# **SIEMENS**

## Data sheet

# 6ES7212-1HE40-0XB0

SIMATIC S7-1200, CPU 1212C, compact CPU, DC/DC/relay, onboard I/O: 8 DI 24 V DC; 6 DO relay 2 A; 2 AI 0-10 V DC, Power supply: DC 20.4-28.8V DC, Program/data memory 75 KB



General information	
Product type designation	CPU 1212C DC/DC/relay
Firmware version	V4.4
Engineering with	
<ul> <li>Programming package</li> </ul>	STEP 7 V16 or higher
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Load voltage L+	
<ul> <li>Rated value (DC)</li> </ul>	24 V
<ul> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
• permissible range, upper limit (DC)	28.8 V
Input current	
Current consumption (rated value)	400 mA; CPU only
Current consumption, max.	1 200 mA; CPU with all expansion modules

Inrush current, max.	12 A; at 28.8 V
l²t	0.8 A <sup>2</sup> ·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	L+ minus 4 V DC min.
• 24 V	
Power loss	
Power loss, typ.	9 W
Memory	
Work memory	
• integrated	75 kbyte
• expandable	No
Load memory	
• integrated	2 Mbyte
<ul> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul>	with SIMATIC memory card
Backup	
• present	Yes
maintenance-free	Yes
<ul> <li>without battery</li> </ul>	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),	10 kbyte
max.	
Flag	
• Number, max.	4 kbyte; Size of bit memory address area
Local data	40 libite Drigitu dege 4 (granner and 1) 40 (D. grigitu d. 1)
<ul> <li>per priority class, max.</li> </ul>	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
Address area	
Process image	

<ul> <li>Inputs, adjustable</li> </ul>	1 kbyte
• Outputs, adjustable	1 kbyte
Hardware configuration	
Number of modules per system, max.	3 comm. modules, 1 signal board, 2 signal modules
Time of day	
Clock	
<ul> <li>Hardware clock (real-time)</li> </ul>	Yes
Backup time	480 h; Typical
<ul> <li>Deviation per day, max.</li> </ul>	±60 s/month at 25 °C
Digital inputs	
Number of digital inputs	8; Integrated
<ul> <li>of which inputs usable for technological functions</li> </ul>	6; HSC (High Speed Counting)
Source/sink input	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 V DC at 2.5 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 technological functions	
— parameterizable	Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz
Cable length	
<ul> <li>shielded, max.</li> </ul>	500 m; 50 m for technological functions
• unshielded, max.	300 m; for technological functions: No
Digital outputs	
Number of digital outputs	6; Relays
Switching capacity of the outputs	
<ul> <li>with resistive load, max.</li> </ul>	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	
<ul> <li>Number of relay outputs</li> </ul>	6
<ul> <li>Number of operating cycles, max.</li> </ul>	mechanically 10 million, at rated load voltage 100 000
Cable length	
● shielded, max.	500 m
• unshielded, max.	150 m
Analog inputs Number of analog inputs	2
	2
Input ranges	Vee
• Voltage	Yes
Input ranges (rated values), voltages	N.
• 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	0
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
<ul> <li>Resolution with overrange (bit including sign),</li> </ul>	10 bit
max.	
<ul> <li>Integration time, parameterizable</li> </ul>	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	
PROFINET IO Controller	Yes

PROFINET IO Device	Yes
<ul> <li>SIMATIC communication</li> </ul>	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
Media redundancy	No
PROFINET IO Controller	
<ul> <li>Transmission rate, max.</li> </ul>	100 Mbit/s
Services	
— PG/OP communication	Yes
— S7 routing	Yes
— Isochronous mode	No
— IRT	No
— MRP	No
— MRPD	No
— PROFlenergy	No
— Prioritized startup	Yes
<ul> <li>— Number of IO devices with prioritized</li> </ul>	16
startup, max.	
<ul> <li>Number of connectable IO Devices, max.</li> </ul>	16
- Number of connectable IO Devices for RT,	16
max.	
— of which in line, max.	16
<ul> <li>Activation/deactivation of IO Devices</li> </ul>	Yes
<ul> <li>— Number of IO Devices that can be simultaneously activated/deactivated, max.</li> </ul>	8
— Updating time	The minimum value of the update time also depends on the communication component set for PROFINET IO, on the number

## PROFINET IO Device

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

of IO devices and the quantity of configured user data.

