SIEMENS

Data sheet

6ES7214-1HG40-0XB0





SIMATIC S7-1200, CPU 1214C, compact CPU, DC/DC/relay, onboard I/O: 14 DI 24 V DC; 10 DO relay 2 A; 2 AI 0-10 V DC, power supply: DC 20.4-28.8 V DC, program/data memory 150 KB



Figure similar

General information		
Product type designation	CPU 1214C DC/DC/relay	
Firmware version	V4.6	
Engineering with		
 Programming package 	STEP 7 V18 or higher	
Supply voltage		
Rated value (DC)		
• 24 V DC	Yes	
permissible range, lower limit (DC)	20.4 V	
permissible range, upper limit (DC)	28.8 V	
Reverse polarity protection	Yes	
Load voltage L+		
 Rated value (DC) 	24 V	
 permissible range, lower limit (DC) 	20.4 V	
 permissible range, upper limit (DC) 	28.8 V	
Input current		
Current consumption (rated value)	500 mA; CPU only	
Current consumption, max.	1 500 mA; CPU with all expansion modules	
Inrush current, max.	12 A; at 28.8 V	
I²t	0.8 A ² ·s	
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		
• integrated	150 kbyte	
Load memory		
integrated	4 Mbyte	
 Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card	
Backup		
• present	Yes	
maintenance-free	Yes	

