## **SIEMENS**

## Data sheet

## 6ES7212-1BE40-0XB0

SIMATIC S7-1200, CPU 1212C, COMPACT CPU, AC/DC/RLY, ONBOARD I/O: 8 DI 24V DC; 6 DO RELAY 2A; 2 AI 0 - 10V DC, POWER SUPPLY: AC 85 - 264 V AC AT 47 - 63 HZ, PROGRAM/DATA MEMORY: 75 KB



General information	
Product type designation	CPU 1212C AC/DC/Relay
Firmware version	V4.2
Engineering with	
<ul> <li>Programming package</li> </ul>	STEP 7 V14 or higher
Supply voltage	
Rated value (AC)	
• 120 V AC	Yes
• 230 V AC	Yes
permissible range, lower limit (AC)	85 V
permissible range, upper limit (AC)	264 V
Line frequency	
<ul> <li>permissible range, lower limit</li> </ul>	47 Hz
• permissible range, upper limit	63 Hz
Input current	
Current consumption (rated value)	80 mA at 120 V AC; 40 mA at 240 V AC
Current consumption, max.	240 mA at 120 V AC; 120 mA at 240 V AC
Inrush current, max.	20 A; at 264 V

²t	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
Freedowersky	
Encoder supply 24 V encoder supply	
• 24 V	20.4 to 28.8V
- 27 V	20.110 20.01
Power loss	
Power loss, typ.	11 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
• without battery	Yes
CPU processing times	
for bit operations, typ.	
	0.08 μs; / instruction
for word operations, typ.	0.08 μs; / instruction 1.7 μs; / instruction
for word operations, typ. for floating point arithmetic, typ.	1.7 μs; / instruction
for word operations, typ.	1.7 μs; / instruction
for word operations, typ. for floating point arithmetic, typ. CPU-blocks	<ul> <li>1.7 μs; / instruction</li> <li>2.3 μs; / instruction</li> <li>DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no</li> </ul>
for word operations, typ. for floating point arithmetic, typ. CPU-blocks	<ul> <li>1.7 μs; / instruction</li> <li>2.3 μs; / instruction</li> <li>DBs, FCs, FBs, counters and timers. The maximum number of</li> </ul>
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for word operations, typ. for floating point arithmetic, typ. CPU-blocks Number of blocks (total) OB • Number, max. Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max.	<ul> <li>1.7 μs; / instruction</li> <li>2.3 μs; / instruction</li> <li>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</li> <li>Limited only by RAM for code</li> </ul>
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for word operations, typ. for floating point arithmetic, typ. CPU-blocks Number of blocks (total) OB • Number, max. Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag • Number, max.	<ul> <li>1.7 μs; / instruction</li> <li>2.3 μs; / instruction</li> <li>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</li> <li>Limited only by RAM for code</li> </ul>
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٠	Outputs,	adjustable
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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
• Deviation per day, max.	+/- 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>	4; HSC (High Speed Counting)
Source/sink input	Yes
Number of simultaneously controllable inputs	
all mounting positions	
— up to 40 °C, max.	8
Input voltage	
<ul> <li>Rated value (DC)</li> </ul>	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 counter/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	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.

