SIEMENS

Data sheet

6ES7212-1BE40-0XB0



Figure similar

SIMATIC S7-1200, CPU 1212C, compact CPU, AC/DC/relay, onboard I/O: 8 DI 24 V DC; 6 DO relay 2 A; 2 AI 0-10 V DC, Power supply: AC 85-264 V AC at 47-63 Hz, Program/data memory 75 KB

Product type designation Firmware version	CPU 1212C AC/DC/relay
Firmware version	
	V4.5
Engineering with	
 Programming package 	STEP 7 V17 or higher
Supply voltage	
Rated value (AC)	
• 120 V AC	Yes
• 230 V AC	Yes
permissible range, lower limit (AC)	85 V
permissible range, upper limit (AC)	264 V
Line frequency	
 permissible range, lower limit 	47 Hz
 permissible range, upper limit 	63 Hz
Input current	
Current consumption (rated value)	80 mA at 120 V AC; 40 mA at 240 V AC
Current consumption, max.	240 mA at 120 V AC; 120 mA at 240 V AC
Inrush current, max.	20 A; at 264 V
l²t	0.8 A ² ·s
Output current	
for backplane bus (5 V DC), max.	1 000 mA; Max. 5 V DC for SM and CM
Encoder supply	
24 V encoder supply	
• 24 V	20.4 to 28.8V
Power loss	
Power loss, typ.	11 W
Memory	
Work memory	
integrated	75 kbyte
expandable	No
Load memory	
• integrated	2 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 floating point arithmetic, typ. CPU-blocks Number of blocks (total) DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 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 (incl. timers, counters, flags), max. Flag Size, max. 4 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 Inputs, adjustable Vulputs, adjustable Vu	for word an aratisms to a	4.7 var / instruction
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addressable blocks ranges from 1 to 6555. There is no restriction, the entire working memory can be used * Number, max. Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. [lags		
• Number of simular acousty controllable inputs • Influenting positions • Platiday (residual protection) • Platiday (residual protection) • Size, max. • Per priority class, max. • Process image • Inputs, adjustable • Outputs, adjustable • Process image • Inputs, adjustable • Power of modules per system, max. * Time of day • Packup time • Deviation per day, max. • Packup time • Deviation per day, max. • Power of this protection protection inputs * Successival imputs * Number of simular acousty controllable inputs * Illingual day (residual day of the controllable inputs * Illingual day (residual day of the controllable inputs * Factor value (CC) • For signal "7 • For Signal "1 • For this max. • Fo	Number of blocks (total)	addressable blocks ranges from 1 to 65535. There is no restriction, the
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Local data • per priority class, max. 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26. 6 KB Address area Process image • Inputs, adjustable • Outputs, adjustable • Pardware configuration Number of modules per system, max. 1 kbyte 4 kbyte		4 kbyte: Size of bit memory address area
16 kbyte, Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB Address area Process image	·	Thayto, Oleo of the monory address area
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• Outputs, adjustable		1 khyto
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Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Boeviation per day, max. **Digital inputs Number of digital inputs Number of simultaneously controllable inputs all mounting positions		i noyto
Time of day Clock		O commo mandala di circulta di
Clock Hardware clock (real-time) Yes Backup time		3 comm. modules, 1 signal board, 2 signal modules
Hardware clock (real-time) Backup time Deviation per day, max. Backup time Obeviation per day, max. Biglial inputs Of digital inputs Of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage Rated value (DC) Of risignal "0" Of signal "0" Of signal "1" Of signal "	Time of day	
Backup time	Clock	
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Number of digital inputs of which inputs usable for technological functions Source/sink input of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage Rated value (DC) of or signal °0° of or signal °1° of or signal °1° of or signal °1° of read value of input voltage) for standard inputs - parameterizable - at °0° to °1°, min parameterizable - parameterizable of or technological functions - parameterizable - parameterizable - shielded, max shielded, max shielded, max on lamp load, max on lamp load, max on lamp load, max on lamp load, max 1'' to °1°, max 1'' max	Backup time	480 h; Typical
