## SIEMENS

## Data sheet

## 6AG1215-1BG40-2XB0



SIPLUS S7-1200 CPU 1215C AC/DC/relay -40...+70°C with conformal coating based on 6ES7215-1BG40-0XB0 . compact CPU, AC/DC/relay, 2 PROFINET Port,onboard I/O: 14 DI 24 VDC 10 DO relay 2 A 2 AI 0-10 VDC 2 AO 0-20 mA DC Power supply: 85-264V AC @ 47-63 Hz, Program/data memory 125 KB

| General information                                     |  |
|---|--|
| Product type designation                                | CPU 1215C AC/DC/relay                  |
| Firmware version  | V4.1                                   |
| Engineering with  |  |
| <ul> <li>Programming package</li> </ul>                 | STEP 7 V13 SP1 or higher               |
| Supply voltage  |  |
| Rated value (AC)  |  |
| • 120 V AC  | Yes                                    |
| • 230 V AC  | Yes                                    |
| permissible range, lower limit (AC)                     | 85 V                                   |
| permissible range, upper limit (AC)                     | 265 V                                  |
| Line frequency  |  |
| <ul> <li>permissible range, lower limit</li> </ul>      | 47 Hz                                  |
| <ul> <li>permissible range, upper limit</li> </ul>      | 63 Hz                                  |
| Input current   |  |
| Current consumption (rated value)                       | 100 mA at 120 V AC; 50 mA at 240 V AC  |
| Current consumption, max.                               | 300 mA at 120 V AC; 150 mA at 240 V AC |
| Inrush current, max.                                    | 20 A; at 264 V                         |
| Encoder supply  |  |
| 24 V encoder supply                                     |  |
| • 24 V  | 20.4 to 28.8V                          |
| Power loss  |  |
| Power loss, typ.  | 12 W                                   |
| Memory  |  |
| Work memory   |  |
| <ul> <li>integrated</li> </ul>                          | 100 kbyte                              |
| expandable  | No                                     |
| Load memory   |  |
| <ul> <li>integrated</li> </ul>                          | 4 Mbyte                                |
| <ul> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul> | with SIMATIC memory card               |
| Backup  |  |
| • present   | Yes; maintenance-free                  |
| <ul> <li>without battery</li> </ul>                     | Yes                                    |
| CPU processing times                                    |  |
| for bit operations, typ.                                | 0.085 μs; / instruction                |
| for word operations, typ.                               | 1.7 µs; / instruction                  |
| for floating point arithmetic, typ.                     | 2.5 µs; / instruction                  |

| Number of blocks (tota)         DBS, FCS, FES, counters and timers. The maximum number of<br>addressable backs arages after to 65535. There is no restriction, the<br>entire working memory can be used           68         Limited only by RAM for code           • Number, max.         Limited only by RAM for code           • Star ansa, and hole instantioly         8 kbyte; Size of bit memory address area           • Star ansa, and substable         10 kbyte           • Star, max.         8 kbyte; Size of bit memory address area           Address area         8 kbyte; Size of bit memory address area           Address area         9           • Orgons, adjustable         1 kbyte           • Orgons, adjustable <td< th=""><th>CPU-blocks</th><th></th></td<>  | CPU-blocks                                     |   |
|--|--|---|
| OR         Limited only by RAM for code           Data areas and their retentivity         10 kbyte           Field         8 kbyte; Size of bit memory address area           Address area         8 kbyte; Size of bit memory address area           Address area         10 kbyte           Process image         1 kbyte           - Inputs, adjustable         1 kbyte           - Outputs, adjustable         1 kbyte           - Number of moldles per system, max.         3 communication modules, no signal board can be used, 8 signal modules           Time of day         Clock           Clock         - Hardware clock (reak-time)           - Backup inne         480 h: Typical           - Dovabor per day, max.         260 simonth at 25 °C           Digital inputs         14; Inlegrated           - Or vabor per day, max.         260 simonth at 25 °C           Digital inputs         14; Inlegrated           - Or vabor per day, max.         260 simonth at 25 °C           Digital inputs         14; Inlegrated           - Or vabor of digital inputs         14; Inlegrated           - Or vabor of signal °C         5 V DC at 1 mA           - for signal °C         5 V DC at 1 mA           - for signal °C         5 V DC at 25 mA           Input Obligy Cra  |  | addressable blocks ranges from 1 to 65535. There is no restriction, the |
| Data area and thair relativity         10 kbyte           Referitive data area (ind: timers, counters, flags); max.         10 kbyte           Flag         8 kbyte; Size of bit memory address area           Address area         Process image           • Inputs, adjustable         1 kbyte           • Outputs, adjustable         1 kbyte           • Outputs, adjustable         1 kbyte           Ital of day         3 communication modules, no signal board can be used, 8 signal modules           Tites of day         -           Clock         480 h; Typical           • Backup time         480 h; Typical           • Boakup time         480 h; Typical           • of which inputs usable for technological functions         5 (HSC (High Speed Counting)           • Guravish input         Yes           Number of signal inputs end to the technological functions         14 (Integrated end to the top  | OB   |   |
| Data area and thair relativity         10 kbyte           Referitive data area (ind: timers, counters, flags); max.         10 kbyte           Flag         8 kbyte; Size of bit memory address area           Address area         Process image           • Inputs, adjustable         1 kbyte           • Outputs, adjustable         1 kbyte           • Outputs, adjustable         1 kbyte           Ital of day         3 communication modules, no signal board can be used, 8 signal modules           Tites of day         -           Clock         480 h; Typical           • Backup time         480 h; Typical           • Boakup time         480 h; Typical           • of which inputs usable for technological functions         5 (HSC (High Speed Counting)           • Guravish input         Yes           Number of signal inputs end to the technological functions         14 (Integrated end to the top  | Number, max.                                   | Limited only by RAM for code  |
