SIEMENS

Data sheet

6ES7215-1HG40-0XB0



SIMATIC S7-1200, CPU 1215C, compact CPU, DC/DC/relay, 2 PROFINET ports, onboard I/O: 14 DI 24 V DC; 10 DO relay 2 A, 2 AI 0-10 V DC, 2 AO 0-20 mA DC, power supply: DC 20.4-28.8 V DC, program/data memory 200 KB

General information	
Product type designation	CPU 1215C DC/DC/relay
Firmware version	V4.6
Engineering with	
 Programming package 	STEP 7 V18 or higher
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Load voltage L+	
Rated value (DC)	24 V
 permissible range, lower limit (DC) 	20.4 V
 permissible range, upper limit (DC) 	28.8 V
Input current	
Current consumption (rated value)	500 mA; CPU only
Current consumption, max.	1 500 mA; CPU with all expansion modules
Inrush current, max.	12 A; at 28.8 V DC
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.
Power loss	
Power loss, typ.	12 W
Memory	
Work memory	
integrated	200 kbyte
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	
Number, max.	Limited only by RAM for code
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	14 kbyte
Flag	
• Size, max.	8 kbyte; Size of bit memory address area
Local data	
 per priority class, max. 	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
Address area	
Process image	
 Inputs, adjustable 	1 kbyte
Outputs, adjustable	1 kbyte
Hardware configuration	
Number of modules per system, max.	3 comm. modules, 1 signal board, 8 signal modules
Time of day	
Clock	
 Hardware clock (real-time) 	Yes
Backup time	480 h; Typical
Deviation per day, max.	±60 s/month at 25 °C
Digital inputs	
Number of digital inputs	14; Integrated
 of which inputs usable for technological functions 	6; HSC (High Speed Counting)
Source/sink input	Yes
Number of simultaneously controllable inputs	
all mounting positions	
— up to 40 °C, max.	14
Input voltage	
Rated value (DC)	24 V
• for signal "0"	5 V DC at 1 mA
• for signal "1"	15 V DC at 2.5 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four
— at "0" to "1", min.	0.2 ms
— at "0" to "1", max.	12.8 ms
for interrupt inputs	
— parameterizable	Yes
for technological functions	
— parameterizable	Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30
	kHz
Cable length	
 shielded, max. 	500 m; 50 m for technological functions
• unshielded, max.	300 m; for technological functions: No
Digital outputs	
Number of digital outputs	10; Relays
Switching capacity of the outputs	
• with resistive load, max.	2 A
• on lamp load, max.	30 W with DC, 200 W with AC
Output delay with resistive load	
• "0" to "1", max.	10 ms; max.
• "1" to "0", max.	10 ms; max.
Relay outputs	
 Number of relay outputs 	10
 Number of relay outputs Number of operating cycles, max. Cable length 	10 mechanically 10 million, at rated load voltage 100 000

e shielded may	500 m
 shielded, max. unshielded, max. 	500 m 150 m
	150 11
Analog inputs	
Number of analog inputs	2
Input ranges	N/
Voltage	Yes
Input ranges (rated values), voltages	
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	≥100k ohms
Cable length	
• shielded, max.	100 m; twisted and shielded
Analog outputs	
Number of analog outputs	2
Output ranges, current	
• 0 to 20 mA	Yes
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
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	
 Resolution with overrange (bit including sign), max. 	10 bit
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	2
 integrated switch 	Yes
Protocols	
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
 SIMATIC communication 	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
Media redundancy	Yes
PROFINET IO Controller	
Transmission rate, max.	100 Mbit/s
Services	
— 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, max.	16
— Number of connectable IO Devices, max.	16
— Number of connectable IO Devices for RT, max.	16
— of which in line, max.	16
— Activation/deactivation of IO Devices	Yes
— Number of IO Devices that can be simultaneously	8
activated/deactivated, max.	
— 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; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— ISCHIOHOUS Mode — IRT	No
— PROFlenergy	Yes
— Shared device	Yes
 — Number of IO Controllers with shared device, max. 	2
Protocols	2
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)	Tes, Givi 1243-2 Tequireu
• TCP/IP	Yes
DHCP SNMP	No
• SNMP	Yes
• DCP	Yes
LLDP	Yes
Redundancy mode	
Media redundancy	
— MRP	Yes; as MRP redundancy manager and/or MRP client
Open IE communication	N .
