SIEMENS

Data sheet

6ES7212-1HE40-0XB0



SIMATIC S7-1200, CPU 1212C, COMPACT CPU, DC/DC/RLY, ONBOARD I/O: 8 DI 24V DC; 6 DO RELAY 2A; 2 AI 0 - 10V DC, POWER SUPPLY: DC 20.4 - 28.8 V DC, PROGRAM/DATA MEMORY: 75 KB

General information	
Engineering with	
Programming package	STEP 7 V13 SP1 or higher
Diaplay	
Display with display	No
with display	INO
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
Load voltage L+	
Rated value (DC)	24 V
 permissible range, lower limit (DC) 	5 V
permissible range, upper limit (DC)	250 V
Input current	
Current consumption (rated value)	400 mA
Current consumption, max.	1 200 mA
Inrush current, max.	12 A; at 28.8 V
Encoder supply	
24 V encoder supply	
• 24 V	L+ minus 4 V DC min.
Output current	
Current output to backplane bus (DC 5 V), max.	1 000 mA; Max. 5 V DC for SM and CM

Power losses	
Power loss, typ.	9 W
Memory	
Type of memory	EEPROM
Work memory	
Integrated	75 kbyte
• expandable	No
Load memory	
Integrated	1 Mbyte
 Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card
Backup	
• present	Yes; maintenance-free
without battery	Yes
0011	
CPU processing times	0.005 up. / instruction
for bit operations, typ.	0.085 μs; / instruction
for word operations, typ.	1.7 μs; / instruction
for floating point arithmetic, typ.	2.5 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
ОВ	
Number, max.	Limited only by RAM for code
Data areas and their retentivity	
retentive data area in total (incl. times, counters, flags), max.	10 kbyte
Flag	
Number, max.	4 kbyte; Size of bit memory address area
Process image	
• Immuta - adhuat III	1 kbyte
Inputs, adjustable	1 KDyte
Inputs, adjustableOutputs, adjustable	1 kbyte
Outputs, adjustable Hardware configuration	1 kbyte
Outputs, adjustable	
Outputs, adjustable Hardware configuration	1 kbyte
Outputs, adjustable Hardware configuration Number of modules per system, max.	1 kbyte
Outputs, adjustable Hardware configuration Number of modules per system, max. Time of day	1 kbyte
Outputs, adjustable Hardware configuration Number of modules per system, max. Time of day Clock	1 kbyte 3 comm. modules, 1 signal board, 2 signal modules
Outputs, adjustable Hardware configuration Number of modules per system, max. Time of day Clock Hardware clock (real-time clock)	1 kbyte 3 comm. modules, 1 signal board, 2 signal modules Yes
Outputs, adjustable Hardware configuration Number of modules per system, max. Time of day Clock Hardware clock (real-time clock) Deviation per day, max.	1 kbyte 3 comm. modules, 1 signal board, 2 signal modules Yes 60 s/month at 25 °C

 of which, inputs usable for technological functions 	4; HSC (High Speed Counting)
integrated channels (DI)	8
m/p-reading	Yes
Number of simultaneously controllable inputs	
all mounting positions	
— up to 40 °C, max.	8
Input voltage	
Rated value (DC)	24 V
• for signal "0"	5 V DC at 1 mA
• for signal "1"	15 VDC at 2.5 mA
Input current	
● for signal "1", typ.	1 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— Parameterizable	0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four
— at "0" to "1", min.	0.2 ms
— at "0" to "1", max.	12.8 ms
for interrupt inputs	
— Parameterizable	Yes
for counter/technological functions	
— Parameterizable	Single phase: 3 @ 100 kHz & 1 @ 30 kHz, differential: 3 @ 80 kHz & 1 @ 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	6; Relays
integrated channels (DO)	6
short-circuit protection	No; to be provided externally
Switching capacity of the outputs	
with resistive load, max.	2 A
● on lamp load, max.	30 W with DC, 200 W with AC
Output delay with resistive load	
● "0" to "1", max.	10 ms; max.
• "1" to "0", max.	10 ms; max.
Switching frequency	
• of the pulse outputs, with resistive load, max.	1 Hz
Relay outputs	
Number of relay outputs, integrated	6
Number of relay outputs	6