For bit operations, typ. for bit operations, typ. for floating point arithmetic, typ. CPU-blocks Number of blocks (total) DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65355. There is no restriction, the entire working memory can be used Number, max. Limited only by RAM for code Number, max. Limited only by RAM for code Number and the retentivity Reference data area (incl. timera, counters, flags), max. Flag Size, max. Local data - per prority class, max. Local data - per prority class, max. Address area Process image - Inputs, adjustable -	without battery	Yes	
for bit operations, typ. Or word operations, the word operation of the technological functions of the word operations, the word operations, the word operations of the word operations, the word operations of the word operations, the word operations, the word operations of the word operations, the word operations, the word operations of the word operations, the word operations, the word operations of the word operations, the word operations of the word operations, the word operations, the word operations, the word operations of the word operations, the word operations of the word operations, the word operation	·		
for word operations, typ. for floating point arthmetic, typ. C2.3 µs; / instruction C92-blocks Number of blocks (total) D8s, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 6555s. There is no restriction, the entire working memory can be used Number, max. Limited only by RAM for code **Number of word for interest words area and their retentivity Retentive data area (ind. timers, counters, flags), max. Flag Size, max. Skyte; 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 Address area **Prioress image • Inputs, adjustable • Intervence configuration Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules Time of day Clock • Hardware clock (real-time) • Beacup time • Deviation per day, max • Beacup time • Deviation per day, max • Position per day, max • Position provides and time to technological functions • of which inputs usable for technological functions • of which inputs usable for technological functions • of which inputs usable for technological functions • Rated value (DC) • of reginal "1" • To signal "1" • To signal "1" • To to "1", min. • of or signal "1" • To to "1", min. • of or signal "1" • Parameterizable • shelded, max. • unshelded, max. • unshelded, max. • solo m, 50 m for technological functions • no more technological functi		0.08 us: / instruction	
for floating point arithmetic, typ. CPUE-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 tuded blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be tuded blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be tuded blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be tuded blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be tuded blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be tuded blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be tuded blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be tuded blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be called blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be called blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be called blocks ranges from 1 to 65535. There is no restriction, the entire working memory called blocks ranges from 1 to 65535. There is no restriction, the entire working memory called blocks ranges from 1 to 65535. There is no restriction, the entire working memory called blocks ranges from 1 to 65535. There is no restriction, the entire working memory called blocks ranges from 1 to 65535. There is no restriction, the entire working memory called blocks are called blocks ranges from 1 to 65535. There is no restriction, the entire working memory called blocks are called blocks are called blocks ranges from 1 to 85535. There is no restriction, the entire working memory called blocks are called blocks are called blocks ranges from 1 to 85535. There is no restriction, the entire working memory called blocks are called blocks are called blocks are cal			
DBs, FCs, FDs, counters and times. The maximum number of addressable blocks ranges from 1 to 68355. There is no restriction, the entire working memory can be used to see the priority class and their retentivity. Retentive data area (incl. timers, counters, flags), max.	·	·	
Number of blocks (total) DBs, FCs, FBs, countries and timess. The maximum number of addressable blocks ranges from 1 to 65355. There is no restriction, the entire working memory can be used Number, max. Limited only by RAM for code Path areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag Size, max. Local data • per priority class, max. 16 kbyle, Priority class 1 (program cycle), 16 KB, priority class 2 to 26: 6 KB. Address area Process image • inputs, adjustable • loupus, adjustable • loupus, adjustable • loupus, adjustable • latera of day Clock • Hardware clock (real-time) • Backup time • Backup time • Deviation per day, max. Digital inputs Number of digital inputs • Or which inputs usable for technological functions Sourcesiank input Number of digital inputs all mounting positions — up to 40 °C, max. Input data ylue (DC) • for signal "0" • for signal "0" • for signal "0" • for signal "1" Input data ylue rated value of input voltage) for standard inputs — parameterizable — parameterizable for technological functions — parameterizable for technological functions — parameterizable • Parameterizable for technological functions Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 k		Z.3 µs; / Instruction	
■ Number, max. Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag ■ Size, max. Local data ■ per priority class, max. 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KF, Address area Process image			
Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag • Size, max. Local data • per priority class, max. Address area Process image • Inputs, adjustable • Inputs, adjustabl	OB		
Retentive data area (incl. timers, counters, flegs), max. Fleg Size, max. Local data • per priority class, max. 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB Address area Process image • inputs, adjustable • inputs, adjus	Number, max.	Limited only by RAM for code	
Flag • Size, max. Local data • per priority class, max. Addross area Process image • Imputs, adjustable • Outputs, adjustable • Outputs, adjustable • Outputs, adjustable • Outputs, adjustable • I kbyte Process image • Industry of day Clock • Hardware clock (real-time) • Backup time • Deviation per day, max. Digital imputs Number of digital inputs • of which inputs usable for technological functions Sourcesink input Number of digital origins • I kate value (DC) • Fated value (DC) • for signal "0" • Fated value (DC) • for signal "1" • for signal "1" • for signal "1" • for signal "1" • parameterizable — at "0" to "1", min. — at "0" to "1", max. • parameterizable — parameterizable — parameterizable — parameterizable — parameterizable — parameterizable — parameterizable — parameterizable — parameterizable — parameterizable — parameterizable — parameterizable — parameterizable — shelded, max. — parameterizable — parameterizable — parameterizable — shelded, max. — parameterizable • shelded, max. — parameterizable • shelded, max. — unshielded, max. • 10; Relays	Data areas and their retentivity		
Size, max. Local data Per priority class, max. 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB Address area Process image Process ima	Retentive data area (incl. timers, counters, flags), max.	14 kbyte	
Local data • per priority class, max. 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KE Address area Process image • Inputs, adjustable • Outputs, adjustable • Deviation per day, max. Outputs, adjustable • Deviation per day, max. Digital inputs • Outputs, adjustable • Outputs, adjustable • Outputs, adjustable, ad	Flag		
Per priority class, max. Address area Process image Inputs, adjustable	• Size, max.	8 kbyte; Size of bit memory address area	
Address area Process image Inputs, adjustable Outputs, adjustable Very Color Inputs, adjustable I kbyte Advance configuration Number of modules per system, max. Imput diagrate Outputs, adjustable I kbyte As omm. modules, 1 signal board, 8 signal modules Time of day Clock Hardware clock (real-time) Backup time Deviation per day, max. Ves As of hypical Bockup time Outputs of digital inputs Of which inputs usable for technological functions Source/sink input Number of digital inputs It integrated Of which inputs usable for technological functions Functional for insultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage Rated value (DC) Of ro signal °C' For signal °C' Of ro signal °C' For signal °C' Or standard inputs — parameterizable — parameterizable — at "O" to "1", min. — at "O" to "1", max. To interrupt inputs — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 with the constitutions Outputs Number of digital outputs Number of digital outputs Number of digital outputs Number of digital outputs 10; Relays	Local data		
Process image • Inputs, adjustable • Outputs, adjustable • Outputs, adjustable 1 kbyte Hardware configuration Number of modules per system, max. Clock • Hardware clock (real-time) • Backup time • Deviation per day, max. • Backup time • Deviation per day, max. • Source/sink input Number of digital inputs • of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", max. for interrupt inputs — parameterizable — Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz & 3 @	• per priority class, max.	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	
Process image • Inputs, adjustable • Outputs, adjustable • Outputs, adjustable 1 kbyte Hardware configuration Number of modules per system, max. Clock • Hardware clock (real-time) • Backup time • Deviation per day, max. • Backup time • Deviation per day, max. • Source/sink input Number of digital inputs • of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", max. for interrupt inputs — parameterizable — Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz & 3 @	Address area		
Outputs, adjustable 1 kbyte Hardware configuration Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules Time of day Clock • Hardware clock (real-time) Yes • Backup time 480 h; Typical • Deviation per day, max. ±60 s/month at 25 °C Digital inputs Number of 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 • 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 — parameter/zable 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 — parameter/zable Yes for technological functions — parameter/zable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz Cable length • shielded, max. 500 m; 50 m for technological functions • unshielded, max. 500 m; 50 m for technological functions No Digital outputs Number of digital outputs 10; Relays			
Outputs, adjustable 1 kbyte Hardware configuration Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules Time of day Clock • Hardware clock (real-time) Yes • Backup time 480 h; Typical • Deviation per day, max. ±60 s/month at 25 °C Digitat inputs Number of 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 • Rated value (DC) 24 V • of signal "0" 5 V DC at 1 mA • for signal "0" 5 V DC at 2.5 mA Input delay (for rated value of input voltage) 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 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz Cable length • shielded, max. 500 m; 50 m for technological functions: No Digital outputs Number of digital outputs 10; Relays	•	1 kbyte	
Hardware configuration			
Number of modules per system, max. 1 inne of day Clock A Hardware clock (real-time) Backup time Deviation per day, max. 148 h; Typical Source/sink input Number of digital inputs Of thich inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions - up to 40 °C, max. Input voltage Rated value (DC) Of signal "1" Or signal "1" Or signal "1" Or standard inputs - parameterizable - at "0" to "1", max. for interrupt inputs - parameterizable - slielded, max. - unshlelded, max. -			
Time of day Clock		3 comm. modules, 1 signal board, 8 signal modules	
Clock		5 Samini modulos, i oliginai bodita, o oliginai modulos	
Hardware clock (real-time) Backup time Deviation per day, max. 1480 h; Typical 150 s/month at 25 °C Digital inputs Number of digital inputs Of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage Rated value (DC) Of ro signal "0" Of ro signal "1" Of ro signal "1" Of ro signal "1" Of ro standard inputs — at "0" to "1", min. — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions — parameterizable Yes Cable length Shielded, max. Unuble of digital outputs Number of digital outputs Number of digital outputs 144; Integrated 6; HSC (High Speed Counting) Yes 14 15 V DC at 2.5 mA 14 15 V DC at 2.5 mA 16 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four — at "0" to "1", min. — at "0" to "1", max. — to "5", max. — parameterizable Yes 12.8 ms 12.8 ms 13.100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz Shielded, max. Unshielded, max. Unshielded, max. 10; Relays			
Backup time Deviation per day, max. Digital Inputs Number of digital inputs of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage Rated value (DC) of or signal "0" of or signal "1" 15 V DC at 2.5 mA Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable Parameterizable yes for technological functions — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz Cable length • shielded, max. • unshielded, max. Unumber of digital outputs 10; Relays 14; Integrated 6; HSC (High Speed Counting) Yes 14 14 15 V DC at 1 mA 15 V DC at 2.5 mA 15 V DC at 2.5 mA 15 V DC at 2.5 mA 15 V DC at 2.5 mA 16 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four 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 0.2 ms 12.8 ms for interrupt inputs — parameterizable Yes for technological functions — parameterizable 10; Relays		Von	
Deviation per day, max. Digital inputs Number of digital inputs of which inputs usable for technological functions Source/sink input Yes Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage Rated value (DC) for signal "0" for signal "1" 15 V DC at 2.5 mA Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. 12.8 ms for interrupt inputs — parameterizable yes for technological functions — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz			
Number of digital inputs Number of digital inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage • Rated value (DC) • for signal "0" • for signal "0" • for signal "1" Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable	-		
Number of digital inputs of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage of Rated value (DC) of or signal "1" of or signal "1" of or signal "1" of or standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable of rechnological functions — parameterizable of rechnological functions — parameterizable of rechnological functions — parameterizable of shielded, max. ounshielded, max. ounshielded, max. ounshielded, max. Digital outputs Number of digital outputs Yes Yes 14 14 14 15 14 15 15 15 15 16 17 18 19 19 19 19 19 19 19 19 19		±60 s/month at 25 °C	
of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage • Rated value (DC) • for signal "0" • for signal "1" 15 ∨ DC at 1 mA • for signal "1" Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable — parameterizable Yes for technological functions — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz Cable length • shielded, max. • unshielded, max. Ji Relays Number of digital outputs Number of digital outputs 14 14 14 15 ∨ DC at 2.5 mA 16 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four 9.2 ms 12.8 ms 12.8 ms 12.8 ms 500 m; 50 m for technological functions • unshielded, max. 10 my for technological functions 10; Relays			
Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. 14 Input voltage • Rated value (DC) • for signal "0" • for signal "1" Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", max. — at "0" to "1", max. for interrupt inputs — parameterizable yes for technological functions — parameterizable Cable length • shielded, max. • unshielded, max. • unshielded, max. Digital outputs Number of digital outputs 14 14 14 14 15 24 V 50 V DC at 1 mA 50 V DC at 2.5 mA 15 V DC at 2.5 mA 15 V DC at 2.5 mA 16 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four 0.2 ms 0.2 ms 0.2 ms 12.8 ms for interrupt inputs — parameterizable Yes for technological functions — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz Cable length • shielded, max. • unshielded, max. 10; Relays			
Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage • Rated value (DC) • for signal "0" • for signal "1" Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable Yes for technological functions — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz & 3 @ 30 m; for technological functions • unshielded, max. • unshielded, max. Digital outputs Number of digital outputs 10; Relays	·		
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 technological functions parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 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		Yes	
- up to 40 °C, max. Input voltage • Rated value (DC) • for signal "0" • for signal "1" 15 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. - at "0" to "1", max. 12.8 ms for interrupt inputs - parameterizable Yes for technological functions - parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz Cable length • shielded, max. • unshielded, max. 500 m; 50 m for technological functions: No Digital outputs Number of digital outputs 10; Relays			
Input voltage • Rated value (DC) • for signal "0" • for signal "1" Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable yes for technological functions — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz & 3 @ 30 m; for technological functions • unshielded, max. • unshielded, max. Digital outputs Number of digital outputs 15 V DC at 1 mA 5 V DC at 2.5 mA 15 V DC at 2.5 mA 16 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four 0.2 ms 12.8 ms 12.8 ms Yes for interrupt inputs Yes for technological functions 5 ingle phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz 8 ingle phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 m; for technological functions • unshielded, max. 10; Relays	· ·		
Rated value (DC) for signal "0" for signal "1" Input delay (for rated value of input voltage) for standard inputs parameterizable - at "0" to "1", min. - at "0" to "1", max. for interrupt inputs parameterizable yes for technological functions parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz & 3 @ 30 m; for technological functions unshielded, max. unshielded, max. Soom; 50 m for technological functions: No Digital outputs Number of digital outputs 10; Relays		14	
for signal "0" for signal "1"			
	. ,		
Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable yes for technological functions — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz Cable length • shielded, max. • unshielded, max. Digital outputs Number of digital outputs 10; Relays	•	5 V DC at 1 mA	
for standard inputs — parameterizable 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four — at "0" to "1", min. — at "0" to "1", max. 12.8 ms for interrupt inputs — parameterizable for technological functions — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz & 3 @	• for signal "1"	15 V DC at 2.5 mA	
parameterizable parameterizable at "0" to "1", min at "0" to "1", max at "0" to "1", max. for interrupt inputs parameterizable parameterizabl	Input delay (for rated value of input voltage)		
groups of four - at "0" to "1", min at "0" to "1", max. for interrupt inputs - parameterizable for technological functions - parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz KHz Cable length • shielded, max. • unshielded, max. Join my for technological functions: No Digital outputs Number of digital outputs 10; Relays	for standard inputs		
- at "0" to "1", max. for interrupt inputs - parameterizable for technological functions - parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz KHz Cable length • shielded, max. • unshielded, max. 12.8 ms Yes Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz KHz Cable length • shielded, max. 500 m; 50 m for technological functions 300 m; for technological functions: No Digital outputs Number of digital outputs 10; Relays	·	groups of four	
for interrupt inputs — parameterizable for technological functions — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz Cable length • shielded, max. • unshielded, max. 10; Relays			
— parameterizable for technological functions — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz Cable length ● shielded, max. ● unshielded, max. ■ unshielded, max. Digital outputs Number of digital outputs 10; Relays		12.8 ms	
for technological functions — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz Cable length • shielded, max. • unshielded, max. 100 m; 50 m for technological functions: No Digital outputs Number of digital outputs 10; Relays	·		
— parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 3 kHz & 3 @	·	Yes	
Cable length • shielded, max. • unshielded, max. Digital outputs Number of digital outputs kHz 500 m; 50 m for technological functions 300 m; for technological functions: No	·		
 shielded, max. unshielded, max. Digital outputs Number of digital outputs 10; Relays 		Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz	
 unshielded, max. Digital outputs Number of digital outputs 10; Relays 	<u> </u>		
Digital outputs Number of digital outputs 10; Relays			
Number of digital outputs 10; Relays		300 m; for technological functions: No	
Switching capacity of the outputs	Number of digital outputs	10; Relays	
Controlling duputory of the outputs	Switching capacity of the outputs		
• with resistive load, max. 2 A	 with resistive load, max. 	2 A	
• on lamp load, max. 30 W with DC, 200 W with AC	on lamp load, max.	30 W with DC, 200 W with AC	
Output delay with resistive load	Output delay with resistive load		
• "0" to "1", max. 10 ms; max.	• "0" to "1", max.	10 ms; max.	
• "1" to "0", max. 10 ms; max.	• "1" to "0", max.	10 ms; max.	

