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 20.4-28.8V DC, Program/data memory 100 KB



General information	
Product type designation	CPU 1214C DC/DC/relay
Firmware version	V4.4
Engineering with	
 Programming package 	STEP 7 V16 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
l²t	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.
• Z4 V	
Power loss	
Power loss, typ.	12 W
Memory	
Work memory	
• integrated	100 kbyte
• expandable	No
Load memory	
• integrated	4 Mbyte
 Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card
Backup	
• present	Yes
maintenance-free	Yes
• without battery	Yes
CPU processing times	
for bit operations, typ.	0.08 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	Limited only by DAM for code
• Number, max.	Limited only by RAM for code
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags),	10 kbyte
max.	
Flag	9 khuta: Siza of hit moment 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
 per priority class, max. 	to 26: 6 KB
Address area	
Process image	

• Outputs, adjustable 1 kbyte Hardware configuration 3 comm. modules, 1 signal board, 8 signal modules Time of day 3 comm. modules, 1 signal board, 8 signal modules Clock • • Hardware clock (real-time) Yes • Backup time 480 h; Typical • Deviation per day, max. ±60 s/month at 25 °C Digital inputs 14; Integrated • of which inputs usable for technological functions 6; HSC (High Speed Counting) Source/sink input Yes Number of simultaneously controllable inputs 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) 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - parameterizable 0.2 ms 2 ms - at "0" to "1", max. 12.8 ms for interrupt inputs - at "0" to "1", max. - parameterizable Yes	 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) 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 • of which inputs usable for technological functions 14; Integrated Source/sink input Yes Number of simultaneously controllable inputs 14 Input voltage • exated 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) 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 12.8 ms		
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Hardware clock (real-time) Yes Backup time 480 h; Typical • Deviation per day, max. 460 s/month at 25 °C Digital inputs 14; Integrated • of which inputs usable for technological functions 6; HSC (High Speed Counting) Source/sink input Yes Number of simultaneously controllable inputs 14 all mounting positions - - 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 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	Time of day	
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	Number of simultaneously controllable inputs	
Input voltage • Rated value (DC) • for signal "0" • for signal "1" 24 V 5 V DC at 1 mA 15 V DC at 2.5 mA Input delay (for rated value of input voltage) for standard inputs - parameterizable - parameterizable - at "0" to "1", min. - at "0" to "1", max. for interrupt inputs - Compared to the standard input	all mounting positions	
• Rated value (DC)24 V• for signal "0"5 V DC at 1 mA• for signal "1"15 V DC at 2.5 mAInput delay (for rated value of input voltage)15 V DC at 2.5 mAfor standard inputs0.2 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 inputs12.8 ms	— up to 40 °C, max.	14
 for signal "0" for signal "1" for signal "1" for signal "1" for standard inputs parameterizable - parameterizable - at "0" to "1", min. - at "0" to "1", max. for interrupt inputs 	Input voltage	
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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 12.8 ms	● for signal "0"	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. 0.2 ms — at "0" to "1", max. 12.8 ms for interrupt inputs 12.8 ms	● for signal "1"	15 V DC at 2.5 mA
— parameterizable0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four— at "0" to "1", min.0.2 ms— at "0" to "1", max.12.8 msfor interrupt inputs	Input delay (for rated value of input voltage)	
selectable in groups of four - at "0" to "1", min. - at "0" to "1", max. for interrupt inputs	for standard inputs	
 — at "0" to "1", max. for interrupt inputs 	— parameterizable	
for interrupt inputs	— at "0" to "1", min.	0.2 ms
	— at "0" to "1", max.	12.8 ms
— parameterizable Yes	for interrupt inputs	
	— parameterizable	Yes
for technological functions	for technological functions	
 parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz 	— parameterizable	
Cable length	Cable length	
• shielded, max. 500 m; 50 m for technological functions	• shielded, max.	500 m; 50 m for technological functions
• unshielded, max. 300 m; for technological functions: No	• unshielded, max.	300 m; for technological functions: No
Digital outputs	Digital outputs	
Number of digital outputs 10; Relays	Number of digital outputs	10; Relays
Switching capacity 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	

