## **SIEMENS**

## Data sheet

## 6ES7214-1HG40-0XB0

SIMATIC S7-1200, CPU 1214C, COMPACT CPU, DC/DC/RELAY, ONBOARD I/O: 14 DI 24V DC; 10 DO RELAY 2A; 2 AI 0 - 10V DC, POWER SUPPLY: DC 20.4 - 28.8 V DC, PROGRAM/DATA MEMORY: 100 KB



General information	
Product type designation	CPU 1214C DC/DC/Relay
Firmware version	V4.1
Engineering with	
<ul> <li>Programming package</li> </ul>	STEP 7 V13 SP1 or higher
Display	
with display	No
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Load voltage L+	
<ul> <li>Rated value (DC)</li> </ul>	24 V
<ul> <li>permissible range, lower limit (DC)</li> </ul>	5 V
• permissible range, upper limit (DC)	250 V

Current consumption (rated value)       500 mX; CPU only         Current consumption, max.       1500 mA; CPU with all expansion modules         Inrush current, max.       12 A; at 28.8 V         Output current       1600 mA; CPU with all expansion modules         for backplane bus (5 V DC), max.       1600 mA; Max. 5 V DC for SM and CM         Encoder supply       24 V         24 V encoder supply       • + minus 4 V DC min.         Power loss       Power loss         Power loss       100 kbyte         • expandable       No         Load memory       •         • integrated       100 kbyte         • expandable       No         Load memory       •         • integrated       4 Mbyte         • present       Yes; maintenance-free         • without battery       Yes         CPU processing times       0.085 µs; / instruction         for bit operations, typ.       1.7 µs; / instruction         for dealing point arithmetic, typ.       2.3 µs; / instruction         for dealing point arithmetic, typ.       2.3 µs; / instruction         for dealing point arithmetic, typ.       2.3 µs; / instruction         for dealing point arithmetic, typ.       2.3 µs; / instruction         for dealing point arithmetic	Input current	
Invah current, max.       12 A; at 28.8 V         Output current       for backplane bus (5 V DC), max.       1 600 mA; Max. 5 V DC for SM and CM         Encoder supply       24 V       L* minus 4 V DC min.         Power loss       Power loss, typ.       12 W         Power loss, typ.       12 W       Memory         • integrated       100 kbyte       No         Lad memory       • Integrated       No         Lad memory       4 Mbyte       Integrated         • Integrated       4 Mbyte       Integrated         • Poresent       Yes; maintenance-free       Integrated         • present       Yes; maintenance-free       Integrated         • present       Ves; maintenance-free       Integrated         • without battery       Yes       Yes         CPU processing times       Integration in tribmetic, typ.       1.7 µs; / instruction         for bit operations, typ.       0.085 µs; / instruction       Integrated         • without battery       Yes       Yes       Polocks         Number of blocks (total)       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used       OB         OB       Inteled only by RAM for code       Polentegrad	Current consumption (rated value)	500 mA; CPU only
Output current       for backplane bus (6 V DC), max.     1 600 mA; Max. 5 V DC for SM and CM       Encoder supply     24 V       24 V     L+ minus 4 V DC min.       Power loss.     Power loss, typ.       Power loss, typ.     1 2 W       Memory     V       Work memory     1 000 kbyte       • integrated     100 kbyte       • integrated     100 kbyte       • prograted     No       Load memory     4 Mbyte       • integrated     100 kbyte       • prograted     4 Mbyte       • prograted     4 Mbyte       • prograted     4 Mbyte       • prosent     Yes; maintenance-free       • without battery     Yes       CPU processing times     0.085 µs; / instruction       for bit operations, typ.     1.7 µs; / instruction       for foating point antimetic, typ.     2.3 µs; / instruction       for word operations, typ.     1.7 µs; / instruction       for bit operations, typ.     1.7 µs; / instruction       for blocks (total)     DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65353. There is no restriction, the entire working memory can be used       OB     Eimited only by RAM for code       Data areas and their retentivity     10 kbyte       retentive data area in total (incl. times,	Current consumption, max.	1 500 mA; CPU with all expansion modules
for backplane bus (6 V DC), max.       1 600 mA; Max. 5 V DC for SM and CM         Encoder supply       24 V         24 V       L+ minus 4 V DC min.         Power loss       Power loss, typ.         Power loss, typ.       12 W         Memory       Volk memory            integrated expandable No       No         Load memory          integrated expandable Plug-in (SIMATIC Memory Card), max.          Mth SIMATIC memory card with SIMATIC Memory card, max.             expandable Plug-in (SIMATIC Memory Card), max.          Ves; maintenance-free vithout battery Yes              orresent vithout battery Pordeessing times for bit operations, typ.           0.005 µs; / instruction 1.7 µs; / instruction for word operations, typ.           0.005 µs; / instruction for bit operations, typ.             for bit operations, typ.           0.005 µs; / instruction for bit operations, typ.           1.7 µs; / instruction 2.3 µs; / instruction             for bit operations, typ.         for floating point arithmetic, typ.           2.3 µs; / instruction             OB           DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 6535. There is no restriction, the entire worki	Inrush current, max.	12 A; at 28.8 V
24 V encoder supply         • 24 V       L+ minus 4 V DC min.          12 W          12 W         Memory       12 W         Memory       100 kbyte         • integrated       100 kbyte         • integrated       No         Load memory       • integrated         • integrated       4 Mbyte         • Plug-in (SIMATIC Memory Card), max.       with SIMATIC memory card         Backup       • present         • present       Yes; maintenance-free         • without battery       Yes         for bit operations, typ.       0.085 µs; / instruction         for word operations, typ.       1.7 µs; / instruction         for floating point arithmetic, typ.       2.3 µs; / instruction         for bit operations, typ.       1.7 µs; / instruction         for blocks (total)       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB       •         • Number, max.       Limited only by RAM for code         Data areas and their retentivition       10 kbyte         retentive data area in total (incl. times, counters, flags), max.       8	Output current	
24 V encoder supply         • 24 V       L+ minus 4 V DC min.         Power loss       Power loss, typ.         Power loss, typ.       12 W         Memory       Image: state sta	for backplane bus (5 V DC), max.	1 600 mA; Max. 5 V DC for SM and CM
• 24 V       L+ minus 4 V DC min.         Power loss       12 W         Power loss, typ.       12 W         Memory       •         • integrated       100 kbyte         • expandable       No         Load memory       •         • integrated       4 Mbyte         • Plug-in (SIMATIC Memory Card), max.       with SIMATIC memory card         • bring-in (SIMATIC Memory Card), max.       with SIMATIC memory card         • present       Yes; maintenance-free         • without battery       Yes         CPU processing times       17 µs; / instruction         for bit operations, typ.       0.085 µs; / instruction         for floating point arithmetic, typ.       2.3 µs; / instruction         for door operations, typ.       0.085 µs; / instruction         for floating point arithmetic, typ.       2.3 µs; / instruction         for ord operations, typ.       0.085 µs; / instruction         for blocks (total)       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB       •         • Number, max.       Limited only by RAM for code         Data areas and their retentivity       10 kbyte         • Number, max.       <	Encoder supply	
Power loss         Power loss, typ.       12 W         Memory       100 kbyte         work memory       100 kbyte         expandable       No         Load memory       4 Mbyte         eintegrated       9 (SIMATIC memory card)         eintegrated       4 (SiMATIC memory card)         eintegrated       9 (SiMATIC Memory Card), max.         Backup       -         eintegrated       Yes; maintenance-free         vithout battery       Yes         CPU processing times       -         for bit operations, typ.       1.7 µs; / instruction         for word operations, typ.       2.3 µs; / instruction         for floating point arithmetic, typ.       2.3 µs; / instruction         CPU-blocks       -         Number of blocks (total)       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB       -         e Number, max.       Limited only by RAM for code	24 V encoder supply	
Power loss, typ.       12 W         Memory       Work memory         • integrated       100 kbyte         • expandable       No         Load memory       • integrated         • integrated       4 Mbyte         • present       • with SIMATIC memory card         Backup       • present         • present       Yes; maintenance-free         • without battery       Yes         CPU processing times       0.085 µs; / instruction         for bit operations, typ.       0.085 µs; / instruction         for word operations, typ.       1.7 µs; / instruction         for floating point arithmetic, typ.       2.3 µs; / instruction         CPU-blocks       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB       • Number, max.       Limited only by RAM for code         Data areas and their retentivity       retentive data area in total (incl. times, counters, flags), max.       10 kbyte         Flag       • Number, max.       8 kbyte; Size of bit memory address area	• 24 V	L+ minus 4 V DC min.
Memory         Work memory         • integrated       100 kbyte         • expandable       No         Load memory       4 Mbyte         • integrated       4 Mbyte         • Plug-in (SIMATIC Memory Card), max.       with SIMATIC memory card         Backup       -         • present       Yes; maintenance-free         • without battery       Yes         CPU processing times       -         for bit operations, typ.       0.085 µs; / instruction         for doperations, typ.       1.7 µs; / instruction         for doperations, typ.       1.7 µs; / instruction         for Boting point arithmetic, typ.       2.5 FDs, counters and timers. The maximum number of addressable blocks (total)         OB       -         • Number of blocks (total)       DBs, FCS, FDs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB       -         • Number, max.       Limited only by RAM for code         Data areas and their retentivity       10 kbyte         retentive data area in total (incl, times, counters, flags), max.       8 kbyte; Size of bit memory address area         Local data       -       10 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 28: 6 KB </td <td>Power loss</td> <td></td>	Power loss	
Work memory       integrated       100 kbyte         • expandable       No         Load memory       • integrated       4 Mbyte         • integrated       4 Mbyte         • Plug-in (SIMATIC Memory Card), max.       with SIMATIC memory card         Backup       • present       Yes; maintenance-free         • without battery       Yes         CPU processing times       0.085 µs; / instruction         for bit operations, typ.       0.085 µs; / instruction         for doperations, typ.       1.7 µs; / instruction         for floating point arithmetic, typ.       2.3 µs; / instruction         CPU-blocks       2.3 µs; / instruction         Number of blocks (total)       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB       • Number, max.       Limited only by RAM for code         Data areas and their retentivity       10 kbyte         retentive data area in total (incl. times, counters, flags), max.       10 kbyte         Flag       • Number, max.       8 kbyte; Size of bit memory address area         Local data       • per priority class, max.       16 kbyte: Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	Power loss, typ.	12 W