Relay outputs         mechanically 10 million, at rated load voltage 100 000           Cable length         •           • shielded, max.         500 m           • unshielded, max.         150 m           Analog inputs         2           Number of analog inputs         2           • Voltage         Yes           • Voltage (sted values), voltages         •           • Voltage (sted values), voltages         •           • Input ranges (sted values), voltages         •           • Oto +10 V         Yes           • Input resistance (0 to 10 V)         2100k ohms           Cable length         •           • shielded, max.         100 m; twisted and shielded           Analog outputs         0           Analog outputs         0           Analog value generation for the inputs           • Resolution with overrange (bit including sign), max.         10 bit           • Integration time, parameterizable         Yes           • Conversion time (resolution per channel)         625 µs           Encoder         Encoder           Interface         Yes           • Linterface         Yes           Autorogotiation         Yes           Autorossing         Yes	• "1" to "0", max.	10 ms; max.
Cable length     • shielded, max.     500 m       • unshielded, max.     150 m       Analog inputs     2       Input ranges     2       • Voltage     Yes       • O to +10 V     Yes       • Input ranges (rated values), voltages     •       • 0 to +10 V     Yes       • Input ranges (rated values), voltages     •       • 0 to +10 V     Yes       • Input resistance (0 to 10 V)     ≥100k ohms       Cable length     •       • shielded, max.     100 m; twisted and shielded       Analog outputs     0       Analog outputs     0       Analog outputs     0       Analog cutputs     0       Number of analog outputs     0       • Resolution with overnage (bit including sign), max.     10 bit       • Integration time, parameterizable     Qes yas       • Conversion time (per channel)     625 µs       Encoder     Conversion time (per channel)       • Conversion time (per channel)     E25 µs       Encoders     •       • 2-wire sensor     Yes       1     1       • Interface type     PROFINET       Physics     Ethernet       Isolated     Yes       automatic detection of transmission rate     Yes	Relay outputs	
• shielded, max.     500 m       • unshielded, max.     150 m       Analog inputs     2       Number of analog inputs     2       Input ranges     Ves       • Voltage     Yes       Input ranges (rated values), voltages     •       • 0 to +10 V     Yes       • Input resistance (of to 10 V)     ≥ 100k ohms       Cable length     •       • shielded, max.     100 m; twisted and shielded       Analog outputs     0       Number of analog outputs     0       Analog value generation for the inputs       Integration and conversion time/resolution per channel       • Resolution with overrange (bit including sign), max.       • Integration time, parameterizable     Yes       • Conversion time (per channel)     625 µs       Encoder       Connectable encoders     • 2-wire sensor       • 2-wire sensor     Yes       1 Interface type     PROFINET       Physics     Ethernet       Isolated     Yes       Autonegotation     Yes       Autoregotation     Yes       Number of ports     1       • Number of ports     1       <	<ul> <li>Number of operating cycles, max.</li> </ul>	mechanically 10 million, at rated load voltage 100 000
• unshielded, max.     160 m       Analog inputs     2       Number of analog inputs     2       Input ranges     Yes       • Voltage     Yes       Input ranges (rated values), voltages     •       • 0 to +10 V     Yes       • Input resistance (0 to 10 V)     2100k ohms       Cable length     •       • shielded, max.     100 m; twisted and shielded       Analog outputs     0       Number of analog outputs     0       Analog value generation for the inputs       Integration and conversion time/resolution per channel       • Resolution with overrange (bit including sign), max.     10 bit       • Integration time, parameterizable     Yes       • Connectable encoders     Yes       • 2-wire sensor     Yes       1     11erface       Physics     Ethernet       Isolated     Yes       automatic detection of transmission rate     Yes       Autorossing     Yes       Autorossing     Yes       Number of ports     1       • Interface type     PROFINET       Physics     1       • Number of ports     1    <	Cable length	
Analog inputs       2         Number of analog inputs       2         Input ranges       Yes         • Voitage       Yes         Input ranges (rated values), voitages       2100k ohms         Cable length       2100k ohms         Cable length       2100k ohms         Analog outputs       0         Number of analog outputs       0         Analog outputs       0         Analog value generation for the inputs       100 m; twisted and shielded         Analog value generation for the inputs       0         Analog value generation for the inputs       0         Analog value generation for the inputs       10 bit         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       2         Onectable encoders       Yes         • 2-wire sensor       Yes         1 Interface       PROFINET         Physics       Ethernet         Isolated       Yes         Autoropotation       Yes         Autoropotation       Yes         Autoropotation       Yes         No	<ul> <li>shielded, max.</li> </ul>	500 m
Number of analog inputs       2         Input ranges       Voltage       Yes         Input ranges (rated values), voltages       •         0 to +10 V       Yes         • Input resistance (0 to 10 V)       ≥100k ohms         Cable length       •         • shielded, max.       100 m; twisted and shielded         Analog outputs       0         Number of analog outputs       0         Analog outputs       0         Analog value generation for the inputs       1         Integration and conversion time/resolution per channel       •         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       Connectable encoders         • 2-wire sensor       Yes         1. Interface       Interface         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         Autoregoliation       Yes         Autoregoliation       Yes         • Number of ports       1         • integrated switch       No         Functionality       Yes	• unshielded, max.	150 m
Number of analog inputs       2         Input ranges       Voltage       Yes         Input ranges (rated values), voltages       •         0 to +10 V       Yes         • Input resistance (0 to 10 V)       ≥100k ohms         Cable length       •         • shielded, max.       100 m; twisted and shielded         Analog outputs       0         Number of analog outputs       0         Analog outputs       0         Analog value generation for the inputs       1         Integration and conversion time/resolution per channel       •         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       Connectable encoders         • 2-wire sensor       Yes         1. Interface       Interface         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         Autoregoliation       Yes         Autoregoliation       Yes         • Number of ports       1         • integrated switch       No         Functionality       Yes	Anglenissute	
Input ranges         Yes           Not ranges (rated values), voltages         Yes           0 to +10 V         Yes           Input ranges (rated values), voltages         Yes           0 to +10 V         ≥100k ohms           Cable length         =           • shielded, max.         100 m; twisted and shielded           Analog outputs         0           Analog outputs         0           Analog value generation for the inputs         10 bit           Integration and conversion time/resolution per channel         •           • Resolution with overrange (bit including sign), max.         10 bit           • Integration time, parameterizable         Yes           • Conversion time (per channel)         625 µs           Encoder         Connectable encoders           • 2-wire sensor         Yes           1 Interface         Yes           utomatic detection of transmission rate         Yes           Autoregotiation         Yes           Autorecosing         Yes           Interface types         Yes           • Number of ports         1           • integrated switch         No           Functionality         Yes           • PROFINET IO Controller         Yes <td></td> <td>2</td>		2
• Voltage       Yes         Input ranges (rated values), voltages       •         • 0 to +10 V       Yes         • Input resistance (0 to 10 V)       ≥100k ohms         Cable length       •         • shielded, max.       100 m; twisted and shielded         Analog outputs       0         Number of analog outputs       0         Analog value generation for the inputs       •         Integration and conversion time/resolution per channet       •         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 μs         Encoder       Connectable encoders         • 2-wire sensor       Yes         1 Interface       PROFINET         Physics       Ethernet         Isolated       Yes         Autoregolation       Yes         Autoregolation       Yes         Autocrossing       Yes         • Number of ports       1         • integrate switch       No         • PROFINET IO Controller       Yes         • PROFINET IO Controller       Yes		2
Input rages (rated values), voltages       No         • 0 to +10 V       Yes         • Input resistance (0 to 10 V)       ≥100k ohms         Cable length       100 m; twisted and shielded         • shielded, max.       100 m; twisted and shielded         Analog outputs       0         Analog outputs       0         Analog value generation for the inputs       10 bit         • Resolution with overrange (bit including sign), max.       10 bit         • Integration and conversion time/resolution per channel       • Resolution with overrange (bit including sign), max.         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 μs         Encoder       Connectable encoders         • 2-wire sensor       Yes         Interface       PROFINET         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         Autoerossing       Yes         Autoerossing       Yes         • Number of ports       1         • integrated switch       No         • PROFINET IO Controller       Yes         • PROFINET IO Device       Yes		Yes