| •`D' to '1', max.10 ms; max.•`D' to '1', max.10 ms; max.Reley outputs10•`Number of elay outputs10•`Number of operating cycles, max.mechanically 10 million, at rated load voitage 100 000Cable length500 m•`Initided, max.500 m•`Initided, max.500 m•`Initided, max.500 m•`Initided, max.150 mAratog inputs2•`Initided, max.100 m; max.•`Initided, max.100 m; max.•`Initided, max.Yes•`Initided, max.100 kn kmsCable length-•`Initide statuse; 0 to 10 v)Yes•`Initide statuse; 0 to 10 v)100 kn kmsCable lengt-•`Initide statuse; 0 to 10 v)0Aratog outputs0Aratog outputs0Aratog outputs0Initigration and conversion time/resolution per channel•`Resolution with overange (bt including sign.)
max.10 bit•`Resolution with overange (bt including sign.)
*`Aratog outputs10 bit•`Connectable encoders-•`2-wire sensorYes•`2-wire sensorYesInterface typePROFINETInterface typeYes•`AutomegotisionYesAutomegotisionYes•`AutomegotisionYes•`Rel 45 (Ethernet)1•`Number of ports1•`Rel 45 (Ethernet)1•`Number of ports1•`PROFINET IC Controlle
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| Relay outputs 10 • Number of relay outputs 10 • Number of operating cycles, max. the chanically 10 million, at rated load voltage 100 000 Cable length 500 m • shielded, max. 500 m • unshielded, max. 150 m Analog inputs 2 • voltage Yes Input ranges (rated values), voltages - • voltage Yes - Input resistance (0 to 10 V) Yes Resolution with overrange (bit including sign), max. 100 mt; twisted and shielded Number of analog outputs 0 Protegration and conversion time/resolution per channel Yes - Integration time, parameterizable Yes - Conversion time (per channel) Yes - Verier sensor Yes - Lin
 | • "0" to "1", max. | 10 ms; max.

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| • Number of relay outputs10• Number of operating cycles, max.mechanically 10 million, at rated load voltage 100 000Cable length• Shielded, max.150 m• unshielded, max.150 mAnalog inputs2Input ranges• Voltage (rated values), voltages• Voltage (rated values), voltages• U to +10 VYes- Input resistance (0 to 10 V)2100k ohmsCable length• shielded, max.100 m: twisted and shieldedAnalog outputs0Cable length• shielded naw.100 m: twisted and shieldedAnalog outputs0Number of analog outputs0Participation and conversion time/resolution per channel• Resolution with overrange (bit including sign), max.10 bit• Integration and conversion time/resolution per channel• Conversion time (per channel)Yes• Conversion time (per channel)Yes• Steileded necodersYes• 2. wire sensorYes• 1. InterfacePROFINETInterface typePROFINETIsolatedYesautomatic detection of transmission rateYes• AutorossingYes• Number of ports10• Number of ports1• Number of ports <t< td=""><td>• "1" to "0", max.</td><td>10 ms; max.</td></t<>
 | • "1" to "0", max. | 10 ms; max.

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| Number of operating cycles, max. mechanically 10 million, at rated load voltage 100 000 Cable length 500 m • shielded, max. 500 m • unshielded, max. 150 m Number of analog inputs 2 Input ranges (rated values), voltages 2 • Voltage Yes • Toput ranges (rated values), voltages 2 • O to +10 V Yes • Input ranges (rated values), voltages 2 • Input ranges (rated values), voltages 2 • O to +10 V Yes • Input ranges (rated values), voltages 2 • Shielded, max. 100 m; twisted and shielded Analog outputs 0 Number of analog outputs 0 Intergra
 | Relay outputs |