• integrated       100 kbyte         • integrated       No         Load memory       4 Mbyte         • integrated       4 Mbyte         • Plug-in (SIMATIC Memory Card), max.       with SIMATIC memory card         Backup       • present         • present       Yes; maintenance-free         • without battery       Yes         CPU processing times       0.085 µs; / instruction         for bit operations, typ.       0.085 µs; / instruction         for word operations, typ.       2.3 µs; / instruction         for floating point arithmetic, typ.       2.3 µs; / instruction         CPU-blocks       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB	Memory	
• expandable       No         Load memory       4 Mbyte         • integrated       4 Mbyte         • Plug-in (SIMATIC Memory Card), max.       with SIMATIC memory card         Backup       • present         • present       Yes; maintenance-free         • without battery       Yes         CPU processing times       0.085 µs; / instruction         for bit operations, typ.       0.085 µs; / instruction         for word operations, typ.       1.7 µs; / instruction         for floating point arithmetic, typ.       2.3 µs; / instruction         for floating point arithmetic, typ.       2.3 µs; / instruction         OB	Work memory	
Load memory <ul> <li>integrated</li> <li>Plug-in (SIMATIC Memory Card), max.</li> <li>with SIMATIC memory card</li> <li>backup</li> <li>present</li> <li>vers maintenance-free</li> <li>without battery</li> <li>Yes</li> <li>CPU processing times</li> <li>for bit operations, typ.</li> <li>0.085 µs; / instruction</li> <li>for floating point arithmetic, typ.</li> <li>2.3 µs; / instruction</li> <li>cPU-blocks</li> <li>Number of blocks (total)</li> <li>DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used</li> <li>OB</li> <li>Number, max.</li> <li>Limited only by RAM for code</li> <li>Data areas and their retentivity</li> <li>retentive data area in total (incl. times, counters, flags), max.</li> <li>Flag</li> <li>Number, max.</li> <li>&amp; kbyte; Size of bit memory address area</li> <li>Local data</li> <li>per priority class, max.</li> <li>16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB</li> <li>Ces 10 Kes</li> <li>Ces 10 Ke</li></ul>	• integrated	100 kbyte
• integrated       4 Mbyte         • Plug-in (SIMATIC Memory Card), max.       with SIMATIC memory card         Backup       • present       Yes; maintenance-free         • without battery       Yes         CPU processing times       0.085 µs; / instruction         for bit operations, typ.       0.085 µs; / instruction         for floating point arithmetic, typ.       2.3 µs; / instruction         CPU-blocks       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB       •         • Number, max.       Limited only by RAM for code         Data areas and their retentivity       10 kbyte         • Number, max.       8 kbyte; Size of bit memory address area         Local data       • per priority class, max.         • per priority class, max.       16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	• expandable	No
• Plug-in (SIMATIC Memory Card), max.       with SIMATIC memory card         Backup       • present       Yes; maintenance-free         • without battery       Yes         CPU processing times       0.085 µs; / instruction         for bit operations, typ.       0.085 µs; / instruction         for floating point arithmetic, typ.       2.3 µs; / instruction         CPU-blocks       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB       Limited only by RAM for code         Data areas and their retentivity       10 kbyte         retentive data area in total (incl. times, counters, flags), max.       10 kbyte         Flag       0 kbyte; Size of bit memory address area         Local data       16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	Load memory	
Backup       Yes; maintenance-free         • without battery       Yes;         CPU processing times       0.085 µs; / instruction         for bit operations, typ.       0.085 µs; / instruction         for word operations, typ.       1.7 µs; / instruction         for floating point arithmetic, typ.       2.3 µs; / instruction         CPU-blocks       2.3 µs; / instruction         Number of blocks (total)       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB       Uimited only by RAM for code         Data areas and their retentivity       10 kbyte         retentive data area in total (incl. times, counters, flags), max.       10 kbyte; Size of bit memory address area         Local data       • humber, max.       8 kbyte; Size of bit memory address area         Local data       • per priority class, max.       16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	• integrated	4 Mbyte
• present       Yes; maintenance-free         • without battery       Yes         CPU processing times       0.085 μs; / instruction         for bit operations, typ.       0.085 μs; / instruction         for word operations, typ.       1.7 μs; / instruction         for floating point arithmetic, typ.       2.3 μs; / instruction         CPU-blocks       2.3 μs; / instruction         Number of blocks (total)       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB	<ul> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul>	with SIMATIC memory card
• without battery       Yes         CPU processing times       0.085 µs; / instruction         for bit operations, typ.       0.085 µs; / instruction         for word operations, typ.       1.7 µs; / instruction         for floating point arithmetic, typ.       2.3 µs; / instruction         for floating point arithmetic, typ.       2.3 µs; / instruction         CPU-blocks       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB       Unimber, max.         Limited only by RAM for code         Pata areas and their retentivity         retentive data area in total (incl. times, counters, flags), max.       10 kbyte         Flag       8 kbyte; Size of bit memory address area         • Number, max.       8 kbyte; Size of bit memory address area         Local data       16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	Backup	
CPU processing times         for bit operations, typ.       0.085 µs; / instruction         for word operations, typ.       1.7 µs; / instruction         for floating point arithmetic, typ.       2.3 µs; / instruction         CPU-blocks       2.3 µs; / instruction         Number of blocks (total)       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB       • Number, max.         Limited only by RAM for code         Data areas and their retentivity         retentive data area in total (incl. times, counters, flags), max.       10 kbyte         Flag       8 kbyte; Size of bit memory address area         Local data       -         • per priority class, max.       16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	• present	Yes; maintenance-free
for bit operations, typ.       0.085 μs; / instruction         for word operations, typ.       1.7 μs; / instruction         for floating point arithmetic, typ.       2.3 μs; / instruction         CPU-blocks       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB       Unimited only by RAM for code         Data areas and their retentivity       10 kbyte         retentive data area in total (incl. times, counters, flags), max.       10 kbyte         Flag       8 kbyte; Size of bit memory address area         Local data       16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	<ul> <li>without battery</li> </ul>	Yes
for word operations, typ.       1.7 μs; / instruction         for floating point arithmetic, typ.       2.3 μs; / instruction         CPU-blocks         Number of blocks (total)       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB	CPU processing times	
for floating point arithmetic, typ.       2.3 µs; / instruction         CPU-blocks       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB       Imited only by RAM for code         OB       Limited only by RAM for code         Data areas and their retentivity       10 kbyte         retentive data area in total (incl. times, counters, flags), max.       10 kbyte         Flag       8 kbyte; Size of bit memory address area         Local data       16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	for bit operations, typ.	0.085 μs; / instruction
CPU-blocks         Number of blocks (total)       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB       Imited only by RAM for code         Otata areas and their retentivity       Imited only by RAM for code         Data areas and their retentivity       10 kbyte         retentive data area in total (incl. times, counters, flags), max.       10 kbyte         Flag       8 kbyte; Size of bit memory address area         Local data       16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	for word operations, typ.	1.7 μs; / instruction
Number of blocks (total)       DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB       • Number, max.         Limited only by RAM for code         Data areas and their retentivity         retentive data area in total (incl. times, counters, flags), max.       10 kbyte         Flag         • Number, max.       8 kbyte; Size of bit memory address area         Local data       16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	for floating point arithmetic, typ.	2.3 μs; / instruction
addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used         OB         • Number, max.       Limited only by RAM for code         Data areas and their retentivity         retentive data area in total (incl. times, counters, flags), max.       10 kbyte         Flag         • Number, max.       8 kbyte; Size of bit memory address area         Local data         • per priority class, max.       16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	CPU-blocks	
• Number, max.       Limited only by RAM for code         Data areas and their retentivity         retentive data area in total (incl. times, counters, flags), max.       10 kbyte         Flag         • Number, max.       8 kbyte; Size of bit memory address area         Local data         • per priority class, max.       16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	Number of blocks (total)	addressable blocks ranges from 1 to 65535. There is no
Data areas and their retentivity         retentive data area in total (incl. times, counters, flags), max.       10 kbyte         Flag         • Number, max.       8 kbyte; Size of bit memory address area         Local data         • per priority class, max.       16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	OB	
retentive data area in total (incl. times, counters, flags), max.       10 kbyte         Flag       • Number, max.         • Number, max.       8 kbyte; Size of bit memory address area         Local data       • per priority class, max.         • per priority class, max.       16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	• Number, max.	Limited only by RAM for code
flags), max.       Flag         • Number, max.       8 kbyte; Size of bit memory address area         Local data       16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	Data areas and their retentivity	
Flag         • Number, max.       8 kbyte; Size of bit memory address area         Local data         • per priority class, max.       16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB		10 kbyte
<ul> <li>Number, max.</li> <li>8 kbyte; Size of bit memory address area</li> <li>Local data         <ul> <li>per priority class, max.</li> <li>16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB</li> <li>content of the second s</li></ul></li></ul>		
Local data         • per priority class, max.         16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB		
• per priority class, max. 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB		8 kbyte; Size of bit memory address area
to 26: 6 KB		
Address area	<ul> <li>per priority class, max.</li> </ul>	
	Address area	