• Number of exercises evalue may	mechanically 10 million, at rated load voltage 100,000
Number of operating cycles, max. Cable length	Thechanically 10 million, at fated load voltage 100,000
Cable length	500 m
• shielded, max.	
Unshielded, max.	150 m
Analog inputs	
Number of analog inputs	2
Integrated channels (AI)	2; 0 to 10 V
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 value creation	
Integration and conversion time/resolution per channel	
 Resolution with overrange (bit including sign), 	10 bit
max.	
Integration time, parameterizable	Yes
Conversion time (per channel)	625 µs
Farada	
Encoder Connectable encoders	
Connectable encoders	Vas
	Yes
Connectable encoders • 2-wire sensor 1st interface	
Connectable encoders • 2-wire sensor 1st interface Interface type	Yes PROFINET
Connectable encoders • 2-wire sensor 1st interface	
Connectable encoders • 2-wire sensor 1st interface Interface type Physics Isolated	PROFINET Ethernet Yes
Connectable encoders • 2-wire sensor 1st interface Interface type Physics Isolated Automatic detection of transmission speed	PROFINET Ethernet Yes Yes
Connectable encoders • 2-wire sensor 1st interface Interface type Physics Isolated Automatic detection of transmission speed Autonegotiation	PROFINET Ethernet Yes Yes Yes
Connectable encoders • 2-wire sensor 1st interface Interface type Physics Isolated Automatic detection of transmission speed Autonegotiation Autocrossing	PROFINET Ethernet Yes Yes
Connectable encoders • 2-wire sensor 1st interface Interface type Physics Isolated Automatic detection of transmission speed Autonegotiation	PROFINET Ethernet Yes Yes Yes Yes Yes
Connectable encoders • 2-wire sensor 1st interface Interface type Physics Isolated Automatic detection of transmission speed Autonegotiation Autocrossing	PROFINET Ethernet Yes Yes Yes
Connectable encoders • 2-wire sensor 1st interface Interface type Physics Isolated Automatic detection of transmission speed Autonegotiation Autocrossing Functionality	PROFINET Ethernet Yes Yes Yes Yes Yes
Connectable encoders • 2-wire sensor 1st interface Interface type Physics Isolated Automatic detection of transmission speed Autonegotiation Autocrossing Functionality • PROFINET IO Device	PROFINET Ethernet Yes Yes Yes Yes Yes Yes
Connectable encoders • 2-wire sensor 1st interface Interface type Physics Isolated Automatic detection of transmission speed Autonegotiation Autocrossing Functionality • PROFINET IO Device • PROFINET IO Controller	PROFINET Ethernet Yes Yes Yes Yes Yes Yes
Connectable encoders • 2-wire sensor 1st interface Interface type Physics Isolated Automatic detection of transmission speed Autonegotiation Autocrossing Functionality • PROFINET IO Device • PROFINET IO Controller PROFINET IO Controller	PROFINET Ethernet Yes Yes Yes Yes Yes Yes Yes
Connectable encoders • 2-wire sensor 1st interface Interface type Physics Isolated Automatic detection of transmission speed Autonegotiation Autocrossing Functionality • PROFINET IO Device • PROFINET IO Controller PROFINET IO Controller • Transmission rate, max.	PROFINET Ethernet Yes Yes Yes Yes Yes Yes Yes Too Mbit/s
Connectable encoders • 2-wire sensor 1st interface Interface type Physics Isolated Automatic detection of transmission speed Autonegotiation Autocrossing Functionality • PROFINET IO Device • PROFINET IO Controller PROFINET IO Controller • Transmission rate, max. • Number of connectable IO devices, max.	PROFINET Ethernet Yes Yes Yes Yes Yes Yes Yes Too Mbit/s
Connectable encoders • 2-wire sensor 1st interface Interface type Physics Isolated Automatic detection of transmission speed Autonegotiation Autocrossing Functionality • PROFINET IO Device • PROFINET IO Controller PROFINET IO Controller • Transmission rate, max. • Number of connectable IO devices, max. • Prioritized startup	PROFINET Ethernet Yes Yes Yes Yes Yes 100 Mbit/s 16
Connectable encoders • 2-wire sensor 1st interface Interface type Physics Isolated Automatic detection of transmission speed Autonegotiation Autocrossing Functionality • PROFINET IO Device • PROFINET IO Controller PROFINET IO Controller • Transmission rate, max. • Number of connectable IO devices, max. • Prioritized startup — Number of IO Devices, max.	PROFINET Ethernet Yes Yes Yes Yes Yes 100 Mbit/s 16
Connectable encoders • 2-wire sensor 1st interface Interface type Physics Isolated Automatic detection of transmission speed Autonegotiation Autocrossing Functionality • PROFINET IO Device • PROFINET IO Controller PROFINET IO Controller • Transmission rate, max. • Number of connectable IO devices, max. • Prioritized startup — Number of IO Devices, max. PROFINET IO Device	PROFINET Ethernet Yes Yes Yes Yes Yes 100 Mbit/s 16

— Number of IO controllers with shared device, max.