• 0 to +10 V       Yes         • Input resistance (0 to 10 V)       ≥100k ohms         Cable length		
Input resistance (0 to 10 V)         ≥100k ohms           Cable length		Yes
Cable length       I00 m; twisted and shielded         Analog outputs       0         Analog value generation for the inputs       0         Integration and conversion time/resolution per channel       0         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       Connectable encoders         • 2-wire sensor       Yes         Interface       PROFINET         Physics       Ethernet         Isolated       Yes         Autonegotiation       Yes         Autonegotiation       Yes         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         Autonegotiation       Yes         Interface types       Yes         • Number of ports       1         • integrated switch       No         Functionality       Yes         • PROFINET IO Controller       Yes		
• shielded, max.       100 m; twisted and shielded         Analog outputs       0         Analog value generation for the inputs       0         Integration and conversion time/resolution per channel       •         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 μs         Encoder       Connectable encoders         • 2-wire sensor       Yes         1. Interface       Interface type         PROFINET       Physics         Ethernet       Isolated         Isolated       Yes         Autonegotiation       Yes         Autonegotiation       Yes         Interface types       Yes         • Number of ports       1         • Number of ports       1         • integrated switch       No         • PROFINET IO Controller       Yes         • PROFINET IO Device       Yes		
Analog outputs       0         Number of analog outputs       0         Analog value generation for the inputs       Integration and conversion time/resolution per channel         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       Connectable encoders         • 2-wire sensor       Yes         1 Interface       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autocrossing       Yes         • Number of ports       1         • integrated switch       No         Functionality       PROFINET IO Controller         • PROFINET IO Dovice       Yes		100 m: twisted and shielded
Number of analog outputs     0       Analog value generation for the inputs       Integration and conversion time/resolution per channel       • Resolution with overrange (bit including sign), max.     10 bit       • Integration time, parameterizable     Yes       • Conversion time (per channel)     625 µs       Encoder     Connectable encoders       • 2-wire sensor     Yes       1 Interface     PROFINET       Physics     Ethernet       Isolated     Yes       automatic detection of transmission rate     Yes       Autocrossing     Yes       Interface types     •       • Number of ports     1       • integrated switch     No       Functionality     •       • PROFINET IO Controller     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         Encoder       Connectable encoders         • 2-wire sensor       Yes         Interface       Yes         Interface type       PROFINET         Physics       Ethermet         Isolated       Yes         automatic detection of transmission rate       Yes         Autorcossing       Yes         Interface types       Yes         Number of ports       1         • Number of ports       1         • integrated switch       No         Functionality       PROFINET IO Controller         • PROFINET IO Device       Yes		
Integration and conversion time/resolution per channel         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 μs         Encoder       Connectable encoders         • 2-wire sensor       Yes         1. Interface       Yes         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autorogotiation       Yes         Interface types       Yes         Physics       Ethernet         Isolated       Yes         Automogotiation       Yes         Autocrossing       Yes         Interface types       1         • Number of ports       1         • integrated switch       No         Functionality       Yes         • PROFINET IO Controller       Yes         • PROFINET IO Device       Yes	Number of analog outputs	0
Integration and conversion time/resolution per channel         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 μs         Encoder       Connectable encoders         • 2-wire sensor       Yes         1. Interface       Yes         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autorogotiation       Yes         Interface types       Yes         Physics       Ethernet         Isolated       Yes         Automogotiation       Yes         Autocrossing       Yes         Interface types       1         • Number of ports       1         • integrated switch       No         Functionality       Yes         • PROFINET IO Controller       Yes         • PROFINET IO Device       Yes	Analog value generation for the inputs	
max.Yes• Integration time, parameterizableYes• Conversion time (per channel)625 μsEncoderConnectable encoders• 2-wire sensorYes1.InterfaceInterface typePROFINETPhysicsEthernetIsolatedYesautomatic detection of transmission rateYesAutoregotiationYesAutoregotiationYesInterface typesYes• Number of ports1• Number of portsNo• integrated switchNo• PROFINET IO ControllerYes• PROFINET IO DeviceYes		
• Integration time, parameterizable • Conversion time (per channel)Yes 625 μsEncoderConnectable encoders• 2-wire sensorYes1. InterfaceInterface typePROFINETPhysicsEthernetIsolated automatic detection of transmission rateYesAutonegotiation 	<ul> <li>Resolution with overrange (bit including sign),</li> </ul>	10 bit
• Conversion time (per channel)       625 μs         Encoder       Connectable encoders         • 2-wire sensor       Yes         1. Interface       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autonegotiation       Yes         Autoressing       Yes         Interface types       Yes         • Number of ports       1         • integrated switch       No         Functionality       Yes         • PROFINET IO Controller       Yes         • PROFINET IO Device       Yes	max.	
Encoder         Connectable encoders         • 2-wire sensor       Yes         1. Interface         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autonegotiation       Yes         Autocrossing       Yes         Interface types       1         • Number of ports       1         • integrated switch       No         Functionality       Yes         • PROFINET IO Controller       Yes         • PROFINET IO Device       Yes	<ul> <li>Integration time, parameterizable</li> </ul>	Yes
Connectable encoders         • 2-wire sensor       Yes         1. Interface       PROFINET         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autonegotiation       Yes         Autocrossing       Yes         Interface types       1         • Number of ports       1         • integrated switch       No         Functionality       PROFINET IO Controller         • PROFINET IO Controller       Yes	<ul> <li>Conversion time (per channel)</li> </ul>	625 µs
• 2-wire sensorYes1. InterfaceInterface typePROFINETPhysicsEthernetIsolatedYesautomatic detection of transmission rateYesAutonegotiationYesAutocrossingYesInterface types1• Number of ports1• integrated switchNoFunctionalityYes• PROFINET IO ControllerYes• PROFINET IO DeviceYes	Encoder	
1. Interface         Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autonegotiation       Yes         Autocrossing       Yes         Interface types       1         • Number of ports       1         • integrated switch       No         Functionality       Yes         • PROFINET IO Controller       Yes         • PROFINET IO Device       Yes	Connectable encoders	
Interface typePROFINETPhysicsEthernetIsolatedYesautomatic detection of transmission rateYesAutonegotiationYesAutocrossingYesInterface types1• Number of ports1• integrated switchNoFunctionalityYes• PROFINET IO ControllerYes• PROFINET IO DeviceYes	• 2-wire sensor	Yes
Interface typePROFINETPhysicsEthernetIsolatedYesautomatic detection of transmission rateYesAutonegotiationYesAutocrossingYesInterface types1• Number of ports1• integrated switchNoFunctionalityYes• PROFINET IO ControllerYes• PROFINET IO DeviceYes	1. Interface	
IsolatedYesautomatic detection of transmission rateYesAutonegotiationYesAutocrossingYesInterface types1• Number of ports1• integrated switchNoFunctionalityYes• PROFINET IO ControllerYes• PROFINET IO DeviceYes		PROFINET
automatic detection of transmission rateYesAutonegotiationYesAutocrossingYesInterface types1• Number of ports1• integrated switchNoFunctionalityYes• PROFINET IO ControllerYes• PROFINET IO DeviceYes	Physics	Ethernet
AutonegotiationYesAutocrossingYesInterface types1• Number of ports1• integrated switchNoFunctionalityYes• PROFINET IO ControllerYes• PROFINET IO DeviceYes	Isolated	Yes
AutocrossingYesInterface types1• Number of ports1• integrated switchNoFunctionality-• PROFINET IO ControllerYes• PROFINET IO DeviceYes	automatic detection of transmission rate	Yes
Interface types         • Number of ports       1         • integrated switch       No         Functionality          • PROFINET IO Controller       Yes         • PROFINET IO Device       Yes	Autonegotiation	Yes
• Number of ports       1         • integrated switch       No         Functionality          • PROFINET IO Controller       Yes         • PROFINET IO Device       Yes	Autocrossing	Yes
• integrated switch     No       Functionality     • PROFINET IO Controller       • PROFINET IO Device     Yes	Interface types	
Functionality     Yes       • PROFINET IO Controller     Yes       • PROFINET IO Device     Yes	Number of ports	1
PROFINET IO Controller Yes     PROFINET IO Device Yes	<ul> <li>integrated switch</li> </ul>	No
PROFINET IO Device Yes	Functionality	
	PROFINET IO Controller	Yes
SIMATIC communication Yes	PROFINET IO Device	Yes
	SIMATIC communication	Yes

