SIEMENS

Data sheet

6ES7215-1HG40-0XB0

SIMATIC S7-1200, CPU 1215C, COMPACT CPU, DC/DC/RELAY, 2 PROFINET PORT, ONBOARD I/O: 14 DI 24V DC; 10 DO RELAY 2A, 2 AI 0-10V DC, 2 AO 0-20MA DC, POWER SUPPLY: DC 20.4 -28.8 V DC, PROGRAM/DATA MEMORY: 125 KB



General information	
Product type designation	CPU 1215C DC/DC/Relay
Firmware version	V4.1
Engineering with	
 Programming package 	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+	
 Rated value (DC) 	24 V
 permissible range, lower limit (DC) 	5 V
• permissible range, upper limit (DC)	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
Encoder supply	
24 V encoder supply	
• 24 V	L+ minus 4 V DC min.
Power loss	
Power loss, typ.	12 W
Memory	
Type of memory	RAM
Work memory	
• integrated	125 kbyte
• expandable	No
Load memory	
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 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	
 Number, max. 	Limited only by RAM for code
Data areas and their retentivity	
retentive data area in total (incl. times, counters,	10 kbyte
flags), max.	
Flag	9 khitai Siza of hit mamory address area
• 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
Address area	
Process image	

 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 clock) Yes Backup time 480 h; Typical Deviation per day, max. + 60 s/month at 25 °C Digital inputs of which inputs usable for technological functions integrated channels (DI) The od °C, max. Yes Number of simultaneously controllable inputs all mounting positions 	 Inputs, 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 clock) Backup time Deviation per day, max. The of digital inputs O eviation per day, max. Fo which inputs usable for technological functions Integrated channels (DI) The of simultaneously controllable inputs all mounting positions - up to 40 °C, max. Number of simultaneously controllable inputs all mounting positions - up to 40 °C, max. Number of simultaneously controllable inputs Fated value (DC) 24 V for signal °C for signal °C for signal °C parameterizable - parameterizable - parameterizable<th></th><th></th>		
Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules Time of day Clock • Hardware clock (real-time clock) • Backup time 480 h; Typical • Deviation per day, max. 4/. 60 simonth at 25 °C Digital inputs 6/. HSC (High Speed Counting) • of which inputs usable for technological functions 6/. HSC (High Speed Counting) Integrated channels (DI) 14 m/p-reading Yes Number of signal "or" 5 V DC at 1 mA • of visional "or" 5 V DC at 1 mA • for signal "1" 15 VDC at 2.5 mA Input delay (for rated value of input voltage) For signal "1" • or up to 40 °C, max. 14. Input delay (for rated value of input voltage) For signal "1" • for signal "1" 15 VDC at 2.5 mA Input delay (for rated value of input voltage) For signal "1" • parameterizable Yes: 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at "0" to "1", min. 0.2 ms - at "0" to "1", max. 12.8 ms for interrupt inputs - parameterizable - parameterizable Yes: Single phase	· ·	
Time of day Clock • Hardware clock (real-time clock) 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) functions 14; Integrated integrated channels (DI) 14 myp-reading Yes Number of simultaneously controllable inputs 14 all mounting positions -up to 40 °C, max. -up to 40 °C, max. 14 Input voltage -up to 40 °C, max. * Rated value (DC) 24 V • for signal °0° 5 V DC at 1 mA • for signal °0° 5 V DC at 2.5 mA Input delay (for rated value of input voltage) for standard inputs - parameterizable Yes: 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at °0° to °1°, max. 12.8 ms for counter/technological functions -parameterizable - parameterizable Yes: Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz Cable length shielded, max.		3 comm modules 1 signal board 8 signal modules
Clock Hardware clock (real-time clock) 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) functions 14 • of which inputs usable for technological functions 6; HSC (High Speed Counting) integrated channels (D) 14 m/p-reading Yes Number of simultaneously controllable inputs 14 all mounting positions - - up to 40 °C, max. 14 Input voltage 24 V • for signal °C* 5 V DC at 1 mA • for signal °C* 5 VDC at 2.5 mA Input delay (for rated value of input voltage) 15 VDC at 2.5 mA for signal °C* 0.2 ms - parameterizable Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at °C* to °1**, max. 12.8 ms for interrupt inputs - - parameterizable Yes for counter/technological functions - - parameterizable Yes	Number of modules per system, max.	