Relay outputs	40		
Number of relay outputs	10		
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			
• shielded, max.	100 m; twisted and shielded		
Analog outputs			
Number of analog outputs	0		
Analog value generation for the inputs			
Integration and conversion time/resolution per channel			
 Resolution with overrange (bit including sign), max. 	10 bit		
 Integration time, parameterizable 	Yes		
Conversion time (per channel)	625 µs		
Encoder			
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		
Number of ports	1		
• integrated switch	No		
Protocols			
PROFINET IO Controller	Yes		
PROFINET IO Device	Yes		
SIMATIC communication	Yes		
Open IE communication	Yes; Optionally also encrypted		
Web server	Yes		
Media redundancy PROFINET IO Controller	No		
PROFINET IO Controller	400 Mhii/a		
Transmission rate, max.	100 Mbit/s		
Services PC/OR communication	Voc. openintian with TLC V4.2 are calculated		
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected		
— Isochronous mode	No No		
— IRT	No No		
— PROFlenergy	No Vee		
Prioritized startup	Yes		
Number of IO devices with prioritized startup, max.	16		
Number of connectable IO Devices for PT may	16		
Number of connectable IO Devices for RT, max. of which in line, max.	16		
— of which in line, max.	16 Voc		
Activation/deactivation of IO Devices	Yes		
 Number of IO Devices that can be simultaneously activated/deactivated, max. 	8		
— Updating time	The minimum value of the update time also depends on the communication component set for PROFINET IO, on the number of IO devices and the quantity of configured user data.		
PROFINET IO Device			