Open IE communication	Yes
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
— Open IE communication	Yes
— IRT	No
— MRP	No
— MRPD	No
— PROFlenergy	No
— Prioritized startup	Yes
- Number of IO devices with prioritized	16
startup, max.	
<ul> <li>Number of connectable IO Devices, max.</li> </ul>	16
<ul> <li>— Number of connectable IO Devices for RT,</li> </ul>	16
max.	
— of which in line, max.	16
<ul> <li>Activation/deactivation of IO Devices</li> </ul>	Yes
— Number of IO Devices that can be	8
simultaneously 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
— S7 routing	Yes
— Isochronous mode	No
— Open IE communication	Yes
— IRT	No
— MRP	No
— MRPD	No
— PROFlenergy	Yes
— Shared device	Yes
— Number of IO Controllers with shared	2
device, max.	
Protocols	
Supports protocol for PROFINET IO	Yes

AS-InterfaceYes; CM 1243-2 requiredProtocols (Ethernet)TCP/IPYes• DHCPNo• DHCPNo• DHCPYes• DCPYes• DCPYes• DCPYes• LLDPYesOpen IE communicationYes• TCP/IPYes- Data length, max.8 kbyte• ISO-on-TCP (RFC1006)Yes- Data length, max.8 kbyte• UDPYes- Data length, max.9 kbyte• DBAUYes• MODBUSYesFurther protocolsYesStormmunicationYes• SupportedYes• supportedYes• supportedYes• as clientYes• USer data per job, max.Yes• UDPYes• UDPYes• SupportedYes• supportedYes• SupportedYes• SupportedYes• USer defined websitesYes• User-defined websitesYes• US	PROFIBUS	Yes; CM 1243-5 required
Protocols (Ethernet)Yes• CP/IPYes• DCPNo• SNMPYes• DCPYes• DCPYes• DCPYes• DCPSNMP• DCPYes• DCPYes• Data length, max.8 kbyte• ISO-on-CP (REC1006)Yes• Data length, max.4 kbyte• UDP1472 byte• Data length, max.1472 byte• Data length, max.Yes• UDP1472 byte• Data length, max.Yes• MODBUSYes• MODBUSYes• MODBUSYes• MODBUSYes• MODBUSYes• SupportedYes• SupportedYes• UDPYes• Status/control variableYes• Status/control variableYes• VariablesYes• VariablesYes• VariablesYes• Diagnostic buffer• ProteinForcing• Protein </td <td></td> <td></td>		
• TCP/IPYes• DHCPNo• DCPYes• DCPYes• DCPYes• DCPYes• DTPYes• Data length, max.8 kbyte• UDPYes• Data length, max.8 kbyte• UDPYes• Data length, max.1472 byte• Dup Intervention1472 byte• Dup InterventionYes• UDPYes• UDPYes• Dup InterventionYes• UDPYes• Dup InterventionYes• UDPYes• Dup InterventionYes• UDPYes• Dup InterventionYes• Dup InterventionYes• Dup InterventionYes• Dup InterventionYes• User data per job, max.See online help (S7 communication, user data size)Open IE communicationYes• User data per job, max.See online help (S7 communication, user data size)Open IE communicationYes• UDPYes• UDPYesWeb serverYes• upportedYes• upportedYes• stutiscontrol variableYes• stutiscontrol variableYes• VariablesYes• VariablesYes• VariablesYes• Data bendiffYes• VariablesYes• Data bendiffYes• Data bendiffYes• Data bendiffYes <t< td=""><td>Protocols (Ethernet)</td><td></td></t<>	Protocols (Ethernet)	
SNMPYes• DCPYes• LDPYesOpen Ecommunication*********************************	• TCP/IP	Yes
obdYesobdPYesOpen IE communicationYesopen IE communication8 kbyteobd length, max.8 kbyteobd length, max.8 kbyteobd length, max.8 kbyteobd length, max.1472 byteobd length, max.1472 byteobd length, max.Yesobd length, max.1472 byteobd length, max.Yesobd length, max.YesobserverSecontine help (S7 communication, user data size)open IE communicationYesobserverSecontine help (S7 communication, user data size)observerYesobserverYesoverallYesoverallYesoverallYesoverallYesStatus/control variableYesoverallYesoverallYesoverallYesoverallYesoverallYesoverallYesoverallYesoverallYesoverallYesoverallYesoverallYesoverallYesoverallYesoverallYes <td>• DHCP</td> <td>No</td>	• DHCP	No
Left         Yes           Open IE communication         *           • TCP/IP            • Data length, max.         8 kbyte           • ISO-on-TCP (RFC1006)         Yes           • Data length, max.         8 kbyte           • UDP            • Data length, max.         1472 byte           • Data length, max.         Yes           • MODBUS         Yes           • Statusconton         Yes           • Loromunication         Yes           • Loromunication	• SNMP	Yes
Open IE communication           • TCP/IP           - Data length, max.         8 kbyte           • ISO-on-TCP (RFC1006)         Yes           • Data length, max.         8 kbyte           • Data length, max.         1472 byte           • UDP         -           - Data length, max.         1472 byte           Further protocols         Yes           • MODBUS         Yes           Communication functions         Yes           Softminunication         Yes           • supported         Yes           • supported         Yes           • as server         Yes           • as server         Yes           • UDP         Yes           • UDP         Yes           • UDS of tall aper job, max.         See online help (S7 communication, user data size)           Open IE communication         Yes           • UDP         Yes           • UDP         Yes           • UDP         Yes           • UDP         Yes           • Ver and websites         Yes           • Overall         Yes           • Overall         Yes           • Status/control variable         Yes	• DCP	Yes
• TCP/IP8 kbyte- Data length, max.8 kbyte• ISO-on-TCP (RFC1006)Yes- Data length, max.8 kbyte• UDP1472 byte- Data length, max.1472 byteFurther protocolsYesCommunication functionsYesS7 communicationYessupportedYes• supportedYes• as serverYes• data per job, max.See online help (S7 communication, user data size)Open El communicationYes• USP // PYes• USP // PYes• USP // PYes• USP // SYes• Verall16; dynamicatly• VerallYes• Status/control variableYes• VariablesInputs/outputs, memory bits, DBs, distributed I/Os, timers, controrsForcingYes• ForcingYesDiagnostic bufferYes• presentYes• YesYes• PresentYes	• LLDP	Yes
- Data length, max.8 kbyte• ISD-on-TCP (RFC1006)Yes- Data length, max.8 kbyte• UDP- Data length, max.1472 byte- Data length, max.1472 byte• Duba length, max.Yes• MDBUSYes• Communication functionsYes• So communication functionsYes• supportedYes• supportedYes• as serverYes• as clientYes• UDPYes• UDPYes• UDPYes• UDPYes• UDPYes• UDPYes• UDPYes• UDPYes• vorallYes• vorallYes• vorallYes• vorallYes• Status/control variableYes• Status/control variableYes• foringYes• ForingYes• ForingYes• ForingYes• presentYes	Open IE communication	
• ISO-on-TCP (RC 1006)Yes- Data length, max.8 kbyte• UDP Data length, max.1472 byteFurther protocolsFurther protocolsVesCommunication functionsS7 communicationVese sa clientVesSatisfieldVessa clientVesSatisfieldVesVesVesVesVesVesVesVesVesVesVesVesVesVesVesVesVesVerVerVesVer <td< td=""><td>• TCP/IP</td><td></td></td<>	• TCP/IP	
• ISO-on-TCP (RFC1006)Yes- Data length, max.8 kbyte• UDP1- Data length, max.1472 byteFurther protocolsYes <b>Communication functions</b> YesSoftmunicationYesSoftmunicationYes( as server)Yes• as server)Yes• data per job, max.See online help (S7 communication, user data size)Open IE communicationYes• UDPYes• VerallYes• Status/control variableYes• VariablesYes• VariablesYes• ForcingYes• Data Status/control variableYes• ForcingYes• ForcingYes• Data Status/control variableYes• PresentYes	— Data length, max.	8 kbyte
- Data length, max.8 kbyte• UDP- Data length, max.1472 byteFurther protocolsFurther protocols• MODBUSYesCommunication functionsS7 communication• supportedYes• supportedYes• as clientYes• buser data per job, max.YesOpen IE communicationYes• UDPYes• UDPYes• UDPYes• UDPYes• UDPYes• buser defined websitesYes• buser defined websitesYes• overallYes• overallYes• Status/control variableYes• VariablesYes• VariablesYes• buser defined websitesYes• forcingYes• forcingYes• forcingYes• protocol bufferYes• presentYes		Yes
• UDP1472 byteFurther protocolsYesFurther protocolsYescommunicationYesS7 communicationYes• supportedYes• as serverYes• as clientYes• as clientYes• User data per job, max.See online help (S7 communication, user data size)Open IE communicationYes• UDPYes• UDPYes• UDPYes• UDPYes• USP deterYes• supportedYes• user-defined websitesYes• USPYesNumber of connectionsYes• overall16: dynamicallyTest communication functionsStatus/control• Status/control variableYes• VariablesYes• CoringYes• ForcingYes• ForcingYes• presentYes• present <t< td=""><td></td><td>8 kbyte</td></t<>		8 kbyte
Further protocols       Yes         • MODBUS       Yes         Communication       *         • supported       Yes         • as server       Yes         • as dient       Yes         • User data per job, max.       See online help (S7 communication, user data size)         Open IE communication       *         • TCP/IP       Yes         • UDP       Yes         Veb server       *         • supported       Yes         Number of connections       Yes         • overall       16; dynamically         Test commissioning functions       *         Status/control       Yes         Status/control variable       Yes         • Variables       Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters         Forcing       Yes         • Forcing       Yes         • present       Yes	-	