Number of digital inputs of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions —up to 40 °C, max. 8 Input voltage • Rated value (DC) • for signal °0" • for signal 1°1" • for technological functions — parameterizable • for technological functions — parameterizable • shielded, max. • unshielded, max. • unshielded, max. • unshielded, max. • unshielded, max. • on lamp for digital outputs Number of digital outputs • with resistive load, max. • on lamp load, max. • 10 ms; max. • 10 ms; max. Pair in 1°0", max. • 10 ms; max. Polymber of relay outputs • Number of operating cycles, max. • mechanically 10 million, at rated load voltage 100 000	 Deviation per day, max. 	±60 s/month at 25 °C
of which inputs usable for technological functions Source/sink input Number of digital outputs Source/sink input Number of digital outputs all mounting positions — up to 40 °C, max. B Rated value (DC) for signal °0° for signal °1° for s	Digital inputs	
of which inputs usable for technological functions Source/sink input Number of digital outputs Source/sink input Number of digital outputs all mounting positions — up to 40 °C, max. B Rated value (DC) for signal °0° for signal °1° for s	Number of digital inputs	8; Integrated
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Input voltage Rated value (DC) for signal "0" for signal "1" Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. — parameterizable For technological functions — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz Cable length shielded, max. sunshielded, max. sunshielded, max. with resistive load, max. on lamp load, max. on "1" to "0", max. 10 ms; max. Relay outputs Number of relay outputs Number of relay outputs Number of relay outputs one can be sund to make the sistive load one can be sund to make the sistive load one can be sund to make the su	• ,	8
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• for signal "1" Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "4", max. for interrupt inputs — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz Cable length • shielded, max. • unshielded, max. • unshielded, max. • unshielded, max. • with resistive load, max. • on lamp load, max. • on lamp load, max. • on lamp load, max. • "0" to "1", max. 15 V DC at 2.5 mA 15 V DC at 2.5 mA 15 V DC at 2.5 mA 16 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four 0.2 ms 12.8 ms 10 ms; max.	• •	5 V DC at 1 mA
Input delay (for rated value of input voltage) for standard inputs	• for signal "1"	15 V DC at 2.5 mA
for standard inputs - parameterizable 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four 0.2 ms - at "0" to "1", min. - at "0" to "1", max. 12.8 ms for interrupt inputs - parameterizable Yes for technological functions - parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz Cable length • shielded, max. • shielded, max. • unshielded, max. 100 m; 50 m for technological functions Number of digital outputs Switching capacity of the outputs • with resistive load, max. • on lamp load, max. • on lamp load, max. • on lamp load, max. 10 ms; max. * "1" to "0", max. Relay outputs • Number of operating cycles, max. mechanically 10 million, at rated load voltage 100 000		
- parameterizable - at "0" to "1", min at "0" to "1", max at "0" to "1", max. for interrupt inputs - parameterizable for technological functions - parameterizable for technological functions - parameterizable • shielded, max. • unshielded, max. • on lamp load, max. • "1" to "0", max. • "1" to "0", max. Relay outputs • Number of poperating cycles, max. • mechanically 10 million, at rated load voltage 100 000		
- at "0" to "1", min at "0" to "1", max. 12.8 ms for interrupt inputs - parameterizable for technological functions - parameterizable • shielded, max. • unshielded, max. • unshielded, max. • unshielded, max. • with resistive load, max. • on lamp load, max. • on lamp load, max. • "0" to "1", max. • "1" to "0", max. • Number of relay outputs • Number of relay outputs • Number of relay outputs • Number of relay outputs • Number of relay outputs • Number of operating cycles, max. • mechanically 10 million, at rated load voltage 100 000	·	0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable
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for interrupt inputs — parameterizable for technological functions — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz Cable length • shielded, max. • unshielded, max. 100 ms; 50 m for technological functions 300 m; 50 m for technological functions 6; Relays Switching capacity of the outputs • with resistive load, max. • on lamp load, max. • on lamp load, max. • on lamp load, max. • "1" to "1", max. • "1" to "0", max. Relay outputs • Number of relay outputs • Number of relay outputs • Number of operating cycles, max. • Number of operating cycles, max. • mechanically 10 million, at rated load voltage 100 000	— at "0" to "1", min.	