 Hardware clock (real-time clock) Backup time Backup time Deviation per day, max. Deviation per day, max. 480 h; Typical 460 s/month at 25 °C Digital inputs of which inputs usable for technological functions integrated channels (DI) 14 mounting positions up to 40 °C, max. 14 Input voltage Rated value (DC) 24 V 6r signal °C 5 V DC at 1 mA for signal °C for signal °C for signal °C for signal °C parameterizable - parameterizable - parameterizable - parameterizable - parameterizable Yes for ourter/technological functions - parameterizable yes - parameterizable Yes Soum , 50 m for technological functions - parameterizable Yes for counter/technological functions - parameterizable Yes Soum , 50 m for technological functions on shielded, max. sole dad, max. Sou m; 50 m for technological functions: No Digital outputs 10; Relays integrate channels (DO) 10 Switching capacity of the outputs		
Horstee value from the energy 480 h; Typical • Backup time +460 s/month at 25 °C Pigital inputs 14; Integrated • of which inputs usable for technological functions 6: HSC (High Speed Counting) integrated channels (DI) 14 m/p-reading Yes Number of simultaneously controllable inputs 14 all mounting positions - up to 40 °C, max. - up to 40 °C, max. 14 input voltage - up to 40 °C, max. - rameterizable 5 VDC at 1 mA for signal °C 5 VDC at 2.5 mA Input delay (for rated value of input voltage) - parameterizable Yes: 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at "0" to "1", max. 12.8 ms for interrupt inputs - parameterizable Yes for interrupt inputs - parameterizable Yes		
• Deviation per day, max. +/- 60 s/month at 25 °C Digital inputs Ivanber of digital inputs integrated channels (DI) Ivanber of simultaneously controllable inputs integrated channels (DI) I4 mpr-reading Ves Number of simultaneously controllable inputs all mounting positions		
Digital inputs 14; Integrated of which inputs usable for technological functions 6; HSC (High Speed Counting) functions 14 m/p-reading Yes Number of simultaneously controllable inputs 14 all mounting positions	Backup time	
Number of digital inputs 14; Integrated • of which inputs usable for technological functions 6; HSC (High Speed Counting) integrated channels (DI) 14 m/p-reading Yes Number of simultaneously controllable inputs 14 all mounting positions	 Deviation per day, max. 	+/- 60 s/month at 25 °C
• of which inputs usable for technological functions 6; HSC (High Speed Counting) integrated channels (DI) 14 m/p-reading Yes Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. 14 Input voltage 14 Input voltage 5 VDC at 1 mA • for signal °0° 5 VDC at 1 mA • for signal °1° 15 VDC at 2.5 mA Input delay (for rated value of input voltage) 5 VDC at 2.5 mA for standard inputs - — parameterizable Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four — at "0" to "1", min. 0.2 ms — at "0" to "1", max. 12.8 ms for interrupt inputs - — parameterizable Yes for counter/technological functions - — parameterizable Yes for counter/technological functions 300 m; 50 m for technological functions • shielded, max. 300 m; For technological functions: No Digital outputs 10; Relays integrated channels (DO) 10	Digital inputs	
functions integrated channels (DI) integrated channels (DI) 14 m/p-reading Yes Number of simultaneously controllable inputs all mounting positions	Number of digital inputs	14; Integrated
m/p-reading Yes Number of simultaneously controllable inputs all mounting positions -up to 40 °C, max. 14 Input voltage 24 V • Rated value (DC) 24 V • for signal "0" 5 V DC at 1 mA • for signal "1" 15 VDC at 2.5 mA Input delay (for rated value of input voltage) 5 v DC at 2.5 mA for standard inputs - - parameterizable Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at "0" to "1", min. 0.2 ms - at "0" to "1", max. 12.8 ms for interrupt inputs - - parameterizable Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 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; Relays Number of digital outputs 10; Relays integrated channels (DO) 10		6; HSC (High Speed Counting)
Number of simultaneously controllable inputs all mounting positions	integrated channels (DI)	14
