## SIEMENS

## Data sheet

## 6AG1215-1AG40-4XB0



SIPLUS S7-1200 CPU 1215C DC/DC/DC based on 6ES7215-1AG40-0XB0 with conformal coating, -20...+60 °C, compact CPU, DC/DC/DC, 2 PROFINET ports, onboard I/O: 14 DI 24 V DC 10 DQ 24 V DC 0.5 A 2 AI 0-10 V DC, 2 AQ 0-20 mA DC, power supply: DC 20.4-28.8 V DC, program/data memory 125 KB

General information	
Product type designation	CPU 1215C DC/DC/DC
Firmware version	V4.1
Engineering with	
<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	see entry ID: 109746275
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
Load voltage L+	
<ul> <li>Rated value (DC)</li> </ul>	24 V
<ul> <li>permissible range, lower limit (DC)</li> </ul>	5 V
<ul> <li>permissible range, upper limit (DC)</li> </ul>	250 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 DC
Output current	
for backplane bus (5 V DC), max.	1 600 mA; Max. 5 V DC for SM and CM
Encoder supply	
24 V encoder supply	
• 24 V	L+ minus 4 V DC min.
Power loss	
Power loss, typ.	12 W
Memory	
Work memory	
<ul> <li>integrated</li> </ul>	125 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
• without battery	Yes
CPU processing times	
for bit operations, typ.	0.085 µs; / instruction
for word operations, typ.	1.5 µs; / instruction

Torice of an anomale, type:         2 a js.7 instruction           OPU-blocks         DB - FCs. FBs. counters and timers. The maximum number of addressate blocks ingregs from 1 to 65335. There is no restriction, the entire working memory can be used           OB         Limited only by RAM for code           OB at anosa and their retentivity         Imited only by RAM for code           OB at anosa and their retentivity         Imited only by RAM for code           OB at anosa and their retentivity         Imited only by RAM for code           OB at anosa and their retentivity         Imited only by RAM for code           OB at anosa and their retentivity         Imited only by RAM for code           OB at anosa and their retentivity         Imited only by RAM for code           OB at anosa and their retentivity         Imited only by RAM for code           OB at anosa and their retentivity         Imited only by RAM for code           OB at anosa and their retentivity         Imited only by RAM for code           Ob address area         Imited only by RAM for code           Imputs         Imited only by RAM for code           Outputs         Imputs         Imited only by RAM for code           Imputs only imputs         Imputs         Imputs           Imputs only imputs         Imputs         Imputs           Imputs only imputs         Imputs         Imputs <th>for floating point arithmatic tur</th> <th>2.5 up; / instruction</th>	for floating point arithmatic tur	2.5 up; / instruction
Number of blocks (total)         DB, FCs. FBs, counters and tenses. The maximum number of addressable books range from to 65333. There is no restriction, the entitie working memory can be used           • Number, max.         Limited only by RAM for code           • Size, max.         8 kbyle; Size of bit memory address area           • Addressable addressable         10 kbyle           • Size, max.         8 kbyle; Size of bit memory address area           • Address area         0 24 byle           • Ouguis         10 24 byle           • Ouguis         10 24 byle           • Process image         • Ouguis           • Ouguis, adjustable         1 kbyle           • Andress configuration         Number of day           Clock         Yes           • Hardware clock (real-lime)         Yes           • Backup time         480 it; Typical           • Ouguis         20 With of dayle           Clock         Yes           • Hardware clock (real-lime)         Yes           • Backup time         480 it; Typical           • Ouguis         10 24 byle           • Devision per day, max.         280 imonth at 28 °C           Digital inputs         14 (Integrated           • Or signal "0"         5 V DC at 1 MA           • for signal "0"	for floating point arithmetic, typ.	2.5 µs; / instruction
oB     addressable blocks ranges from 110 66355. There is no restriction, the entire working memory can be used       OB     . Number, max.       Limited only by RAM for code       Data areas and their releanvily       Reterive data rea (inct timers, counters, flags), max.     10 kbyte       Fiag     8 kbyte; Size of bit memory address area       Address i area     10 kbyte       Vib address area     10 kbyte       • Inputs.     1024 byte       • Inputs.     1024 byte       • Outputs.     3 comm. modules per system, max.       Time of day     10 kbyte       Clock     Yes       • Barkup time     480 h; Typical       • Barkup time     50 stmoth at 25 °C       Digital inputs     14: Integrated       • Or which inputs.     540 State       • Or which inputs.     14: Integrated       • Or which inputs.     14: Integrated       • Or signal To     540 Cb C at 1 mA       • Or signal To     540 Cb C at 1 mA       • Or signal To     540 Cb C at 1 mA       • Or signal To     540 Cb C at 1 mA       • Or signal To     540 Cb C at 1 mA       • Or signal		