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Communication functions	
S7 communication	
• supported	Yes
• as server	Yes
• As client	Yes
Open IE communication	
• TCP/IP	Yes
• ISO-on-TCP (RFC1006)	Yes
• UDP	Yes
Web server	
• supported	Yes
 User-defined websites 	Yes
Number of connections	
• overall	16; dynamically
Test commissioning functions	
Test commissioning functions Status/control	
Status/control variable	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers,
Valiables	counters
Forcing	
• Forcing	Yes
Diagnostic buffer	
• present	Yes
Traces	
Number of configurable Traces	2; Up to 512 KB of data per trace are possible
Integrated Functions	
Number of counters	4
Counter frequency (counter) max.	100 kHz
Frequency meter	Yes
controlled positioning	Yes
PID controller	Yes
Number of alarm inputs	4
Galvanic isolation	
Galvanic isolation digital inputs	
Galvanic isolation digital inputs	500V AC for 1 minute
• between the channels, in groups of	1
Galvanic isolation digital outputs	
Galvanic isolation digital outputs	Relays
between the channels	No

• between the channels, in groups of

2

Interference immunity against discharge of static electricity • Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 — Test voltage at air discharge 6 kV Interference immunity to cable-borne interference • Interference immunity to supply lines acc. to IEC 61000-4-4 • Interference immunity on signal lines acc. to IEC 61000-4-4 • Interference immunity on signal lines acc. to IEC 61000-4-4 Surge immunity • on the supply lines acc. to IEC 61000-4-5 Interference immunity against lines acc. to IEC 61000-4-5 Immunity against conducted interference induced by 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 7 Yes; Group 1 • Limit class B, for use in residential areas 8 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Degree and class of protection Degree and class of protection to EN 60529 • IP20 • IP20 Yes Standards, approvals, certificates CE mark 7 Yes UL approval 7 Yes RCM (formerly C-TICK) 7 Yes RCM (formerly C-TICK) 7 Yes Marine approval 7 Yes Marine approval 7 Yes Marine approval 7 Yes	D : 11	
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 8 kV — Test voltage at air discharge 8 kV Interference immunity to cable-borne interference Interference immunity to cable-borne interference Interference immunity to able-borne interference Interference immunity on supply lines acc. to IEC 61000-4-4 Interference immunity on signal lines acc. to IEC 61000-4-4 Interference immunity on signal lines acc. to IEC 61000-4-5 Istrue immunity On the supply lines acc. to IEC 61000-4-5 Immunity against conducted interference 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 areas Limit class A, for use in industrial areas Limit class B, 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 Pogree and class of protection Degree of protection to EN 60529 Pyes Standards, approvals, certificates CE mark UL approval Yes CRM (formerly C-TICK) Yes Marine approval On max. On 3 m; five times, in dispatch package Ambient temperature in operation Min. On 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical. 8 or 6	•	FOO V DC between 24 V DC and 5 V DC
Interference immunity against discharge of static electricity • Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 — Test voltage at air discharge 8 kV — Test voltage at air discharge 6 kV Interference immunity to cable-borne interference • Interference immunity to cable-borne interference • Interference immunity to able-borne interference • Interference immunity to able-borne interference • Interference immunity to assignate incomplete immunity on signal lines acc. to IEC 61000-4-4 • Interference immunity on signal lines acc. to IEC 61000-4-5 Surge immunity • on the supply lines acc. to IEC 61000-4-5 Immunity against conducted interference induced by 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 industrial areas • Limit class B, for use in residential areas • Limit class B, for use in residential areas • Limit class B, for toe titon Degree and class of protection Degree of protection to EN 60529 • IP20 Yes Standards, approvals, certificates CE mark UL approval Pes Ves CULUs RCM (formerly C-TICK) Yes Marine approval • Marine approval • Ambient conditions Free fall • Drop height, max. (in packaging) • Min. • Drop height, max. (in packaging) • Min. • Min. • Min. • max.	between different circuits	500 V DC between 24 V DC and 5 V DC
Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 — Test voltage at air discharge — Test voltage at contact discharge (b kV) 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 61000-4-4 Surge immunity Interference immunity on signal lines acc. to IEC 61000-4-5 Immunity against conducted interference induced by high-frequency radiation acc. to IEC 61000-4-5 Immunity against conducted interference induced by high-frequency radiation acc. to IEC 61000-4-5 Immunity against conducted interference induced by high-frequency radiation acc. to IEC 61000-4-6 Immunity against conducted interference induced by high-frequency radiation acc. to IEC 61000-4-6 Immunity against conducted interference induced by high-frequency radiation acc. to IEC 61000-4-6 Immunity against high-frequency radiation acc. to IEC 61000-4-5 Immunity against conducted 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 r	EMC	
