously controllable inputs       all mounting positions         - up to 40 °C, max.       14         Input voltage       24 V         • for signal "0"       5 V DC at 1 mA         • for signal "1"       15 V DC at 2.5 mA         Input delay (for rated value of input voltage)       0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four         - at "0" to "1", min.       0.2 ms         - at "0" to "1", max.       12.8 ms  | <ul> <li>Backup time</li> </ul>                | 480 h; Typical                                    |
| Number of digital inputs       14; Integrated         • of which inputs usable for technological functions       6; HSC (High Speed Counting)         Source/sink input       Yes         Number of simultaneously controllable inputs       all mounting positions         - up to 40 °C, max.       14         Input voltage       24 V         • for signal "0"       5 V DC at 1 mA         • for signal "1"       15 V DC at 2.5 mA         Input delay (for rated value of input voltage)       6r standard inputs         - parameterizable       0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four         - at "0" to "1", max.       12.8 ms         for interrupt inputs       12.8 ms   | <ul> <li>Deviation per day, max.</li> </ul>    | ±60 s/month at 25 °C                              |
| • of which inputs usable for technological<br>functions6; HSC (High Speed Counting)Source/sink inputYesNumber of simultaneously controllable inputsall mounting positions14— up to 40 °C, max.14Input voltage• Rated value (DC)24 V• for signal "0"5 V DC at 1 mA• for signal "1"15 V DC at 2.5 mAInput delay (for rated value of input voltage)for standard inputs0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four— at "0" to "1", max.0.2 msfor interrupt inputs12.8 ms  | Digital inputs                                 |   |
| functionsYesSource/sink inputYesNumber of simultaneously controllable inputsall mounting positions— up to 40 °C, max.14Input voltage• Rated value (DC)24 V• for signal "0"5 V DC at 1 mA• for signal "1"15 V DC at 2.5 mAInput delay (for rated value of input voltage)for standard inputs— parameterizable0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four— at "0" to "1", min.0.2 ms— at "0" to "1", max.12.8 ms   |  | 14; Integrated                                    |
| Number of simultaneously controllable inputs         all mounting positions         up to 40 °C, max.       14         Input voltage         • Rated value (DC)       24 V         • for signal "0"       5 V DC at 1 mA         • for signal "1"       15 V DC at 2.5 mA         Input delay (for rated value of input voltage)       5 V DC at 2.5 mA         for standard inputs       0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four         - at "0" to "1", min.       0.2 ms         - at "0" to "1", max.       12.8 ms         for interrupt inputs       12.8 ms   |  | 6; HSC (High Speed Counting)                      |
| all mounting positions— up to 40 °C, max.14Input voltage24 V• Rated value (DC)24 V• for signal "0"5 V DC at 1 mA• for signal "1"15 V DC at 2.5 mAInput delay (for rated value of input voltage)for standard inputs0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four— at "0" to "1", min.0.2 ms— at "0" to "1", max.12.8 msfor interrupt inputs12.8 ms   | Source/sink input                              | Yes   |
|  | Number of simultaneously controllable inputs   |   |
| Input voltage<br>• Rated value (DC)<br>• for signal "0"<br>• for signal "0"<br>• for signal "1"<br>24 V<br>5 V DC at 1 mA<br>15 V DC at 2.5 mA<br>Input delay (for rated value of input voltage)<br>for standard inputs<br>- parameterizable<br>- parameterizable<br>- at "0" to "1", min.<br>- at "0" to "1", max.<br>for interrupt inputs<br>- Compared to the standard input inpu | all mounting positions                         |   |
| • Rated value (DC)24 V• for signal "0"5 V DC at 1 mA• for signal "1"15 V DC at 2.5 mAInput delay (for rated value of input voltage)15 V DC at 2.5 mAfor standard inputs0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four- at "0" to "1", min.0.2 ms- at "0" to "1", max.12.8 msfor interrupt inputs12.8 ms  | — up to 40 °C, max.                            | 14  |
| <ul> <li>for signal "0"</li> <li>for signal "1"</li> <li>for signal "1"</li> <li>for signal "1"</li> <li>for standard inputs</li> <li>parameterizable</li> <li>- parameterizable</li> <li>- at "0" to "1", min.</li> <li>- at "0" to "1", max.</li> <li>for interrupt inputs</li> </ul>  | Input voltage                                  |   |
| <ul> <li>for signal "1"</li> <li>15 V DC at 2.5 mA</li> <li>Input delay (for rated value of input voltage)</li> <li>for standard inputs</li> <li>— parameterizable</li> <li>— at "0" to "1", min.</li> <li>— at "0" to "1", max.</li> <li>for interrupt inputs</li> </ul>  | <ul> <li>Rated value (DC)</li> </ul>           | 24 V  |
| Input delay (for rated value of input voltage)         for standard inputs         — parameterizable       0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four         — at "0" to "1", min.       0.2 ms         — at "0" to "1", max.       12.8 ms         for interrupt inputs       12.8 ms  | ● for signal "0"                               | 5 V DC at 1 mA                                    |
| for standard inputs         — parameterizable       0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four         — at "0" to "1", min.       0.2 ms         — at "0" to "1", max.       12.8 ms         for interrupt inputs       12.8 ms   | ● for signal "1"                               | 15 V DC at 2.5 mA                                 |