Process image	
<ul> <li>Inputs, adjustable</li> </ul>	1 kbyte
<ul> <li>Outputs, adjustable</li> </ul>	1 kbyte
Hardware configuration	
Number of modules per system, max.	3 comm. modules, 1 signal board, 8 signal modules
Time of day	
Clock	
<ul> <li>Hardware clock (real-time)</li> </ul>	Yes
Backup time	480 h; Typical
<ul> <li>Deviation per day, max.</li> </ul>	60 s/month at 25 °C
Digital inputs	
Number of digital inputs	14; Integrated
<ul> <li>of which inputs usable for technological functions</li> </ul>	6; HSC (High Speed Counting)
integrated channels (DI)	14
Source/sink input	Yes
Number of simultaneously controllable inputs	
all mounting positions	
— up to 40 °C, max.	14
Input voltage	
Rated value (DC)	24 V
• for signal "0"	5 V DC at 1 mA
● for signal "1"	15 V DC at 2.5 mA
Input delay (for rated value of input voltage)	
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 counter/technological functions	
— parameterizable	Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz
Cable length	
• shielded, max.	500 m; 50 m for technological functions
• unshielded, max.	300 m; For technological functions: No
Digital outputs	
Number of digital outputs	10; Relays
integrated channels (DO)	10
Switching capacity of the outputs	