Further protocols       Yes         • MODBUS       Yes         Communication       *         • supported       Yes         • as server       Yes         • as dient       Yes         • User data per job, max.       See online help (S7 communication, user data size)         Open IE communication       *         • TCP/IP       Yes         • UDP       Yes         Veb server       *         • supported       Yes         Number of connections       Yes         • overall       16; dynamically         Test commissioning functions       *         Status/control       Yes         Status/control variable       Yes         • Variables       Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters         Forcing       Yes         • Forcing       Yes         • present       Yes		1 472 byte
Communication functions         S7 communication         • supported       Yes         • as server       Yes         • as client       Yes         • as client       Yes         • User data per job, max.       See online help (S7 communication, user data size)         Open IE communication       FOP/IP         • User data per job, max.       See online help (S7 communication, user data size)         Open IE communication       TCP/IP         • User data per job, max.       Yes         • UDP       Yes         • UDP       Yes         Veb server       Yes         • supported       Yes         • User-defined websites       Yes         • User-defined websites       Yes         • overall       16; dynamically         Test commissioning functions       Status/control         Status/control variable       Yes         • Variables       Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters         Forcing       Yes         Diagnostic buffer       Yes         • present       Yes		
S7 communication       Yes         • as server       Yes         • as client       Yes         • user data per job, max.       See online help (S7 communication, user data size)         Open IE communication       Yes         • TCP/IP       Yes         • UDP       Yes         • UDP       Yes         • User-defined websites       Yes         • User-defined websites       Yes         • overall       Yes         • overall       16; dynamically         Test commissioning functions         Status/control       Yes         • Status/control variable       Yes         • Variables       Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters         Forcing         • Forcing       Yes         • Diagnostic buffer       Yes         • present       Yes	• MODBUS	Yes
• supportedYes• as serverYes• as clientYes• User data per job, max.See online help (S7 communication, user data size)Open IE communicationYes• TCP/IPYes• UDPYes• UDPYes• UDPYes• User-defined websitesYes• User-defined websitesYes• overall16; dynamically• overall16; dynamically• Status/control variableYes• Status/control variableYes• CoringYes• ForcingYes• ForcingYes• ForcingYes• presentYes• presentYes	Communication functions	
ease serverYes• as serverYes• User data per job, max.See online help (S7 communication, user data size)Open IE communicationYes• TCP/IPYes• UDPYesWeb serverYes• supportedYes• supportedYes• User defined websitesYesNumber of connectionsYes• overall16; dynamicallyTest commissioning functionsYesStatus/control variableYes• Status/control variableYes• VariablesInputs/outputs, memory bits, DBs, distributed I/Os, timers, countersForcingYes• ForcingYesDiagnostic bufferYes• presentYes	S7 communication	
AccordYes• User data per job, max.See online help (S7 communication, user data size)Open IE communicationYes• TCP/IPYes• UDPYes• UDPYes• SupportedYes• SupportedYes• User-defined websitesYes• Number of connectionsYes• overall16; dynamically• Status/control variableYes• Status/control variableYes• Status/control variableYes• ForcingYes• ForcingYes• ForcingYes• ForcingYes• presentYes• presentYes	<ul> <li>supported</li> </ul>	Yes
• User data per job, max.       See online help (S7 communication, user data size)         Open IE communication         • TCP/IP       Yes         • UDP       Yes         Web server       Yes         • supported       Yes         • User-defined websites       Yes         Number of connections       Yes         • overall       16; dynamically         Test commissioning functions         Status/control variable       Yes         • Variables       Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters         Forcing       Yes         Forcing       Yes         • present       Yes	• as server	Yes
Open IE communication• TCP/IPYes• UDPYesWeb serverYes• supportedYes• User-defined websitesYesNumber of connectionsYes• overall16; dynamically• overallYes• status/control variableYes• VariablesInputs/outputs, memory bits, DBs, distributed I/Os, timers, countersForcingYes• ForcingYes•	● as client	Yes
• TCP/IPYes• UDPYesWeb serverYes• supportedYes• User-defined websitesYesNumber of connectionsYes• overall16; dynamically• overallYesStatus/controlYes• Status/control variableYes• VariablesInputs/outputs, memory bits, DBs, distributed I/Os, timers, countersForcingYes• ForcingYes• presentYes	<ul> <li>User data per job, max.</li> </ul>	See online help (S7 communication, user data size)
• UDPYesWeb serverYes• supportedYes• User-defined websitesYesNumber of connections16; dynamically• overall16; dynamicallyTest commissioning functionsStatus/control• Status/controlYes• VariablesInputs/outputs, memory bits, DBs, distributed I/Os, timers, countersForcing• ForcingYes• ForcingYesDiagnostic bufferYes• presentYes	Open IE communication	
Web server       • supported     Yes       • User-defined websites     Yes       Number of connections     16; dynamically       • overall     16; dynamically       Test commissioning functions       Status/control       • Status/control variable     Yes       • Variables     Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters       Forcing     Yes       • Forcing     Yes       Diagnostic buffer     Yes	• TCP/IP	Yes
• supportedYes• User-defined websitesYesNumber of connections16; dynamically• overall16; dynamicallyTest commissioning functionsStatus/control• Status/control variableYes• Status/control variableInputs/outputs, memory bits, DBs, distributed I/Os, timers, countersForcingYes• ForcingYes• ForcingYes• presentYes• presentYes• presentYes• PorcingYes• presentYes• PorcingYes• presentYes• PorcingYes• presentYes	• UDP	Yes
• User-defined websites     Yes       Number of connections     16; dynamically       • overall     16; dynamically         Test commissioning functions       Status/control     Yes       • Status/control variable     Yes       • Variables     Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters       Forcing     Yes       • Forcing     Yes       Diagnostic buffer     Yes	Web server	
Number of connections       • overall       16; dynamically       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     Yes       • present     Yes	<ul> <li>supported</li> </ul>	Yes
• overall       16; dynamically         Test commissioning functions         Status/control         • Status/control variable       Yes         • Status/control variables       Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters         • Forcing       Yes	<ul> <li>User-defined websites</li> </ul>	Yes
Test commissioning functions         Status/control         • Status/control variable       Yes         • Variables       Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters         Forcing       Yes         • Forcing       Yes         Diagnostic buffer       Yes	Number of connections	
Status/control       Yes         • Variables       Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters         Forcing       Ves         • Forcing       Yes         • present       Yes	• overall	16; dynamically
• Status/control variableYes• VariablesInputs/outputs, memory bits, DBs, distributed I/Os, timers, countersForcingForcing• ForcingYesDiagnostic bufferYes• presentYes	Test commissioning functions	
<ul> <li>Variables</li> <li>Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters</li> <li>Forcing</li> <li>Forcing</li> <li>Yes</li> <li>Diagnostic buffer</li> <li>Present</li> <li>Yes</li> </ul>		
counters       Forcing     Yes       Diagnostic buffer     Yes		
• Forcing     Yes       Diagnostic buffer     Yes       • present     Yes	Variables	
Diagnostic buffer       • present       Yes	Forcing	
• present Yes		Yes
	Diagnostic buffer	
Traces	● present	Yes
	Traces	