• Number, max.         Limited only by RAM for code           Data areas and their retentivity         Referive data area (ind: threes, counters, flags), max.         10 kByte           Referive data area (and: threes, counters, flags), max.         8 kbyte; Size of bit memory address area           Address area         1024 byte           I/O address area         1024 byte           • Inputs, adjustable         1 024 byte           • Outputs, adjustable         1 kbyte           • Outputs         3 comm. modules, 1 signal board, 8 signal modules           Time of adgustable         1 kbyte           • Backup time         480 h; Typical           • Backup time         490 h; Typical           • Backup time         490 h; Typical           • Backup time         490 h; Typical           • Backup time data liquits         14. Integratiatd           • Or divitin inputs usable for technological functions         6, HSC (High Speed Counting)           Sourceshink input	Number of blocks (total)	addressable blocks ranges from 1 to 65535. There is no restriction, the
Data areas and their retentivity         ID kByte           Retentive data area (nct timens, counters, flags), max.         10 kByte           Flag         8 kbyte; Size of bit memory address area           Address area         1024 byte           • Inputs         1 024 byte           • Inputs         1 024 byte           • Updatdress area         1 024 byte           • Updats, adjustable         1 kbyte           • Inputs, adjustable         1 kbyte           • Colputs, adjustable         1 kbyte           • Indextors configuration         7 ks           • Glock         • Address area           • Interview of day         6 kbyte; Tsize all           • Or day         5 comparise, insput           • Or day         7 ks           • Backup time         4 80 h; Typical           • Or which inputs usable for technological functions         6; HSC (High Speed Counting)           • Storewink input         Yes           • Reter value (OC)         24 V           • For signal '1*         15 V DC at 1 mA           • for signal '1*         15 V DC at 2.5 mA	OB	
Reference data area (incl. timers, counters, flags), max.       10 kbyte         Flag       Size, max.       8 kbyte; Size of bit memory address area         Address area       1024 byte         (IV) address area       1024 byte         • Inputs       1 024 byte         • Outputs       1 024 byte         • Outputs       1 024 byte         • Outputs       1 024 byte         • Outputs, adjustable       1 kbyte         • Andress area       3 comm. modules, 1 signal board, 8 signal modules         • Number of modules per system, max.       3 comm. modules, 1 signal board, 8 signal modules         • Ind day       480 h; Typical         • Backup time       480 h; Typical         • Devision per day, max.       480 h; Typical         • Outputs of digital inputs       14 integrated         • of which input subsite for technological functions       Yes         • of which input subsite for technological functions       Yes         • or signal 10°       5 V DC at 1 mA         • for signal 10°       5 V DC at 1 mA         • for signal 10°       5 V DC at 1 mA         • for signal 10°       0.2 ms         • autored value of input voltage)       0 site in groups of four         • at 10° tor 1°, min.       0.2 ms     <	Number, max.	Limited only by RAM for code
Fig.         8 kbyte: Size of bit memory address area           Address area         8 kbyte: Size of bit memory address area           Address area         1024 byte           • Inputs         1 024 byte           • Inputs         1 024 byte           • Outputs         1 024 byte           • Inputs, adjustable         1 kbyte           • Inputs, adjustable         1 kbyte           • Inputs, adjustable         1 kbyte           • Induces of signal modules         1 signal board, 8 signal modules           • Inte of day         Clock           • Outputs, adjustable, on the day in Typical         480 in Typical           • Backup time         490 in Typical           • Backup time         490 in Typical           • O which inputs usable for technological functions         6, HSC (High Speed Counting)           • O which inputs usable for technological functions         14, Integrated           • O for signal *O*         + up to 40° c, max.           • Input delay         5 V DC at 1 mA           • for signal *O*         5 V DC at 2 mA           • Input delay for reter value of input voltage)         6 re signal *O*           • re 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           • parameterizable	Data areas and their retentivity	
Address area     B kbyte: Size of bit memory address area       Address area     1024 byte       Inputs     1024 byte       Inputs, adjustable     1024 byte       Process image     1 kbyte       Inputs, adjustable     1 kbyte       Hardware configuration     xomme of modules per system, max.       Number of modules per system, max.     3 comm. modules, 1 signal board, 8 signal modules       Time of day     Yes       Backup time     480 h; Typical       Object of the transform     Yes       Backup time     480 h; Typical       Object of the transform     480 h; Typical       Object of the transform     480 h; Typical       Sourceshick input     Yes       Number of digital inputs     6.HSC (High Speed Counting)       Sourceshick input     Yes       Number of digital inputs outclable inputs     14       Input value outco controllable inputs     14       Input value outco     24 V       of signal '0"     5 V DC at 1 mA       of signal '0"     5 V DC at 1 mA       of signal '0"     5 V DC at 1 mA       of signal '0"     5 V DC at 1 mA       of signal '0"     5 V DC at 1 mA       of signal '0"     5 V DC at 1 mA       of signal '0"     5 V DC at 1 mA       of signal '0"	Retentive data area (incl. timers, counters, flags), max.	10 kbyte