| — parameterizable0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms,<br>selectable in groups of four— at "0" to "1", min.0.2 ms— at "0" to "1", max.12.8 msfor interrupt inputs  | Input delay (for rated value of input voltage) |   |
| selectable in groups of four<br>- at "0" to "1", min.<br>- at "0" to "1", max.<br>for interrupt inputs   | for standard inputs                            |   |
| <ul> <li>— at "0" to "1", max.</li> <li>for interrupt inputs</li> </ul>  | — parameterizable                              |   |
| for interrupt inputs   | — at "0" to "1", min.                          | 0.2 ms  |
|  | — at "0" to "1", max.                          | 12.8 ms   |
| — parameterizable Yes  | for interrupt inputs                           |   |
|  | — parameterizable                              | Yes   |
| for technological functions  | for technological functions                    |   |
| <ul> <li>parameterizable</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz, differential: 3 @ 80 kHz &amp; 3 @ 30 kHz</li> </ul>   | — parameterizable                              |   |
| Cable length   | Cable length                                   |   |
| • shielded, max. 500 m; 50 m for technological functions   | • shielded, max.                               | 500 m; 50 m for technological functions           |
| • unshielded, max. 300 m; for technological functions: No  | • unshielded, max.                             | 300 m; for technological functions: No            |
| Digital outputs  | Digital outputs                                |   |
| Number of digital outputs     10; Relays   | Number of digital outputs                      | 10; Relays  |
| Switching capacity of the outputs  | Switching capacity of the outputs              |   |
| • with resistive load, max. 2 A  | <ul> <li>with resistive load, max.</li> </ul>  | 2 A   |
| • on lamp load, max. 30 W with DC, 200 W with AC   | • on lamp load, max.                           | 30 W with DC, 200 W with AC                       |
| Output delay with resistive load   | Output delay with resistive load               |   |

| Number of analog inputs       2         Input ranges       Yes         • Voltage       Yes         Input ranges (rated values), voltages       Yes         • 0 to +10 V       Yes         — Input resistance (0 to 10 V)       ≥100k ohms         Cable length       100 m; twisted and shielded   |  |  |
|--|--|--|
| Relay outputs     10       • Number of relay outputs     10       • Number of operating cycles, max.     mechanically 10 million, at rated load voltage 100 000       Cable length     500 m       • unshielded, max.     500 m       • unshielded, max.     150 m       Analog inputs     2       Input ranges (rated values), voltages     2       • Voltage     Yes       Input ranges (rated values), voltages     2       • 10 to +10 V     Yes       — Input resistance (0 to 10 V)     2100k ohms       Cable length     100 m; twisted and shielded       Analog outputs     0       Analog outputs     0       Resolution with overrange (bit including sign), max.     10 bit       • Integration time/resolution ger channel     10 bit       • Resolution with overrange (bit including sign), max.     10 bit       • Integration time, parameterizable     625 µs       • Conversion time/resolution ger channel     265 µs       Encoder     2       Interface     PROFINET       Physics     Ethernet       Isolated     Yes       automatic detection of transmission rate     Yes       Autorcossing     Yes       Autorcossing     Yes       Interface byes     Yes       • Number of                               | • "0" to "1", max.                                   | 10 ms; max.  |
| • Number of relay outputs10• Number of operating cycles, max.mechanically 10 million, at rated load voltage 100 000Cable length• shieled, max.500 m• unshieled, max.150 m• unshieled, max.150 mAnalog inputs2Input ranges• Voltage (rated values), voltagesVes• Number of analog inputs, voltagesYes• O to +10 VYes- Input resistance (0 to 10 V)2100k ohmsCable length• shielded, max.100 m; twisted and shieldedAnalog outputs0Cable length0• Shielded, max.100 m; twisted and shieldedAnalog outputs0Cable length0• Shielded, max.10 bit• Shielded, max.10 bit• Integration and conversion time/resolution per channel625 µs• Conversion time (per channel)625 µs• Conversion time (per channel)625 µs• Conversion time (per channel)PROFINET• Integration der sinsion rateYes• LinterfaceYesInterface typePROFINETPhysicsEthernetIsolatidYesautomatic detection of transmission rateYes• Number of ports1• Number of ports1• Number of ports1• Number of ports1• Integrated switchNo• Integrated switchNo  | • "1" to "0", max.                                   | 10 ms; max.  |
| Number of operating cycles, max.         mechanically 10 million, at rated load voltage 100 000           Cable length         500 m           • shielded, max.         500 m           • unshielded, max.         150 m           Analog inputs         2           Number of analog inputs         2           Input ranges (rated values), voltages         2           • Voltage         Yes           • Input renges (rated values), voltages         2           • Input resistance (0 to 10 V)         Yes           Cable length         3           • shielded, max.         100 m; twisted and shielded           Analog outputs         0           Analog outputs         0           Analog outputs         0           Number of analog outputs         0           Analog outputs         10 bit           mex.         10 bit           e.solution with overrange (bit including sign), max.         10 bit           e.Conversion time (per channel)         Yes           Encoder         Yes           Connectable encoders         Yes           e.Varies ensor         Yes           Interface type         PROFINET           Physics         Elthernet <thauto< td=""><td>Relay outputs</td><td></td></thauto<> | Relay outputs  |  |