static electricity acc. to IEC 61000-4-2 — Test voltage at air discharge 8 kV — Test voltage at contact discharge 6 kV Interference immunity to cable-borne interference • Interference immunity on supply lines acc. to IEC 61000-4-4 • Interference immunity on signal lines acc. to IEC 61000-4-4 Surge immunity • on the supply lines acc. to IEC 61000-4-5 Yes Immunity against conducted interference induced by 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 Degree of protection to EN 60529 • IP20 Yes Standards, approvals, certificates CE mark UL approval OLULUS RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes RAmbient conditions Free fall • Drop height, max. (in packaging) O 3 m; five times, in dispatch package Ambient temperature in operation • Min. • 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	Interference immunity against discharge of static electric	city
- 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 lines acc. to IEC 61000-4-4 Surge immunity • on the supply lines acc. to IEC 61000-4-5 Immunity against conducted interference 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 • Limit class B, for use in residential areas • Limit class Of protection Degree and class of protection Degree and class of protection Egree and class of protection to EN 60529 • IP20 • IP20 Yes Standards, approvals, certificates CE mark Ves CUL approval Ves RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes RAmine approval • Marine approval • Marine approval • Drop height, max. (in packaging) O.3 m; five times, in dispatch package Ambient conditions Free fall • Drop height, max. (in packaging) O.3 m; five times, in dispatch package Ambient temperature in operation • Min. • max. 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6		Yes
Interference immunity to cable-borne interference Interference immunity on supply lines acc. to IEC 61000-44 Interference immunity on signal lines acc. to IEC 61000-44 Interference immunity on signal lines acc. to IEC 61000-4-4 Surge immunity Interference immunity on signal lines acc. to IEC 61000-4-5 Immunity against conducted interference induced by 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 Interference industrial areas Interference acc. to EN 55 011 Emission of radio interference acc. to EN 55 011 Interference industrial 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 Degree of protection to EN 60529 IP20 Yes Standards, approvals, certificates CE mark Yes UL approval Yes CEM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes Ambient conditions Free fall Drop height, max. (in packaging) Ambient conditions Free fall Drop height, max. (in packaging) Ambient temperature in operation Min. 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	 Test voltage at air discharge 	8 kV
Interference immunity on supply lines acc. to IEC 61000-4-4 Interference immunity on signal lines acc. to IEC 61000-4-5 IEC 61000-4-4 Surge immunity Interference immunity against conducted interference 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 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; Group 1 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Pegree and class of protection Degree of protection to EN 60529 IP20 Yes Standards, approvals, certificates CE mark Yes UL approval Yes CLUs FM approval Yes Marine approval Marine approval Marine approval Marine approval Pes Ambient conditions Free fall Drop height, max. (in packaging) Ambient temperature in operation Min. Min. 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	 Test voltage at contact discharge 	6 kV
IEC 61000-4-4 Interference immunity on signal lines acc. to IEC 61000-4-5 Surge immunity on the supply lines acc. to IEC 61000-4-5 Immunity against conducted interference induced by high-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 B, for use in residential 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 Degree of protection to EN 60529 • IP20 Yes Standards, approvals, certificates CE mark Ves UL approval Yes CULus FM approval • Wes Marine approval • Marine approva	Interference immunity to cable-borne interference	
IEC 61000-4-4 Surge immunity on the supply lines acc. to IEC 61000-4-5 Immunity against conducted interference induced by high-frequency fields olinterference immunity against high-frequency radiation acc. to IEC 61000-4-6 Emission of radio interference acc. to EN 55 011 olimit class A, for use in industrial areas limit class B, for use in residential areas elimit class B, 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 Degree of protection to EN 60529 IP20 Yes Standards, approvals, certificates CE mark Ves UL approval Yes CULus RCM (formerly C-TICK) Yes Marine approval Marine approval Marine approval Marine approval Marine approval On 3 m; five times, in dispatch package Ambient temperature in operation Min. Min. 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		Yes
on the supply lines acc. to IEC 61000-4-5 Immunity against conducted interference 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 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Pegree and class of protection Degree and class of protection Degree of protection to EN 60529 IP20 Yes Standards, approvals, certificates CE mark Yes UL approval Yes RCM (formerly C-TICK) Yes RRM approval Marine approval Marine approval Marine approval Marine approval On pheight, max. (in packaging) Ambient temperature in operation Min. 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		Yes
Immunity against conducted interference induced by 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 • Limit class B, for use in residential areas Pegree and class of protection Degree and class of protection Degree of protection to EN 60529 • IP20 Yes Standards, approvals, certificates CE mark UL approval Yes CULus Yes RCM (formerly C-TICK) FM approval • Marine approval • Marine approval • Marine approval • Drop height, max. (in packaging) Ambient temperature in operation • Min. • 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	Surge immunity	