Address area         I/O address area         • Inputs       1 024 byte         • Uputs       1 024 byte         • Uputs       1 024 byte         • Process image       •         • Inputs adjustable       1 kbyte         • Outputs adjustable       1 kbyte         • Uputs adjustable       1 kbyte         • Inac or adjustable       1 kbyte         • Outputs adjustable       1 kbyte         • Outputs adjustable       1 kbyte         • Outputs adjustable       3 comm. modules, 1 signal board, 8 signal modules         • Outputs adjustable       4 signal board, 8 signal modules         • Outputs adjustable       4 signal board, 8 signal modules         • Outputs adjustable       4 signal board, 8 signal modules         • Outputs adjustable       1 (integrated         • Outputs adjustable for technological functions       6 · HSC (High Speed Counting)         Source/ank input       Yes         Number of simultaneously controllable inputs       14         Input value       14         Input value       14         Input value       02 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable ingus offur         - parameterizable       02 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectabl	Flag	
I/O address area     1 024 byte       • Inputs     1 024 byte       • Outputs     1 024 byte       • Inputs, adjustable     1 kbyte       • Inputs, adjustable     1 kbyte       Hardware configuration     Number of modules per system, max.       Oldok     • Barkup time       • Deviation per day, max.     480 h; Typical       • Odition per day, max.     480 h; Typical       • Odition per day, max.     60 s/month at 25 °C       Oldital inputs     14; Integrated       • of which input suble for technological functions     6; HSC (High Speed Counting)       Source/sink input     Yes       Number of simultaneous(controllable inputs     14       all mounting positions     14       - up to 40 °C, max.     14       Input voltage     24 V       • for signal °C*     5 V DC at 1 mA       • for signal °C*     5 V DC at 2.5 mA       Input delay for arted value of input voltage)     0.2 ms. 0.4 ms. 0.8 ms. 1.8 ms. 3.2 ms. 6.4 ms and 12.8 ms.       • for signal °C*     0.2 ms.     0.2 ms.       arameterizable     Yes       for interrupt inputs     0.2 ms.     0.4 ms. 0.8 ms. 1.8 ms. 3.0 kHz. 3 at 30 kHz &	• Size, max.	8 kbyte; Size of bit memory address area
<ul> <li>Inputs</li> <li>1024 byte</li> <li>Outputs</li> <li>1024 byte</li> <li>Process image</li> <li>Inputs. adjustable</li> <li>1 kbyte</li> <li>Advara configuration</li> <li>Number of modules per system, max.</li> <li>3 comm. modules, 1 signal board, 8 signal modules</li> <li>Itime of agy</li> <li>Clock</li> <li>Hardware clock (real-time)</li> <li>Backup time</li> <li>480 h; Typical</li> <li>480 h; Typical</li> <li>9 beviation per day, max.</li> <li>9 beviation per day, max.</li> <li>160 simonth at 25 °C</li> <li>Opinal inputs</li> <li>Number of digital inputs</li> <li>44; Integrated</li> <li>6; HSC (High Speed Counting)</li> <li>5 ource/sink input</li> <li>Yes</li> <li>Number of simultaneously controllable inputs</li> <li>14; Integrated</li> <li>6; HSC (High Speed Counting)</li> <li>5 ource a 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 deay (for rated value of input voltage)</li> <li>for standard inputs</li> <li>— parameterizable</li> <li>for interrupt inputs</li> <li>— parameterizable</li> <li>Yes</li> <li>for interrupt inputs</li> <li>— parameterizable</li> <li>Single phase: 3 at 100 kHz &amp; 3 at 30 kHz &amp;</li></ul>	Address area	
• Outputs         1 024 byte           Process image         •           • Inputs, adjustable         1 kbyte           • Outputs, adjustable         1 kbyte           Vardware configuration         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.         480 h; Typical           • Order of digital inputs         14; Integrated           • of which inputs usable for technological functions         6; HSC (High Speed Counting)           Sourcevisitik input         Yes           Number of digital inputs         14; Integrated           • of which inputs usable for technological functions         6; HSC (High Speed Counting)           Sourcevisitik input         Yes           Number of digital inputs         14           Input voltage         -           • For signal Y0*         5 V D cat 1 mA           • for signal Y0*         5 V D cat 1 mA           • for signal Y1*         15 V D cat 25 mA           Input delay (for rated value of input voltage)         -           for technological functions         -	I/O address area	