0 1		
Services	V 710 VI	
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected	
— Isochronous mode	No	
— IRT	No	
— PROFlenergy	Yes	
 Shared device 	Yes	
 Number of IO Controllers with shared device, max. 	2	
Protocols		
Supports protocol for PROFINET IO	Yes	
PROFIsafe	No	
PROFIBUS	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required	
OPC UA	Yes; OPC UA Server	
AS-Interface	Yes; CM 1243-2 required	
	res, Givi 1245-2 required	
Protocols (Ethernet)	V	
• TCP/IP	Yes	
• DHCP	No	
• SNMP	Yes	
• DCP	Yes	
• LLDP	Yes	
Redundancy mode		
Media redundancy		
— MRP	No	
— MRPD	No	
SIMATIC communication		
S7 routing	Yes	
Open IE communication		
• TCP/IP	Yes	
— Data length, max.	8 kbyte	
• ISO-on-TCP (RFC1006)	Yes	
— Data length, max.	8 kbyte	
• UDP	Yes	
— Data length, max.	1 472 byte	
Web server		
• supported	Yes	
User-defined websites	Yes	
OPC UA		
 Runtime license required 	Yes; "Basic" license required	
OPC UA Server	Yes; data access (read, write, subscribe), method call, runtime license required	
 Application authentication 	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256	
 User authentication 	"anonymous" or by user name & password	
— Number of sessions, max.	10	
Number of subscriptions per session, max.	5	
— Sampling interval, min.	100 ms	
— Publishing interval, min.		
Number of server methods, max.	200 ms	
	20	
Number of monitored items, recommended max.	1 000	
Number of server interfaces, max.	2	
 Number of nodes for user-defined server interfaces, max. 	2 000	
Further protocols		
MODBUS	Yes	
	100	
communication functions / header		
S7 communication		
• supported	Yes	
• as server	Yes	
• as client	Yes	
User data per job, max.	See online help (S7 communication, user data size)	
Number of connections		
• overall	PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved	