• TCP/IP	Yes
— Data length, max.	8 kbyte
 ISO-on-TCP (RFC1006) 	Yes
— Data length, max.	8 kbyte
• UDP	Yes
— Data length, max.	1 472 byte
Web server	
 supported 	Yes
User-defined websites	Yes
OPC UA	
Runtime license required	Yes; "Basic" license required
OPC UA Server	Yes; data access (read, write, subscribe), method call, runtime license required
 Application authentication 	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
 — Number of sessions, max. 	10
 Number of subscriptions per session, max. 	5
— Sampling interval, min.	100 ms
— Publishing interval, min.	200 ms
 Number of server methods, max. 	20
 Number of monitored items, recommended max. 	1 000
 Number of server interfaces, max. 	2
 Number of nodes for user-defined server interfaces, 	2 000
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 / 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	

Satisfied Yes • Satisfied Satisfied • Satisfied Yes • Satisfied	Status/control	
• ArcotablesPackSoutputs, memory bits, DBs, dBs/tholad I/Os, times, countersForcingYesDargenedic ballerVes• Arcota for configurable Traces2• Nemory size per traces, max.32 bayteDescription of configurable Traces2• NEMORY DEDYes• NENORY DEDYes• NUMSTOP DEDYes• Orbertina Separation digita liquidusNo• Orbertina Separation digita liquidusNo• Orbertina Separation digita liquidusYes• Orbertina Separation		Yes
Facing Yes • Facing Yes • Secting Yes • Number of configurable Traces 2 • Number of configurable Traces 512 Myrle • Number of pactoris Number o		
YesDespreseYesDespreseYesTasesYesTasesYesTasesYesNumber of configurable Traces512 kbyleNumber of configurable Traces700 ksPerspecialis indicaton LEDYesDespreseYesOf Configurable Statistic informationYesDespreseYesOf Configurable Statistic informationYesDespreseYesOutput of Conters6Number of positioningYesNumber of position dipilal inputsYesObtimal separation digilal inputsYesObtimal separation digilal inputsYesOutput Set of the ConfigurableYesInformation immunity against discharge of stateYesInform		
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• Number of configurable Traces2• Nummer size per trace, max.512 kityleDependencis includion LED• FUNISTOP LEDYes• FUNISTOP LEDYes• RUNSTOP REQUERY, max.100 kHz• RUNSTOP ControllerYes• RUNSTOP ControllerYesNumber of position-controlled positioning axes, max.8Number of position-controlled positioning axes, max.8Number of position-controlled positioning axes, max.8Number of alem inputs500V AC for 1 minute• Potential separation digital inputs500V AC for 1 minute• Potential separation digital inputs500V AC for 1 minute• Potential separation digital inputs8• Potential separation digital inputs8• Evenem the channels, in groups of2• Evenem the channels, in groups of1• Evenem the channels8• Evenem the channelsYes• Evenem the channels8• Evenem the channelsYes• Evenem the channelsYes• Evenem the channelsYes• Evenem the channelsYes• Evenem the channelsYes <td< td=""><td></td><td></td></td<>		
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Internet/Soliaprostic/status Information Diagnostic indicator LED • RUNS TOP LED Yes • RUNS TOP LED Yes • RANDA TED Yes • Marrier Soliaprostic of contrats 6 • Counter 9 • Number of contrats 6 • Counter Yes • Counter frequency measurement Yes • Controller controller opsitioning axes, max. 8 Number of positioning axes inax. 8 Potential separation Yes • Potential separation digital inputs 4 • Detential separation digital inputs Solia V AC for 1 minute • Detential separation digital inputs No • Evortial separation digital inputs Yes • Interference immunity against discharge of static electricity Yes	C C	
Diagnostics indication LED Yes • RUNUSTOP LED Yes • RENOR LED Yes • Mumber of counters 6 • Counting frequency, max. 100 H4z Frequency measurement Yes • Dumber of positioning axes via pulse-direction interface Yes Number of atam inputs 4 Potential separation 500V AC for 1 minute • Potential separation 10 • Potential separation digital inputs S00V AC for 1 minute • between the channels in groups of 2 • External is separation digital inputs S00V AC for 1 minute • between the channels in groups of 2 • Interference immunity against discharge of static Her freence immunity agains		
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Frequency measurement Yes controller positioning axes, max. 8 Number of positioning axes via pulse-direction interface Up to 4 with SB 1222 PID controller Yes Number of positioning axes via pulse-direction interface Up to 4 with SB 1222 PID controller Yes Number of alarm inputs 4 Potential separation digital inputs 500V AC for 1 minute • Potential separation digital outputs Relays • Potential separation digital outputs Relays • between the channels, in groups of 2 EMC Interference immunity against discharge of static electricity • Interference immunity against discharge of static electricity 8 kV • Test voltage at al discharge of static electricity 8 kV • Test voltage at al discharge of static electricity 9 ketwent interference immunity on supply lines acc. to IEC 61000. • Interference immunity on supply lines acc. to IEC 61000. Yes • Interference immunity on supply lines acc. to IEC 61000. Yes • Interference immunity against discharge of static electricity Yes • Interference immunity against sublaf-fequency radiation acc. to IEC 61000. <td< td=""><td> Counting frequency, max. </td><td>100 kHz</td></td<>	 Counting frequency, max. 	100 kHz