<ul> <li>with resistive load, max.</li> </ul>	2 A
<ul> <li>on lamp load, max.</li> </ul>	30 W with DC, 200 W with AC
Output delay with resistive load	
• "0" to "1", max.	10 ms; max.
• "1" to "0", max.	10 ms; max.
Switching frequency	
<ul> <li>of the pulse outputs, with resistive load, max.</li> </ul>	1 Hz
Relay outputs	
<ul> <li>Number of relay outputs</li> </ul>	10
<ul> <li>Number of operating cycles, max.</li> </ul>	mechanically 10 million, at rated load voltage 100 000
Cable length	
• shielded, max.	500 m
<ul> <li>unshielded, max.</li> </ul>	150 m
·	
Analog inputs	
Number of analog inputs	2
integrated channels (AI)	2; 0 to 10V
Input ranges	
Voltage	Yes
Input ranges (rated values), voltages	
• 0 to +10 V	Yes
<ul> <li>Input resistance (0 to 10 V)</li> </ul>	≥100k ohms
Cable length	
• shielded, max.	100 m; twisted and shielded
Analog outputs	
Number of analog outputs	0
Analog value generation	
Integration and conversion time/resolution per channel	
<ul> <li>Resolution with overrange (bit including sign),</li> </ul>	10 bit
max.	
<ul> <li>Integration time, parameterizable</li> </ul>	Yes
Conversion time (per channel)	625 µs
Encoder	
Connectable encoders	
• 2-wire sensor	Yes
1. Interface	
Interface type	PROFINET
Physics	Ethernet
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
-	