all mounting positions 14 Input voltage 24 V • Rated value (DC) 24 V • for signal "0" 5 V DC at 1 mA • for signal "1" 15 VDC at 2.5 mA Input delay (for rated value of input voltage) for standard inputs - parameterizable Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at "0" to "1", min. 0.2 ms - at "0" to "1", max. 12.8 ms for interrupt inputs - - parameterizable Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz. Cable length Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz. Cable length 500 m; 50 m for technological functions • unshielded, max. 500 m; 50 m for technological functions • unshielded, max. 500 m; 50 m for technological functions • unshielded, max. 500 m; 50 m for technological functions • unshielded, max. 500 m; 50 m for technological functions • unshielded, max. 10; Relays integrated channels (DO) 10	m/p-reading	Yes
-up to 40 °C, max. 14 Input voltage 24 V • for signal °0" 5 V DC at 1 mA • for signal °1" 15 VDC at 2.5 mA Input delay (for rated value of input voltage) for standard inputs - parameterizable Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at "0" to "1", min. 0.2 ms - at "0" to "1", max. 12.8 ms for interrupt inputs - - parameterizable Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz, differential: 3 at 80 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; Relays Integrated channels (DO) 10 Switching capacity of the outputs 10	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 VDC at 2.5 mA Input delay (for rated value of input voltage) for standard inputs - parameterizable Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at "0" to "1", min. 0.2 ms - at "0" to "1", max. 12.8 ms for interrupt inputs - - parameterizable Yes for counter/technological functions - - parameterizable Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz. Cable length 500 m; 50 m for technological functions • unshielded, max. 500 m; 50 m for technological functions • unshielded, max. 300 m; For technological functions: No Digital outputs 10; Relays integrated channels (DO) 10 Switching capacity of the outputs 10	all mounting positions	
• Rated value (DC) 24 V • for signal "0" 5 V DC at 1 mA • for signal "1" 15 VDC at 2.5 mA Input delay (for rated value of input voltage) if or standard inputs for standard inputs - - parameterizable Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at "0" to "1", min. 0.2 ms - at "0" to "1", max. 12.8 ms for interrupt inputs - - parameterizable Yes for counter/technological functions - - parameterizable Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz. Cable length Stop 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; Relays integrated channels (DO) 10 Switching capacity of the outputs 10	— up to 40 °C, max.	14
Nation (abo)5 V DC at 1 mA• for signal "0"5 V DC at 2.5 mAInput delay (for rated value of input voltage)5 V DC at 2.5 mAfor standard inputs parameterizableYes; 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 msfor interrupt inputs parameterizableYesfor counter/technological functions- parameterizableYes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHzCable lengthStop m, 50 m for technological functions• unshielded, max.500 m; 50 m for technological functions• unshielded, max.300 m; For technological functionsNumber of digital outputs10; Relaysintegrated channels (DO)10Switching capacity of the outputs	Input voltage	
• for signal "1" 15 VDC at 2.5 mA Input delay (for rated value of input voltage) for standard inputs for standard inputs Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at "0" to "1", min. 0.2 ms - at "0" to "1", max. 12.8 ms for interrupt inputs - - parameterizable Yes for counter/technological functions - - parameterizable Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz Cable length S00 m; 50 m for technological functions • unshielded, max. 300 m; For technological functions: No Digital outputs 10; Relays integrated channels (DO) 10 Switching capacity of the outputs 10	Rated value (DC)	24 V
Input delay (for rated value of input voltage) for standard inputs - parameterizable - at "0" to "1", min. - at "0" to "1", max. - at "0" to "1", max. for interrupt inputs - parameterizable Yes: Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz Cable length • shielded, max. • unshielded, max. Digital outputs Number of digital outputs integrated channels (DO) Switching capacity of the outputs • the total state of the outputs • the total state of the outputs • at "0" to "1", min. • at "0" to "1", max. • at "0" to "1"	• for signal "0"	5 V DC at 1 mA