| Cable length         500 m           • shielded, max.         500 m           • unshielded, max.         160 m           Analog inputs         Input resperiment           Number of analog inputs         2           Input ranges (rated values), voltages         Ves           • 0 to +10 V         Yes           - Input resistance (0 to 10 V)         Yes           Cable length         -           • shielded, max.         100 m; twisted and shielded           Analog outputs         0           Number of analog outputs         0           Analog outputs         0           Number of analog outputs         0           Analog outputs         0           Integration and conversion time/resolution per channel         -           • Resolution with overrange (bit including sign), max.         10 bit           • Integration time, parameterizable         Yes           • Conversion time (per channel)         625 µs           Encoder         -           Connectable encoders         Yes           • Zwier sensor         Yes           Interface         -           Interface type         PROFINET           Physics         Ethermet           Isolated<   | <ul> <li>Number of relay outputs</li> </ul>          | 10   |
| • shelded, max.500 m• unshielded, max.150 mAnalog inputs2Input rangesYes• VoltageYes• Voltage (rated values), voltagesYes• 0 to +10 VYes— Input resistance (0 to 10 V)>100k ohmsCable length2• shielded, max.100 m; twisted and shieldedAnalog outputs0Number of analog outputs0Integration and conversion time/resolution per channel10 bit• Resolution with overrange (bit including sign), max.10 bit• Integration and conversion time/resolution per channel25 jis• Conversion time (per channel)25 jis• Zonversion time (per channel)10 bit• LiterafaceYes• Analog value generation for the inputs10 bit• Integration sitime/resolution per channel25 jis• Conversion time (per channel)25 jis• Conversion time (per channel)25 jis• LiterafaceYes• LiterafaceYes• AutoregotiationYesautomatic detection of transmission rateYesAutonegotiationYesAutonegotiationYesAutonegotiationYesAutoresoring1• Number of ports1• Interface typeProvide• Number of ports1• Number of ports1• Number of ports1• Interface types1• Number of ports1• Number of ports1<   | <ul> <li>Number of operating cycles, max.</li> </ul> | mechanically 10 million, at rated load voltage 100 000 |
| • unshielded, max.         150 m           Analog inputs         2           Number of analog inputs         2           Input ranges         Yes           • Voltage         Yes           • 0 to +10 V         Yes           - Input resistance (0 to 10 V)         2100k ohms           Cable length         2           • shielded, max.         100 m; twisted and shielded           Analog outputs         0           Analog outputs         0           Analog value generation for the inputs         100 m; twisted and shielded           Analog value generation for the inputs         0           Max.         0         0           • Resolution with overange (bit including sign), max.         10 bit           • Integration time, parameterizable         Yes           • Conversion time (per channel)         625 µs           Encoder         Yes           Interface type         PROFINET           Physics         Ethernet           Isolad         Yes           automatic detection of transmission rat                 | Cable length   |  |
| Analog inputs         Z           Number of analog inputs         Z           Input ranges         Yes           • Voitage         Yes           Input ranges (rated values), voitages         >           • 0 to +10 V         Yes           - Input resistance (0 to 10 V)         >           > to b +10 V         >           - Input resistance (0 to 10 V)         >           > shielded, max.         100 m; twisted and shielded           Analog outputs         0           Analog outputs         0           Analog value generation for the inputs         Integration and conversion time/resolution per channel           • Resolution with overrange (bit including sign), max.         10 bit           • Integration time, parameterizable         Yes           • Conversion time (per channel)         625 µs           Encoder         Yes           Connectable encoders         Yes           • 2-wire sensor         Yes           Interface type         PROFINET           Physics         Ethernet           Isolated         Yes           Autoregotiation         Yes           Autoregotiation         Yes           Autoregotiation         Yes           Au   | <ul> <li>shielded, max.</li> </ul>                   | 500 m  |
| Number of analog inputs         2           Input ranges         Ves           Input ranges (rated values), voltages         Ves           • 0 to +10 V         Yes           - Input resistance (0 to 10 V)         ≥100k ohms           Cable length         • shielded, max.           • shielded, max.         100 m; twisted and shielded           Analog outputs         0           Number of analog outputs         0           Analog value generation for the inputs         0           Analog value generation for the inputs         10 bit           • Resolution with overrange (bit including sign), max.         10 bit           • Integration time (per channet)         625 µs           Encoder         Yes           Connectable encoders         Yes           • 2-wire sensor         Yes           Interface type         PROFINET           Interface type         Yes           automatic detection of transmission rate         Yes           automatic detection of transmission rate         Yes           Autoregotiation         Yes           Autoregotiation         Yes           Number of ports         1           • integrated switch         No   | • unshielded, max.                                   | 150 m  |