| Reference       10 kbyte         Flag       • Size, max.       8 kbyte: Size of bit memory address area         Address area       Process image         • Inputs, adjustable       1 kbyte         • Conguts, adjustable       1 kbyte         • Ordputs, adjustable       1 kbyte         • Ordputs, adjustable       1 kbyte         • Address area       3 communication modules, no signal board can be used, 8 signal modules         Time of day       Clock         • Glock       • Mardware clock (real-line)         • Backup infe       480 h; Typical         • Backup infe       480 h; Typical         • Or drightal inputs       14, Integrated         • Ord vinch inputs usable for technological functions       5 VDC at 1 mA         • Gr signal '0"       5 VDC at 1 mA         • for signal '1"       15 VDC at 2 ms         Input delay (for rated value (for)       24 V         • for signal '1", max.       12.8 ms         for ingral '1"       15 VDC at 2 ms         - at 10" to 1"; max.       12.8 ms         for iteractions       Yes; 02 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 10" to 1"; max.       12.8 ms         for iterachyolaci, max.       10 ms; max.   | Data areas and their retentivity               |   |
| File       B kbyte; Size of bit memory address area         Address area       Process image         Inputs, adjustable       1 kbyte         Unputs, adjustable       1 kbyte         Number of modules per system, max.       3 communication modules, no signal board can be used, 8 signal modules         Time of day         Clock       • Hardware clock (real-line)         • Hardware clock (real-line)       Yes         • Backup time       480 h; Typical         • Deviation per day, max.       ±60 s/month at 25 °C         Digital inputs       14; Integrated         • of which input usable for technological functions       6; HSC (High Speed Counting)         SourceArink input       Yes         Number of digital inputs       14         • of which inputs usable for technological functions       7; HSC (High Speed Counting)         SourceArink input       Yes         Number of digital inputs       14         Input datage       14         • for signal 1°*       5 V DC at 1 mA         • for signal 1°*       5 V DC at 1 mA         • for signal 1°*       15 V DC at 2.5 mA         Input datage (for interrupt inputs       - parameterizable         • or signal 1°*       2 ms         • for interrupt inputs  |  | 10 kbyte  |
| • Size, max.       B kbyte: Size of bit memory address area       Address       Address       Address area       Address       Addres       Address       Addres       Address       Addres |  | TO KUYIC  |
| Address arca         Process image         • Inputs, adjustable       1 kbyte         Vardware configuration         Number of modules per system, max.       3 communication modules, no signal board can be used, 8 signal modules         Time of day         Clock       • Hardware clock (real-time)         • Backup time       480 h; Typical         • Deviation per day, max.       480 simonth at 25 °C         Optical inputs       14; Integrated         • of which inputs usable for technological functions       5; HSC (High Speed Counting)         Source/sink input       Yes         Number of simultaneously controllable inputs       14; Integrated         • of which inputs usable for technological functions       5; 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       6; YES (High Speed Counting)         for signal °C       5 V DC at 1 mA         · for signal °C       5 V DC at 2.5 mA         Input delay (for rated value of input voltage)       6 V signal ************************************  |  | 8 kbyte: Size of hit memory address area                                |
| Process image         • Inputs, adjustable       1 kbyte         • Outputs, adjustable       1 kbyte         Hardware configuration       3 communication modules, no signal board can be used, 8 signal modules         Time of day       Clock         • Hardware clock (real-time)       Yes         • Backup time       480 h; Typical         • Deviation per day, max.       260 s/month at 25 °C         Digital inputs       14: Integrated         • of which inputs usable for technological functions       9; HSC (High Speed Counting)         Sourcevisink input       Yes         Number of simultaneously controllable inputs       14         all mounting positions       14         — up to 40 °C, max.       14         Input voltage       For signal °C         for isongla 1°T       15 V DC at 2.5 mA         Input delay (for rated value of input voltage)       5 vol C at 1 mA         for isongla 1°T       15 V DC at 2.5 mA         Input delay (for rated value of input voltage)       6 value for 0 *1*, min.         — parameterizable       Yes         # of rol retrinking inputs       Yes         — parameterizable       Yes         for interrupt inputs       500 m; for technological functions         — parameterizabl  |  |   |
| <ul> <li>Inputs, adjustable</li> <li>I kbyte</li> <li>Outputs, adjustable</li> <li>I kbyte</li> <li>Outputs, adjustable</li> <li>I kbyte</li> <li>I k</li></ul>   |  |   |
| • Outputs. adjustable     1 kbyte       Hardware configuration     3 communication modules, no signal board can be used, 8 signal modules       Theo of ay     6       Clock     480 h; Typical       • Backup time     480 h; Typical       • Deviation per day, max.     260 simonth 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 digital inputs     6: HSC (High Speed Counting)       > Outputs adjustable     6: HSC (High Speed Counting)       > Source/sink input     Yes       Number of sinultaneously controllable inputs     6: HSC (High Speed Counting)       all mounting positions   |  | 4 libida  |