Autocrossing	Yes
Functionality	
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
<ul> <li>Open IE communication</li> </ul>	Yes
Web server	Yes
PROFINET IO Controller	
<ul> <li>Transmission rate, max.</li> </ul>	100 Mbit/s
Services	
— Number of connectable IO Devices, max.	16
PROFINET IO Device	
Services	
— Shared device	Yes
— Number of IO Controllers with shared	2
device, max.	
Protocols	
Supports protocol for PROFINET IO	Yes
PROFIBUS	Yes; CM 1243-5 required
AS-Interface	Yes
Protocols (Ethernet)	
• TCP/IP	Yes
Further protocols	
• MODBUS	Yes
Communication functions	
S7 communication	
supported	Yes
• as server	Yes
• as client	Yes
Open IE communication	
• TCP/IP	Yes
• ISO-on-TCP (RFC1006)	Yes
• UDP	Yes
Web server	
• supported	Yes
User-defined websites	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	counters
Forcing	Yes
Diagnostic buffer	
• present	Yes
Traces	
Number of configurable Traces	2; Up to 512 KB of data per trace are possible
ntegrated Functions	
Number of counters	6
Counting frequency (counter) max.	100 kHz
Frequency meter	Yes
controlled positioning	Yes
Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction	Up to 4 with SB 1222
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 electric	city
<ul> <li>Interference immunity against discharge of static electricity acc. to IEC 61000-4-2</li> </ul>	Yes
— Test voltage at air discharge	8 kV
— Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	
<ul> <li>Interference immunity on supply lines acc. to IEC 61000-4-4</li> </ul>	Yes
<ul> <li>Interference immunity on signal cables acc. to IEC 61000-4-4</li> </ul>	Yes
Interference immunity against voltage surge	
<ul> <li>on the supply lines acc. to IEC 61000-4-5</li> </ul>	Yes
Interference immunity against conducted variable distur	bance induced by high-frequency fields
<ul> <li>Interference immunity against high-frequency radiation acc. to IEC 61000-4-6</li> </ul>	Yes