Process image     1       • Inputs, adjustable     1       • Outputs, adjustable     1       Number of modules per system, max.     3       Time of day       Clock       • Hardware configuration       Water of modules per system, max.     3       Clock       • Hardware clock (real-time)     Yes       • Backup time     480 h; Typical       • Deviation per day, max.     260 s/month at 25 °C       Origital inputs     14; Integrated       • of which inputs usable for technological functions     6; HSC (High Speed Counting)       Source/sink input     Yes       Number of signal modules of technological functions     6; HSC (High Speed Counting)       • of which inputs usable for technological functions     6; HSC (High Speed Counting)       • or of which inputs usable for technological functions     6; HSC (High Speed Counting)       • or of signal "0"     5 V DC at 1 mA       • for signal "0"     5 V DC at 2 5 mA       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", min.     0.2 ms       - parameterizable     0.2 ms, 1.4 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       - parameteri	Inputs	1 024 byte
• Inputs, adjustable             • Outputs, adjustable             • Outputs, adjustable             • Number of modules per system, max.         3 comm. modules, 1 signal board, 8 signal modules           Time of day         Clicke                • Hardware clock (real-lime)             • Backup time             • Backup time             • Backup time             • Deviation per day, max.             • Bob Simonth at 25 °C            Objectal inputs             • Or which imputs usable for technological functions             • of which imputs usable for technological functions             • Girking to the day outputs             • Or of digital inputs             • of which imputs usable for technological functions             • Girking to the day output controllable inputs             • of which imputs usable for technological functions             • Girking to the day output controllable inputs             • of which imputs usable for technological functions             • JAB C (High Speed Counting)             Sourcevisink input             • Or of C, max.             • Day             • Or of C, max.             • Or of C, max.             • Or of the day output collable inputs             • or or signal °C             • Or or (max.             • Or or (max)             • Or	Outputs	1 024 byte
• Outputs, adjustable     Hardware configuration     Hardware configuration     Number of modules per system, max.     3 comm. modules, 1 signal board, 8 signal modules     Time of day     Clock     • Hardware clock (real-lime)     • Fated value (DC)     • Cask.     • Hardware clock (real-lime)     • Fated value (DC)     • Cask.     • Parameterizable     • parameterizable	Process image	
Hardware configuration         Number of modules per system, max.       3 comm. modules, 1 signal board, 8 signal modules         Time of day         Clock       •         • Backup time       480 h; Typical         • 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         all mounting positions       • HAC (High Speed Counting)	<ul> <li>Inputs, adjustable</li> </ul>	1 kbyte
Number of modules per system, max.       3 comm. modules, 1 signal board, 8 signal modules         Time of day         Clock <ul> <li>Hardware clock (real-lime)</li> <li>Ves</li> <li>480 s/month at 25 °C</li> </ul> Digital inputs       14; Integrated <ul> <li>of which inputs usable for technological functions</li> <li>Source/sink input</li> <li>Yes</li> <li>HSC (High Speed Counting)</li> <li>Yes</li> </ul> Number of simultaneously controllable inputs         14; Integrated             Input oblage         6         6 <ul> <li>Parameterizable</li> <li>For signal °0°</li> <li>Store (*or signal °0°</li> <li>Store of the 1*, max.</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>Yes</li> <li>Single phase : 3 at 100 kHz &amp; 3 at 30 kHz, differential: 3 at 80 kHz &amp; 3 at 30 kHz</li> <li>Single phase : 3 at 100 kHz &amp; 3 at 30 kHz differential: 3 at 80 kHz &amp; 3 at 30 kHz</li> <li>- parameterizable</li> <li>Single phase : 3 at 100 kHz &amp; 3 at 30 kHz differential: 3 at 80 kHz &amp; 3 at 30 kHz</li> <li>- parameterizable</li> <li>-</li></ul>	Outputs, adjustable	1 kbyte
Time of day         Clock         • Hardware clock (real-time)       Yes         • Backup time       480 h; Typical         • Deviation per day, max.       ±80 smonth 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	Hardware configuration	