PROFIBUS	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required
AS-Interface	Yes; CM 1243-2 required
Protocols (Ethernet)	
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Open IE communication	
• TCP/IP	Yes
— Data length, max.	8 kbyte
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	8 kbyte
• UDP	Yes
— Data length, max.	1 472 byte
Web server	
supported	Yes
User-defined websites	Yes
OPC UA	
Runtime license required	Yes; "Basic" license required
OPC UA Server	Yes; Data access (read, write, subscribe), runtime license
	required
<ul> <li>Application authentication</li> </ul>	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
— Number of sessions, max.	5
— Number of accessible variables, max.	1 000
<ul> <li>— Number of subscriptions per session, max.</li> </ul>	5
— Sampling interval, min.	100 ms
— Publishing interval, min.	200 ms
— Number of monitored items, max.	500
— Number of server interfaces, max.	2
<ul> <li>— Number of nodes for user-defined server interfaces, max.</li> </ul>	1 000
Further protocols	
• MODBUS	Yes
Communication functions	
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes
• User data per job, max.	See online help (S7 communication, user data size)

#### Number of connections

overall

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

Test commissioning functions	
Status/control	
Status/control variable	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers,
	counters
Forcing	
Forcing	Yes
Diagnostic buffer	
• present	Yes
Traces	
<ul> <li>Number of configurable Traces</li> </ul>	2
<ul> <li>Memory size per trace, max.</li> </ul>	512 kbyte
Interrupts/diagnostics/status information	
Diagnostics indication LED	
• RUN/STOP LED	Yes
• ERROR LED	Yes
• MAINT LED	Yes
Integrated Functions	
Number of counters	6
Counting frequency (counter) max.	100 kHz
Frequency measurement	Yes
controlled positioning	Yes
Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction	Up to 4 with SB 1222
	Ver
PID controller	Yes 4
Number of alarm inputs	4
Potential separation	
Potential separation digital inputs	
<ul> <li>Potential separation digital inputs</li> </ul>	500V AC for 1 minute
• between the channels, in groups of	1
Potential separation digital outputs	
<ul> <li>Potential separation digital outputs</li> </ul>	Relays
<ul> <li>between the channels</li> </ul>	No
	2