controlled positioning Yes Number of position-controlled positioning axes, max. 8 Number of positioning axes, via pulse-direction interface Up to 4 with SB 1222 PID controller Yes Number of positioning axes, max. 4 Potential separation digital inputs 500V AC for 1 minute • Potential separation digital inputs 500V AC for 1 minute • Potential separation digital outputs Relays • Potential separation digital outputs Relays • between the channels, in groups of 2 • between the channels, in groups of 2 • EMC Test voltage at air discharge of static electricity • Interference immunity against discharge of static electricity No • Interference immunity against discharge of static electricity Yes • Interference immunity against discharge of static electricity Yes • Interference immunity against discharge of static electricity Yes • Interference immunity against conducted variable disturbance inducts Yes • Interference immunity against conducted variable disturbance inducts Yes • Interference immunity against uonducts variable disturbance inducts Ye		Yes
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Number of alarm inputs 4 Potential separation digital inputs 500V AC for 1 minute Potential separation digital inputs 500V AC for 1 minute Potential separation digital outputs 500V AC for 1 minute Potential separation digital outputs Relays Potential separation digital outputs Relays Potential separation digital outputs Relays No 2 Potential separation digital outputs Relays • between the channels No • between the channels No • between the channels No • Interference immunity against discharge of static electricity Yes • Interference immunity on signal cables acc. to IEC 61000- 4.4 Yes • Interference immunity on signal cables acc. to IEC 61000- 4.4 Yes • Interference immunity on supply lines acc. to IEC 61000- 4.5 Yes • Interference immunity against high-frequency radiation acc. to IEC 61000-4.6 Yes • Interference immunity against bigh-frequency radiation acc. to IEC 61000-4.5 Yes • Interference immunity against high-frequency radiation acc. to IEC 61000-4.6 Yes • Interference immunity against high-fre	Number of positioning axes via pulse-direction interface	Up to 4 with SB 1222
Potential separation digital inputs 500V AC for 1 minute Potential separation digital inputs 500V AC for 1 minute between the channels, in groups of 1 Potential separation digital outputs Relays between the channels, in groups of 2 between the channels No between the channels No between the channels No Interference immunity against discharge of static electricity ac. In EC 6 1000-42 Yes Interference immunity on supply lines acc. to IEC 61000- Yes Interference immunity on supply lines acc. to IEC 61000- Yes Interference immunity against high-frequency radiation acc. to IEC 81000-4-4-5 Yes Interference immunity against high-freq	PID controller	Yes
Potential separation digital inputs 500V AC for 1 minute • between the channels, in groups of 1 Potential separation digital outputs Relays • between the channels No • between the channels, in groups of 2 EMC Interference immunity against discharge of static electricity • Interference immunity against discharge of static electricity Yes - Test voltage at air discharge 8 kV - Test voltage at air discharge 6 kV Interference immunity on supply lines acc. to IEC 61000-42 Yes • Interference immunity on supply lines acc. to IEC 61000-44 Yes • Interference immunity on supply lines acc. to IEC 61000-44 Yes • Interference immunity against voltage surge Yes • Interference immunity against voltage surge Yes • Interference immunity against in thip-frequency radiation acc. to IEC 61000-45 Yes • Interference immunity against in thip-frequency radiation acc. to IEC 61000-45 Yes • Interference immunity against inducted variable disturbance induced by high-frequency fields Yes • Interference immunity against inducted variable disturbance induced by high-frequency fields Yes • Interference immunity against inducted variable disturban	Number of alarm inputs	4