| Hardware configuration       3 communication modules, no signal board can be used, 8 signal modules         Time of day       3 communication modules, no signal board can be used, 8 signal modules         Clock       430 h; Typical         • Hardware clock (real-time)       Yes         • Backup time       430 h; Typical         • Deviation per day, max.       400 simonth at 25 °C         Original inputs       14; Integrated         • of which inputs usable for technological functions       6; HSC (High Speed Counting)         Sourcestark input       Yes         Number of simultaneously controllable inputs       14         all mounting positions       -         - up to 40 °C, max.       14         Input delay (for rated value of input voltage)       14 VS OL Cat 1 mA         • for signal °C       5 V DC at 1 mA         • for signal °C       5 V DC at 1 mA         • for signal °C       5 V DC at 2.5 mA         Input delay (for rated value of input voltage)       15 V DC at 2.5 mA         - at °O' to °1'; max.       12.8 ms         for interrupt inputs       -         - parameterizable       Yes: Single phase : 3 at 100 kHz & 3 at 30 kHz, differentia: 3 at 80 kHz         Cable length       • sinekided, max.       300 m; for technological functions <t< td=""><td></td><td></td></t<>   |  |   |
| Number of modules per system, max.         3 communication modules, no signal board can be used, 8 signal modules           Time of day         Modules           Clock         480 sincent at 25 °C           Opical inputs         480 sincent at 25 °C           Number of digital inputs         14: Integrated           o d which input susable for technological functions         6: HSC (High Speed Counting)           Source/sink input         Yes           Number of simultaneously controllable inputs         14: Integrated           all mounting positions  |  | 1 KDyte   |
| Imodules           Time of day           Clock           + Hardware clock (real-line)         Yes           • Backup time         480 h; Typlcal           • Deviation per day, max.         280 s/month at 25 °C           Digital inputs         41, Integrated           • of which inputs usable for technological functions         6; HSC (High Speed Counting)           Source/sink input         Yes           Number of simultaneously controllable inputs         6; HSC (High Speed Counting)           Source/sink input         Yes           Number of simultaneously controllable inputs         6; HSC (High Speed Counting)           Source/sink input         Yes           Number of signal "0"         5 V DC at 1 mA           if or signal "1"         15 V DC at 2.5 mA           Input delay (for rated value of input voltage)         for standard inputs           - parameterizable         Yes; 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         Yes: Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz           s bielded, max.         500 m; 50 m for technological functions: No           Digital outputs         10   |  |   |
| Clock       Yes <ul> <li>Hardware clock (real-time)</li> <li>Seckup time</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>z80 s/month at 25 °C</li> </ul> Digital inputs       14: Integrated <ul> <li>of which inputs usable for technological functions</li> <li>SUrcersistic kinput</li> <li>Yes</li> </ul> Number of simultaneously controllable inputs       14: Integrated         all mounting positions  | Number of modules per system, max.             |   |
| • Hardware clock (real-time)       Yes         • Backup time       480 h; Typical         • Deviables oper day, max.       ±60 s/month at 25 °C         Digital inputs       14; Integrated         • of which inputs usable for technological functions       6: HSC (High Speed Counting)         Sourcesink input       Yes         Number of simultaneously controllable inputs       14; Integrated         all mouting positions   | Time of day                                    |   |
| • Backup time     480 h; Typical       • Deviation per day, max.     ±00 simonth at 25 °C       Pointal inputs     14; Integrated       • of which inputs usable for technological functions     6; HSC (High Speed Counting)       Sourcesink input     Yes       Number of simultaneously controllable inputs     14       all mourting positions     14       — up to 40 °C, max.     14       Input voltage     5 V DC at 1 mA       • for signal °C     5 V DC at 1 mA       • for signal °C     5 V DC at 2.5 mA       Input delay (for rated value of input voltage)     For standard inputs       — parameterizable     Yes; 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 °C to °1*, max.     0.2 ms       — at °C to °1*, max.     12.8 ms       for technological functions     Yes       — parameterizable     Yes       ishielded, max.     500 m; 50 m for technological functions.       • nameterizable     Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz       Cable length     • sinshielded, max.       • sinshielded, max.     500 m; 50 m for technological functions.       • unshielded, max.     500 m; 50 m for technological functions       • unshielded, max.     30 W with DC, 200 W with AC       Output delay with resistive load, max.     2 A  | 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   | <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)         Sourcesink input       Yes         Number of simultaneously controllable inputs       14         Input voltage       14         Input voltage       5 V DC at 1 mA         • 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 1.5 mA         • at rol" to "1", min.       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", min.       0.2 ms         - at "0" to "1", max.       12.8 ms         for interrupt inputs       Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz         Cable length       Yes; So 0 m, for technological functions         • parameterizable       Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz         Object outputs       10; Relays         Switching capacity of the outputs       10; Relays         Switching capacity of the outputs       10 ms; max.         • with DC, 200 W with DC, 200 W with AC       Output delay with resistive load, max.         • 0" to "1"; max.       10 ms; max. <tr< td=""><td>Backup time</td><td>480 h; Typical</td></tr<>   | Backup time                                    | 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       14         all mounting positions   | <ul> <li>Deviation per day, max.</li> </ul>    | ±60 s/month at 25 °C  |
| • 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   | Digital inputs                                 |   |
| • 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   |  | 14; Integrated  |