Interference immunity against discharge of static electricity         • Interference immunity against discharge of static electricity acc, to IFC 61000-4-2         Test voltage at air discharge       8 kV         Test voltage at air discharge       8 kV         Test voltage at contact discharge       6 kV         Interference immunity on supply lines acc. to       Yes         IEC 61000-44       • Interference immunity on supply lines acc. to       Yes         IEC 61000-44       • Interference immunity on supply lines acc. to       Yes         IEC 61000-45       Yes       • Interference immunity on supply lines acc. to       Yes         IEC 61000-46       Yes       • Interference immunity against voltage surge       • Interference immunity against tool/ucted variable disturbance induced by high-frequency fields       • Interference immunity against tool/ucted variable disturbance induced by high-frequency fields         • Interference immunity against voltage area       Yes       • Cle Case A, for use in industrial areas         • Limit cleas B, for use in industrial areas       Yes; Group 1       • Clease B, according to EN 55011         • Limit cleas B, for use in residential areas       Yes       • Clease B, according to EN 55011         Degree and class of protection       IP20       • Standards, approval, certificates         CE mark       Yes       • Case B, according to EN 50011	EMC	
static electricity acc. to IEC 6 1000-4-2       8 KV         - Test voltage at air discharge       8 KV         - Test voltage at contact discharge       6 KV         Interference immunity to asupply lines acc. to IEC 6 1000-4-4       Yes         • Interference immunity against voltage surge       Yes         • Interference immunity against voltage surge       Yes         • Interference immunity against conducted variable disturbance induced by high-frequency fields       Yes         • Interference immunity against conducted variable disturbance induced by high-frequency fields       Yes         • Interference immunity against conducted variable disturbance induced by high-frequency fields       Yes         • Interference immunity against industrial areas       Yes: Group 1         • 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: Group 1         • Limit class B, for use in residential areas       Yes: Group 1         • Limit class B, for use in residential areas       Yes: Group 1         • Limit class B, for use in residential areas       Yes         • Degree and class of protection       IP20         Standards, approval       Yes         CE mark       Yes         CLimit condit		city
- Test voltage at contact discharge     6 kV       Interference immunity to cable-borne interference     Yes       Interference immunity on supply lines acc. to IEC 61000-4.4     Yes       Interference immunity against voltage surge     Yes       Interference immunity against voltage surge     Yes       Interference immunity against conducted variable disturbance induced by high-frequency fields     Yes       Interference immunity against conducted variable disturbance induced by high-frequency fields     Yes       Interference immunity against conducted variable disturbance induced by high-frequency fields     Yes       Interference immunity against high-frequency     Yes       Emission of radio interference acc. to EN 55 011     Emission of radio interference acc. to EN 55 011       I.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       Quartificates     Yes       RCM (formerly C-TICK)     Yes       RCA proval     Yes       Arbient conditions     Yes <td< td=""><td></td><td>Yes</td></td<>		Yes
Interference immunity to callebore interference  Interference immunity on supply lines acc. to IEC 6100-4-4 Interference immunity against voltage surge Interference immunity against high-frequency radiation acc. to IEC 61000-4-5 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Imission of radio interference acc. to EN 55 011 ILINIT class A, for use in industrial areas Yes; Group 1 Yes; Group 1 IP degree and class of protection IP degree of protection Yes CE mark Yes CLlus Yes CE mark Yes CLlus Yes CAmbient conditions Free fall 0 Samproval Yes Ambient temperature during operation Sino adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal or 55 °C vertical Nortical installation, min. 20 °C	— Test voltage at air discharge	8 kV
Interference immunity on supply lines acc. to IEC 61000-4.4     Interference immunity on signal cables acc. to IEC 61000-4.4     Interference immunity against voltage surge     Interference immunity against high-frequency     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     Itimit class A, for use in industrial areas     Yes; Group 1     Limit class A, for use in industrial areas     Yes; When appropriate measures are used to ensure compliance     with the limits for Class B according to EN 55011     Pegree and class of protection     IP degree of protection	— Test voltage at contact discharge	6 kV
IEC 61000-4-4       Interference immunity on signal cables acc. to IEC 61000-4-4       Yes         Interference immunity against voltage surge       Interference immunity against voltage surge         Interference immunity against conducted variable disturbance induced by high-frequency fields       Yes         Interference immunity against industrial areas       Yes         Emission of radio interference acc. to EN 55 011       Yes: Group 1         Limit class A, for use in industrial areas       Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011         Degree and class of protection       IP20         Standards, approvals, certificates       Yes         CE mark       Yes         UL approval       Yes         FM approval       Yes         RCM (formerity C-TICK)       Yes         RCM (formerity C-TICK)       Yes         Ambient conditions       -20 °C         Free fall       -20 °C         of `C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C vertical         • horizontal installation, min.       -20 °C         • horizontal installation, min.       -20 °C	Interference immunity to cable-borne interference	
IEC 61000-4-4       Interference immunity against conducted variable disturbance induced by high-frequency fields         Interference immunity against conducted variable disturbance induced by high-frequency fields       Yes         Interference immunity against conducted variable disturbance induced by high-frequency fields       Yes         Interference immunity against conducted variable disturbance induced by high-frequency fields       Yes         Interference immunity against conducted variable disturbance induced by high-frequency fields       Yes         Interference immunity against conducted variable disturbance induced by high-frequency fields       Yes         Emission of radio interference acc. to EN 55 011       Yes; Group 1         Limit class A, for use in industrial areas       Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011         Degree and class of protection       IP20         Standards, approvals, certificates       Yes         CE mark       Yes         UL approval       Yes         RCM (formerly C-TICK)       Yes         RCM (formerly C-TICK)       Yes         Anthent emperature during operation       Yes         Anthene therperature during operation       0.3 m; five times, in product package         Anthene therperature during operation       -20 °C         min.       -20 °C		Yes