<ul> <li>Number of configurable Traces</li> </ul>	2
Memory size per trace, max.	- 512 kbyte
· ·	
Interrupts/diagnostics/status information	
Diagnostics indication LED	Ver
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
Integrated Functions	
Number of counters	4
Counting frequency (counter) max.	100 kHz
Frequency meter	Yes
controlled positioning	Yes
Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction	Up to 4 with SB 1222
interface	
PID controller	Yes
Number of alarm inputs	4
Potential separation	
Potential separation digital inputs	
<ul> <li>Potential separation digital inputs</li> </ul>	500V AC for 1 minute
<ul> <li>between the channels, in groups of</li> </ul>	1
Potential separation digital outputs	
<ul> <li>Potential separation digital outputs</li> </ul>	Relays
<ul> <li>between the channels</li> </ul>	No
<ul> <li>between the channels, in groups of</li> </ul>	2
EMC	
Interference immunity against discharge of static electric	city
<ul> <li>Interference immunity against discharge of static electricity acc. to IEC 61000-4-2</li> </ul>	Yes
— Test voltage at air discharge	8 kV
— Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	
<ul> <li>Interference immunity on supply lines acc. to IEC 61000-4-4</li> </ul>	Yes
<ul> <li>Interference immunity on signal cables acc. to IEC 61000-4-4</li> </ul>	Yes
Interference immunity against voltage surge	
• on the supply lines acc. to IEC 61000-4-5	Yes
Interference immunity against conducted variable distur	bance induced by high-frequency fields
<ul> <li>Interference immunity against high-frequency radiation acc. to IEC 61000-4-6</li> </ul>	Yes