• Potential separation digital inputs 500V AC for 1 minute • between the channels, in groups of 1 • Potential separation digital outputs Relays • between the channels No • between the channels, in groups of 2 • Detertial separation digital outputs Kelays • Interference immunity against discharge of static electricity 1 • Interference immunity against discharge 8 kV • Interference immunity to cable-borne interference 6 kV • Interference immunity to cable-borne interference 1 • Interference immunity on supply lines acc. to IEC 61000-42 Yes • Interference immunity on supply lines acc. to IEC 61000-42 Yes • Interference immunity against voltage surge 1 • Interference immunity against conducted variable disturbance inducted Yes • Interference immunity against conducted variable disturbance inducted fields Yes • Interference immunity against conducted variable disturbance inducted fields Yes • Interference immunity against discharge Yes • Interference immunity against conducted variable disturbance inducted fields Yes • Interference immunity	Potential separation	
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Potential separation digital outputs Relays • Potential separation digital outputs Relays • between the channels No • between the channels, in groups of 2 EMC Interference immunity against discharge of static electricity • Interference immunity against discharge of static electricity Yes • Interference immunity against discharge 8 kV - Test voltage at air discharge 8 kV - Test voltage at air discharge 8 kV - Test voltage at contact discharge 8 kV - Test voltage at contact discharge 8 kV - Test voltage at air discharge 8 kV - Test voltage at contact discharge 8 kV - Test voltage at air discharge to the C 61000- 4.4 Yes • Interference immunity on supply lines acc. to IEC 61000- 4.5 Yes Interference immunity on supply lines acc. to IEC 61000- 4.5 Yes • Interference immunity against high-frequency radiation acc. to IEC 61000-4.6 Yes Emission of radio interference acc. to EN 55 011 Yes; Group 1 • Limit dass A, for use in industrial areas Yes; Group 1 • Limit dass A, for use in industrial areas Yes; When appropriate measures are used to ensure compliance with	 Potential separation digital inputs 	500V AC for 1 minute
• Potential separation digital outputs Relays • between the channels No • between the channels, in groups of 2 EMC Interference immunity against discharge of static electricity • Interference immunity against discharge of static electricity Yes • Interference immunity against discharge 8 kV Test voltage at i discharge 8 kV Test voltage at i discharge 6 kV Interference immunity to cable-borne interference Yes • Interference immunity on supply lines acc. to IEC 61000- 4.4 Yes • Interference immunity against voltage surge Yes • Interference immunity against voltage surge Yes • Interference immunity against high-frequency radiation acc. to IEC 61000- 4-5 Yes • Interference immunity against voltage surge Yes • Interference immunity against high-frequency radiation acc. to IEC 61000- 4-5 Yes • Interference immunity against ingh-frequency radiation acc. to IEC 61000-4-6 Yes • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Yes • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Yes • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Yes • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Yes; Group 1 <td> between the channels, in groups of </td> <td>1</td>	 between the channels, in groups of 	1
• between the channels No • between the channels, in groups of 2 EMC Interference immunity against discharge of static electricity • Interference immunity against discharge 8 kV - Test voltage at cin discharge 8 kV - Test voltage at cin discharge 8 kV - Test voltage at cin discharge 8 kV - Test voltage at cintact discharge 8 kV - Interference immunity on supply lines acc. to IEC 61000- 4.4 Yes • Interference immunity against voltage surge Yes • Interference immunity against voltage surge Yes • Interference immunity against high-frequency radiation acc. to IEC 61000-4.5 Yes Interference immunity against high-frequency radiation acc. to IEC 61000-4.6 Yes • Limit class A, for use in industrial areas • Limit class B, for use in industrial areas • Limit class B, for use in industrial areas • Limit class B for use in industrial areas • Limit class B for use in industrial areas • Limit class S for protection IP20 Standards, approvals, cortificates Yes OE mark Yes	Potential separation digital outputs	
• between the channels, in groups of 2 ENC Interference immunity against discharge of static electricity • Interference immunity against discharge of static electricity ac. to IEC 61000-4.2 Yes — Test voltage at air discharge 8 kV — Test voltage at contact discharge 6 kV Interference immunity to cable-borne interference 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 against todutage surge Yes • Interference immunity on supply lines acc. to IEC 61000-4.5 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 Interference immunity against high-frequency radiation acc. to IEC 61000-4.5 Yes • Interference immunity against high-frequency radiation acc. to IEC 61000-4.5 Yes Interference immunity against high-frequency radiation acc. to IEC 61000-4.5 Yes Emission of radio interference acc. to EN 55 011 Yes • Limit class A, for use in industrial areas Yes; Group 1 Yes class B according to EN 55011 Yes	 Potential separation digital outputs 	Relays