<ul> <li>Interference immunity on supply lines acc. to IEC 61000-4-5</li> <li>Interference immunity against conducted variable disturbance induced by high-frequency fields</li> <li>Interference immunity against high-frequency radiation acc. to IEC 61000-4-6</li> <li>Emission of radio interference acc. to EN 55 011</li> <li>Limit class A, for use in industrial areas Limit class B, for use in residential areas</li> <li>Yes; Group 1</li> <li>Limit class B, for use in residential areas</li> <li>Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011</li> </ul> Degree and class of protection IP20 Standards, approvals, certificates CE mark <ul> <li>Yes</li> <li>UL approval</li> <li>CE mark</li> <li>Yes</li> <li>RCM (formerly C-TICK)</li> <li>Yes</li> <li>KC approval</li> <li>Yes</li> </ul> Ambient conditions Free fall <ul> <li>Fail height, max.</li> <li>0.3 m; five times, in product package</li> </ul> Ambient temperature during operation <ul> <li>-20 °C</li> <li>60 °C, Number of simultaneously activated inputs or outputs 4 or a for a 55 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal or 45 °C vertical <ul> <li>horizontal installation, min.</li> <li>-20 °C</li> </ul></li></ul>		Yes
IEC 61000-4-5         Interference immunity against conducted variable disturbance induced by high-frequency fields <ul> <li>Interference immunity against high-frequency radiation acc. to IEC 61000-4-6</li> </ul> Emission of radio interference acc. to EN 55 011 <ul> <li>Limit class A, for use in industrial areas</li> <li>Yes; Group 1</li> <li>Limit class B, for use in residential areas</li> <li>Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011</li> </ul> Degree and class of protection       IP20         Standards, approvals, certificates       CE mark         CE mark       Yes         UL approval       Yes         CLLus       Yes         RCM (formerly C-TICK)       Yes         KC approval       Yes         Marine approval       Yes         Ambient conditions       -20 °C         free fail       -20 °C         • max.       3 (no adjacent points) at 60 °C horizontal or 45 °C vertical         • horizontal installation, min.       -20 °C         • horizontal installation, max.       60 °C	Interference immunity against voltage surge	
• Interference immunity against high-frequency radiation acc. to IEC 61000-4-6         Yes           Emission of radio interference acc. to EN 55 011         • Limit class A, for use in industrial areas         Yes; Group 1           • Limit class B, for use in residential areas         Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011           Degree and class of protection         IP20           Standards, approvals, certificates         CE mark           CE mark         Yes           UL approval         Yes           CUus         Yes           FM approval         Yes           RCM (formerty C-TICK)         Yes           Marine approval         Yes           Ambient conditions         Free fall           • Fall height, max.         0.3 m; five times, in product package           Ambient temperature during operation         -20 °C           • 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		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       Yes; Group 1         • Limit class B, for use in residential areas       Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011         Degree and class of protection       IP20         Standards, approvals, certificates       Emission of Yes         CE mark       Yes         UL approval       Yes         cULus       Yes         FM approval       Yes         RCM (formerly C-TICK)       Yes         Marine approval       Yes         Ambient conditions       Yes         Free fall       • C3 m; five times, in product package         Ambient temperature during operation       -20 °C         • max.       60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C vertical, 8 or 6 at 55 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal or 45 °C vertical	Interference immunity against conducted variable distur	bance induced by high-frequency fields
• Limit class A, for use in industrial areas       Yes; Group 1         • Limit class B, for use in residential areas       Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011         Degree and class of protection       IP20         Standards, approvals, certificates       IP20         CE mark       Yes         UL approval       Yes         cUlus       Yes         FM approval       Yes         RCM (formerly C-TICK)       Yes         KC approval       Yes         Marine approval       Yes         Ambient conditions       Image: Standards and the st		Yes
• Limit class B, for use in residential areas       Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011         Degree and class of protection       IP20         Standards, approvals, certificates       E         CE mark       Yes         UL approval       Yes         cULus       Yes         FM approval       Yes         RCM (formerly C-TICK)       Yes         Marine approval       Yes         Ambient conditions       Yes         Free fall       0.3 m; five times, in product package         Ambient temperature during operation       60 °C; Number of simultaneously activated inputs or outputs 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	Emission of radio interference acc. to EN 55 011	
with the limits for Class B according to EN 55011         Degree and class of protection         IP degree of protection       IP20         Standards, approvals, certificates         CE mark       Yes         UL approval       Yes         cULus       Yes         FM approval       Yes         RCM (formerly C-TICK)       Yes         KC approval       Yes         Marine approval       Yes         Ambient conditions       Yes         Free fall       0.3 m; five times, in product package         Ambient temperature during operation       -20 °C         • 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	<ul> <li>Limit class A, for use in industrial areas</li> </ul>	Yes; Group 1
IP degree of protection       IP20         Standards, approvals, certificates <pre></pre>	<ul> <li>Limit class B, for use in residential areas</li> </ul>	
Standards, approvals, certificates         CE mark       Yes         UL approval       Yes         cULus       Yes         FM approval       Yes         RCM (formerly C-TICK)       Yes         RCM (formerly C-TICK)       Yes         Marine approval       Yes         Marine approval       Yes         Ambient conditions       Yes         Free fall       0.3 m; five times, in product package         Ambient temperature during operation       -20 °C         • 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	Degree and class of protection	