Eimit class A, for use in industrial 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 acc. to EN 60529     iP20     Yes Standards, approvals, certificates     CE mark     Yes UL approval     Yes CE mark     Yes UL approval     Yes CE mark     Yes UL approval     Yes CE mark     Yes CE approval     Yes CE approve     Yes CE approval	Emission of radio interference acc. to EN 55 011	
with the limits for Class B according to EN 55011           Degree of protection acc. to EN 60529           IP20           Standards, approvals, certificates           CE mark         Yes           CE mark         Yes           UL approval         Yes           UL approval         Yes           CE mark         Yes           CE mark         Yes           CE mark         Yes           CE mark         Yes           Colspan="2">Colspan="2"           Colspan="2"           Colspan="2"           Colspan="2"           Colspan="2"	<ul> <li>Limit class A, for use in industrial areas</li> </ul>	Yes; Group 1
Degree of protection acc. to EN 60529       Yes         Standards, approvals, certificates       Yes         CE mark       Yes         UL approval       Yes         CULus       Yes         CM (formerly C-TICK)       Yes         RCA poproval       Yes         Ambient conditions       Yes         Free fall       0.3 m; five times, in product package         Ambient temperature during operation       -0.3 m; five times, in product package         Ambient temperature during operation       -0.3 m; five times, in product package         Ambient temperature during operation       -0.3 m; five times, in product package         Ambient temperature during operation       -20 °C         • max.       -20 °C         • horizontal installation, min.       -20 °C         • horizontal installation, min.       -20 °C         • horizontal installation, max.       60 °C         • wertical installation, max.       50 °C         Ambient temperature during storage/transportation       -00 °C         • min.       -40 °C         • min.       -40 °C         • Operation, min.       -40 °C         • Operation, max.       1000 hPa         • Operation, max.       60 °C         • Storag	• Limit class B, for use in residential areas	
• IP20       Yes         Standards, approvals, certificates       Yes         CE mark       Yes         UL approval       Yes         dUlus       Yes         dUlus       Yes         CM (formerly C-TICK)       Yes         RCM (formerly C-TICK)       Yes         Marine approval       Yes         Marine approval       Yes         Anbient conditions       -         Free fall       -         • Fall height, max.       0.3 m; five times, in product package         Ambient temperature during operation       -         • 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         • vertical installation, max.       50 °C         Nument       -20 °C         • vertical installation, max.       50 °C         • vertical installation, min.       -20 °C         • vertical installation, min.       -20 °C         • vertical installation, min.       -20 °C         • Norizontal installation, min.       -20 °C         • Operation, max.       1080 hPa         • Operation, max.       1080 h	Degree and class of protection	
Standards, approvals, certificates       CE mark     Yes       UL approval     Yes       ULus     Yes       CULus     Yes       FM approval     Yes       RCM (formerly C-TICK)     Yes       KC approval     Yes       Marine approval     Yes       Ambient conditions     Yes       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 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal or 45 °C vertical       • horizontal installation, min.     -20 °C       • horizontal installation, max.     60 °C       • vertical installation, max.     60 °C       • vertical installation, max.     -20 °C       • horizontal installation, max.     -20 °C       • permistrue during storage/transportation     -       • min.     -20 °C       • Operation, min.     -95 hP	Degree of protection acc. to EN 60529	
CE mark       Yes         UL approval       Yes         CULus       Yes         FM approval       Yes         RCM (formerly C-TICK)       Yes         KC approval       Yes         Marine approval       Yes         Ambient conditions       Yes         Free fall       0.3 m; five times, in product package         Ambient temperature during operation       • min.         • max.       0.0 °C, Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C chorizontal or 50 °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 or C         • horizontal installation, min.       -20 °C         • horizontal installation, max.       60 °C         • vertical installation, max.       50 °C         • vertical installation, max.       50 °C         Ambient temperature during storage/transportation       • min.         • vertical installation, max.       50 °C         Arbient temperature during storage/transportation       • Or °C         • Storage/transport, min.       -40 °C         • Operation, max.       1080 hPa         • Storage/transport, min.       660 hPa         • Storage/transport, max.       1080 hPa         • Storage/transport, max.	• IP20	Yes
UL approval       Yes         GULus       Yes         FM approval       Yes         RCM (formerly C-TICK)       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       -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 50 °C vertical, 8 or 6 at 55 °C horizontal or 50 °C vertical, 8 or 6 or C         • horizontal installation, min.       -20 °C         • horizontal installation, max.       60 °C         • vertical installation, max.       60 °C         • vertical installation, max.       50 °C         Ambient temperature during storage/transportation       -20 °C         • max.       70 °C         Air pressure acc. to IEC 60068-2-13       -40 °C         • Operation, max.       1080 hPa         • Operation, max.       1080 hPa         • Operation, max.       1080 hPa         • Storage/transport, max.       1080 hPa         • permissible operating height       -1000 to 2000 m	Standards, approvals, certificates	
cULus         Yes           FM approval         Yes           RCM (formerly C-TICK)         Yes           RCA approval         Yes           Marine approval         Yes           Ambient conditions         Free fall           • 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 50 °C vertical, 8 or 6 at 55 °C horizontal or 45 °C vertical           • horizontal installation, min.         -20 °C           • horizontal installation, min.         -20 °C           • horizontal installation, max.         60 °C.           • vertical installation, max.         50 °C           • vertical installation, max.         50 °C           Ambient temperature during storage/transportation         -00 °C           • min.         -40 °C           • max.         70 °C           Air pressure act. to IEC 60068-2-13         -1000 to 2000 m           • Operation, min.         660 hPa           • Operation, max.         1080 hPa           • Operation, max.         1080 hPa	CE mark	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, min.       -20 °C         • horizontal installation, max.       60 °C         • vertical installation, max.       60 °C         • vertical installation, max.       50 °C         Ambient temperature during storage/transportation       -20 °C         Ambient temperature during storage/transportation       -20 °C         • vertical installation, max.       50 °C         • operation, max.       50 °C         • operation, max.       50 °C         • Operation, max.       1080 hPa         • Operation, max.       1080 hPa         • Operation, max.       1080 hPa         • Storage/transport, max.       1080 hPa	UL 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         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, min.       -20 °C         • vertical installation, min.       -20 °C         • vertical installation, max.       60 °C         • vertical installation, max.       50 °C         • vertical installation, max.       50 °C         • Ambient temperature during storage/transportation       -40 °C         • min.       -20 °C         • min.       -20 °C         • Ambient temperature during storage/transportation       -40 °C         • pressure acc. to IEC 60068-2-13       -40 °C         • Operation, max.       1080 hPa         • Operation, max.       1080 hPa         • Storage/transport, min. <td>cULus</td> <td>Yes</td>	cULus	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       • 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, min.       -20 °C         • horizontal installation, max.       60 °C         • vertical installation, max.       50 °C         • Ado °C	FM approval	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           • vertical installation, max.         60 °C           • vertical installation, max.         50 °C           • vertical installation, max.         50 °C           Ambient temperature during storage/transportation         -20 °C           • min.         -40 °C           • max.         70 °C           Air pressure acc. to IEC 60068-2-13         -40 °C           • Operation, min.         795 hPa           • Operation, max.         1080 hPa           • Storage/transport, min.         660 °Pa           • Storage/transport, max.         1080 hPa           • permissible operating height         -1000 to 2000 m           Relative humidity         • Operation, max.         95 %; no condensation           • Vibratio	RCM (formerly C-TICK)	Yes
Ambient conditions         Free fall       0.3 m; five times, in product package         Ambient temperature during 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 at 55 °C horizontal or 45 °C vertical         • horizontal installation, min.       -20 °C         • horizontal installation, max.       60 °C         • vertical installation, max.       50 °C         • vertical installation, max.       50 °C         • vertical installation, max.       50 °C         Ambient temperature during storage/transportation       -40 °C         • min.       -40 °C         • max.       70 °C         Ambient temperature during storage/transportation       -40 °C         • max.       70 °C         Ari pressure acc. to IEC 60068-2-13       -00 °C         • Operation, min.       -95 hPa         • Operation, max.       1080 hPa         • Storage/transport, min.       660 hPa         • Storage/transport, max.       1080 hPa         • permissible operating height       -1000 to 2000 m         Relative humidity       -00 condensation         • Operation, max.       95 %; no condensation	KC approval	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, min.       -20 °C         • vertical installation, max.       60 °C         • vertical installation, max.       50 °C         Ambient temperature during storage/transportation       -20 °C         • min.       -20 °C         • at pressure acc. to IEC 60068-2-13       -20 °C         • Operation, max.       70 °C         Air pressure acc. to IEC 60068-2-13       -20 °C         • Operation, min.       795 hPa         • Operation, max.       1080 hPa         • Storage/transport, min.       660 hPa         • Storage/transport, max.       1080 hPa         • permissible operating height       -1000 to 2000 m         Relative humidity       95 %; no condensation         • Vibrations       2 g (m/s <sup>2</sup> ) wall mounting, 1 g (m/s <sup>2</sup> ) DIN rail         • Operation, tested according to IEC 60068-2-6       Yes	Marine approval	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, min.       -20 °C         • vertical installation, max.       60 °C         • vertical installation, max.       50 °C         Ambient temperature during storage/transportation       -20 °C         • min.       -20 °C         • at pressure acc. to IEC 60068-2-13       -20 °C         • Operation, max.       70 °C         Air pressure acc. to IEC 60068-2-13       -20 °C         • Operation, min.       795 hPa         • Operation, max.       1080 hPa         • Storage/transport, min.       660 hPa         • Storage/transport, max.       1080 hPa         • permissible operating height       -1000 to 2000 m         Relative humidity       95 %; no condensation         • Vibrations       2 g (m/s <sup>2</sup> ) wall mounting, 1 g (m/s <sup>2</sup> ) DIN rail         • Operation, tested according to IEC 60068-2-6       Yes	Ambient conditions	