Emission of radio interference acc. to EN 55 011	
• Limit class A, for use in industrial areas	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	
Degree of protection acc. to EN 60529	
• IP20	Yes
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
Marine approval	
Marine approval	Yes
Ambient conditions	
Free fall	
<ul> <li>Fall height, max.</li> </ul>	0.3 m; five times, in product package
Ambient temperature during operation	
● min.	-20 °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
<ul> <li>horizontal installation, min.</li> </ul>	-20 °C
<ul> <li>horizontal installation, max.</li> </ul>	60 °C
<ul> <li>vertical installation, min.</li> </ul>	-20 °C
• vertical installation, max.	50 °C
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Air pressure acc. to IEC 60068-2-13	
<ul> <li>Storage/transport, min.</li> </ul>	660 hPa
<ul> <li>Storage/transport, max.</li> </ul>	1 080 hPa
<ul> <li>permissible operating height</li> </ul>	-1000 to 2000 m
Relative humidity	
<ul> <li>permissible range (without condensation) at 25</li> <li>°C</li> </ul>	95 %
X (1) (1)	
Vibrations	
Vibrations     Vibrations	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail Yes

• 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

Extended ambient conditions

- SO2 at RH < 60% without condensation

S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free

Configuration		
Programming		
Programming language		
— LAD	Yes	
— FBD	Yes	
— SCL	Yes	
Cycle time monitoring		
• adjustable	Yes	
Dimensions	Dimensions	
Width	110 mm	
Height	100 mm	
Depth	75 mm	
Weights		
Weight, approx.	435 g	
last modified:	07/25/2016	