| Input ranges         Yes           Input ranges (rated values), voltages         Yes           0 to +10 V         Yes           - Input resistance (0 to 10 V)         Yes           Cable length         0           - Input resistance (0 to 10 V)         100 m; twisted and shielded           Analog outputs         0           Analog outputs         0           Analog outputs         0           Analog outputs         0           Integration and conversion time/resolution per channel         Integration and conversion time/resolution per channel           • Resolution with overrange (bit including sign), max.         10 bit           • Integration time, parameterizable         Yes           • Conversion time (per channel)         625 µs           Encoder         Yes           • Conversion time (per channel)         625 µs           Encoder         Yes           • Linerface         Yes           • Linerface         Yes           Interface type         PROFINET           Physics         Ethernet           Isolated         Yes           automatic detection of transmission rate         Yes           Autocrossing         Yes           Autocrossing         1                        | Analog inputs  |  |
| • Voltage         Yes           Input ranges (rated values), voltages         Yes           • 0 to +10 V         >100k ohms           Cable length         >100 m; twisted and shielded           • shielded, max.         100 m; twisted and shielded           Analog outputs         0           Analog outputs         0           Analog outputs         0           Analog value generation for the inputs         0           Analog value generation for the inputs         0           Analog value generation for the inputs         0           max.         0           • Resolution with overrange (bit including sign), max.         10 bit           • Integration time, parameterizable         Yes           • Conversion time (per channel)         625 μs           Encoder         2           • Connectable encoders         1           • 2-wire sensor         Yes           Interface type         PROFINET           Physics         Ethernet           Isolated         Yes           automatic detection of transmission rate         Yes           Autoecossing         Yes           Interface types  | Number of analog inputs                              | 2  |
| Input ranges (rated values), voltages           ● 0 to +10 V         Yes           — Input resistance (0 to 10 V)         ≥100k ohms           Cable length         =           • shielded, max.         100 m; twisted and shielded           Analog outputs         0           Analog outputs         0           Analog value generation for the inputs         0           Integration and conversion time/resolution per channel         •           • Resolution with overrange (bit including sign), max.         10 bit           • Integration time, parameterizable         Yes           • Conversion time (per channel)         625 μs           Connectable encoders         •           • 2-wire sensor         Yes           Interface type         PROFINET           Physics         Ethernet           Isolated         Yes           automatic detection of transmission rate         Yes           Autocrossing         Yes           Autocrossing         Yes           Interface types         Yes           • Number of ports         1           • Number of ports         1           • integrated switch         No   | Input ranges   |  |
| • 0 to +10 V       Yes         Input resistance (0 to 10 V)       ≥100k ohms         Cable length       100 m; twisted and shielded         • shielded, max.       100 m; twisted and shielded         Analog outputs       0         Number of analog outputs       0         Analog value generation for the inputs       10 bit         Integration and conversion time/resolution per channel       •         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 μs         Encoder       2-wire sensor         Ves       10 bit         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autoregotiation       Yes         Autoregotiation       Yes         Interface types       Yes         Number of ports       1         • Number of ports       1         • integrated switch       No  | Voltage  | Yes  |
| → Input resistance (0 to 10 V)         ≥100k ohms           Cable length         100 m; twisted and shielded           • shielded, max.         100 m; twisted and shielded           Analog outputs         0           Analog value generation for the inputs         0           Integration and conversion time/resolution per channel         •           • Resolution with overrange (bit including sign), max.         10 bit           • Integration time, parameterizable         Yes           • Conversion time (per channel)         625 μs           Encoder         •           Connectable encoders         Yes           • 2-wire sensor         Yes           Interface type         PROFINET           Physics         Ethernet           Isolated         Yes           Autonegotiation         Yes           Autoresosing         Yes           • Number of ports         1           • Number of ports         1           • Interface types         Yes           • Number of ports         1           • Interface types         Yes           • Interface types         Yes           • Interface types         Yes           • Interface types         Yes  | Input ranges (rated values), voltages                |  |