CE mark       Yes         UL approval       Yes         cULus       Yes         FM approval       Yes         RCM (formerly C-TICK)       Yes         KC approval       Yes         Marine approval       Yes         Ambient conditions       Yes         Free fall       0.3 m; five times, in product package         Ambient temperature during operation       -20 °C         • 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		
UL approval       Yes         cULus       Yes         FM approval       Yes         RCM (formerly C-TICK)       Yes         KC approval       Yes         Marine approval       Yes         Ambient conditions       Yes         Free fall       0.3 m; five times, in product package         Ambient temperature during operation       0.3 m; five times, in product package         e min.       -20 °C         e 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         e horizontal installation, min.       -20 °C         e horizontal installation, max.       60 °C		IP20
cULus       Yes         FM approval       Yes         RCM (formerly C-TICK)       Yes         KC approval       Yes         Marine approval       Yes         Ambient conditions       Yes         Free fall       0.3 m; five times, in product package         Ambient temperature during operation       -20 °C         • max.       60 °C; Number of simultaneously activated inputs or outputs 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	IP degree of protection	IP20
FM approval       Yes         RCM (formerly C-TICK)       Yes         KC approval       Yes         Marine approval       Yes         Ambient conditions       Yes         Ambient conditions       Yes         Ambient conditions       0.3 m; five times, in product package         Ambient temperature during operation       0.3 m; five times, in product package         • Fall height, max.       0.3 m; five times, in product package         Ambient temperature during operation       -20 °C         • 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	IP degree of protection Standards, approvals, certificates	
RCM (formerly C-TICK)       Yes         KC approval       Yes         Marine approval       Yes         Ambient conditions       Yes         Free fall       0.3 m; five times, in product package         Ambient temperature during operation       0.3 m; five times, in product package         • Fall height, max.       0.3 m; five times, in product package         Ambient temperature during operation       -20 °C         • max.       60 °C; Number of simultaneously activated inputs or outputs 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	IP degree of protection Standards, approvals, certificates CE mark	Yes
KC approval       Yes         Marine approval       Yes         Ambient conditions       Yes         Ambient conditions       0.3 m; five times, in product package         Ambient temperature during operation       0.3 m; five times, in product package         • min.       -20 °C         • max.       60 °C; Number of simultaneously activated inputs or outputs 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	IP degree of protection Standards, approvals, certificates CE mark UL approval	Yes Yes
Marine approval       Yes         Ambient conditions       Free fall         • Fall height, max.       0.3 m; five times, in product package         Ambient temperature during operation       -20 °C         • min.       -20 °C         • max.       60 °C; Number of simultaneously activated inputs or outputs 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	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval	Yes Yes Yes
Ambient conditions         Free fall       0.3 m; five times, in product package         • Fall height, max.       0.3 m; five times, in product package         Ambient temperature during operation       -20 °C         • min.       -20 °C         • max.       60 °C; Number of simultaneously activated inputs or outputs 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	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK)	Yes Yes Yes Yes
Free fall       0.3 m; five times, in product package         Ambient temperature during operation       -20 °C         • min.       -20 °C         • max.       60 °C; Number of simultaneously activated inputs or outputs 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	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval	Yes Yes Yes Yes Yes Yes
<ul> <li>Fall height, max.</li> <li>Mbient temperature during operation</li> <li>min.</li> <li>max.</li> <li>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</li> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> </ul>	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval	Yes Yes Yes Yes Yes Yes
Ambient temperature during operation       -20 °C         • min.       -20 °C         • max.       60 °C; Number of simultaneously activated inputs or outputs 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	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval	Yes Yes Yes Yes Yes Yes
<ul> <li>min.</li> <li>max.</li> <li>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</li> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>60 °C</li> </ul>	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Ambient conditions	Yes Yes Yes Yes Yes Yes
<ul> <li>max.</li> <li>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</li> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>60 °C</li> </ul>	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	Yes Yes Yes Yes Yes Yes
<ul> <li>3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal or 45 °C vertical</li> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>60 °C</li> </ul>	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Marine approval Free fall • Fall height, max.	Yes Yes Yes Yes Yes Yes Yes O.3 m; five times, in product package
• horizontal installation, max. 60 °C	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Ambient conditions Free fall • Fall height, max. Ambient temperature during operation	Yes Yes Yes Yes Yes Yes Yes O.3 m; five times, in product package
	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Marine approval Free fall • Fall height, max. Ambient temperature during operation • min.	Yes Yes Yes Yes Yes Yes Yes Yes -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
• vertical installation, min20 °C	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Ambient conditions Free fall • Fall height, max. Ambient temperature during operation • min. • max.	Yes Yes Yes Yes Yes Yes Yes Yes 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 at 55 °C horizontal or 45 °C vertical
	IP degree of protection Standards, approvals, certificates CE mark UL approval cULus FM approval RCM (formerly C-TICK) KC approval Marine approval Ambient conditions Free fall • Fall height, max. Ambient temperature during operation • min. • max. • horizontal installation, min.	Yes Yes Yes Yes Yes Yes Yes Yes 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 at 55 °C horizontal or 45 °C vertical -20 °C