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for technological functions — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz Cable length • shielded, max. • unshielded, max. 500 m; 50 m for technological functions 300 m; for technological functions: No Digital outputs Number of digital outputs 6; Relays Switching capacity of the outputs • with resistive load, max. • on lamp load, max. • on lamp load, max. 10 ms; max. * "1" to "0", max. Relay outputs • Number of relay outputs • Number of relay outputs • Number of operating cycles, max. * mechanically 10 million, at rated load voltage 100 000	for interrupt inputs	
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Number of digital outputs Switching capacity of the outputs with resistive load, max. on lamp load, max. Output delay with resistive load "0" to "1", max. "1" to "0", max. "1" to "0", max. Relay outputs Number of relay outputs Number of operating cycles, max. Recompanies of the outputs mechanically 10 million, at rated load voltage 100 000	• unshielded, max.	300 m; for technological functions: No
Switching capacity of the outputs • with resistive load, max. • on lamp load, max. Output delay with resistive load • "0" to "1", max. • "1" to "0", max. 10 ms; max. 10 ms; max. Relay outputs • Number of relay outputs • Number of operating cycles, max. mechanically 10 million, at rated load voltage 100 000	Digital outputs	
Switching capacity of the outputs • with resistive load, max. • on lamp load, max. Output delay with resistive load • "0" to "1", max. • "1" to "0", max. 10 ms; max. 10 ms; max. Relay outputs • Number of relay outputs • Number of operating cycles, max. mechanically 10 million, at rated load voltage 100 000	Number of digital outputs	6; Relays
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 on lamp load, max. Output delay with resistive load "0" to "1", max. "1" to "0", max. Relay outputs Number of relay outputs Number of operating cycles, max. 30 W with DC, 200 W with AC 10 ms; max. 10 ms; max. 6 Number of relay outputs mechanically 10 million, at rated load voltage 100 000 		2 A
Output delay with resistive load • "0" to "1", max. • "1" to "0", max. Relay outputs • Number of relay outputs • Number of operating cycles, max.	·	30 W with DC, 200 W with AC
 "0" to "1", max. "1" to "0", max. Relay outputs Number of relay outputs Number of operating cycles, max. mechanically 10 million, at rated load voltage 100 000 		
 "1" to "0", max. Relay outputs Number of relay outputs Number of operating cycles, max. mechanically 10 million, at rated load voltage 100 000 		10 ms; max.
Relay outputs • Number of relay outputs • Number of operating cycles, max. 6 mechanically 10 million, at rated load voltage 100 000		
 Number of relay outputs Number of operating cycles, max. mechanically 10 million, at rated load voltage 100 000 		
• Number of operating cycles, max. mechanically 10 million, at rated load voltage 100 000		6
		mechanically 10 million, at rated load voltage 100 000

abialdad	F00
• shielded, max.	500 m
• unshielded, max.	150 m
Analog inputs	-
Number of analog inputs	2
Input ranges	V
Voltage Input recent (reted values) valtages	Yes
Input ranges (rated values), voltages • 0 to +10 V	Voc
	Yes
— Input resistance (0 to 10 V) Cable length	≥100k ohms
• shielded, max.	100 m; twisted and shielded
·	100 III, twisted and silicided
Analog outputs	
Number of analog outputs	0
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
 Resolution with overrange (bit including sign), max. 	10 bit
Integration time, parameterizable	Yes
Conversion time (per channel)	625 µs
Encoder	
Connectable encoders	
2-wire sensor	Yes
1. Interface	
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Interface types	
RJ 45 (Ethernet)	Yes
Number of ports	1
integrated switch	No
Protocols	V
PROFINET IO Controller	Yes
PROFINET IO Device SIMATIC communication	Yes Yes
SIMATIC communication Open IE communication	
Web server	Yes; Optionally also encrypted Yes
Media redundancy	No
PROFINET IO Controller	110
Transmission rate, max.	100 Mbit/s
Services	Too mone
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFlenergy	No
Prioritized startup	Yes
 Number of IO devices with prioritized startup, 	16
max.	
 Number of connectable IO Devices, max. 	16
 Number of connectable IO Devices for RT, 	16
max.	46
— of which in line, max.	16 Vos
 Activation/deactivation of IO Devices Number of IO Devices that can be 	Yes
Number of 10 Devices that can be simultaneously activated/deactivated, max.	8
Updating time	The minimum value of the update time also depends on the
- F 9	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; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFlenergy	Yes

— Shared device	Von
— Shared device — Number of IO Controllers with shared device,	Yes 2
max.	2
Protocols	
Supports protocol for PROFINET IO	Yes
PROFIsafe	No
PROFIBUS	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required
OPC UA	Yes; OPC UA Server
AS-Interface	Yes; CM 1243-2 required
Protocols (Ethernet)	
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Redundancy mode	
Media redundancy	
— MRP	No
— MRPD	No
SIMATIC communication	
• S7 routing	Yes
Open IE communication	
TCP/IP	Yes
— Data length, max.	8 kbyte
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	8 kbyte
■ Data length, max. • UDP	Yes
— Data length, max.	1 472 byte
Web server	1 472 byte
• supported	Yes
User-defined websites	Yes
OPC UA	1 65
	Voc: "Pagia" liganca required
Runtime license requiredOPC UA Server	Yes; "Basic" license required
• OPC DA Server	Yes; data access (read, write, subscribe), method call, runtime license required
 Application authentication 	Available security policies: None, Basic128Rsa15, Basic256Rsa15,
Application administration	Basic256Sha256
 User authentication 	"anonymous" or by user name & password
 Number of sessions, max. 	10
 Number of subscriptions per session, max. 	5
— Sampling interval, min.	100 ms
— Publishing interval, min.	200 ms
Number of server methods, max.	20
number of monitored items, recommended	1 000
max.	