| Cable length       100 m; twisted and shielded         Analog outputs       0         Analog outputs       0         Analog value generation for the inputs       0         Integration and conversion time/resolution per channel       • Resolution with overrange (bit including sign), max.         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       Ves         Connectable encoders       Yes         • 2-wire sensor       Yes         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autoregotiation       Yes         Autoregotiation       Yes         Number of ports       1         • integrate switch       No   | • 0 to +10 V   | Yes  |
| • shielded, max.     100 m; twisted and shielded       Analog outputs     0       Analog value generation for the inputs     0       Integration and conversion time/resolution per channel     10 bit       • Resolution with overrange (bit including sign), max.     10 bit       • Integration time, parameterizable     Yes       • Conversion time (per channel)     625 µs       Encoder     Encoders       • 2-wire sensor     Yes       • 1nterface type     PROFINET       Physics     Ethernet       Isolated     Yes       automatic detection of transmission rate     Yes       Autocrossing     Yes       Interface types     Yes       • Number of ports     1       • Number of ports     1       • integrated switch     No  | — Input resistance (0 to 10 V)                       | ≥100k ohms   |
| Analog outputs       0         Analog value generation for the inputs       0         Integration and conversion time/resolution per channel       0         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       Ves         • 2-wire sensor       Yes         • 1 Interface       Yes         Interface type       PROFINET         Physics       Ethermet         Isolated       Yes         automatic detection of transmission rate       Yes         Autocrossing       Yes         Autocrossing       Yes         Number of ports       1         • Number of ports       1         • integrated switch       No  | Cable length   |  |
| Number of analog outputs     0       Analog value generation for the inputs       Integration and conversion time/resolution per channel       • Resolution with overrange (bit including sign),<br>max.     10 bit       • Integration time, parameterizable     Yes       • Conversion time (per channel)     625 µs       Encoder     625 µs       Connectable encoders     Yes       • 2-wire sensor     Yes       Interface     Yes       Interface type     PROFINET       Physics     Ethernet       Isolated     Yes       automatic detection of transmission rate     Yes       Autocrossing     Yes       Interface types     Yes       • Number of ports     1       • Number of ports     1       • integrated switch     No  | <ul> <li>shielded, max.</li> </ul>                   | 100 m; twisted and shielded                            |
| Analog value generation for the inputs         Integration and conversion time/resolution per channel         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       Connectable encoders         • 2-wire sensor       Yes         • 1nterface       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autocrossing       Yes         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         Autocrossing       Yes         Interface types       Yes         • Number of ports       1         • integrated switch       No   | Analog outputs                                       |  |
| Integration and conversion time/resolution per channel         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       625 µs         • 2-wire sensor       Yes         • 2-wire sensor       Yes         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autorossing       Yes         Interface types       Yes         ethernet       Yes         Isolated       Yes         Autorossing       Yes         Number of ports       1         • Number of ports       1         • integrated switch       No   | Number of analog outputs                             | 0  |
| • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 μs         Encoder       Encoders         • 2-wire sensor       Yes         1 Interface       Yes         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autoregotiation       Yes         Autoregotiation       Yes         Interface types       Yes         • Number of ports       1         • Number of ports       1         • Number of ports       No         • integrated switch       No   |  |  |
| max.       Yes         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       Encoders         • 2-wire sensor       Yes         • 1. Interface       Yes         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autoregotiation       Yes         Autoregotiation       Yes         Interface types       Yes         • Number of ports       1         • Number of ports       No         • integrated switch       No   |  |  |
| • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       Encoders         • 2-wire sensor       Yes         1 Interface       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autoregotiation       Yes         Autoregotiation       Yes         Interface types       Yes         • Number of ports       1         • Number of ports       1         • integrated switch       No   |  | 10 bit   |