● 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 Degree of protection to EN 60529 ● IP20 Yes Standards, approvals, certificates CE mark UL approval CULus RCM (formerly C-TICK) FM approval ● Marine approval ● Marine approval ● Marine approval Pree fall ● Drop height, max. (in packaging) Ambient temperature in operation ● Min. ● Min. ● Min. ● Max. 60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C vertical, 8 or 6	• on the supply lines acc. to IEC 61000-4-5	Yes
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 • Limit class B, 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 Degree of protection to EN 60529 • IP20 Yes Standards, approvals, certificates CE mark Ves UL approval Ves RCM (formerly C-TICK) Yes Marine approval • Marine approval • Marine approval • Marine approval Pree fall • Drop height, max. (in packaging) Ambient temperature in operation • Min. • Min. • max. 60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C vertical, 8 or 6	Immunity against conducted interference induced by hig	ph-frequency fields
Limit class A, for use in industrial 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 Degree of protection to EN 60529 IP20 Yes Standards, approvals, certificates CE mark Yes UL approval Yes RCM (formerly C-TICK) FM approval Amine approval Marine approval Marine approval Marine approval Drop height, max. (in packaging) Ambient temperature in operation Min. Ambient conditions Free fall Min. Ambient conditions Free fall Or or 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		Yes
Pegree and class of protection Degree and class of protection to EN 60529 IP20 Standards, approvals, certificates CE mark UL approval cULus RCM (formerly C-TICK) FM approval Marine approval Marine approval Pegree fall Drop height, max. (in packaging) Ambient temperature in operation Min. Min. Min. Pes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Yes Yes Yes Yes Yes Ves Ves RCM (formerly C-TICK) Yes Marine approval O.3 m; five times, in dispatch package Ambient temperature in operation Min. Poor C G0 °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	Emission of radio interference acc. to EN 55 011	
with the limits for Class B according to EN 55011 Degree and class of protection Degree of protection to EN 60529 • IP20 Yes Standards, approvals, certificates CE mark UL approval cULus RCM (formerly C-TICK) FM approval • Marine approval • Marine approval Pes Ambient conditions Free fall • Drop height, max. (in packaging) Ambient temperature in operation • Min. • 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	Limit class A, for use in industrial areas	Yes; Group 1
Degree of protection to EN 60529 IP20 Yes Standards, approvals, certificates CE mark Ves UL approval Ves CUlus RCM (formerly C-TICK) Yes Marine approval Marine approval Marine approval Pree fall Drop height, max. (in packaging) Ambient temperature in operation Min. Min.	• Limit class B, for use in residential areas	
Degree of protection to EN 60529 IP20 Yes Standards, approvals, certificates CE mark Ves UL approval Ves CUlus RCM (formerly C-TICK) Yes Marine approval Marine approval Marine approval Pree fall Drop height, max. (in packaging) Ambient temperature in operation Min. Min.	Degree and class of protection	
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UL approval CULus Yes RCM (formerly C-TICK) Yes FM approval Yes Marine approval Marine approval Marine approval Yes Ambient conditions Free fall Drop height, max. (in packaging) Ambient temperature in operation Min. Min. Min. Co °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	Standards, approvals, certificates	
CULus RCM (formerly C-TICK) Yes FM approval Marine approval Marine approval Marine approval Marine approval Pes Ambient conditions Free fall Drop height, max. (in packaging) Ambient temperature in operation Min. Mi	CE mark	Yes
RCM (formerly C-TICK) FM approval Marine approval Marine approval Marine approval Marine approval Yes Ambient conditions Free fall Drop height, max. (in packaging) Ambient temperature in operation Min. Mi	UL approval	Yes
FM approval Marine approval Marine approval Marine approval Yes Ambient conditions Free fall Drop height, max. (in packaging) Ambient temperature in operation Min. Min. -20 °C 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	cULus	Yes
Marine approval Marine approval Marine approval Marine approval Yes Ambient conditions Free fall Drop height, max. (in packaging) Ambient temperature in operation Min. 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	RCM (formerly C-TICK)	Yes
 Marine approval Ambient conditions Free fall ● Drop height, max. (in packaging) 0.3 m; five times, in dispatch package Ambient temperature in 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 	FM approval	Yes
Ambient conditions Free fall • Drop height, max. (in packaging) • Min. • Min. • Min. • Max. • Max. • Min. • Oo °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	Marine approval	
Free fall • Drop height, max. (in packaging) O.3 m; five times, in dispatch package Ambient temperature in 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	Marine approval	Yes
 Drop height, max. (in packaging) Ambient temperature in 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 	Ambient conditions	
Ambient temperature in 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	Free fall	
 Min. -20 °C 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 	Drop height, max. (in packaging)	0.3 m; five times, in dispatch package
• 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	Ambient temperature in operation	
3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6	• Min.	-20 °C
	• max.	3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6