 Number of server interfaces, max. 	2
 Number of nodes for user-defined server 	2 000
interfaces, max.	
Further protocols	
MODBUS	Yes
communication functions / header	
S7 communication	
• supported	Yes
• as server	Yes
as client	Yes
User data per job, max.	See online help (S7 communication, user data size)
Number of connections	, (, , , , , , , , , , , , , , , , , ,
• overall	PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved /
- 0101411	18 max; S7 Connections: 8 reserved / 14 max; Open User Connections:
	8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA
	Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 64
	max
Test commissioning functions	
Status/control Status/control variable	Yes

Forcing	 Variables 	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Percent Perc	Forcing	, , , , , , , , , , , , , , , , , , , ,
Disposition Process		Yes
Number of configurable Traces 2		
Number of configurable Traces Memony size per trace, max 512 kbyte Interruptsidisgnostics indication LED RNINSTOP LED RROR LED RNINSTOP LED RNINSTOP LED Per SHROR LED Per SHROR LED NAINT LED NAINT LED Per SHROR LED Yes Interruptsid Functions Frequency measurement controlled positioning passes are suggested and passes are suggested to ensure compliance with the limitarier measurement and passes are suggested to ensure compliance with the limitarier measurement and passes are suggested to ensure compliance with the limitarier measurement and passes are suggested and passes are suggested to ensure compliance with the limitarier measurement and passes are suggested and passes are provided	• present	Yes
Memory size per trace, max. 1912	Traces	
Interrupts dispnostics indication LED	Number of configurable Traces	2
Diagnostics indication LED • RUNSTOP LED • RUNSTOP LED • MAINT LED • MAINT LED * Wes • ERROR LED • Yes • MAINT LED * Yes • Controlled positioning axes, max. Number of positioning axes via pulse-direction interface PID controller * Number of positioning axes via pulse-direction interface PID controller • Number of alostioning axes via pulse-direction interface PID controller • Number of alostioning axes via pulse-direction interface PID controller • Potential separation digital inputs • Potential separation digital inputs • Potential separation digital outputs • Potential separation digital outpu	 Memory size per trace, max. 	512 kbyte
RUNNSTOP LED PEROR LED PEROR LED PeroR LED MAINT LED PeroR LED MAINT LED PeroR MAINT LED Pero	Interrupts/diagnostics/status information	
ERROR LED MAINT LED MAINT LED More assurement controlled positioning axes, max. Frequency measurement controlled positioning axes, max. Number of positioning axes via pulse-direction interface PID controller Number of positioning axes via pulse-direction interface PID controller Number of positioning axes via pulse-direction interface PID controller Number of alarm inputs Potential separation digital inputs • Potential separation digital outputs • Potential separation	Diagnostics indication LED	
**MANT LED Integrated Functions Frequency measurement controlled positioning axes, max. Number of position-controlled positioning axes, max. Number of position-controlled positioning axes, max. Number of positioning axes via pulse-direction interface PID controller Number of positioning axes via pulse-direction interface PID controller Number of positioning axes via pulse-direction interface PID controll separation digital inputs * Potential separation digital outputs * Poten	RUN/STOP LED	Yes
Integrated Functions	• ERROR LED	Yes
Frequency measurement controlled positioning axes, max. Number of positioning axes via pulse-direction interface PID controller Number of positioning axes via pulse-direction interface PID controller Number of positioning axes via pulse-direction interface PID controller Number of alarm inputs 4 Potential separation Potential separation digital inputs 500V AC for 1 minute 500V AC for 1 minute 7	MAINT LED	Yes
controlled positioning Number of position-controlled positioning axes, max. Number of positioning axes via pulse-direction interface PID controller Number of alarm inputs 4 Potential separation digital inputs • Potential separation digital outputs • Potential separation digital inputs • Potential separation digital i	Integrated Functions	
Number of position-controlled positioning axes, max. Number of positioning axes via pulse-direction interface PID controller Number of alarm inputs Potential separation digital outputs Po	Frequency measurement	Yes
Number of positioning axes via pulse-direction interface PID controller Yes Number of alarm inputs 4 Potential separation Plotential separation digital inputs • Potential separation digital outputs • Detween the channels, in groups of 2 EMG Interference immunity against discharge of static electricity • Interference immunity on supply lines acc. to IEC 61000-4-2 — Test voltage at contact discharge 6 kW — Test voltage at contact discharge 6 kW — Test voltage at contact discharge 6 kW — Interference immunity on supply lines acc. to IEC 61000-4-4 • Interference immunity on signal cables acc. to IEC 7 kes 61000-4-4 Interference immunity against voltage surge • Interference immunity against voltage surge • Interference immunity against voltage surge • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Interference immunit	controlled positioning	Yes