Clock <ul> <li>Hardware clock (real-time)</li> <li>Yes</li> <li>Backup time</li> <li>AB0 h; Typical</li> <li>Edeviation per day, max.</li> <li>Digital inputs</li> <li>Edeviation per digital inputs</li> <li>of which inputs usable for technological functions</li> <li>Scirce/sink input</li> <li>Yes</li> </ul> <li>Number of digital inputs</li> <li>I4; Integrated</li> <li>6; HSC (High Speed Counting)</li> <li>Source/sink input</li> <li>Yes</li> <li>Number of simultaneous/y controllable inputs</li> <li>all mounting positions         <ul> <li>-up to 40°C, max.</li> <li>Input values</li> <li>Parameterizable</li> <li>For standard inputs</li> <li>of signal °C*</li> <li>SV DC at 1 mA</li> <li>for signal °C*</li> <li>parameterizable</li> <li>of or signal °C*</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 °C* to *1*, min.</li> <li>- parameterizable</li> <li>Yes</li> </ul> </li> <li>for interrupt inputs</li> <li>- parameterizable</li> <li>Yes</li> <li>Single phase : 3 at 100 kHz &amp; 3 at 30 kHz, differential: 3 at 80 kHz &amp; 3 at 30 kHz</li> <li>State length         <ul> <li>shielded, max.</li> <li>300 m; for technological functions: No</li> </ul> </li> <li>State length         <ul> <li>with resistive load</li> <li>with resistive load</li> <li>with resistive load, max.<td>Number of modules per system, max.</td><td>3 comm. modules, 1 signal board, 8 signal modules</td></li></ul></li>	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.       ±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         all mounting positions	Time of day	
• 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;       all mounting positions	Clock	
• Deviation per day, max.       ±60 s/month at 25 °C         Pigital 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       6; VDC at 1 mA         • Facted value (DC)       24 V         • for signal °0°       5 V DC at 1 mA         • for signal °10°       5 V DC at 2.5 mA         Input delay (for rated value of input voltage)       15 V DC at 2.5 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", max.       12.8 ms         - at "0" to "1", max.       12.8 ms         for itechnological functions       single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz         Cable length       • of which high-speed outputs         • which high-speed outputs       10         • of which high-speed outputs       4; 100 kHz Pulse Train Output         Switching capacity of the outputs       4; 100 kHz Pulse Train Output         • which high-speed outpu	<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         all mounting positions       14         Input voltage       • Arated value (DC)         • Fated 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, 1.8 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       - parameterizable         - parameterizable       Yes         for interrupt inputs       - parameterizable         - parameterizable       Yes         for interrupt inputs       - parameterizable         - parameterizable       Yes         for interrupt inputs       - parameterizable         - parameterizable       Xes         for interrupt inputs       - parameterizable         - parameterizable       Xes         Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz         ourshielded, max.       500 m; 50 m	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       5 V DC at 1 mA         • Retad 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         - 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         for technological functions       -         - parameterizable       Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz         • shielded, max.       500 m; 50 m for technological functions         • unshielded, max.       300 m; for technological functions         • unshielded, max.       0.5 A         Output delay with resistive load       -         • with resistive load       -         • "0	Digital inputs	
Source/sink input       Yes         Number of simultaneously controllable inputs       all mounting positions         all mounting positions      up to 40°C, max.         Input voltage       24 V         • 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         - at "0" to "1", min.       0.2 ms         - at "0" to "1", max.       12.8 ms         - parameterizable       Yes         for iterrupt inputs       -         - parameterizable       Yes         for technological functions       -         - parameterizable       Yes         for technological functions       -         - parameterizable       Single phase : 3 at 100 kHz & 3 at 30 kHz & 500 m; 50 m for technological functions: No         Digital outputs       10       .         of which high-speed outputs       4; 100 kHz Pulse Train Output	Number of digital inputs	14; Integrated
Number of simultaneously controllable inputs         all mounting positions	<ul> <li>of which inputs usable for technological functions</li> </ul>	6; HSC (High Speed Counting)
all mounting positions       14         Input voltage       9         Rated value (DC)       24 V         i for signal "0"       5 V DC at 1 mA         i for signal "1"       15 V DC at 2.5 mA         Input delay (for rated value of input voltage)       10         of rot 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         - 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", main.       0.2 ms         - at "0" to "1", max.       12.8 ms         for interrupt inputs       Yes         - parameterizable       Yes         for technological functions       -         - parameterizable       Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz         Cable length       shielded, max.         • shielded, max.       300 m; for technological functions         • unshielded, max.       300 m; for technological functions         • of which high-speed outputs       4; 100 kHz Pulse Train Output         Switching capacity of the outputs       4; 100 kHz Pulse Train Output         • with resistive load, max.       0.5 A         Output delay with resistive load       1 µs         • """ to "1", max.	Source/sink input	Yes