for standard inputs - parameterizable Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at "0" to "1", min. 0.2 ms - at "0" to "1", max. 12.8 ms for interrupt inputs - - parameterizable Yes for counter/technological functions - - parameterizable Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz Cable length So0 m; 50 m for technological functions • shielded, max. 500 m; 50 m for technological functions • unshielded, max. 300 m; For technological functions Integrated channels (DO) 10 Switching capacity of the outputs 10	● for signal "1"	15 VDC at 2.5 mA
— parameterizableYes; 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 msfor interrupt inputs	Input delay (for rated value of input voltage)	
integrated channels (DO)selectable in groups of four- at "0" to "1", min.0.2 ms- at "0" to "1", max.12.8 msfor interrupt inputs parameterizableYesfor counter/technological functions parameterizableYes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHzCable lengthSingle 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: No• Digital outputs10; Relaysintegrated channels (DO)10Switching capacity of the outputs10	for standard inputs	
at "0" to "1", max. 12.8 ms for interrupt inputs parameterizable parameterizable Yes for counter/technological functions parameterizable parameterizable Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz Cable length Solo m; 50 m for technological functions • shielded, max. 500 m; 50 m for technological functions • unshielded, max. 300 m; For technological functions: No Digital outputs 10; Relays integrated channels (DO) 10 Switching capacity of the outputs 10	— parameterizable	
for interrupt inputs	— at "0" to "1", min.	0.2 ms
— parameterizable Yes for counter/technological functions	— at "0" to "1", max.	12.8 ms
for counter/technological functions — parameterizable Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz Cable length • shielded, max. • shielded, max. 500 m; 50 m for technological functions • unshielded, max. 300 m; For technological functions: No Digital outputs 10; Relays integrated channels (DO) 10 Switching capacity of the outputs 10	for interrupt inputs	
— parameterizableYes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHzCable length•• shielded, max.500 m; 50 m for technological functions 300 m; For technological functions: NoDigital outputs10; Relaysintegrated channels (DO)10Switching capacity of the outputs	— parameterizable	Yes
80 kHz & 3 at 30 kHz Cable length • shielded, max. • unshielded, max. 300 m; 50 m for technological functions 0 m; For technological functions: No Digital outputs Number of digital outputs 10; Relays integrated channels (DO) Switching capacity of the outputs	for counter/technological functions	
 shielded, max. unshielded, max. 300 m; 50 m for technological functions 300 m; For technological functions: No Digital outputs Number of digital outputs 10; Relays integrated channels (DO) Switching capacity of the outputs	— parameterizable	
• 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	Cable length	
Digital outputs Number of digital outputs 10; Relays integrated channels (DO) 10 Switching capacity of the outputs 10	• shielded, max.	500 m; 50 m for technological functions
Number of digital outputs 10; Relays integrated channels (DO) 10 Switching capacity of the outputs 10	• unshielded, max.	300 m; For technological functions: No
integrated channels (DO) 10 Switching capacity of the outputs 10	Digital outputs	
Switching capacity of the outputs	Number of digital outputs	10; Relays
	integrated channels (DO)	10
• with resistive load, max. 2 A	Switching capacity of the outputs	
	• with resistive load, max.	2 A

● on lamp load, max.	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	
 of the pulse outputs, with resistive load, max. 	1 Hz
Relay outputs	
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
integrated channels (AI)	2; 0 to 10V
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	2
integrated channels (AO)	2; 0 to 20 mA
Output ranges, current	
• 0 to 20 mA	Yes
Analog value generation	
Integration and conversion time/resolution per channel	
 Resolution with overrange (bit including sign), 	10 bit
max.	