PID controller Number of alarm inputs 4 Potential separation Potential separation digital inputs • Determinal separation digital inputs • Determinal separation digital inputs • Determinal separation digital outputs • Determination separation	Number of position-controlled positioning axes, max.	8
Number of alarm inputs Potential separation digital inputs • Potential separation digital inputs • Determinal separation digital inputs • Determinal separation digital outputs • Potential separation digital outputs • Detween the channels • No • between the channels • Interference immunity against discharge of static electricity • Interference immunity against discharge of static electricity acc. to IEC 610004-2 — Test voltage at air discharge • Interference immunity on supply lines acc. to IEC 798 • Interference immunity on supply lines acc. to IEC 810004-4 • Interference immunity against voltage surge • Interference immunity against ingli-frequency radiation acc. to IEC 61000-4-6 • Interference immunity against ingli-frequency radiation acc. to IEC 61000-4-6 • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 • Interference immunity radiation to IEC 61000-4-6	Number of positioning axes via pulse-direction interface	Up to 4 with SB 1222
Potential separation digital inputs Potential separation digital inputs Potential separation digital inputs Potential separation digital outputs Potential separation digital celestricity Poten	PID controller	Yes
Potential separation digital inputs • Potential separation digital inputs • Determination digital couputs • Potential separation digital outputs • Potential separation digital outputs • Potential separation digital outputs • Detween the channels • Detween the channels • Detween the channels • Detween the channels • Detween the channels, in groups of 2 EMC Interference immunity against discharge of static electricity • 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 — Test voltage at contact discharge • Interference immunity to no 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 voltage surge • Interference immunity against conducted variable disturbance • Interference immunity against conducted variable disturbance induced by high-frequency fields • Interference immunity against conducted variable disturbance induced by high-frequency fields • Interference immunity against conducted variable disturbance induced by high-frequency fields • Interference immunity against conducted variable disturbance induced by high-frequency fields • Interference immunity against conducted variable disturbance induced by high-frequency fields • Interference immunity against conducted variable disturbance induced by high-frequency fields • Interference immunity against conducted variable disturbance induced by high-frequency fields • Interference immunity against conducted variable disturbance induced by high-frequency fields • Interference immunity against to interference acc. to IEC 61000-4-6 Emission of radio interference acc. to IEC	Number of alarm inputs	4
Potential separation digital imputs between the channels, in groups of Potential separation digital outputs Potential separation digital outputs between the channels between the channels between the channels between the channels, in groups of EMC Interference immunity against discharge of static electricity Interference immunity against discharge of static electricity ac. to IEC 61000-4-2 Test voltage at air discharge Interference immunity to cable-borne interference Interference immunity to cable-borne interference Interference immunity on supply lines acc. to IEC 61000-4-4 Interference immunity on supply lines acc. to IEC 61000-4-5 Interference immunity against voltage surge Interference immunity against righ-frequency radiation acc. to IEC 61000-4-5 Interference immunity against stiph-frequency radiation acc. to IEC 61000-4-5 Interference immunity against stiph-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 Limit class A, for use in residential areas Yes; Group 1 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 Pegree and class of protection Pegr	Potential separation	
Potential separation digital imputs between the channels, in groups of Potential separation digital outputs Potential separation digital outputs between the channels between the channels between the channels between the channels, in groups of EMC Interference immunity against discharge of static electricity Interference immunity against discharge of static electricity ac. to IEC 61000-4-2 Test voltage at air discharge Interference immunity to cable-borne interference Interference immunity to cable-borne interference Interference immunity on supply lines acc. to IEC 61000-4-4 Interference immunity on supply lines acc. to IEC 61000-4-5 Interference immunity against voltage surge Interference immunity against righ-frequency radiation acc. to IEC 61000-4-5 Interference immunity against stiph-frequency radiation acc. to IEC 61000-4-5 Interference immunity against stiph-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 Limit class A, for use in residential areas Yes; Group 1 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 Pegree and class of protection Pegr	Potential separation digital inputs	