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         • vertical installation, max.       60 °C         • vertical installation, max.       50 °C         • vertical installation, max.       50 °C         • vertical installation, max.       50 °C         Ambient temperature during storage/transportation       -20 °C         • min.       -20 °C         • min.       -20 °C         • max.       70 °C         Ambient temperature during storage/transportation       -         • min.       -40 °C         • max.       70 °C         Air pressure acc. to IEC 60068-2-13       -         • Operation, min.       1080 hPa         • Operation, max.       1080 hPa         • Storage/transport, max.       1080 hPa         • permissible operating height       -1000 to 2000 m         Relative humidity       -         • Operation, max.       95 %; no condensation         Vibrations       2 g (m/s <sup>o</sup> ) wall mounting, 1 g (m/s <sup>o</sup> ) DIN rail		
• min.       -20 °C         • max.       60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal or 45 °C vertical         • horizontal installation, min.       -20 °C         • horizontal installation, max.       60 °C         • vertical installation, max.       60 °C         • vertical installation, max.       50 °C         • vertical installation, max.       50 °C         • vertical installation, max.       50 °C         • Ambient temperature during storage/transportation       -20 °C         • min.       -20 °C         • max.       70 °C         Atr pressure acc. to IEC 60068-2-13       -0 °C         • Operation, min.       795 hPa         • Operation, max.       1080 hPa         • Storage/transport, min.       660 hPa         • permissible operating height       -1000 to 2000 m         Relative humidity       -00 operation, max.         • Operation, max.       95 %; no condensation         Vibrations       2 g (m/s <sup>a</sup> ) wall mounting, 1 g (m/s <sup>a</sup> ) DIN rail         • Operation, tested according to IEC 60068-2-6       Yes	● Fall height, max.	0.3 m; five times, in product 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 at 55 °C horizontal or 45 °C vertical• horizontal installation, min20 °C• horizontal installation, max.60 °C; Outputs 20 °C• vertical installation, max.50 °C• vertical installation, max.50 °C• vertical installation, max.50 °C• vertical installation, max.70 °C• min40 °C• max.70 °CAmbient temperature during storage/transportation• operation, min.1080 hPa• Operation, min.660 hPa• Operation, max.1080 hPa• Storage/transport, min.660 hPa• Storage/transport, max.1080 hPa• Storage/transport, max.1080 hPa• Operation, max.95 %; no condensation• Operation, max.2 g (m/s <sup>2</sup> ) wall mounting, 1 g (m/s <sup>2</sup> ) DIN rail• Operation, tested according to IEC 60068-2-6Yes	Ambient temperature during operation	
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, min20 °C• vertical installation, max.60 °C• vertical installation, max20 °C• vertical installation, max.50 °C• vertical installation, max.50 °C• vertical installation, max.50 °C• min40 °C• max.70 °C• max.70 °C• Operation, min.1080 hPa• Operation, max.660 hPa• Storage/transport, min.660 hPa• Storage/transport, max.1080 hPa• Storage/transport, max.1080 hPa• Deperation, max.1080 hPa• Operation, max.95 %; no condensationVibrations95 %; no condensation• Operation, max.95 %; no condensation• Operation, tested according to IEC 60068-2-6Yes	• min.	-20 °C
Induction matrix60 °C• horizontal installation, max.60 °C• vertical installation, max20 °C• vertical installation, max.50 °CAmbient temperature during storage/transportation-40 °C• min40 °C• max.70 °CAir pressure acc. to IEC 60068-2-13-40 °C• Operation, min.795 hPa• Operation, max.1080 hPa• Storage/transport, min.660 hPa• Storage/transport, max.1 080 hPa• Storage/transport, max.1 080 hPa• Operation, max.95 %; no condensationVibrations2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail• Operation, tested according to IEC 60068-2-6Yes	• max.	3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6
• vertical installation, min20 °C• vertical installation, max.50 °CAmbient temperature during storage/transportation	<ul> <li>horizontal installation, min.</li> </ul>	-20 °C
• vertical installation, max.50 °CAmbient temperature during storage/transportation-40 °C• min40 °C• max.70 °CAir pressure acc. to IEC 60068-2-13-40 °C• Operation, min.795 hPa• Operation, max.1 080 hPa• Operation, max.660 hPa• Storage/transport, min.660 hPa• Storage/transport, max.1 080 hPa• Operation, max.1 080 hPa• Operation, max.1 080 hPa• Operation, max.1 080 hPa• Operation, max.95 %; no condensation• Operation, max.95 %; no condensation• Operation, max.95 %; no condensation• Operation, max.2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail• Operation, tested according to IEC 60068-2-6Yes	<ul> <li>horizontal installation, max.</li> </ul>	60 °C
Ambient temperature during storage/transportation• min40 °C• max.70 °CAir pressure acc. to IEC 60068-2-13• Operation, min.795 hPa• Operation, max.1 080 hPa• Operation, max.660 hPa• Storage/transport, min.660 hPa• Storage/transport, max.1 080 hPa• permissible operating height-1000 to 2000 mRelative humidity• Operation, max.95 %; no condensationVibrations• Vibrations2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail• Operation, tested according to IEC 60068-2-6Yes	<ul> <li>vertical installation, min.</li> </ul>	-20 °C
• min40 °C• max.70 °CAir pressure acc. to IEC 60068-2-13795 hPa• Operation, min.795 hPa• Operation, max.1 080 hPa• Storage/transport, min.660 hPa• Storage/transport, max.1 080 hPa• Storage/transport, max.1 080 hPa• Operation, max.95 %; no condensationRelative humidity• Operation, max.95 %; no condensationVibrations2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail• Operation, tested according to IEC 60068-2-6Yes	<ul> <li>vertical installation, max.</li> </ul>	50 °C
· max.70 °CAir pressure acc. to IEC 60068-2-13795 hPa• Operation, min.795 hPa• Operation, max.1 080 hPa• Storage/transport, min.660 hPa• Storage/transport, max.1 080 hPa• permissible operating height-1000 to 2000 m• permissible operating height95 %; no condensation• Operation, max.95 %; no condensation• Operation, max.2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail• Operation, tested according to IEC 60068-2-6Yes	Ambient temperature during storage/transportation	
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• permissible operating height-1000 to 2000 m• Relative humidity95 %; no condensation• Operation, max.95 %; no condensationVibrations2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail• Operation, tested according to IEC 60068-2-6Yes	• min.	-40 °C
• Operation, min.795 hPa• Operation, max.1 080 hPa• Storage/transport, min.660 hPa• Storage/transport, max.1 080 hPa• permissible operating height-1000 to 2000 m• Relative humidity-1000 to 2000 m• Operation, max.95 %; no condensationVibrations2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail• Operation, tested according to IEC 60068-2-6Yes	• max.	70 °C
• Operation, max.1 080 hPa• Storage/transport, min.660 hPa• Storage/transport, max.1 080 hPa• permissible operating height-1000 to 2000 mRelative humidity-1000 to 2000 m• Operation, max.95 %; no condensationVibrations2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail• Operation, tested according to IEC 60068-2-6Yes	Air pressure acc. to IEC 60068-2-13	
• Operation, max.1 080 hPa• Storage/transport, min.660 hPa• Storage/transport, max.1 080 hPa• permissible operating height-1000 to 2000 mRelative humidity-• Operation, max.95 %; no condensationVibrations2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail• Operation, tested according to IEC 60068-2-6Yes	• Operation, min.	795 hPa
• Storage/transport, min.660 hPa• Storage/transport, max.1 080 hPa• permissible operating height-1000 to 2000 mRelative humidity• Operation, max.95 %; no condensation• Vibrations2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail• Operation, tested according to IEC 60068-2-6Yes		1 080 hPa
• Storage/transport, max.1 080 hPa• permissible operating height-1000 to 2000 mRelative humidity-• Operation, max.95 %; no condensationVibrations2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail• Operation, tested according to IEC 60068-2-6Yes	<ul> <li>Storage/transport, min.</li> </ul>	660 hPa
• permissible operating height-1000 to 2000 mRelative humidity95 %; no condensation• Operation, max.95 %; no condensationVibrations2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail• Operation, tested according to IEC 60068-2-6Yes		1 080 hPa
Relative humidity         • Operation, max.       95 %; no condensation         Vibrations         • Vibrations       2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail         • Operation, tested according to IEC 60068-2-6       Yes		-1000 to 2000 m
• Operation, max.       95 %; no condensation         Vibrations       2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail         • Operation, tested according to IEC 60068-2-6       Yes		
Vibrations       2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail         • Operation, tested according to IEC 60068-2-6       Yes		95 %; no condensation
Operation, tested according to IEC 60068-2-6     Yes	·	
	Vibrations	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
	· · · · · · · · · · · · · · · · · · ·	

• 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

Extended ambient conditions

Pollutant concentrations

- SO2 at RH < 60% without condensation

S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free

Configuration Programming	
Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes
Know-how protection	
<ul> <li>User program protection/password protection</li> </ul>	Yes
Copy protection	Yes
Block protection	Yes
Access protection	
Protection level: Write protection	Yes
<ul> <li>Protection level: Read/write protection</li> </ul>	Yes
Protection level: Complete protection	Yes
Cycle time monitoring	
adjustable	Yes
-	
Dimensions	
Width	90 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	425 g
last modified:	08/12/2017