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| Cable length 500 m • shielded, max. 500 m • unshielded, max. 150 m Number of analog inputs 2 Number of analog inputs 2 • Voltage Yes • Uput ranges (rated values), voltages - • U to +10 V Yes Input resistance (0 to 10 V) Yes Cable length - • shielded, max. 100 m; twisted and shielded Analog outputs 0 Number of analog outputs 0 Number of analog outputs 0 Analog outputs 10 bit • Resolution with overrange (bit including sign), max. 10 bit • Integration and conversion time/resolution per channel Ves • Conversion time (per channel) 625 μs Encoder Yes • Linefrace Yes • Linefrace Yes Interface type PROFINET Isolated Yes automatic detection of transmission rate Yes • Autorossing Yes Interface
 | Number
of relay outputs | 10
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| • shelded, max.500 m• unshielded, max.150 mAnalog inputs2Input rangesYes• VoltageYes• Voltage (rated values), voltages100 m• Voltage (rated values), voltages2100k ohms• O to +10 VYes- Input resistance (0 to 10 V)2100k ohmsCable length0Analog outputs0Number of analog outputs0Number of analog outputs0Integration and conversion time/resolution per channel10 bit• Resolution with overrange (bit including sign), max.10 bit• Integration time, parameterizable
• Conversion time (per channel)Yes• Steided encoders25 µsEncoderVesInterface typePROFINETIsolatedYesAutonegotationYesAutonegotationYesAutorossingYesAutorossingYesAutorossingYesAutorossingYesAutorossingYesInterface typeYes• RAJ 45 (Ethernet)Yes• RAJ 45 (Ethernet)Yes• Number of ports1• Number of ports1
 | Number of operating cycles, max. | mechanically 10 million, at rated load voltage 100 000