 horizontal installation, min. 	-20 °C
horizontal installation, max.	60 °C
vertical installation, min.	-20 °C
vertical installation, max.	50 °C
Storage/transport temperature	
• Min.	-40 °C
• max.	70 °C
Air pressure acc. to IEC 60068-2-13	
• Storage/transport, min.	660 hPa
Storage/transport, max.	1 080 hPa
 Permissible operating height 	-1000 to 2000 m
Relative humidity	
Operation, max.	95 %; no condensation
 Permissible range (without condensation) at 25 	95 %
°C	
Vibrations	
Vibrations	2G wall mounting, 1G DIN rail
 Operation, checked according to IEC 60068-2- 	Yes
6	
Shock test	
 checked 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	
Pollutant concentrations — SO2 at RH < 60% without condensation	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
— SO2 at RH < 60% without condensation	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
— SO2 at RH < 60% without condensation programming	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free Yes
— SO2 at RH < 60% without condensation programming Programming language	
— SO2 at RH < 60% without condensation programming Programming language — LAD	Yes
— SO2 at RH < 60% without condensation programming Programming language — LAD — FBD	Yes Yes
— SO2 at RH < 60% without condensation programming Programming language — LAD — FBD — SCL	Yes Yes
— SO2 at RH < 60% without condensation programming Programming language — LAD — FBD — SCL Cycle time monitoring	Yes Yes Yes
— SO2 at RH < 60% without condensation programming Programming language — LAD — FBD — SCL Cycle time monitoring • can be set Dimensions Width	Yes Yes Yes Yes Yes
— SO2 at RH < 60% without condensation programming Programming language — LAD — FBD — SCL Cycle time monitoring • can be set Dimensions Width Height	Yes Yes Yes Yes 90 mm 100 mm
— SO2 at RH < 60% without condensation programming Programming language — LAD — FBD — SCL Cycle time monitoring • can be set Dimensions Width	Yes Yes Yes Yes Yes
— SO2 at RH < 60% without condensation programming Programming language — LAD — FBD — SCL Cycle time monitoring • can be set Dimensions Width Height	Yes Yes Yes Yes 90 mm 100 mm
— SO2 at RH < 60% without condensation programming Programming language — LAD — FBD — SCL Cycle time monitoring • can be set Dimensions Width Height Depth	Yes Yes Yes Yes 90 mm 100 mm