| • Conversion time (per channel)       625 μs         Encoder          Connectable encoders       Yes         • 2-wire sensor       Yes         Interface       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autonegotiation       Yes         Autorossing       Yes         Interface types       Yes         • Number of ports       1         • integrated switch       No  |  | N  |
| Encoder Connectable encoders  • 2-wire sensor Interface Interface Interface type PROFINET Physics Ethernet Isolated Yes automatic detection of transmission rate Autonegotiation Yes Autonegotiation Yes Interface types • Number of ports • integrated switch Protocols   |  |  |
| Connectable encoders       Yes         • 2-wire sensor       Yes         1. Interface       PROFINET         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autonegotiation       Yes         Autocrossing       Yes         Interface types       1         • Number of ports       1         • integrated switch       No  | <ul> <li>Conversion time (per channel)</li> </ul>    | 625 µs   |
| • 2-wire sensor       Yes         1. Interface       PROFINET         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autonegotiation       Yes         Autocrossing       Yes         Interface types       Yes         • Number of ports       1         • integrated switch       No         Protocols       Yes   | Encoder  |  |
| Interface       Interface type     PROFINET       Physics     Ethernet       Isolated     Yes       automatic detection of transmission rate     Yes       Autonegotiation     Yes       Autocrossing     Yes       Interface types     Yes       • Number of ports     1       • integrated switch     No   | Connectable encoders                                 |  |
| Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autonegotiation       Yes         Autocrossing       Yes         Interface types       Yes         • Number of ports       1         • integrated switch       No   | • 2-wire sensor                                      | Yes  |
| Physics     Ethernet       Isolated     Yes       automatic detection of transmission rate     Yes       Autonegotiation     Yes       Autocrossing     Yes       Interface types     Yes       • Number of ports     1       • integrated switch     No   | 1. Interface   |  |
| IsolatedYesautomatic detection of transmission rateYesAutonegotiationYesAutocrossingYesInterface typesYes• Number of ports1• integrated switchNoProtocolsInterface types   |  | PROFINET   |
| automatic detection of transmission rate       Yes         Autonegotiation       Yes         Autocrossing       Yes         Interface types       Yes         • Number of ports       1         • integrated switch       No         Protocols       Yes   | Physics  | Ethernet   |
| Autonegotiation     Yes       Autocrossing     Yes       Interface types     Yes       • Number of ports     1       • integrated switch     No       Protocols     Yes  | Isolated   | Yes  |
| Autocrossing     Yes       Interface types     1       • Number of ports     1       • integrated switch     No       Protocols  | automatic detection of transmission rate             | Yes  |
| Interface types       • Number of ports       • integrated switch       Protocols  | Autonegotiation                                      | Yes  |
| • Number of ports     1       • integrated switch     No       Protocols   | Autocrossing   | Yes  |
| integrated switch     No Protocols   | Interface types                                      |  |
| Protocols  | Number of ports                                      | 1  |
|  | <ul> <li>integrated switch</li> </ul>                | No   |
| PROFINET IO Controller     Yes   | Protocols  |  |
|  | PROFINET IO Controller                               | Yes  |

| PROFINET IO Device  | Yes   |
|---|---|
| <ul> <li>SIMATIC communication</li> </ul>   | Yes   |
| Open IE communication   | Yes; Optionally also encrypted  |
| Web server  | Yes   |
| Media redundancy  | No  |
| PROFINET IO Controller  |   |
| <ul> <li>Transmission rate, max.</li> </ul>   | 100 Mbit/s  |
| Services  |   |
| — PG/OP communication   | Yes   |
| — S7 routing  | Yes   |
| — Isochronous mode  | No  |
| — IRT   | No  |
| — MRP   | No  |
| — MRPD  | No  |
| — PROFlenergy   | No  |
| — Prioritized startup   | Yes   |
| <ul> <li>— Number of IO devices with prioritized</li> </ul>   | 16  |
| startup, max.   |   |
| <ul> <li>Number of connectable IO Devices, max.</li> </ul>  | 16  |
| - Number of connectable IO Devices for RT,  | 16  |
| max.  |   |
| — of which in line, max.  | 16  |
| <ul> <li>Activation/deactivation of IO Devices</li> </ul>   | Yes   |
| <ul> <li>— Number of IO Devices that can be<br/>simultaneously activated/deactivated, max.</li> </ul> | 8   |
| — Updating time   | The minimum value of the update time also depends on the communication component set for PROFINET IO, on the number |

of IO devices and the quantity of configured user data.

### **PROFINET IO Device**

| Services                               |     |
|--|-----|
| — PG/OP communication                  | Yes |
| — S7 routing                           | Yes |
| — Isochronous mode                     | No  |
| — IRT                                  | No  |
| — MRP                                  | No  |
| — MRPD                                 | No  |
| — PROFlenergy                          | Yes |
| — Shared device                        | Yes |
| — Number of IO Controllers with shared | 2   |
| device, max.                           |     |
| Protocols                              |     |
| Supports protocol for PROFINET IO      | Yes |