 Integration time, parameterizable 	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
Open IE communication	Yes
Web server	Yes
PROFINET IO Controller	
• Transmission rate, max.	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)	165
• TCP/IP	Yes
Further protocols	
MODBUS	Yes
	165
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	
	16; dynamically
• overall	
overall fest commissioning functions	

• Variables Inputs/outputs, memory bits, DBs, distributed I/Os, limers, counters • Forcing Yes Diagnostic buffer Yes • present Yes Traces 2: Up to 512 KB of data per trace are possible Interpreted Functions 6 Counting frequency (counter) max. 100 kHz > Frequency mefer Yes controlled positioning Yes Outputs Yes Outputs 8 Number of position-controlled positioning axes, max. 8 Number of position-gaxes via pulse-direction Up to 4 with SB 1222 riferace 700 kHz Potential separation digital inputs 500V AC for 1 minute • Dotorbolier Yes Potential separation digital outputs Relays • Potential separation digital outputs Soliv AC for 1 minute • between the channels, in groups of 1 Potential separation digital outputs Relays • between the channels, in groups of 2 EEC Yes Interference immunity against discharge of static electricity Yes	Status/control variable	Yes
• Forcing Yes Diagnostic buffer Yes • Present Yes Traces 2: Up to 512 KB of data per trace are possible Integrated Functions 6 Counting frequency (counter) max. 100 KHz Frequency counters 6 Controlled positioning Yes Number of position-controlled positioning axes, max. 8 Number of position-controlled positioning axes, max. 8 Number of positioning axes via pulse-direction interface Up to 4 with SB 1222 Pill controller Yes Number of alarm inputs 4 Potential separation digital inputs 500V AC for 1 minute • Detential separation digital inputs 500V AC for 1 minute • between the channels, in groups of 1 Potential separation digital outputs Felays • between the channels, in groups of 2 EMC Yes Interference immunity against discharge of static electricity Yes • Interference immunity on supply lines acc. to IEC 61000-4-2 Yes • Interference immunity on supply lines acc. to IEC 61000-4-2 Yes • Interference immunity on supply lines acc	Variables	
Diagnostic buffer Yes • present Yes Traces 2, Up to 512 KB of data per trace are possible Integrated Functions 6 Counting frequency (counter) max. 100 KHz Frequency meter Yes Number of positioning maxes, max. 8 Number of positioning axes via pulse-direction Up to 4 with SB 1222 Interface Yes Number of alarm inputs 4 Potential separation digital inputs 500V AC for 1 minute • Potential separation digital outputs Felays • between the channels, in groups of 1 • Detential separation digital outputs Felays • between the channels, in groups of 2 EMC Interference immunity against discharge of static electricity • Interference immunity against discharge 8 kV • Test voltage at air discharge 6 kV Interference immunity on suppl lines acc. to IEC 61000-4.2 Yes • Test voltage at air discharge 6 kV Interference immunity on suppl lines acc. to IEC 61000-4.4 Yes Interference immunity on suppl lines acc. to IEC 610	Forcing	
• present Yes Traces 2: Up to 512 KB of data per trace are possible Integrated Functions 6 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 interface 7es PID controller Yes Number of alarm inputs 4 Potential separation digital inputs 500V AC for 1 minute • Potential separation digital inputs 500V AC for 1 minute • Detential separation digital outputs Relays • between the channels, in groups of 1 Potential separation digital outputs Relays • between the channels, in groups of 2 EMC Yes Interference immunity against discharge of static electricty Yes • Interference immunity against discharge of static electricty Yes • Interference immunity on supply lines acc. to IEC 61000-4-2 Yes • Test voltage at air discharge 8 kV • Test voltage at air discharge Yes • Interference immunity on suppl lines acc. to IEC 61000-4-4 Yes	Forcing	Yes
Process 2 Up to 512 KB of data per trace are possible Integrated Functions 6 Counting frequency (counter) max. 100 kHz Frequency meter Yes controlled positioning axes via pulse-direction interference Yes Number of position-controlled positioning axes, max. 8 Number of position-controlled positioning axes, max. 8 Number of position-controlled positioning axes, max. 8 PlD controller Yes Number of alarm inputs 4 Potential separation digital inputs 500V AC for 1 minute Potential separation digital inputs 500V AC for 1 minute • between the channels, in groups of 1 Potential separation digital outputs Relays • between the channels No • between the channels, in groups of 2 Interference immunity against discharge of static electricity Interference immunity against discharge of static electricity • Interference immunity on supply lines acc. to IEC 61000-4-2 8 kV - Test voltage at air discharge 6 kV Interference immunity on supply lines acc. to IEC 61000-4-4 Yes	Diagnostic buffer	