Potential separation digital outputs Potential separation digital outputs between the channels between the channels, in groups of EMC Interference immunity against discharge of static electricity Interference immunity against discharge of static electricity ac. to IEC 61000-4-2 Test voltage at iar discharge Test voltage at iar discharge Test voltage at iar discharge Interference immunity to cable-borne interference Interference immunity to cable-borne interference Interference immunity on supply lines 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 61000-4-5 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 Limit class B, for use in residential areas Limit class B, for use in residential areas Limit class B, for use in residential areas Test Mul approval Pegree and class of protection IP degree of protection IP degree of protection IP degree of protection Yes Happroval Yes KM Approval Yes RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes Ambient conditions Free fall Free fall Fall height, max. O 3 m; five times, in product package	Potential separation digital inputs	500V AC for 1 minute
Potential separation digital outputs between the channels between the channels, in groups of EMC Interference immunity against discharge of static electricity Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 — Test voltage at ind discharge — Test voltage at contact discharge Interference immunity on supply lines acc. to IEC 61000-4-4 Interference immunity on signal cables 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 high-frequency radiation acc. to IEC 61000-4-5 Interference immunity against sign-frequency radiation acc. to IEC 61000-4-6 Emission of radio Interference acc. to EN 55 011 Limit class A, for use in residential areas Limit class B, for use in residential areas Limit class S, for use in residential areas Limit class of protection IP degree of protection IP degree of protection IP degree of protection IP degree of protection Ves Tandards, approvals, certificates CE mark Ves UL approval Ves RM approval RCM (formerty C-TICK) Yes Ambient conditions Free fall Fall height, max. O.3 m; five times, in product package	 between the channels, in groups of 	1
between the channels	Potential separation digital outputs	
between the channels, in groups of ENC Interference immunity against discharge of static electricity	 Potential separation digital outputs 	Relays
Interference immunity against discharge of static electricity Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 — Test voltage at contact discharge		
Interference immunity against discharge of static electricity Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 — 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 Interference immunity against voltage surge Interference immunity against voltage surge Interference immunity against conducted variable disturbance induced by high-frequency fields Interference immunity against conducted variable disturbance induced by high-frequency fields Interference immunity against conducted variable disturbance induced by high-frequency fields Interference immunity against conducted variable disturbance induced by high-frequency fields Interference immunity against conducted variable disturbance induced by high-frequency fields Interference immunity against toint-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; 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 Yes UL approval Yes FM approval Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes Marine approval Yes Ambient conditions Free fall • Fall height, max. 0.3 m; five times, in product package	between the channels, in groups of	2
Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 — Test voltage at air discharge	EMC	
electricity acc. to IEC 61000-4-2 — Test voltage at contact discharge — Test voltage at contact discharge • 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 • Interference immunity against voltage surge • Interference immunity against voltage surge • Interference immunity against conducted variable disturbance induced by high-frequency fields • Interference immunity against conducted variable disturbance induced by high-frequency fields • Interference immunity against high-frequency radiation acc. to IEC 61000-4-5 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 Yes UL approval Yes UL approval Yes CM (formerly C-TICK) Yes KC approval Yes Marine approval Yes Marine approval Yes Ambient conditions Free fall • Fall height, max. 0.3 m; five times, in product package	Interference immunity against discharge of static electricity	
Test voltage at air discharge		Yes
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 on signal cables acc. to IEC 61000-4-4 Interference immunity against voltage surge Interference immunity on supply lines acc. to IEC 61000-4-5 Interference immunity against voltage surge Interference immunity against conducted variable disturbance induced by high-frequency relation acc. to IEC 61000-4-6 Interference immunity against high-frequency relation acc. to IEC 61000-4-6 Emission of radio interference acc. to EN 55 011 Limit class A, for use in industrial areas Limit class B, for use in residential areas Limit class B, for use in residential areas Service and class of protection IP degree of protection IP degree of protection IP degree of protection Ves UL approval Yes UL approval Yes CE mark Yes UL approval Yes CE mark Nes CE mark Yes CE mark Nes CE mark N	•	0.177