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| • unshielded, max. 150 m Analog inputs 2 Number of analog inputs 2 • Voltage Yes • Voltage (rated values), voltages >100 k ohms • 0 to +10 V Yes • 0 to +10 V 2100k ohms Cable length >2100k ohms Cable length 0 • shielded, max. 100 m; twisted and shielded Analog outputs 0 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 ine, parameterizable Yes • Conversion time (per channel) 625 µs Encoder Interface Interface type Yes • 2.wire sensor Yes Autonegotation Yes Autonegotation Yes Autonegotation Yes Autonegotation Yes Autonegotation Yes Interface types Yes Inte
 | Cable length
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| Analog inputs 2 Analog inputs 2 Input ranges Yes • Voltage Yes • 0 to +10 V Yes - Input ranges (rated values), voltages >100k ohms Cable length >2100k ohms Cable length >100 m; twisted and shielded Analog outputs 0 Analog value generation for the inputs 0 Analog value generation for the inputs 0 Resolution with overrange (bt including sign), max. 10 bit • Resolution with overrange (bt including sign), max. 10 bit • Conversion time (per channel) 625 µs Encoder Yes Interface Yes • 2-wire sensor Yes 1. Interface Yes automatic detection of transmission rate Yes Autonegotiation Yes Autonegotiation Yes Autonegotiation Yes Autonegotiation Yes Autonegotiation Yes Interface types Yes Interface type
 |
shielded, max. | 500 m
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| 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 0 Analog value generation for the inputs 0 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 Interface type PROFINET Isolated Yes automatic detection of transmission rate Yes Autoregotiation Yes Interface types • • R4 45 (Ethernet) Yes • R14 45 (Ethernet) Yes <tr td=""> No <tr td=""> <td>• unshielded, max.</td><td>150 m</td></tr><tr><td>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 0 Analog value generation for the inputs 0 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. 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1. Interface
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Protocols | Integration time, parameterizable | Yes | Connectable encoders Yes • 2-wire sensor Yes Interface PROFINET Interface type PROFINET Isolated Yes automatic detection of transmission rate Yes Autonegotiation Yes Autorossing Yes Interface types Yes • RJ 45 (Ethernet) Yes • Number of ports 1 • integrated switch No | Conversion time (per channel) | 625 µs | Connectable encoders Yes • 2-wire sensor Yes Interface PROFINET Interface type PROFINET Isolated Yes automatic detection of transmission rate Yes Autonegotiation Yes Autorossing Yes Interface types Yes • RJ 45 (Ethernet) Yes • Number of ports 1 • integrated switch No | Encoder | | • 2-wire sensor Yes 1. Interface PROFINET Interface type PROFINET Isolated Yes automatic detection of transmission rate Yes Autonegotiation Yes Autocrossing Yes Interface types Yes • RJ 45 (Ethernet) Yes • Number of ports 1 • integrated switch No | | | Interface PROFINET Isolated Yes automatic detection of transmission rate Yes Autonegotiation Yes Autocrossing Yes Interface types Yes • RJ 45 (Ethernet) Yes • Number of ports 1 • integrated switch No | • 2-wire sensor | Yes | Interface type PROFINET Isolated Yes automatic detection of transmission rate Yes Autonegotiation Yes Autocrossing Yes Interface types Yes • RJ 45 (Ethernet) Yes • Number of ports 1 • integrated switch No | | | Isolated Yes automatic detection of transmission rate Yes Autonegotiation Yes Autocrossing Yes Interface types Yes • RJ 45 (Ethernet) Yes • Number of ports 1 • integrated switch No | | PROFILET | automatic detection of transmission rate Yes Autonegotiation Yes Autocrossing Yes Interface types Yes • RJ 45 (Ethernet) Yes • Number of ports 1 • integrated switch No | | | AutonegotiationYesAutocrossingYesInterface typesYes• RJ 45 (Ethernet)Yes• Number of ports1• integrated switchNoProtocolsYes | | | Autocrossing Yes Interface types Yes • RJ 45 (Ethernet) Yes • Number of ports 1 • integrated switch No | | | Interface types • RJ 45 (Ethernet) Yes • Number of ports
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• 2-wire sensor
1. Interface
Interface type
automatic detection of transmission rate
Autonegotiation
Autocrossing
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• RJ 45 (Ethernet)
• Number of ports
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• integrated switch
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| automatic detection of transmission rate Yes Autonegotiation Yes Autocrossing Yes Interface types Yes • RJ 45 (Ethernet) Yes • Number of ports 1 • integrated switch No
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| AutonegotiationYesAutocrossingYesInterface typesYes• RJ 45 (Ethernet)Yes• Number of ports1• integrated switchNoProtocolsYes
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| Autocrossing Yes Interface types Yes • RJ 45 (Ethernet) Yes • Number of ports 1 • integrated switch No
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| PROFINETIO Controller Yes
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PROFINET IO Device	Yes
 SIMATIC communication 	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
Media redundancy	No
PROFINET IO Controller	
 Transmission rate, max. 	100 Mbit/s
Services	
— PG/OP communication	Yes
— S7 routing	Yes
— Isochronous mode	No
— IRT	No
— MRP	No
— MRPD	No
— PROFlenergy	No
— Prioritized startup	Yes
 — Number of IO devices with prioritized 	16
startup, max.	
 Number of connectable IO Devices, max. 	16
 — Number of connectable IO Devices for RT, 	16
max.	
— of which in line, max.	16
 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

Services	
— PG/OP communication	Yes
— S7 routing	Yes
— Isochronous mode	No
— IRT	No
— MRP	No
— MRPD	No
— PROFlenergy	Yes
— Shared device	Yes
— Number of IO Controllers with shared	2
device, max.	
Protocols	
Supports protocol for PROFINET IO	Yes

PROFIBUS	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required
AS-Interface	Yes; CM 1243-2 required
Protocols (Ethernet)	
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	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), runtime license
	required
 Application authentication 	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
— Number of sessions, max.	5
 — Number of accessible variables, max. 	1 000
 — Number of subscriptions per session, max. 	5
— Sampling interval, min.	100 ms
— Publishing interval, min.	200 ms
— Number of monitored items, max.	500
— Number of server interfaces, max.	2
 — Number of nodes for user-defined server interfaces, max. 	1 000
Further protocols	
MODBUS	Yes
Communication functions	
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

8 connections for open user communication (active or passive): TSEND_C, TRCV_C, TCON, TDISCON, TSEND and TRCV, 8 CPU/CPU connections (Client or Server) for GET/PUT data, 6 connections for dynamic assignment to GET/PUT or open user communication