| Source/sink input       Yes         Number of simultaneously controllable inputs       all mounting positions         all mounting positions      up to 40 °C, max.         Input voltage       24 V         • Fasted value (DC)       24 V         • for signal "1"       15 V DC at 1 mA         • for signal "1"       16 V DC at 2.5 mA         Input delay (for rated value of input voltage)       For standard inputs         - parameterizable       Yes; 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       Yes         - parameterizable       Yes         for technological functions       -         - parameterizable       Yes         if technological functions       -         - parameterizable       Yes         Sour technological functions       00 m; 50 m for technological functions         • unshielded, max.       500 m; 50 m for technological functions         • unshielded, max.       300 m; for technological functions         • unshielded, max.       300 W with DC, 200 W with AC         Output delay with resistive load       0 ms; max.         • on lamp load, max.  |  |   |
| 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 voltage   |  |   |
| 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"       16 V DC at 2.5 mA         Input delay (for rated value of input voltage)       •         for standard inputs       -         - parameterizable       Yes: 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 iterupt inputs       -         - parameterizable       Yes         for technological functions       -         - parameterizable       Yes         if the technological functions       -         - parameterizable       Yes         Sold ms.       500 m; 50 m for technological functions         • shielded, max.       500 m; 50 m for technological functions         • shielded, max.       500 m; for technological functions         • with resistive load, max.       30 W with DC, 200 W with AC         Output       -         • with resistive load, max.       2 A         • on lamp load, max.       30 W with DC, 200 W with AC         Output delay with resistive load, max.       10 ms; m  |  |   |
| 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 signal "1"       15 V DC at 2.5 mA         Input delay (for rated value of input voltage)       9         for standard inputs       -         - parameterizable       Yes; 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", man.       0.2 ms         - at "0" to "1", max.       12.8 ms         for interrupt inputs       -         - parameterizable       Yes         for technological functions       -         - parameterizable       Yes         shielded, max.       500 m; 50 m for technological functions         • unshielded, max.       300 m; for technological functions         • unshielded, max.       300 m; for technological functions         • with resistive load, max.       2 A         • with resistive load, max.       2 A         • with resistive load, max.       2 A         • on lamp load, max.       0 W with DC, 200 W with AC         Output delay with resistive load, max.       10 ms; max.         • "0  |  | 14  |
| • Rated value (DC)       24 V         • for signal "0"       5 V DC at 1 mA         • for signal "1"       15 V DC at 2.5 mA         Input delay (for rated value of input voltage)       -         for standard inputs       -         - parameterizable       Yes: 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four         - at "0" to "1", min.       0.2 ms         - at "0" to "1", max.       12.8 ms         for interrupt inputs       -         - parameterizable       Yes: Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz         & To technological functions       -         - parameterizable       Yes: Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz         & Shielded, max.       500 m; 50 m for technological functions         • unshielded, max.       300 m; for technological functions: No         Digital outputs       10; Relays         Switching capacity of the outputs       2 A         • on lamp load, max.       30 W with DC, 200 W with AC         Output delay with resistive load       -         • "1" to "0", max.       10 ms; max.         • "1" to "0", max.       10 ms; max.         • of the pulse outputs, with resistive load, max.       1 Hz         Relay outputs       1 Hz<  |  | 17  |
| <ul> <li>for signal "0"</li> <li>for signal "1"</li> <li>15 V DC at 1 mA</li> <li>for signal "1"</li> <li>15 V DC at 2.5 mA</li> </ul> Input delay (for rated value of input voltage) <ul> <li>for standard inputs</li> <li>- parameterizable</li> <li>At "0" to "1", min.</li> <li>- at "0" to "1", max.</li> <li>- at "0" to "1", max.</li> <li>- parameterizable</li> <li>Yes: Single phase : 3 at 100 kHz &amp; 3 at 30 kHz, differential: 3 at 80 kHz</li> </ul> Cable length <ul> <li>- shielded, max.</li> <li>- shielded, max.</li> <li>- shielded, max.</li> <li>- solor max.</li> <li>- or digital outputs</li> <li>- or digital outputs</li> <li>- or lamp load, max.</li> <li>- on lamp load, max.</li> <li>- on lamp load, max.</li> <li>- "0" to "1", max.</li> <li>- 10 ms; max.</li> </ul>  |  | 24 V  |
| • for signal "1"       15 V DC at 2.5 mA         Input delay (for rated value of input voltage)       for standard inputs         - parameterizable       Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four         - at "0" to "1", min.       0.2 ms         - at "0" to "1", max.       12.8 ms         for interrupt inputs       -         - parameterizable       Yes         for interrupt inputs       -         - parameterizable       Yes         for technological functions       -         - parameterizable       Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz         Solde length       -         • shielded, max.       500 m; 50 m for technological functions         • unshielded, max.       300 m; for technological functions: No         Digital outputs       10; Relays         Switching capacity of the outputs       2 A         • on lamp load, max.       2 A         • on lamp load, max.       10 ms; max.         • "0" to "1", max.       10 ms; max.         • "1" to "0", max.       10 ms; max.         • "1" to "0", max.       1 Hz         Relay outputs       1 Hz   |  |   |
| Input delay (for rated value of input voltage)         for standard inputs         parameterizable         at "0" to "1", min.         at "0" to "1", max.         at "0" to "1", max.         12.8 ms         for interrupt inputs         parameterizable         Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz.         Cable length         • shielded, max.         500 m; 50 m for technological functions         • unshielded, max.         500 m; 50 m for technological functions         • unshielded, max.         500 m; 50 m for technological functions         • unshielded, max.         500 m; 50 m for technological functions         Number of digital outputs         Number of digital outputs         • with resistive load, max.         • on lamp load, max.         0 dupt ut hresistive load         • "0" to "1", max.         10 ms; max.         • of the pulse outputs, with resistive load, max.         • of the pulse outputs, with resistive load, max.         • of the pulse outputs, with resistive load, max.         • of the pulse outputs, with resistive load, max.  | -  |   |