• Number of configurable Traces 2; Up to 512 KB of data per trace are possible Integrated Functions 6 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 position-controlled positioning axes via pulse-direction Up to 4 with SB 1222 Interface Yes Potential separation digital inputs 4 Potential separation digital inputs 500V AC for 1 minute • Potential separation digital outputs 1 • Potential separation digital outputs 500V AC for 1 minute • between the channels, in groups of 1 Potential separation digital outputs 500V AC for 1 minute • between the channels, in groups of 2 Interference immunity against discharge of static electricity 2 Interference immunity against discharge of static electricity 1 • Interference immunity on signal cables acc. to EC 61000-4-2 Yes • Test voltage at air discharge 6 kV Interference immunity on signal cables acc. to EC 61000-4-4 Yes	● present	Yes
Integrated Functions 6 Number of counters 6 Counting frequency (counter) max. 100 kHz Frequency meter Yes controlled positioning Yes Number of positioning axes via pulse-direction Up to 4 with SB 1222 interface Up to 4 with SB 1222 PID controller Yes Number of alarm inputs 4 Potential separation digital inputs 500V AC for 1 minute • Potential separation digital outputs 1 • Potential separation digital outputs 500V AC for 1 minute • between the channels, in groups of 1 Potential separation digital outputs Relays • between the channels, in groups of 2 Potential separation digital outputs Relays • between the channels, in groups of 2 Interference immunity against discharge of static electricity 1 • Interference immunity against discharge of static electricity 1 • Interference immunity on signal cables acc. to IEC 61000-4-2 Yes • Test voltage at air discharge 8 kV • Test voltage at air discharge	Traces	
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 position-controlled positioning axes, max. 8 Number of position-controlled positioning axes, max. 9 Potential separation Up to 4 with SB 1222 Potential separation digital inputs 4 Potential separation digital inputs 500V AC for 1 minute • between the channels, in groups of 1 Potential separation digital outputs Relays • between the channels No • between the channels No • between the channels, in groups of 2 EMC Interference immunity against discharge of static electricity • Interference immunity against discharge 8 kV - — Test voltage at contact discharge 6 kV Interference immunity on supply lines acc. to IEC6 f1000-4-4 Yes • Interference immunity on supply lines acc. to IEC6 f1000-4-4 Yes • Interference immunity on supply lines acc. to IEC6 f1000-4-4 Yes • Interference immunity against voltage surge	 Number of configurable Traces 	2; Up to 512 KB of data per trace are possible
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 interface Up to 4 with SB 1222 PID controller Yes Number of alarm inputs 4 Potential separation digital inputs 500V AC for 1 minute • Potential separation digital outputs 1 • Potential separation digital outputs 500V AC for 1 minute • between the channels, in groups of 1 • Potential separation digital outputs Relays • between the channels, in groups of 2 EMC Interference immunity against discharge of static electricity • Interference immunity against discharge 8 kV • Test voltage at air discharge 6 kV Interference immunity on supply lines acc. to IEC 61000-4-2 Yes • Interference immunity on supply lines acc. to IEC 61000-4-2 Yes • Interference immunity on supply lines acc. to IEC 6100-4-4 Yes • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • In	Integrated Functions	
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 interface Yes PID controller Yes Number of alarm inputs 4 Potential separation Yes Potential separation digital inputs 500V AC for 1 minute • between the channels, in groups of 1 Potential separation digital outputs Relays • between the channels, in groups of 2 EMC Interference immunity against discharge of static electricty • Interference immunity against discharge of static electricty 8 kV - Test voltage at in discharge 8 kV - Test voltage at contact discharge 6 kV Interference immunity on supply lines acc. to IEC 61000-4-2 Yes • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on supply lines acc. to IEC 61000-4-5 Yes	Number of counters	6
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 500V AC for 1 minute • between the channels, in groups of 1 Potential separation digital outputs 8 • Potential separation digital outputs 8 • Detential separation digital outputs 8 • Detential separation digital outputs 8 • Detential separation digital outputs 8 • between the channels No • between the channels, in groups of 2 Interference immunity against discharge of static electricity 1 • Interference immunity against discharge of static electricity 4 • Interference immunity on supply lines acc. to IEC 61000-4-2 Yes • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on signal cables acc. to IEC 61000-4-4 Yes<	Counting frequency (counter) max.	100 kHz