	/ 10 max; Total Connections: 34 reserved / 64 max		
Test commissioning functions	/ 10 max; Total Connections: 34 reserved / 64 max		
Status/control			
Status/control variable	Yes		
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters		
Forcing	inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters		
• Forcing	Yes		
Diagnostic buffer	165		
• present	Yes		
Traces			
Number of configurable Traces	2		
Memory size per trace, max.	512 kbyte		
Interrupts/diagnostics/status information	·		
Diagnostics indication LED			
RUN/STOP LED	Yes		
• ERROR LED	Yes		
MAINT LED	Yes		
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		
Number of positioning axes via pulse-direction interface	Up to 4 with SB 1222		
PID controller	Yes		
Number of alarm inputs	4		
Potential separation			
Potential separation digital inputs			
 Potential separation digital inputs 	500 V AC for 1 minute		
between the channels, in groups of	1		
Potential separation digital outputs			
Potential separation digital outputs	Relays		
between the channels	No		
between the channels, in groups of	2		
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 an discharge Test voltage at contact discharge	6 kV		
Interference immunity to cable-borne interference			
Interference immunity on supply lines acc. to IEC 61000-	Yes		
4-4			
• Interference immunity on signal cables acc. to IEC 61000-	Yes		
4-4			
Interference immunity against voltage surge	Von		
 Interference immunity on supply lines acc. to IEC 61000- 4-5 	Yes		
Interference immunity against conducted variable disturbance indu	ced by high-frequency fields		
Interference immunity against high-frequency radiation	Yes		
acc. to IEC 61000-4-6			
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		
Dogram and class of protection	for Class B according to EN 55011		
Degree and class of protection	ID20		
IP degree of protection	IP20		
Standards, approvals, certificates	Voc		
CE mark	Yes		
UL approval	Yes		
cULus	Yes		