| for standard inputs  |  | 13 V DO at 2.3 IIIA   |
|  |  |   |
| selectable in groups of four         - at "0" to "1", min.       0.2 ms         - at "0" to "1", max.       12.8 ms         for interrupt inputs       -         - parameterizable       Yes         for technological functions       -         - parameterizable       Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz         Cable length       500 m; 50 m for technological functions         • shielded, max.       500 m; 50 m for technological functions         • unshielded, max.       300 m; for technological functions: No         Digital outputs       10; Relays         Switching capacity of the outputs       2 A         • on lamp load, max.       2 A         • on lamp load, max.       10 ms; max.         • "0" to "1", max.       10 ms; max.         • "1" to "0", max.       10 ms; max.         • of the pulse outputs, with resistive load, max.       14 max.  | •  | Vec: 0.2 ms. 0.4 ms. 0.8 ms. 1.6 ms. 2.2 ms. 6.4 ms. and 12.9 ms.       |
| at "0" to "1", min.     0.2 ms       at "0" to "1", max.     12.8 ms       for interrupt inputs        parameterizable     Yes       for technological functions        parameterizable     Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz       Cable length     Soo m; 50 m for technological functions       • shielded, max.     500 m; 50 m for technological functions       • unshielded, max.     300 m; for technological functions       subsided, max.     300 m; for technological functions       • unshielded, max.     300 m; for technological functions       • with resistive load, max.     2 A       • on lamp load, max.     2 A       • on lamp load, max.     10 ms; max.       • 0" to "1", max.     10 ms; max.       • 0" to "1", max.     10 ms; max.       • 0" to "0", max.     10 ms; max.       Switching frequency     of the pulse outputs, with resistive load, max. </td <td></td> <td></td>   |  |   |
| at "0" to "1", max.       12.8 ms         for interrupt inputs       parameterizable         parameterizable       Yes         for technological functions       parameterizable         parameterizable       Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz         Cable length       Solo m; 50 m; 50 m for technological functions         • shielded, max.       500 m; 50 m for technological functions         • unshielded, max.       500 m; for technological functions         • unshielded, max.       500 m; for technological functions         • unshielded, max.       300 m; for technological functions         • with resistive load, max.       2 A         • with resistive load       10 ms; max.         • "0" to "1", max.       10 ms; max.         • "1" to "0", max.       10 ms; max.         • of the pulse outputs, with resistive load, max.       10 ms; max.         • of the pulse outputs, with resistive load, max.       10 ms; max.         • of the pulse outputs, with resistive load, max.       10 ms; max.         • of the pulse outputs, with resistive load, max.       1 Hz   | — at "0" to "1" min                            | 0   |
| for interrupt inputs         — parameterizable       Yes         for technological functions         — parameterizable       Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz         Cable length         • shielded, max.       500 m; 50 m for technological functions         • unshielded, max.       500 m; for technological functions         • unshielded, max.       500 m; for technological functions         • unshielded, max.       300 m; for technological functions         • unshielded, max.       10; Relays         Number of digital outputs       10; Relays         • with resistive load, max.       2 A         • on lamp load, max.       30 W with DC, 200 W with AC         Output delay with resistive load       10 ms; max.         • "0" to "1", max.       10 ms; max.         • "1" to "0", max.       10 ms; max.         Switching frequency       of the pulse outputs, with resistive load, max.         • of the pulse outputs, with resistive load, max.       1 Hz   |  |   |
| — parameterizable       Yes         for technological functions  |  | 12.0 110  |
| for technological functions         — parameterizable       Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz         Cable length         • shielded, max.       500 m; 50 m for technological functions         • unshielded, max.       300 m; for technological functions: No         Digital outputs       10; Relays         Number of digital outputs       10; Relays         Switching capacity of the outputs       2 A         • with resistive load, max.       2 A         • on lamp load, max.       30 W with DC, 200 W with AC         Output delay with resistive load       10 ms; max.         • "0" to "1", max.       10 ms; max.         • "1" to "0", max.       10 ms; max.         Switching frequency       of the pulse outputs, with resistive load, max.         • of the pulse outputs, with resistive load, max.       1 Hz   |  | Yes   |
| — parameterizableYes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz<br>& 3 at 30 kHzCable length.• shielded, max.500 m; 50 m for technological functions<br>a00 m; for technological functions: NoDigital outputs.Number of digital outputs10; RelaysSwitching capacity of the outputs2 A• with resistive load, max.2 A• on lamp load, max.20 W with DC, 200 W with ACOutput 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.1 HzRelay outputs.  | •  |   |
| Cable length         • shielded, max.         • unshielded, max.         300 m; for technological functions         Number of digital outputs         Number of digital outputs         Switching capacity of the outputs         • with resistive load, max.         2 A         • on lamp load, max.         0 Utput delay with resistive load         • "0" to "1", max.         • "1" to "0", max.         Switching frequency         • of the pulse outputs, with resistive load, max.         10 ms; max.         11 Hz   |  |   |
| • shielded, max.500 m; 50 m for technological functions• unshielded, max.300 m; for technological functions: NoDigital outputs10; RelaysNumber of digital outputs10; RelaysSwitching capacity of the outputs2 A• with resistive load, max.2 A• on lamp load, max.30 W with DC, 200 W with ACOutput delay with resistive load10 ms; max.• "0" to "1", max.10 ms; max.• "1" to "0", max.10 ms; max.Switching frequency1 Hz• of the pulse outputs, with resistive load, max.1 Hz  | Cable length                                   |   |