	Number of simultaneously controllable inputs	
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         - 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       -         - parameterizable       Yes         for technological functions       -         - parameterizable       Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz         6 shielded, max.       500 m; 50 m for technological functions         • unshielded, max.       300 m; for technological functions         • unshielded, max.       300 m; for technological functions         • unshielded, max.       300 m; for technological functions         • of which high-speed outputs       4; 100 kHz Pulse Train Output         Switching capacity of the outputs       0.5 A         Output delay with resistive load       0.5 A         Output delay with resistive load       1 µs         • "i" to "0", max.       5 µs         Relay outputs       5 µs <td>all mounting positions</td> <td></td>	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 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       parameterizable         parameterizable       Yes         for interrupt inputs       parameterizable         parameterizable       Yes         for technological functions       parameterizable         parameterizable       Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz         Cable length       solow mice technological functions         • unshielded, max.       500 m; 50 m for technological functions         • unshielded, max.       300 m; for technological functions: No         Digital outputs       10         • of which high-speed outputs       4; 100 kHz Pulse Train Output         Switching capacity of the outputs       0.5 A         Output delay with resistive load       1 μs         • "1" to "0", max.       5 μs         Relay outputs       1 μs	— up to 40 °C, max.	14
• for signal "0"       5 V DC at 1 mA         • for signal "1"       15 V DC at 2.5 mA         Input delay (for rated value of input voltage)       for standard inputs         • parameterizable       0.2 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 technological functions       -         - parameterizable       Yes         for technological functions       -         - parameterizable       Yes         for technological functions       -         - parameterizable       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         • unshielded, max.       500 m; 50 m for technological functions         • unshielded, max.       300 m; for technological functions: No         Digital outputs       10         • of which high-speed outputs       4; 100 kHz Pulse Train Output         Switching capacity of the outputs       0.5 A         Output delay with resistive load       0.5 A         Output delay with resistive load       5 µs		
• for signal "1"       15 V DC at 2.5 mA         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       -         • parameterizable       Yes         for interrupt inputs       -         • parameterizable       Yes         for technological functions       -         • 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: No         Digital outputs       10         Number of digital outputs       10         • of which high-speed outputs       4; 100 kHz Pulse Train Output         Switching capacity of the outputs       0.5 A         Output delay with resistive load       1 μs         • "1" to "0", max.       5 μs         Relay outputs       5 μs		24 V
Input delay (for rated value of input voltage)         for standard inputs	5	
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       -         - parameterizable       Yes         for technological functions       -         - parameterizable       Yes         for technological functions       -         - parameterizable       Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz, differential: 40 kmz & 40 kmz & 50 kmz & 300 m; for technological functions         • unshielded, max.       500 m; 50 m for technological functions: No		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, selectable in groups of four— at "0" to "1", min.0.2 ms— at "0" to "1", max.12.8 msfor interrupt inputs		
in groups of four 		
	— parameterizable	
for interrupt inputs       Yes         — parameterizable       Yes         for technological functions	— at "0" to "1", min.	0.2 ms
— parameterizable       Yes         for technological functions	— at "0" to "1", max.	12.8 ms
for technological functions         — parameterizable       Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz         Cable length       • shielded, max.         • shielded, max.       500 m; 50 m for technological functions         • unshielded, max.       300 m; for technological functions: No         Digital outputs       10         • of which high-speed outputs       4; 100 kHz Pulse Train Output         Switching capacity of the outputs       0.5 A         Output delay with resistive load       1 μs         • "0" to "1", max.       1 μs         • "1" to "0", max.       5 μs         Relay outputs       5 μs	for interrupt inputs	