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 4 Potential separation digital inputs 500V AC for 1 minute • Potential separation digital outputs 6 • Potential separation digital outputs 7 • Potential separation digital outputs 8 • Potential separation digital outputs 8 • Potential separation digital outputs 8 • between the channels, in groups of 1 Potential separation digital outputs 8 • between the channels, in groups of 2 Interference immunity against discharge of static electricity 1 • Interference immunity against discharge of static electricity 8 kV • Test voltage at air discharge 8 kV • Test voltage at air discharge 6 kV Interference immunity on supply lines acc. to IEC 61000-4-2 Yes • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on signal cables acc. to IEC 61000-4-5 Yes	Frequency meter	Yes
Number of positioning axes via pulse-direction interface Up to 4 with SB 1222 PiD controller Yes Number of alarm inputs 4 Potential separation 500V AC for 1 minute Potential separation digital inputs 500V AC for 1 minute • Potential separation digital outputs 1 Potential separation digital outputs Relays • Potential separation digital outputs Relays • Potential separation digital outputs 2 • Detential 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 6 kV Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on signal cables acc. to IEC 61000-4-4 Yes • Interference immunity on signal cables acc. to IEC 61000-4-4 Yes • Interference immunity on signal cables acc. to IEC 61000-4-5 Yes	controlled positioning	Yes
interface Yes PUD controller Yes Number of alarm inputs 4 Potential separation 4 Potential separation digital inputs 500V AC for 1 minute • Potential separation digital inputs 500V AC for 1 minute • between the channels, in groups of 1 Potential separation digital outputs Relays • 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 Yes • Interference immunity against discharge 8 kV - Test voltage at air discharge 6 kV Interference immunity on supply lines acc. to IEC 61000-4-2 Yes • Interference immunity on signal cables acc. to IEC 61000-4-4 Yes • Interference immunity on signal cables acc. to IEC 61000-4-4 Yes • Interference immunity against voltage surge • on the supply lines acc. to IEC 61000-4-5	Number of position-controlled positioning axes, max.	8
Number of alarm inputs 4 Potential separation Potential separation digital inputs Potential separation digital inputs 500V AC for 1 minute Potential separation digital outputs 1 Potential separation digital outputs 1 Potential separation digital outputs Relays Potential separation digital outputs 0 Potential separation digital outputs Relays Potential separation digital outputs 0 Potential separation digital outputs 0 Potential separation digital outputs 0 Potential separation digital outputs Relays Potential separation digital outputs 0		Up to 4 with SB 1222
Potential separation digital inputs 500V AC for 1 minute • Potential separation digital inputs 500V AC for 1 minute • between the channels, in groups of 1 Potential separation digital outputs Relays • 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 Yes • Test voltage at air discharge 8 kV • Test voltage at contact discharge 6 kV Interference immunity to cable-borne interference Yes • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on signal cables acc. to IEC 61000-4-4 Yes • Interference immunity against voltage surge Yes	PID controller	Yes
Potential separation digital inputs 500V AC for 1 minute • Potential separation digital inputs 500V AC for 1 minute • between the channels, in groups of 1 Potential separation digital outputs Relays • 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 Yes - Test voltage at air discharge 8 kV - Test voltage at contact discharge 6 kV Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on supply lines acc. to IEC 61000-4-5 Yes	Number of alarm inputs	4
 Potential separation digital inputs between the channels, in groups of Potential separation digital outputs Potential separation digital outputs Relays between the channels No between the channels, in groups of between the channels between the channels, in groups of 2 EMC EMC Interference immunity against discharge of static electricity Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 Test voltage at air discharge 6 kV Interference immunity to cable-borne interference Interference immunity on signal cables acc. to IEC 61000-4-4 Interference immunity on signal cables acc. to IEC 61000-4-5 Yes 	Potential separation	
• between the channels, in groups of 1 Potential separation digital outputs Relays • Potential separation digital outputs Relays • between the channels No • between the channels, in groups of 2 EMC Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 • Test voltage at air discharge 8 kV • Test voltage at contact discharge 6 kV Interference immunity on supply lines acc. to IEC 61000-4-2 Yes • Interference immunity on supply lines acc. to IEC 61000-4-2 Yes • Interference immunity on supply lines acc. to IEC 61000-4-2 Yes • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on supply lines acc. to IEC 61000-4-5 Yes	Potential separation digital inputs	