|  |     |

| PROFIBUS   | Yes; CM 1243-5 (master) or CM 1242-5 (slave) required                              |
|--|--|
| AS-Interface   | Yes; CM 1243-2 required  |
| Protocols (Ethernet)   |  |
| • TCP/IP   | Yes  |
| • DHCP   | No   |
| • SNMP   | Yes  |
| • DCP  | Yes  |
| • LLDP   | Yes  |
| Open IE communication  |  |
| • TCP/IP   | Yes  |
| — Data length, max.  | 8 kbyte  |
| <ul> <li>ISO-on-TCP (RFC1006)</li> </ul>   | Yes  |
| — Data length, max.  | 8 kbyte  |
| • UDP  | Yes  |
| — Data length, max.  | 1 472 byte   |
| Web server   |  |
| supported  | Yes  |
| <ul> <li>User-defined websites</li> </ul>  | Yes  |
| OPC UA   |  |
| Runtime license required   | Yes; "Basic" license required  |
| OPC UA Server  | Yes; Data access (read, write, subscribe), runtime license                         |
|  | required   |
| <ul> <li>Application authentication</li> </ul>                                     | Available security policies: None, Basic128Rsa15,<br>Basic256Rsa15, Basic256Sha256 |
| — User authentication  | "anonymous" or by user name & password   |
| — Number of sessions, max.   | 5  |
| <ul> <li>— Number of accessible variables, max.</li> </ul>                         | 1 000  |
| <ul> <li>— Number of subscriptions per session, max.</li> </ul>                    | 5  |
| — Sampling interval, min.  | 100 ms   |
| — Publishing interval, min.  | 200 ms   |
| — Number of monitored items, max.  | 500  |
| — Number of server interfaces, max.  | 2  |
| <ul> <li>— Number of nodes for user-defined server<br/>interfaces, max.</li> </ul> | 1 000  |
| Further protocols  |  |
| MODBUS   | Yes  |
| 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

8 connections for open user communication (active or passive): TSEND\_C, TRCV\_C, TCON, TDISCON, TSEND and TRCV, 8 CPU/CPU connections (Client or Server) for GET/PUT data, 6 connections for dynamic assignment to GET/PUT or open user communication

| Test commissioning functions                             |   |
|--|---|
| Status/control   |   |
| <ul> <li>Status/control variable</li> </ul>              | Yes   |
| Variables  | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, |
|  | counters  |
| Forcing  |   |
| Forcing  | Yes   |
| Diagnostic buffer  |   |
| • present  | Yes   |
| Traces   |   |
| <ul> <li>Number of configurable Traces</li> </ul>        | 2   |
| <ul> <li>Memory size per trace, max.</li> </ul>          | 512 kbyte   |
| Interrupts/diagnostics/status information                |   |
| Diagnostics indication LED                               |   |
| • RUN/STOP LED   | Yes   |
| • ERROR LED  | Yes   |
| • MAINT LED  | Yes   |
| Integrated Functions                                     |   |
| Number of counters                                       | 6   |
| Counting frequency (counter) max.                        | 100 kHz   |
| Frequency measurement                                    | Yes   |
| controlled positioning                                   | Yes   |
| Number of position-controlled positioning axes, max.     | 8   |
| Number of positioning axes via pulse-direction           | Up to 4 with SB 1222  |
| interface  |   |
| PID controller   | Yes   |
| Number of alarm inputs                                   | 4   |
| Potential separation                                     |   |
| Potential separation digital inputs                      |   |
| <ul> <li>Potential separation digital inputs</li> </ul>  | 500V AC for 1 minute  |
| • between the channels, in groups of                     | 1   |
| Potential separation digital outputs                     |   |
| <ul> <li>Potential separation digital outputs</li> </ul> | Relays  |
|  |   |
| <ul> <li>between the channels</li> </ul>                 | No  |

| EMC   |  |
|---|--|
| Interference immunity against discharge of static electri   | city   |
| <ul> <li>Interference immunity against discharge of<br/>static electricity acc. to IEC 61000-4-2</li> </ul>   | Yes  |
| — Test voltage at air discharge   | 8 kV   |
| — Test voltage at contact discharge   | 6 kV   |
| Interference immunity to cable-borne interference   |  |
| • Interference immunity on supply lines acc. to IEC 61000-4-4   | Yes  |
| <ul> <li>Interference immunity on signal cables acc. to<br/>IEC 61000-4-4</li> </ul>  | Yes  |
| Interference immunity against voltage surge   |  |
| <ul> <li>Interference immunity on supply lines acc. to<br/>IEC 61000-4-5</li> </ul>   | Yes  |
| Interference immunity against conducted variable distur   | bance induced by high-frequency fields   |
| <ul> <li>Interference immunity against high-frequency<br/>radiation acc. to IEC 61000-4-6</li> </ul>  | Yes  |
| Emission of radio interference acc. to EN 55 011  |  |
| <ul> <li>Limit class A, for use in industrial areas</li> </ul>  | Yes; Group 1   |
| <ul> <li>Limit class B, for use in residential areas</li> </ul>   | Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011   |
| Degree and class of protection  |  |
|   |  |
| IP degree of protection   | IP20   |
|   | IP20   |
| IP degree of protection   | IP20<br>Yes  |
| IP degree of protection<br>Standards, approvals, certificates   |  |
| IP degree of protection<br>Standards, approvals, certificates<br>CE mark  | Yes  |
| IP degree of protection<br>Standards, approvals, certificates<br>CE mark<br>UL approval<br>cULus<br>FM approval   | Yes<br>Yes   |
| IP degree of protection<br>Standards, approvals, certificates<br>CE mark<br>UL approval<br>cULus<br>FM approval<br>RCM (formerly C-TICK)  | Yes<br>Yes<br>Yes<br>Yes<br>Yes  |