— parameterizable       Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz         Cable length       • shielded, max.         • shielded, max.       500 m; 50 m for technological functions         • unshielded, max.       300 m; for technological functions         • unshielded, max.       300 m; for technological functions         • unshielded, max.       300 m; for technological functions         • unshielded, max.       10         • of which high-speed outputs       4; 100 kHz Pulse Train Output         Switching capacity of the outputs       0.5 A         Output delay with resistive load       1 μs         • "0" to "1", max.       1 μs         • "1" to "0", max.       5 μs         Relay outputs       1 μs		Yes
at 30 kHz         Cable length         • shielded, max.         • unshielded, max.         300 m; 50 m for technological functions         • unshielded, max.         300 m; for technological functions: No         Digital outputs         Number of digital outputs         • of which high-speed outputs         4; 100 kHz Pulse Train Output         Switching capacity of the outputs         • with resistive load, max.         0.5 A         Output delay with resistive load         • "0" to "1", max.         • "1" to "0", max.         Relay outputs	for technological functions	
• shielded, max.500 m; 50 m for technological functions• unshielded, max.300 m; for technological functions: NoDigital outputs10Number of digital outputs4; 100 kHz Pulse Train Output• of which high-speed outputs4; 100 kHz Pulse Train OutputSwitching capacity of the outputs0.5 AOutput delay with resistive load1 μs• "0" to "1", max.1 μs• "1" to "0", max.5 μsRelay outputs500 kHz	— parameterizable	
• unshielded, max.300 m; for technological functions: NoDigital outputsNumber of digital outputs10• of which high-speed outputs4; 100 kHz Pulse Train OutputSwitching capacity of the outputs0.5 A• with resistive load, max.0.5 AOutput delay with resistive load1 μs• "0" to "1", max.1 μs• "1" to "0", max.5 μsRelay outputs1	Cable length	
Digital outputs       10         • of which high-speed outputs       4; 100 kHz Pulse Train Output         Switching capacity of the outputs       4; 100 kHz Pulse Train Output         • with resistive load, max.       0.5 A         Output delay with resistive load       1 µs         • "0" to "1", max.       1 µs         • "1" to "0", max.       5 µs         Relay outputs       1	• shielded, max.	500 m; 50 m for technological functions
Number of digital outputs       10         • of which high-speed outputs       4; 100 kHz Pulse Train Output         Switching capacity of the outputs       0.5 A         • with resistive load, max.       0.5 A         Output delay with resistive load       1 μs         • "0" to "1", max.       5 μs         Relay outputs       1	• unshielded, max.	
• of which high-speed outputs       4; 100 kHz Pulse Train Output         Switching capacity of the outputs       0.5 A         • with resistive load, max.       0.5 A         Output delay with resistive load       1 μs         • "0" to "1", max.       5 μs         Relay outputs	Digital outputs	
• of which high-speed outputs       4; 100 kHz Pulse Train Output         Switching capacity of the outputs       0.5 A         • with resistive load, max.       0.5 A         Output delay with resistive load       1 μs         • "0" to "1", max.       5 μs         Relay outputs	Number of digital outputs	10
Switching capacity of the outputs         • with resistive load, max.         0.5 A         Output delay with resistive load         • "0" to "1", max.         1 µs         • "1" to "0", max.         5 µs         Relay outputs		4; 100 kHz Pulse Train Output
Output delay with resistive load       • "0" to "1", max.       • "1" to "0", max.       5 µs		
• "0" to "1", max.         1 μs           • "1" to "0", max.         5 μs           Relay outputs		0.5 A
• "1" to "0", max. 5 µs Relay outputs	Output delay with resistive load	
Relay outputs	• "0" to "1", max.	1 µs
	• "1" to "0", max.	5 µs
Number of relay outputs	Relay outputs	
	<ul> <li>Number of relay outputs</li> </ul>	0

Cable length	
<ul> <li>shielded, max.</li> </ul>	500 m
<ul> <li>unshielded, max.</li> </ul>	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	100
Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	10 bit
	Yes
<ul> <li>Integration time, parameterizable</li> <li>Conversion time (per channel)</li> </ul>	res 625 µs
	625 μs
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	
<ul> <li>Resolution with overrange (bit including sign), max.</li> </ul>	10 bit
Encoder	
Connectable encoders	
2-wire sensor	Yes
1. Interface	
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Interface types	
RJ 45 (Ethernet)	Yes
Protocols	
PROFINET IO Controller	Yes
PROFINET IO Device	Yes; Also simultaneously with IO-Device functionality
PROFINET IO Controller	
Transmission rate, max.	100 Mbit/s
Services	
- Number of connectable IO Devices, max.	16
PROFINET IO Device	
Services	
— Shared device	Yes
<ul> <li>— Number of IO Controllers with shared device,</li> </ul>	2
max.	