Test commissioning functions	
Status/control	
Status/control variable	Yes
• Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers,
	counters
Forcing	
Forcing	Yes
Diagnostic buffer	
● 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	
Number of counters	6
Counting frequency (counter) max.	100 kHz
Frequency measurement	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	
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	
 Potential separation digital outputs 	Relays
 between the channels 	No

Interference immunity against discharge of static electricity • Interference immunity against discharge of static electricity acc. to IC 6 1000-4-2 - Test voltage at air discharge 8 kV - Test voltage at contact discharge 6 kV Interference immunity on supply lines acc. to IEC 61000-4-4 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 against tooltage surge • Interference immunity against voltage surge • Interference immunity against conducted variable disturbance induced by high-frequency fields • Interference immunity against high-frequency • Interference immunity against nigh-frequency radiation acc. to IEC 61000-4-6 Yes • Eact situation of radio interference acc. to EN 55 011 Yes • Limit class B, for use in industrial areas Yes; Group 1 • Limit class B, for use in industrial areas Yes UL approval Yes UL approval Yes CE mark Yes UL approval Yes RCM (dommerly C-TICK) Yes Marine approval Yes	EMC	
static electricity acc. to IEC 6 1000-4-2 8 KV - Test voltage at air discharge 8 KV - Test voltage at contact discharge 6 KV Interference immunity to asupply lines acc. to IEC 6 1000-4-4 Yes - Interference immunity on signal cables acc. to IEC 6 1000-4-4 Yes - Interference immunity against voltage surge - - Interference immunity against voltage surge Yes - Interference immunity against voltage surge Yes - Interference immunity against conducted variable disturtures Yes - Interference immunity against indufting frequency radiation acc. to IEC 6 1000-4-5 Yes Emission of radio interference acc. to EN 55 011 Yes - Limit class A, for use in industrial areas Yes; Group 1 - Limit class B, for use in residential areas Yes; Group 1 Perce and class of protection IP20 IP degree of protection Yes CE mark Yes UL approval Yes CE mark Yes Quit (dromerty C-TICK) Yes RCM (formerty C-TICK) Yes RCM (formerty C-TICK) Yes Arbient conditions Quit Yes		city
— Test voltage at contact discharge 6 kV Interference immunity to cable-borne interference Yes • Interference immunity on supply lines acc. to IEC 6100-4-4 Yes • Interference immunity against voltage surge Yes • Interference immunity against voltage surge Yes • Interference immunity against voltage surge Yes • Interference immunity against conducted variable disturbance induced by high-frequency fields Interference immunity against inducted variable disturbance induced by high-frequency fields • Interference immunity against high-frequency Yes Emission of radio interference acc. to EN 55 011 Emission of radio interference acc. to EN 55 011 • Limit class A, 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 IP20 Standards, approvals, certificates Yes CE mark Yes <		Yes
Interference immunity to achie-borne interference Interference immunity on supply lines acc. to IEC 61000-4.4 Interference immunity on supply lines acc. to IEC 61000-4.4 Interference immunity against voltage surge It is a surget voltage surget version of rate surget version of rate surget version	— Test voltage at air discharge	8 kV
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 Interference immunity against conducted variable disturbance induced by high-frequency fields Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Emission of radio interference acc. to EN 55 011 I.Limit class A, for use in industrial areas Yes: Group 1 Limit class A, for use in industrial areas Yes: When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Pegree and class of protection IP degree of protectice IP degree of protection IP degr	— Test voltage at contact discharge	6 kV
Interference immunity against voltage surge Yes Interference immunity against conducted variable disturbance induced by high-frequency fields Yes Interference immunity against high-frequency radiation acc, to IEC 61000-4-5 Yes: Group 1 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 IP20 Standards, approvals, certificates Yes CE mark Yes UL approval Yes CM (ormerly C-TICK) Yes RAM inte approval Yes Ambient conditions Yes Free fall 0.3 m; five times, in product package Ambient temperature during operation -20 °C • mix. 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	Interference immunity to cable-borne interference	
Interference immunity gainst collade surge Interference immunity against collade surge Interference immunity against conducted variable disturbance induced by high-frequency fields Yes Interference immunity against conducted variable disturbance induced by high-frequency fields Yes Interference immunity against conducted variable disturbance induced by high-frequency fields Yes Interference immunity against conducted variable disturbance induced by high-frequency fields Yes Interference immunity against conducted variable disturbance induced by high-frequency fields Yes Interference immunity against conducted variable disturbance induced by high-frequency fields Yes Emission of radio interference acc. to EN 55 011 Yes; Group 1 Limit class A, for use in industrial 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 IP20 Standards, approvals, certificates Yes CE mark Yes UL approval Yes RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes Antine approval Yes Antipet themperature during operation 0.3 m; five times, in product package Antipet themperature during operation <td></td> <td>Yes</td>		Yes