| • unshielded, max.       300 m; for technological functions: No         Digital outputs       10; Relays         Number of digital outputs       10; Relays         Switching capacity of the outputs       2 A         • with resistive load, max.       2 A         • on lamp load, max.       30 W with DC, 200 W with AC         Output delay with resistive load       10 ms; max.         • "0" to "1", max.       10 ms; max.         • "1" to "0", max.       10 ms; max.         Switching frequency       10 ms; max.         • of the pulse outputs, with resistive load, max.       1 Hz   |  | 500 m; 50 m for technological functions                                 |
| Digital outputs       10; Relays         Number of digital outputs       10; Relays         Switching capacity of the outputs       2 A         • with resistive load, max.       2 A         • on lamp load, max.       30 W with DC, 200 W with AC         Output delay with resistive load       10 ms; max.         • "0" to "1", max.       10 ms; max.         • "1" to "0", max.       10 ms; max.         Switching frequency       0 of the pulse outputs, with resistive load, max.         • of the pulse outputs, with resistive load, max.       1 Hz   |  | -   |
| Number of digital outputs       10; Relays         Switching capacity of the outputs       2 A         • with resistive load, max.       2 A         • on lamp load, max.       30 W with DC, 200 W with AC         Output delay with resistive load       10 ms; max.         • "0" to "1", max.       10 ms; max.         • "1" to "0", max.       10 ms; max.         Switching frequency       0 the pulse outputs, with resistive load, max.         • a of the pulse outputs       1 Hz  |  |   |
| Switching capacity of the outputs       2 A         • with resistive load, max.       2 A         • on lamp load, max.       30 W with DC, 200 W with AC         Output delay with resistive load  |  |   |
| <ul> <li>with resistive load, max.</li> <li>on lamp load, max.</li> <li>30 W with DC, 200 W with AC</li> <li>Output delay with resistive load</li> <li>"0" to "1", max.</li> <li>"1" to "0", max.</li> <li>"1" to "0", max.</li> <li>Switching frequency</li> <li>of the pulse outputs, with resistive load, max.</li> <li>1 Hz</li> </ul>   |  | 10; Relays  |
| • on lamp load, max.       30 W with DC, 200 W with AC         Output delay with resistive load       10 ms; max.         • "0" to "1", max.       10 ms; max.         • "1" to "0", max.       10 ms; max.         Switching frequency       11 Hz         • of the pulse outputs, with resistive load, max.       1 Hz   |  |   |
| Output delay with resistive load         • "0" to "1", max.         • "1" to "0", max.         10 ms; max.         Switching frequency         • of the pulse outputs, with resistive load, max.         1 Hz  |  |   |
| "0" to "1", max.     10 ms; max.   |  | 30 W with DC, 200 W with AC   |
| • "1" to "0", max.     10 ms; max.       Switching frequency     1 Hz       • of the pulse outputs, with resistive load, max.     1 Hz       Relay outputs     1 Hz  |  |   |
| Switching frequency         • of the pulse outputs, with resistive load, max.         1 Hz         Relay outputs   |  |   |
| of the pulse outputs, with resistive load, max.     1 Hz Relay outputs   |  | 10 ms; max.   |
| Relay outputs  |  |   |
|  |  | 1 Hz  |
| Number of relay outputs  |  |   |
|  | <ul> <li>Number of relay outputs</li> </ul>    | 10  |

| - Number of operating avalage may  | machanically 10 million at rated load valtage 100,000  |
|--|--|
| 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  | 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   |  |
| <ul> <li>shielded, max.</li> </ul>   | 100 m; twisted and shielded  |
| Analog outputs   |  |
| Number of analog outputs   | 2  |
| Output ranges, current   |  |
| • 0 to 20 mA   | Yes  |
| Analog value generation for the inputs   |  |
| Integration and conversion time/resolution per channel   |  |
| Resolution with overrange (bit including sign), max.   | 10 bit   |
| <ul> <li>Integration time, parameterizable</li> </ul>  | Yes  |
| Conversion time (per channel)  | 625 µs   |
| Analog value generation for the outputs  | 020 μ3   |
|  |  |
| Integration and conversion time/resolution per channel   | 4017   |
| Resolution with overrange (bit including sign), max.   | 10 bit   |
| Encoder  |  |
| Connectable encoders   |  |
| 2-wire sensor  | Yes  |
| 1. Interface   |  |
|  |  |
| Interface type   | PROFINET   |
|  | PROFINET<br>Yes  |
| Interface type   |  |
| Interface type<br>Isolated   | Yes  |
| Interface type<br>Isolated<br>automatic detection of transmission rate   | Yes<br>Yes   |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation  | Yes<br>Yes<br>Yes  |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing  | Yes<br>Yes<br>Yes  |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types   | Yes<br>Yes<br>Yes  |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)   | Yes<br>Yes<br>Yes  |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols  | Yes<br>Yes<br>Yes<br>Yes   |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller  | Yes<br>Yes<br>Yes<br>Yes<br>Yes  |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller<br>• PROFINET IO Device  | Yes<br>Yes<br>Yes<br>Yes<br>Yes  |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller<br>• PROFINET IO Device<br>PROFINET IO Controller  | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes; Also simultaneously with IO-Device functionality  |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller<br>• PROFINET IO Device<br>PROFINET IO Controller<br>• Transmission rate, max.   | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes; Also simultaneously with IO-Device functionality  |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller<br>• PROFINET IO Device<br>PROFINET IO Controller<br>• Transmission rate, max.<br>Services   | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes; Also simultaneously with IO-Device functionality   |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller<br>• PROFINET IO Controller<br>• PROFINET IO Device<br>PROFINET IO Controller<br>• Transmission rate, max.<br>Services<br>— Number of connectable IO Devices, max.   | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes; Also simultaneously with IO-Device functionality   |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller<br>• PROFINET IO Controller<br>• PROFINET IO Device<br>PROFINET IO Controller<br>• Transmission rate, max.<br>Services<br>— Number of connectable IO Devices, max.<br>PROFINET IO Device   | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes; Also simultaneously with IO-Device functionality   |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller<br>• PROFINET IO Device<br>PROFINET IO Controller<br>• Transmission rate, max.<br>Services<br>— Number of connectable IO Devices, max.<br>PROFINET IO Device<br>Services   | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes; Also simultaneously with IO-Device functionality<br>100 Mbit/s<br>16   |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller<br>• PROFINET IO Device<br>PROFINET IO Controller<br>• Transmission rate, max.<br>Services<br>— Number of connectable IO Devices, max.<br>PROFINET IO Device<br>Services<br>— Shared device  | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes; Also simultaneously with IO-Device functionality<br>100 Mbit/s<br>16  |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller<br>• PROFINET IO Device<br>PROFINET IO Controller<br>• Transmission rate, max.<br>Services<br>— Number of connectable IO Devices, max.<br>PROFINET IO Device<br>Services<br>— Shared device<br>— Number of IO Controllers with shared device,  | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes; Also simultaneously with IO-Device functionality<br>100 Mbit/s<br>16  |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller<br>• PROFINET IO Device<br>PROFINET IO Controller<br>• Transmission rate, max.<br>Services<br>— Number of connectable IO Devices, max.<br>PROFINET IO Device<br>Services<br>— Shared device<br>— Number of IO Controllers with shared device, max.   | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes; Also simultaneously with IO-Device functionality<br>100 Mbit/s<br>16  |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller<br>• PROFINET IO Device<br>PROFINET IO Controller<br>• Transmission rate, max.<br>Services<br>— Number of connectable IO Devices, max.<br>PROFINET IO Device<br>Services<br>— Number of IO Controllers with shared device, max.<br>Protocols   | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes; Also simultaneously with IO-Device functionality<br>100 Mbit/s<br>16<br>Yes<br>2  |
| Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) Protocols • PROFINET IO Controller • PROFINET IO Controller • Transmission rate, max. Services Number of connectable IO Devices, max. PROFINET IO Device Services Shared device Number of IO Controllers with shared device, max. Protocols Supports protocol for PROFINET IO   | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes; Also simultaneously with IO-Device functionality<br>100 Mbit/s<br>16<br>Yes<br>2  |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller<br>• PROFINET IO Controller<br>• PROFINET IO Device<br>PROFINET IO Controller<br>• Transmission rate, max.<br>Services<br>- Number of connectable IO Devices, max.<br>PROFINET IO Device<br>Services<br>- Shared device<br>- Number of IO Controllers with shared device, max.<br>Protocols<br>Supports protocol for PROFINET IO<br>PROFIBUS   | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes; Also simultaneously with IO-Device functionality<br>100 Mbit/s<br>16<br>Yes<br>2  |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autorogotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller<br>• PROFINET IO Controller<br>• PROFINET IO Device<br>PROFINET IO Controller<br>• Transmission rate, max.<br>Services<br>- Number of connectable IO Devices, max.<br>PROFINET IO Device<br>Services<br>- Shared device<br>- Number of IO Controllers with shared device, max.<br>Protocols<br>Supports protocol for PROFINET IO<br>PROFIBUS<br>AS-Interface   | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes; Also simultaneously with IO-Device functionality<br>100 Mbit/s<br>16<br>Yes<br>2  |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller<br>• PROFINET IO Device<br>PROFINET IO Controller<br>• Transmission rate, max.<br>Services<br>Number of connectable IO Devices, max.<br>PROFINET IO Device<br>Services<br>Number of connectable IO Devices, max.<br>PROFINET IO Device<br>Services<br>Shared device<br>Number of IO Controllers with shared device, max.<br>Protocols<br>Supports protocol for PROFINET IO<br>PROFIBUS<br>AS-Interface<br>Protocols (Ethernet)<br>• TCP/IP | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes; Also simultaneously with IO-Device functionality<br>100 Mbit/s<br>16<br>Yes<br>2<br>Yes<br>2  |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller<br>• PROFINET IO Device<br>PROFINET IO Controller<br>• Transmission rate, max.<br>Services<br>Number of connectable IO Devices, max.<br>PROFINET IO Device<br>Services<br>Shared device<br>Number of IO Controllers with shared device, max.<br>Protocols<br>Supports protocol for PROFINET IO<br>PROFIBUS<br>AS-Interface<br>Protocols (Ethernet)   | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes; Also simultaneously with IO-Device functionality<br>100 Mbit/s<br>16<br>Yes<br>2<br>Yes<br>2  |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller<br>• PROFINET IO Controller<br>• PROFINET IO Controller<br>• Transmission rate, max.<br>Services<br>Number of connectable IO Devices, max.<br>PROFINET IO Device<br>Services<br>Shared device<br>Number of IO Controllers with shared device, max.<br>Protocols<br>Supports protocol for PROFINET IO<br>PROFIBUS<br>AS-Interface<br>Protocols (Ethernet)<br>• TCP/IP<br>Open IE communication<br>• TCP/IP                                  | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes; Also simultaneously with IO-Device functionality<br>100 Mbit/s<br>16<br>Yes<br>2<br>Yes<br>2<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes           |
| Interface type<br>Isolated<br>automatic detection of transmission rate<br>Autonegotiation<br>Autocrossing<br>Interface types<br>• RJ 45 (Ethernet)<br>Protocols<br>• PROFINET IO Controller<br>• PROFINET IO Device<br>PROFINET IO Controller<br>• Transmission rate, max.<br>Services<br>Number of connectable IO Devices, max.<br>PROFINET IO Device<br>Services<br>Number of IO Controllers with shared device, max.<br>Protocols<br>Supports protocol for PROFINET IO<br>PROFIBUS<br>AS-Interface<br>Protocols (Ethernet)<br>• TCP/IP<br>Open IE communication   | Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes; Also simultaneously with IO-Device functionality<br>100 Mbit/s<br>16<br>Yes<br>2<br>Yes<br>2<br>Yes<br>2<br>Yes<br>2<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes |

| Web server  |  |
|---|--|
| supported   | Yes  |
| User-defined websites   | Yes  |
| Further protocols   |  |
| • MODBUS  | Yes  |
| Communication functions   |  |
| S7 communication  |  |
| supported   | Yes  |
| • as server   | Yes  |
| as client   | Yes  |
| Number of connections   |  |
| overall   | 16; dynamically  |
| Test commissioning functions  |  |
| Status/control  |  |
| Status/control variable   | Yes  |
| Variables   | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters |
| Forcing   | inputs/outputs, memory bits, DDs, distributed i/Os, timers, counters |
| Forcing   | Yes  |
| ·   | 100  |
| Diagnostic buffer     o present   | Yes  |
| Traces  | 165  |
|   | 2: Up to 512 KB of data per trace are possible                       |
| Number of configurable Traces   | 2; Up to 512 KB of data per trace are possible                       |
| Integrated Functions  |  |
| Counter   |  |
| Number of counters  | 6  |
| Counting frequency, max.  | 100 kHz  |
| Frequency measurement   | Yes  |
| controlled positioning  | Yes  |
| Number of position-controlled positioning axes, max.  | 8  |
| 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   |
| <ul> <li>between the channels, in groups of</li> </ul>  | 1  |
| Potential separation digital outputs  |  |
| <ul> <li>Potential separation digital outputs</li> </ul>  | Relays   |
| <ul> <li>between the channels</li> </ul>  | No   |
| <ul> <li>between the channels, in groups of</li> </ul>  | 2  |
| EMC   |  |
| Interference immunity against discharge of static electricity   |  |
| <ul> <li>Interference immunity against discharge of static<br/>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 IEC<br/>61000-4-4</li> </ul>                        | Yes  |
| Interference immunity against voltage surge   |  |
| Interference immunity on supply lines acc. to IEC 61000-4-5   | Yes  |
| Interference immunity against conducted variable disturbance  | e induced by high-frequency fields                                   |
|   | Yes  |
| <ul> <li>Interference immunity against high-frequency<br/>radiation acc. to IEC 61000-4-6</li> </ul>        |  |
|   |  |
| radiation acc. to IEC 61000-4-6   | Yes; Group 1   |
| radiation acc. to IEC 61000-4-6<br>Emission of radio interference acc. to EN 55 011                         |  |

## the limits for Class B according to EN 55011

|   | the limits for class b according to EN 350 m   |
|---|--|
| Degree and class of protection  |  |
| IP degree of protection   | IP20   |
| Ambient conditions  |  |
| Free fall   |  |
| <ul> <li>Fall height, max.</li> </ul>   | 0.3 m; five times, in product package  |
| Ambient temperature during operation  |  |
| • min.  | -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C   |
| <ul> <li>max.</li> <li>At cold restart, min.</li> </ul>   | 70 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position -25 °C |
| Ambient temperature during storage/transportation   |  |
| • min.  | -40 °C   |
| • max.  | 70 °C  |
| Altitude during operation relating to sea level   |  |
| Installation altitude above sea level, max.   | 2 000 m  |
| Ambient air temperature-barometric pressure-<br>altitude  | Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin<br>(Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin<br>(Tmax - 20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m); above<br>2 000 m max. 132 V AC   |
| Relative humidity   |  |
| <ul> <li>With condensation, tested in accordance with IEC 60068-2-38, max.</li> </ul>   | 100 %; RH incl. condensation/frost (no commissioning under condensation conditions)  |
| Vibrations  |  |
| <ul> <li>Vibration resistance during operation acc. to 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  |
| Resistance  |  |
| Coolants and lubricants   |  |
| <ul> <li>Resistant to commercially available coolants<br/>and lubricants</li> </ul>   | Yes; Incl. diesel and oil droplets in the air  |
| Use in stationary industrial systems  |  |
| <ul> <li>— to biologically active substances according to<br/>EN 60721-3-3</li> </ul>   | Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request   |
| <ul> <li>— to chemically active substances according to<br/>EN 60721-3-3</li> </ul>   | Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *   |
| <ul> <li>— to mechanically active substances according to<br/>EN 60721-3-3</li> </ul>   | Yes; Class 3S4 incl. sand, dust, *   |
| Use on ships/at sea   |  |
| <ul> <li>— to biologically active substances according to<br/>EN 60721-3-6</li> </ul>   | Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request  |
| <ul> <li>— to chemically active substances according to<br/>EN 60721-3-6</li> </ul>   | Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *   |
| <ul> <li>— to mechanically active substances according to<br/>EN 60721-3-6</li> </ul>   | Yes; Class 6S3 incl. sand, dust; *   |
| Usage in industrial process technology  |  |
| <ul> <li>Against chemically active substances acc. to<br/>EN 60654-4</li> </ul>   | Yes; Class 3 (excluding trichlorethylene)  |
| <ul> <li>Environmental conditions for process,<br/>measuring and control systems acc. to ANSI/ISA-<br/>71.04</li> </ul>                 | Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)  |
| Remark  |  |
| <ul> <li>— Note regarding classification of environmental<br/>conditions acc. to EN 60721, EN 60654-4 and<br/>ANSI/ISA-71.04</li> </ul> | * The supplied plug covers must remain in place over the unused interfaces during operation!   |
| Conformal coating   |  |
| <ul> <li>Coatings for printed circuit board assemblies acc. to</li> </ul>   | Yes; Class 2 for high reliability  |

| EN 61086  |  |
|---|--|
| <ul> <li>Protection against fouling acc. to EN 60664-3</li> </ul>   | Yes; Type 1 protection                                     |
| <ul> <li>Military testing according to MIL-I-46058C,<br/>Amendment 7</li> </ul>   | Yes; Discoloration of coating possible during service life |
| <ul> <li>Qualification and Performance of Electrical<br/>Insulating Compound for Printed Board Assemblies<br/>according to IPC-CC-830A</li> </ul> | Yes; Conformal coating, Class A                            |
| Configuration   |  |
| Programming   |  |
| Programming language  |  |
| — LAD   | Yes  |
| — FBD   | Yes  |
| — SCL   | Yes  |
| Cycle time monitoring   |  |
| adjustable  | Yes  |
| Dimensions  |  |
| Width   | 130 mm   |
| Height  | 100 mm   |
| Depth   | 75 mm  |
| Weights   |  |
| Weight, approx.   | 550 g  |

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