Protocols	
Supports protocol for PROFINET IO	Yes
PROFIsafe	No
PROFIBUS	Yes; CM 1243-5 required
AS-Interface	Yes
Protocols (Ethernet)	
• TCP/IP	Yes
Open IE communication	
• TCP/IP	Yes
ISO-on-TCP (RFC1006)	Yes
• UDP	Yes
Web server	

	Ver
• supported	Yes
User-defined websites	Yes
Further protocols	N.
MODBUS	Yes
communication functions / header	
S7 communication	
<ul> <li>supported</li> </ul>	Yes
• as server	Yes
as client	Yes
Number of connections	
• overall	16; dynamically
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
Integrated Functions	
Frequency measurement	Yes
controlled positioning	Yes
Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction interface	4; With integrated outputs
PID controller	Yes
Number of alarm inputs	4
Number of pulse outputs	4
Limit frequency (pulse)	100 kHz
Potential separation	
Potential separation digital inputs	
<ul> <li>Potential separation digital inputs</li> </ul>	No
<ul> <li>between the channels, in groups of</li> </ul>	1
Potential separation digital outputs	
<ul> <li>between the channels</li> </ul>	No
<ul> <li>between the channels, in groups of</li> </ul>	1
EMC	
Interference immunity against discharge of static electricity	
Interference immunity against discharge of static electricity acc. to IEC 61000-4-2	Yes
— Test voltage at air discharge	8 kV
— Test voltage at contact discharge	6 kV
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 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
<ul> <li>Interference immunity against high-frequency</li> </ul>	Yes
radiation acc. to IEC 61000-4-6	
Emission of radio interference acc. to EN 55 011	
<ul> <li>Limit class A, for use in industrial areas</li> </ul>	Yes; Group 1
Limit class B, for use in residential areas	Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011
Degree and class of protection	
IP degree of protection	IP20
Ambient conditions	
Free fall	
● Fall height, max.	0.3 m; five times, in product package

Ambient temperature during operation	
• min.	-20 °C; = Tmin (incl. condensation/frost); start-up @ 0 °C
• max.	60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical
• At cold restart, min.	O°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.	5 000 m
Ambient air temperature-barometric pressure- altitude	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax -20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m)
Relative humidity	
With condensation, tested in accordance with IEC 60068-2-38, max.	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/s <sup>2</sup> ) wall mounting, 1 g (m/s <sup>2</sup> ) DIN rail
Operation, tested according to IEC 60068-2-6	Yes
Shock testing	Voc: IEC 60. Dort 2.27 holf since strength of the shark 45 - /see
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	Many local discrete and all developer in the said
<ul> <li>Resistant to commercially available coolants 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 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 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 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 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 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 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 EN 60654-4</li> </ul>	Yes; Class 3 (excluding trichlorethylene)
<ul> <li>Environmental conditions for process, measuring and control systems acc. to ANSI/ISA- 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 conditions acc. to EN 60721, EN 60654-4 and 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 EN 61086</li> </ul>	Yes; Class 2 for high reliability
<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, Amendment 7</li> </ul>	Yes; Discoloration of coating possible during service life
<ul> <li>Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A</li> </ul>	Yes; Conformal coating, Class A
configuration / header	
configuration / programming / header	
Programming language — LAD	Yes

— FBD	Yes
— SCL	Yes
programming / cycle time monitoring / header	
adjustable	Yes
Dimensions	
Width	130 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	500 g

last modified:

4/1/2022 🖸