EMC Interference immunity against discharge of static electricity • Interference immunity against discharge of static electricity • Interference immunity against discharge • Test voltage at air discharge • Test voltage at contact discharge • Interference immunity to cable-borne interference • Interference immunity to supply lines acc. to IEC 61000-44 • Interference immunity on signal cables acc. to IEC 61000-44 • Interference immunity against voltage surge • 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 61000-4-5 • Limit class A, for use in industrial areas • Limit class B, for use in industrial areas • Limit class B, for use in residential areas Yes; Group 1 • Limit class G protection IP20 Standards, approvals, certificates CE mark Yes UL approval Yes FM approval Yes	 between the channels 	No
Interference immunity against discharge of static electricity Yes Interference immunity against discharge of static electricity Test voltage at air discharge KV Test voltage at contact discharge 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 Yes Interference immunity against voltage surge Interference immunity against not supply lines acc. to IEC 61000- 4.5 Yes Interference immunity against top supply lines acc. to IEC 61000- 4.5 Yes Interference immunity against conducted variable disturbance induced by high-frequency fields 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, approval, cortificates CE mark Yes	 between the channels, in groups of 	2
• Interference immunity against discharge of static Yes Test voltage at air discharge 8 kV Test voltage at contact discharge 6 kV Interference immunity to cable-borne interference Yes • Interference immunity on signal cables acc. to IEC 61000- 4.4 Yes • Interference immunity against voltage surge Yes • Interference immunity on supply lines acc. to IEC 61000- 4.5 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 ingh-frequency radiation acc. to IEC 61000-4-6 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, cortificates Yes CE mark <td>EMC</td> <td></td>	EMC	
electricity acc. to IEC 61000-42 8 kV — Test voltage at air discharge 8 kV — Test voltage at contact discharge 8 kV Interference immunity to cable-borne interference 6 kV • Interference immunity on supply lines acc. to IEC 61000- 4.4 Yes • Interference immunity on signal cables acc. to IEC 61000- 4.4 Yes • Interference immunity against voltage surge Yes • Interference immunity against voltage surge Yes • Interference immunity against conducted variable disturbance Interference by high-frequency fields Yes • Interference immunity against notucted variable disturbance interference immunity against areas Yes; Group 1 • Linefference immunity against indentificates Yes; Group 1 • Linefference inmunity against indentificates Yes; When appropriate measures are used to ensure compliance with the limits for 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 IP20 Standards, approvals, certificates Yes CE mark Yes UL approval Yes CULus Yes	Interference immunity against discharge of static electricity	
Test voltage at contact discharge 6 kV Interference immunity to cable-borne interference - Interference immunity on supply lines acc. to IEC 61000- 4-4 Yes Interference immunity on signal cables acc. to IEC 61000- 4-4 Yes Interference immunity against voltage surge Yes Interference immunity on supply lines acc. to IEC 61000- 4-5 Yes Interference immunity against voltage surge Yes Interference immunity against conducted variable disturbance inducted by high-frequency fields Yes Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Yes Emission of radio interference acc. to EN 55 011 Yes; Group 1 I.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 GULus Yes	electricity acc. to IEC 61000-4-2	Yes
Interference immunity to cable-borne interference • Interference immunity to 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- 4-5 • 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 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 UL approval Yes ULus Yes FM approval Yes		
• Interference immunity on supply lines acc. to IEC 61000- 4-4 Yes • Interference immunity on signal cables acc. to IEC 61000- 4-4 Yes Interference immunity against voltage surge Yes • Interference immunity on supply lines acc. to IEC 61000- 4-5 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 high-frequency radiation acc. to IEC 61000-4-5 Yes • Interference immunity against high-frequency radiation acc. to IEC 61000-4-5 Yes • 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; 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 GULus Yes FM approval Yes		6 kV