Potential separation digital outputs Relays • 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 contact discharge 6 kV Interference immunity to cable-borne interference Yes • Interference immunity on supply lines acc. to IEC 61000-4-2 Yes • Interference immunity to cable-borne interference Yes • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on signal cables acc. to IEC 61000-4-5 Yes	 Potential separation digital inputs 	500V AC for 1 minute
 Potential separation digital outputs Petween the channels between the channels, in groups of 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 — Test voltage at air discharge 6 kV Interference immunity to cable-borne interference Interference immunity on supply lines acc. to IEC 61000-4-4 Interference immunity on signal cables acc. to IEC 61000-4-5 Yes 	 between the channels, in groups of 	1
• 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 contact discharge 6 kV Interference immunity to cable-borne interference Yes • Interference immunity on supply lines acc. to Yes IEC 61000-4-4 Yes • Interference immunity on signal cables acc. to Yes IEC 61000-4-4 Yes • Interference immunity on signal cables acc. to Yes • Interference immunity on signal cables acc. to Yes • Interference immunity against voltage surge Yes • on the supply lines acc. to IEC 61000-4-5 Yes	Potential separation digital outputs	
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 Test voltage at air discharge 6 kV Interference immunity to cable-borne interference Interference immunity on supply lines acc. to IEC 61000-4-4 Interference immunity on signal cables acc. to IEC 61000-4-4 Interference immunity against voltage surge on the supply lines acc. to IEC 61000-4-5 Yes	 Potential separation digital outputs 	Relays
EMC Interference immunity against discharge of static electricity • Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 — Test voltage at air discharge 8 kV — Test voltage at contact discharge 6 kV Interference immunity to cable-borne interference 9 • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on signal cables acc. to IEC 61000-4-4 Yes • Interference immunity against voltage surge • on the supply lines acc. to IEC 61000-4-5	 between the channels 	No
Interference immunity against discharge of static electricity Yes • 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 9 • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on signal cables acc. to IEC 61000-4-4 Yes • Interference immunity against voltage surge Yes • on the supply lines acc. to IEC 61000-4-5 Yes	 between the channels, in groups of 	2
Interference immunity against discharge of static electricity Yes • 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 9 • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on signal cables acc. to IEC 61000-4-4 Yes • Interference immunity against voltage surge Yes • on the supply lines acc. to IEC 61000-4-5 Yes	EMC	
static electricity acc. to IEC 61000-4-2 - 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 • Interference immunity on signal cables acc. to IEC 61000-4-4 • Interference immunity against voltage surge • on the supply lines acc. to IEC 61000-4-5 Yes	Interference immunity against discharge of static electr	icity
		Yes
Interference immunity to cable-borne interference • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on signal cables acc. to IEC 61000-4-4 Yes Interference immunity against voltage surge Yes • on the supply lines acc. to IEC 61000-4-5 Yes	— Test voltage at air discharge	8 kV
Interference immunity to cable-borne interference Yes Interference immunity on supply lines acc. to IEC 61000-4-4 Yes Interference immunity on signal cables acc. to IEC 61000-4-4 Yes Interference immunity against voltage surge Yes • on the supply lines acc. to IEC 61000-4-5 Yes	— Test voltage at contact discharge	6 kV
 Interference immunity on supply lines acc. to IEC 61000-4-4 Interference immunity on signal cables acc. to IEC 61000-4-4 Yes Interference immunity against voltage surge on the supply lines acc. to IEC 61000-4-5 Yes 		
IEC 61000-4-4 Interference immunity against voltage surge • on the supply lines acc. to IEC 61000-4-5 Yes	Interference immunity on supply lines acc. to	Yes
• on the supply lines acc. to IEC 61000-4-5 Yes		Yes
	Interference immunity against voltage surge	
Interference immunity against conducted variable disturbance induced by high-frequency fields	• on the supply lines acc. to IEC 61000-4-5	Yes

 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 	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	
 Drop height, max. (in packaging) 	0.3 m; five times, in dispatch 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	
• Storage/transport, min.	660 hPa
 Storage/transport, max. 	1 080 hPa
 permissible operating height 	-1000 to 2000 m
Relative humidity	
 permissible range (without condensation) at 25 °C 	95 %
Vibrations	
Vibrations	2G wall mounting, 1G DIN rail
 Operation, tested according to IEC 60068-2-6 	Yes

Shock test	
 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	
Pollutant concentrations	
— 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	
Width	130 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	585 g
last modified:	13.01.2016