## **SIEMENS**

## Data sheet

## 6ES7214-1BG40-0XB0

SIMATIC S7-1200, CPU 1214C, compact CPU, AC/DC/relay, onboard I/O: 14 DI 24 V DC; 10 DO relay 2 A; 2 AI 0-10 V DC, Power supply: AC 85-264 V AC at 47-63 Hz, Program/data memory 100 KB



General information	
Product type designation	CPU 1214C 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
<ul> <li>permissible range, upper limit</li> </ul>	63 Hz
Input current	
Current consumption (rated value)	100 mA at 120 V AC; 50 mA at 240 V AC
Current consumption, max.	300 mA at 120 V AC; 150 mA at 240 V AC
Inrush current, max.	20 A; at 264 V

l²t	0.8 A <sup>2</sup> ·s
Output current	
for backplane bus (5 V DC), max.	1 600 mA; Max. 5 V DC for SM and CM
Encoder supply 24 V encoder supply	
• 24 V	20.4 to 28.8V
• 24 V	20.4 10 20.0 V
Power loss	
Power loss, typ.	14 W
Memory	
Work memory	
• integrated	100 kbyte
• expandable	No
Load memory	
● integrated	4 Mbyte
• Plug-in (SIMATIC Memory Card), max.	with SIMATIC memory card
Backup	
• present	Yes
• maintenance-free	Yes
• without battery	Yes
CPU processing times	
for bit operations, typ.	0.08 µs; / instruction
for word operations, typ.	1.7 μs; / instruction
for floating point arithmetic, typ.	2.3 μs; / instruction
CPU-blocks	DBs FCs FDs sources and timers. The maximum number of
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.	8 kbyte; Size of bit memory address area
Local data	· ·
	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2
<ul> <li>per priority class, max.</li> </ul>	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
<ul> <li>per priority class, max.</li> </ul>	
• per priority class, max. Address area	
<ul> <li>per priority class, max.</li> </ul>	