Interference immunity on supply lines acc. to IEC 61000-4-5 Interference immunity against conducted variable disturbance induced by high-frequency fields Interference immunity against high-frequency radiation 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 industrial areas Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Degree and class of protection IP degree of protection IP degree of protection IP degree of protection Ves CE mark Ves CE mark Ves CLus Yes FM approval Yes RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes Ambient conditions Free fall • Fall height, max. 0.3 m; five times, in product package Ambient temperature during operation • min. • c20 °C • (no adjacent points) at 60 °C horizontal or 55 °C vertical • horizontal installation, min 20 °C • horizontal installation, max.		Yes
IEC 61000-4-5 Interference immunity against conducted variable disturbance induced by high-frequency fields Interference immunity against high-frequency radiation 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 for Class B according to EN 55011 Degree and class of protection IP20 Standards, approvals, certificates CE mark CE mark Yes UL approval Yes CLLus Yes FM approval Yes RCM (formerty C-TICK) Yes Marine approval Yes Ambient conditions Yes Free fail 0.3 m; five times, in product package Ambient temperature during operation -20 °C max. 60 °C, Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 45 °C vertical • horizontal installation, min. -20 °C • horizontal installation, max. 60 °C	Interference immunity against voltage surge	
• 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 IP20 Standards, approvals, certificates CE mark CE mark Yes UL approval Yes ClLus Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes Ambient conditions Free fall • Fall height, max. 0.3 m; five times, in product package Ambient temperature during operation -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		Yes
radiation acc. to IEC 61002-4-6 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 for Class B according to EN 55011 Degree and class of protection IP20 Standards, approvals, certificates Emission of Yes CE mark Yes UL approval Yes cULus Yes FM approval Yes RCM (formerly C-TICK) Yes Marine approval Yes Ambient conditions Yes Free fall • C30 °C • min. -20 °C • max. 60 °C, Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 55 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical	Interference immunity against conducted variable distur	bance induced by high-frequency fields
• 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 IP20 Standards, approvals, certificates IP20 CE mark Yes UL approval Yes cUlus Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes Marine approval Yes Ambient conditions		Yes
• 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 IP20 Standards, approvals, certificates IP20 CE mark Yes UL approval Yes cULus Yes FM approval Yes RCM (formerly C-TICK) Yes Marine approval Yes Ambient conditions Yes Free fall 0.3 m; five times, in product package Ambient temperature during operation 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	Emission of radio interference acc. to EN 55 011	
with the limits for Class B according to EN 55011 Degree and class of protection IP degree of protection IP20 Standards, approvals, certificates CE mark Yes UL approval Yes cULus Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes Marine approval Yes Ambient conditions Yes Free fall 0.3 m; five times, in product package Ambient temperature during operation emin. • 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	 Limit class A, for use in industrial areas 	Yes; Group 1
IP degree of protection IP20 Standards, approvals, certificates CE mark VL approval Yes UL approval Yes cULus Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes Marine approval Yes Marine approval Yes Ambient conditions Yes Free fall 0.3 m; five times, in product package Ambient temperature during operation -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	 Limit class B, for use in residential areas 	
Standards, approvals, certificates CE mark Yes UL approval Yes cULus Yes FM approval Yes RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes Marine approval Yes Marine approval Yes Ambient conditions Yes Free fall 0.3 m; five times, in product package Ambient temperature during operation -20 °C • 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	Degree and class of protection	
CE mark Yes UL approval Yes cULus Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes Marine approval Yes Ambient conditions Yes Free fall 0.3 m; five times, in product package Ambient temperature during operation • min. • 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		