4-4Interference immunity on signal cables acc. to IEC 61000- 4-4YesInterference immunity against voltage surgeInterference immunity on supply lines acc. to IEC 61000- 4-5YesInterference immunity against conducted variable disturbance induced by high-frequency fieldsYesInterference immunity against conducted variable disturbance induced by high-frequency fieldsYesInterference immunity against conducted variable disturbance induced by high-frequency fieldsYesInterference immunity against conducted variable disturbance induced by high-frequency fieldsYesInterference immunity against conducted variable disturbance induced by high-frequency fieldsYesInterference immunity against conducted variable disturbance induced by high-frequency fieldsYesInterference immunity against conducted variable disturbance induced by high-frequency fieldsYesInterference immunity against conducted variable disturbance induced by high-frequency fieldsYesInterference immunity against conducted variable disturbance induced by high-frequency fieldsYesEmission of radio interference acc. to EN 55 011YesDegree and class of protectionYes; Group 1IP degree of protectionIP20Standards, approvals, certificatesYesCE markYesUL approvalYescULusYesFM approvalYes		
4.4 Interference immunity against voltage surge • Interference immunity on supply lines acc. to IEC 61000- 4-5 Yes 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 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 Yes Yes	4-4	Yes
Interference immunity on supply lines acc. to IEC 61000- 4-5 Yes 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 61000-4-6 Yes Emission of radio interference acc. to EN 55 011 Yes; Group 1 Initial 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 cULus Yes FM approval Yes	4-4	Yes
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 Yes 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 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 cULus Yes FM approval Yes		
• Interference immunity against high-frequency radiation acc. to IEC 61000-4-6YesEmission of radio interference acc. to EN 55 011•• Limit class A, for use in industrial areas • Limit class B, for use in residential areasYes; Group 1 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011Degree and class of protectionIP20IP degree of protectionIP20Standards, approvals, certificatesYesCE markYesUL approvalYescULusYesFM approvalYesFM approvalYes	, ,,,,	Yes
acc. to IEC 61000-4-6Emission of radio interference acc. to EN 55 011• Limit class A, for use in industrial areasYes; Group 1 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011Degree and class of protectionIP20Standards, approvals, certificatesYesCE markYesUL approvalYesCULusYesFM approvalYesFM approvalYes	Interference immunity against conducted variable disturbance indu	ced by high-frequency fields
• Limit class A, for use in industrial areasYes; Group 1 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011Degree and class of protectionIP20IP degree of protectionIP20Standards, approvals, certificatesYesCE markYesUL approvalYescULusYesFM approvalYesFM approvalYes		Yes
• Limit class B, for use in residential areasYes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011Degree and class of protectionIP20IP degree of protectionIP20Standards, approvals, certificatesYesCE markYesUL approvalYescULusYesFM approvalYesFM approvalYes	Emission of radio interference acc. to EN 55 011	
IP degree and class of protection IP20 Standards, approvals, certificates Yes CE mark Yes UL approval Yes cULus Yes FM approval Yes	 Limit class A, for use in industrial areas 	Yes; Group 1
IP degree of protection IP20 Standards, approvals, certificates Yes CE mark Yes UL approval Yes cULus Yes FM approval Yes	Limit class B, for use in residential areas	
Standards, approvals, certificates CE mark Yes UL approval Yes cULus Yes FM approval Yes	Degree and class of protection	
CE markYesUL approvalYescULusYesFM approvalYes	IP degree of protection	IP20
UL approval Yes cULus Yes FM approval Yes	Standards, approvals, certificates	
cULus Yes FM approval Yes	CE mark	Yes
FM approval Yes	UL approval	Yes
	cULus	Yes
RCM (formerly C-TICK) 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
Ambient temperature during operation	
• min.	-20 °C
• max.	60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical
 horizontal installation, min. 	-20 °C
 horizontal installation, max. 	0° 00
 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 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
 Operation, tested according to IEC 60068-2-6 	Yes
Shock testing	
tested according to IEC 60068-2-27	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms
Pollutant concentrations	
 SO2 at RH < 60% without condensation 	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
configuration / header	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes
Know-how protection	N
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	130 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	585 g
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