<ul> <li>vertical installation, max.</li> </ul>	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
<ul> <li>Storage/transport, min.</li> </ul>	660 hPa
Storage/transport, max.	1 080 hPa
Altitude during operation relating to sea level	
Installation altitude, min.	-1 000 m
<ul> <li>Installation altitude, max.</li> </ul>	2 000 m
Relative humidity	
• Operation, max.	95 %; no condensation
Vibrations	
<ul> <li>Vibration resistance during operation acc. to IEC 60068-2-6</li> </ul>	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
<ul> <li>Operation, tested according to IEC 60068-2-6</li> </ul>	Yes
Shock testing	
<ul> <li>tested according to IEC 60068-2-27</li> </ul>	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms
Pollutant concentrations	
<ul> <li>SO2 at RH &lt; 60% without condensation</li> </ul>	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
Configuration	
Programming	
Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes
Know-how protection	
<ul> <li>User program protection/password protection</li> </ul>	Yes
Copy protection	Yes
Block protection	Yes
Access protection	
<ul> <li>Protection level: Write protection</li> </ul>	Yes
<ul> <li>Protection level: Read/write protection</li> </ul>	Yes
<ul> <li>Protection level: Complete protection</li> </ul>	Yes
Cycle time monitoring	
• adjustable	Yes
Dimensions	
Width	90 mm

Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	385 g
last modified:	10/09/2020