| IP degree of protection<br>Standards, approvals, certificates<br>CE mark<br>UL approval<br>cULus<br>FM approval<br>RCM (formerly C-TICK)<br>KC approval   | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes   |
| IP degree of protection<br>Standards, approvals, certificates<br>CE mark<br>UL approval<br>cULus<br>FM approval<br>RCM (formerly C-TICK)  | Yes<br>Yes<br>Yes<br>Yes<br>Yes  |
| IP degree of protection<br>Standards, approvals, certificates<br>CE mark<br>UL approval<br>cULus<br>FM approval<br>RCM (formerly C-TICK)<br>KC approval   | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes   |
| IP degree of protection<br>Standards, approvals, certificates<br>CE mark<br>UL approval<br>cULus<br>FM approval<br>RCM (formerly C-TICK)<br>KC approval<br>Marine approval  | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes   |
| IP degree of protection<br>Standards, approvals, certificates<br>CE mark<br>UL approval<br>cULus<br>FM approval<br>RCM (formerly C-TICK)<br>KC approval<br>Marine approval<br>Ambient conditions  | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes   |
| IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Ambient conditions Free fall   | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes  |
| IP degree of protection<br>Standards, approvals, certificates<br>CE mark<br>UL approval<br>cULus<br>FM approval<br>RCM (formerly C-TICK)<br>KC approval<br>Marine approval<br>Marine approval<br>Free fall<br>• Fall height, max.   | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes   |
| IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Ambient conditions Free fall • Fall height, max. Ambient temperature during operation  | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>O.3 m; five times, in product package   |
| IP degree of protection          Standards, approvals, certificates         CE mark         UL approval         cULus         FM approval         RCM (formerly C-TICK)         KC approval         Marine approval         Ambient conditions         Free fall         • Fall height, max.         Ambient temperature during operation         • min.                | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>O.3 m; five times, in product package<br>-20 °C<br>60 °C; Number of simultaneously activated inputs or outputs 7 or<br>5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or   |
| IP degree of protection          Standards, approvals, certificates         CE mark         UL approval         cULus         FM approval         RCM (formerly C-TICK)         KC approval         Marine approval         Ambient conditions         Free fall         • Fall height, max.         Ambient temperature during operation         • min.         • max. | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>O.3 m; five times, in product package<br>-20 °C<br>60 °C; Number of simultaneously activated inputs or outputs 7 or<br>5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or<br>10 at 55 °C horizontal or 45 °C vertical           |
| IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Ambient conditions Free fall • Fall height, max. Ambient temperature during operation • min. • max. • horizontal installation, min.  | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>O.3 m; five times, in product package<br>-20 °C<br>60 °C; Number of simultaneously activated inputs or outputs 7 or<br>5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or<br>10 at 55 °C horizontal or 45 °C vertical<br>-20 °C |

| <ul> <li>vertical installation, max.</li> </ul>                                     | 50 °C   |
|---|---|
| Ambient temperature during storage/transportation                                   |   |
| • min.  | -40 °C  |
| • max.  | 70 °C   |
| Air pressure acc. to IEC 60068-2-13   |   |
| Operation, min.   | 795 hPa   |
| • Operation, max.   | 1 080 hPa   |
| <ul> <li>Storage/transport, min.</li> </ul>   | 660 hPa   |
| Storage/transport, max.   | 1 080 hPa   |
| Altitude during operation relating to sea level                                     |   |
| Installation altitude, min.   | -1 000 m  |
| <ul> <li>Installation altitude, max.</li> </ul>                                     | 2 000 m   |
| Relative humidity   |   |
| • Operation, max.   | 95 %; no condensation   |
| Vibrations  | ·   |
| <ul> <li>Vibration resistance during operation acc. to<br/>IEC 60068-2-6</li> </ul> | 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail   |
| <ul> <li>Operation, tested according to IEC 60068-2-6</li> </ul>                    | 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  |   |
| <ul> <li>SO2 at RH &lt; 60% without condensation</li> </ul>                         | S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free                                |
| Configuration   |   |
| Programming   |   |
| Programming language  |   |
| — LAD   | Yes   |
| — FBD   | Yes   |
| — SCL   | Yes   |
| Know-how protection   |   |
| <ul> <li>User program protection/password protection</li> </ul>                     | Yes   |
| <ul> <li>Copy protection</li> </ul>   | Yes   |
| Block protection  | Yes   |
| Access protection   |   |
| <ul> <li>Protection level: Write protection</li> </ul>                              | Yes   |
| <ul> <li>Protection level: Read/write protection</li> </ul>                         | Yes   |
| <ul> <li>Protection level: Complete protection</li> </ul>                           | Yes   |
| Cycle time monitoring   |   |
| • adjustable  | Yes   |
| Dimensions  |   |
| Width   | 110 mm  |

| Height          | 100 mm     |
|-----------------|------------|
| Depth           | 75 mm      |
| Weights         |            |
| Weight, approx. | 435 g      |
| last modified:  | 07/10/2020 |