FM approval	Yes		
RCM (formerly C-TICK)	Yes		
	Yes		
KC approval	Yes		
Marine approval	res		
Ecological footprint	Ves		
environmental product declaration	Yes		
Global warming potential	444 lm		
— global warming potential, (total) [CO2 eq]	111 kg		
 global warming potential, (during production) [CO2 eq] 	20.1 kg		
global warming potential, (during operation) [CO2	91.5 kg		
eq]			
— global warming potential, (after end of life cycle)	-0.896 kg		
[CO2 eq] Ambient conditions			
Free fall			
	0.2 m; five times, in product package		
Fall height, max. Ambient temperature during energtion.	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		
 horizontal installation, min. 	-20 °C		
horizontal installation, max.	60 °C		
vertical installation, min.	-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			
Operation, min.	795 hPa		
Operation, max.	1 080 hPa		
Storage/transport, min.	660 hPa		
Storage/transport, max.	1 080 hPa		
Altitude during operation relating to sea level			
Installation altitude, min.	-1 000 m		
Installation altitude, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual		
Relative humidity			
Operation, max.	95 %; no condensation		
Vibrations			
Vibration resistance during operation acc. to IEC 60068- 2-6	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail		
Operation, tested according to IEC 60068-2-6	Yes		
Shock testing			
tested according to IEC 60068-2-27	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value),		
	duration 11 ms		
Pollutant concentrations			
 SO2 at RH < 60% without condensation 	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free		
configuration / header			
configuration / programming / header			
Programming language			
— LAD	Yes		
— FBD	Yes		
— SCL	Yes		
Know-how protection			
 User program protection/password protection 	Yes		
Copy protection	Yes		
Block protection	Yes		
Access protection			
protection of confidential configuration data	Yes		
Protection level: Write protection	Yes		
Protection level: Read/write protection	Yes		
Protection level: Complete protection	Yes		

programming / cycle time monitoring / hear	der	
adjustable	Yes	
Dimensions		
Width	110 mm	
Height	100 mm	
Depth	75 mm	
Weights		
Weight, approx.	435 g	

last modified:

10/9/2024