• Outputs, adjustable	1 kbyte
Hardware configuration	
Number of modules per system, max.	3 comm. modules, 1 signal board, 8 signal modules
Time of day	
Clock	
<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	14; 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.	14
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	10; 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         mechanically 10 million, at rated load voltage 100 000           Cable length         500 m           • unshielded, max.         500 m           • unshielded, max.         150 m           Analog inputs         2           Input ranges         Ves           • lotage         Yes           • lot +10 V         Yes           • Conversion time/resolution with overrange (bit including sign), max.         10 bit           • lot ergation time, parameterizable         Yes           • Conversion time	• "1" to "0", max.	10 ms; max.
Cable length     • shielded, max.     500 m       • unshielded, max.     150 m       Analog inputs     2       Number of analog inputs     2       Input ranges (rated values), voltages     •       • 0 to +10 V     Yes       • 1 hput ranges (rated values), voltages     •       • 0 to +10 V     Yes       • 1 hput 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 value generation for the inputs       Integration and conversion time/resolution per channel       • Resolution with overange (bti including sign), max.     10 bit       • Integration time, parameterizable     Yes       • Conversion time (per channel)     625 µs       Encoder     Conversion time (per channel)       • 2-wire sensor     Yes       1 Interface     Yes       automatic detection of transmission rate     Yes       Autorossing     Yes       1 wintegrated switch     No       • Integrated switch     No       • Integrated switch     No       • Integrated switch     No <td>Relay outputs</td> <td></td>	Relay outputs	
• shielded, max.     500 m       • unshielded, max.     150 m       Analog inputs     2       Number of analog inputs     2       Input ranges     •       • Vollage     Yes       Input ranges (rated values), voltages     •       • 0 to +10 V     Yes       • Input resistance (0 to 10 V)     2 tolok ohms       Cable length     •       • shielded, max.     100 m; twisted and shielded       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     Encoders       • 2-wire sensor     Yes       1 Interface type     PROFINET       Physics     Ethernet       Isolated     Yes       automatic detection of transmission rate     Yes       Autoregotiation     Yes       Autoregotiation     Yes       Interface types     1       • Number of ports     1       • Integrated swi	<ul> <li>Number of operating cycles, max.</li> </ul>	mechanically 10 million, at rated load voltage 100 000
• unshielded, max.     150 m       Analog inputs     2       Number of analog inputs     2       • Voltage     Yes       • Notages (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       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     •       • 2-wire sensor     Yes       1     10 bit       Interface     PROFINET       Physics     Ethernet       Isolated     Yes       automatic detection of transmission rate     Yes       Autorezsing     Yes       Autoregatiation     Yes       • Number of ports     1       • Interface types	Cable length	
Analog inputs       2         Number of analog inputs       2         Input ranges       Yes         • Voitage       Yes         Input ranges (rated values), voitages       *         • 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 channel       *         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       *         Connectable encoders       *         • Zwite sensor       Yes         • Linterface       *         Integration       *         1 Interface type       PROFINET         Physics       Ethernet         isolated       Yes         Autoregotiation       Yes         Autoregotiation       Yes         Autoregotiation       Yes	<ul> <li>shielded, max.</li> </ul>	500 m
Number of analog inputs     2       Input ranges     Yes       Input ranges (reted values), voltages     • 0 to +10 V       • 0 to +10 V     Yes       • Input resistance (0 to 10 V)     ≥100k ohms       Cable length     • shielded, max.       • shielded, max.     100 m; twisted and shielded       Analog outputs     0       Number of analog outputs     0       Analog value generation for the inputs     0       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     2 wire sensor       Ves     2 wire sensor       • Linterface     1       Interface type     PROFINET       Physics     Ethernet       Isolated     Yes       Autocrossing     Yes       Autocrossing     Yes       Autocrossing     Yes       Number of ports     1       • Interface types     1       • Number of ports     1       • Interface types     Yes       • Number of ports     1       • Interface types     Yes       • Number of ports     1       • integrated switch     No	<ul> <li>unshielded, max.</li> </ul>	150 m
Number of analog inputs     2       Input ranges     Yes       Input ranges (reted values), voltages     • 0 to +10 V       • 0 to +10 V     Yes       • Input resistance (0 to 10 V)     ≥100k ohms       Cable length     • shielded, max.       • shielded, max.     100 m; twisted and shielded       Analog outputs     0       Number of analog outputs     0       Analog value generation for the inputs     0       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     2 wire sensor       Ves     2 wire sensor       • Linterface     1       Interface type     PROFINET       Physics     Ethernet       Isolated     Yes       Autocrossing     Yes       Autocrossing     Yes       Autocrossing     Yes       Number of ports     1       • Interface types     1       • Number of ports     1       • Interface types     Yes       • Number of ports     1       • Interface types     Yes       • Number of ports     1       • integrated switch     No		
Input ranges       Yes         Input ranges (rated values), voltages       Yes         • 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       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       Conversion time (per channel)         625 µs       Encoders         • 2-wire sensor       Yes         1 Interface       Yes         1 Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         Autonegotiation       Yes         Autoreoptiation       Yes         Number of ports       1         • integrated switch       No         • Interface types       PROFINET IO Controller         • PROFINET IO Controller       Yes </td <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 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       Autonegotiation     Yes       Autoregotiation     Yes       Autocrossing     Yes       • Number of ports     1       • integrated 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         Automogotiation       Yes         Autoerossing       Yes         Interface type       PROFINET         • Number of ports       1         • integrated switch       No         • Interface types       1         • PROFINET IO Controller       Yes		Yes
• 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         Number of 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       Physics         Ethernet       Isolated         Isolated       Yes         automatic detection of transmission rate       Yes         Autonegotiation       Yes         Number of ports       1         • Interface types       File         • Number of ports       1         • Number of ports       1         • Interface types       1         • Number of ports       1         • Interface types       PROFINET         • Number of ports       1 <td></td> <td></td>		
<ul> <li>Input resistance (0 to 10 V)</li> <li>≥100k ohms</li> <li>Cable length</li> <li>• shielded, max.</li> <li>100 m; twisted and shielded</li> <li>Analog outputs</li> <li>0</li> <li>Analog value generation for the inputs</li> <li>Integration and conversion time/resolution per channel</li> <li>• Resolution with overrange (bit including sign), max.</li> <li>• Integration time, parameterizable</li> <li>• Conversion time (per channel)</li> <li>625 µs</li> <li>Encoder</li> <li>Connectable encoders</li> <li>• 2-wire sensor</li> <li>Yes</li> <li>Interface</li> <li>Interface type</li> <li>PROFINET</li> <li>Physics</li> <li>Ethernet</li> <li>Isolated</li> <li>Yes</li> <li>Autonegotiation</li> <li>Yes</li> <li>Autorossing</li> <li>Yes</li> <li>Interface types</li> <li>Number of ports</li> <li>1</li> <li>• integrated switch</li> <li>No</li> <li>FUNCTIONALINE</li> <li>PROFINET IO Controller</li> <li>Yes</li> <li>PROFINET IO Device</li> <li>Yes</li> </ul>		Yes
Cable length       • Shielded, max.       100 m; twisted and shielded         Analog outputs       0         Number of analog outputs       0         Analog value generation for the inputs       0         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 type       PROFINET         Physics       Ethernet         Isolated       Yes         Autorgotation       Yes         Autorgotation       Yes         Interface type       Yes         Autorgotiation       Yes         Autorgotiation       Yes         Interface types       Interface type         • Number of ports       1         • integrated switch       No         Functionality       • PROFINET IO Controller         • PROFINET IO Device       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.         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 μs         Encoder       Connectable encoders         • 2-wire sensor       Yes         1 Interface       PROFINET         Physics       Ethernet         Isolated       Yes         Autonegotiation       Yes         Autonegotiation       Yes         Mumber of ports       1         • Interface type       PROFINET         Physics       Ethernet         Isolated       Yes         Autonegotiation       Yes         Mumber of ports       1         • integrated switch       No         Functionality       PROFINET IO Controller         • 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         • integrate switch       No         Functionality       Yes         • PROFINET IO Controller       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       Autorcossing     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 type       PROFINET         Physics       Ethermet         Isolated       Yes         automatic detection of transmission rate       Yes         Autocrossing       Yes         Interface types       Yes         Autopotiation       Yes         Autopotiation       Yes         Number of ports       1         • Interface types       1         • Number of ports       1         • Interface types       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       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autorogotiation       Yes         Interface types       Yes         Physics       Ethernet         Isolated       Yes         Automogotiation       Yes         Number of ports       1         • integrated switch       No         Functionality       PROFINET IO Controller         • 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       PROFINET         Physics       Ethernet         Isolated       Yes         automatic detection of transmission rate       Yes         Autorogotiation       Yes         Interface types       Yes         Physics       Ethernet         Isolated       Yes         Automogotiation       Yes         Number of ports       1         • integrated switch       No         Functionality       PROFINET IO Controller         • PROFINET IO Device       Yes	Analog value generation for the inputs	
max. integration time, parameterizable integration time, parameterizable iconversion time (per channel) iconversion time (pe		
• Integration time, parameterizableYes 625 μs• Conversion time (per channel)625 μs <b>Encoder</b> Connectable encoders• 2-wire sensorYes1. InterfaceInterface typePROFINETPhysicsEthernetIsolatedYesautomatic detection of transmission rateYesAutoregotiationYesAutoressingYesInterface types• Number of ports1• integrated switchNoFunctionalityYes• PROFINET IO ControllerYes• PROFINET IO DeviceYes	<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       1         • 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       Yes         • PROFINET IO Controller       Yes         • PROFINET IO Device       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 typesYes• 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
<ul> <li>Media redundancy</li> </ul>	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
<ul> <li>Number of IO Devices that can be</li> </ul>	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