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 Interference immunity against voltage surge Interference immunity against voltage surge Interference immunity against conducted variable disturbance induced by high-frequency fields Interference immunity against toin-frequency radiation acc. to IEC 61000-4-5 Interference immunity against toin-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 Limit class B, for use in industrial areas Limit class B, for use in residential areas Pes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Degree and class of protection IP degree of protection IP20 Standards, approvals, certificates CE mark Ves UL approval Yes CE mark Ves UL approval Yes RM approval Yes RM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes Marine approval Ambient conditions Free fall Fall height, max. 0.3 m; five times, in product package		
Interference immunity on supply lines 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 Limit class A, for use in industrial areas Limit class B, for use in residential areas Limit class G protection IP degree of protection IP degree of protection IP degree of protection IP degree of protection IP20 Standards, approvals, certificates CE mark UL approval Ves Ves CUlus Yes FM approval Yes RCM (formerly C-TICK) Yes Marine approval Ambient conditions Free fall Fall height, max. O.3 m; five times, in product package		0 KV
e Interference immunity on signal cables acc. to IEC 61000-4-4 Interference immunity against voltage surge ● 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 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 Yes UL approval Yes FM approval Yes RCM (formerly C-TICK) Yes Marine approval Yes Marine approval Yes Marine approval Yes Free fall ● Fall height, max. 0.3 m; five times, in product package	·	Voc
Interference immunity on signal cables acc. to IEC 61000-4-4 Interference immunity against voltage surge 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 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Emission of radio interference acc. to EN 55 011 Interference acc. to EN 55 011 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Emission of radio interference acc. to EN 55 011 Interference immunity against voltage acc. to IEC 41000-4-6 Emission of radio interference acc. to EN 55 011 Interference immunity against voltage acc. to IEC 41000-4-6 Emission of radio interference acc. to EN 55 011 Interference immunity against voltage acc. to IEC 41000-4-6 Emission of radio interference acc. to IEC 4100-4-6 Fee and Class A, for use in residently against acc. to IEC 4100-4-6 Yes Yes; Group 1 Y	, ,,,,	165
Interference immunity against voltage surge 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 residential areas Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Degree and class of protection IP degree of protection IP degree of protection IP20 Standards, approvals, certificates CE mark UL approval Yes CULus Yes FM approval Yes RCM (formerly C-TICK) Yes Marine approval Ambient conditions Free fall Fall height, max. 0.3 m; five times, in product package		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 residential areas Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Degree and class of protection IP degree of protection IP20 Standards, approvals, certificates CE mark Yes UL approval Yes UL approval Yes FM approval Yes KC approval Yes Marine approval Yes Ambient conditions Free fall Fall height, max. 0.3 m; five times, in product package 		
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 Pegree and class of protection IP degree of protection IP20 Standards, approvals, certificates CE mark Yes UL approval Yes CULus Yes FM approval Yes FM approval Yes FM (formerly C-TICK) Yes KC approval Yes Marine approval Yes Marine approval Yes Marine approval Yes Ambient conditions Free fall Fall height, max. 0.3 m; five times, in product package	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 Limit class A, for use in industrial areas Limit class B, for use in residential areas Limit class B, for use in residential areas Pegree and class of protection IP degree of protection IP degree of protection IP approval CE mark Ves UL approval CULus Yes FM approval RCM (formerly C-TICK) Yes Marine approval Yes Ambient conditions Free fall Fall height, max. Pes Yes Yes Ves Induced by high-frequency fields Yes Yes Yes; Group 1 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Pegree and class of protection IP20 Standards, approvals, certificates Yes Yes Yes Yes Yes Ambient conditions Free fall Fall height, max. 0.3 m; five times, in product package		Yes
● 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 IP degree of protection IP20 Standards, approvals, certificates CE mark UL approval CULus FM approval FM approval RCM (formerly C-TICK) KC approval Marine approval Ambient conditions Free fall ● Fall height, max. Pes; Group 1 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Yes; When appropriate measures are used to ensure used to ensure compliance with the limits for Class B according to EN 55011 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Pes		- indicated by bight for many fields