UL approval Yes cULus Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes Marine approval Yes Ambient conditions Yes Free fall 0.3 m; five times, in product package Ambient temperature during operation 0.3 m; five times, in product package • 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		IP20
cULus Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes Marine approval Yes Ambient conditions Yes Free fall 0.3 m; five times, in product package Ambient temperature during operation -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	IP degree of protection	IP20
FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes Marine approval Yes Ambient conditions Yes Free fall 0.3 m; five times, in product package Ambient temperature during operation -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	IP degree of protection Standards, approvals, certificates	
RCM (formerly C-TICK) Yes KC approval Yes Marine approval Yes Ambient conditions Yes Free fall 0.3 m; five times, in product package Ambient temperature during operation 0.3 m; five times, in product package Ambient temperature during operation -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	IP degree of protection Standards, approvals, certificates CE mark	Yes
KC approval Yes Marine approval Yes Ambient conditions Yes Ambient conditions 0.3 m; five times, in product package Free fall 0.3 m; five times, in product package Ambient temperature during operation 0.3 m; five times, in product package • 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	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus	Yes Yes Yes
Marine approval Yes Ambient conditions Free fall • Fall height, max. 0.3 m; five times, in product package Ambient temperature during operation -20 °C • 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	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval	Yes Yes Yes
Ambient conditions Free fall 0.3 m; five times, in product package • Fall height, max. 0.3 m; five times, in product package Ambient temperature during operation -20 °C • 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	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK)	Yes Yes Yes Yes Yes
Free fall 0.3 m; five times, in product package Ambient temperature during operation 0.3 m; five times, in product package • 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	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval	Yes Yes Yes Yes Yes Yes
 Fall height, max. Mbient temperature during operation min. 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. horizontal installation, max. 	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval	Yes Yes Yes Yes Yes Yes
Ambient temperature during operation -20 °C • 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	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval	Yes Yes Yes Yes Yes Yes
 min. 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. horizontal installation, max. 60 °C 	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Ambient conditions	Yes Yes Yes Yes Yes Yes Yes
 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. horizontal installation, max. 60 °C 	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Marine approval Free fall • Fall height, max.	Yes Yes Yes Yes Yes Yes Yes
 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. horizontal installation, max. 60 °C 	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Marine approval Free fall • Fall height, max.	Yes Yes Yes Yes Yes Yes Yes
• horizontal installation, max. 60 °C	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Ambient conditions Free fall • Fall height, max. Ambient temperature during operation	Yes Yes Yes Yes Yes Yes Yes 0.3 m; five times, in product package
	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Ambient conditions Free fall • Fall height, max. Ambient temperature during operation • min.	Yes Yes Yes Yes Yes Yes Yes Yes O.3 m; five times, in product package -20 °C 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
• vertical installation, min20 °C	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Ambient conditions Free fall • Fall height, max. Ambient temperature during operation • min. • max.	Yes Yes Yes Yes Yes Yes Yes Yes O.3 m; five times, in product package -20 °C 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
	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Ambient conditions Free fall • Fall height, max. Ambient temperature during operation • min. • max. • horizontal installation, min.	Yes Yes Yes Yes Yes Yes Yes Yes O.3 m; five times, in product package -20 °C 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 -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
	2 000 m
Installation altitude, max. Relative humidity	2 000 111
	95 %; no condensation
Operation, max.	
Vibrations	$2 \neq (m/c^2)$ well mounting $1 \neq (m/c^2)$ DIN roll
 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	
Programming	
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 level: Write protection 	Yes
 Protection level: Read/write protection 	Yes
 Protection level: Complete protection 	Yes
Cycle time monitoring	
• adjustable	Yes
Dimensions	
Width	110 mm

Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	435 g
last modified:	10/09/2020