## 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

of IO devices and the quantity of configured user data.

PROFIBUS	Yes; CM 1243-5 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	
User-defined websites	Yes
Further protocols	
• MODBUS	Yes
Communication functions	
S7 communication	
<ul> <li>supported</li> </ul>	Yes
• as server	Yes
● as client	Yes
<ul> <li>User data per job, max.</li> </ul>	See online help (S7 communication, user data size)
Web server	
• supported	Yes
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	
● 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	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 interface	Up to 4 with SB 1222	
PID controller	Yes	
Number of alarm inputs	4	
Detential concretion		
Potential separation Potential separation digital inputs		
Potential separation digital inputs	500V AC for 1 minute	
	1	
between the channels, in groups of	1	
Potential separation digital outputs	Polovo	
Potential separation digital outputs	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		
<ul> <li>on the supply lines acc. to IEC 61000-4-5</li> </ul>	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	
Emission of radio interference acc. to EN 55 011		
• Limit class A, for use in industrial areas	Yes; Group 1	

• Limit class B, for use in residential areas

Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011

Degree and class of protection	
Degree of protection acc. to EN 60529	
• IP20	Yes
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	
Free fall	
● Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
● min.	-20 °C
• max.	60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical
<ul> <li>horizontal installation, min.</li> </ul>	-20 °C
<ul> <li>horizontal installation, max.</li> </ul>	60 °C
<ul> <li>vertical installation, min.</li> </ul>	-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
<ul> <li>Storage/transport, max.</li> </ul>	1 080 hPa
Altitude during operation relating to sea level	
<ul> <li>Installation altitude, min.</li> </ul>	-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
• Operation, tested according to IEC 60068-2-6	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	110 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	455 g
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