radiation acc. to IEC 61000-4-6 Emission of radio interference acc. to EN 55 011 • Limit class A, for use in industrial areas • Limit class B, for use in residential areas • Limit class B, for use in residential areas Pes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Degree and class of protection IP degree of protection IP20 Standards, approvals, certificates CE mark Ves UL approval ves CUlus FM approval RCM (formerly C-TICK) KC approval Marine approval Ambient conditions Free fall • Fall height, max. O.3 m; five times, in product package		
Emission of radio interference acc. to EN 55 011 • Limit class A, for use in industrial areas • Limit class B, for use in residential areas • Limit class B, for use in residential areas • Limit class B, for use in residential areas Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Degree and class of protection IP degree of protection IP20 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. O.3 m; five times, in product package		1 05
◆ Limit class B, for use in residential areas Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Degree and class of protection IP degree of protection IP20 Standards, approvals, certificates CE mark UL approval CULus Yes FM approval Yes FM approval RCM (formerly C-TICK) Yes Marine approval Ambient conditions Free fall Fall height, max. Fall height, max. Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Yes Yes Yes Yes Yes Yes Yes Ambient conditions		Yes; Group 1
the limits for Class B according to EN 55011 Degree and class of protection IP degree of protection IP20 Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Marine approval Ambient conditions Free fall Fall height, max. • Fall height, max.	•	Yes; When appropriate measures are used to ensure compliance with
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. IP20 Yes Yes Yes Yes Yes Yes Yes Ye		the limits for Class B according to EN 55011
Standards, approvals, certificates CE mark UL approval cUlLus FM approval RCM (formerly C-TICK) KC approval Marine approval Ambient conditions Free fall Fall height, max. Yes Yes Yes Yes Yes Yes Yes Ye	Degree and class of protection	
CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Ambient conditions Free fall Fall height, max. Yes Yes Yes Yes Yes Yes Yes Ye	IP degree of protection	IP20
UL approval cULus Yes FM approval RCM (formerly C-TICK) Yes KC approval Yes Marine approval Yes Ambient conditions Free fall • Fall height, max. Yes O.3 m; five times, in product package	Standards, approvals, certificates	
UL approval cULus Yes FM approval RCM (formerly C-TICK) Yes KC approval Yes Marine approval Yes Ambient conditions Free fall • Fall height, max. Yes Yes Yes Yes Yes Yes Yes Ye		Yes
CULus FM approval FM approval RCM (formerly C-TICK) Yes KC approval Yes Marine approval Yes Ambient conditions Free fall • Fall height, max. Yes 0.3 m; five times, in product package	UL approval	Yes
RCM (formerly C-TICK) KC approval Yes Marine approval Yes Ambient conditions Free fall • Fall height, max. 9.3 m; five times, in product package		Yes
KC approval Marine approval Ambient conditions Free fall Fall height, max. Ves Yes O.3 m; five times, in product package	FM approval	Yes
Marine approval Ambient conditions Free fall Fall height, max. O.3 m; five times, in product package	RCM (formerly C-TICK)	Yes
Ambient conditions Free fall • Fall height, max. 0.3 m; five times, in product package	KC approval	Yes
Free fall • Fall height, max. 0.3 m; five times, in product package	Marine approval	Yes
• Fall height, max. 0.3 m; five times, in product package	Ambient conditions	
	Free fall	
Ambient temperature during operation	• Fall height, max.	0.3 m; five times, in product package
1	Ambient temperature during operation	

• min.	-20 °C
• max.	60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no
	adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal or 45 °C vertical
 horizontal installation, min. 	-20 °C
horizontal installation, max.	60 °C
vertical installation, min.	-20 °C
vertical installation, max.	50 °C
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Air pressure acc. to IEC 60068-2-13	
Operation, min.	795 hPa
Operation, max.	1 080 hPa
Storage/transport, min.	660 hPa
Storage/transport, max.	1 080 hPa
Altitude during operation relating to sea level	
Installation altitude, min.	-1 000 m
Installation altitude, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	
Operation, max.	95 %; no condensation
Vibrations	
Vibration resistance during operation acc. to IEC 60068-2-6	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
	Yes
Operation, tested according to IEC 60068-2-6 Shock testing	Tes
tested according to IEC 60068-2-27	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak
tested according to IEO 00000-2-27	value), duration 11 ms
Pollutant concentrations	·
 SO2 at RH < 60% without condensation 	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
configuration / header	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes
Know-how protection	
User program protection/password protection	Yes
Copy protection	Yes
Block protection	Yes
Access protection	
protection of confidential configuration data	Yes
Protection level: Write protection	Yes
Protection level: Read/write protection	Yes
Protection level: Complete protection	Yes
programming / cycle time monitoring / header	
adjustable	Yes
Dimensions	
Width	90 mm
	
Height	
Height Depth	100 mm
Depth	
Depth Weights	100 mm 75 mm
Depth	100 mm 75 mm 425 g
Depth Weights	100 mm 75 mm